Characterization and numerical simulation of liquid refrigerant flow emerging from a flooded evaporator tube bundle

by

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Appendix C: Rotated triangular bundle with R-134a

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DOCTOR OF PHILOSOPHY

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C.5.3.1 Matched Only Droplets for .LB Image 426
C.5.3.1 Depth K 427
C.5.3.1 All Droplets for .LA Image 428
C.5.3.1 All Droplets for .LB Image 429
C.5.3.1 Matched Only Droplets for .LA Image 430
C.5.3.1 Matched Only Droplets for .LB Image 431
C.5.3.1 Depth L 432
C.5.3.1 All Droplets for .LA Image 433
C.5.3.1 All Droplets for .LB Image 434
C.5.3.1 Matched Only Droplets for .LA Image 435
C.5.3.1 Matched Only Droplets for .LB Image 436
C.5.3.2 Lens 50mm Mag 0_13x 437
C.5.3.2 Depth J 437
C.5.3.2 All Droplets for .LA Image 438
C.5.3.2 All Droplets for .LB Image 439
C.5.3.2 Matched Only Droplets for .LA Image 440
C.5.3.2 Matched Only Droplets for .LB Image 441

C.5.3.2 Depth K 442
C.5.3.2 All Droplets for .LA Image 443
C.5.3.2 All Droplets for .LB Image 444
C.5.3.2 Matched Only Droplets for .LA Image 445
C.5.3.2 Matched Only Droplets for .LB Image 446
C.5.3.2 Depth L 447
C.5.3.2 All Droplets for .LA Image 448
C.5.3.2 All Droplets for .LB Image 449
C.5.3.2 Matched Only Droplets for .LA Image 450
C.5.3.2 Matched Only Droplets for .LB Image 451
C.6 - 1556 R-134a 55F 6800Btu 15000Lb Rot Tri 452
C.6.1 Liquid Level 1 452
C.6.1.1 Lens 100mm Mag 0_29x 452
C.6.1.1 Depth J 452
C.6.1.1 All Droplets for .LA Image 453
C.6.1.1 All Droplets for .LB Image 454
C.6.1.1 Matched Only Droplets for .LA Image 455
C.6.1.1 Matched Only Droplets for .LB Image 456
C.6.1.1 Depth K 457
C.6.1.1 All Droplets for .LA Image 458
C.6.1.1 All Droplets for .LB Image 459
C.6.1.1 Matched Only Droplets for .LA Image 460
C.6.1.1 Matched Only Droplets for .LB Image 461
C.6.1.1 Depth L 462
C.6.1.1 All Droplets for .LA Image 463
C.6.1.1 All Droplets for .LB Image 464
C.6.1.1 Matched Only Droplets for .LA Image 465
C.6.1.1 Matched Only Droplets for .LB Image 466
C.6.1.2 Lens 50mm Mag 0_13x 467

C.6.1.2 Depth J 467
C.6.1.2 All Droplets for .LA Image 468
C.6.1.2 All Droplets for .LB Image 469
C.6.1.2 Matched Only Droplets for .LA Image 470
C.6.1.2 Matched Only Droplets for .LB Image 471
C.6.1.2 Depth K 472
C.6.1.2 All Droplets for .LA Image 473
C.6.1.2 All Droplets for .LB Image 474
C.6.1.2 Matched Only Droplets for .LA Image 475
C.6.1.2 Matched Only Droplets for .LB Image 476
C.6.1.2 Depth L 477
C.6.1.2 All Droplets for .LA Image 478
C.6.1.2 All Droplets for .LB Image 479
C.6.1.2 Matched Only Droplets for .LA Image 480
C.6.1.2 Matched Only Droplets for .LB Image 481
C.6.2 Liquid Level 2 482
C.6.2.1 Lens 100mm Mag 0_29x 482
C.6.2.1 Depth J 482
C.6.2.1 All Droplets for .LA Image 483
C.6.2.1 All Droplets for .LB Image 484
C.6.2.1 Matched Only Droplets for .LA Image 485
C.6.2.1 Matched Only Droplets for .LB Image 486
C.6.2.1 Depth K 487
C.6.2.1 All Droplets for .LA Image 488
C.6.2.1 All Droplets for .LB Image 489
C.6.2.1 Matched Only Droplets for .LA Image 490
C.6.2.1 Matched Only Droplets for .LB Image 491
C.6.2.1 Depth L 492
C.6.2.1 All Droplets for .LA Image 493

C.6.2.1 All Droplets for .LB Image 494
C.6.2.1 Matched Only Droplets for .LA Image 495
C.6.2.1 Matched Only Droplets for .LB Image 496
C.6.2.2 Lens 50mm Mag 0_13x 497
C.6.2.2 Depth J 497
C.6.2.2 All Droplets for .LA Image 498
C.6.2.2 All Droplets for .LB Image 499
C.6.2.2 Matched Only Droplets for .LA Image 500
C.6.2.2 Matched Only Droplets for .LB Image 501
C.6.2.2 Depth K 502
C.6.2.2 All Droplets for .LA Image 503
C.6.2.2 All Droplets for .LB Image 504
C.6.2.2 Matched Only Droplets for .LA Image 505
C.6.2.2 Matched Only Droplets for .LB Image 506
C.6.2.2 Depth L 507
C.6.2.2 All Droplets for .LA Image 508
C.6.2.2 All Droplets for .LB Image 509
C.6.2.2 Matched Only Droplets for .LA Image 510
C.6.2.2 Matched Only Droplets for .LB Image 511
C.6.3 Liquid Level 3 512
C.6.3.1 Lens 100mm Mag 0_29x 512
C.6.3.1 Depth J 512
C.6.3.1 All Droplets for .LA Image 513
C.6.3.1 All Droplets for .LB Image 514
C.6.3.1 Matched Only Droplets for .LA Image 515
C.6.3.1 Matched Only Droplets for .LB Image 516
C.6.3.1 Depth K 517
C.6.3.1 All Droplets for .LA Image 518
C.6.3.1 All Droplets for .LB Image 519

C.6.3.1 Matched Only Droplets for .LA Image 520
C.6.3.1 Matched Only Droplets for .LB Image 521
C.6.3.1 Depth L 522
C.6.3.1 All Droplets for .LA Image 523
C.6.3.1 All Droplets for .LB Image 524
C.6.3.1 Matched Only Droplets for .LA Image 525
C.6.3.1 Matched Only Droplets for .LB Image 526
C.6.3.2 Lens 50mm Mag 0_13x 527
C.6.3.2 Depth J 527
C.6.3.2 All Droplets for .LA Image 528
C.6.3.2 All Droplets for .LB Image 529
C.6.3.2 Matched Only Droplets for .LA Image 530
C.6.3.2 Matched Only Droplets for .LB Image 531
C.6.3.2 Depth K 532
C.6.3.2 All Droplets for .LA Image 533
C.6.3.2 All Droplets for .LB Image 534
C.6.3.2 Matched Only Droplets for .LA Image 535
C.6.3.2 Matched Only Droplets for .LB Image 536
C.6.3.2 Depth L 537
C.6.3.2 All Droplets for .LA Image 538
C.6.3.2 All Droplets for .LB Image 539
C.6.3.2 Matched Only Droplets for .LA Image 540
C.6.3.2 Matched Only Droplets for .LB Image 541
C.7 - 1556 R-134a 55F 5000Btu 30000Lb Rot Tri 543
C.7.1 Liquid Level 1 543
C.7.1.1 Lens 100mm Mag 0_29x 543
C.7.1.1 Depth J 543
C.7.1.1 All Droplets for .LA Image 545
C.7.1.1 All Droplets for .LB Image 546

C.7.1.1 Matched Only Droplets for .LA Image 547
C.7.1.1 Matched Only Droplets for .LB Image 548
C.7.1.1 Depth K 549
C.7.1.1 All Droplets for .LA Image 550
C.7.1.1 All Droplets for .LB Image 551
C.7.1.1 Matched Only Droplets for .LA Image 552
C.7.1.1 Matched Only Droplets for .LB Image 553
C.7.1.1 Depth L 554
C.7.1.1 All Droplets for .LA Image 555
C.7.1.1 All Droplets for .LB Image 556
C.7.1.1 Matched Only Droplets for .LA Image 557
C.7.1.1 Matched Only Droplets for .LB Image 558
C.7.1.2 Lens 50mm Mag 0_13x 559
C.7.1.2 Depth J 559
C.7.1.2 All Droplets for .LA Image 560
C.7.1.2 All Droplets for .LB Image 561
C.7.1.2 Matched Only Droplets for .LA Image 562
C.7.1.2 Matched Only Droplets for .LB Image 563
C.7.1.2 Depth K 564
C.7.1.2 All Droplets for .LA Image 565
C.7.1.2 All Droplets for .LB Image 566
C.7.1.2 Matched Only Droplets for .LA Image 567
C.7.1.2 Matched Only Droplets for .LB Image 568
C.7.1.2 Depth L 569
C.7.1.2 All Droplets for .LA Image 570
C.7.1.2 All Droplets for .LB Image 571
C.7.1.2 Matched Only Droplets for .LA Image 572
C.7.1.2 Matched Only Droplets for .LB Image 573
C.7.2 Liquid Level 2 574

C.7.2.1 Lens 50mm Mag 0_13x 574
C.7.2.1 Depth J 574
C.7.2.1 All Droplets for .LA Image 575
C.7.2.1 All Droplets for .LB Image 576
C.7.2.1 Matched Only Droplets for .LA Image 577
C.7.2.1 Matched Only Droplets for .LB Image 578
C.7.2.1 Depth K 579
C.7.2.1 All Droplets for .LA Image 580
C.7.2.1 All Droplets for .LB Image 581
C.7.2.1 Matched Only Droplets for .LA Image 582
C.7.2.1 Matched Only Droplets for .LB Image 583
C.7.2.1 Depth L 584
C.7.2.1 All Droplets for .LA Image 585
C.7.2.1 All Droplets for .LB Image 586
C.7.2.1 Matched Only Droplets for .LA Image 587
C.7.2.1 Matched Only Droplets for .LB Image 588
C.7.3 Liquid Level 3 589
C.7.3.1 Lens 50mm Mag 0_13x 589
C.7.3.1 Depth J 589
C.7.3.1 All Droplets for .LA Image 590
C.7.3.1 All Droplets for .LB Image 591
C.7.3.1 Matched Only Droplets for .LA Image 592
C.7.3.1 Matched Only Droplets for .LB Image 593
C.7.3.1 Depth K 594
C.7.3.1 All Droplets for .LA Image 595
C.7.3.1 All Droplets for .LB Image 596
C.7.3.1 Matched Only Droplets for .LA Image 597
C.7.3.1 Matched Only Droplets for .LB Image 598
C.7.3.1 Depth L 599

C.7.3.1 All Droplets for .LA Image 600
C.7.3.1 All Droplets for .LB Image 601
C.7.3.1 Matched Only Droplets for .LA Image 602
C.7.3.1 Matched Only Droplets for .LB Image 603
C.8 - 1556 R-134a 55F 10000Btu 30000Lb Rot Tri 605
C.8.1 Liquid Level 1 605
C.8.1.1 Lens 100mm Mag 0_29x 605
C.8.1.1 Depth J 605
C.8.1.1 All Droplets for .LA Image 606
C.8.1.1 All Droplets for .LB Image 607
C.8.1.1 Matched Only Droplets for .LA Image 608
C.8.1.1 Matched Only Droplets for .LB Image 609
C.8.1.1 Depth K 610
C.8.1.1 All Droplets for .LA Image 611
C.8.1.1 All Droplets for .LB Image 612
C.8.1.1 Matched Only Droplets for .LA Image 613
C.8.1.1 Matched Only Droplets for .LB Image 614
C.8.1.1 Depth L 615
C.8.1.1 All Droplets for .LA Image 616
C.8.1.1 All Droplets for .LB Image 617
C.8.1.1 Matched Only Droplets for .LA Image 618
C.8.1.1 Matched Only Droplets for .LB Image 619
C.8.1.2 Lens 50mm Mag 0_13x 620
C.8.1.2 Depth J 620
C.8.1.2 All Droplets for .LA Image 621
C.8.1.2 All Droplets for .LB Image 622
C.8.1.2 Matched Only Droplets for .LA Image 623
C.8.1.2 Matched Only Droplets for .LB Image 624
C.8.1.2 Depth K 625

C.8.1.2 All Droplets for .LA Image 626
C.8.1.2 All Droplets for .LB Image 627
C.8.1.2 Matched Only Droplets for .LA Image 628
C.8.1.2 Matched Only Droplets for .LB Image 629
C.8.1.2 Depth L 630
C.8.1.2 All Droplets for .LA Image 631
C.8.1.2 All Droplets for .LB Image 632
C.8.1.2 Matched Only Droplets for .LA Image 633
C.8.1.2 Matched Only Droplets for .LB Image 634
C.8.2 Liquid Level 2 635
C.8.2.1 Lens 100mm Mag 0_29x 635
C.8.2.1 Depth J 635
C.8.2.1 All Droplets for .LA Image 636
C.8.2.1 All Droplets for .LB Image 637
C.8.2.1 Matched Only Droplets for .LA Image 638
C.8.2.1 Matched Only Droplets for .LB Image 639
C.8.2.1 Depth K 640
C.8.2.1 All Droplets for .LA Image 641
C.8.2.1 All Droplets for .LB Image 642
C.8.2.1 Matched Only Droplets for .LA Image 643
C.8.2.1 Matched Only Droplets for .LB Image 644
C.8.2.1 Depth L 645
C.8.2.1 All Droplets for .LA Image 646
C.8.2.1 All Droplets for .LB Image 647
C.8.2.1 Matched Only Droplets for .LA Image 648
C.8.2.1 Matched Only Droplets for .LB Image 649
C.8.2.2 Lens 50mm Mag 0_13x 650
C.8.2.2 Depth J 650
C.8.2.2 All Droplets for .LA Image 651

C.8.2.2 All Droplets for .LB Image 652
C.8.2.2 Matched Only Droplets for .LA Image 653
C.8.2.2 Matched Only Droplets for .LB Image 654
C.8.2.2 Depth K 655
C.8.2.2 All Droplets for .LA Image 656
C.8.2.2 All Droplets for .LB Image 657
C.8.2.2 Matched Only Droplets for .LA Image 658
C.8.2.2 Matched Only Droplets for .LB Image 659
C.8.2.2 Depth L 660
C.8.2.2 All Droplets for .LA Image 661
C.8.2.2 All Droplets for .LB Image 662
C.8.2.2 Matched Only Droplets for .LA Image 663
C.8.2.2 Matched Only Droplets for .LB Image 664
C.8.3 Liquid Level 3 665
C.8.3.1 Lens 100mm Mag 0_29x 665
C.8.3.1 Depth J 665
C.8.3.1 All Droplets for .LA Image 666
C.8.3.1 All Droplets for .LB Image 667
C.8.3.1 Matched Only Droplets for .LA Image 668
C.8.3.1 Matched Only Droplets for .LB Image 669
C.8.3.1 Depth K 670
C.8.3.1 All Droplets for .LA Image 671
C.8.3.1 All Droplets for .LB Image 672
C.8.3.1 Matched Only Droplets for .LA Image 673
C.8.3.1 Matched Only Droplets for .LB Image 674
C.8.3.1 Depth L 675
C.8.3.1 All Droplets for .LA Image 676
C.8.3.1 All Droplets for .LB Image 677
C.8.3.1 Matched Only Droplets for .LA Image 678

C.8.3.1 Matched Only Droplets for .LB Image 679
C.8.3.2 Lens 50mm Mag 0_13x 680
C.8.3.2 Depth J 680
C.8.3.2 All Droplets for .LA Image 681
C.8.3.2 All Droplets for .LB Image 682
C.8.3.2 Matched Only Droplets for .LA Image 683
C.8.3.2 Matched Only Droplets for .LB Image 684
C.8.3.2 Depth K 685
C.8.3.2 All Droplets for .LA Image 686
C.8.3.2 All Droplets for .LB Image 687
C.8.3.2 Matched Only Droplets for .LA Image 688
C.8.3.2 Matched Only Droplets for .LB Image 689
C.8.3.2 Depth L 690
C.8.3.2 All Droplets for .LA Image 691
C.8.3.2 All Droplets for .LB Image 692
C.8.3.2 Matched Only Droplets for .LA Image 693
C.8.3.2 Matched Only Droplets for .LB Image 694

C.1 - 1556 R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11548 / 1.455
Ref Mass Flow (lb/hr) / (kg/s)	1525 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14845 / 20.133
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4989 / 15.74
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.0 / 4.43
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.2 / 4.56
Total Bundle Q (Btu/hr) / (kW)	138847 / 40.69
Total Bundle & Preboiler Q (Btu/hr) / (kW)	138847 / 40.69
Top Two Rows HTC Ratio	1.051
Bundle Inlet Quality	-0.10
Bundle Exit Quality	0.99

Table C. 1: Thermal Conditions

C.1.1.1 Lens 100mm Mag 0_29x

C.1.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	39.57	40.04	76.1	4002	473.4	548.7	76.1	4000	487.1	558.0
40-60mm	142.71	144.68	76.1	4018	471.5	498.7	76.1	4022	471.0	502.4
60-80mm	155.12	154.78	76.1	3857	406.6	406.5	76.1	4001	405.6	403.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	338.49	340.96	76.1	4018	441.9	466.4	76.1	4022	443.1	468.9
			Height A (mm)				Height B (mm)			
Highest Particle			79.9578				79.9680			
Lowest Particle			32.0025				32.0025			

Table C. 2: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	19.07	76.1	3824	589.9	571.0	76.1	3904	575.1	566.5	-1.250	1.270	-0.050	0.320	-1.270	1.270	-0.100	0.400
40-60mm	90.0	81.4	3978	539.0	502.1	76.1	4022	533.8	503.5	-1.280	1.280	-0.070	0.260	-1.270	1.280	-0.030	0.400
60-80mm	110.65	81.4	3857	454.8	415.6	76.1	4001	447.5	408.7	-1.270	1.270	-0.070	0.210	-1.280	1.280	0.020	0.360
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	219.72	76.1	3978	501.0	470.0	76.1	4022	493.9	467.1	-1.280	1.280	-0.070	0.250	-1.280	1.280	-0.010	0.380

Table C. 3: Matched Droplet Info

C.1.1.1 All Droplets for .LA Image

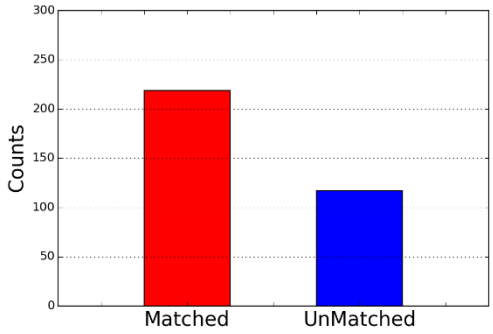


Figure C. 1: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

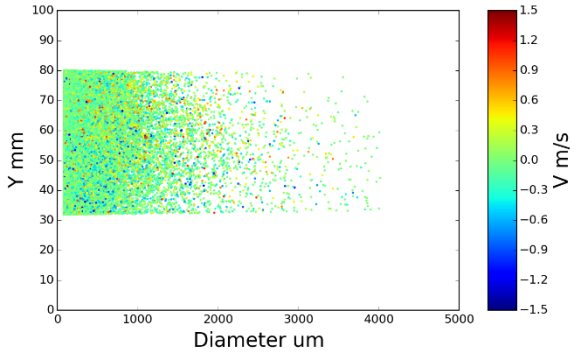


Figure C. 4: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

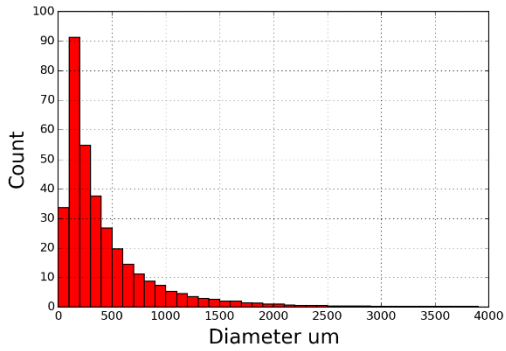


Figure C. 2: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

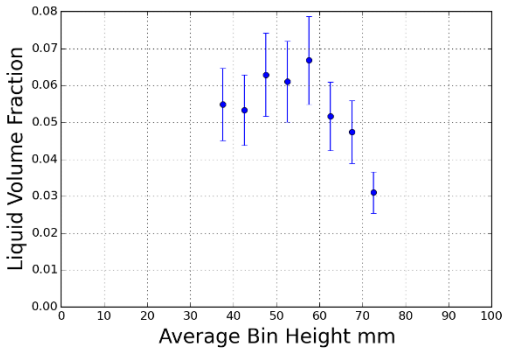


Figure C. 5: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

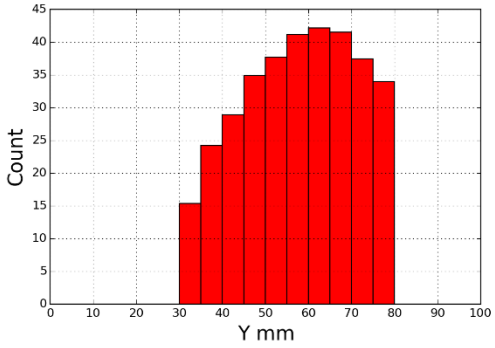


Figure C. 3: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 All Droplets for .LB Image

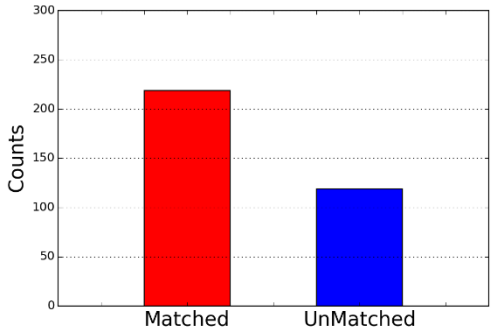


Figure C. 6: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

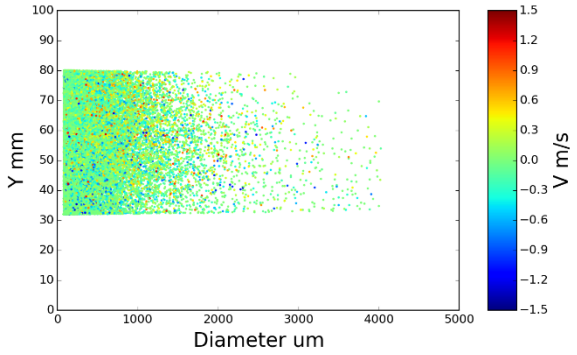


Figure C. 9: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

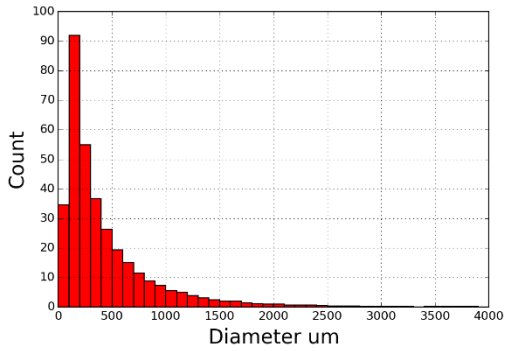


Figure C. 7: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

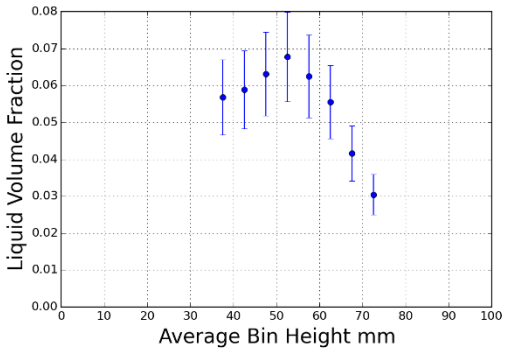


Figure C. 10: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

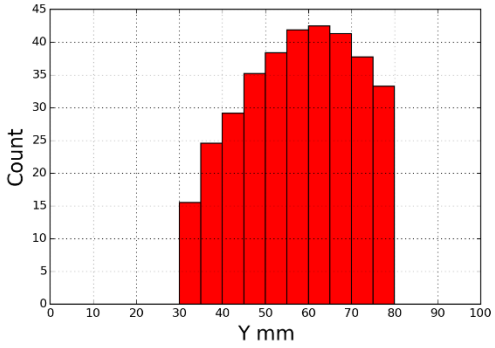


Figure C. 8: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LA Image

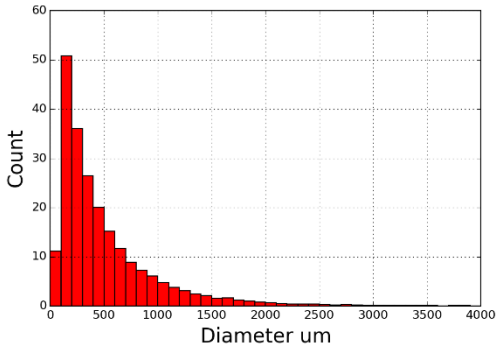


Figure C. 11: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

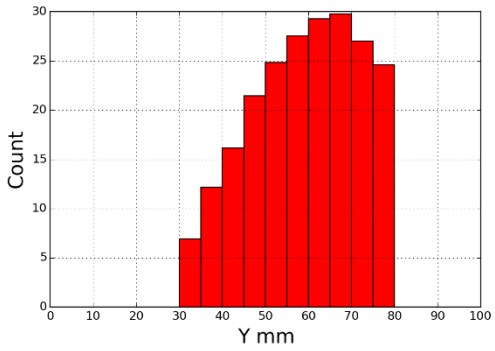


Figure C. 12: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

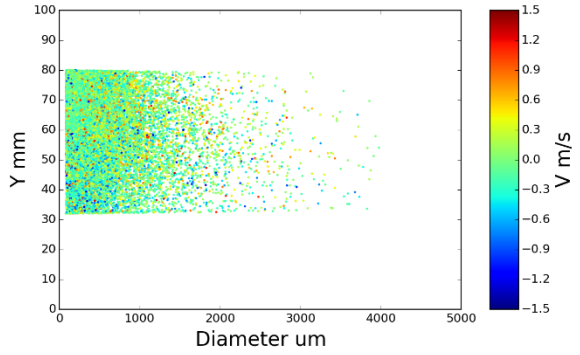


Figure C. 13: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

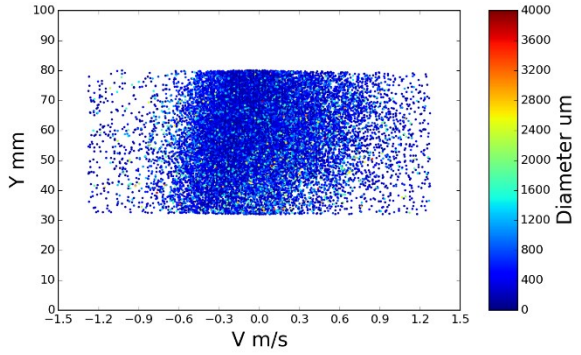


Figure C. 14: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

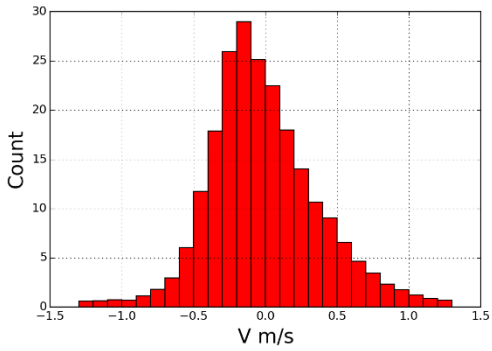


Figure C. 15: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LB Image

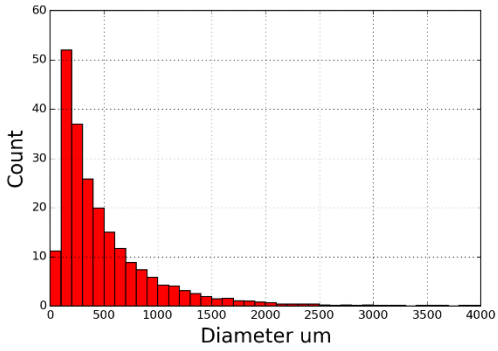


Figure C. 16: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

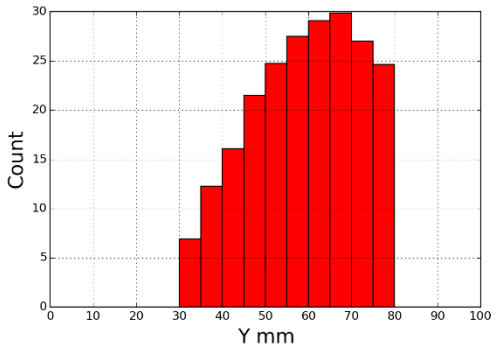


Figure C. 17: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

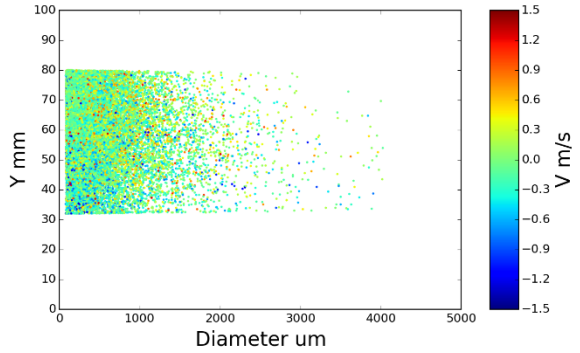


Figure C. 18: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

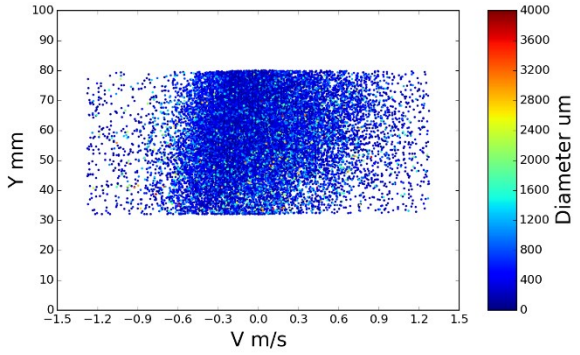


Figure C. 19: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

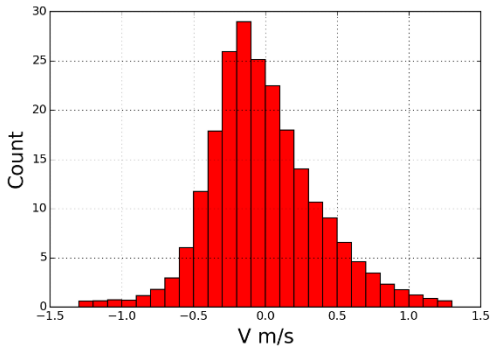


Figure C. 20: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	34.94	35.61	76.1	4023	539.1	570.3	76.1	4027	536.0	575.7
40-60mm	148.96	149.54	76.1	4021	499.8	518.9	76.1	4013	494.6	514.6
60-80mm	157.44	157.93	76.1	3869	417.4	419.4	76.1	3992	415.2	419.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	342.46	343.83	76.1	4023	465.8	483.8	76.1	4027	462.3	482.7
			Height A (mm)				Height B (mm)			
Highest Particle			79.9680				79.9587			
Lowest Particle			32.0025				32.0025			

Table C. 4: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	16.08	76.1	3756	670.9	572.7	76.1	3865	660.2	577.4	-1.260	1.260	-0.050	0.310	-1.270	1.250	-0.030	0.430
40-60mm	91.98	81.4	4021	566.8	515.1	76.1	4010	558.2	515.8	-1.270	1.260	-0.060	0.250	-1.280	1.280	0.030	0.400
60-80mm	113.82	81.4	3730	470.6	434.1	81.4	3887	462.3	428.0	-1.270	1.270	-0.080	0.210	-1.280	1.270	0.030	0.340
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	221.88	76.1	4021	525.0	483.9	76.1	4010	516.3	481.8	-1.270	1.270	-0.070	0.240	-1.280	1.280	0.030	0.370

Table C. 5: Matched Droplet Info

C.1.1.1 All Droplets for .LA Image

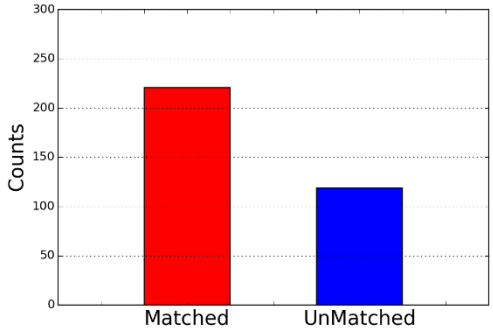


Figure C. 21: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

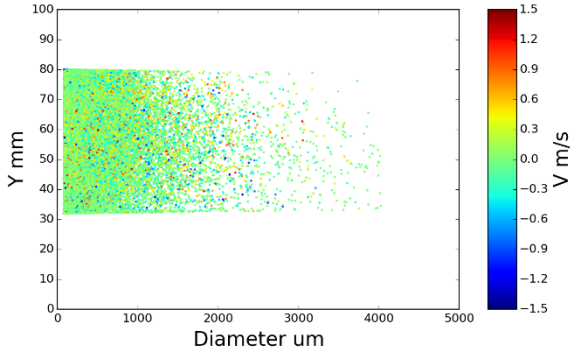


Figure C. 24: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

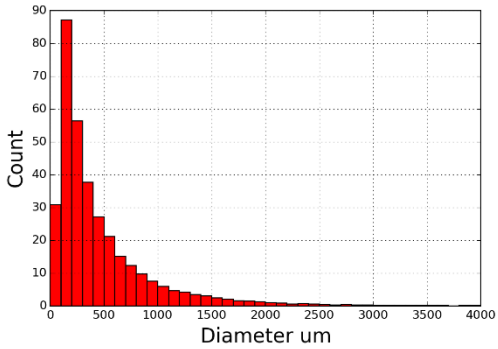


Figure C. 22: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

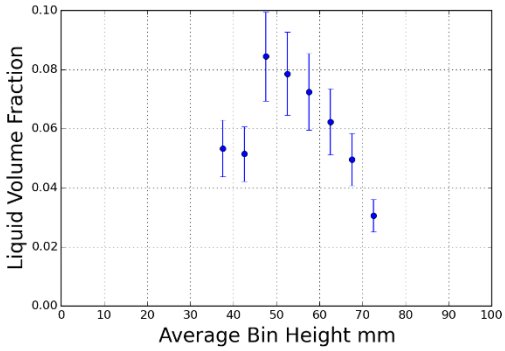


Figure C. 25: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

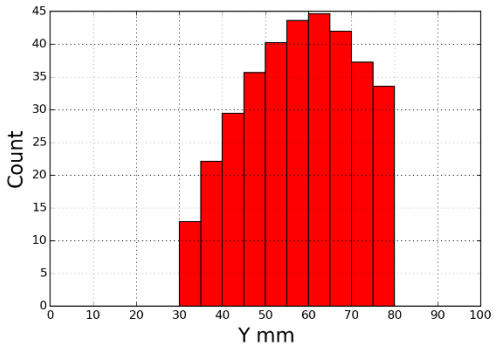


Figure C. 23: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 All Droplets for .LB Image

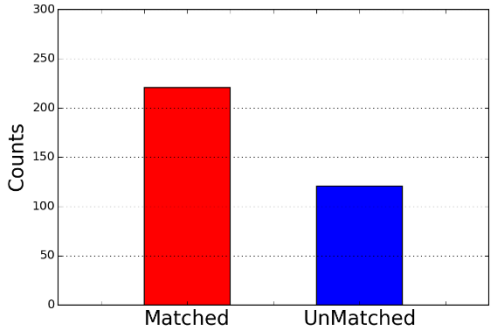


Figure C. 26: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

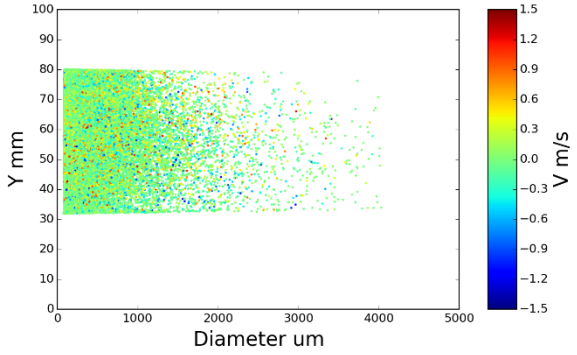


Figure C. 29: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

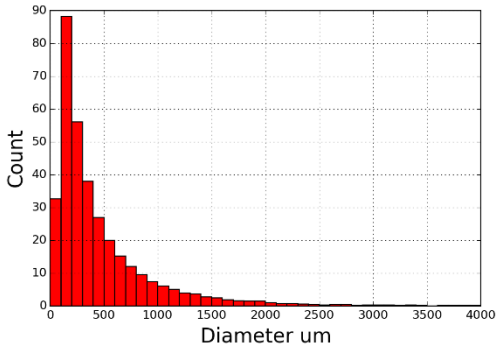


Figure C. 27: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

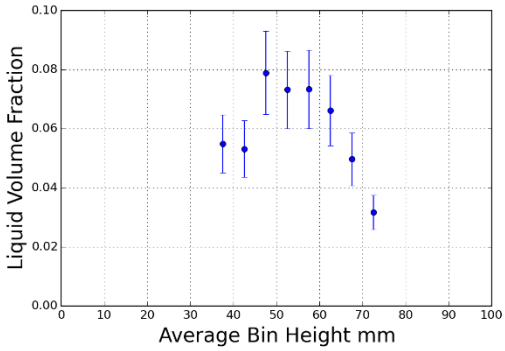


Figure C. 30: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

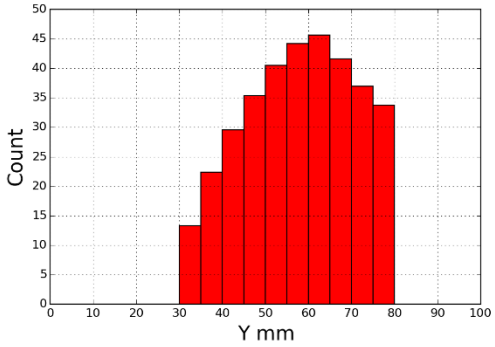


Figure C. 28: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LA Image

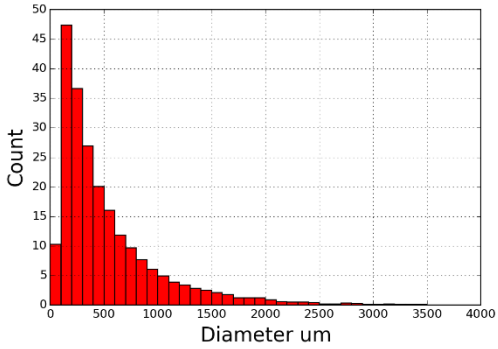


Figure C. 31: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

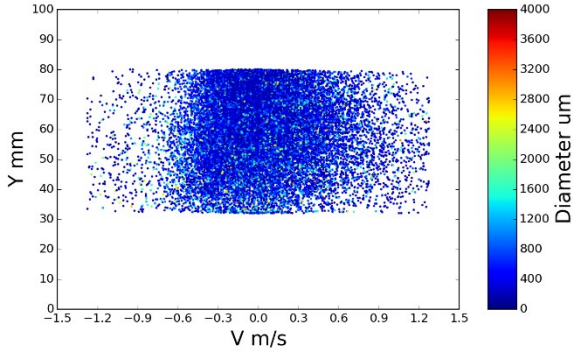


Figure C. 34: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

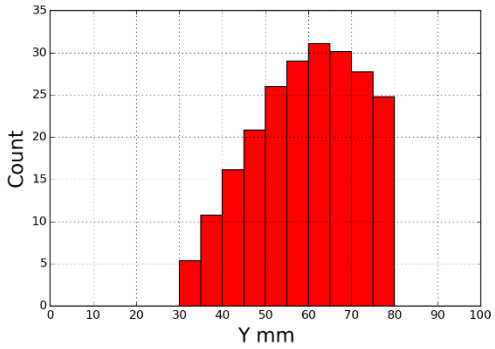


Figure C. 32: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

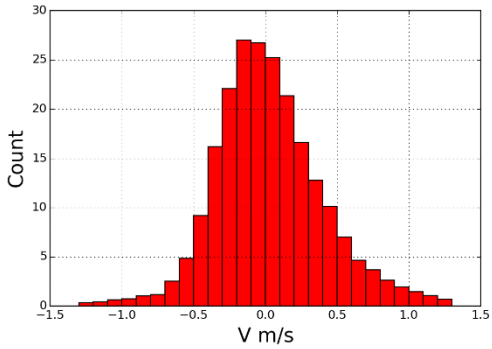


Figure C. 35: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

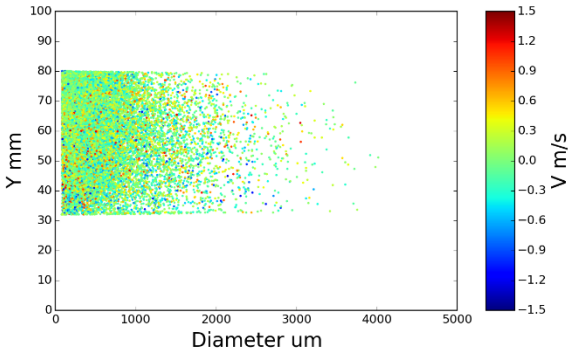


Figure C. 33: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LB Image

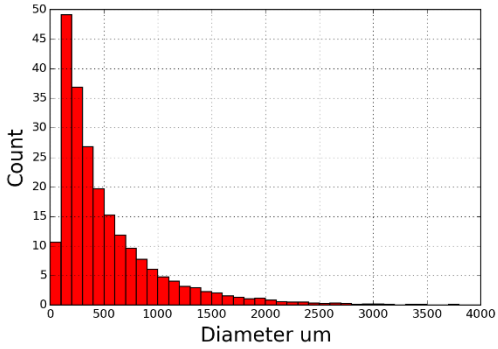


Figure C. 36: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

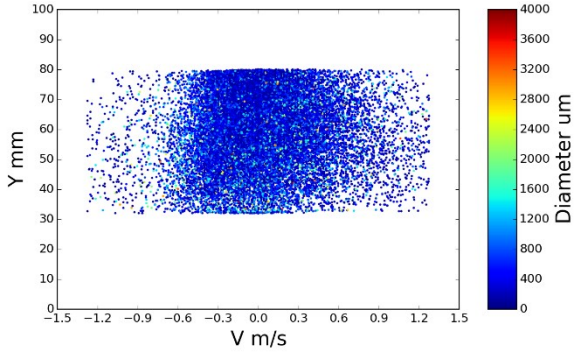


Figure C. 39: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

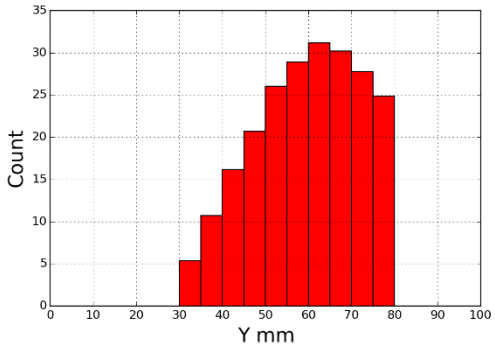


Figure C. 37: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

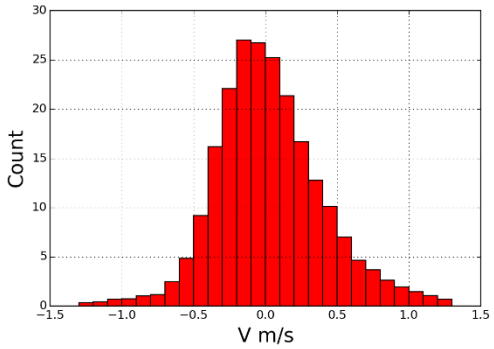


Figure C. 40: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

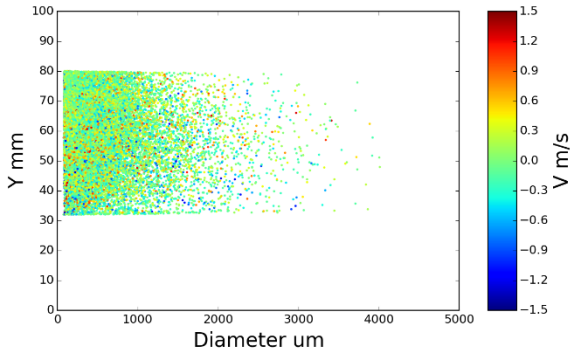


Figure C. 38: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	27.91	28.79	76.1	3926	584.2	608.0	76.1	3999	582.1	624.3
40-60mm	124.95	124.83	76.1	4020	513.6	552.7	76.1	4003	514.5	556.8
60-80mm	140.86	143.04	76.1	4026	433.5	448.2	76.1	4002	426.8	444.5
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	294.51	297.43	76.1	4026	481.9	513.8	76.1	4003	478.8	516.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.9562				79.9589			
Lowest Particle			32.0025				32.0025			

Table C. 6: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	11.97	81.4	3926	778.4	656.3	76.1	3958	768.0	661.7	-1.260	1.230	-0.070	0.310	-1.270	1.260	0.040	0.440
40-60mm	75.0	81.4	3899	596.6	566.3	76.1	3974	588.5	569.8	-1.270	1.270	-0.070	0.260	-1.270	1.270	0.030	0.410
60-80mm	101.73	81.4	3688	480.3	447.2	76.1	3809	473.9	444.5	-1.270	1.280	-0.060	0.210	-1.260	1.280	0.060	0.350
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	188.7	81.4	3926	545.4	519.0	76.1	3974	538.0	519.5	-1.270	1.280	-0.070	0.240	-1.270	1.280	0.040	0.380

Table C. 7: Matched Droplet Info

C.1.1.1 All Droplets for .LA Image

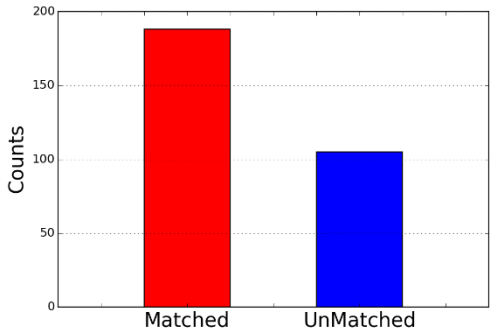


Figure C. 41: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

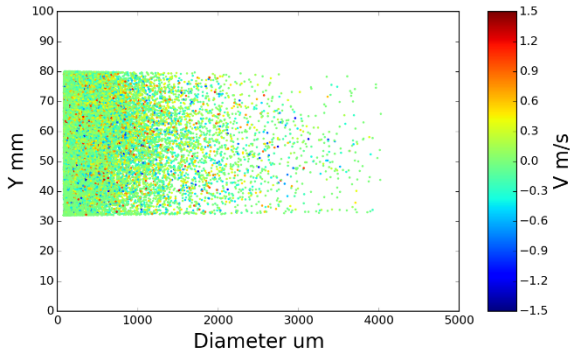


Figure C. 44: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

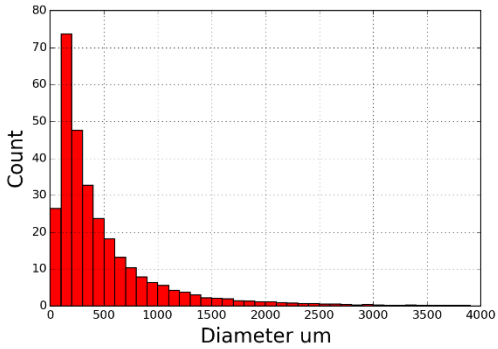


Figure C. 42: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

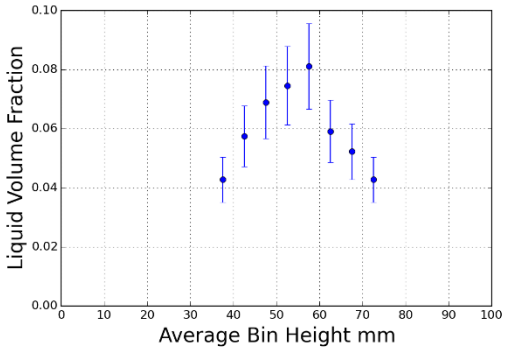


Figure C. 45: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

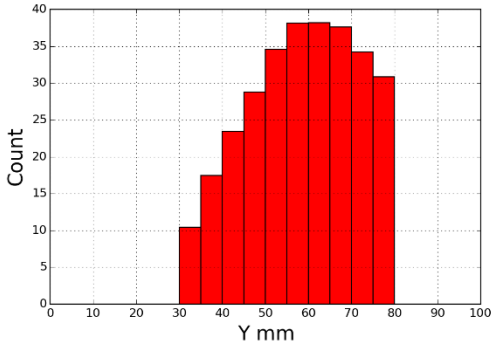


Figure C. 43: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 All Droplets for .LB Image

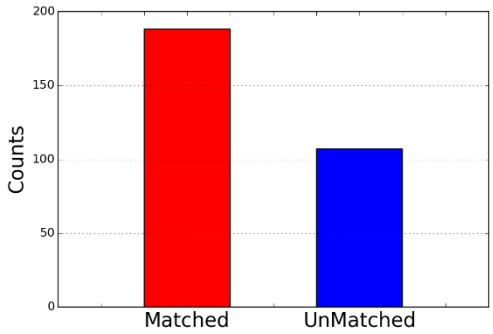


Figure C. 46: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

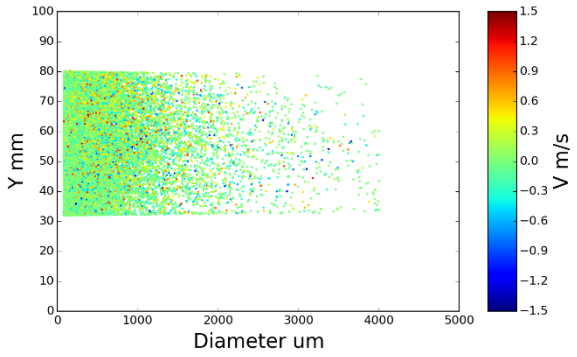


Figure C. 49: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

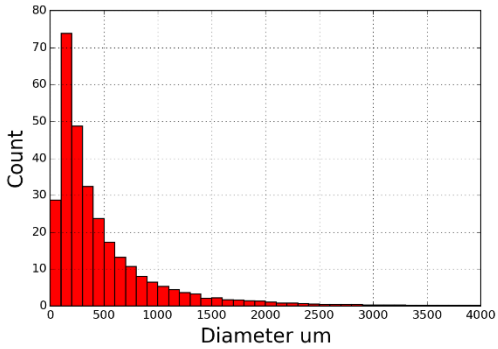


Figure C. 47: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

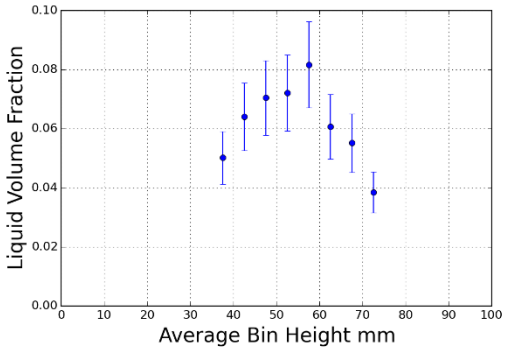


Figure C. 50: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

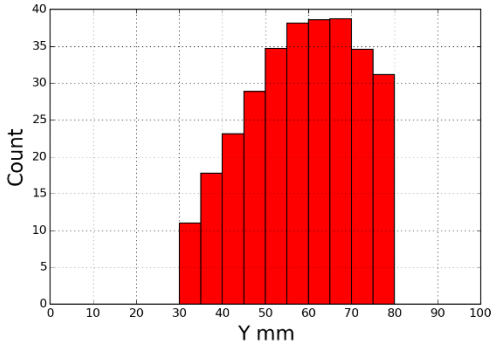


Figure C. 48: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LA Image

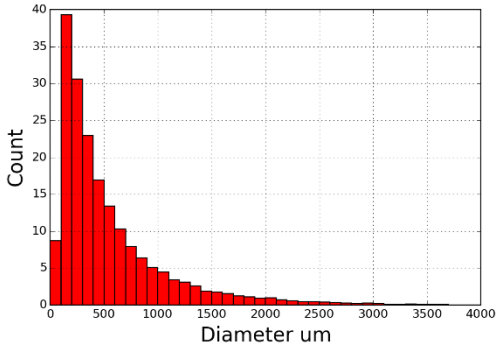


Figure C. 51: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

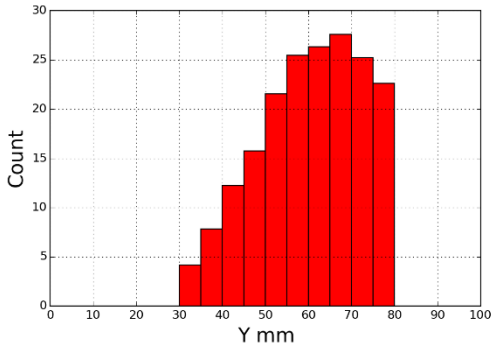


Figure C. 52: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

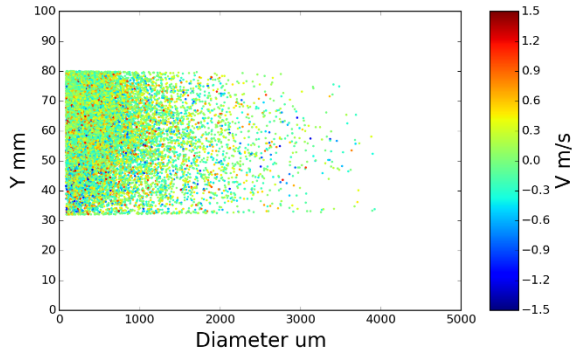


Figure C. 53: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

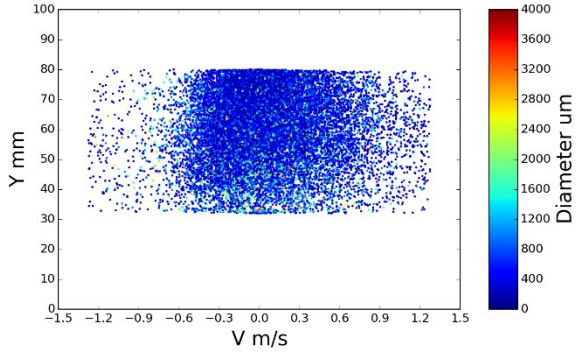


Figure C. 54: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

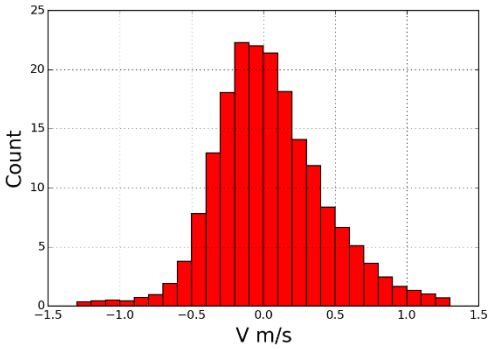


Figure C. 55: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.1 Matched Only Droplets for .LB Image

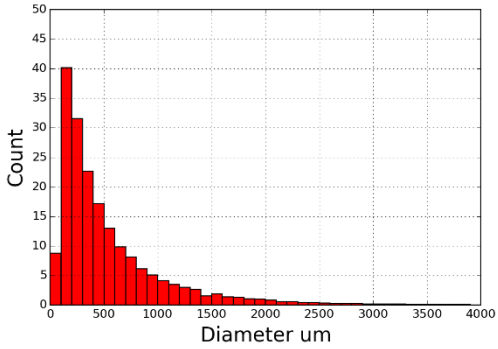


Figure C. 56: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

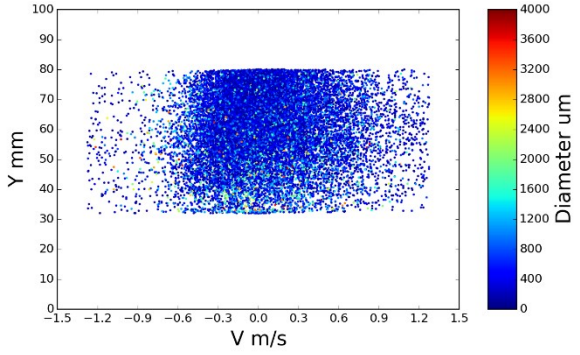


Figure C. 59: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

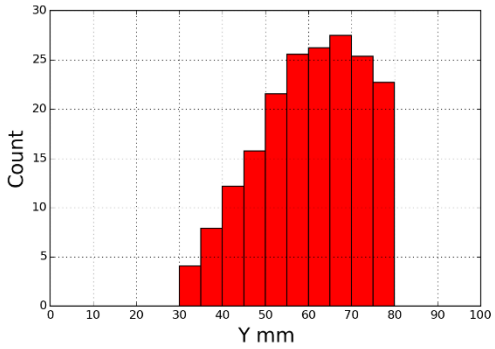


Figure C. 57: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

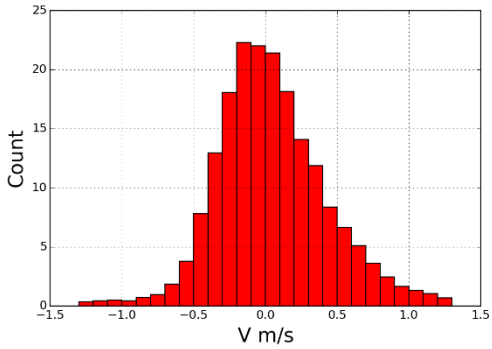


Figure C. 60: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

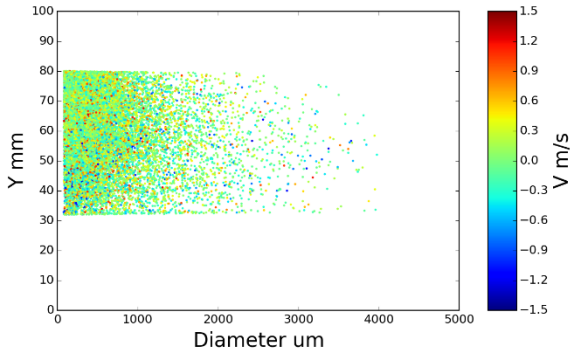


Figure C. 58: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Lens 50mm Mag 0_13x

C.1.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	22.67	22.44	182.2	3959	707.5	615.4	170.4	3962	705.7	619.7
40-60mm	80.82	80.28	170.4	3952	672.8	551.6	170.4	3993	682.2	567.6
60-80mm	93.57	92.19	170.4	3959	629.9	506.8	182.2	3994	628.6	506.7
80-100mm	57.95	58.22	170.4	3926	548.6	385.7	170.4	3753	540.3	375.9
All	255.24	253.35	170.4	3959	631.6	510.6	170.4	3994	631.8	515.1
			Height A (mm)				Height B (mm)			
Highest Particle			100.0353				100.0612			
Lowest Particle			30.1649				30.1382			

Table C. 8: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	9.49	182.2	3691	805.0	607.7	182.2	3962	785.7	610.6	-1.200	1.220	-0.050	0.420	-1.210	1.220	-0.130	0.520
40-60mm	44.91	182.2	3633	739.8	547.0	182.2	3993	725.0	552.6	-1.220	1.220	-0.070	0.360	-1.220	1.220	-0.110	0.460
60-80mm	59.08	182.2	3828	679.6	501.2	182.2	3994	671.1	506.3	-1.220	1.220	-0.080	0.330	-1.220	1.220	-0.060	0.440
80-100mm	39.46	182.2	3522	597.7	393.7	182.2	3665	584.3	378.6	-1.220	1.220	-0.100	0.300	-1.220	1.220	-0.000	0.390
All	153.02	182.2	3828	683.7	501.5	182.2	3994	671.7	502.6	-1.220	1.220	-0.080	0.340	-1.220	1.220	-0.060	0.440

Table C. 9: Matched Droplet Info

C.1.1.2 All Droplets for .LA Image

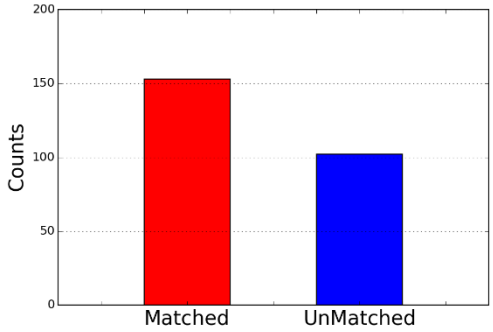


Figure C. 61: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

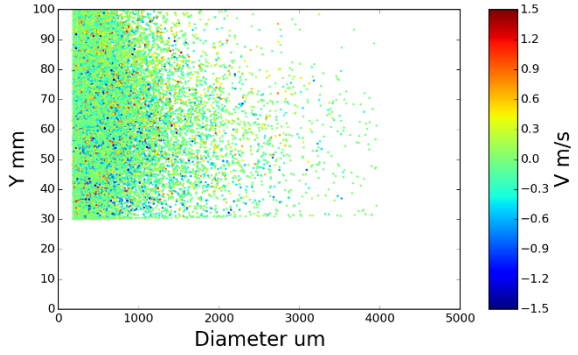


Figure C. 64: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

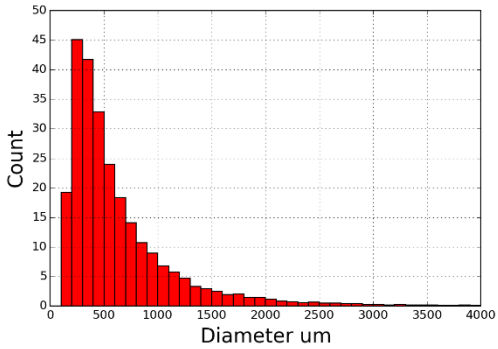


Figure C. 62: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

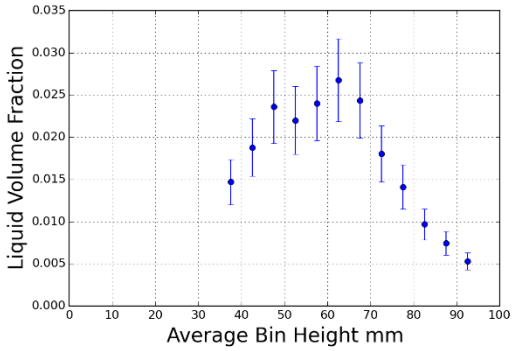


Figure C. 65: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

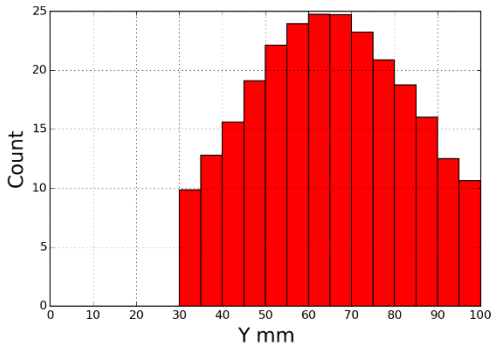


Figure C. 63: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 All Droplets for .LB Image

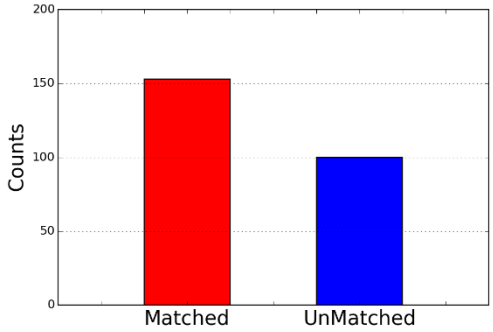


Figure C. 66: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

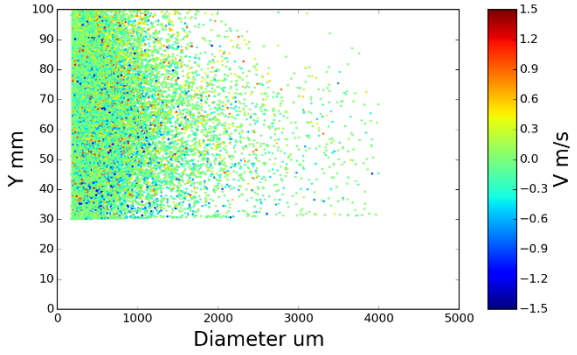


Figure C. 69: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

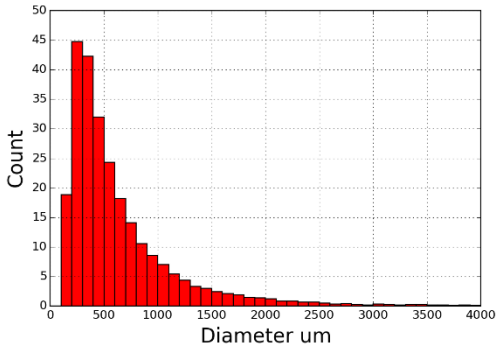


Figure C. 67: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

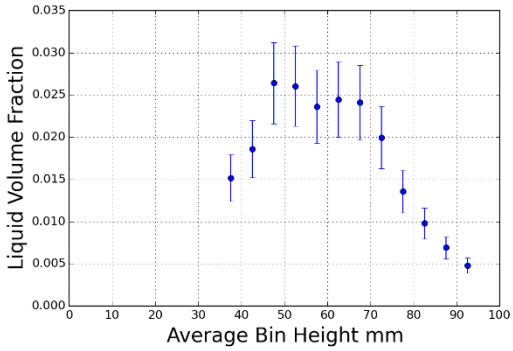


Figure C. 70: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

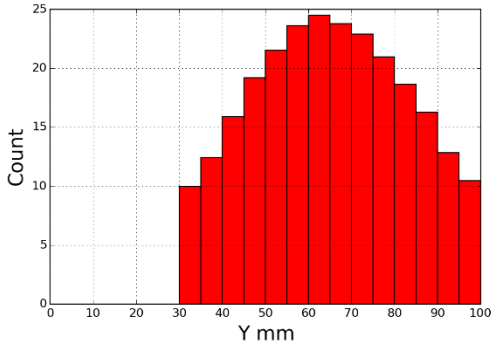


Figure C. 68: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LA Image

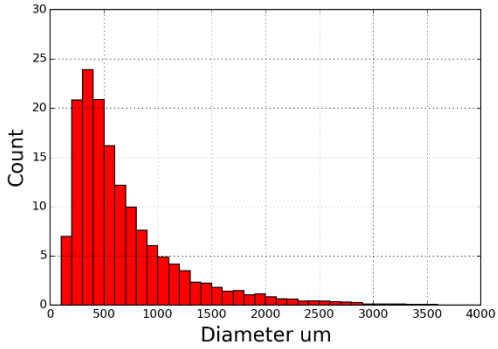


Figure C. 71: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

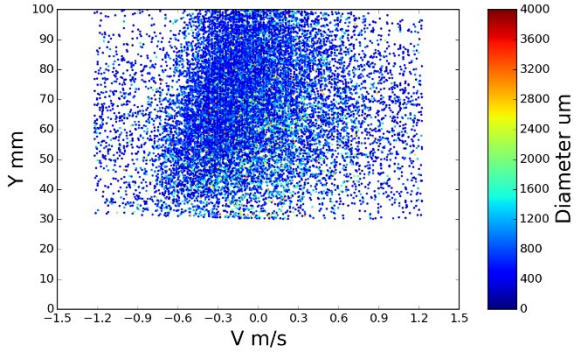


Figure C. 74: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

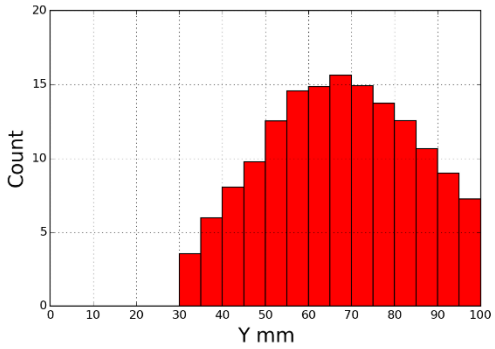


Figure C. 72: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

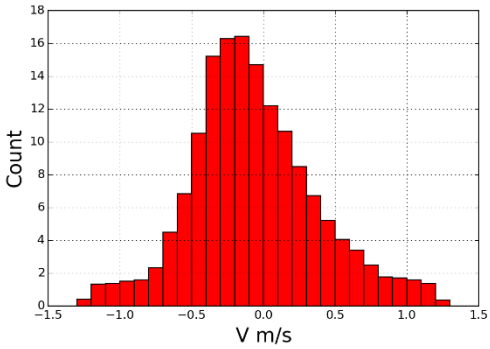


Figure C. 75: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

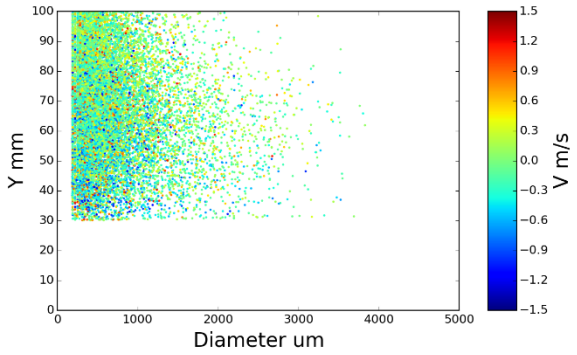


Figure C. 73: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LB Image

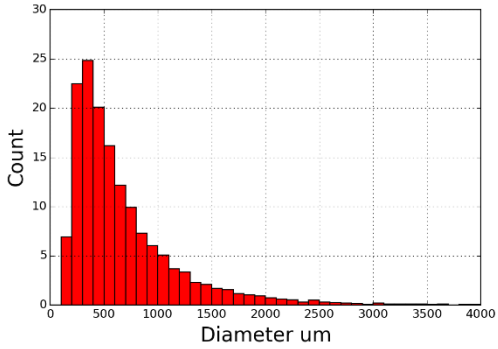


Figure C. 76: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

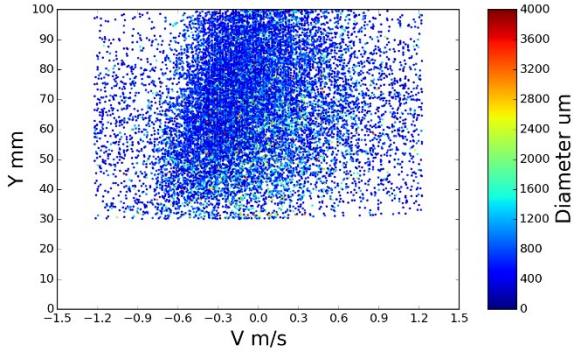


Figure C. 79: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

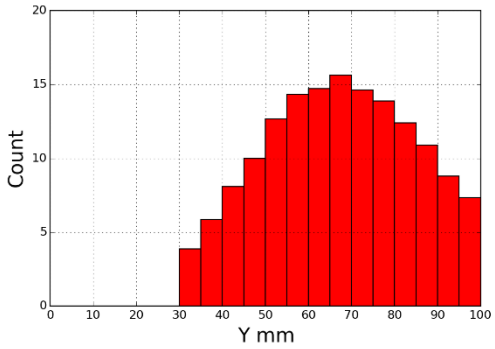


Figure C. 77: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

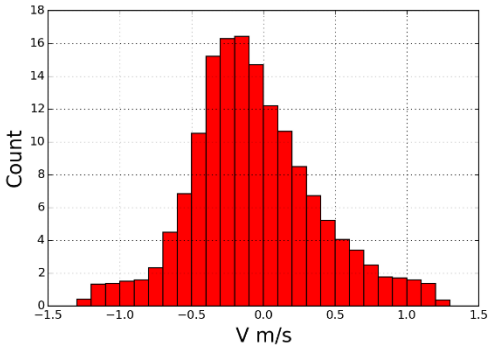


Figure C. 80: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

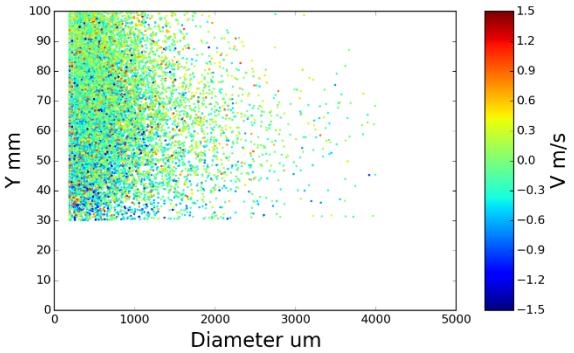


Figure C. 78: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	26.27	25.6	170.4	3922	751.0	634.3	170.4	3950	759.5	630.8
40-60mm	88.79	87.58	170.4	3955	690.0	569.6	170.4	3968	690.7	563.5
60-80mm	104.11	103.77	170.4	3820	627.8	473.4	170.4	3929	629.8	478.8
80-100mm	55.52	54.2	182.2	3756	553.2	378.3	170.4	3633	546.9	360.8
All	274.9	271.41	170.4	3955	644.3	510.6	170.4	3968	644.8	507.7
			Height A (mm)				Height B (mm)			
Highest Particle			100.0612				100.0375			
Lowest Particle			30.1382				30.1382			

Table C. 10: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.69	182.2	3340	899.2	650.5	182.2	3822	882.3	666.8	-1.210	1.220	-0.070	0.440	-1.220	1.220	-0.090	0.490
40-60mm	47.84	182.2	3797	765.0	562.3	182.2	3964	742.5	557.5	-1.220	1.220	-0.090	0.400	-1.220	1.220	-0.040	0.500
60-80mm	65.99	182.2	3688	683.2	472.5	182.2	3825	670.6	466.5	-1.220	1.220	-0.090	0.340	-1.220	1.220	0.010	0.460
80-100mm	38.22	182.2	3529	602.5	375.9	182.2	3486	588.4	363.8	-1.220	1.220	-0.080	0.290	-1.220	1.220	0.000	0.400
All	162.8	182.2	3797	702.3	500.7	182.2	3964	686.4	496.0	-1.220	1.220	-0.090	0.350	-1.220	1.220	-0.010	0.460

Table C. 11: Matched Droplet Info

C.1.1.2 All Droplets for .LA Image

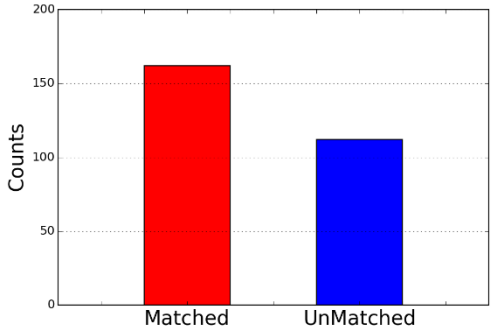


Figure C. 81: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

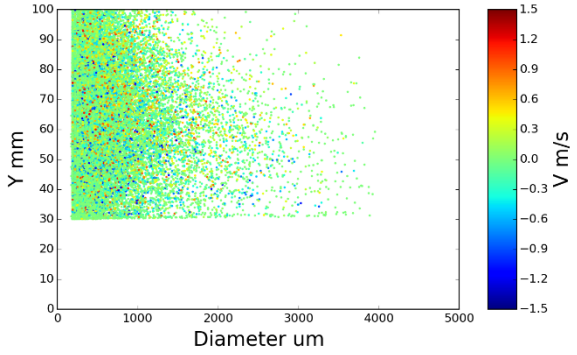


Figure C. 84: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

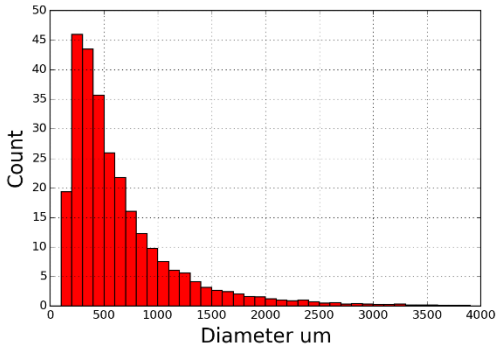


Figure C. 82: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

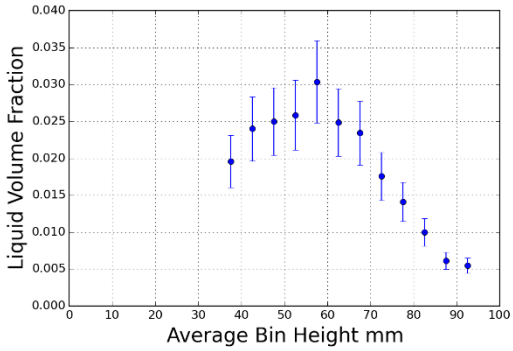


Figure C. 85: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

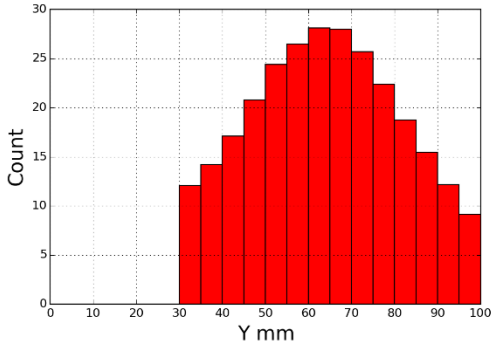


Figure C. 83: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 All Droplets for .LB Image

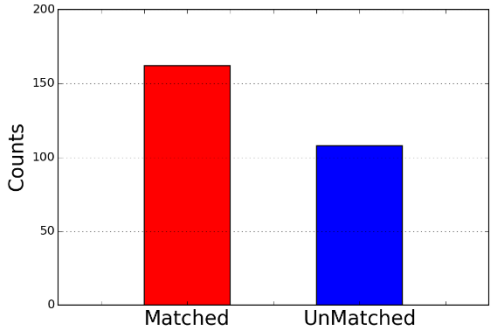


Figure C. 86: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

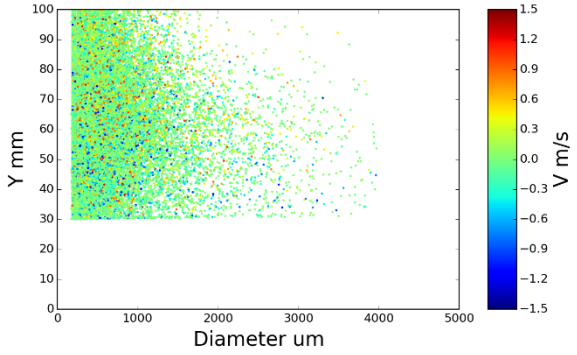


Figure C. 89: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

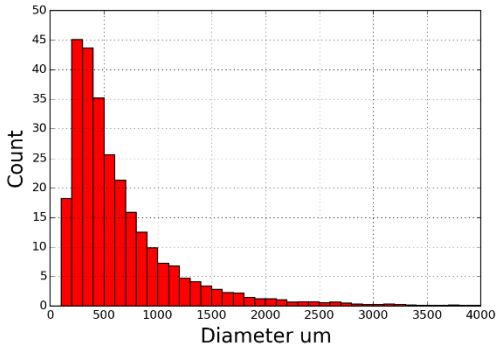


Figure C. 87: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

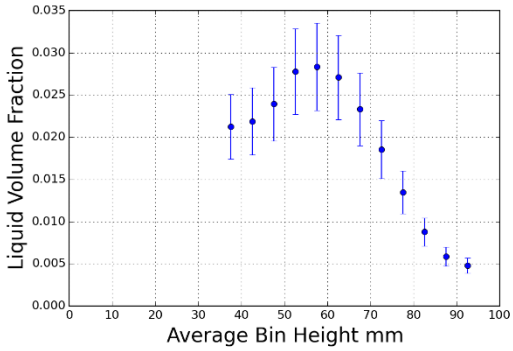


Figure C. 90: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

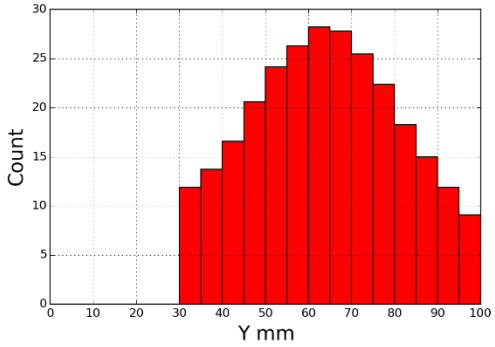


Figure C. 88: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LA Image

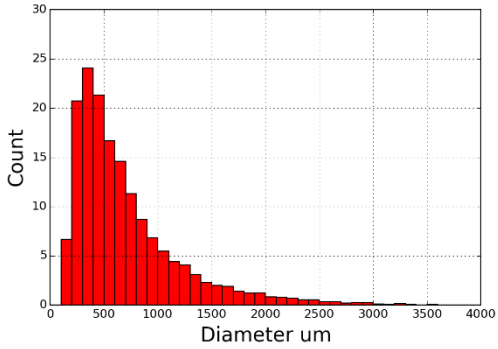


Figure C. 91: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

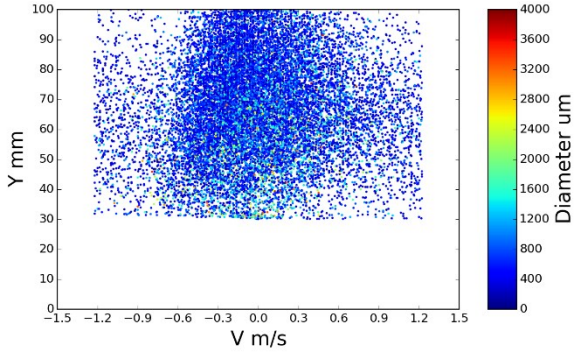


Figure C. 94: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

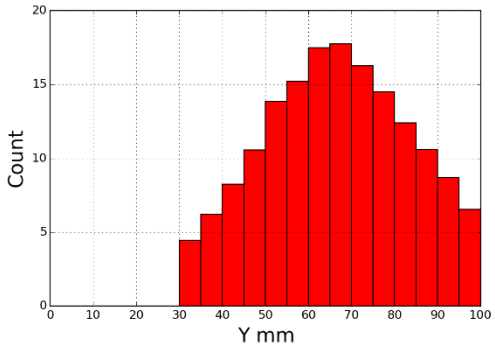


Figure C. 92: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

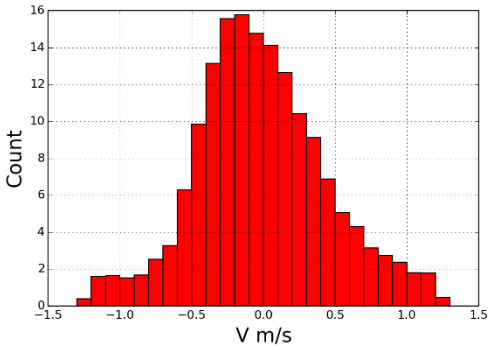


Figure C. 95: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

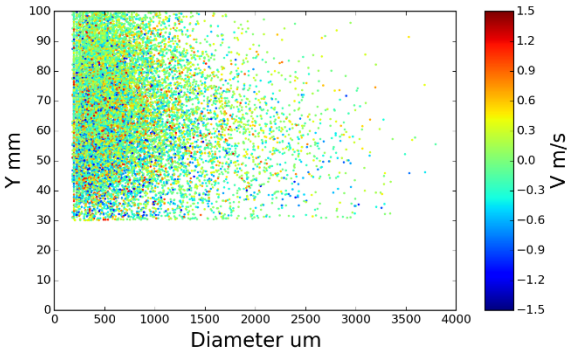


Figure C. 93: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LB Image

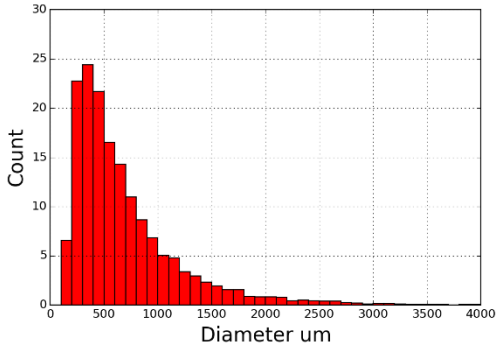


Figure C. 96: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

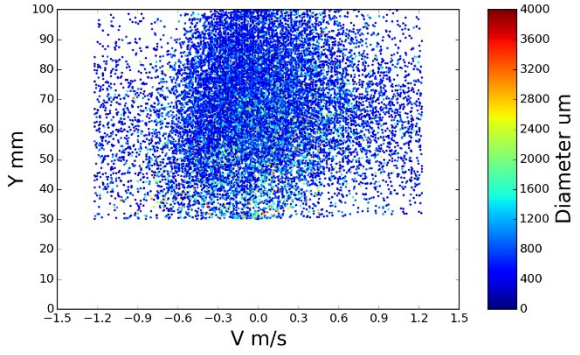


Figure C. 99: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

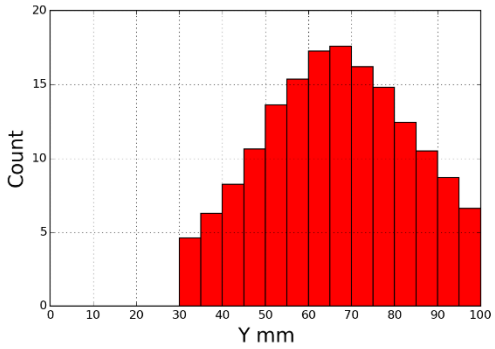


Figure C. 97: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

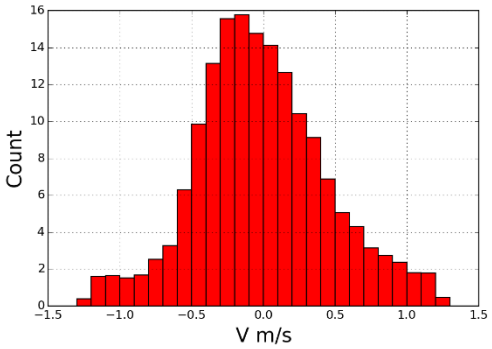


Figure C. 100: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

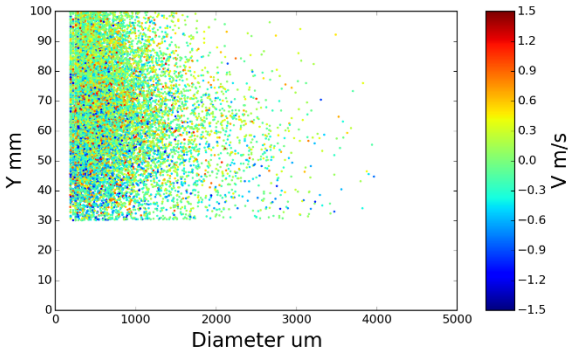


Figure C. 98: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.62	23.97	170.4	3956	727.6	619.8	182.2	3983	745.4	623.1
40-60mm	85.8	83.0	170.4	3989	711.2	595.3	170.4	3991	716.6	604.4
60-80mm	103.38	103.89	170.4	3979	644.8	499.6	170.4	3995	646.6	505.6
80-100mm	60.68	60.09	170.4	3704	551.1	373.5	170.4	3462	542.5	363.3
All	273.65	271.14	170.4	3989	651.8	523.0	170.4	3995	653.4	527.4
			Height A (mm)				Height B (mm)			
Highest Particle			100.0375				100.0612			
Lowest Particle			30.1382				30.1382			

Table C. 12: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	9.8	182.2	3674	835.0	622.0	182.2	3899	814.1	621.8	-1.220	1.220	-0.070	0.460	-1.220	1.220	-0.040	0.520
40-60mm	43.92	182.2	3914	798.2	591.5	182.2	3930	778.5	594.0	-1.220	1.220	-0.080	0.410	-1.220	1.220	-0.020	0.510
60-80mm	64.66	182.2	3581	702.6	495.8	182.2	3995	688.3	493.6	-1.220	1.220	-0.070	0.360	-1.220	1.220	-0.000	0.480
80-100mm	42.0	182.2	3131	600.8	387.4	182.2	3324	590.0	379.3	-1.220	1.210	-0.090	0.290	-1.220	1.220	-0.000	0.420
All	160.42	182.2	3914	710.1	513.9	182.2	3995	694.7	511.6	-1.220	1.220	-0.080	0.360	-1.220	1.220	-0.010	0.480

Table C. 13: Matched Droplet Info

C.1.1.2 All Droplets for .LA Image

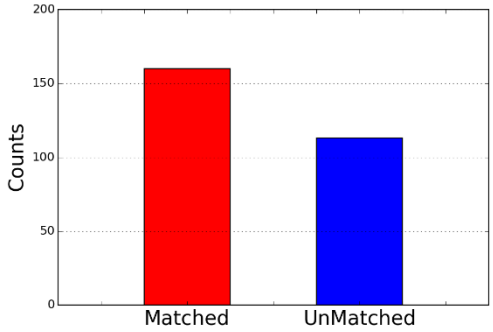


Figure C. 101: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

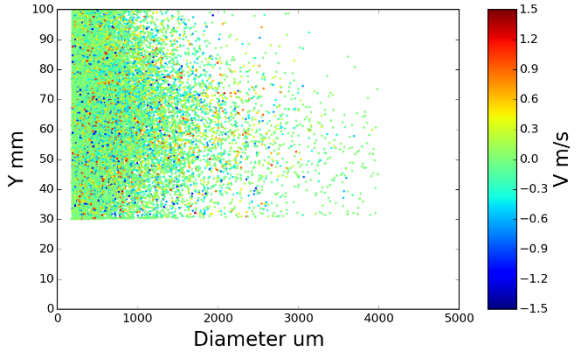


Figure C. 104: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

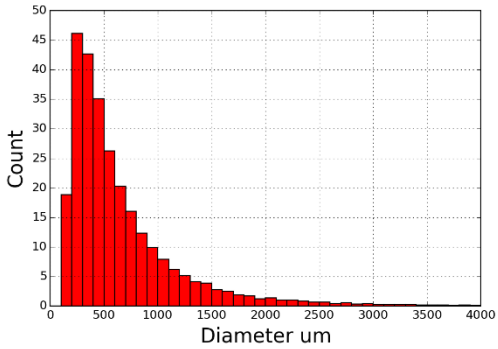


Figure C. 102: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

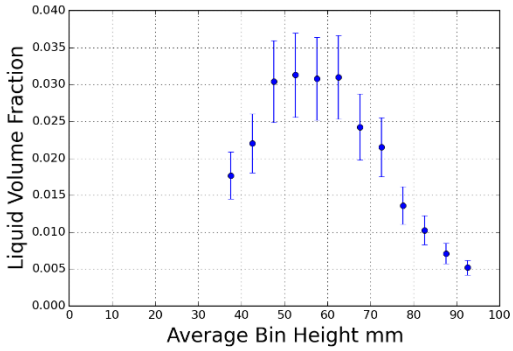


Figure C. 105: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

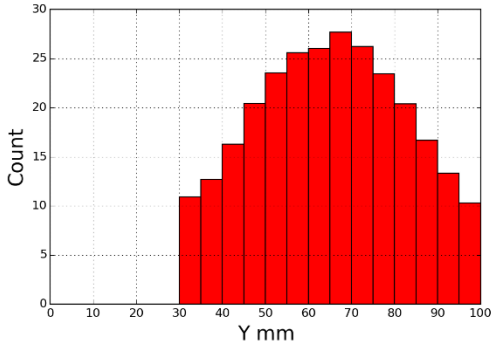


Figure C. 103: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 All Droplets for .LB Image

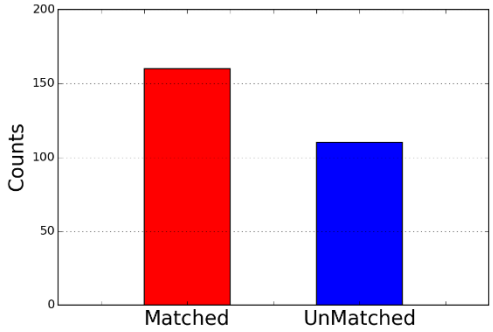


Figure C. 106: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

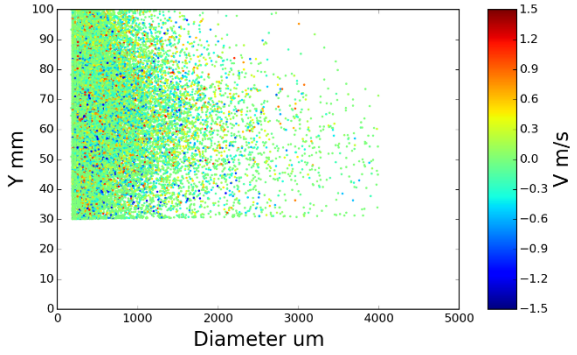


Figure C. 109: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

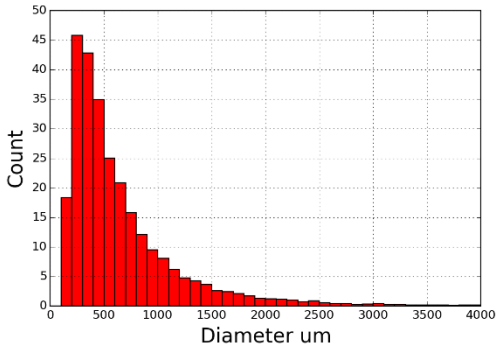


Figure C. 107: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

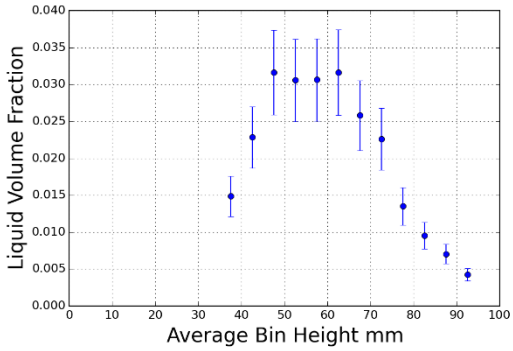


Figure C. 110: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

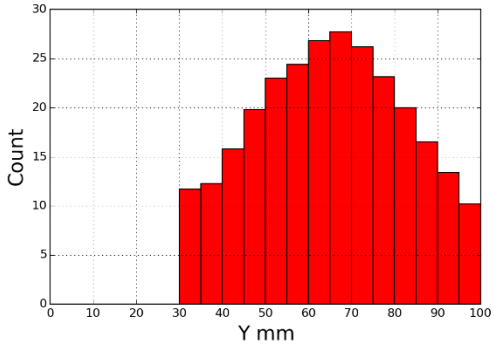


Figure C. 108: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LA Image

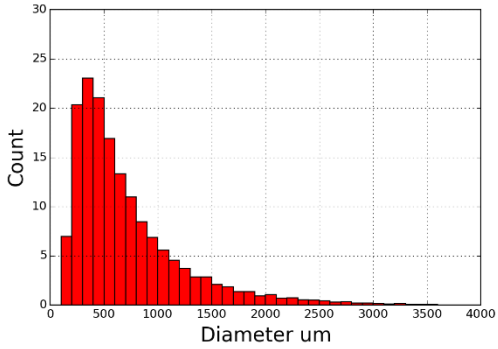


Figure C. 111: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

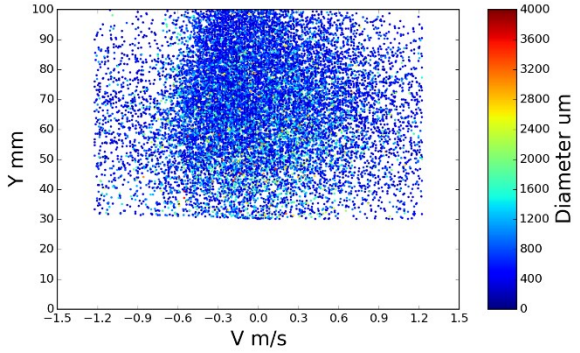


Figure C. 114: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

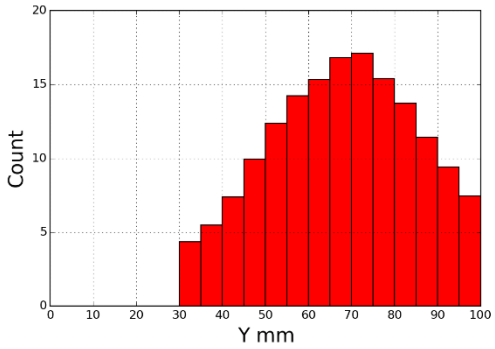


Figure C. 112: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

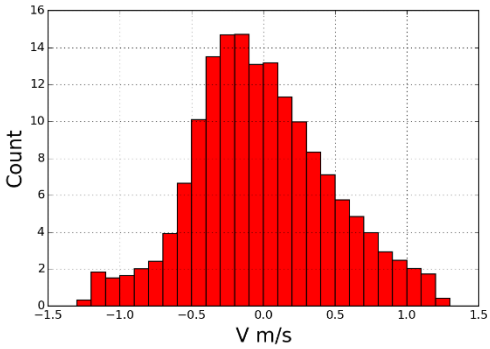


Figure C. 115: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

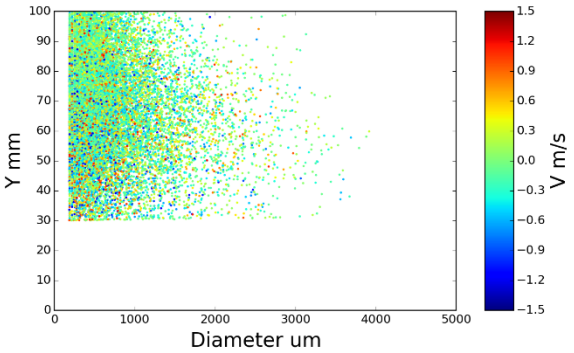


Figure C. 113: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.1.2 Matched Only Droplets for .LB Image

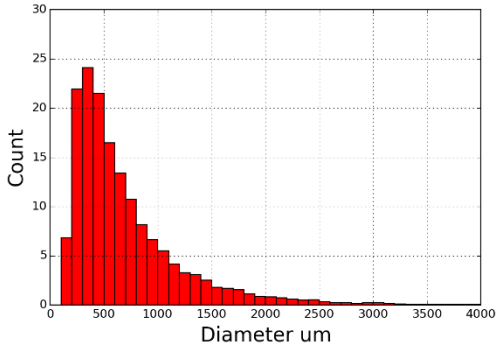


Figure C. 116: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

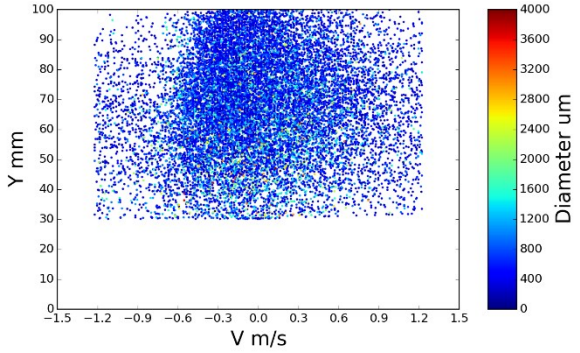


Figure C. 119: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

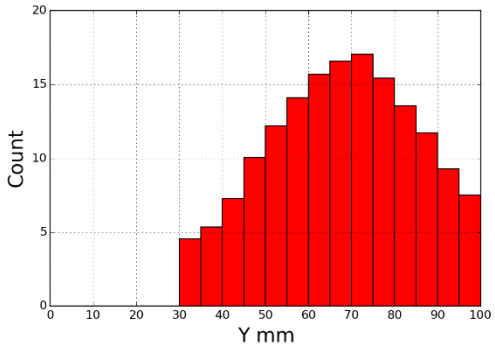


Figure C. 117: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

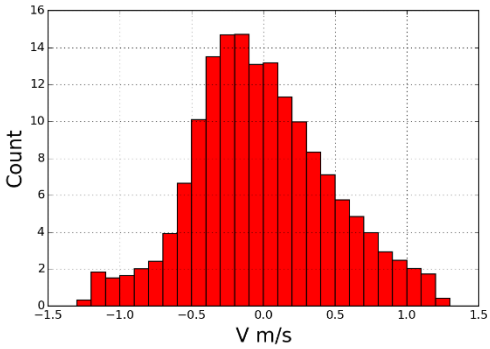


Figure C. 120: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

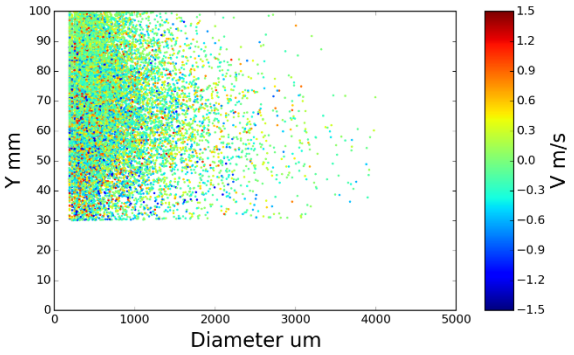


Figure C. 118: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11662 / 1.469
Ref Mass Flow (lb/hr) / (kg/s)	1526 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14852 / 20.142
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4561 / 14.39
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.4 / 4.64
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.6 / 4.75
Total Bundle Q (Btu/hr) / (kW)	139098 / 40.77
Total Bundle & Preboiler Q (Btu/hr) / (kW)	139098 / 40.77
Top Two Rows HTC Ratio	0.907
Bundle Inlet Quality	-0.10
Bundle Exit Quality	0.99

Table C. 14: Thermal Conditions

C.1.2.1 Lens 100mm Mag 0_29x

C.1.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	66.0	66.2	76.1	4025	536.2	536.6	76.1	4001	528.3	530.7
40-60mm	130.67	137.24	76.1	3788	418.3	400.5	76.1	3802	405.9	398.4
60-80mm	75.56	89.29	76.1	2581	283.6	245.0	76.1	2891	265.5	240.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	272.23	292.75	76.1	4025	409.5	414.5	76.1	4001	390.7	406.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.9616				79.9552			
Lowest Particle			32.0025				32.0025			

Table C. 15: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	44.25	81.4	3882	595.9	520.5	81.4	4001	589.9	524.0	-1.270	1.240	-0.070	0.220	-1.270	1.260	-0.060	0.350
40-60mm	95.9	81.4	3741	458.8	396.2	81.4	3802	454.7	396.6	-1.270	1.270	-0.080	0.210	-1.270	1.270	-0.040	0.330
60-80mm	60.23	81.4	2581	308.9	254.3	81.4	2526	305.2	250.1	-1.250	1.270	-0.110	0.170	-1.280	1.270	-0.040	0.270
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	200.38	81.4	3882	444.0	406.3	81.4	4001	439.8	406.7	-1.270	1.270	-0.090	0.200	-1.280	1.270	-0.050	0.320

Table C. 16: Matched Droplet Info

C.1.2.1 All Droplets for .LA Image

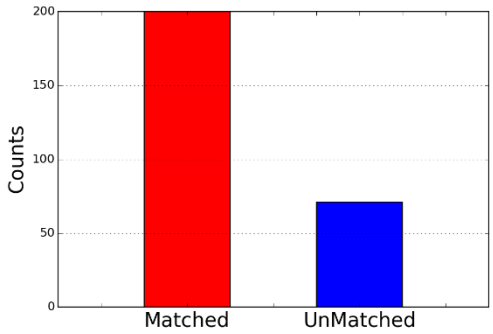


Figure C. 121: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

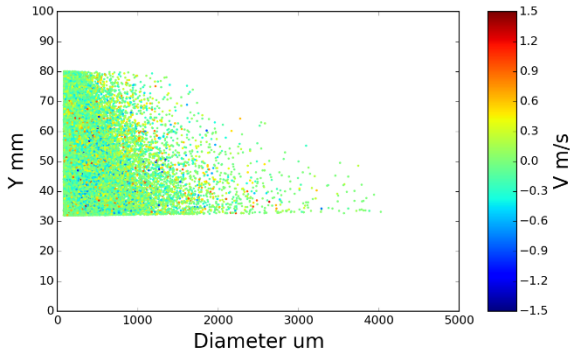


Figure C. 124: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

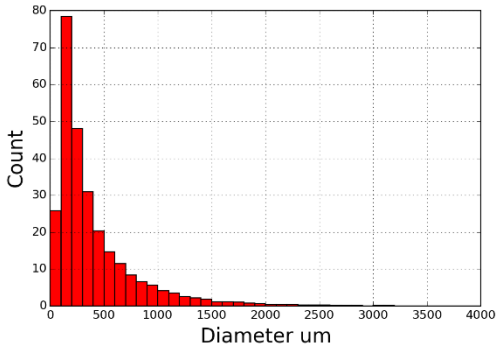


Figure C. 122: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

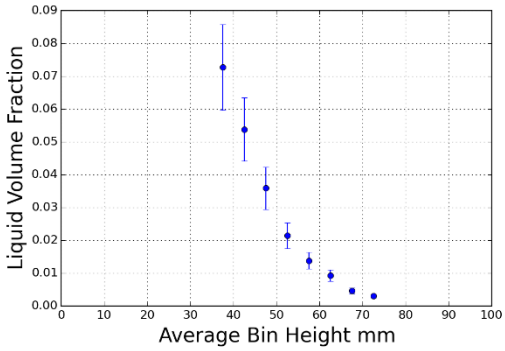


Figure C. 125: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

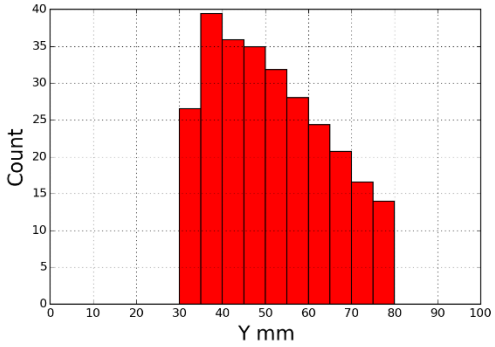


Figure C. 123: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 All Droplets for .LB Image

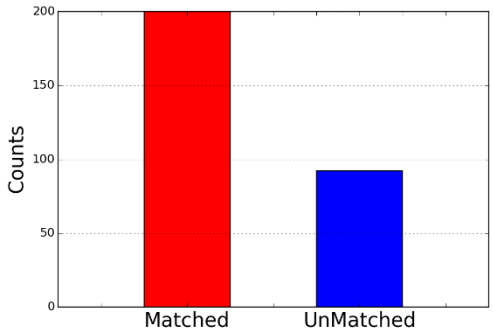


Figure C. 126: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

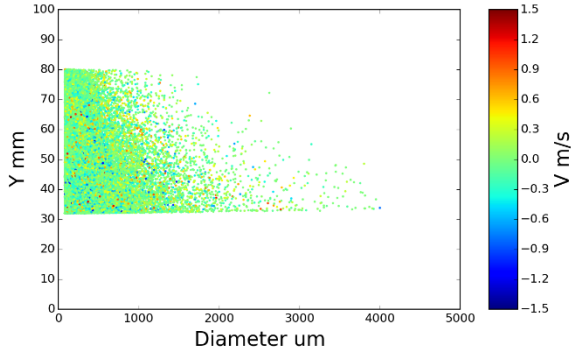


Figure C. 129: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

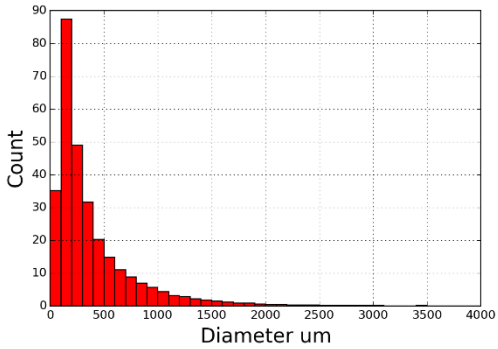


Figure C. 127: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

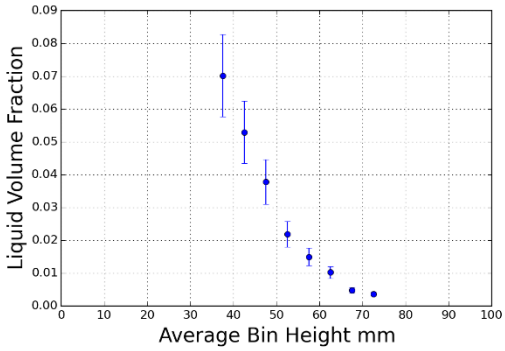


Figure C. 130: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

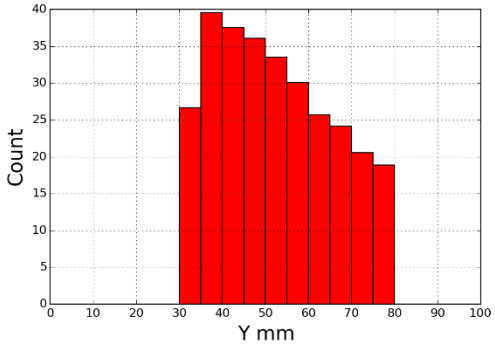


Figure C. 128: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LA Image

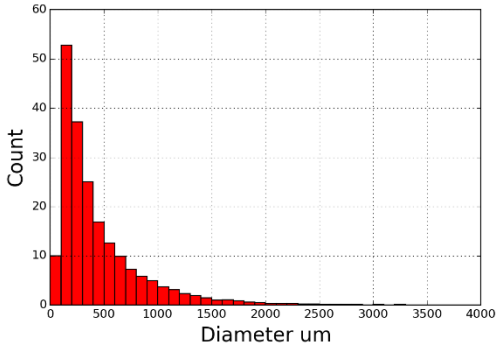


Figure C. 131: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

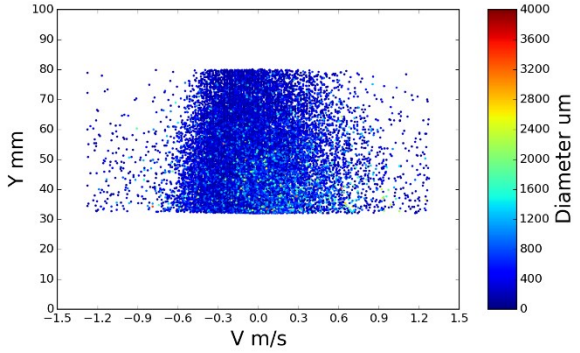


Figure C. 134: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

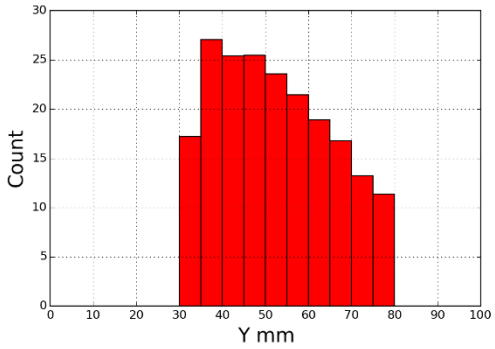


Figure C. 132: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

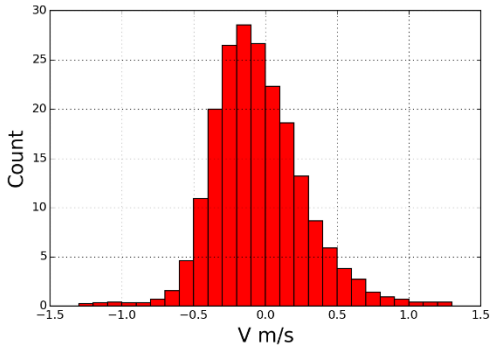


Figure C. 135: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

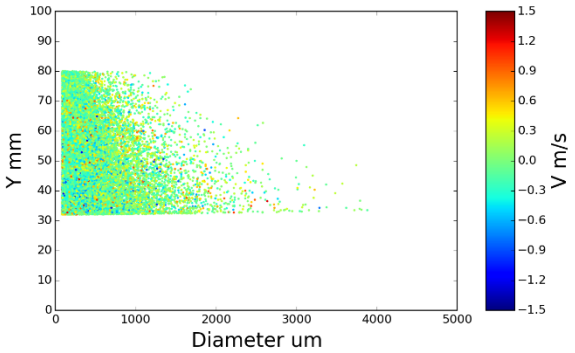


Figure C. 133: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LB Image

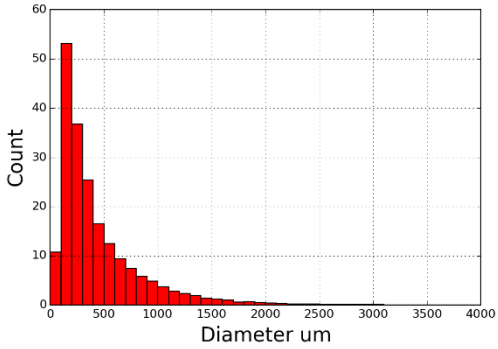


Figure C. 136: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

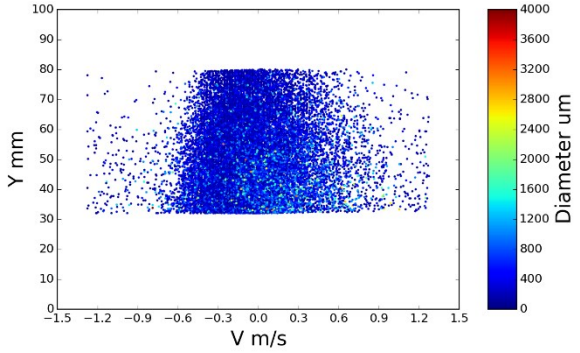


Figure C. 139: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

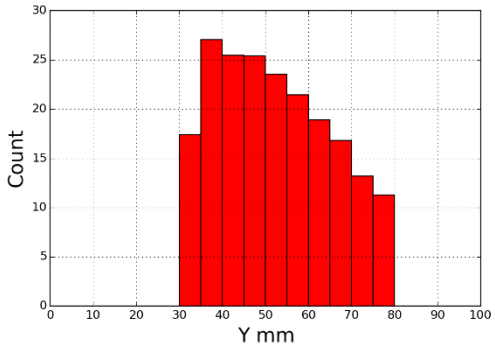


Figure C. 137: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

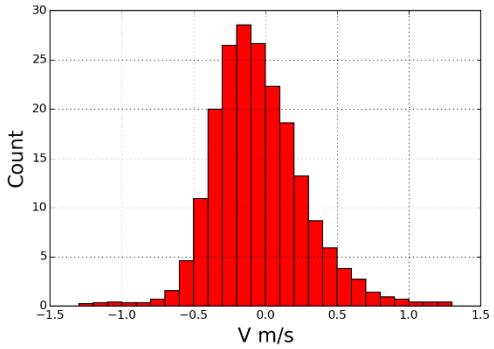


Figure C. 140: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

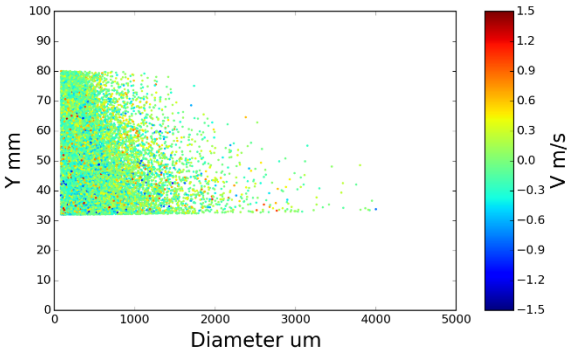


Figure C. 138: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	78.88	79.59	76.1	3987	528.0	502.9	76.1	3861	521.9	494.5
40-60mm	149.27	150.77	76.1	3796	421.3	389.6	76.1	3845	417.4	384.5
60-80mm	87.58	87.52	76.1	2178	283.4	235.2	76.1	2338	282.1	234.7
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	315.73	317.88	76.1	3987	409.7	397.8	76.1	3861	406.3	392.6
			Height A (mm)				Height B (mm)			
Highest Particle			79.9680				79.9560			
Lowest Particle			32.0025				32.0025			

Table C. 17: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	54.32	81.4	3787	579.4	478.2	81.4	3861	577.0	482.4	-1.270	1.270	-0.060	0.220	-1.260	1.270	0.080	0.350
40-60mm	114.94	81.4	3786	457.6	384.8	81.4	3845	455.2	385.0	-1.280	1.280	-0.070	0.190	-1.270	1.270	0.070	0.330
60-80mm	70.76	81.4	2178	305.7	243.4	81.4	2338	303.2	241.3	-1.270	1.190	-0.090	0.160	-1.250	1.230	0.050	0.290
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	240.02	81.4	3787	440.4	387.3	81.4	3861	437.8	388.0	-1.280	1.280	-0.070	0.190	-1.270	1.270	0.070	0.320

Table C. 18: Matched Droplet Info

C.1.2.1 All Droplets for .LA Image

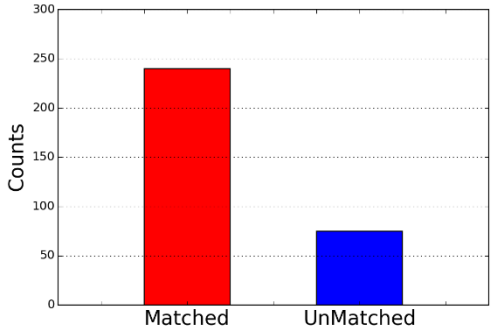


Figure C. 141: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

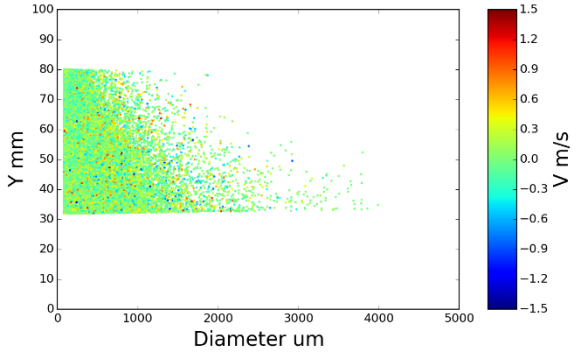


Figure C. 144: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

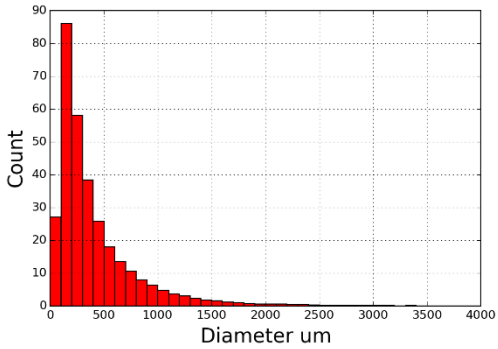


Figure C. 142: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

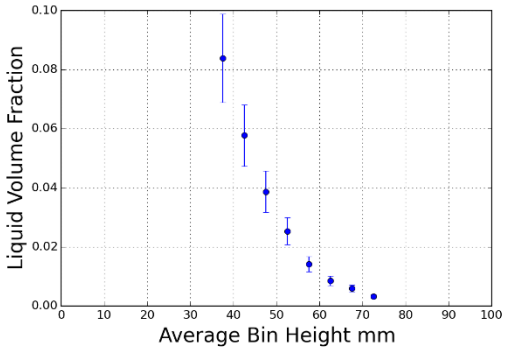


Figure C. 145: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

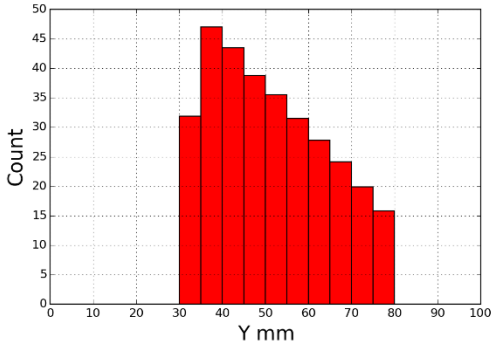


Figure C. 143: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 All Droplets for .LB Image

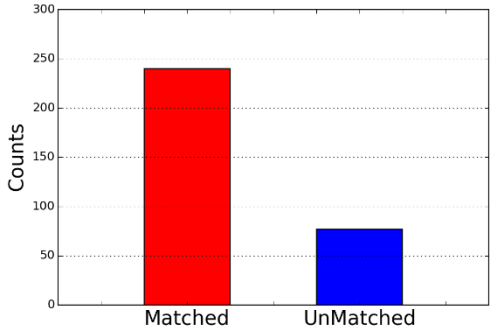


Figure C. 146: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

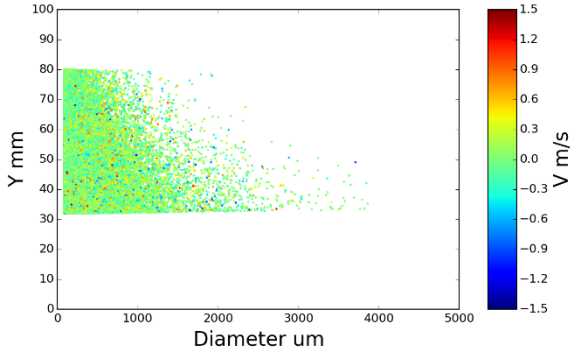


Figure C. 149: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

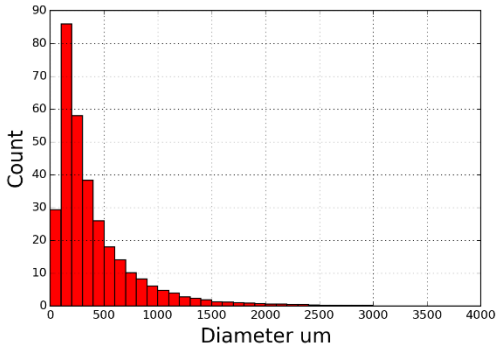


Figure C. 147: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

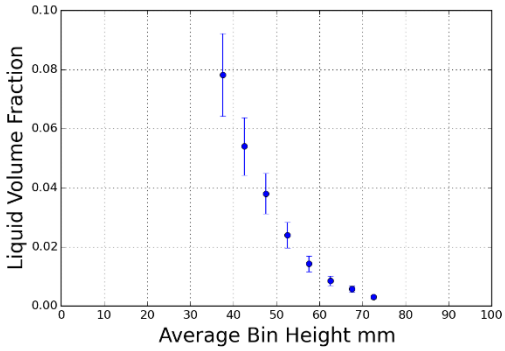


Figure C. 150: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

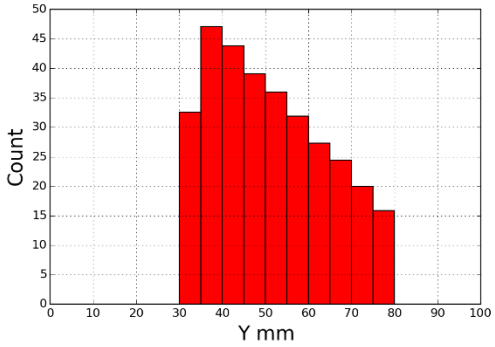


Figure C. 148: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LA Image

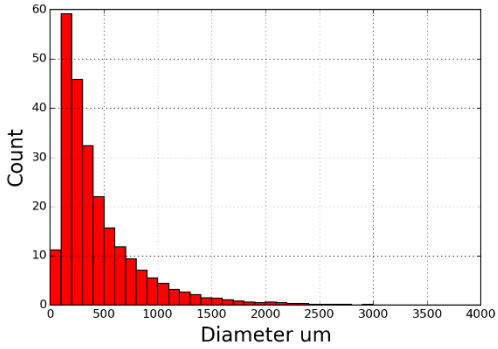


Figure C. 151: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

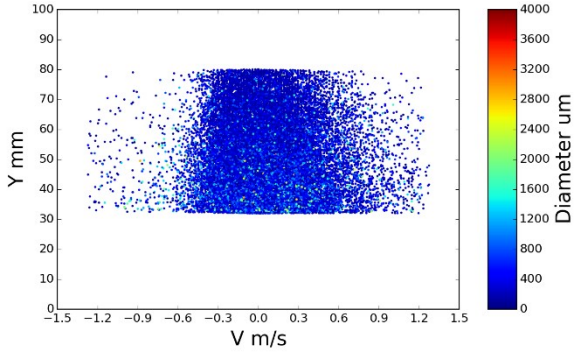


Figure C. 154: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

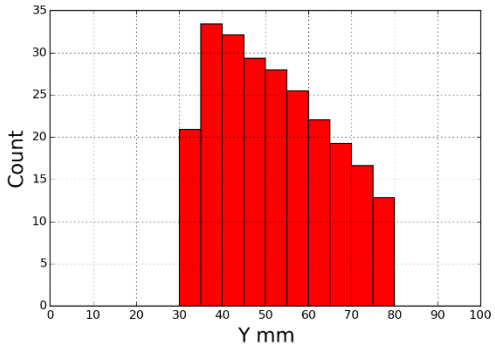


Figure C. 152: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

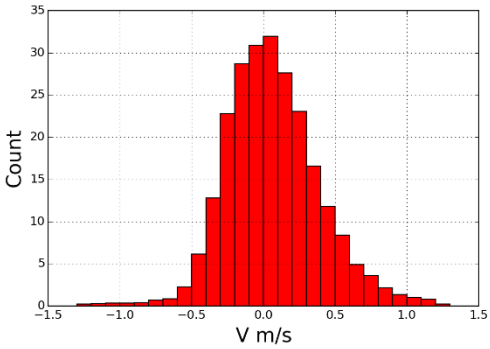


Figure C. 155: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

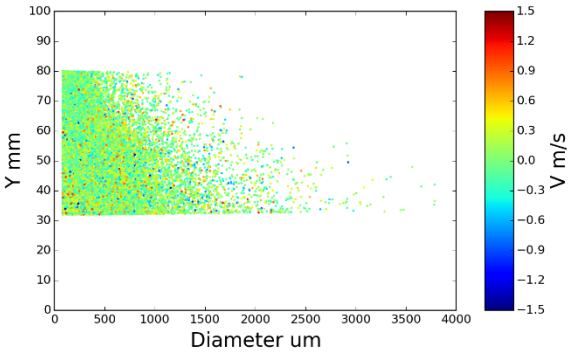


Figure C. 153: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LB Image

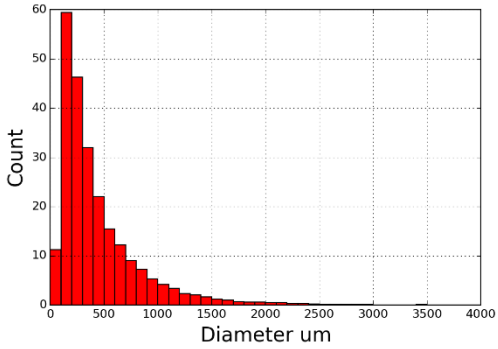


Figure C. 156: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

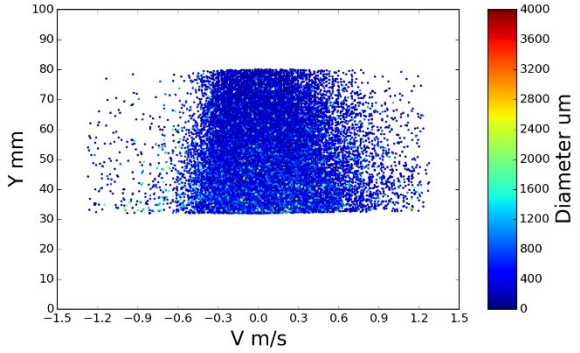


Figure C. 159: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

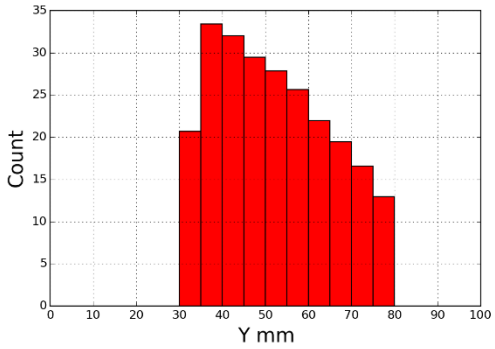


Figure C. 157: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

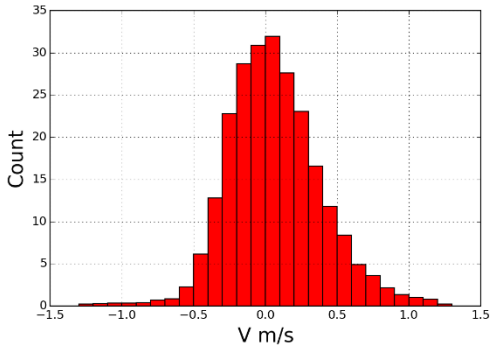


Figure C. 160: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

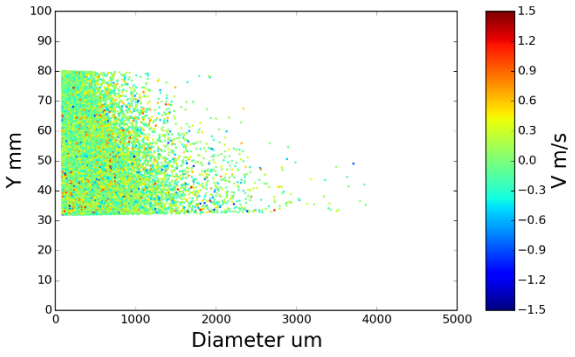


Figure C. 158: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	84.13	84.52	76.1	4027	522.5	493.6	76.1	3878	526.8	499.1
40-60mm	157.95	158.45	76.1	4012	411.6	376.9	76.1	3664	410.8	379.4
60-80mm	85.95	85.86	81.4	3130	287.3	240.9	81.4	3299	284.4	239.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	328.03	328.83	76.1	4027	407.5	391.5	76.1	3878	407.6	394.9
			Height A (mm)				Height B (mm)			
Highest Particle			79.9567				79.9680			
Lowest Particle			32.0025				32.0025			

Table C. 19: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	58.28	81.4	3804	577.2	471.8	81.4	3878	574.9	474.1	-1.270	1.270	-0.060	0.230	-1.270	1.270	0.170	0.360
40-60mm	117.93	81.4	3289	451.0	376.9	76.1	3256	447.6	376.2	-1.270	1.270	-0.070	0.190	-1.270	1.270	0.160	0.340
60-80mm	67.95	81.4	3130	312.6	249.6	81.4	3299	309.0	248.7	-1.270	1.280	-0.080	0.170	-1.270	1.270	0.100	0.290
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	244.16	81.4	3804	442.6	384.9	76.1	3878	438.8	384.7	-1.270	1.280	-0.070	0.200	-1.270	1.270	0.140	0.330

Table C. 20: Matched Droplet Info

C.1.2.1 All Droplets for .LA Image

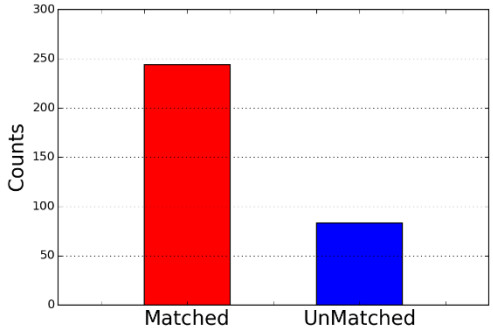


Figure C. 161: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

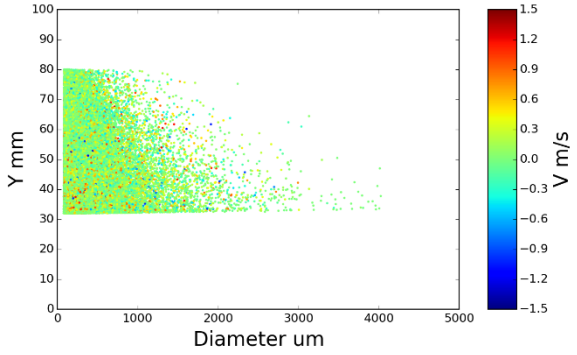


Figure C. 164: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

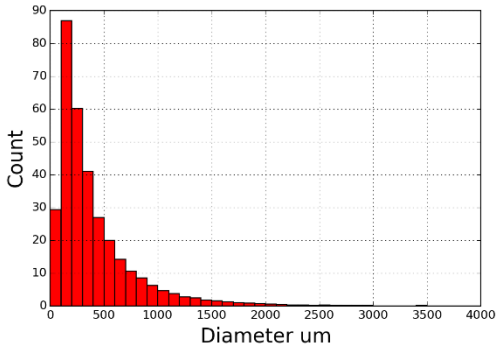


Figure C. 162: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

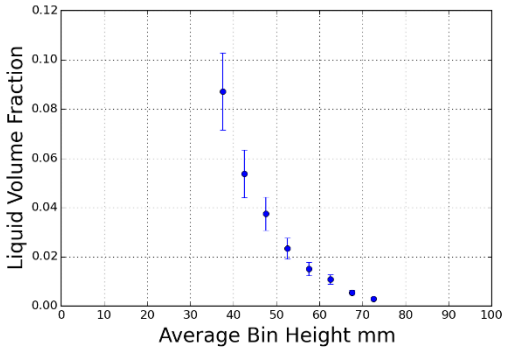


Figure C. 165: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

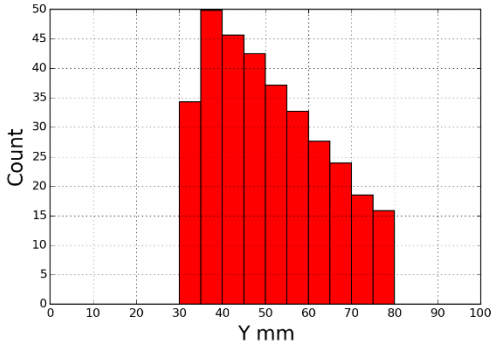


Figure C. 163: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 All Droplets for .LB Image

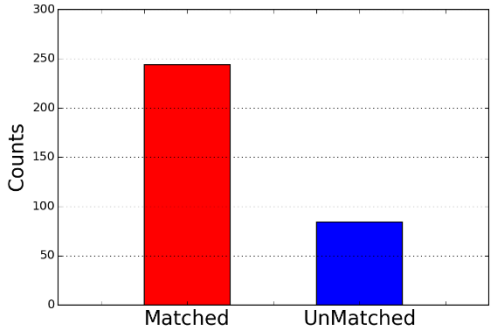


Figure C. 166: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

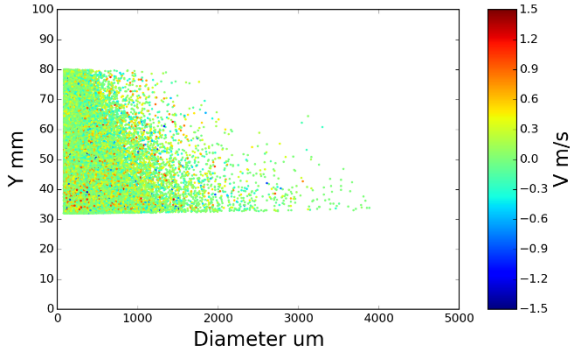


Figure C. 169: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

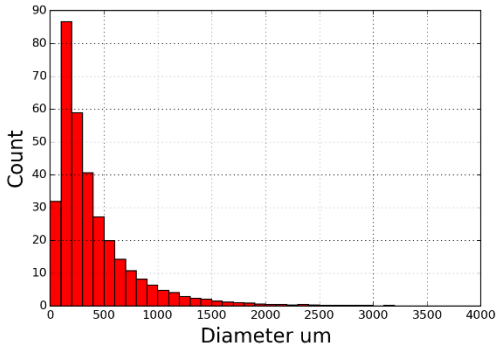


Figure C. 167: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

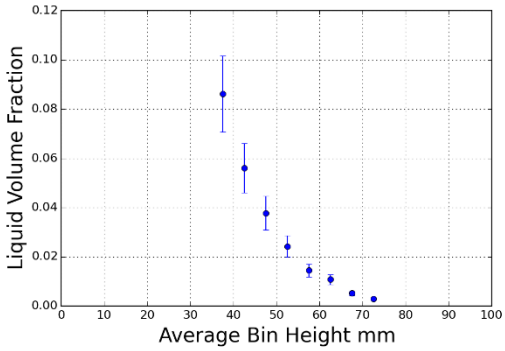


Figure C. 170: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

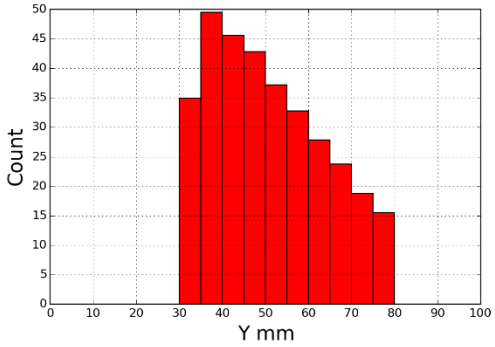


Figure C. 168: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LA Image

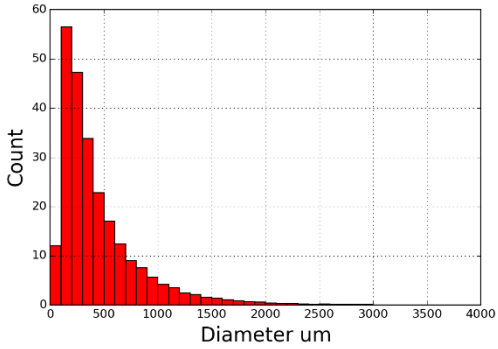


Figure C. 171: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

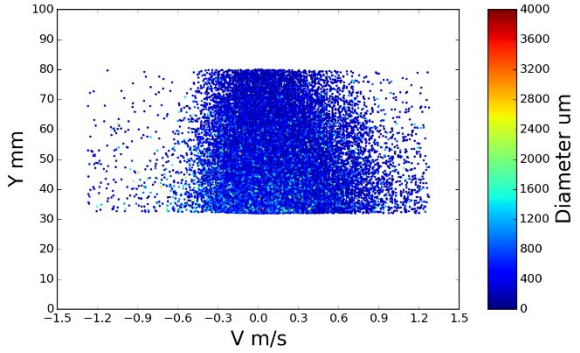


Figure C. 174: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

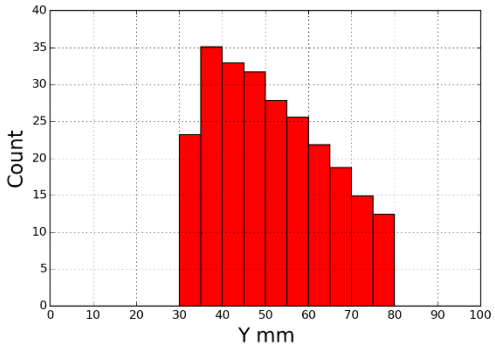


Figure C. 172: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

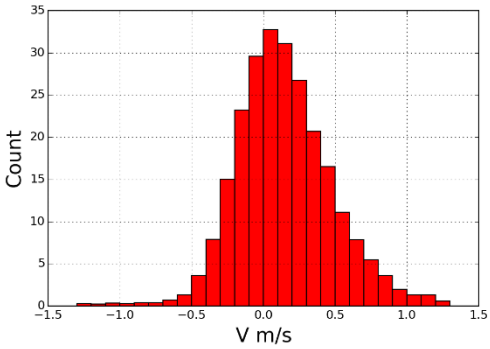


Figure C. 175: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

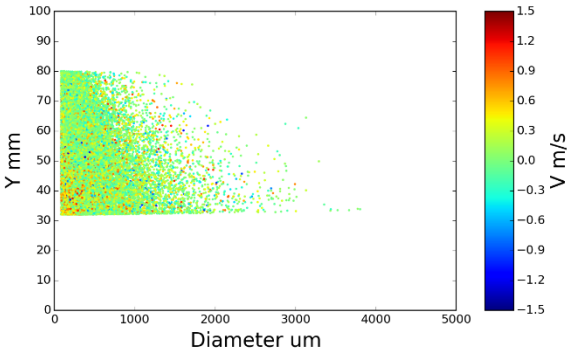


Figure C. 173: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.1 Matched Only Droplets for .LB Image

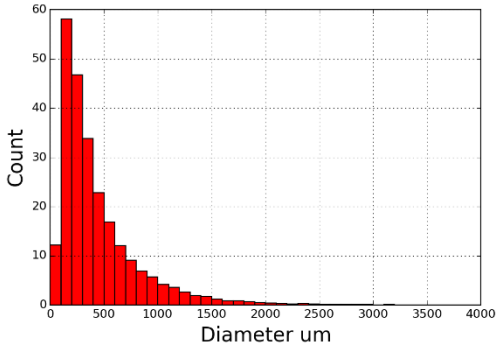


Figure C. 176: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

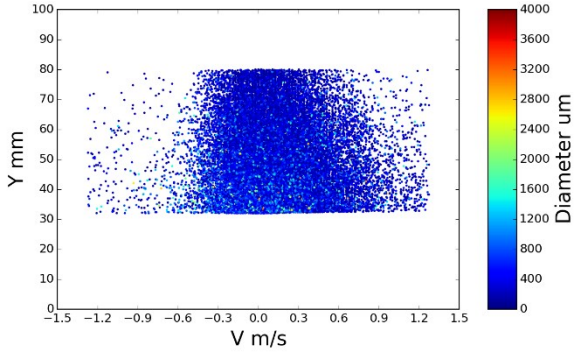


Figure C. 179: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

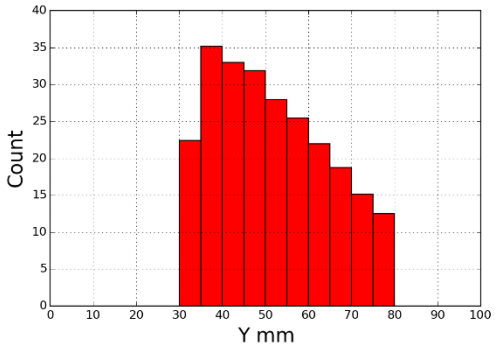


Figure C. 177: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

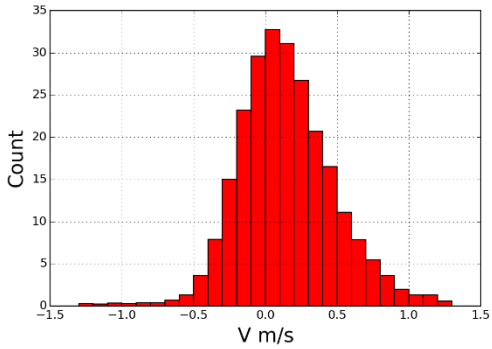


Figure C. 180: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

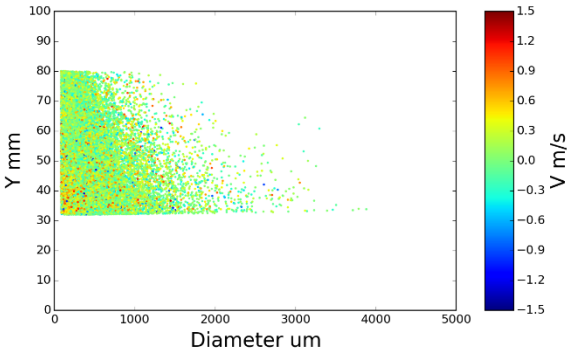


Figure C. 178: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Lens 50mm Mag 0_13x

C.1.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	103.91	103.75	170.4	3967	765.1	638.1	182.2	3977	771.2	643.2
40-60mm	98.76	99.89	170.4	3962	616.1	470.8	182.2	3983	619.2	479.5
60-80mm	51.02	51.09	170.4	3254	483.3	305.5	182.2	2939	487.0	312.2
80-100mm	13.38	13.99	182.2	1683	408.7	218.6	182.2	1643	406.7	209.7
All	267.07	268.72	170.4	3967	638.3	523.7	182.2	3983	641.7	529.2
			Height A (mm)				Height B (mm)			
Highest Particle			99.9499				99.9490			
Lowest Particle			20.0922				20.0922			

Table C. 21: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	54.61	182.2	3926	835.9	625.9	182.2	3952	823.9	636.4	-1.220	1.220	-0.090	0.390	-1.220	1.220	-0.070	0.460
40-60mm	63.36	182.2	3635	669.4	475.0	182.2	3983	660.6	471.4	-1.220	1.220	-0.080	0.330	-1.220	1.220	-0.050	0.410
60-80mm	36.01	182.2	2841	525.4	315.4	182.2	2939	524.4	315.7	-1.220	1.220	-0.090	0.250	-1.220	1.220	-0.030	0.350
80-100mm	10.48	182.2	1683	435.4	218.8	182.2	1643	438.1	216.3	-1.100	1.220	-0.100	0.190	-1.140	1.220	0.000	0.300
All	164.46	182.2	3926	678.2	508.9	182.2	3983	670.8	510.7	-1.220	1.220	-0.090	0.330	-1.220	1.220	-0.050	0.410

Table C. 22: Matched Droplet Info

C.1.2.2 All Droplets for .LA Image

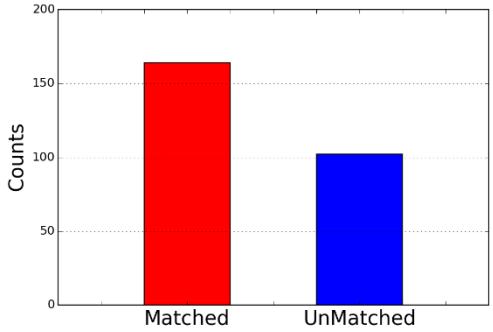


Figure C. 181: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

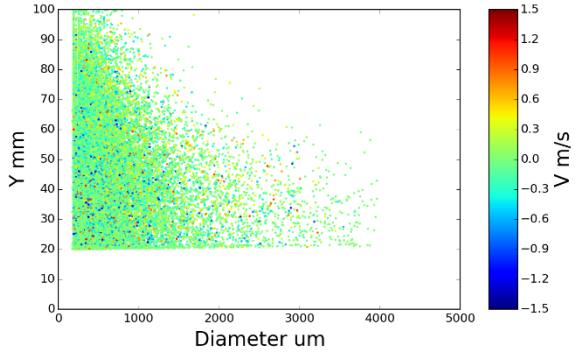


Figure C. 184: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

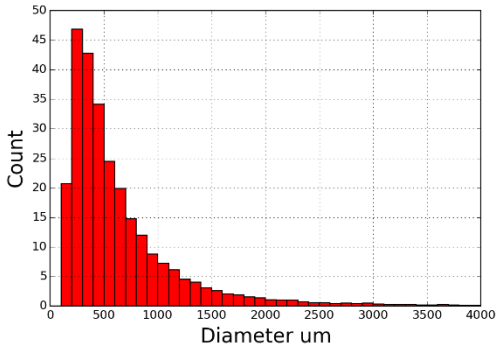


Figure C. 182: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

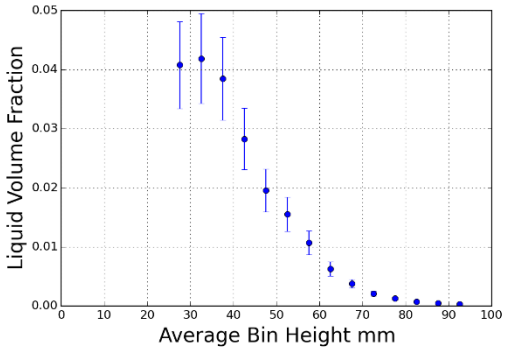


Figure C. 185: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

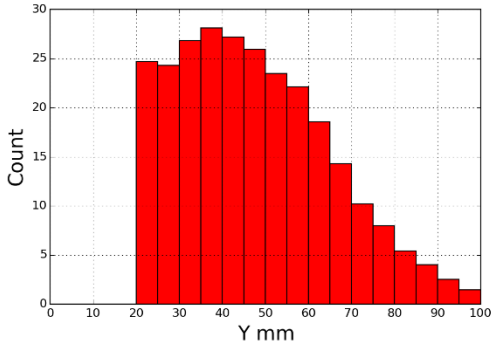


Figure C. 183: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 All Droplets for .LB Image

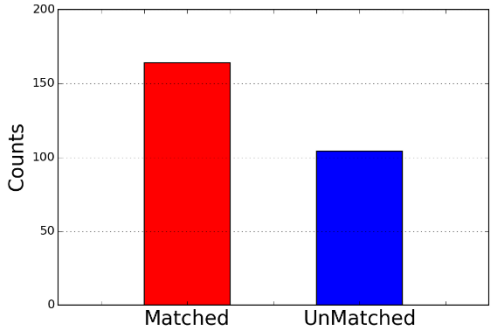


Figure C. 186: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

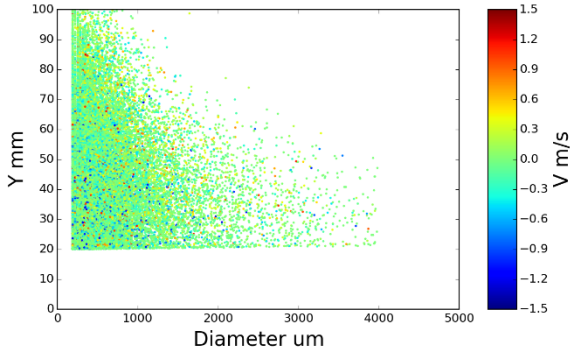


Figure C. 189: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

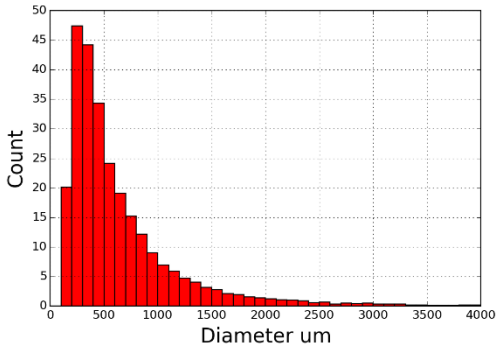


Figure C. 187: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

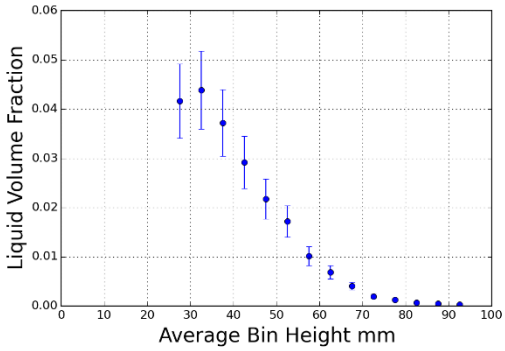


Figure C. 190: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

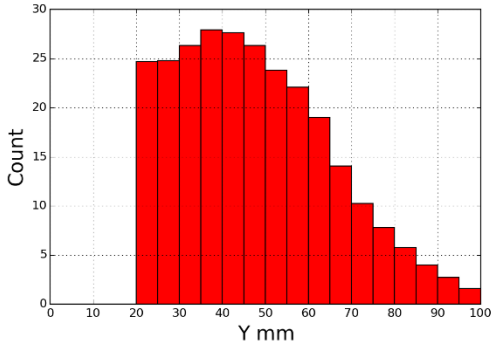


Figure C. 188: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LA Image

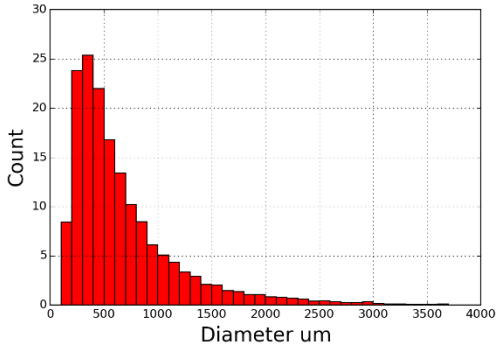


Figure C. 191: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

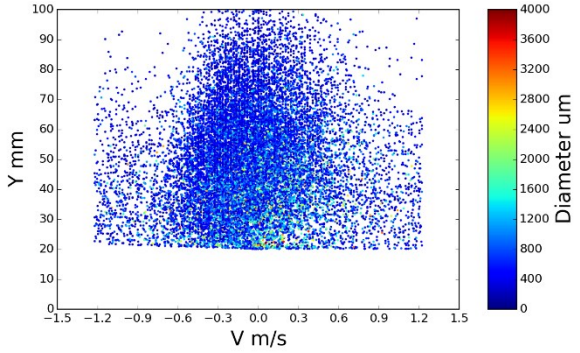


Figure C. 194: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

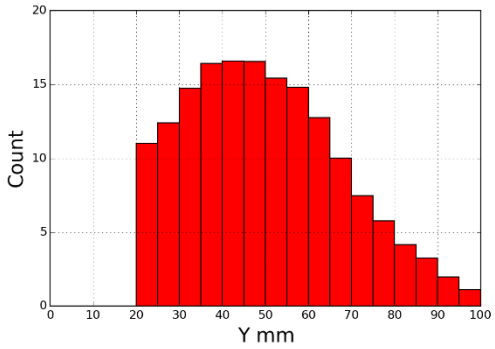


Figure C. 192: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

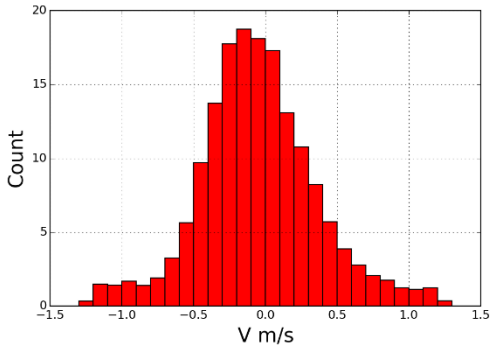


Figure C. 195: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

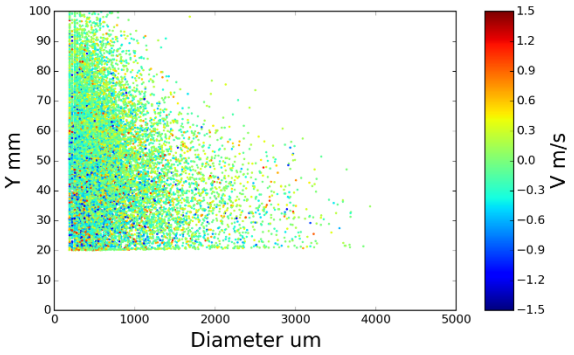


Figure C. 193: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LB Image

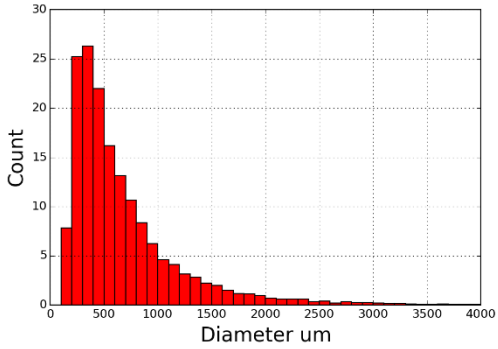


Figure C. 196: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

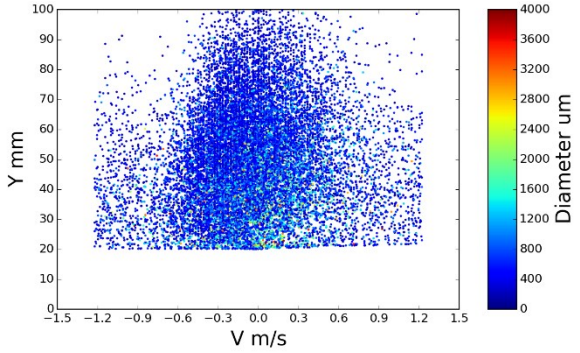


Figure C. 199: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

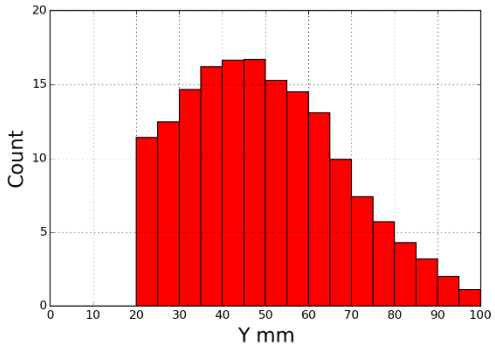


Figure C. 197: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

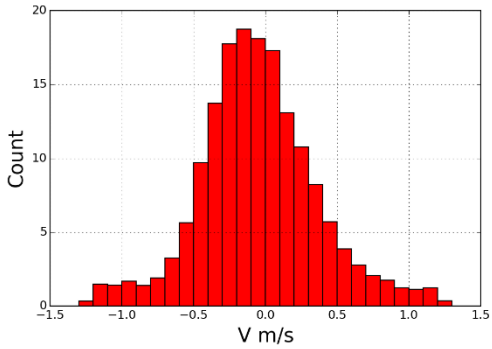


Figure C. 200: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

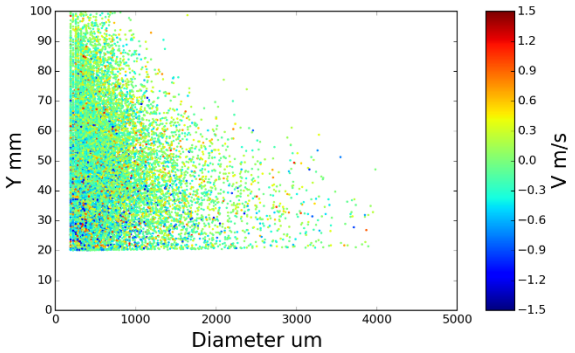


Figure C. 198: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	120.84	120.84	170.4	3989	746.3	604.8	170.4	3992	744.5	606.6
40-60mm	120.4	121.03	170.4	3815	609.5	450.9	170.4	3971	614.7	455.4
60-80mm	59.98	60.14	170.4	3676	489.3	317.1	170.4	3978	488.5	317.1
80-100mm	15.3	15.51	182.2	1456	419.5	226.7	182.2	1470	422.0	224.2
All	316.52	317.52	170.4	3989	629.8	499.8	170.4	3992	630.8	501.6
			Height A (mm)				Height B (mm)			
Highest Particle			99.9471				99.9756			
Lowest Particle			20.0922				20.0922			

Table C. 23: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	63.94	182.2	3754	806.2	573.0	182.2	3976	791.0	577.8	-1.220	1.220	-0.090	0.440	-1.220	1.220	0.020	0.490
40-60mm	75.72	182.2	3807	663.8	456.1	182.2	3917	655.0	450.4	-1.220	1.220	-0.090	0.360	-1.220	1.220	0.030	0.440
60-80mm	42.16	182.2	3031	531.8	329.4	182.2	3978	528.3	329.8	-1.220	1.220	-0.080	0.270	-1.220	1.220	0.020	0.380
80-100mm	11.7	193.2	1456	458.9	233.5	193.2	1470	457.9	232.6	-1.220	1.180	-0.090	0.190	-1.220	1.170	0.010	0.300
All	193.52	182.2	3807	669.7	479.4	182.2	3978	660.2	477.9	-1.220	1.220	-0.080	0.360	-1.220	1.220	0.020	0.440

Table C. 24: Matched Droplet Info

C.1.2.2 All Droplets for .LA Image

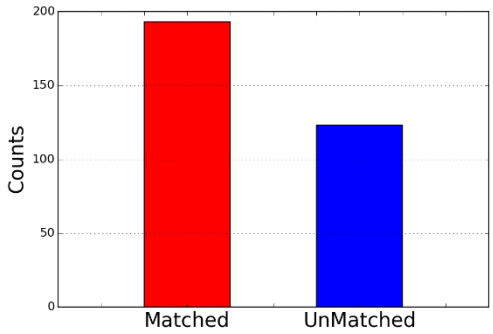


Figure C. 201: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

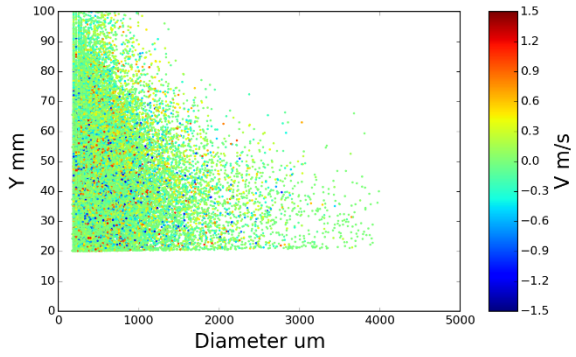


Figure C. 204: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

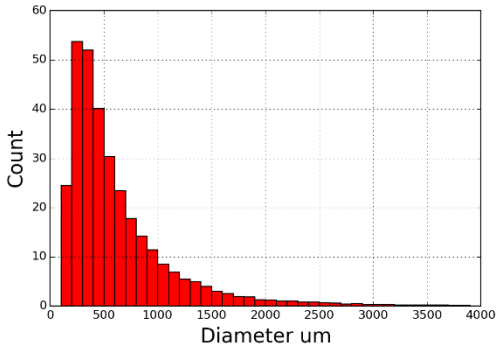


Figure C. 202: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

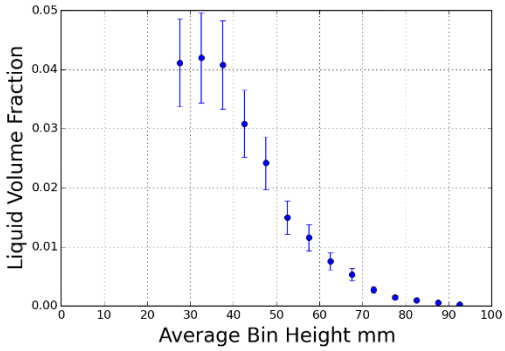


Figure C. 205: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

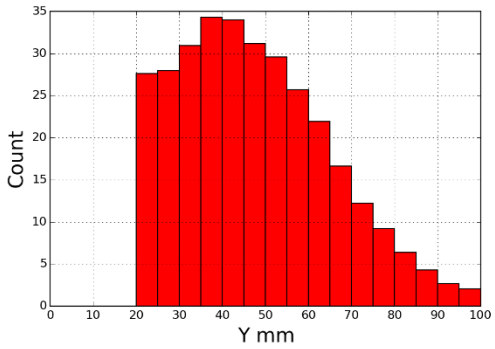


Figure C. 203: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 All Droplets for .LB Image

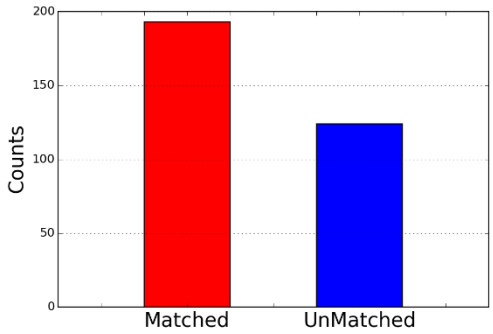


Figure C. 206: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

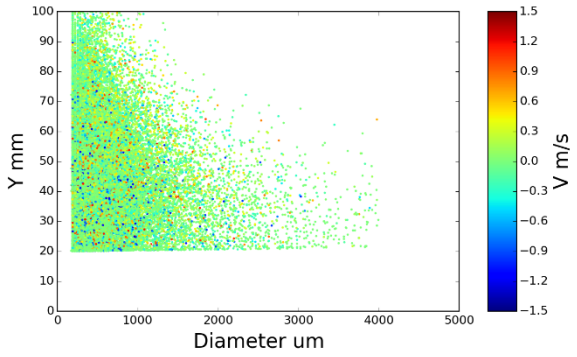


Figure C. 209: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

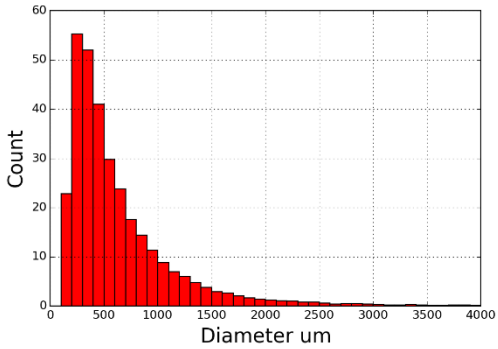


Figure C. 207: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

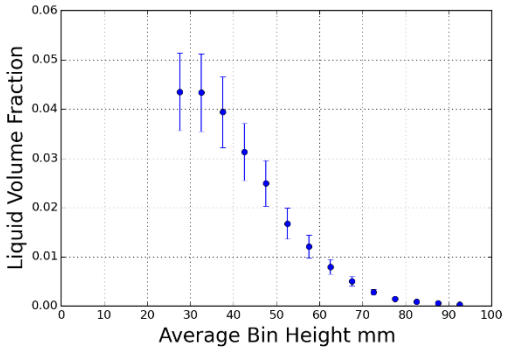


Figure C. 210: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

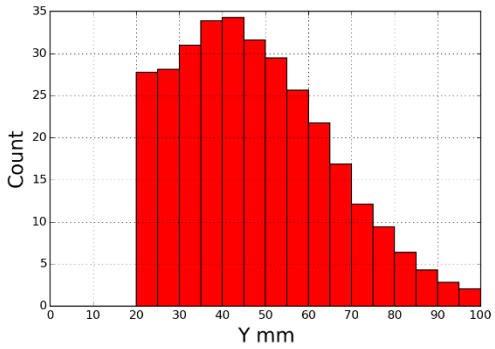


Figure C. 208: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LA Image

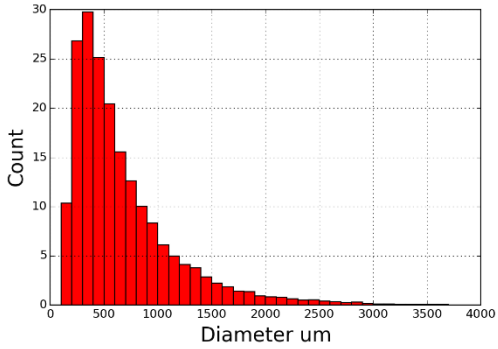


Figure C. 211: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

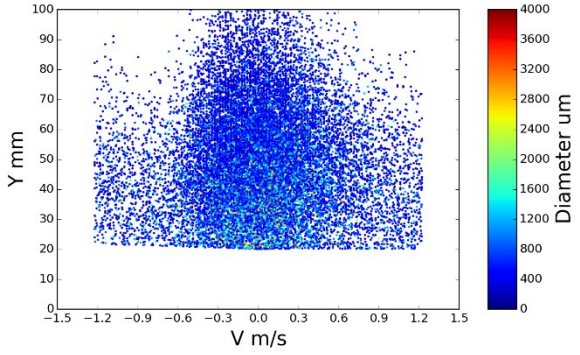


Figure C. 214: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

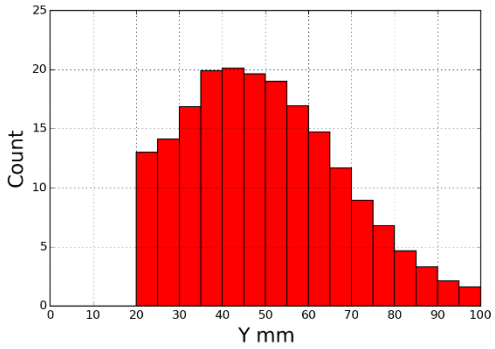


Figure C. 212: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

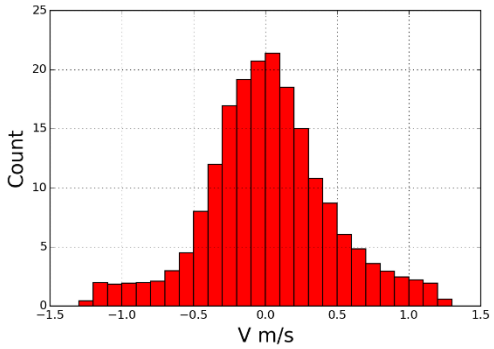


Figure C. 215: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

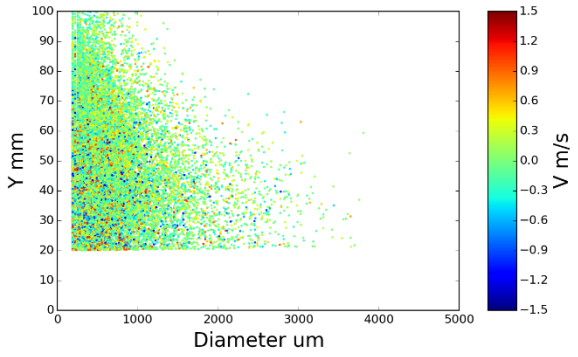


Figure C. 213: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LB Image

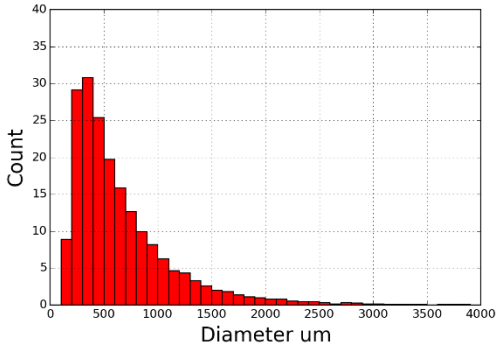


Figure C. 216: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

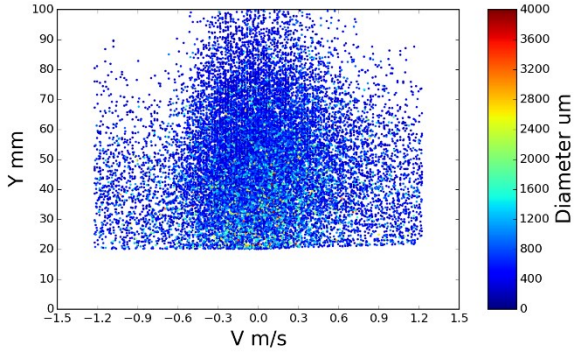


Figure C. 219: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

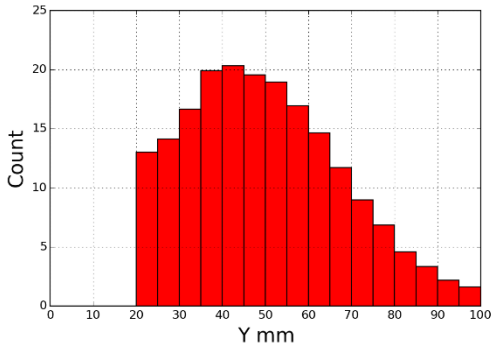


Figure C. 217: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

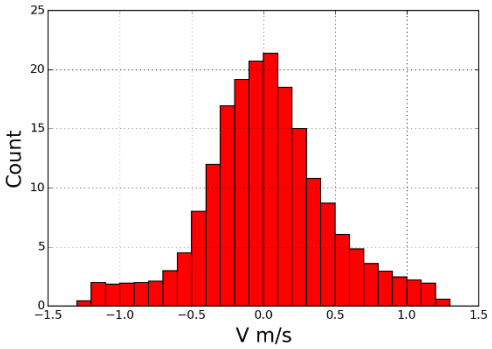


Figure C. 220: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

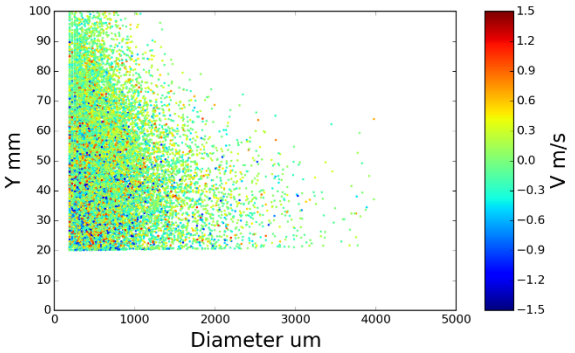


Figure C. 218: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	137.45	138.85	170.4	3980	736.9	593.0	170.4	3993	739.2	599.7
40-60mm	122.19	124.19	170.4	3989	578.0	423.8	170.4	3980	579.2	418.4
60-80mm	62.27	63.11	170.4	3596	463.3	288.7	170.4	2664	462.4	287.0
80-100mm	15.4	15.99	170.4	2151	396.9	221.0	182.2	2145	394.3	220.2
All	337.32	342.15	170.4	3989	613.3	488.8	170.4	3993	613.9	490.1
			Height A (mm)				Height B (mm)			
Highest Particle			100.0042				100.0042			
Lowest Particle			20.0922				20.0922			

Table C. 25: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	75.58	182.2	3918	800.0	581.6	170.4	3911	788.7	587.5	-1.220	1.220	-0.100	0.440	-1.220	1.220	0.040	0.490
40-60mm	78.31	182.2	3970	631.5	433.3	182.2	3944	621.6	421.9	-1.220	1.220	-0.090	0.360	-1.220	1.220	0.060	0.450
60-80mm	43.75	182.2	2858	502.1	300.2	182.2	2629	499.1	294.1	-1.220	1.200	-0.090	0.250	-1.220	1.220	0.070	0.370
80-100mm	11.83	193.2	2151	430.4	228.5	182.2	2145	432.3	230.3	-1.210	1.220	-0.100	0.170	-1.220	1.200	0.040	0.320
All	209.48	182.2	3970	653.9	479.1	170.4	3944	645.3	476.0	-1.220	1.220	-0.090	0.360	-1.220	1.220	0.060	0.440

Table C. 26: Matched Droplet Info

C.1.2.2 All Droplets for .LA Image

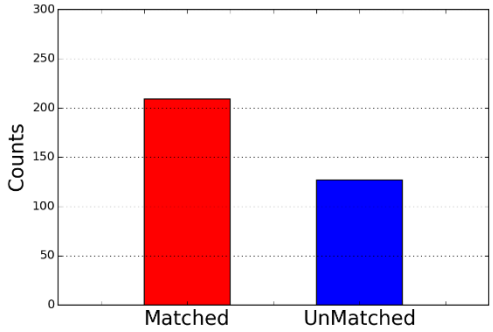


Figure C. 221: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

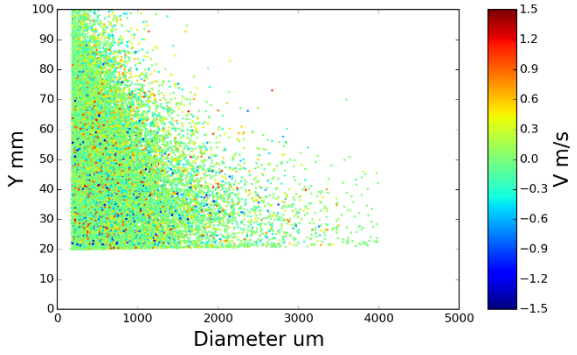


Figure C. 224: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

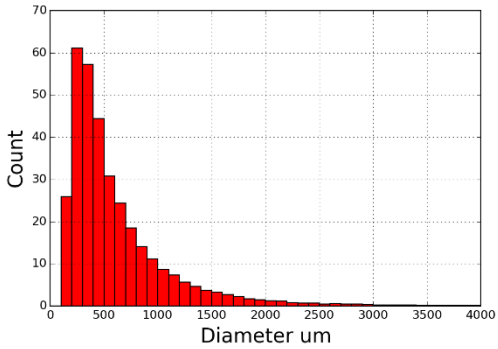


Figure C. 222: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

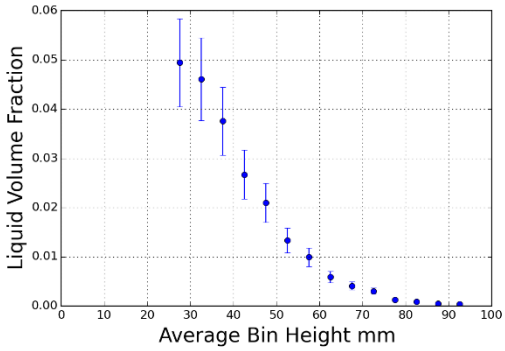


Figure C. 225: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

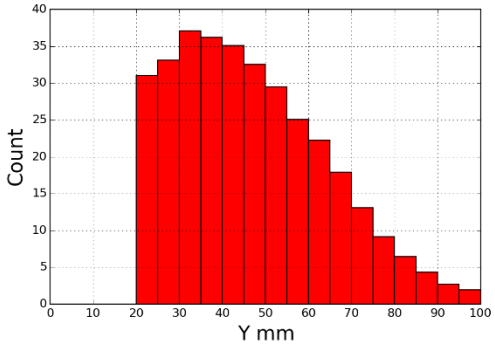


Figure C. 223: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 All Droplets for .LB Image

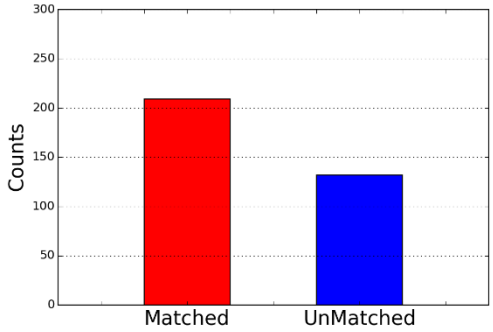


Figure C. 226: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

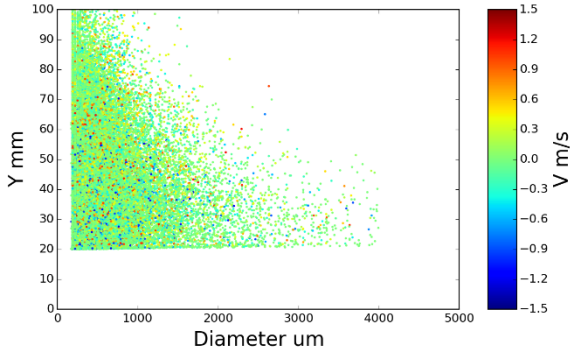


Figure C. 229: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

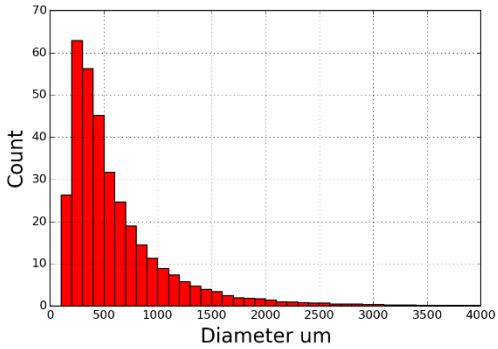


Figure C. 227: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

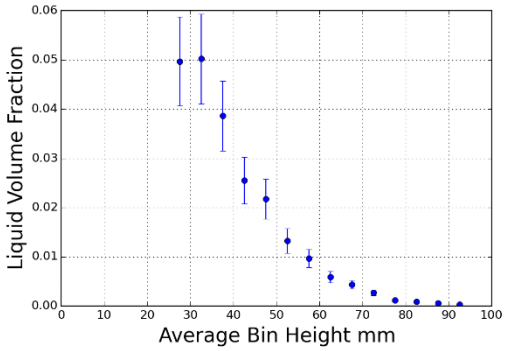


Figure C. 230: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

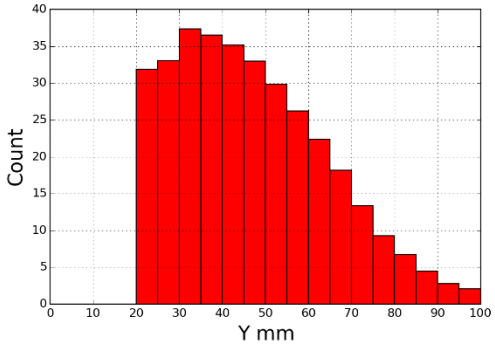


Figure C. 228: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LA Image

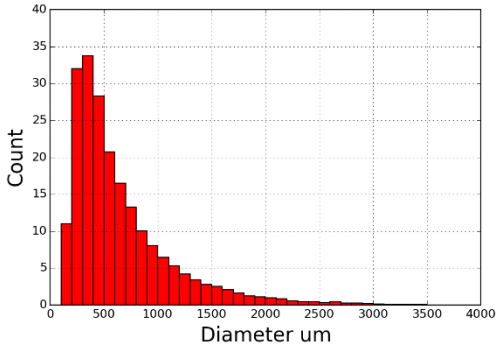


Figure C. 231: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

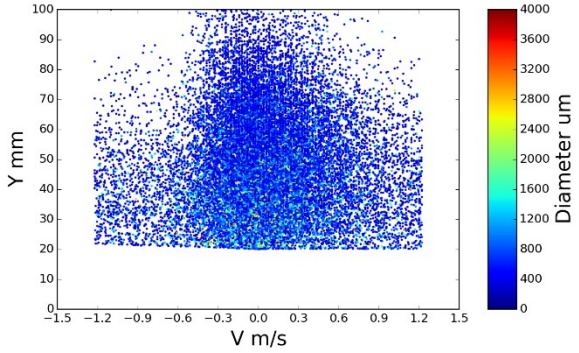


Figure C. 234: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

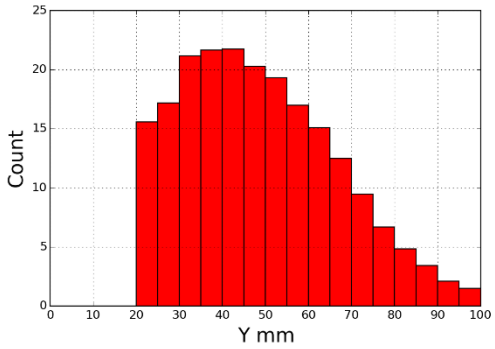


Figure C. 232: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

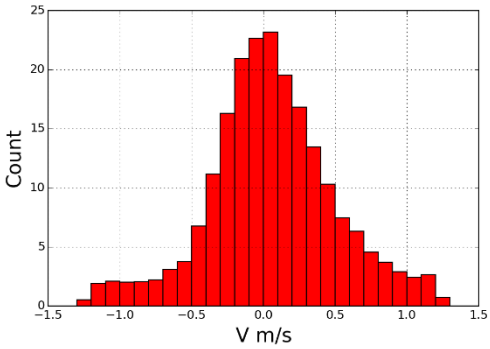


Figure C. 235: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

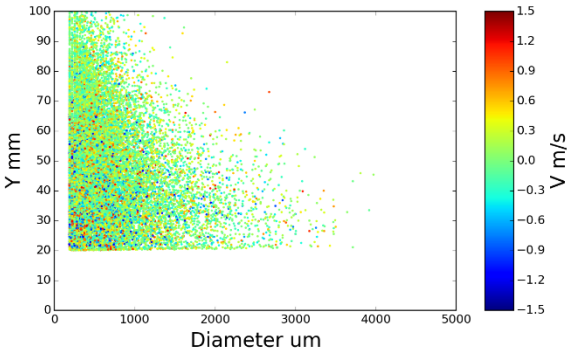


Figure C. 233: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.2.2 Matched Only Droplets for .LB Image

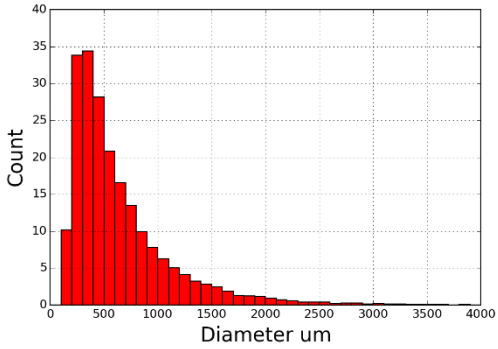


Figure C. 236: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

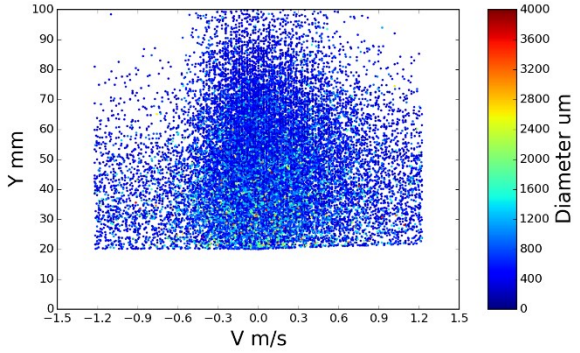


Figure C. 239: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

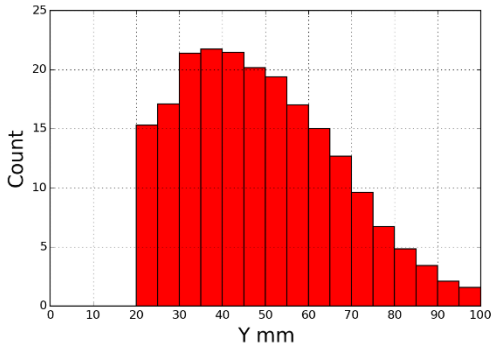


Figure C. 237: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

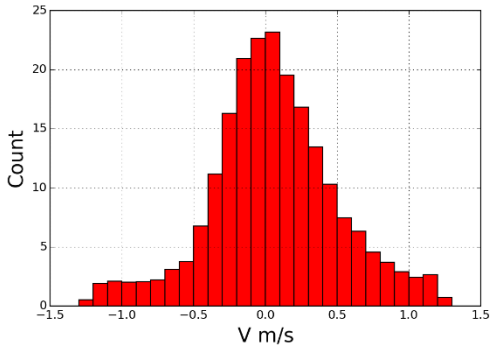


Figure C. 240: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

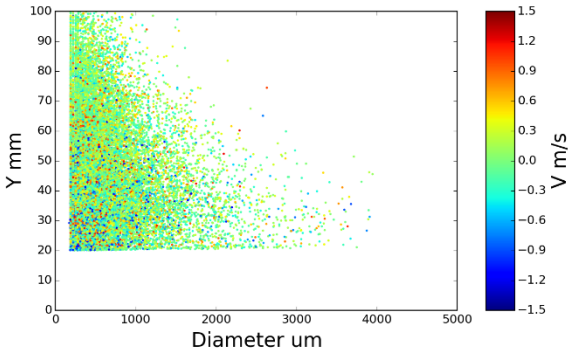


Figure C. 238: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11666 / 1.470
Ref Mass Flow (lb/hr) / (kg/s)	1517 / 0.191
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14763 / 20.021
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	2811 / 8.87
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.51
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.3 / 4.61
Total Bundle Q (Btu/hr) / (kW)	138227 / 40.51
Total Bundle & Preboiler Q (Btu/hr) / (kW)	138227 / 40.51
Top Two Rows HTC Ratio	0.505
Bundle Inlet Quality	-0.10
Bundle Exit Quality	0.99

Table C. 27: Thermal Conditions

C.1.3.1 Lens 100mm Mag 0_29x

C.1.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	2.75	2.87	81.4	2095	320.9	321.0	81.4	1683	316.8	294.9
40-60mm	5.53	5.7	81.4	1084	200.4	134.0	86.3	1089	199.3	139.2
60-80mm	4.21	4.28	86.3	1001	149.7	77.6	86.3	1153	149.4	84.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	12.49	12.85	81.4	2095	209.9	191.4	81.4	1683	208.9	185.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.9425				79.9425			
Lowest Particle			32.0267				32.0322			

Table C. 28: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	1.86	86.3	1424	297.5	239.2	86.3	1433	304.1	250.7	-0.530	0.990	-0.200	0.190	-0.600	0.940	-0.070	0.270
40-60mm	4.44	86.3	1084	209.6	134.9	86.3	1089	211.3	139.2	-0.560	0.610	-0.230	0.130	-0.570	1.050	-0.060	0.230
60-80mm	3.49	86.3	1001	157.3	81.3	86.3	1153	157.3	88.9	-0.510	0.130	-0.200	0.110	-0.600	1.070	0.010	0.220
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	9.79	86.3	1424	207.6	154.7	86.3	1433	209.8	162.1	-0.560	0.990	-0.210	0.140	-0.600	1.070	-0.040	0.240

Table C. 29: Matched Droplet Info

C.1.3.1 All Droplets for .LA Image

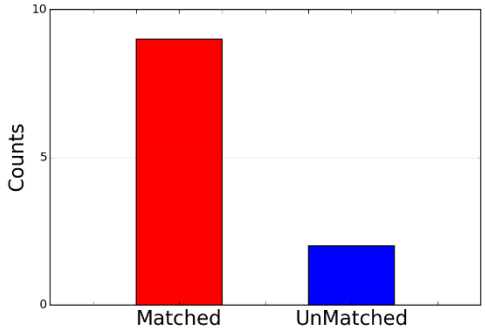


Figure C. 241: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

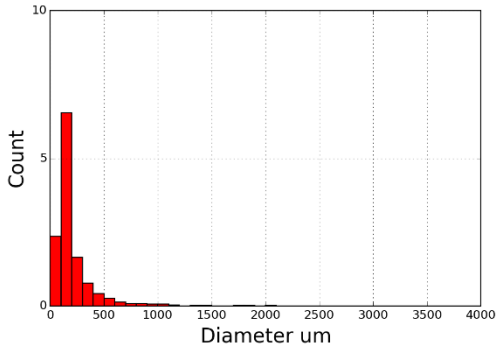


Figure C. 242: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

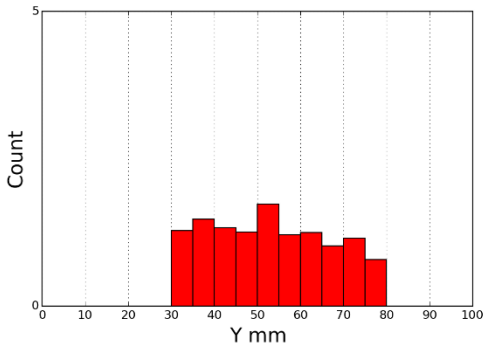


Figure C. 243: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

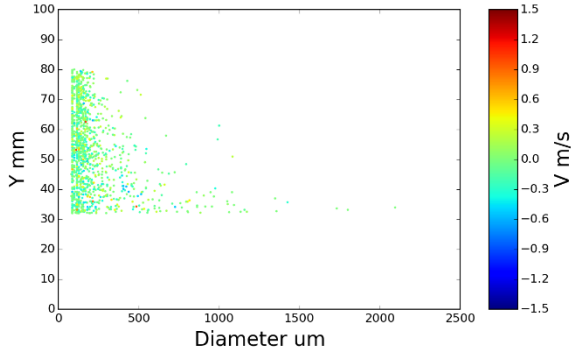


Figure C. 244: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

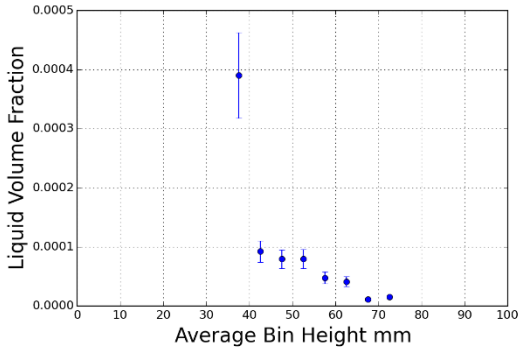


Figure C. 245: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 All Droplets for .LB Image

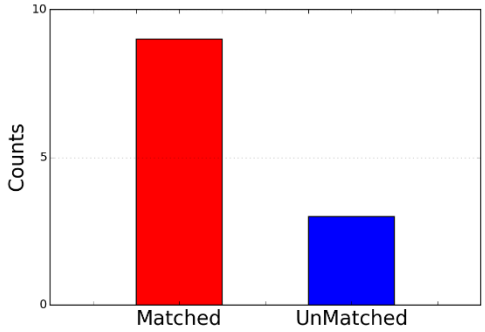


Figure C. 246: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

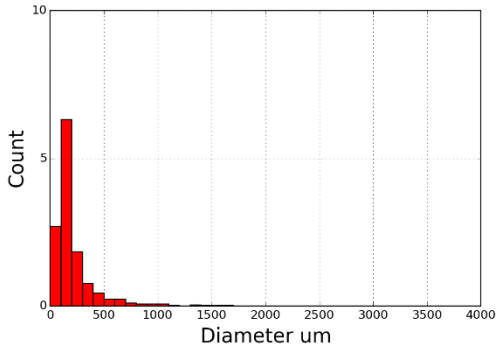


Figure C. 247: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

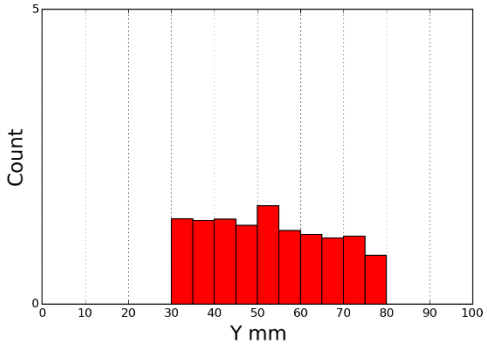


Figure C. 248: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

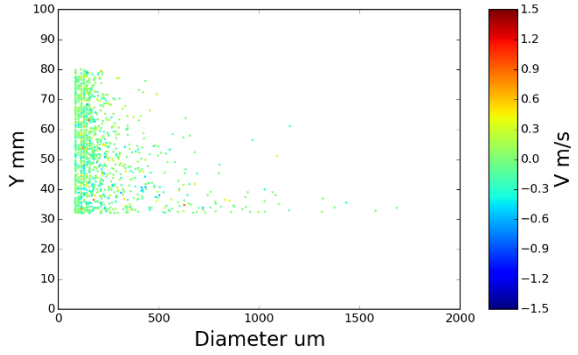


Figure C. 249: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

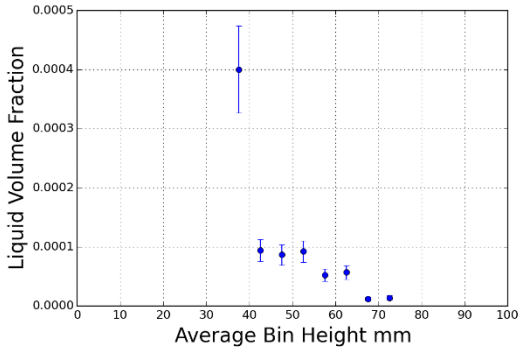


Figure C. 250: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LA Image

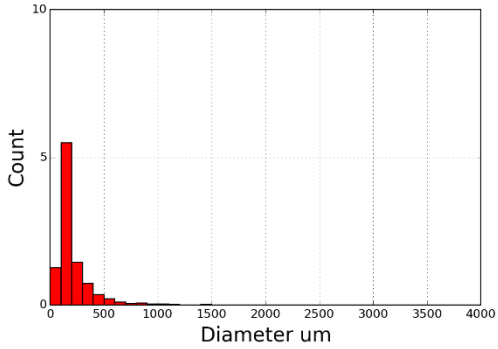


Figure C. 251: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

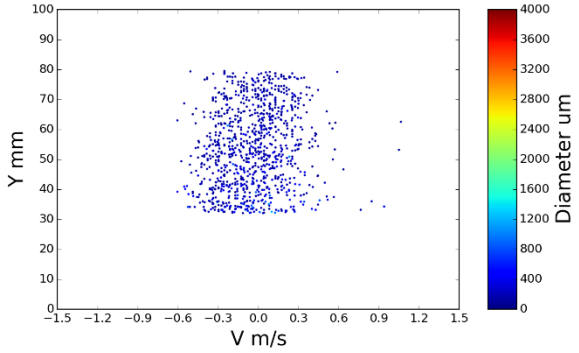


Figure C. 254: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

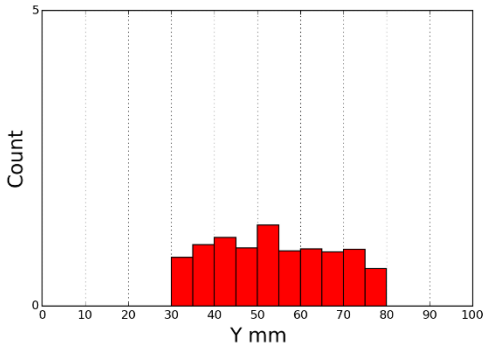


Figure C. 252: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

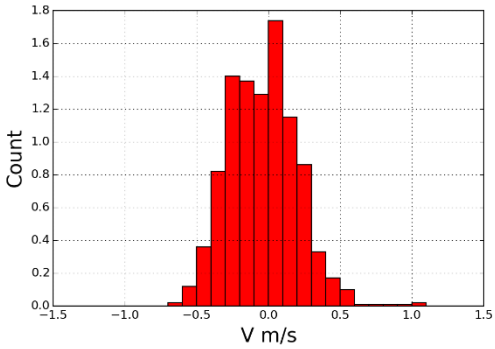


Figure C. 255: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

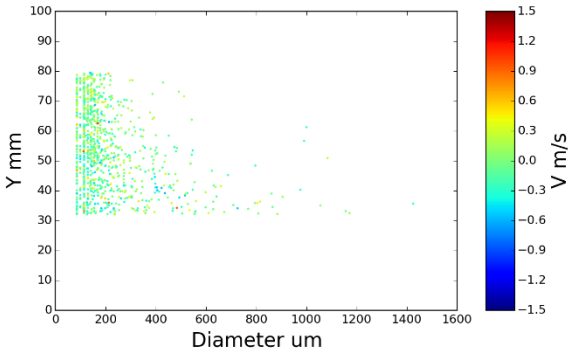


Figure C. 253: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LB Image

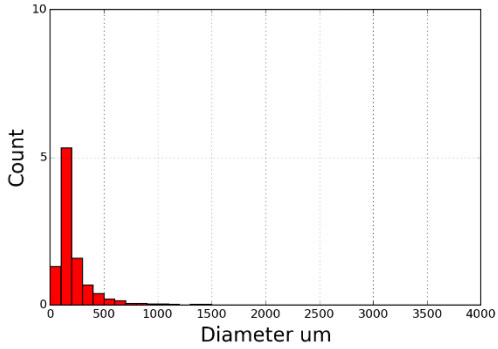


Figure C. 256: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

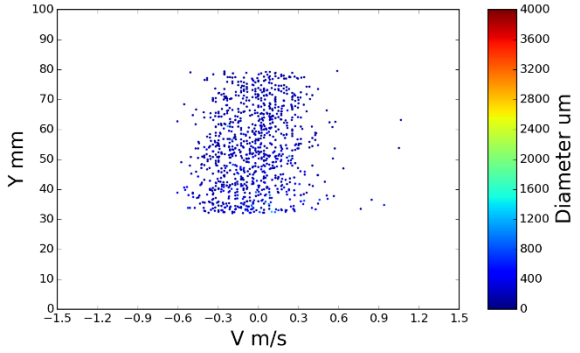


Figure C. 259: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

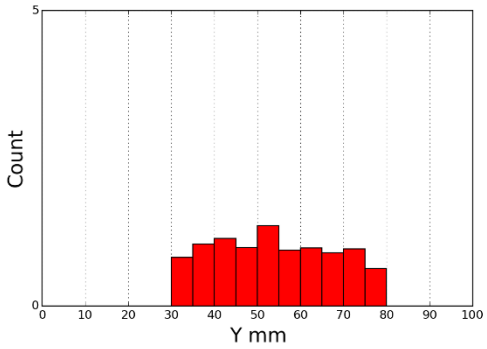


Figure C. 257: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

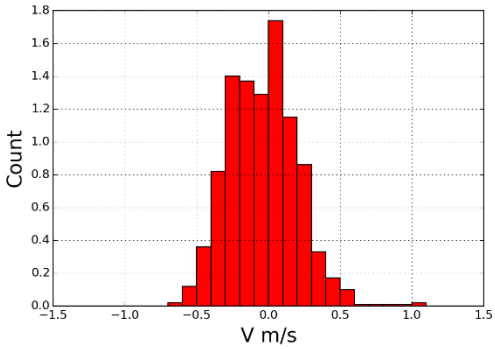


Figure C. 260: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

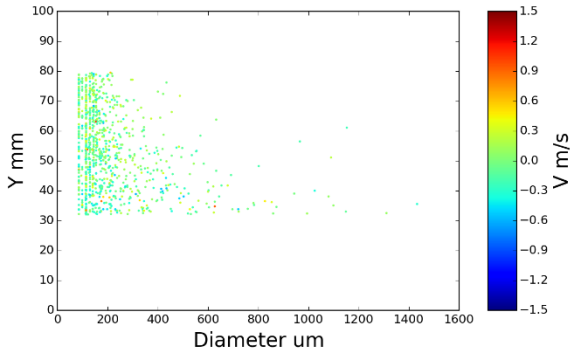


Figure C. 258: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	5.87	5.92	81.4	1912	306.5	244.0	81.4	2118	300.4	244.4
40-60mm	10.11	10.3	81.4	1639	227.3	168.8	81.4	1659	227.6	172.3
60-80mm	5.67	5.85	86.3	986.3	160.6	91.5	86.3	962.1	159.8	91.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	21.65	22.07	81.4	1912	231.3	185.7	81.4	2118	229.2	186.3
			Height A (mm)				Height B (mm)			
Highest Particle			79.9425				79.9170			
Lowest Particle			32.0153				32.0138			

Table C. 30: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.7	81.4	1912	311.8	233.6	81.4	2118	311.9	242.7	-1.070	0.510	-0.150	0.140	-0.740	1.150	0.180	0.310
40-60mm	8.63	86.3	1639	234.6	162.4	86.3	1659	236.6	167.2	-0.530	0.310	-0.160	0.120	-0.580	1.000	0.120	0.240
60-80mm	4.67	86.3	986.3	171.7	96.2	86.3	962.1	171.7	96.4	-1.130	0.130	-0.150	0.120	-0.420	1.130	0.080	0.200
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	18.0	81.4	1912	238.4	178.5	81.4	2118	239.1	183.4	-1.130	0.510	-0.160	0.130	-0.740	1.150	0.130	0.250

Table C. 31: Matched Droplet Info

C.1.3.1 All Droplets for .LA Image

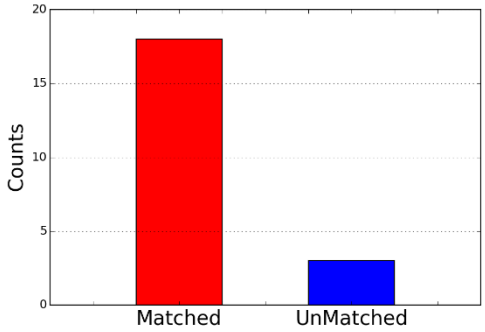


Figure C. 261: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

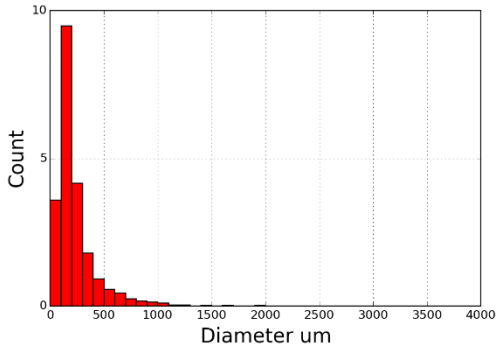


Figure C. 262: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

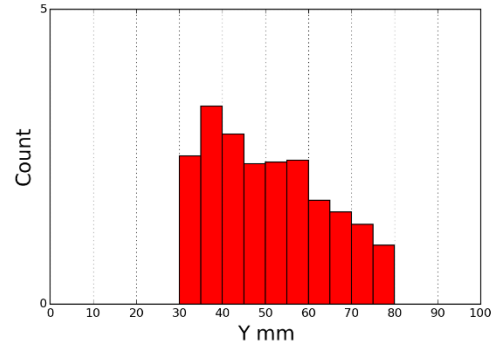


Figure C. 263: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

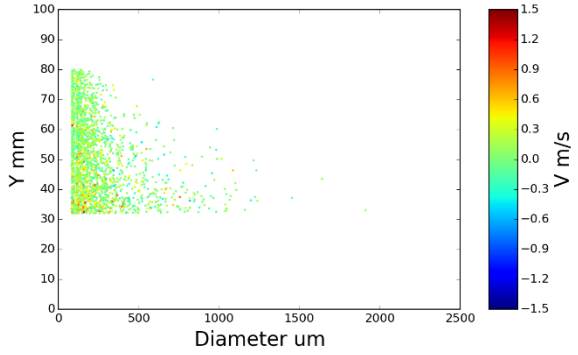


Figure C. 264: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

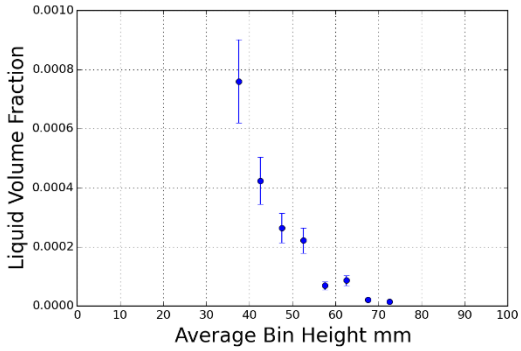


Figure C. 265: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 All Droplets for .LB Image

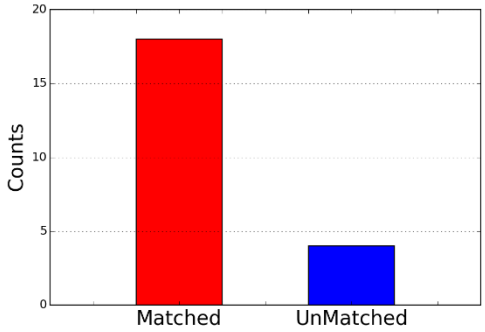


Figure C. 266: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

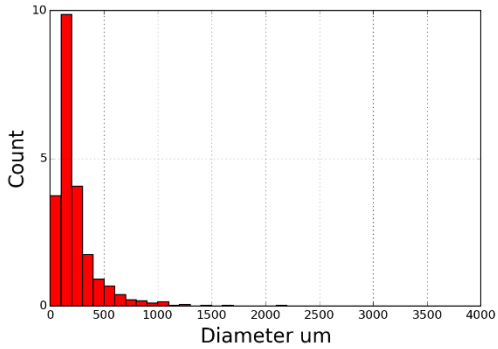


Figure C. 267: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

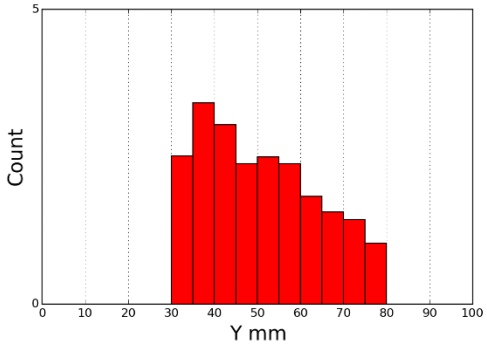


Figure C. 268: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

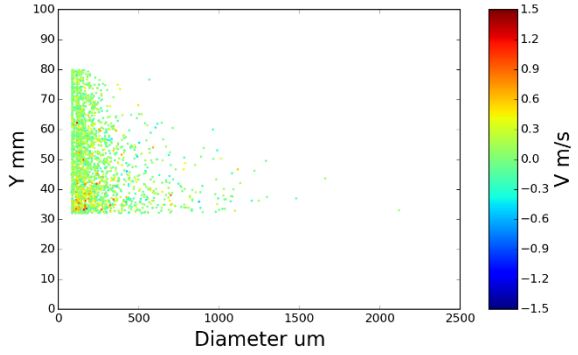


Figure C. 269: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

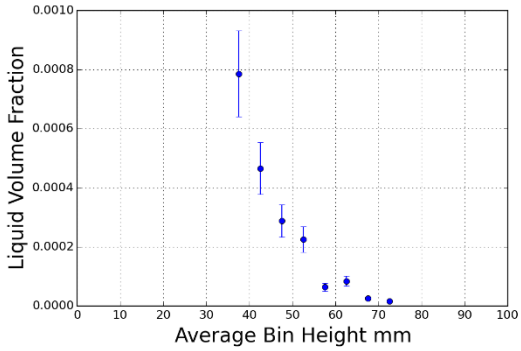


Figure C. 270: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LA Image

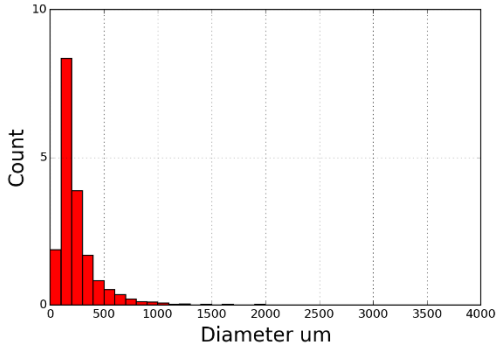


Figure C. 271: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

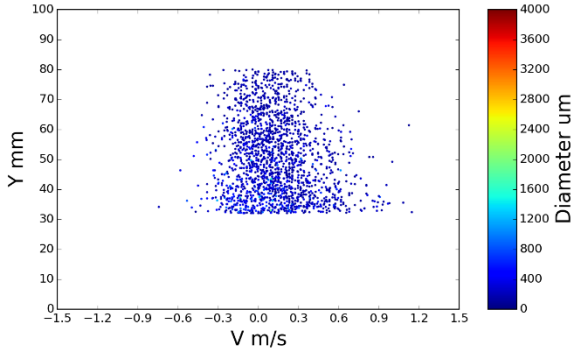


Figure C. 274: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

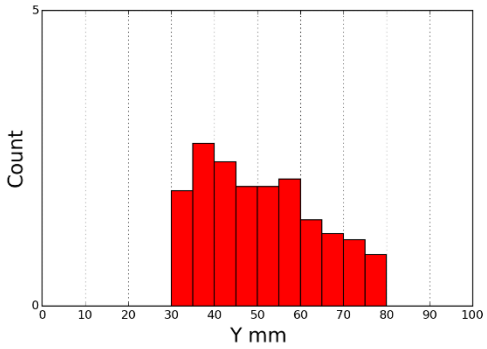


Figure C. 272: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

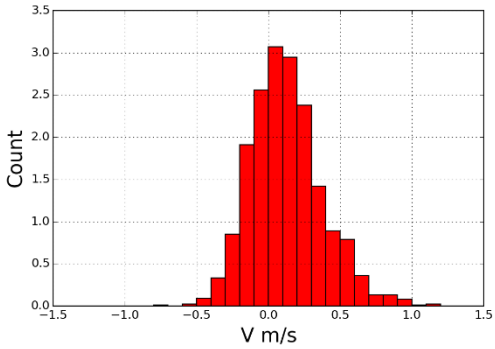


Figure C. 275: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

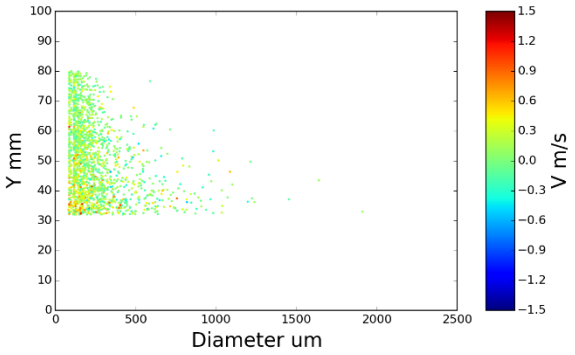


Figure C. 273: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LB Image

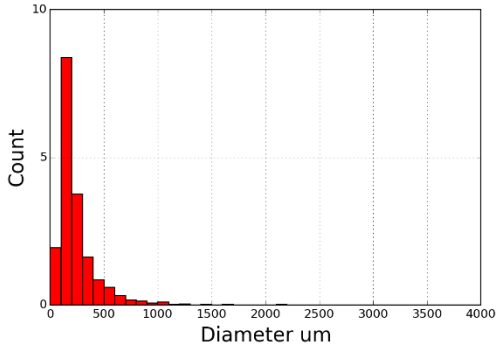


Figure C. 276: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

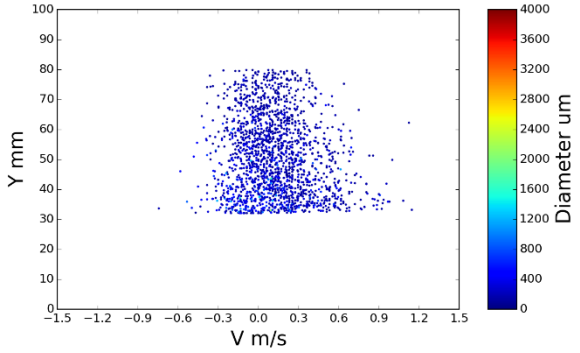


Figure C. 279: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

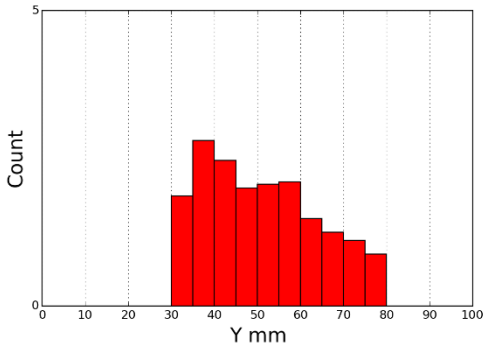


Figure C. 277: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

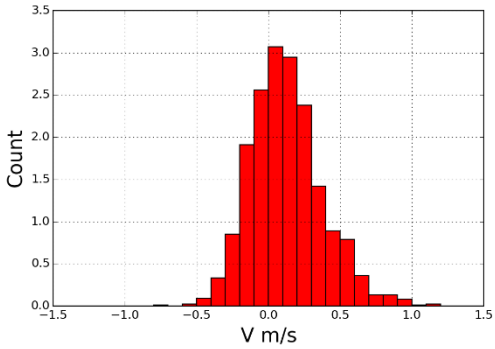


Figure C. 280: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

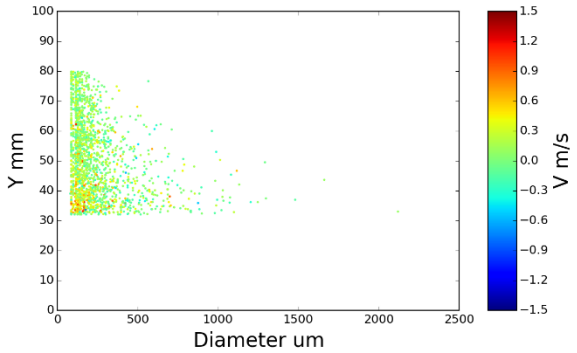


Figure C. 278: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	6.55	6.87	81.4	1543	314.9	242.2	76.1	1576	310.4	242.5
40-60mm	10.03	10.71	76.1	1388	231.4	174.8	81.4	1516	225.7	173.4
60-80mm	4.93	5.03	86.3	831.5	156.7	99.9	81.4	889.2	154.3	98.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	21.51	22.61	76.1	1543	239.7	194.2	76.1	1576	235.6	193.6
			Height A (mm)				Height B (mm)			
Highest Particle			79.5727				79.9425			
Lowest Particle			32.0141				32.0141			

Table C. 32: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.38	86.3	1543	316.8	221.7	86.3	1576	320.4	230.6	-0.600	1.020	-0.080	0.120	-1.210	1.150	0.160	0.280
40-60mm	8.44	86.3	1191	237.8	164.2	86.3	1516	238.4	169.2	-0.500	0.650	-0.100	0.110	-0.900	0.880	0.130	0.230
60-80mm	3.91	86.3	831.5	165.4	97.4	81.4	889.2	163.8	96.5	-1.120	0.210	-0.110	0.120	-0.360	0.950	0.110	0.190
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	17.73	86.3	1543	245.8	181.2	81.4	1576	246.7	186.9	-1.120	1.020	-0.100	0.120	-1.210	1.150	0.130	0.240

Table C. 33: Matched Droplet Info

C.1.3.1 All Droplets for .LA Image

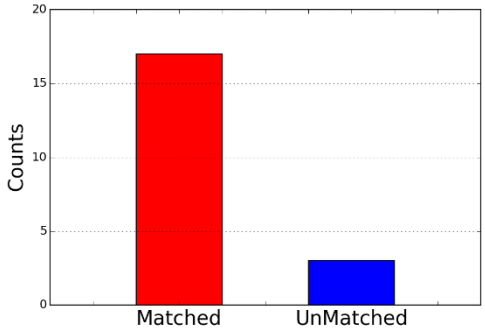


Figure C. 281: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

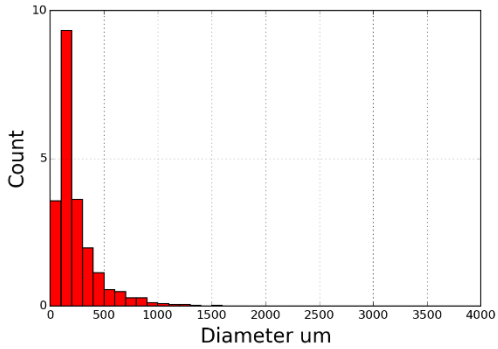


Figure C. 282: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

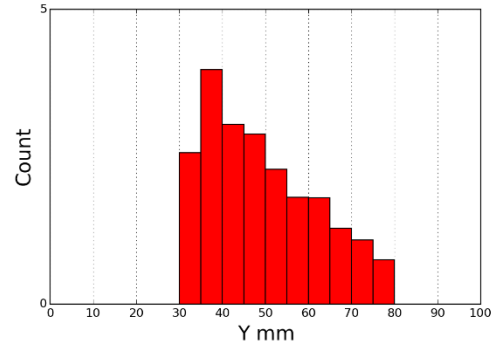


Figure C. 283: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

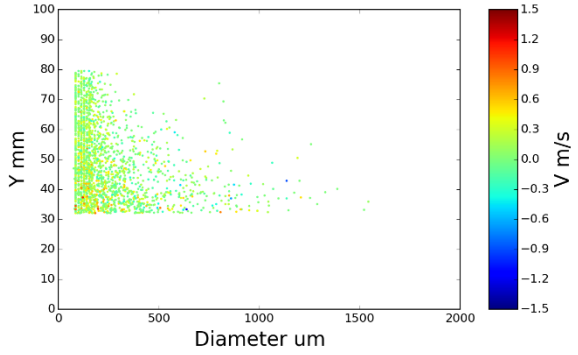


Figure C. 284: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

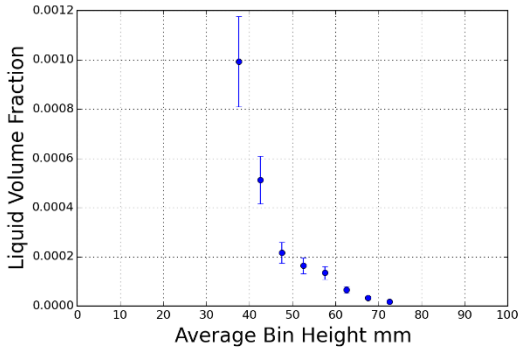


Figure C. 285: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 All Droplets for .LB Image

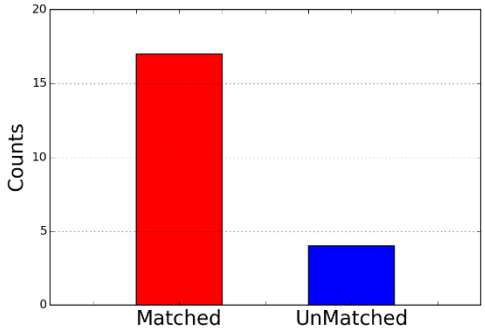


Figure C. 286: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

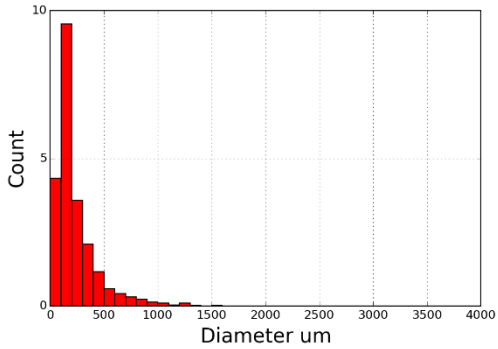


Figure C. 287: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

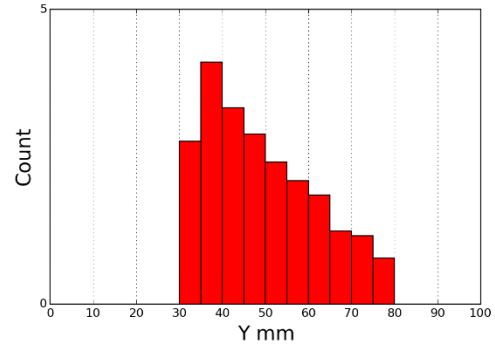


Figure C. 288: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

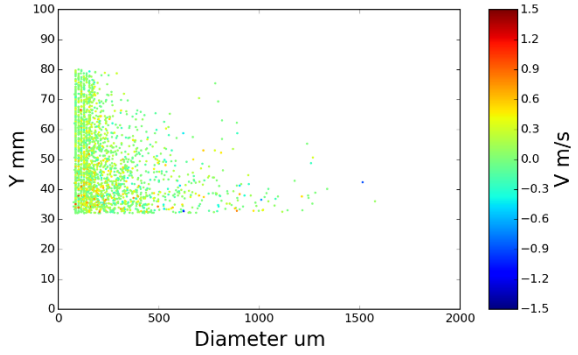


Figure C. 289: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

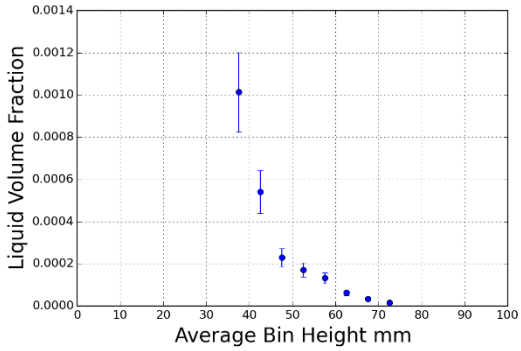


Figure C. 290: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LA Image

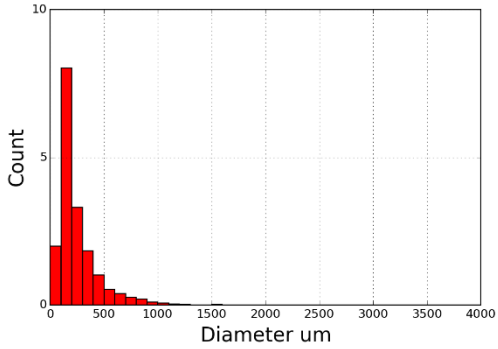


Figure C. 291: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

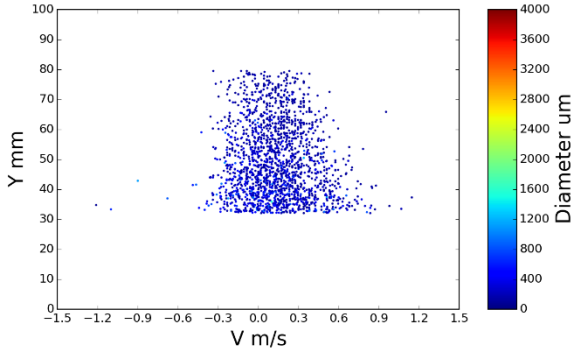


Figure C. 294: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

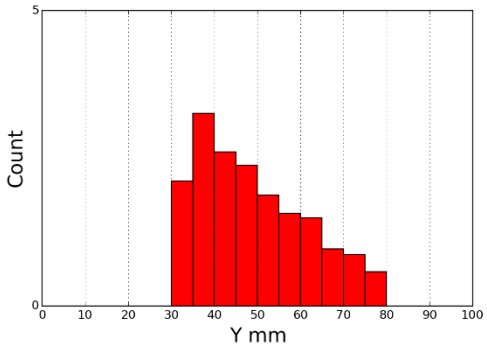


Figure C. 292: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

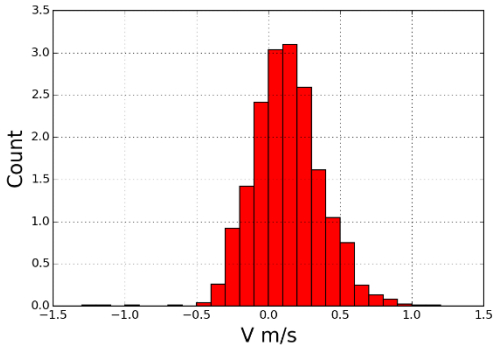


Figure C. 295: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

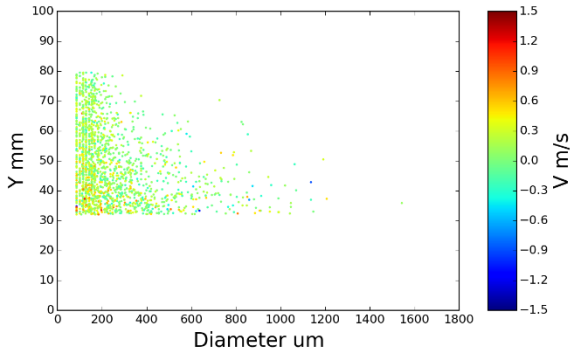


Figure C. 293: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.1 Matched Only Droplets for .LB Image

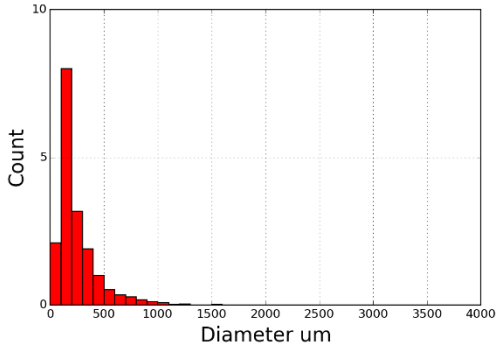


Figure C. 296: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

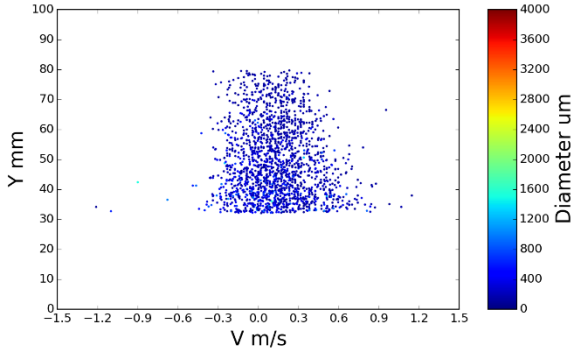


Figure C. 299: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

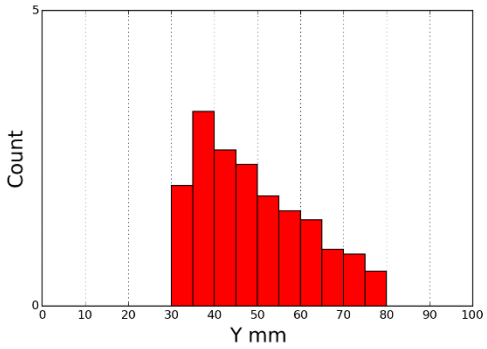


Figure C. 297: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

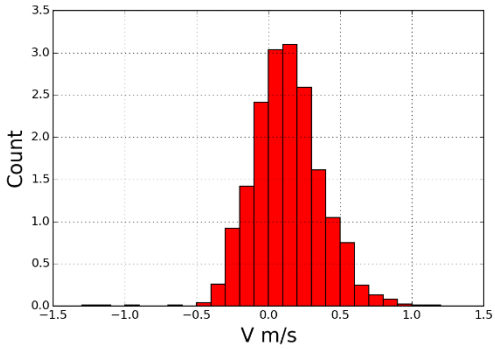


Figure C. 300: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

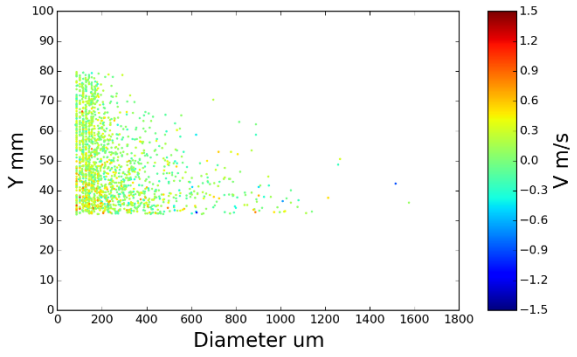


Figure C. 298: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Lens 50mm Mag 0_13x

C.1.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	4.9	5.14	182.2	1974	622.2	354.3	193.2	2157	605.7	358.1
20-40mm	11.5	11.54	193.2	2057	510.6	312.1	170.4	2026	512.5	308.4
40-60mm	4.05	3.99	193.2	1641	385.2	206.8	170.4	1602	394.3	217.6
60-80mm	0.88	0.92	193.2	1080	308.7	151.2	193.2	995.7	300.7	131.2
80-100mm	0.12	0.16	223.1	460.0	285.4	65.5	193.2	417.4	250.3	65.2
All	21.45	21.75	182.2	2057	502.9	312.5	170.4	2157	502.0	311.7
			Height A (mm)				Height B (mm)			
Highest Particle			99.8900				99.7758			
Lowest Particle			14.4735				14.3983			

Table C. 34: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	3.59	193.2	1780	617.3	327.9	193.2	2157	618.9	349.9	-1.160	0.390	-0.100	0.140	-0.890	1.200	0.020	0.320
20-40mm	9.24	193.2	1834	503.8	273.6	182.2	2026	507.4	286.0	-0.960	1.070	-0.100	0.120	-0.960	1.160	-0.020	0.290
40-60mm	3.15	193.2	1641	412.2	207.1	193.2	1602	418.1	212.9	-1.120	0.230	-0.110	0.110	-0.630	0.880	0.000	0.250
60-80mm	0.7	193.2	1080	320.2	151.1	193.2	995.7	327.1	142.2	-0.350	0.100	-0.110	0.070	-0.330	0.390	-0.000	0.150
80-100mm	0.07	223.1	460.0	310.1	75.9	193.2	417.4	287.4	67.1	-0.240	-0.040	-0.130	0.070	-0.200	0.300	-0.010	0.150
All	16.75	193.2	1834	502.4	281.6	182.2	2157	506.0	293.9	-1.160	1.070	-0.100	0.120	-0.960	1.200	-0.010	0.290

Table C. 35: Matched Droplet Info

C.1.3.2 All Droplets for .LA Image

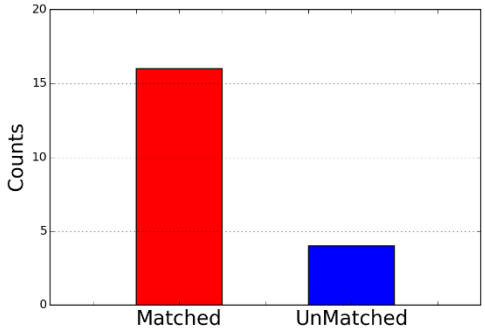


Figure C. 301: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

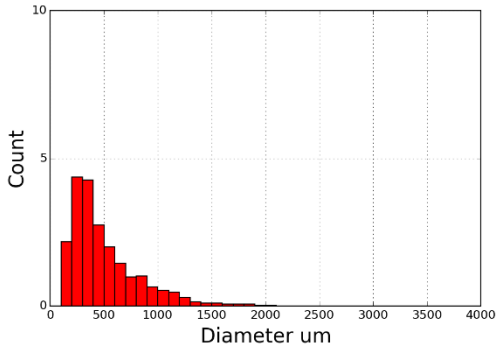


Figure C. 302: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

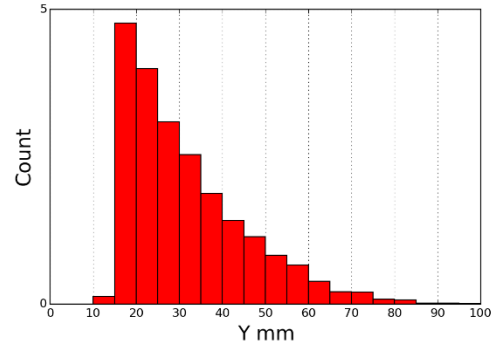


Figure C. 303: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

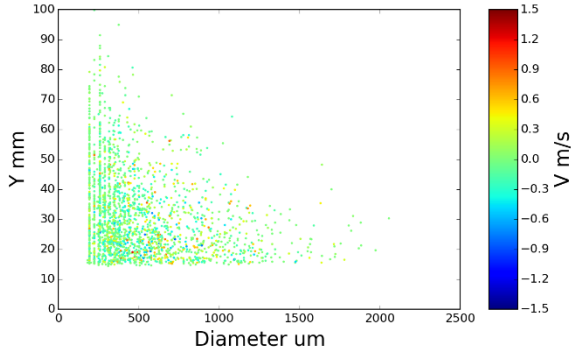


Figure C. 304: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

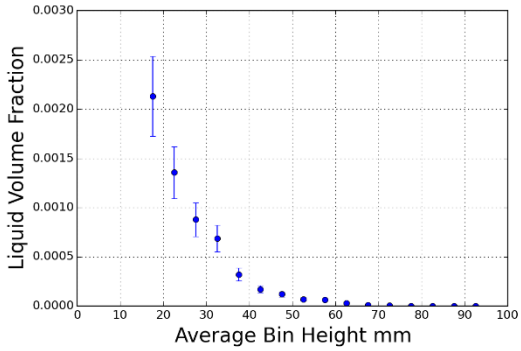


Figure C. 305: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 All Droplets for .LB Image

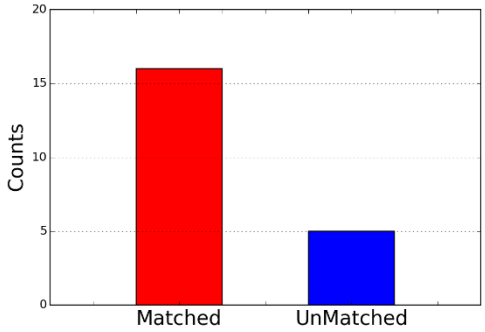


Figure C. 306: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

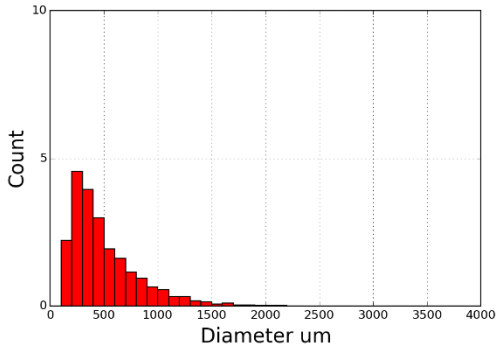


Figure C. 307: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

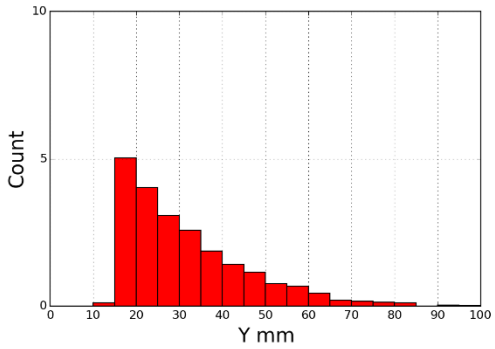


Figure C. 308: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

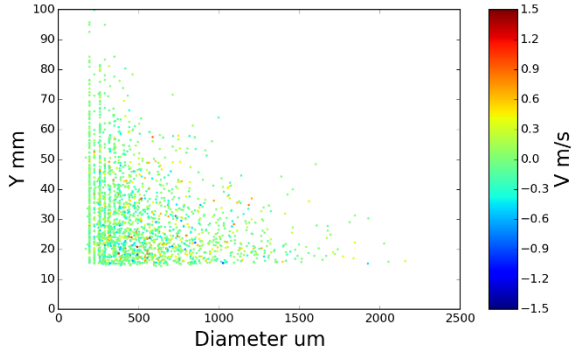


Figure C. 309: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

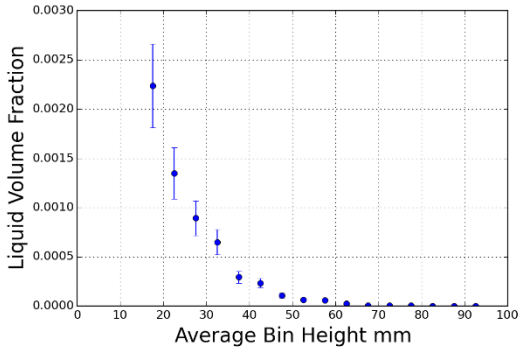


Figure C. 310: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LA Image

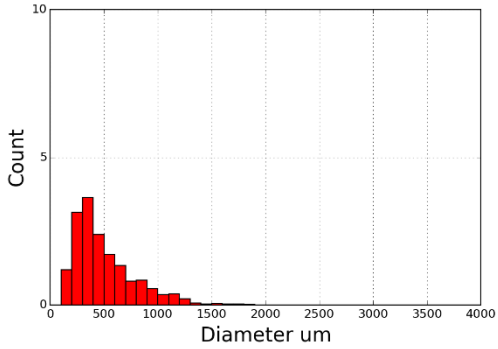


Figure C. 311: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

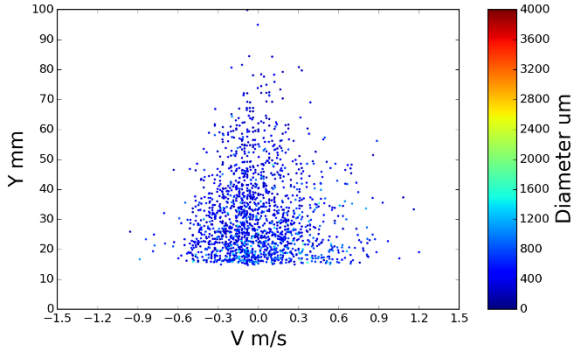


Figure C. 314: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

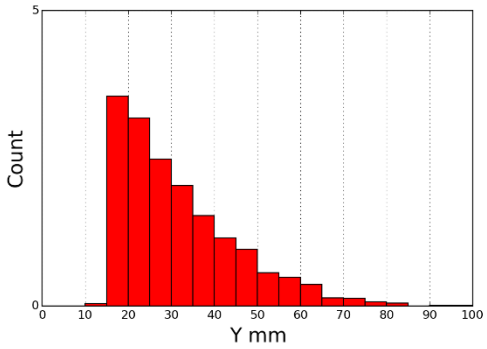


Figure C. 312: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

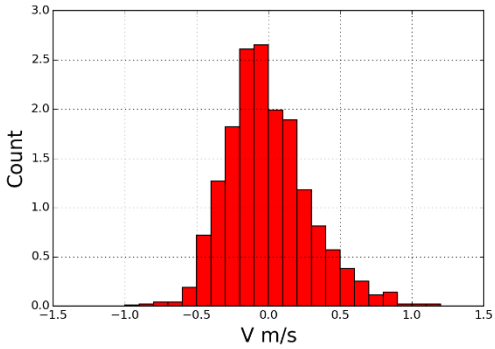


Figure C. 315: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

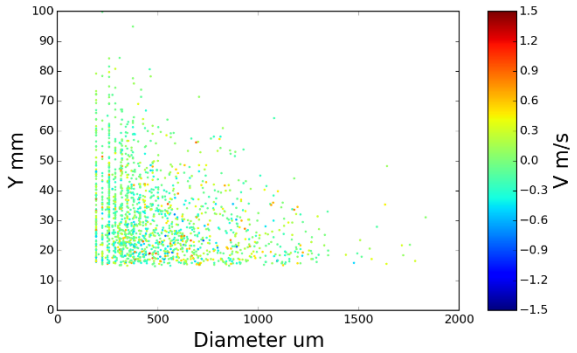


Figure C. 313: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LB Image

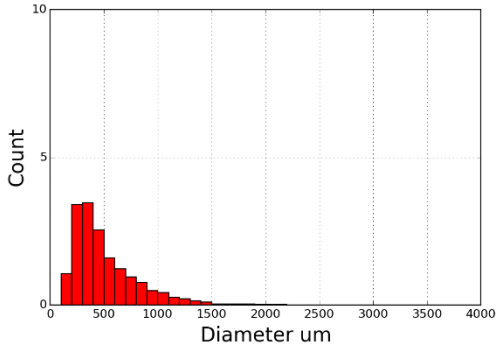


Figure C. 316: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

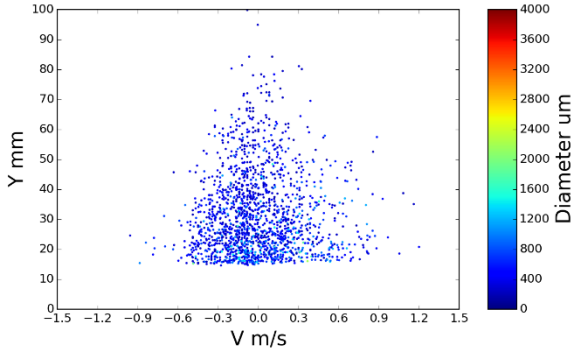


Figure C. 319: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

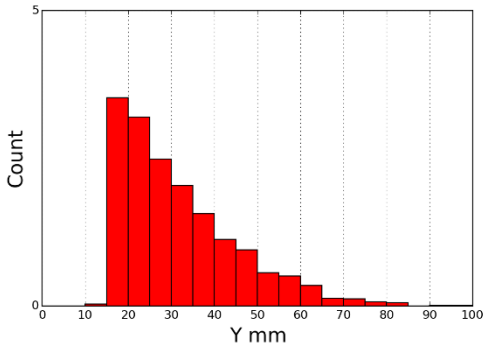


Figure C. 317: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

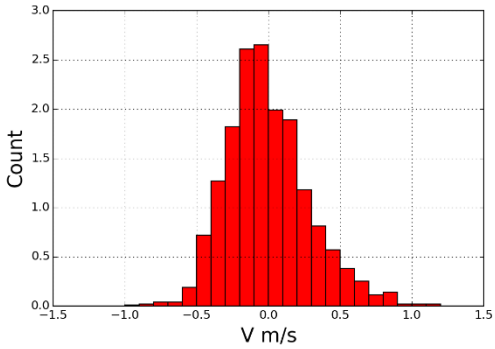


Figure C. 320: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

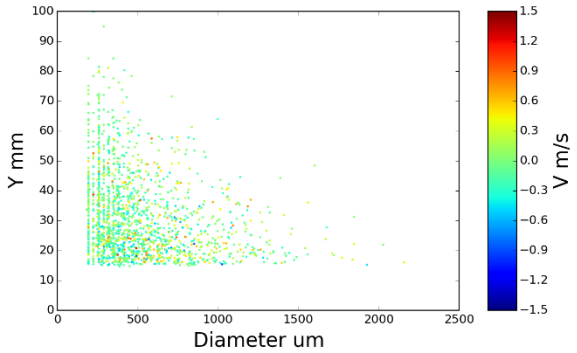


Figure C. 318: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.53	6.63	182.2	1927	567.6	324.5	182.2	2015	568.4	326.0
20-40mm	12.73	12.89	193.2	2298	488.9	288.3	182.2	1964	489.8	282.6
40-60mm	4.11	4.38	193.2	1876	376.7	196.3	193.2	1540	372.8	191.4
60-80mm	0.57	0.68	193.2	778.2	305.7	132.5	193.2	834.8	301.7	134.2
80-100mm	0.04	0.05	193.2	249.4	214.8	23.5	193.2	257.6	219.0	31.6
All	23.98	24.63	182.2	2298	486.3	290.8	182.2	2015	484.4	287.4
			Height A (mm)				Height B (mm)			
Highest Particle			92.8977				92.9833			
Lowest Particle			13.4709				13.5690			

Table C. 36: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	5.32	193.2	1927	564.8	303.0	182.2	2015	568.7	319.8	-0.910	0.810	-0.110	0.130	-1.070	1.020	0.050	0.300
20-40mm	10.69	193.2	1764	487.4	252.6	182.2	1964	492.9	259.8	-1.220	0.500	-0.120	0.120	-1.210	1.040	0.050	0.280
40-60mm	3.42	193.2	1369	392.6	181.2	193.2	1460	396.8	185.6	-1.210	0.270	-0.130	0.140	-1.220	1.200	0.020	0.260
60-80mm	0.45	193.2	778.2	331.4	137.5	193.2	834.8	330.7	145.3	-0.860	0.080	-0.130	0.140	-0.450	0.530	0.020	0.220
80-100mm	0.03	193.2	249.4	221.9	23.0	193.2	257.6	214.7	30.4	-0.200	-0.120	-0.170	0.030	-0.080	0.100	0.030	0.080
All	19.91	193.2	1927	487.9	262.0	182.2	2015	491.9	271.2	-1.220	0.810	-0.120	0.130	-1.220	1.200	0.050	0.280

Table C. 37: Matched Droplet Info

C.1.3.2 All Droplets for .LA Image

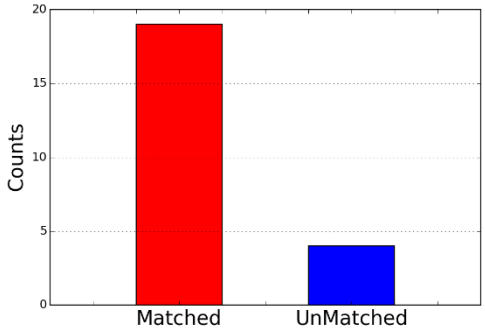


Figure C. 321: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

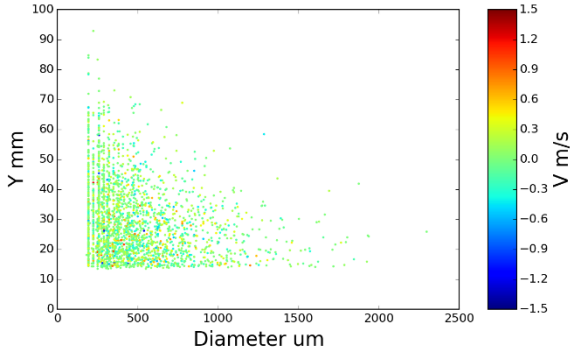


Figure C. 324: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

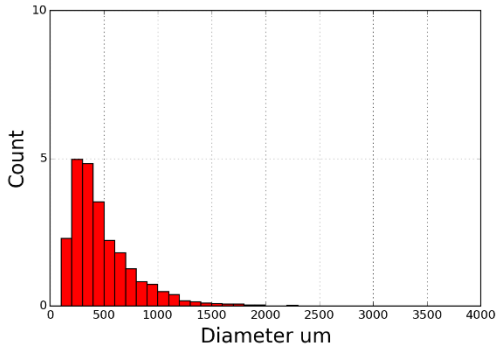


Figure C. 322: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

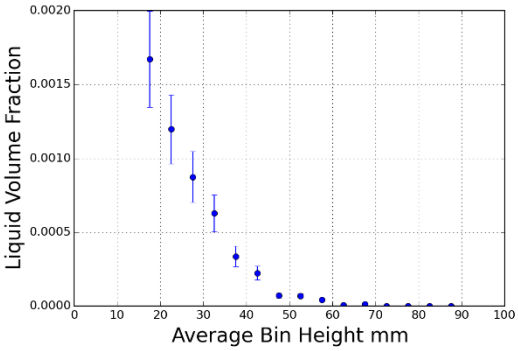


Figure C. 325: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

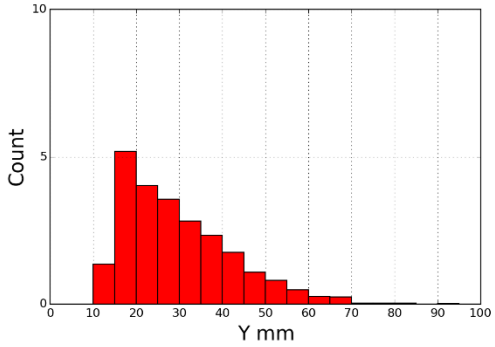


Figure C. 323: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 All Droplets for .LB Image

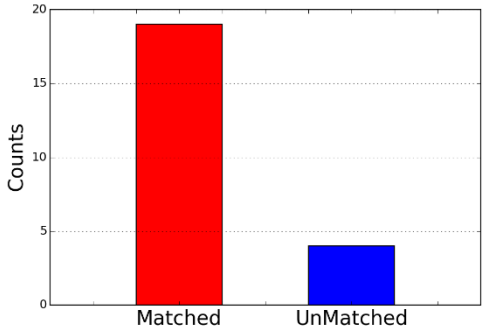


Figure C. 326: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

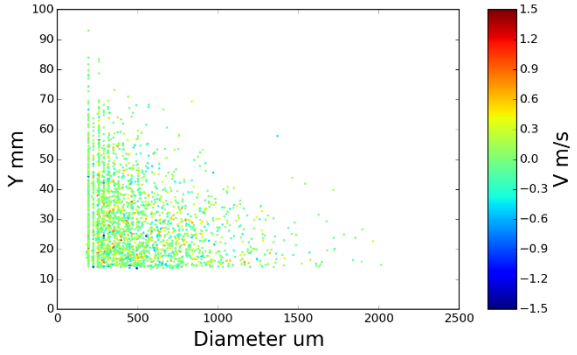


Figure C. 329: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

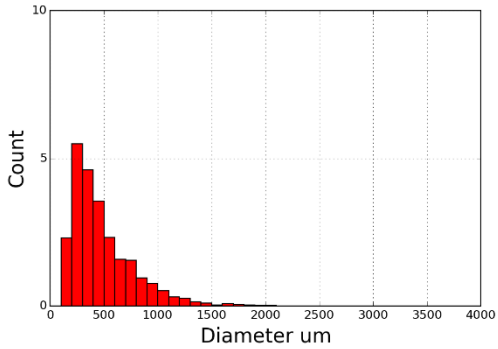


Figure C. 327: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

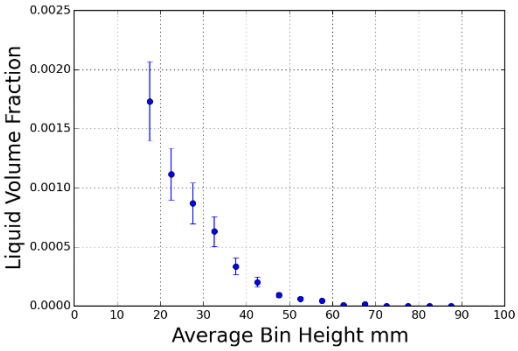


Figure C. 330: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

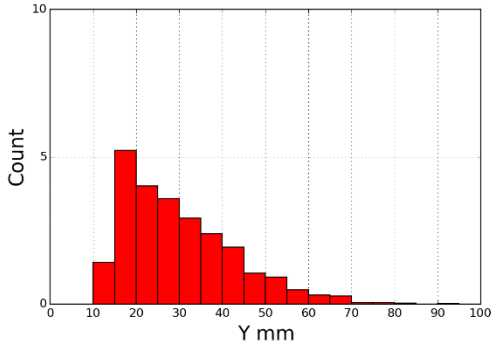


Figure C. 328: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LA Image

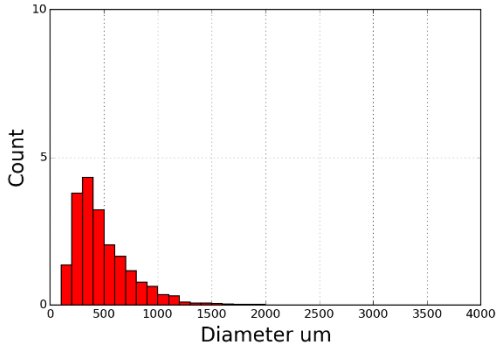


Figure C. 331: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

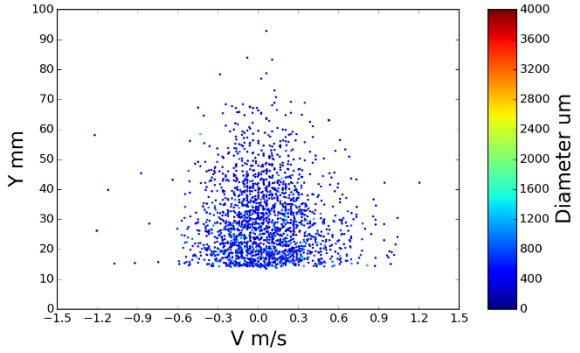


Figure C. 334: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

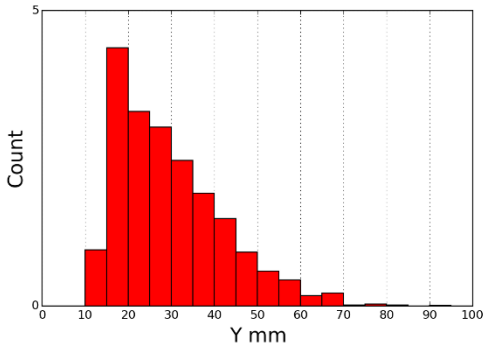


Figure C. 332: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

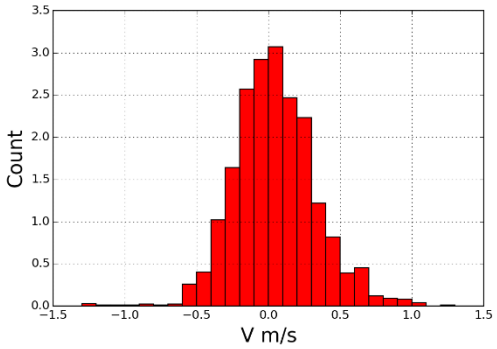


Figure C. 335: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

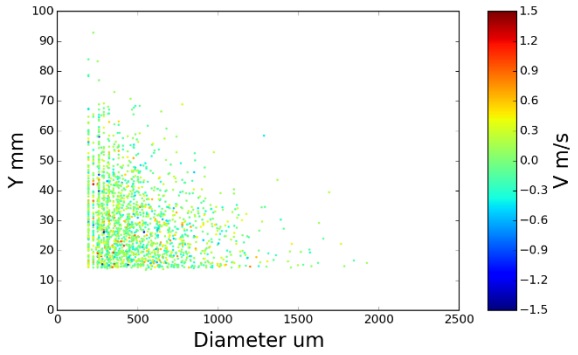


Figure C. 333: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LB Image

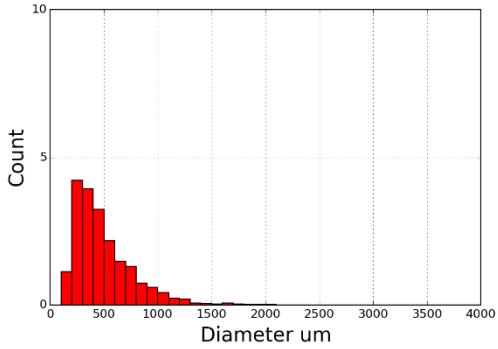


Figure C. 336: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

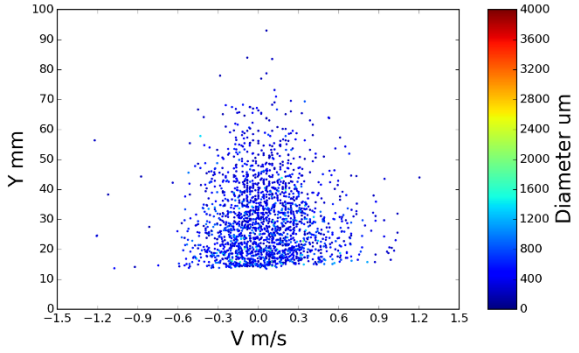


Figure C. 339: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

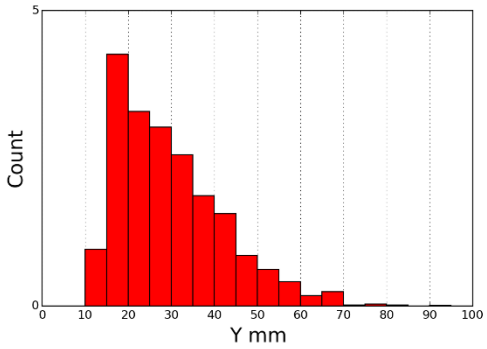


Figure C. 337: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

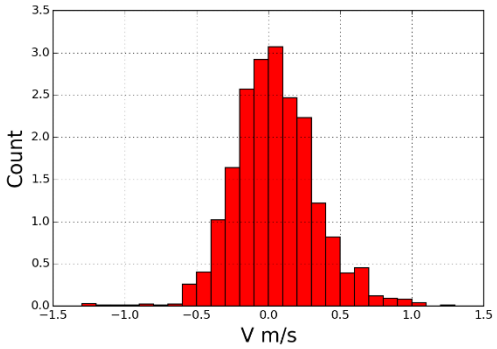


Figure C. 340: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

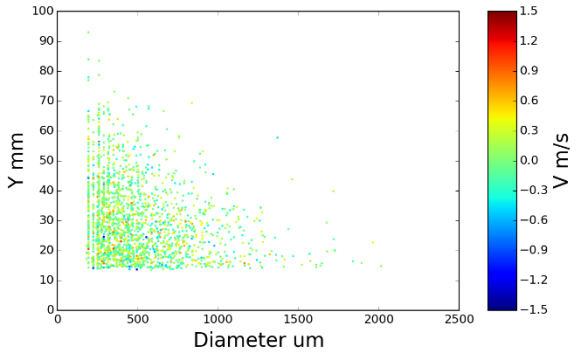


Figure C. 338: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	7.35	7.46	170.4	1835	535.0	292.9	182.2	1714	532.3	287.5
20-40mm	12.72	13.02	170.4	2124	474.5	273.2	182.2	2040	474.4	271.3
40-60mm	3.84	4.14	193.2	1381	385.0	183.6	182.2	1427	371.4	179.9
60-80mm	0.91	1.03	182.2	804.5	323.5	139.7	193.2	788.8	314.9	142.2
80-100mm	0.06	0.06	193.2	675.5	405.1	167.5	193.2	631.1	406.1	160.9
All	24.88	25.71	170.4	2124	472.9	269.5	182.2	2040	468.1	266.5
			Height A (mm)				Height B (mm)			
Highest Particle			88.7402				88.2082			
Lowest Particle			12.6494				12.6048			

Table C. 38: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.11	193.2	1556	526.0	260.0	193.2	1572	534.8	270.9	-1.120	1.180	-0.100	0.160	-1.100	1.130	0.090	0.300
20-40mm	10.98	182.2	1783	479.6	248.9	193.2	1879	483.5	257.5	-1.190	0.860	-0.110	0.130	-0.850	1.170	0.100	0.280
40-60mm	3.31	193.2	1381	402.1	186.8	193.2	1427	401.2	183.1	-0.450	0.130	-0.130	0.090	-0.490	1.000	0.070	0.220
60-80mm	0.79	193.2	804.5	337.7	142.5	193.2	788.8	337.8	145.5	-0.330	0.770	-0.120	0.130	-0.330	0.860	0.050	0.190
80-100mm	0.06	193.2	675.5	405.1	167.5	193.2	631.1	406.1	160.9	-0.240	-0.060	-0.140	0.060	-0.380	0.000	-0.090	0.130
All	21.25	182.2	1783	475.4	245.0	193.2	1879	479.3	252.9	-1.190	1.180	-0.110	0.130	-1.100	1.170	0.090	0.280

Table C. 39: Matched Droplet Info

C.1.3.2 All Droplets for .LA Image

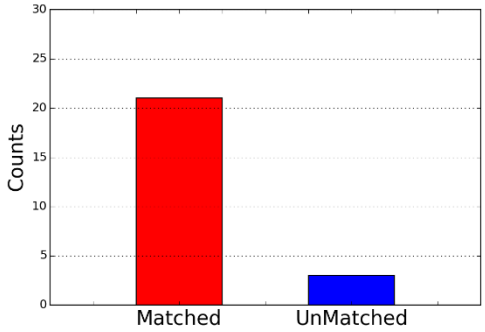


Figure C. 341: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

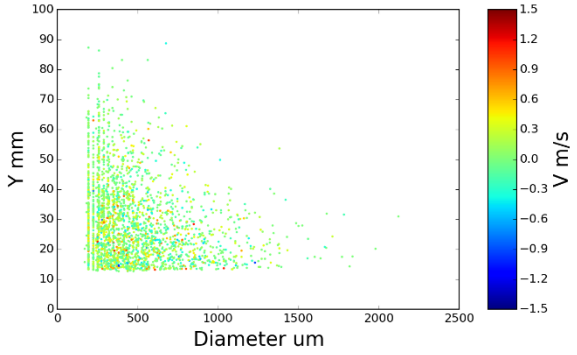


Figure C. 344: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

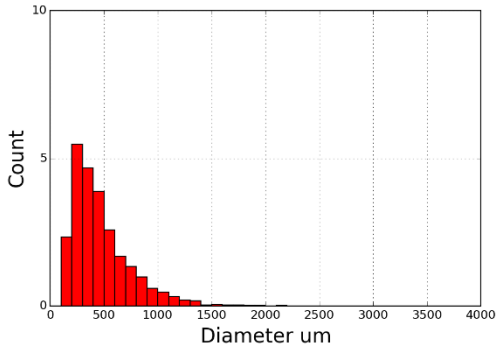


Figure C. 342: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

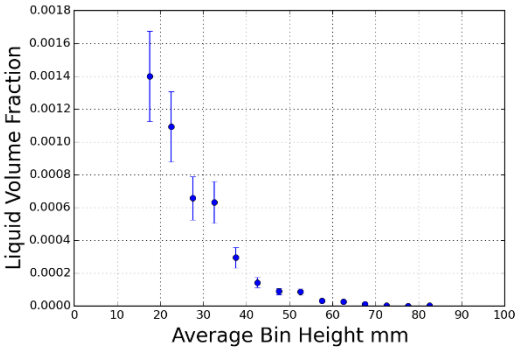


Figure C. 345: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

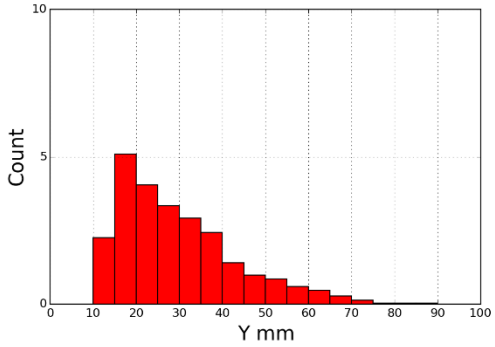


Figure C. 343: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 All Droplets for .LB Image

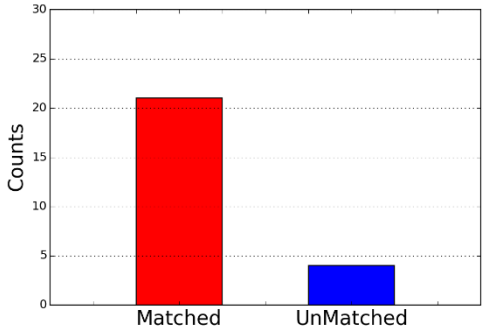


Figure C. 346: CHC Count Comparison R-134a 40F 5000Btu 15000Lb Rot Tri

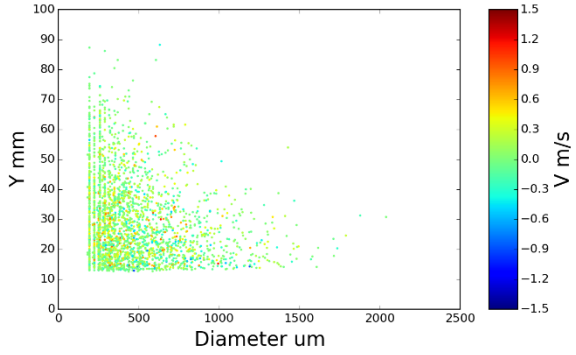


Figure C. 349: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

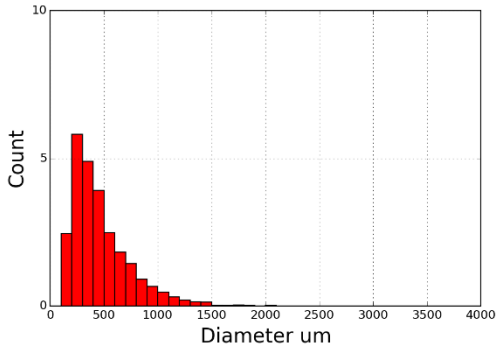


Figure C. 347: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

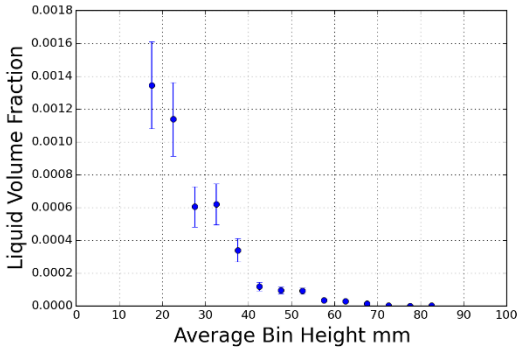


Figure C. 350: Void Fraction R-134a 40F 5000Btu 15000Lb Rot Tri

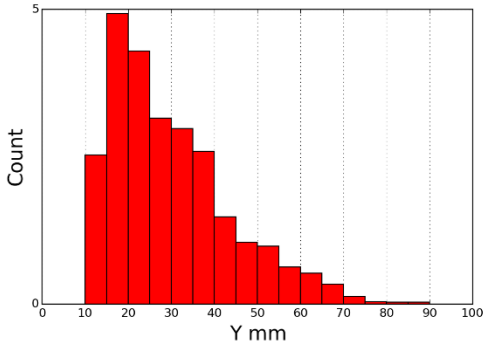


Figure C. 348: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LA Image

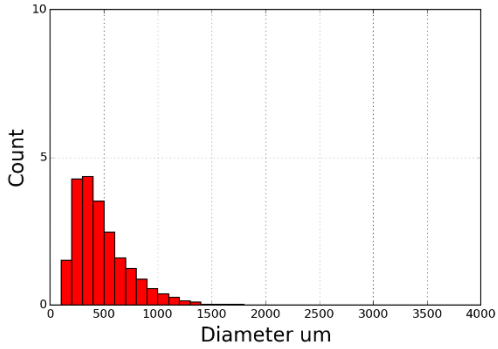


Figure C. 351: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

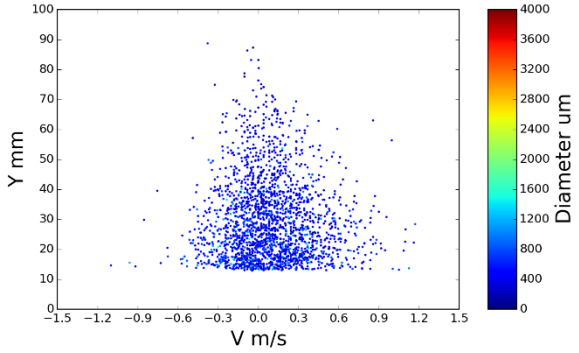


Figure C. 354: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

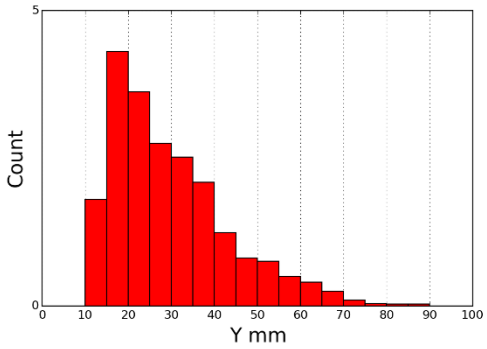


Figure C. 352: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

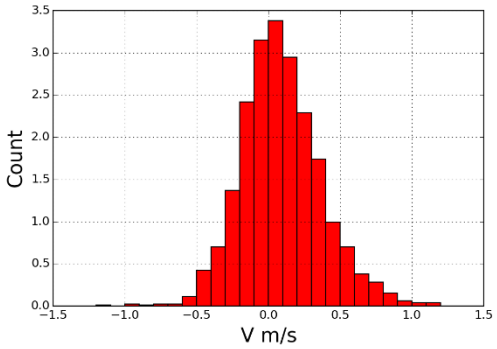


Figure C. 355: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

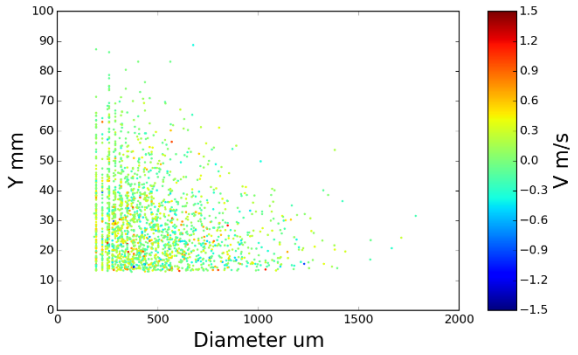


Figure C. 353: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.1.3.2 Matched Only Droplets for .LB Image

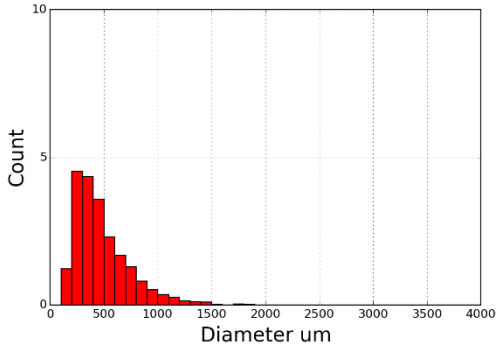


Figure C. 356: Droplet Diameter Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

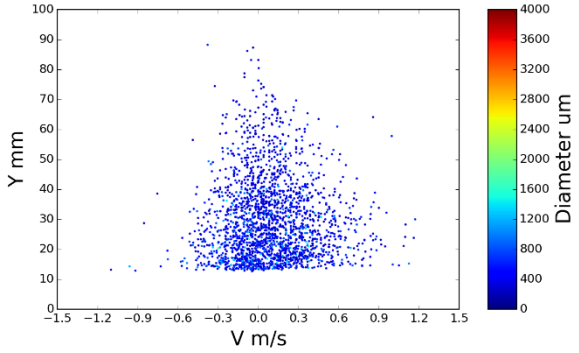


Figure C. 359: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 15000Lb Rot Tri

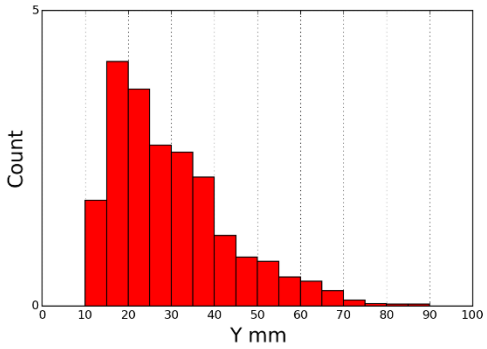


Figure C. 357: Droplet Height Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

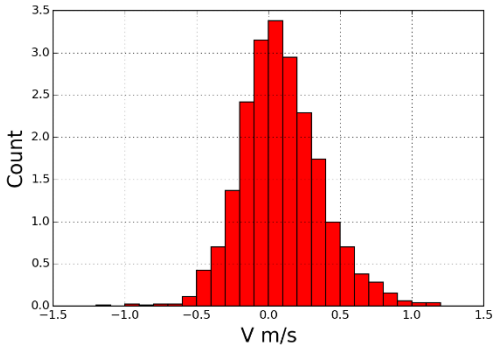


Figure C. 360: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 15000Lb Rot Tri

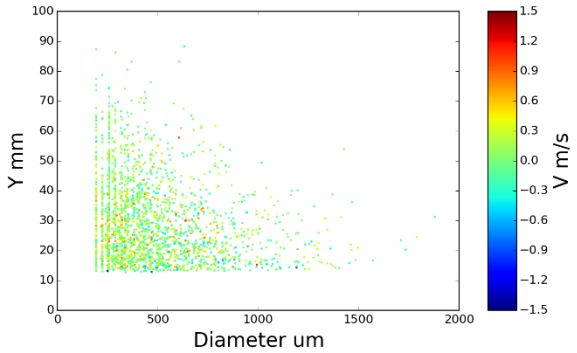


Figure C. 358: Droplet Height vs Diameter R-134a 40F 5000Btu 15000Lb Rot Tri

C.2 - 1556 R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27079 / 3.412
Ref Mass Flow (lb/hr) / (kg/s)	1559 / 0.196
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	15175 / 20.581
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	7103 / 22.41
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.2 / 4.57
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.5 / 4.71
Total Bundle Q (Btu/hr) / (kW)	138918 / 40.71
Total Bundle & Preboiler Q (Btu/hr) / (kW)	138918 / 40.71
Top Two Rows HTC Ratio	1.065
Bundle Inlet Quality	-0.07
Bundle Exit Quality	1.00

Table C. 40: Thermal Conditions

C.2.1.1 Lens 100mm Mag 0_29x

C.2.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	26.42	25.33	76.0	3961	450.6	513.0	76.0	3843	461.4	534.0
40-60mm	107.02	107.57	76.0	4010	485.8	532.8	76.0	4017	485.3	531.3
60-80mm	147.09	148.29	76.0	4016	437.8	455.9	76.0	4006	432.3	450.0
80-100mm	0.15	0.16	76.0	134.8	101.3	19.0	81.3	157.3	110.7	24.2
All	282.57	283.04	76.0	4016	457.1	492.5	76.0	4017	455.0	491.0
			Height A (mm)				Height B (mm)			
Highest Particle			80.0208				80.0102			
Lowest Particle			32.0541				32.0541			

Table C. 41: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.46	76.0	3407	584.0	558.4	76.0	3632	577.1	563.5	-1.270	1.270	-0.060	0.390	-1.250	1.270	-0.080	0.430
40-60mm	62.75	81.3	4010	570.8	543.3	76.0	4017	561.7	541.0	-1.270	1.270	-0.080	0.260	-1.270	1.270	-0.040	0.390
60-80mm	107.23	81.3	3928	482.1	451.8	81.3	3940	477.8	448.6	-1.260	1.270	-0.080	0.220	-1.270	1.270	-0.010	0.340
80-100mm	0.01	103.6	103.6	103.6	0.0	81.3	121.9	101.6	20.3	-0.260	-0.260	-0.260	0.000	-0.000	-0.000	-0.000	0.000
All	180.45	76.0	4010	518.8	494.0	76.0	4017	512.7	491.5	-1.270	1.270	-0.080	0.250	-1.270	1.270	-0.030	0.370

Table C. 42: Matched Droplet Info

C.2.1.1 All Droplets for .LA Image

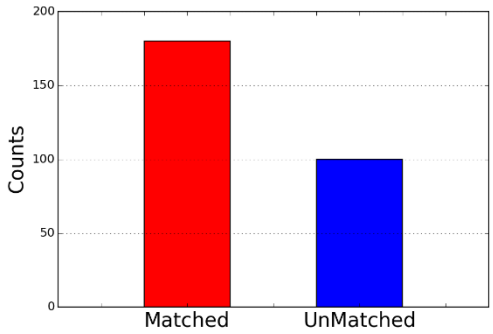


Figure C. 361: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

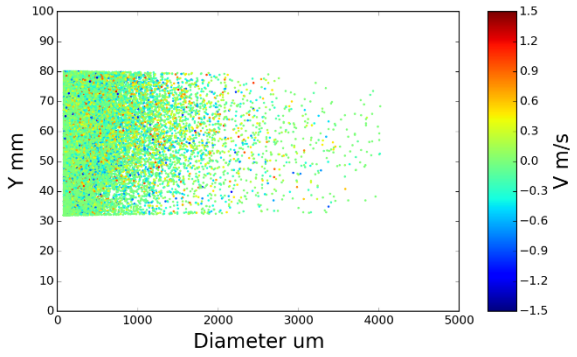


Figure C. 364: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

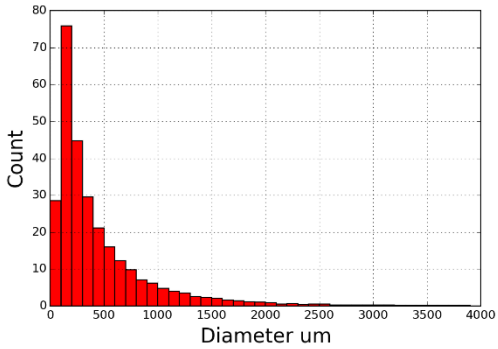


Figure C. 362: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

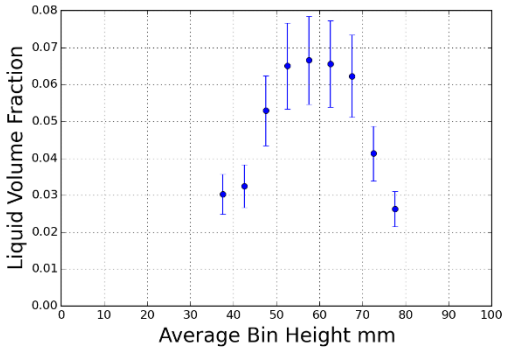


Figure C. 365: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

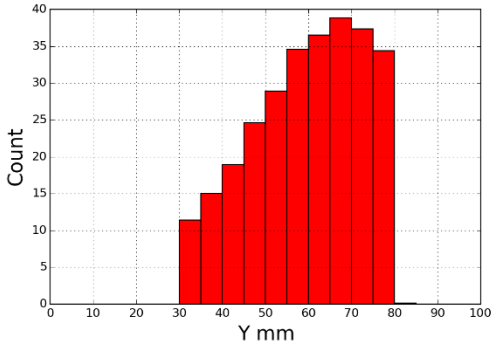


Figure C. 363: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 All Droplets for .LB Image

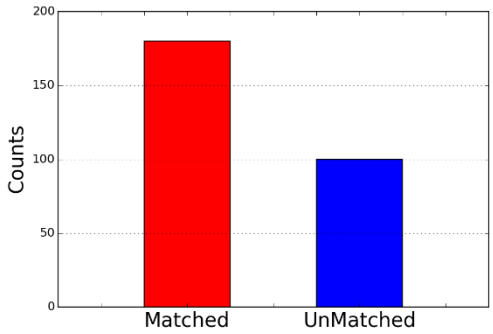


Figure C. 366: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

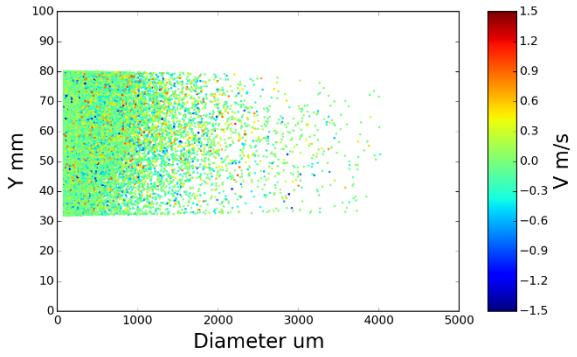


Figure C. 369: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

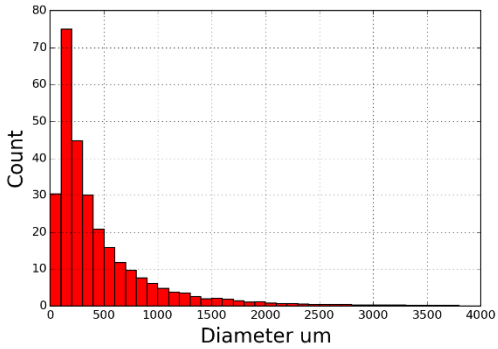


Figure C. 367: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

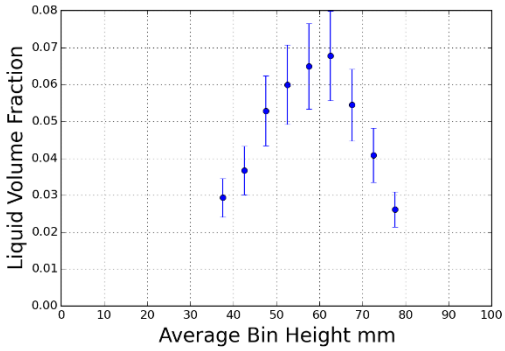


Figure C. 370: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

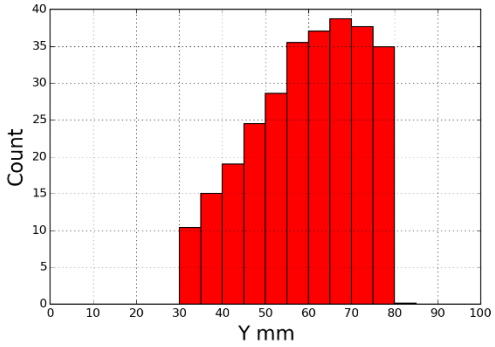


Figure C. 368: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LA Image

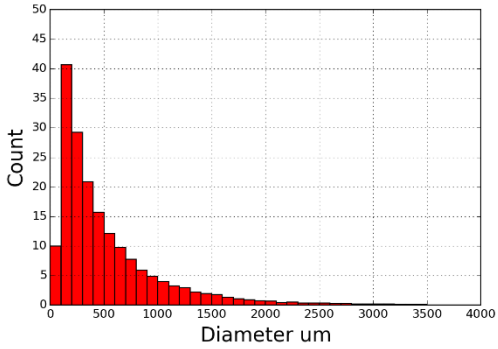


Figure C. 371: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

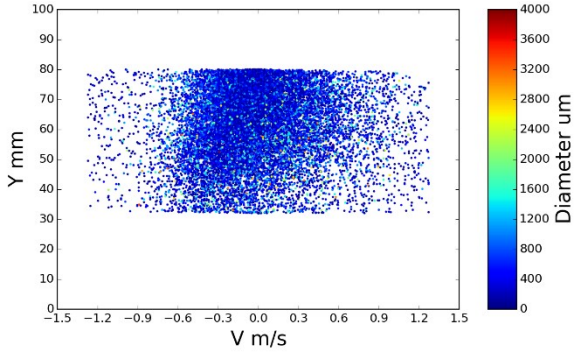


Figure C. 374: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

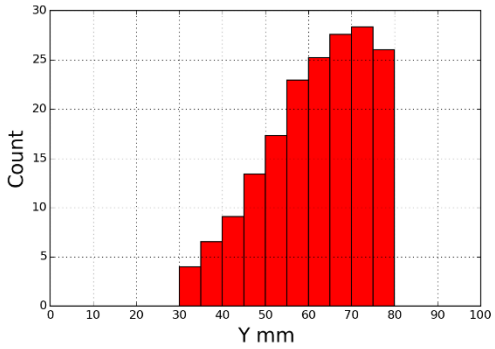


Figure C. 372: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

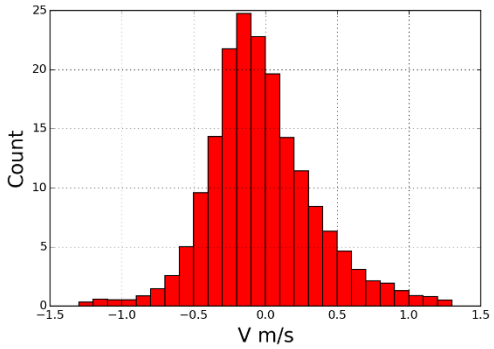


Figure C. 375: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

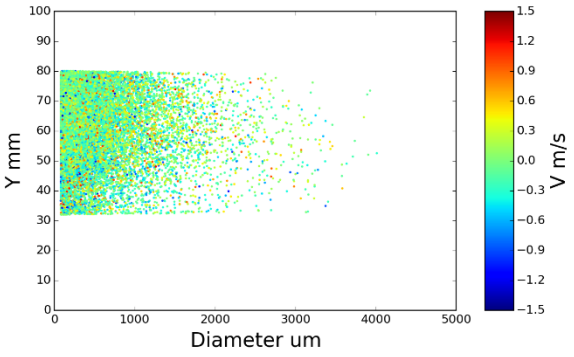


Figure C. 373: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LB Image

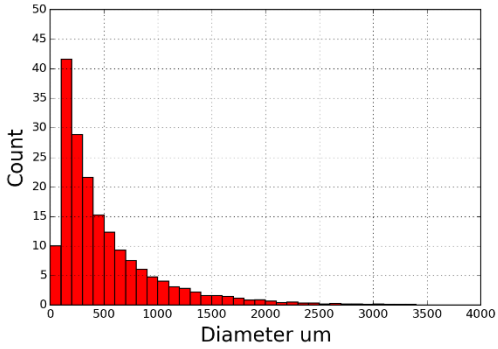


Figure C. 376: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

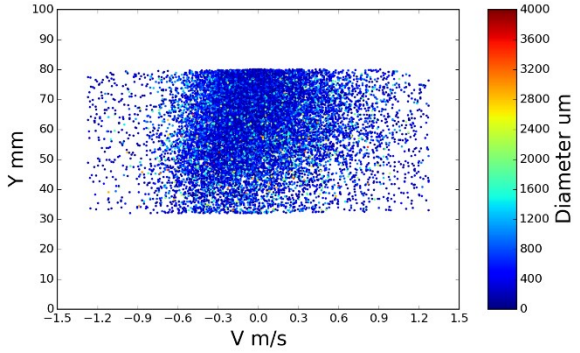


Figure C. 379: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

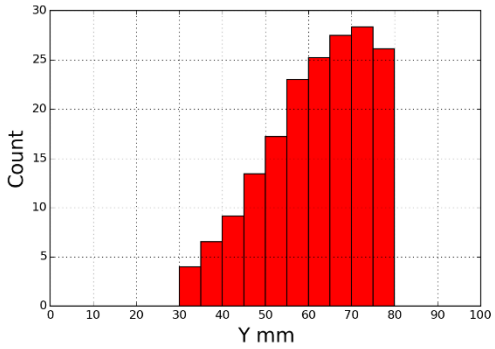


Figure C. 377: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

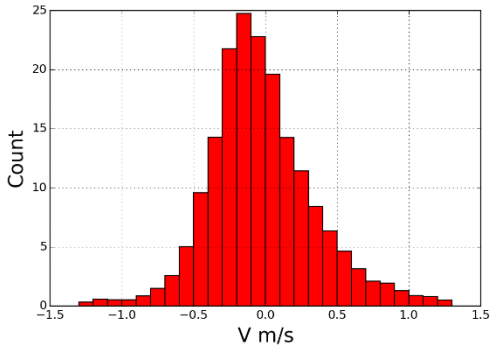


Figure C. 380: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

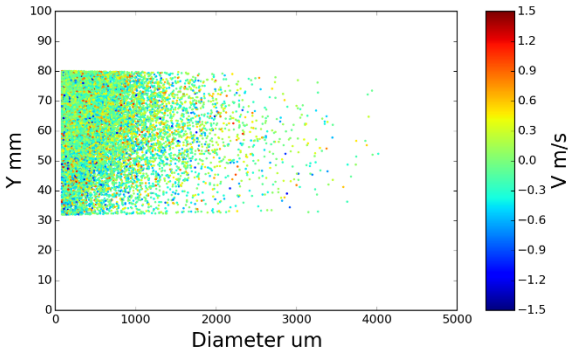


Figure C. 378: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	19.78	19.32	76.0	3954	520.3	571.5	76.0	3867	514.8	560.8
40-60mm	84.89	85.35	76.0	3999	513.3	558.9	76.0	3975	516.4	564.9
60-80mm	118.01	117.64	76.0	4016	456.0	488.3	76.0	3978	456.8	487.4
80-100mm	0.15	0.13	86.2	157.3	119.7	21.8	76.0	134.8	106.0	21.1
All	223.97	223.98	76.0	4016	483.3	524.6	76.0	3978	484.5	525.7
			Height A (mm)				Height B (mm)			
Highest Particle			80.0208				80.0208			
Lowest Particle			32.0541				32.0541			

Table C. 43: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.98	76.0	3691	683.9	609.3	76.0	3857	672.6	599.4	-1.270	1.270	-0.060	0.400	-1.220	1.270	0.030	0.460
40-60mm	48.11	81.3	3911	604.3	571.5	76.0	3970	594.5	569.4	-1.270	1.270	-0.070	0.280	-1.270	1.270	-0.000	0.430
60-80mm	84.15	81.3	3876	510.3	492.5	81.3	3978	504.9	493.1	-1.270	1.270	-0.070	0.210	-1.270	1.270	0.010	0.370
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	139.24	76.0	3911	551.5	530.0	76.0	3978	544.2	528.8	-1.270	1.270	-0.070	0.240	-1.270	1.270	0.010	0.400

Table C. 44: Matched Droplet Info

C.2.1.1 All Droplets for .LA Image

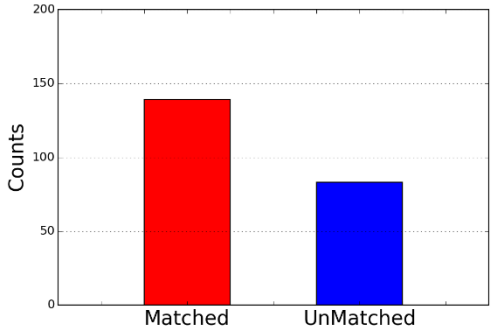


Figure C. 381: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

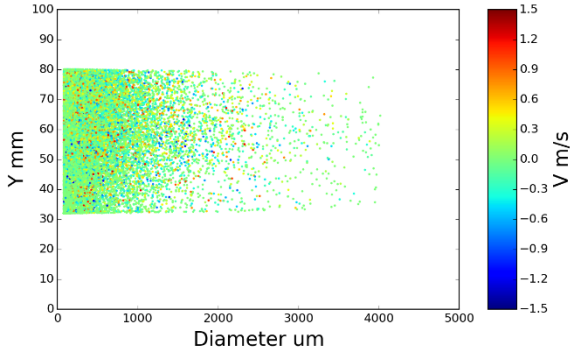


Figure C. 384: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

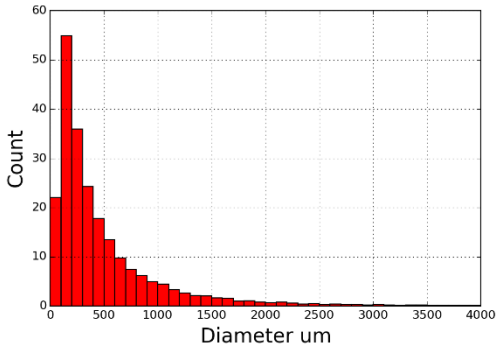


Figure C. 382: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

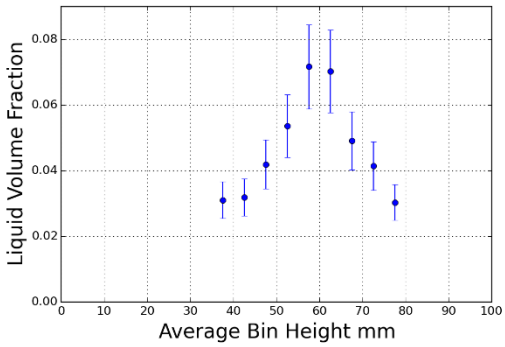


Figure C. 385: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

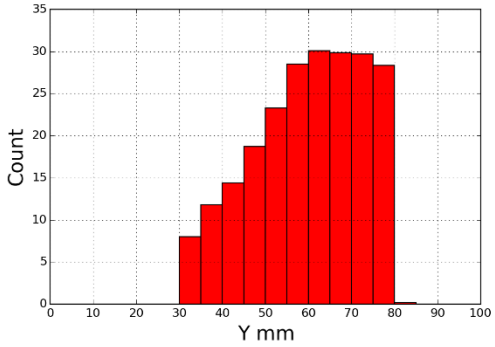


Figure C. 383: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 All Droplets for .LB Image

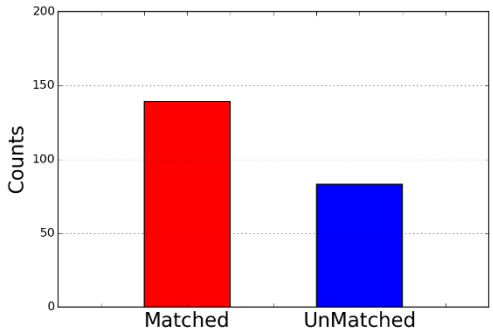


Figure C. 386: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

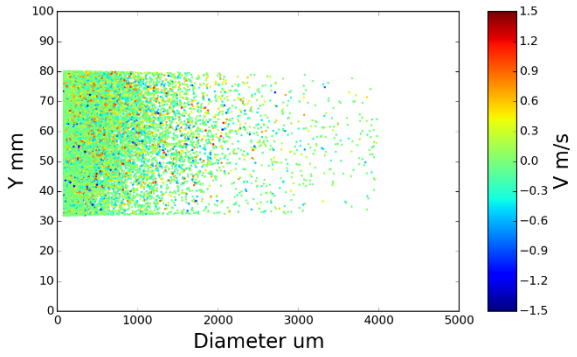


Figure C. 389: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

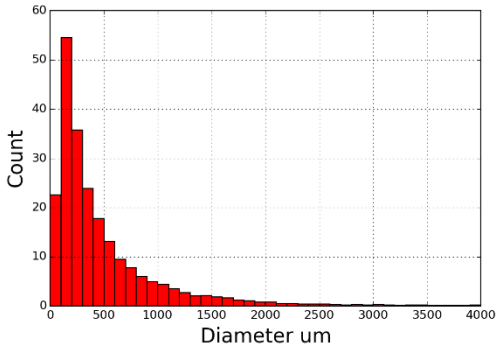


Figure C. 387: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

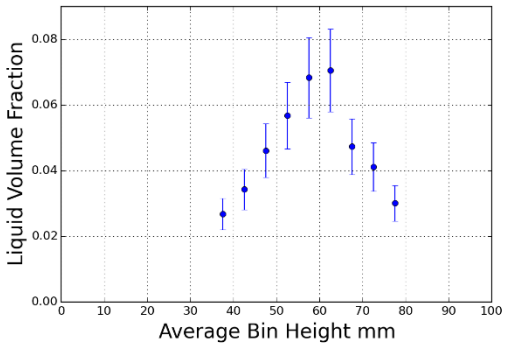


Figure C. 390: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

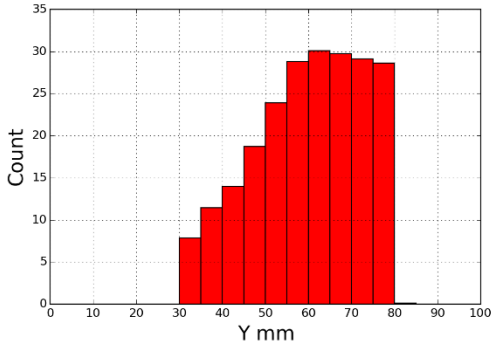


Figure C. 388: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LA Image

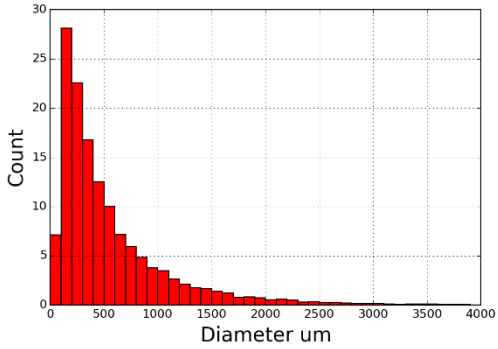


Figure C. 391: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

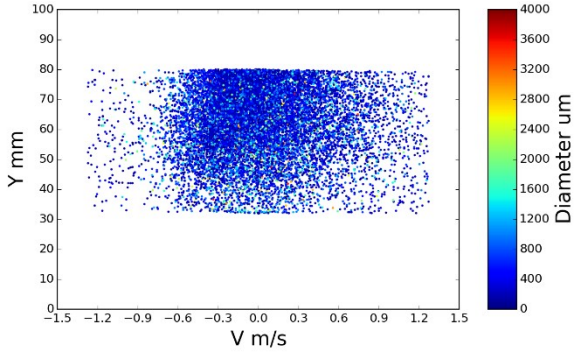


Figure C. 394: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

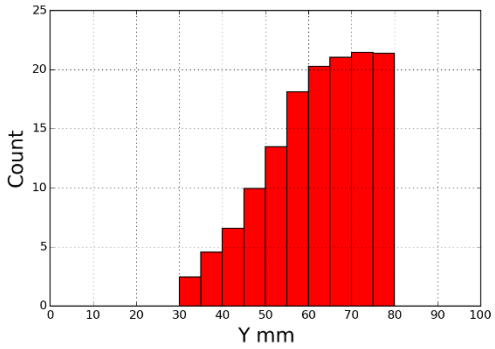


Figure C. 392: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

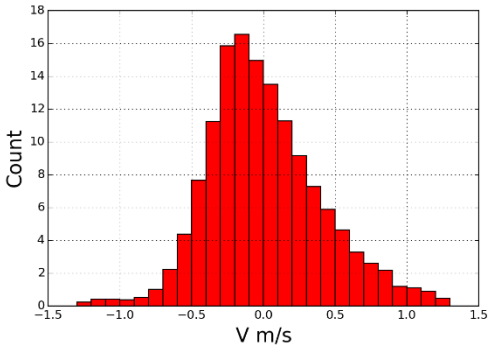


Figure C. 395: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

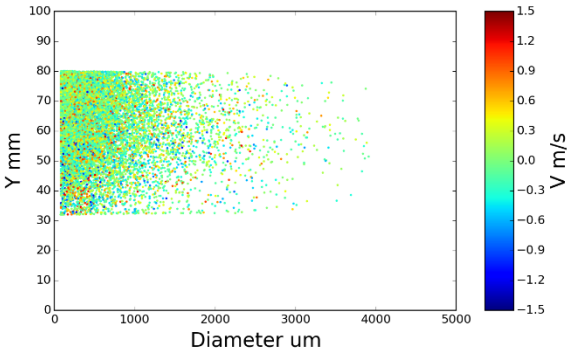


Figure C. 393: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LB Image

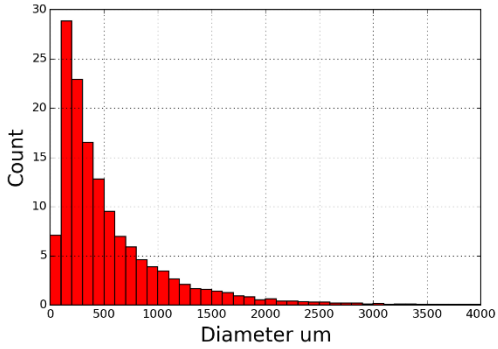


Figure C. 396: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

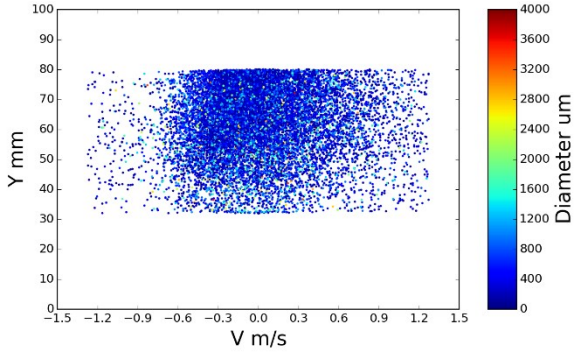


Figure C. 399: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

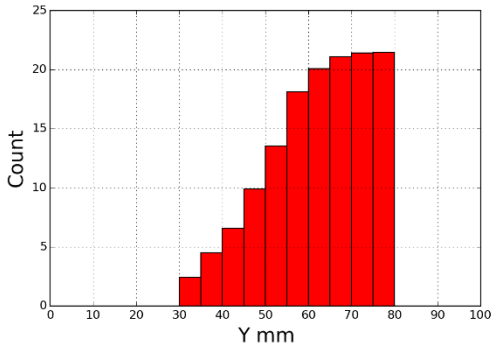


Figure C. 397: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

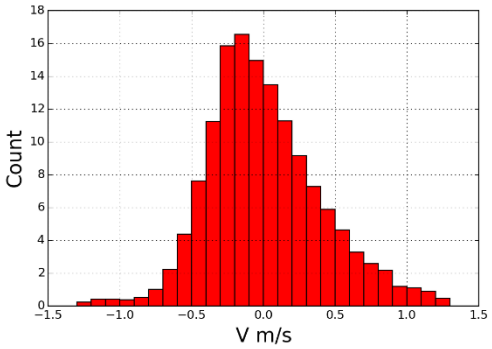


Figure C. 400: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

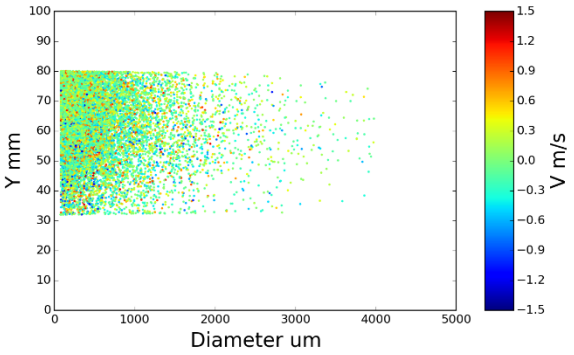


Figure C. 398: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	19.59	19.97	76.0	3931	523.6	586.0	76.0	3991	530.8	598.8
40-60mm	79.25	79.65	76.0	4008	537.2	577.7	76.0	4019	532.0	574.6
60-80mm	111.07	111.48	76.0	4011	483.3	514.6	76.0	3907	474.1	506.8
80-100mm	0.1	0.09	81.3	181.7	112.3	29.0	81.3	154.7	115.4	21.0
All	211.48	212.55	76.0	4011	507.2	546.6	76.0	4019	501.2	543.0
			Height A (mm)				Height B (mm)			
Highest Particle			80.0080				80.0094			
Lowest Particle			32.0541				32.0541			

Table C. 45: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.93	76.0	3839	729.0	650.0	76.0	3991	710.7	653.9	-1.250	1.240	-0.030	0.390	-1.270	1.260	0.040	0.470
40-60mm	42.7	81.3	3979	637.8	588.4	81.3	4014	627.2	589.1	-1.270	1.270	-0.060	0.290	-1.250	1.270	0.030	0.430
60-80mm	77.37	81.3	3820	543.6	513.6	76.0	3844	536.8	514.8	-1.270	1.260	-0.080	0.210	-1.260	1.270	0.020	0.360
80-100mm	0.02	107.5	140.7	124.1	16.6	107.5	125.2	116.4	8.9	-0.180	-0.080	-0.130	0.050	-0.010	-0.000	-0.000	0.000
All	127.02	76.0	3979	585.3	550.7	76.0	4014	576.6	551.6	-1.270	1.270	-0.070	0.250	-1.270	1.270	0.020	0.390

Table C. 46: Matched Droplet Info

C.2.1.1 All Droplets for .LA Image

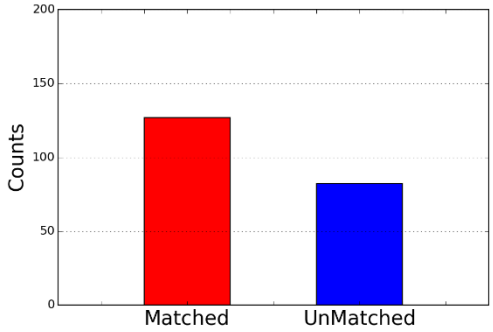


Figure C. 401: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

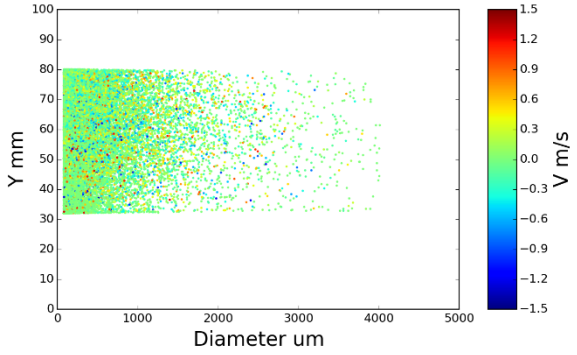


Figure C. 404: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

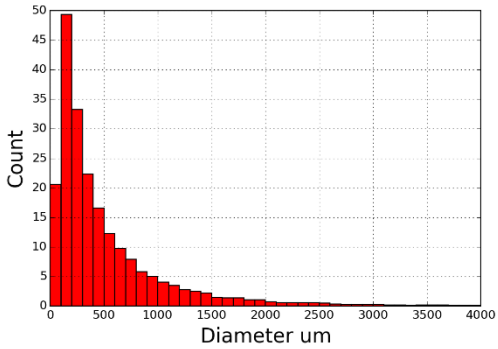


Figure C. 402: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

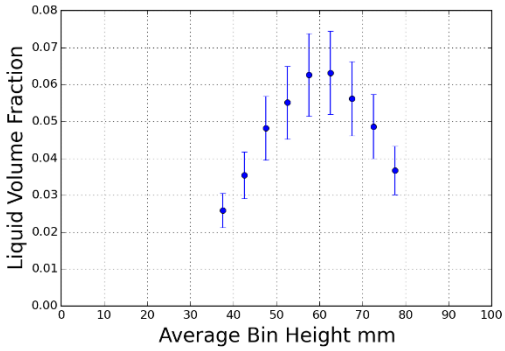


Figure C. 405: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

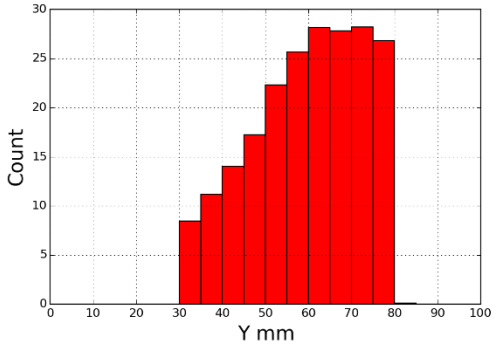


Figure C. 403: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 All Droplets for .LB Image

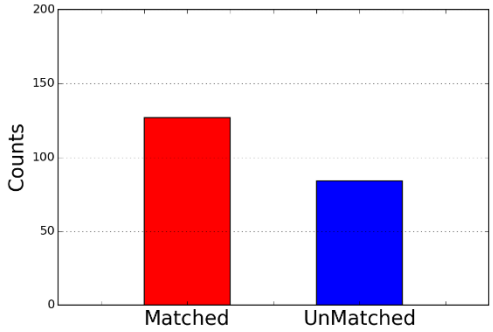


Figure C. 406: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

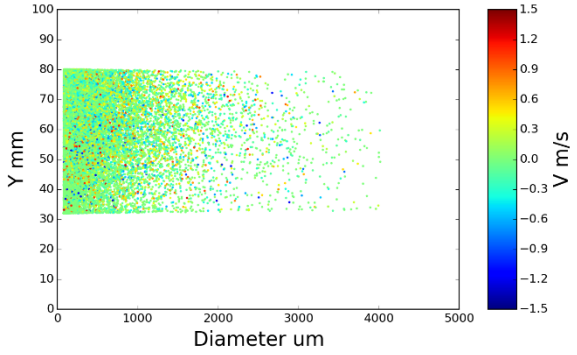


Figure C. 409: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

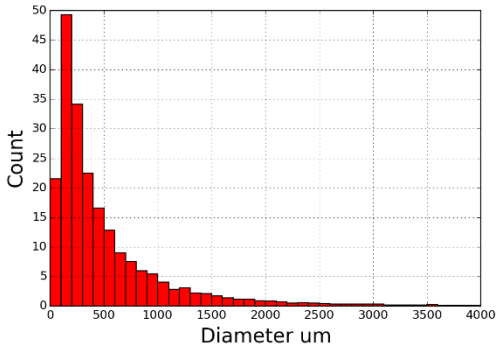


Figure C. 407: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

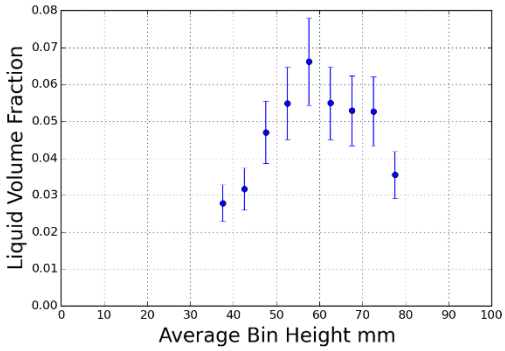


Figure C. 410: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

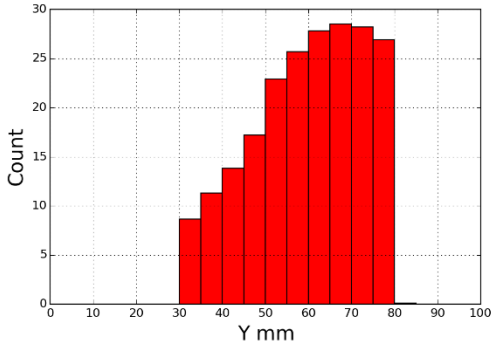


Figure C. 408: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LA Image

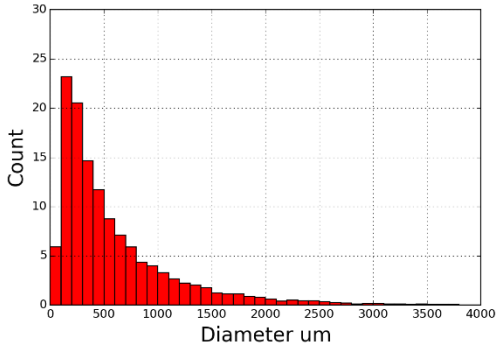


Figure C. 411: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

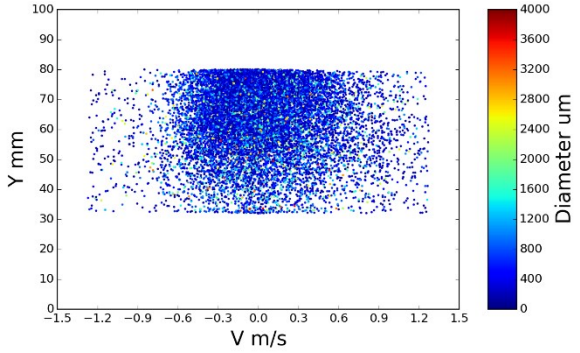


Figure C. 414: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

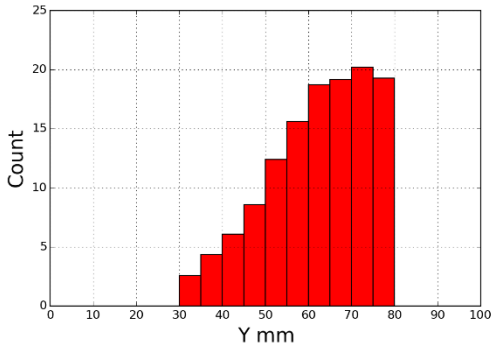


Figure C. 412: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

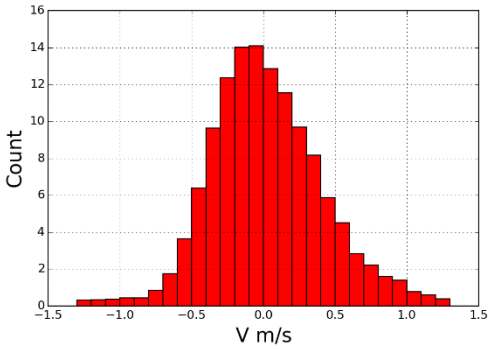


Figure C. 415: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

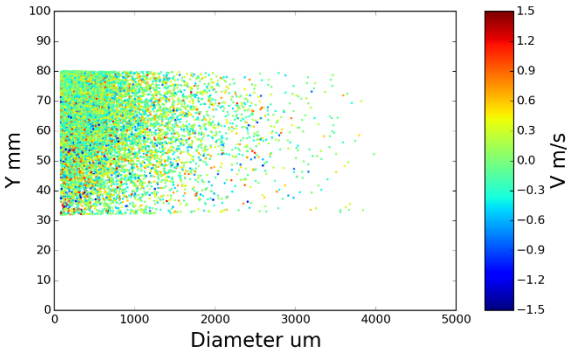


Figure C. 413: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.1 Matched Only Droplets for .LB Image

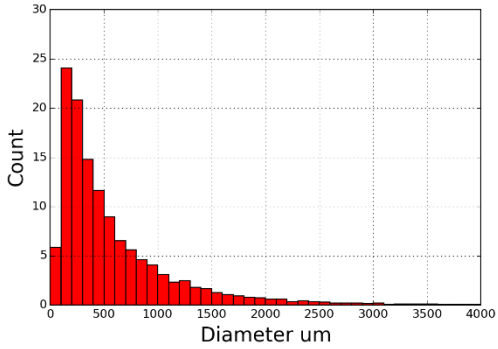


Figure C. 416: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

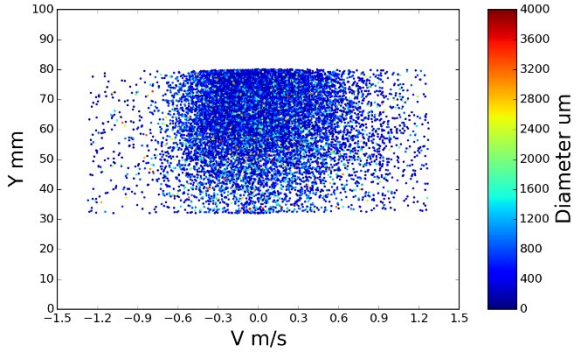


Figure C. 419: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

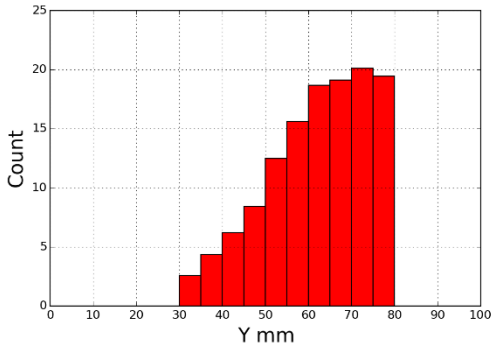


Figure C. 417: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

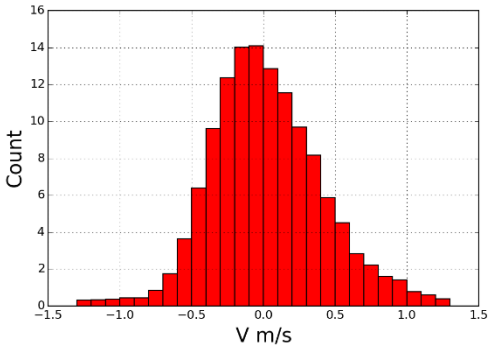


Figure C. 420: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

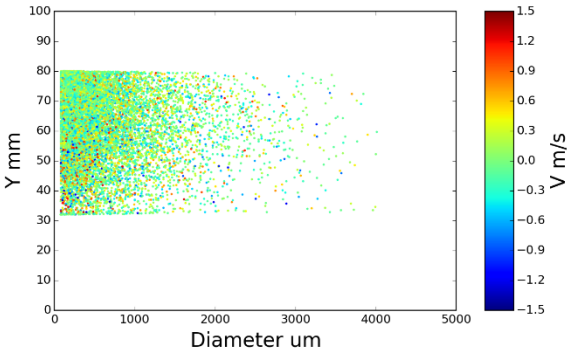


Figure C. 418: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Lens 50mm Mag 0_13x

C.2.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	13.17	13.84	170.5	3965	712.1	629.0	170.5	3990	706.1	621.6
40-60mm	54.02	53.95	170.5	3947	701.8	600.6	170.5	3981	700.3	597.6
60-80mm	81.19	81.59	170.5	3988	644.9	523.2	170.5	3971	650.3	536.8
80-100mm	51.96	51.59	170.5	3914	562.1	411.3	170.5	3690	563.7	411.7
All	200.35	200.99	170.5	3988	643.2	530.1	170.5	3990	645.3	534.5
			Height A (mm)				Height B (mm)			
Highest Particle			99.9761				99.9996			
Lowest Particle			30.1229				30.0970			

Table C. 47: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.65	193.3	3679	809.6	608.2	193.3	3752	790.4	616.6	-1.210	1.220	-0.080	0.470	-1.220	1.220	-0.080	0.560
40-60mm	26.51	182.3	3639	778.3	600.4	170.5	3825	761.6	600.8	-1.220	1.210	-0.080	0.400	-1.220	1.220	-0.070	0.490
60-80mm	52.4	182.3	3988	697.1	529.1	170.5	3971	685.6	528.4	-1.220	1.220	-0.090	0.320	-1.220	1.220	-0.020	0.440
80-100mm	38.23	182.3	3630	603.8	416.4	170.5	3690	600.5	415.7	-1.220	1.220	-0.100	0.250	-1.220	1.220	-0.010	0.370
All	121.79	182.3	3988	689.8	521.6	170.5	3971	679.6	521.1	-1.220	1.220	-0.090	0.330	-1.220	1.220	-0.030	0.440

Table C. 48: Matched Droplet Info

C.2.1.2 All Droplets for .LA Image

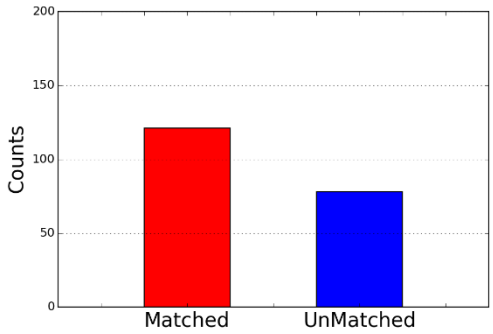


Figure C. 421: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

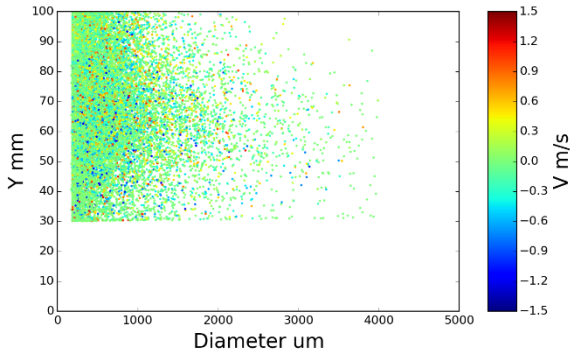


Figure C. 424: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

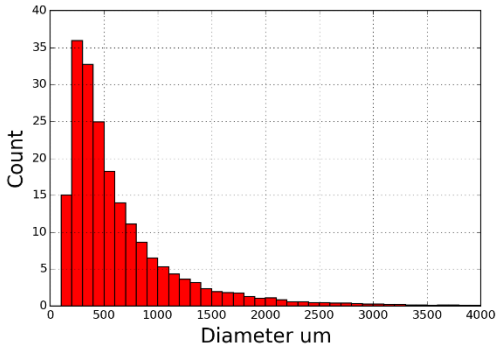


Figure C. 422: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

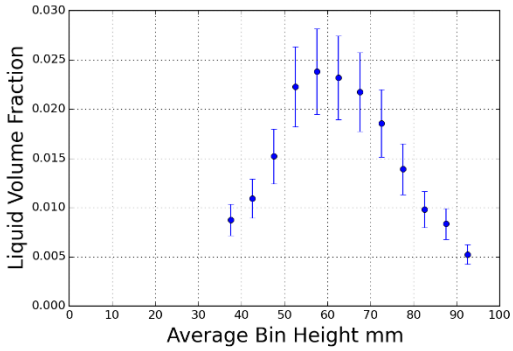


Figure C. 425: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

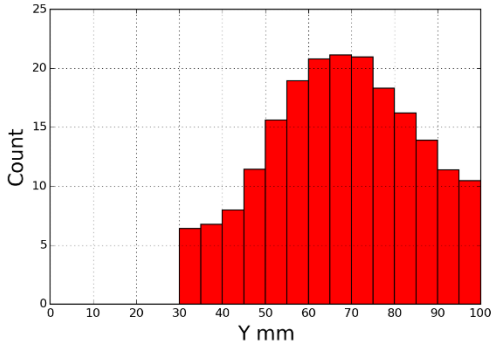


Figure C. 423: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 All Droplets for .LB Image

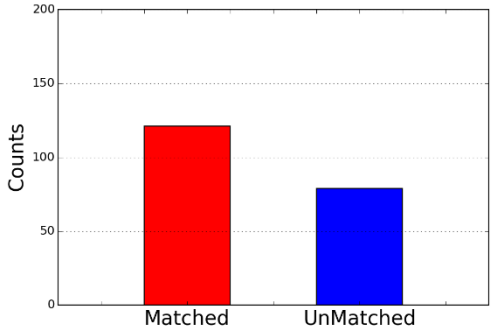


Figure C. 426: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

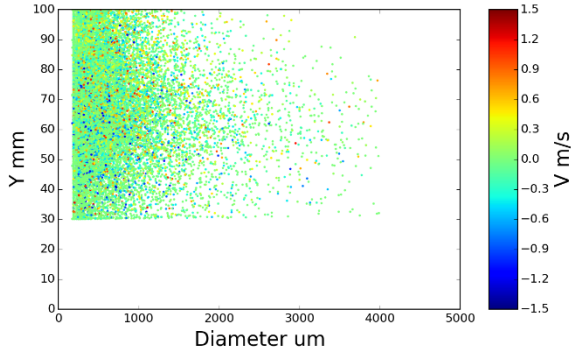


Figure C. 429: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

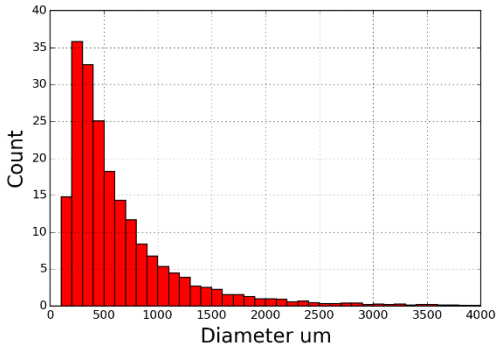


Figure C. 427: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

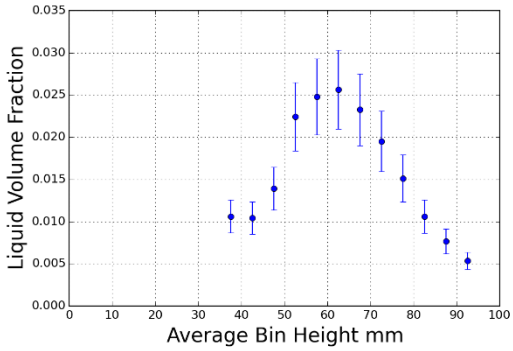


Figure C. 430: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

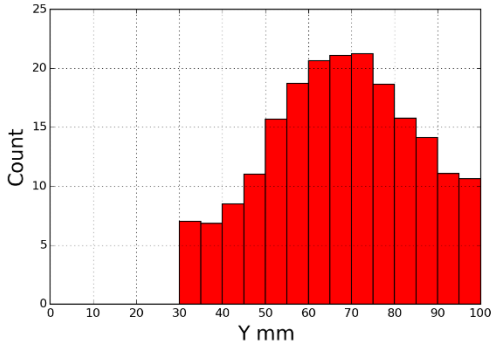


Figure C. 428: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LA Image

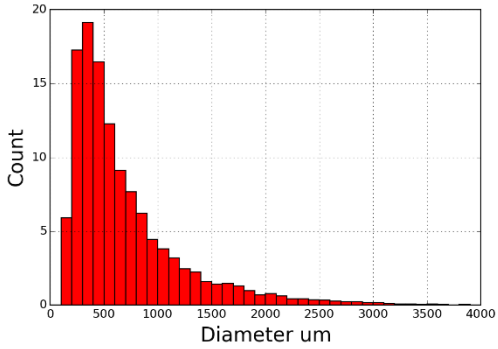


Figure C. 431: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

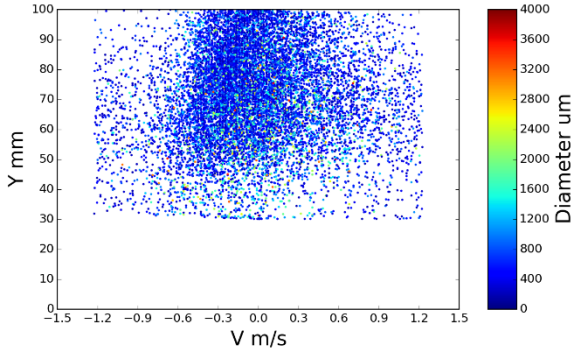


Figure C. 434: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

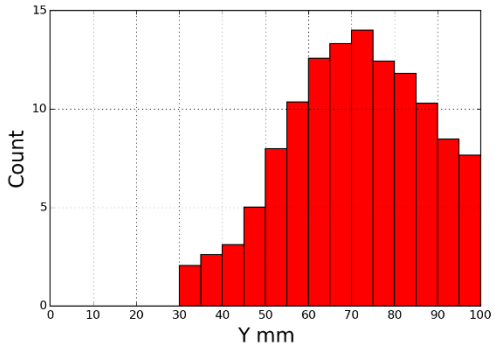


Figure C. 432: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

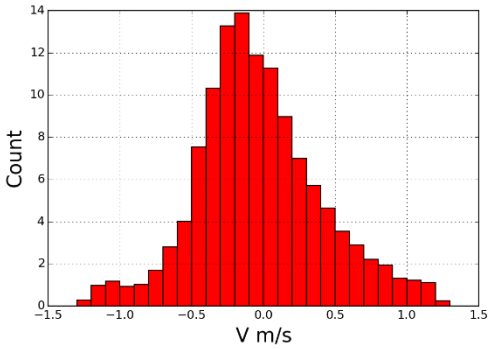


Figure C. 435: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

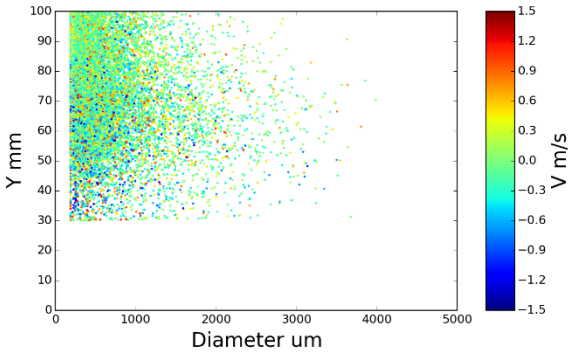


Figure C. 433: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LB Image

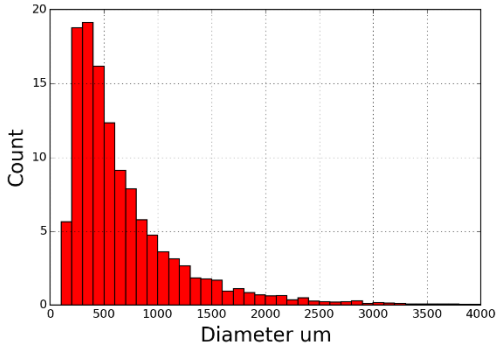


Figure C. 436: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

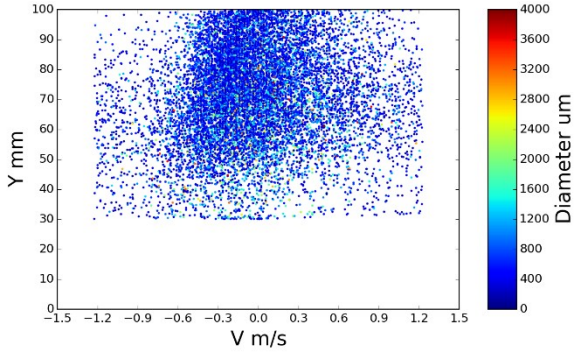


Figure C. 439: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

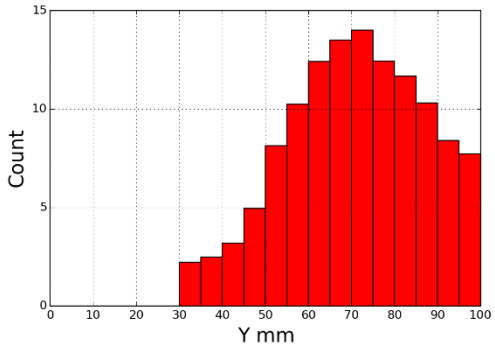


Figure C. 437: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

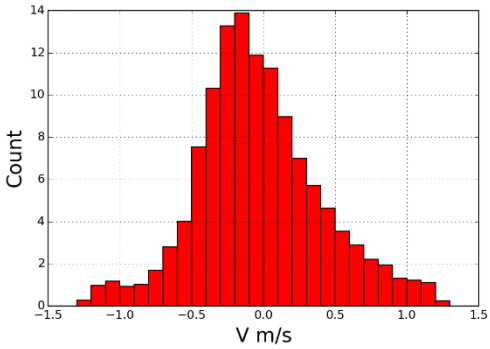


Figure C. 440: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

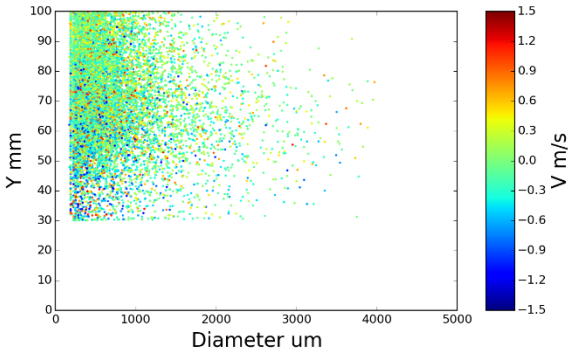


Figure C. 438: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	14.62	14.92	170.5	3863	703.9	583.9	170.5	3822	707.1	615.0
40-60mm	53.28	53.51	170.5	3979	743.0	631.8	170.5	3996	731.2	622.2
60-80mm	92.66	91.25	170.5	3930	681.0	548.6	170.5	3893	681.7	541.7
80-100mm	61.14	60.83	170.5	3654	572.9	393.5	182.3	3719	575.4	392.4
All	221.74	220.57	170.5	3979	667.6	539.4	170.5	3996	666.1	535.7
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 49: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.21	182.3	3739	814.1	609.0	170.5	3660	789.1	614.2	-1.220	1.210	-0.070	0.510	-1.220	1.220	-0.000	0.570
40-60mm	26.47	182.3	3812	820.9	618.4	182.3	3981	800.8	621.2	-1.220	1.220	-0.070	0.410	-1.220	1.220	-0.030	0.500
60-80mm	58.98	182.3	3661	744.2	547.7	182.3	3893	730.0	539.6	-1.220	1.220	-0.080	0.320	-1.220	1.220	-0.020	0.440
80-100mm	44.47	182.3	3212	619.5	399.8	182.3	3682	613.5	395.0	-1.220	1.210	-0.080	0.250	-1.220	1.220	-0.020	0.380
All	135.13	182.3	3812	720.9	527.9	170.5	3981	708.0	523.4	-1.220	1.220	-0.080	0.330	-1.220	1.220	-0.020	0.440

Table C. 50: Matched Droplet Info

C.2.1.2 All Droplets for .LA Image

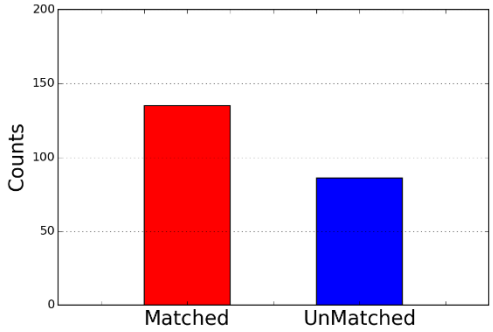


Figure C. 441: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

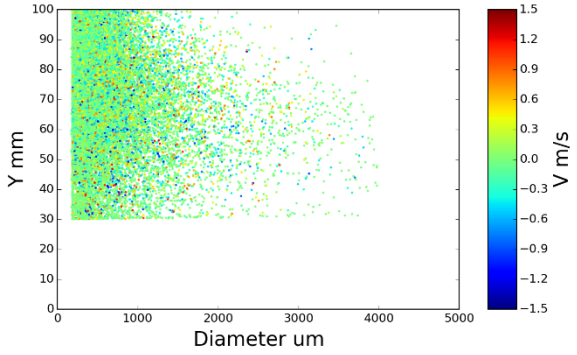


Figure C. 444: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

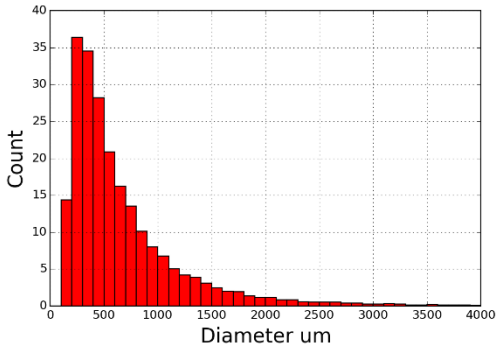


Figure C. 442: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

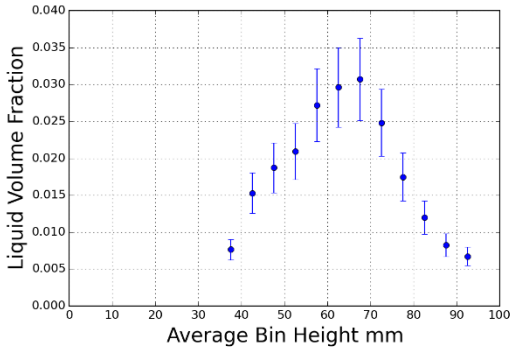


Figure C. 445: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

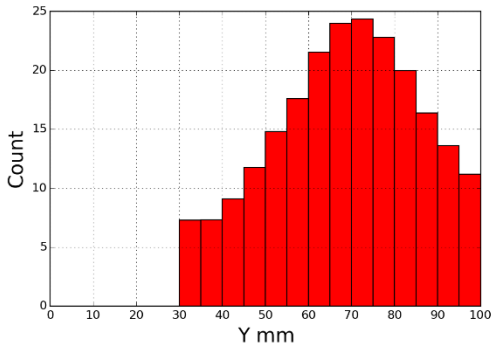


Figure C. 443: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 All Droplets for .LB Image

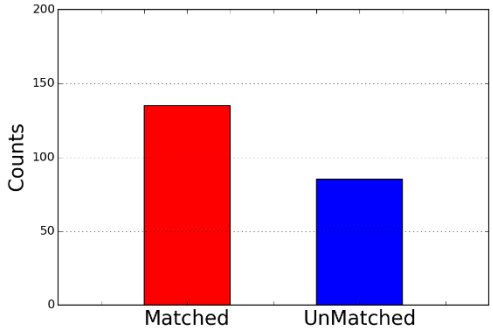


Figure C. 446: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

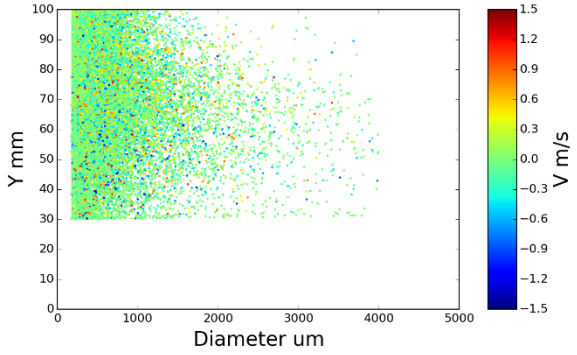


Figure C. 449: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

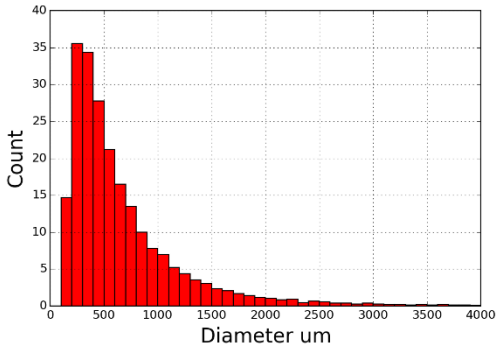


Figure C. 447: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

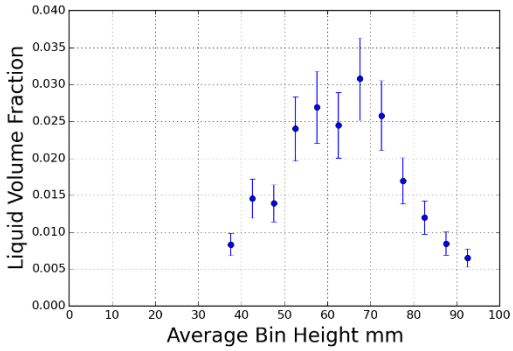


Figure C. 450: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

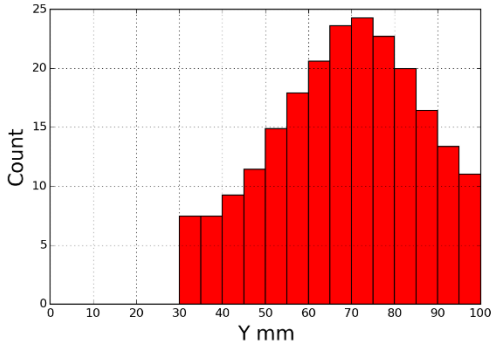


Figure C. 448: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LA Image

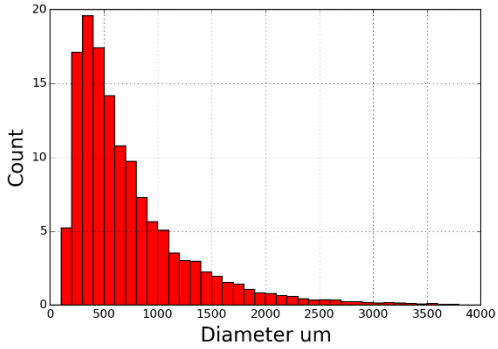


Figure C. 451: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

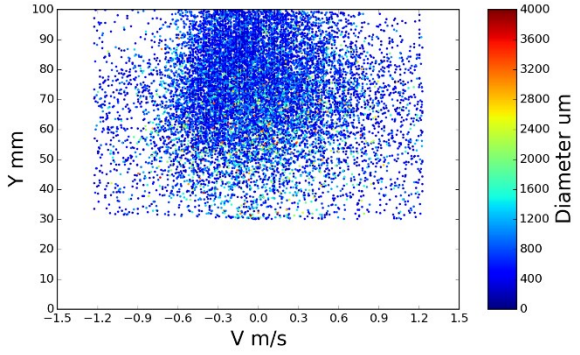


Figure C. 454: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

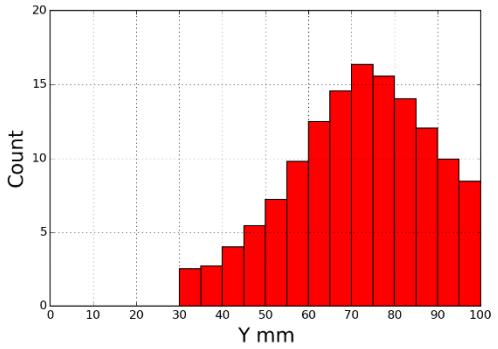


Figure C. 452: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

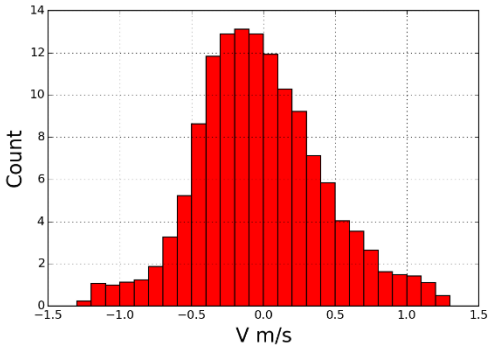


Figure C. 455: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

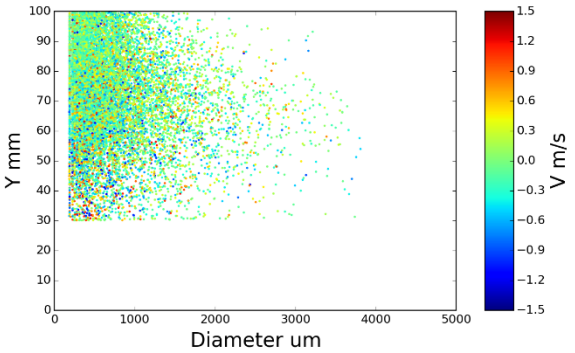


Figure C. 453: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LB Image

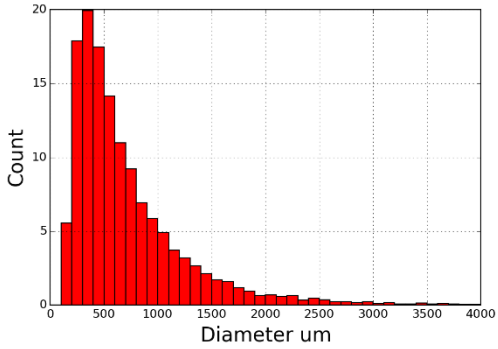


Figure C. 456: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

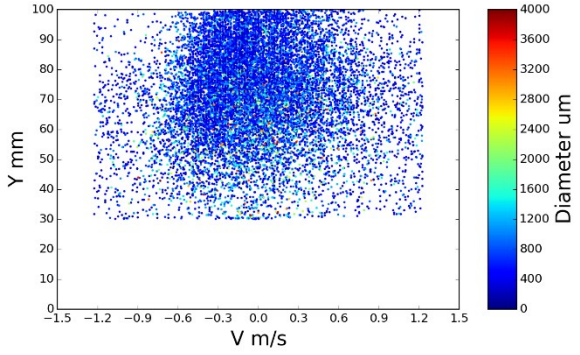


Figure C. 459: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

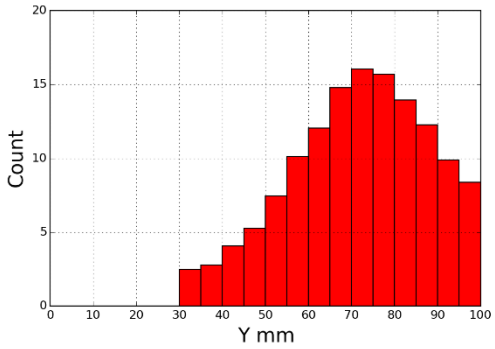


Figure C. 457: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

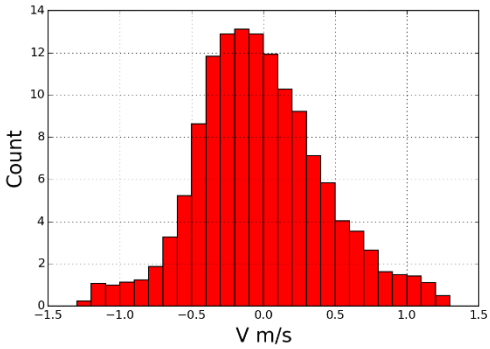


Figure C. 460: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

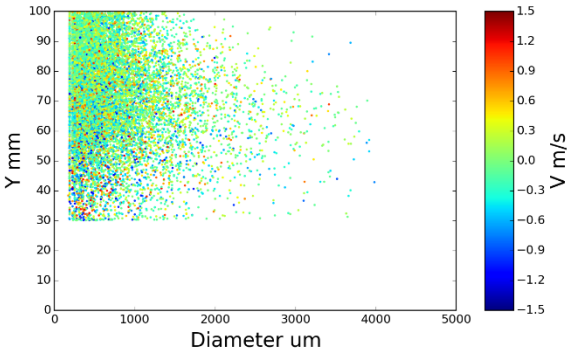


Figure C. 458: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	15.81	15.72	182.3	3900	720.5	599.3	182.3	3976	723.7	617.5
40-60mm	59.96	59.41	170.5	3974	736.0	618.9	170.5	3985	737.3	627.7
60-80mm	94.78	94.25	170.5	3953	689.9	553.8	170.5	3993	685.6	547.3
80-100mm	63.49	63.4	170.5	3239	585.7	403.5	170.5	3542	586.7	410.6
All	234.07	232.83	170.5	3974	675.5	542.4	170.5	3993	674.4	544.8
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 51: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.61	182.3	3387	823.4	600.3	193.3	3526	809.9	617.0	-1.220	1.220	-0.040	0.490	-1.220	1.220	-0.000	0.550
40-60mm	29.34	182.3	3883	823.1	622.2	182.3	3946	806.4	630.6	-1.220	1.220	-0.050	0.410	-1.220	1.220	-0.050	0.500
60-80mm	60.45	182.3	3674	743.6	537.4	182.3	3935	732.1	537.4	-1.220	1.220	-0.080	0.330	-1.220	1.220	0.020	0.460
80-100mm	46.41	182.3	3239	634.1	421.1	182.3	3514	627.1	419.6	-1.220	1.220	-0.090	0.250	-1.220	1.220	0.010	0.400
All	141.81	182.3	3883	727.4	529.9	182.3	3946	716.3	531.9	-1.220	1.220	-0.070	0.330	-1.220	1.220	0.000	0.450

Table C. 52: Matched Droplet Info

C.2.1.2 All Droplets for .LA Image

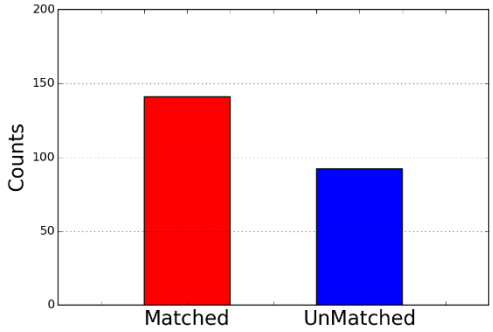


Figure C. 461: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

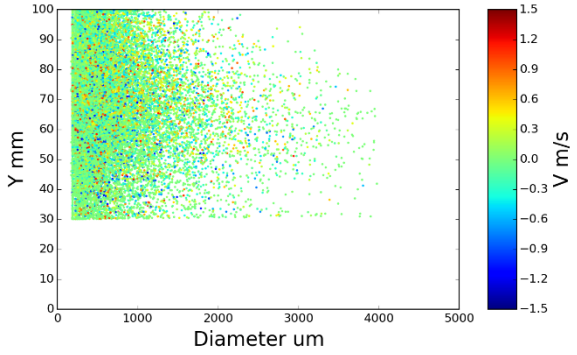


Figure C. 464: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

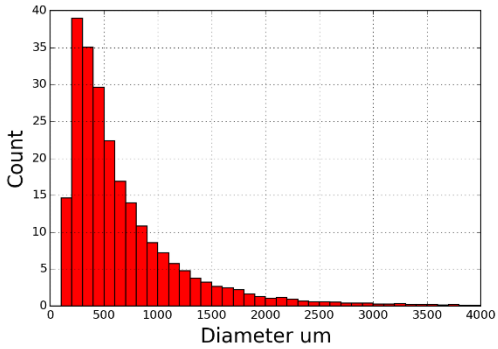


Figure C. 462: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

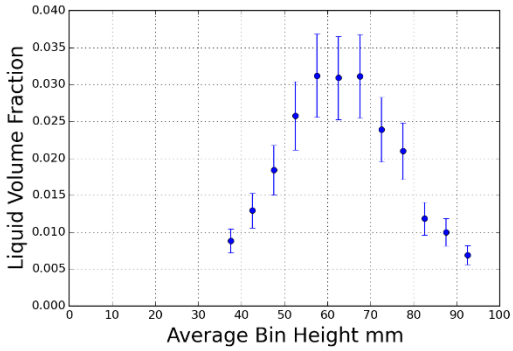


Figure C. 465: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

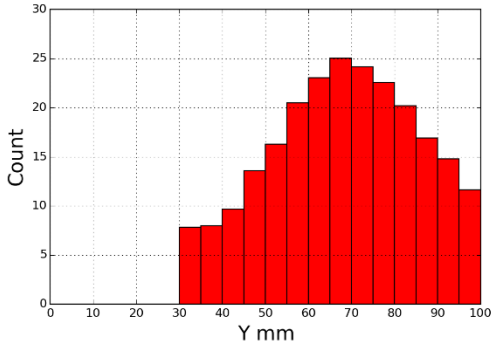


Figure C. 463: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 All Droplets for .LB Image

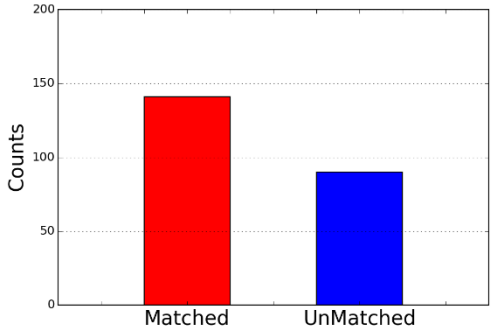


Figure C. 466: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

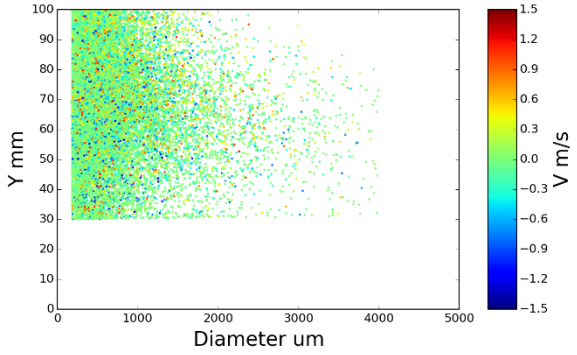


Figure C. 469: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

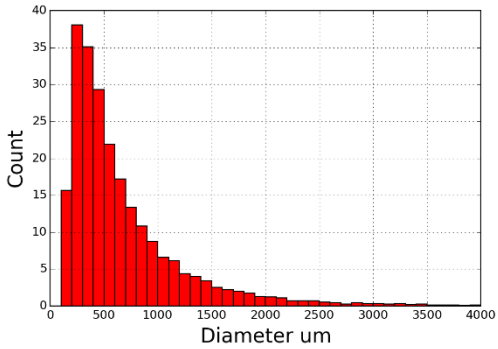


Figure C. 467: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

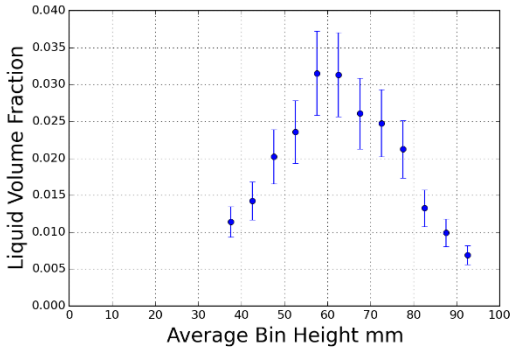


Figure C. 470: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

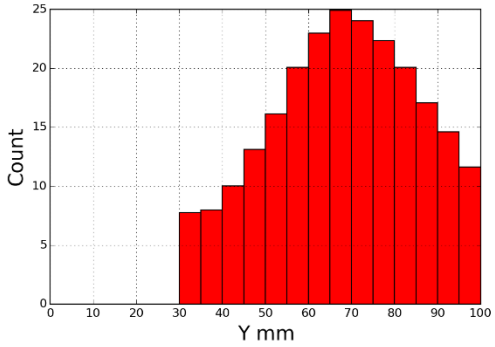


Figure C. 468: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LA Image

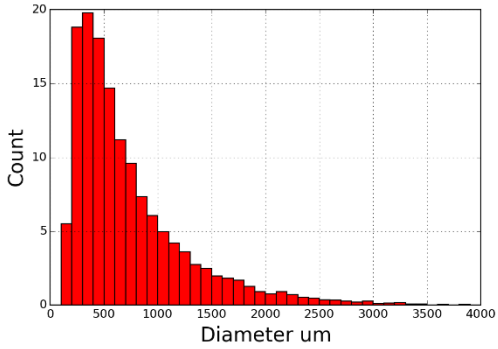


Figure C. 471: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

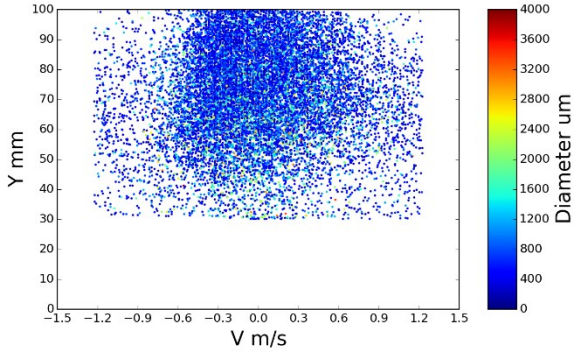


Figure C. 474: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

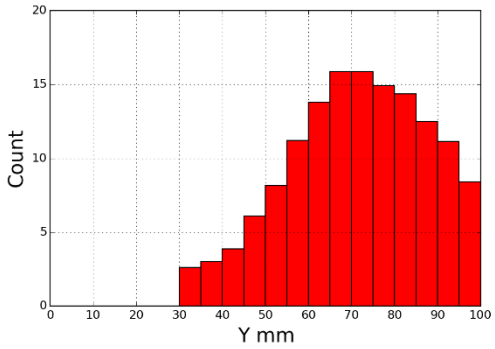


Figure C. 472: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

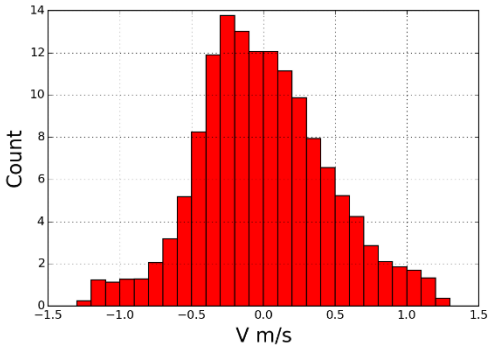


Figure C. 475: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

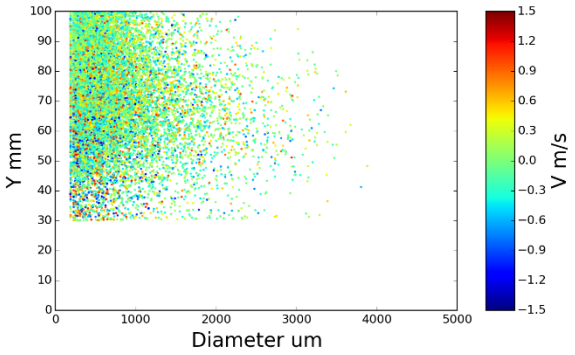


Figure C. 473: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.1.2 Matched Only Droplets for .LB Image

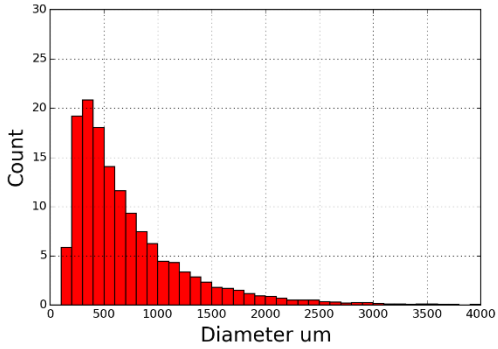


Figure C. 476: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

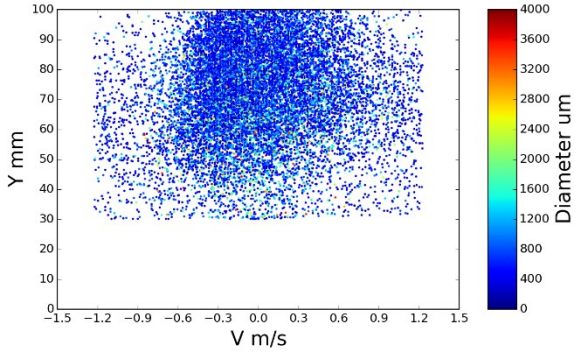


Figure C. 479: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

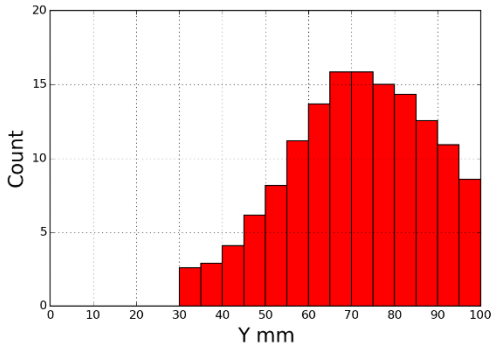


Figure C. 477: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

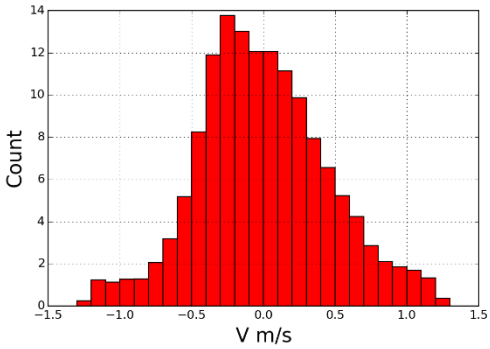


Figure C. 480: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

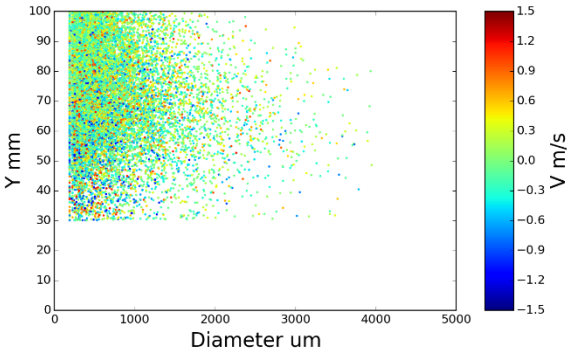


Figure C. 478: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27080 / 3.412
Ref Mass Flow (lb/hr) / (kg/s)	1561 / 0.197
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	15194 / 20.606
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	6693 / 21.11
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.4 / 4.66
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.6 / 4.80
Total Bundle Q (Btu/hr) / (kW)	138723 / 40.66
Total Bundle & Preboiler Q (Btu/hr) / (kW)	138723 / 40.66
Top Two Rows HTC Ratio	0.966
Bundle Inlet Quality	-0.08
Bundle Exit Quality	0.99

Table C. 53: Thermal Conditions

C.2.2.1 Lens 100mm Mag 0_29x

C.2.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	54.28	53.85	76.0	4009	494.6	540.1	76.0	3995	506.8	553.7
40-60mm	174.61	173.79	76.0	3992	467.5	483.9	76.0	4013	471.9	494.3
60-80mm	163.42	162.87	76.0	3897	387.5	373.2	76.0	3992	388.5	374.5
80-100mm	0.22	0.14	81.3	134.8	92.7	14.9	81.3	134.8	96.9	15.0
All	393.61	391.82	76.0	4009	437.7	452.2	76.0	4013	441.8	460.1
			Height A (mm)				Height B (mm)			
Highest Particle			80.0208				80.0123			
Lowest Particle			32.0541				32.0541			

Table C. 54: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	28.32	76.0	3921	592.6	536.5	76.0	3995	586.7	540.8	-1.270	1.270	-0.080	0.280	-1.260	1.270	-0.080	0.390
40-60mm	115.13	76.0	3906	522.2	477.6	76.0	4013	519.0	479.8	-1.270	1.270	-0.090	0.240	-1.270	1.270	-0.030	0.370
60-80mm	124.0	81.3	3572	424.7	377.4	81.3	3830	420.8	375.2	-1.270	1.250	-0.100	0.190	-1.270	1.270	0.020	0.330
80-100mm	0.05	81.3	107.5	96.5	9.4	81.3	114.9	96.2	15.2	-0.240	0.510	0.050	0.260	-0.790	0.000	-0.160	0.310
All	267.5	76.0	3921	484.4	445.2	76.0	4013	480.6	446.0	-1.270	1.270	-0.100	0.220	-1.270	1.270	-0.020	0.360

Table C. 55: Matched Droplet Info

C.2.2.1 All Droplets for .LA Image

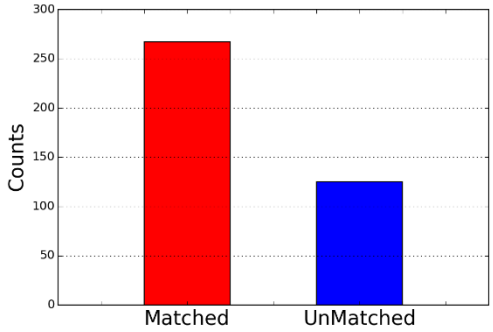


Figure C. 481: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

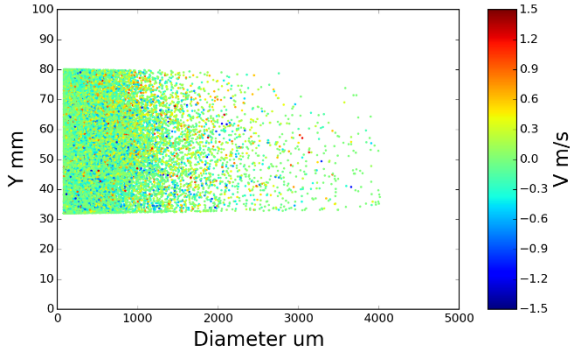


Figure C. 484: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

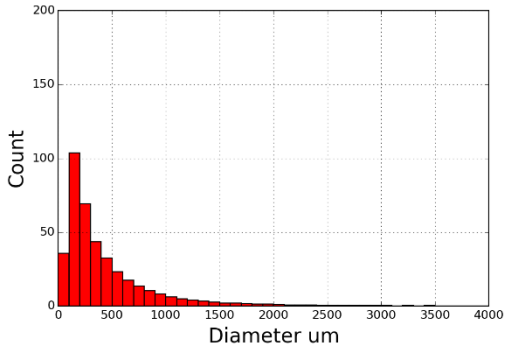


Figure C. 482: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

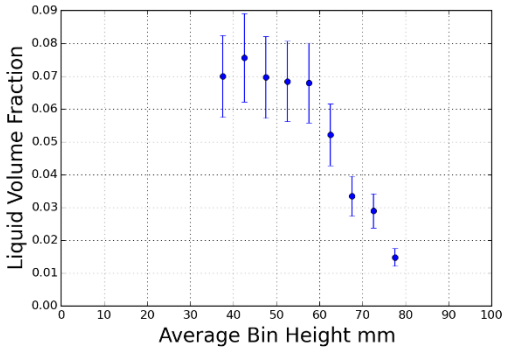


Figure C. 485: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

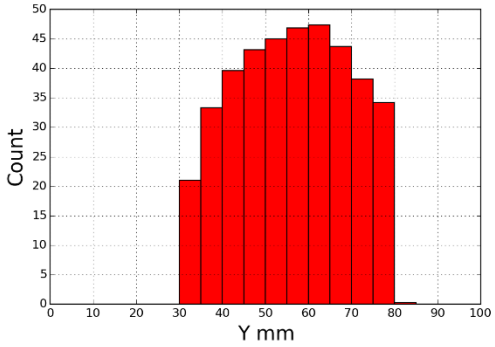


Figure C. 483: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 All Droplets for .LB Image

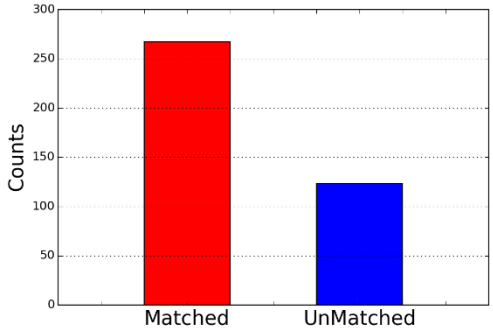


Figure C. 486: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

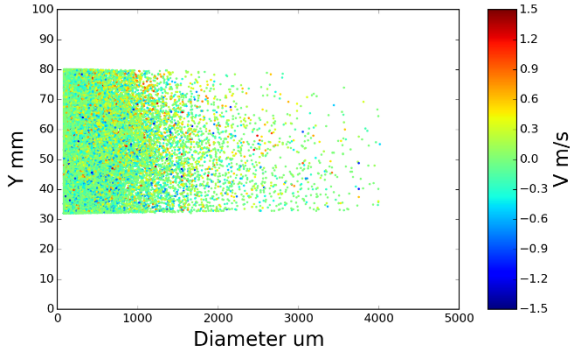


Figure C. 489: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

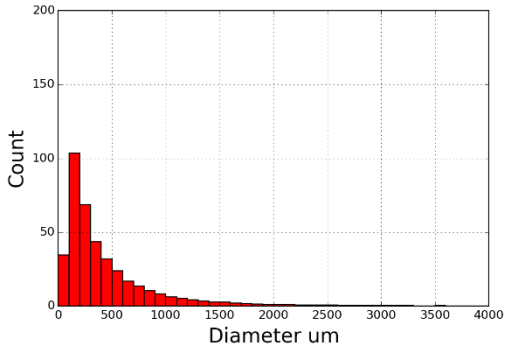


Figure C. 487: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

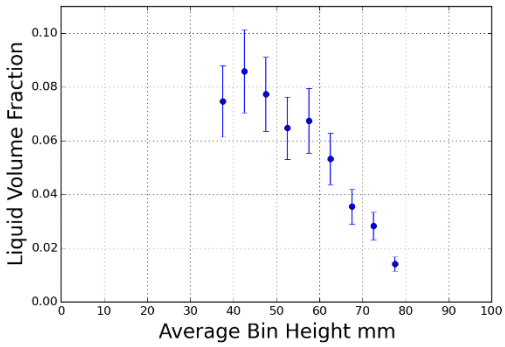


Figure C. 490: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

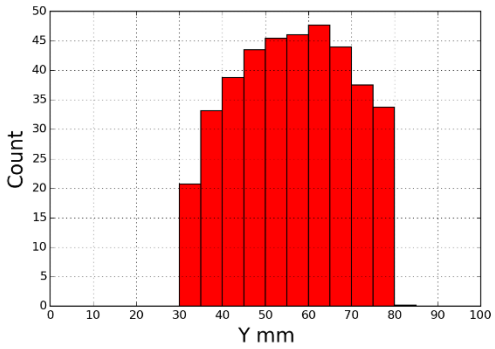


Figure C. 488: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LA Image

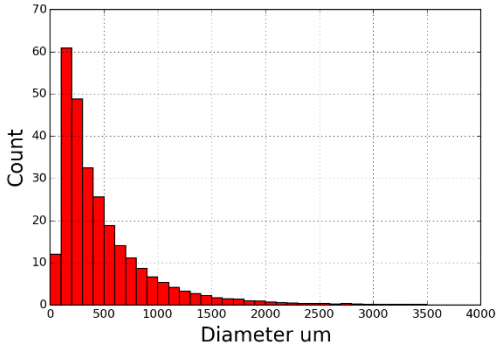


Figure C. 491: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

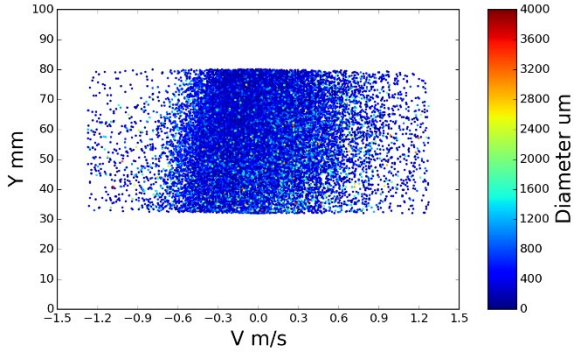


Figure C. 494: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

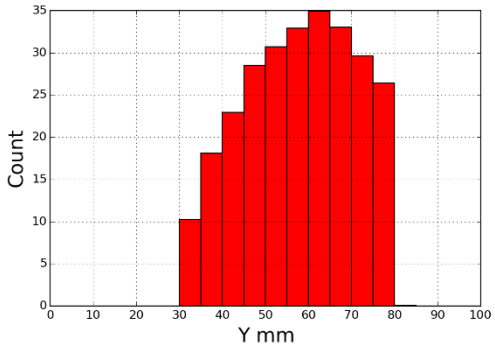


Figure C. 492: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

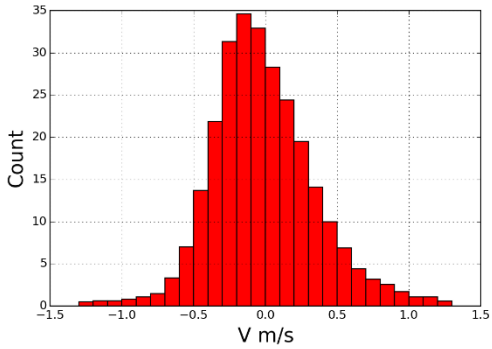


Figure C. 495: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

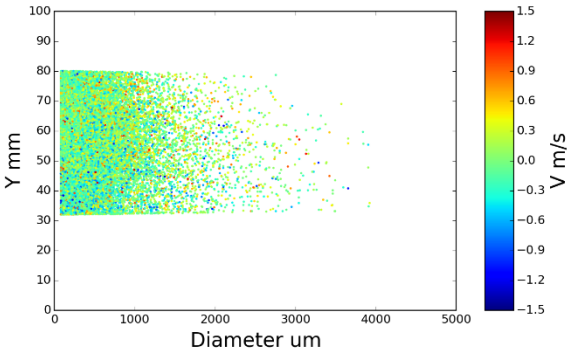


Figure C. 493: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LB Image

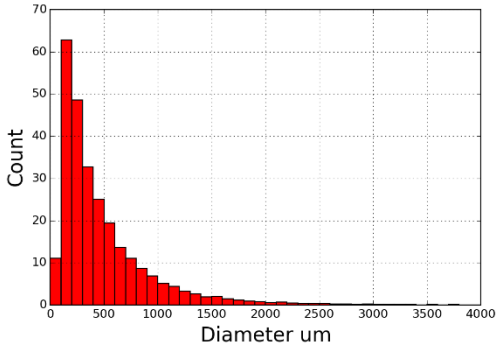


Figure C. 496: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

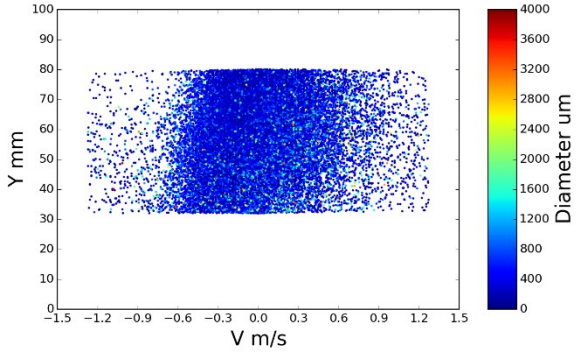


Figure C. 499: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

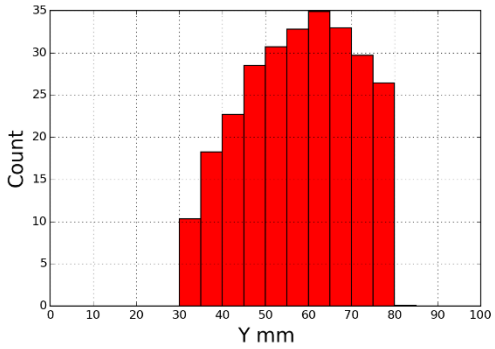


Figure C. 497: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

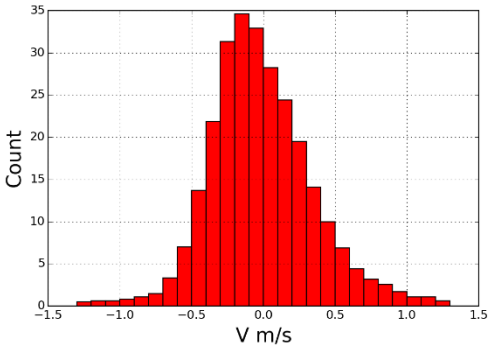


Figure C. 500: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

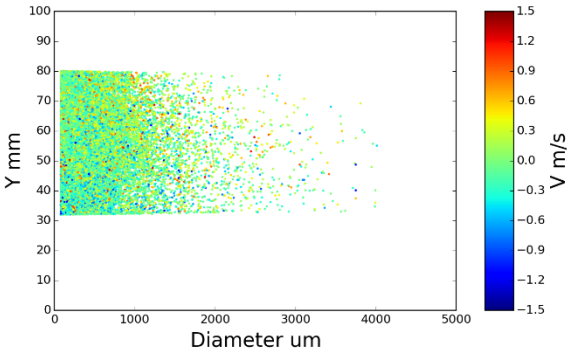


Figure C. 498: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	51.82	51.47	76.0	4000	546.0	580.2	76.0	4018	541.4	574.9
40-60mm	182.25	181.49	76.0	4015	476.9	487.2	76.0	4004	477.3	489.2
60-80mm	174.52	174.56	76.0	3905	405.0	400.0	76.0	3932	406.6	399.2
80-100mm	0.18	0.14	76.0	152.0	102.5	21.2	76.0	140.7	106.1	20.4
All	409.51	408.31	76.0	4015	454.8	468.2	76.0	4018	455.0	467.7
			Height A (mm)				Height B (mm)			
Highest Particle			80.0208				80.0208			
Lowest Particle			32.0541				32.0541			

Table C. 56: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	26.62	81.3	3738	652.6	587.5	76.0	4018	646.0	595.4	-1.260	1.260	-0.080	0.300	-1.270	1.270	0.040	0.420
40-60mm	119.59	81.3	3955	533.2	482.4	76.0	4004	527.4	482.0	-1.270	1.270	-0.080	0.240	-1.260	1.270	0.040	0.380
60-80mm	132.26	81.3	3905	445.8	405.2	76.0	3914	442.8	403.3	-1.270	1.270	-0.090	0.200	-1.270	1.270	0.060	0.340
80-100mm	0.02	99.5	107.5	103.5	4.0	10000	-1000.0	103.5	4.0	-0.950	-0.370	-0.660	0.290	-0.790	-0.020	-0.410	0.380
All	278.49	81.3	3955	503.1	463.7	76.0	4018	498.4	463.3	-1.270	1.270	-0.080	0.230	-1.270	1.270	0.050	0.370

Table C. 57: Matched Droplet Info

C.2.2.1 All Droplets for .LA Image

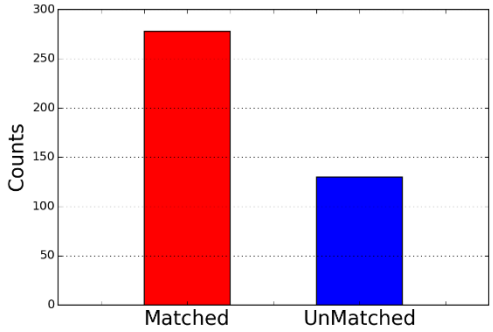


Figure C. 501: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

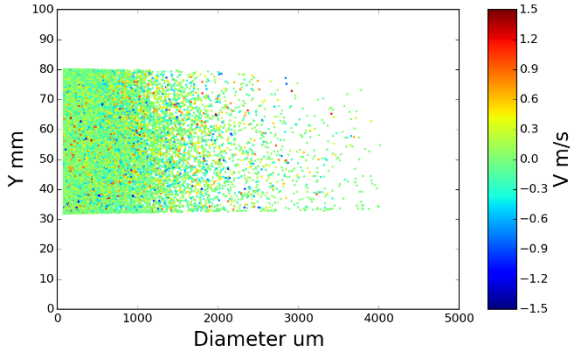


Figure C. 504: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

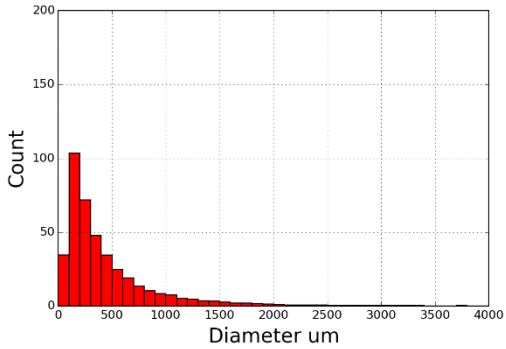


Figure C. 502: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

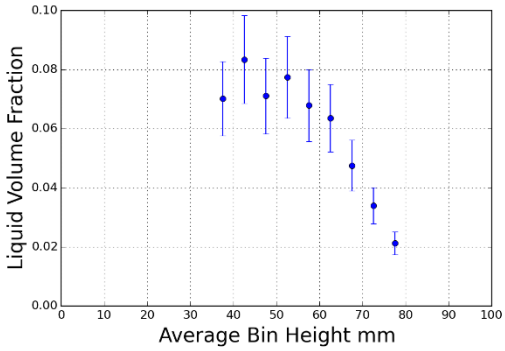


Figure C. 505: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

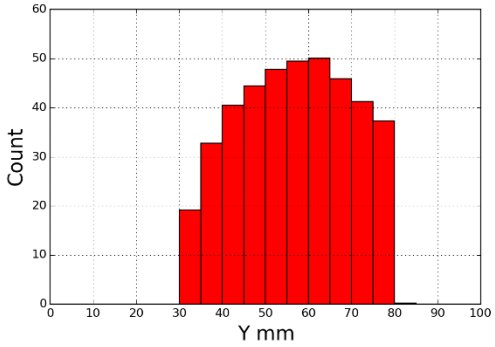


Figure C. 503: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 All Droplets for .LB Image

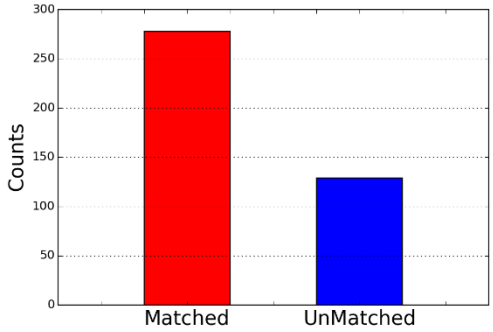


Figure C. 506: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

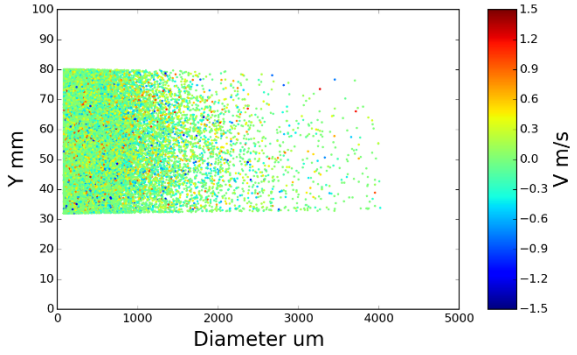


Figure C. 509: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

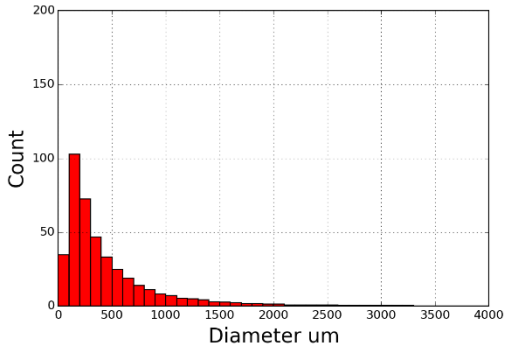


Figure C. 507: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

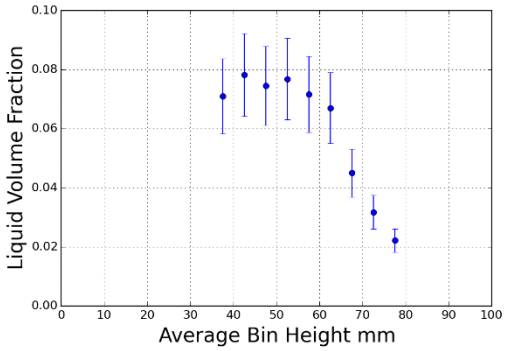


Figure C. 510: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

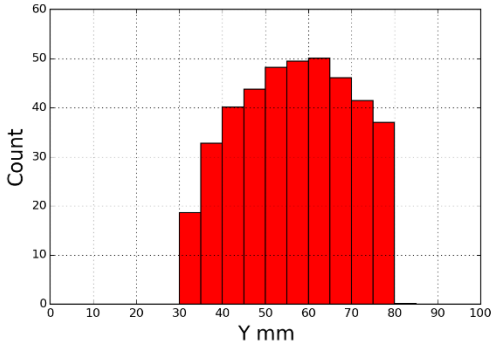


Figure C. 508: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LA Image

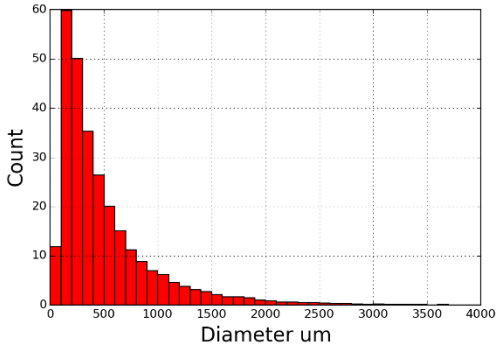


Figure C. 511: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

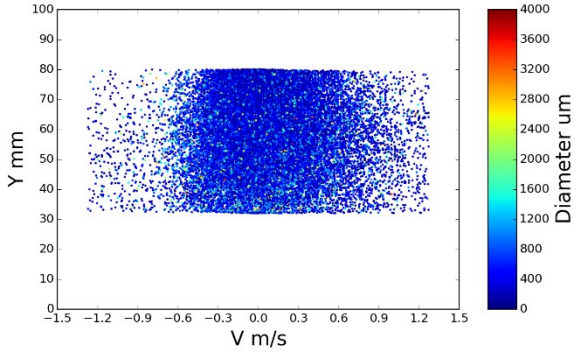


Figure C. 514: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

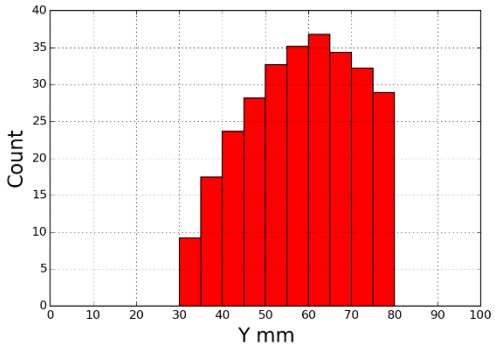


Figure C. 512: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

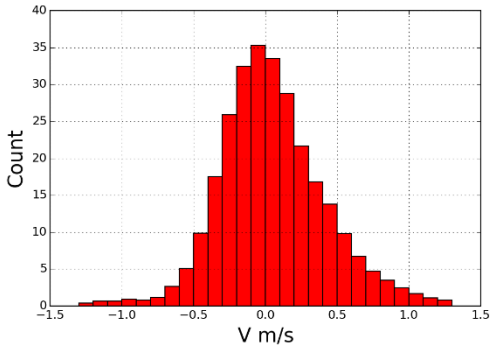


Figure C. 515: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

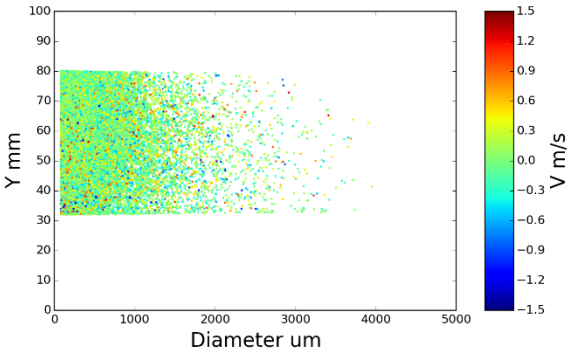


Figure C. 513: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LB Image

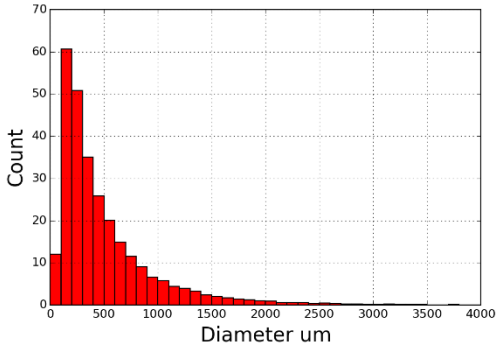


Figure C. 516: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

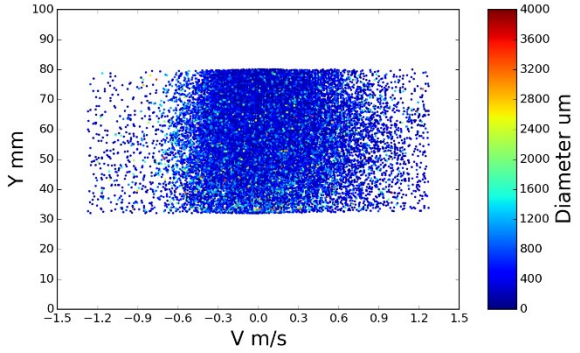


Figure C. 519: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

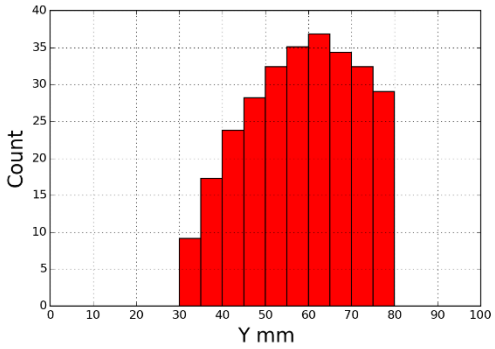


Figure C. 517: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

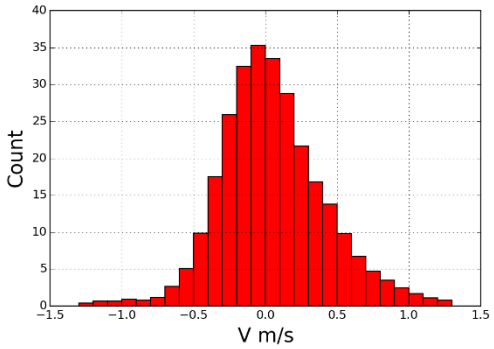


Figure C. 520: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

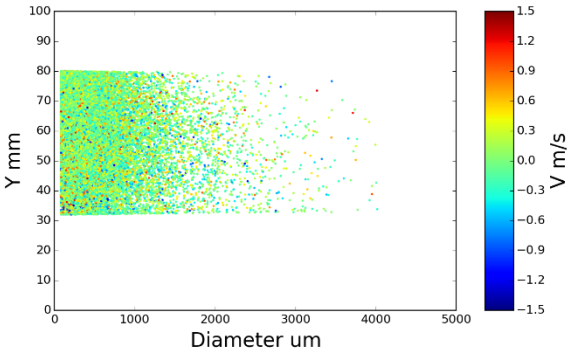


Figure C. 518: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	40.81	40.91	76.0	3987	555.6	580.9	76.0	3954	563.1	586.1
40-60mm	157.19	155.92	76.0	4007	495.6	514.6	76.0	4004	494.3	512.9
60-80mm	165.61	166.29	76.0	3957	415.5	413.5	76.0	3922	411.8	408.3
80-100mm	0.24	0.12	76.0	201.1	99.5	25.1	76.0	143.6	103.6	20.3
All	364.85	364.49	76.0	4007	465.6	482.3	76.0	4004	464.1	480.4
			Height A (mm)				Height B (mm)			
Highest Particle			80.0208				80.0208			
Lowest Particle			32.0541				32.0541			

Table C. 58: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	19.63	81.3	3569	680.3	594.2	76.0	3878	670.1	598.9	-1.270	1.260	-0.070	0.310	-1.250	1.270	0.060	0.430
40-60mm	96.84	81.3	3870	565.2	519.6	81.3	3943	559.9	523.9	-1.270	1.270	-0.080	0.250	-1.270	1.270	0.090	0.410
60-80mm	123.66	81.3	3799	457.5	414.4	81.3	3891	451.2	410.3	-1.270	1.260	-0.090	0.200	-1.270	1.270	0.100	0.360
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	240.13	81.3	3870	519.1	480.8	76.0	3943	512.9	481.2	-1.270	1.270	-0.080	0.230	-1.270	1.270	0.090	0.380

Table C. 59: Matched Droplet Info

C.2.2.1 All Droplets for .LA Image

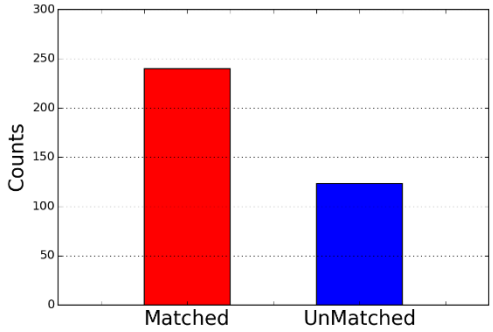


Figure C. 521: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

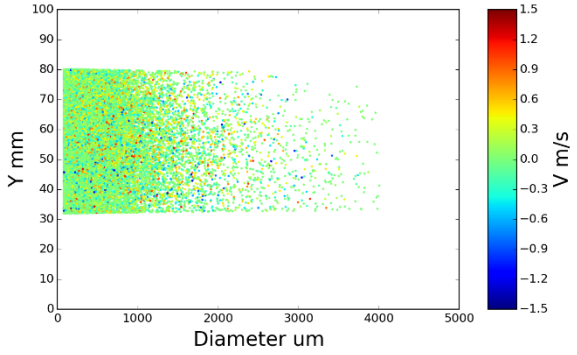


Figure C. 524: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

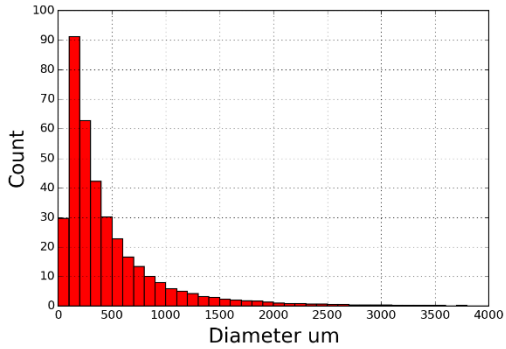


Figure C. 522: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

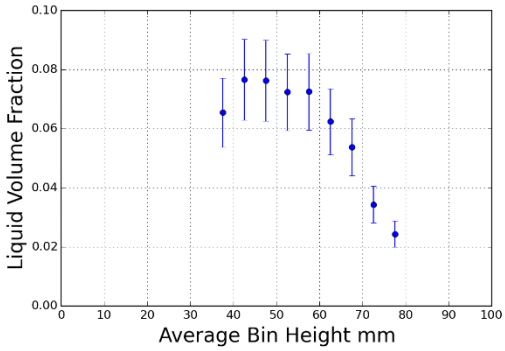


Figure C. 525: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

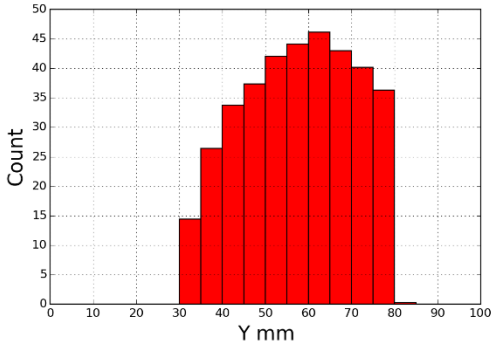


Figure C. 523: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 All Droplets for .LB Image

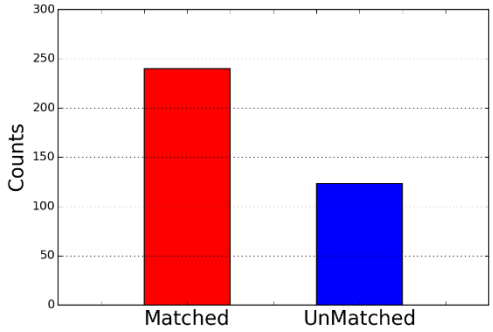


Figure C. 526: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

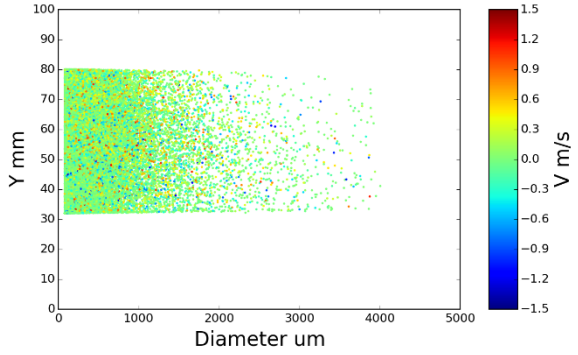


Figure C. 529: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

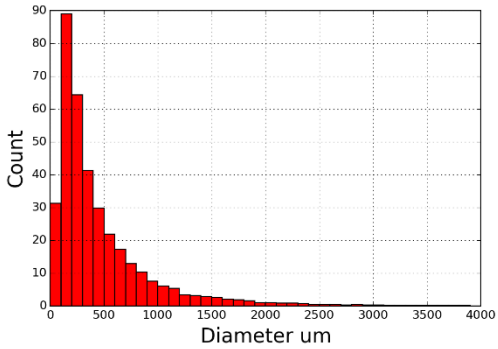


Figure C. 527: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

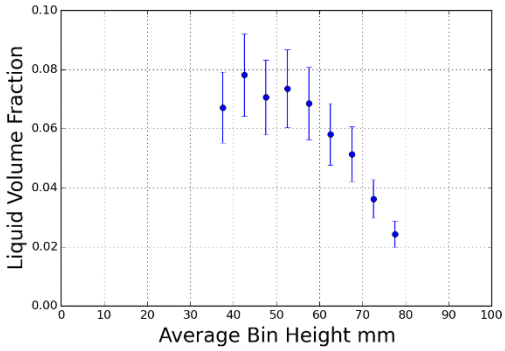


Figure C. 530: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

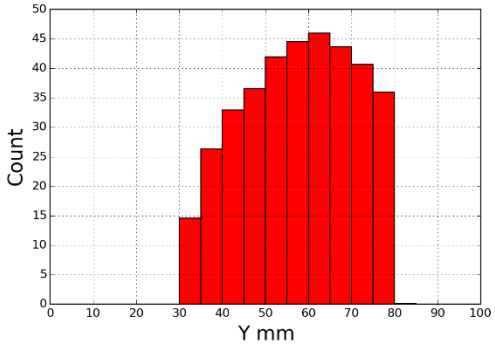


Figure C. 528: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LA Image

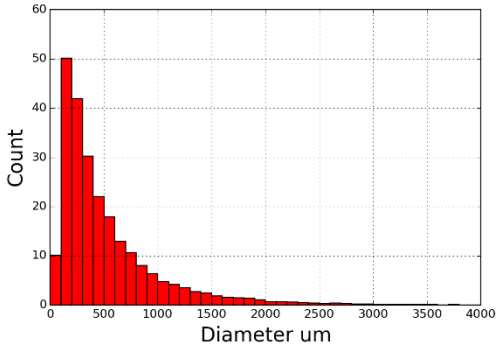


Figure C. 531: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

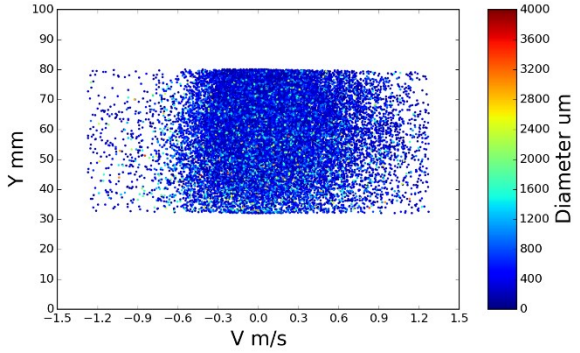


Figure C. 534: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

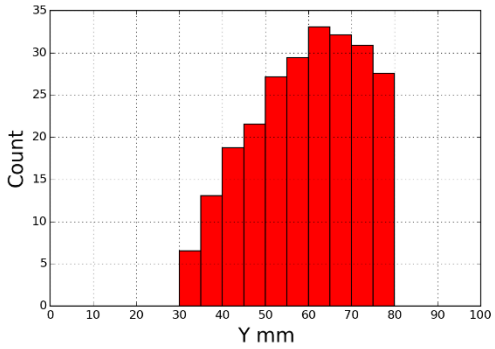


Figure C. 532: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

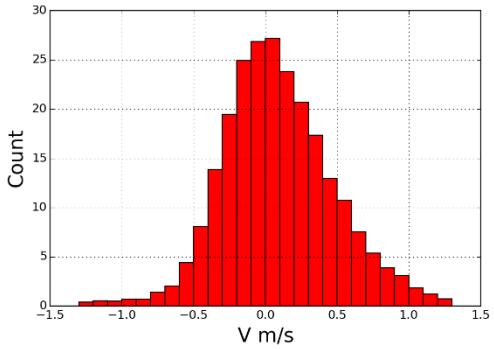


Figure C. 535: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

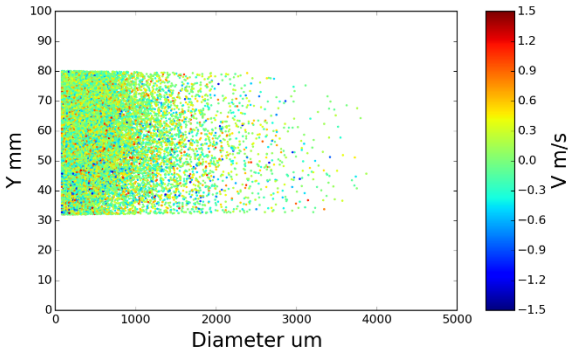


Figure C. 533: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.1 Matched Only Droplets for .LB Image

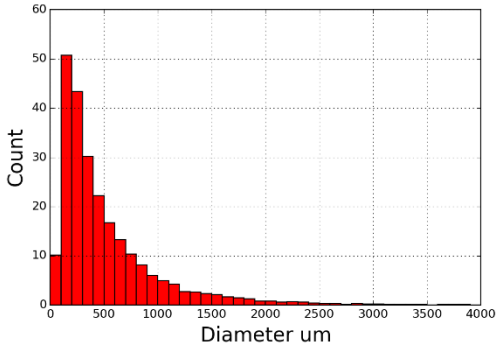


Figure C. 536: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

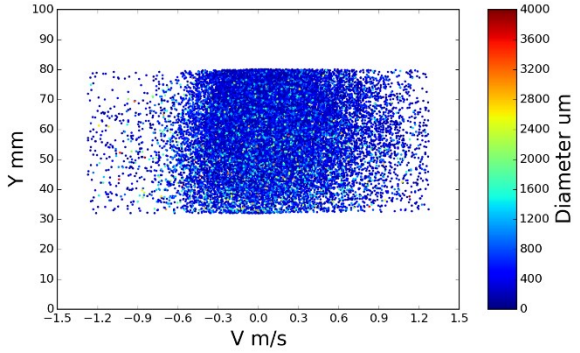


Figure C. 539: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

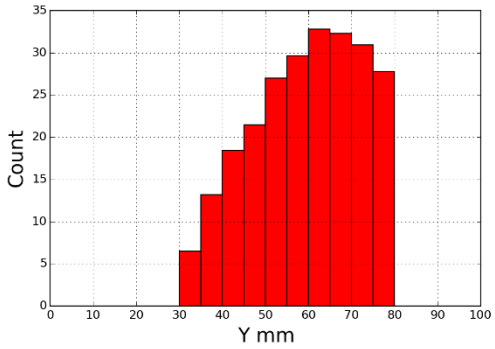


Figure C. 537: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

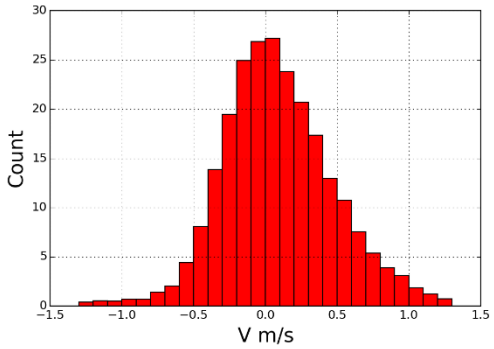


Figure C. 540: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

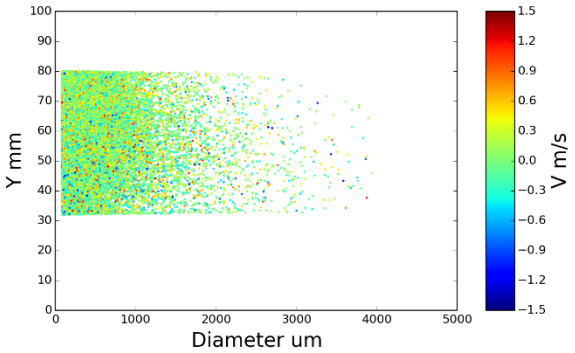


Figure C. 538: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Lens 50mm Mag 0_13x

C.2.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	64.29	63.58	170.5	3981	737.1	638.5	170.5	3997	734.7	623.7
40-60mm	120.81	119.95	170.5	3993	667.8	546.6	170.5	3994	670.8	550.2
60-80mm	103.98	104.57	182.3	3799	562.1	413.0	170.5	3940	567.4	420.9
80-100mm	43.62	42.99	170.5	3268	465.8	290.8	170.5	3345	465.9	288.6
All	332.75	331.16	170.5	3993	621.6	509.2	170.5	3997	623.8	508.5
			Height A (mm)				Height B (mm)			
Highest Particle			99.9711				99.9736			
Lowest Particle			20.1027				20.1027			

Table C. 60: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	26.93	182.3	3719	829.0	624.8	170.5	3997	805.9	621.8	-1.220	1.220	-0.070	0.460	-1.220	1.220	-0.060	0.530
40-60mm	69.92	182.3	3692	719.5	534.3	182.3	3994	707.9	535.8	-1.220	1.220	-0.100	0.390	-1.220	1.220	-0.040	0.480
60-80mm	69.03	182.3	3483	608.0	416.1	182.3	3940	602.4	413.5	-1.220	1.220	-0.110	0.320	-1.220	1.220	-0.030	0.410
80-100mm	31.5	182.3	3268	508.4	306.9	182.3	3345	505.0	301.3	-1.220	1.210	-0.100	0.230	-1.220	1.220	-0.010	0.330
All	197.38	182.3	3719	661.8	489.6	170.5	3997	652.1	487.3	-1.220	1.220	-0.100	0.360	-1.220	1.220	-0.030	0.440

Table C. 61: Matched Droplet Info

C.2.2.2 All Droplets for .LA Image

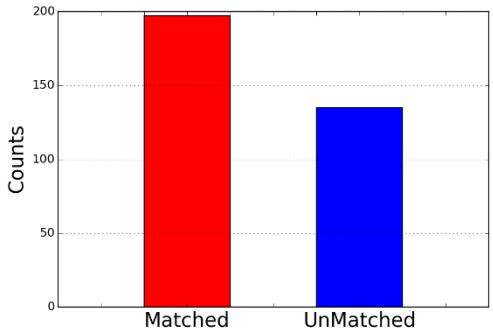


Figure C. 541: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

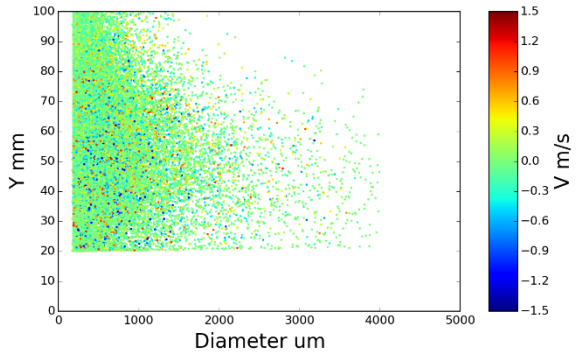


Figure C. 544: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

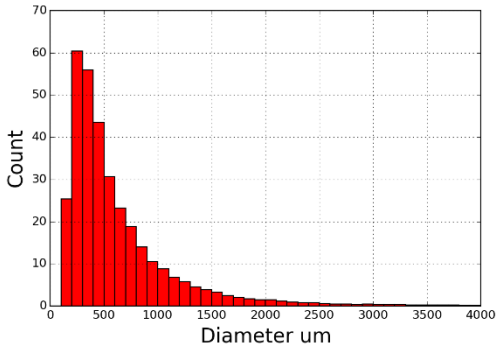


Figure C. 542: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

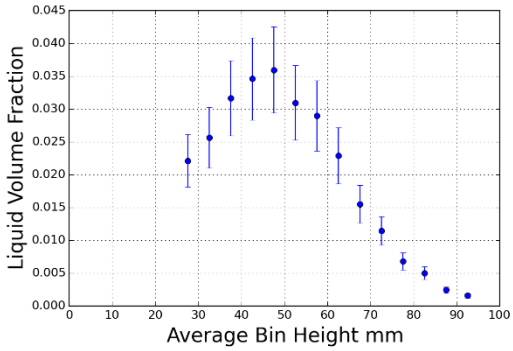


Figure C. 545: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

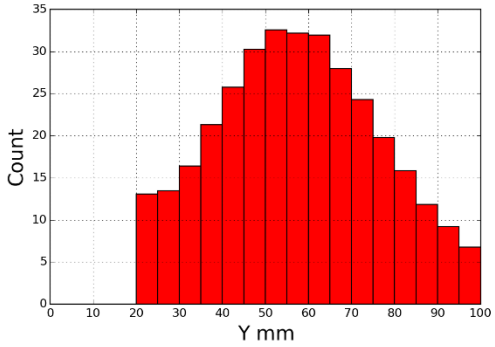


Figure C. 543: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 All Droplets for .LB Image

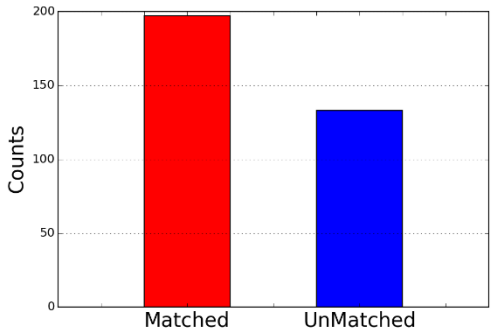


Figure C. 546: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

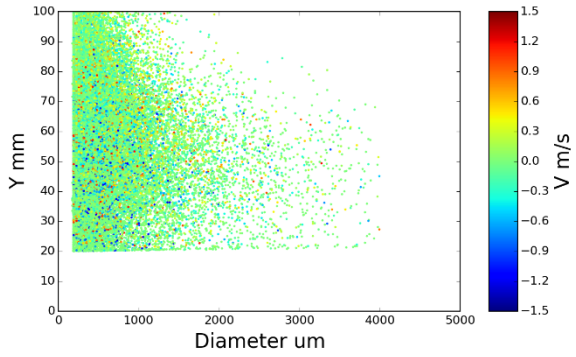


Figure C. 549: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

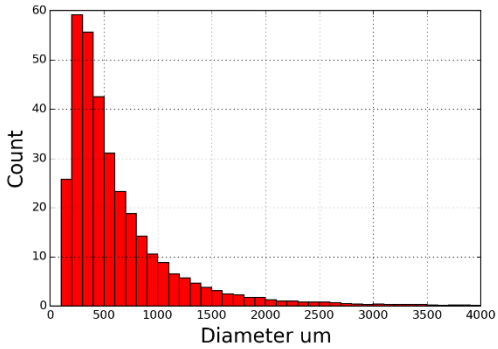


Figure C. 547: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

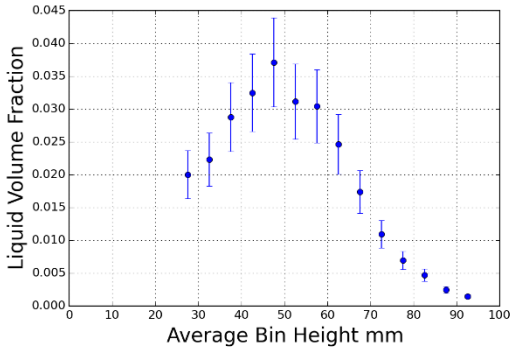


Figure C. 550: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

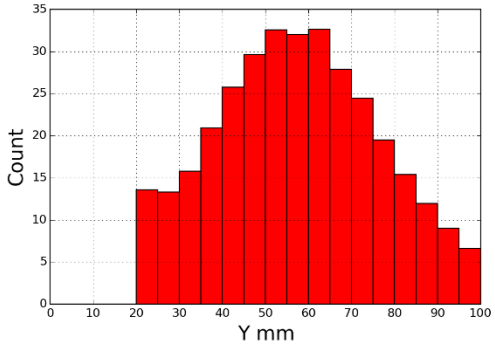


Figure C. 548: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LA Image

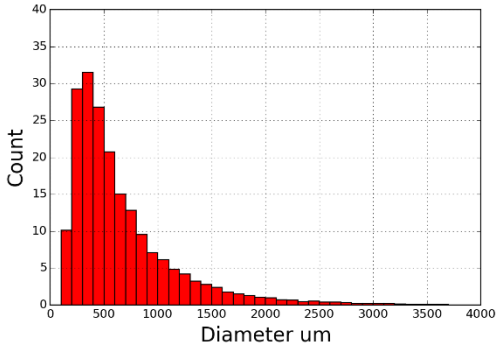


Figure C. 551: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

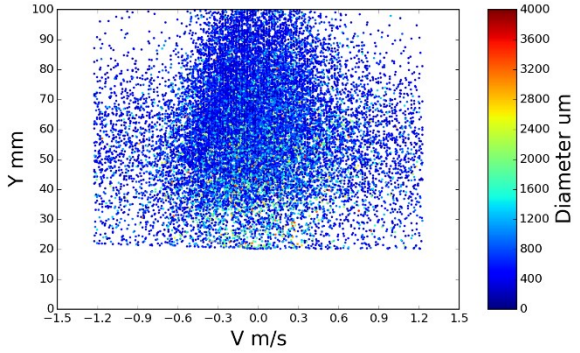


Figure C. 554: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

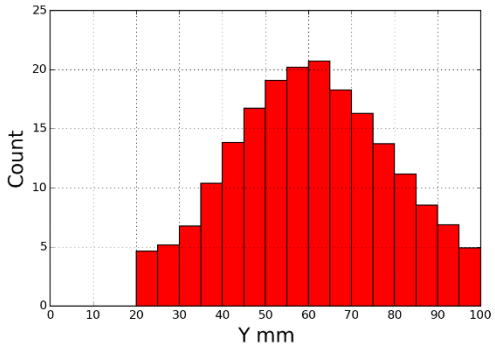


Figure C. 552: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

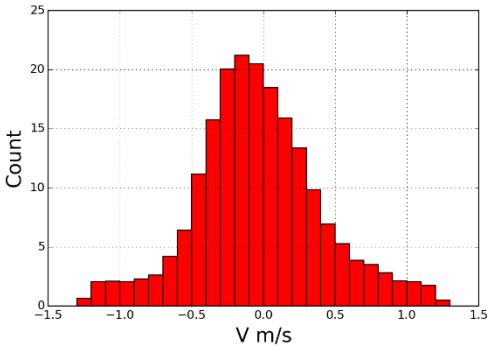


Figure C. 555: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

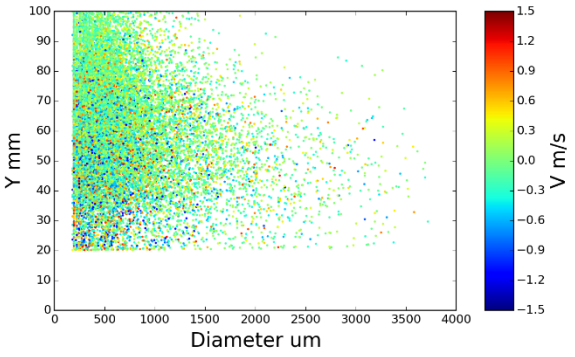


Figure C. 553: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LB Image

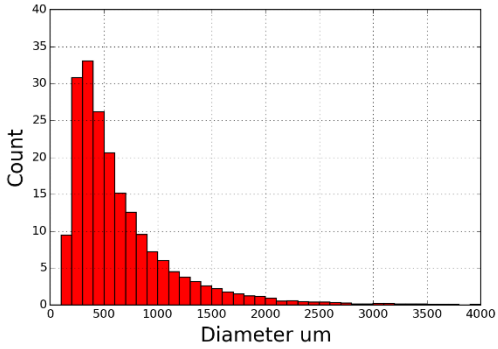


Figure C. 556: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

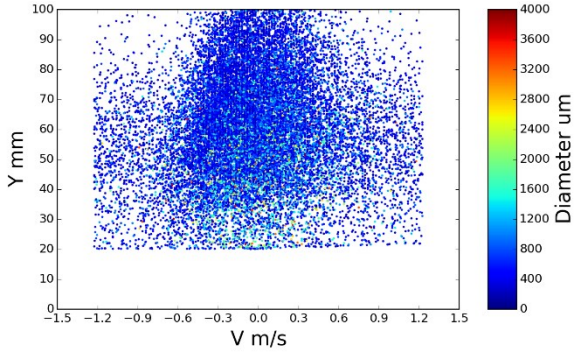


Figure C. 559: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

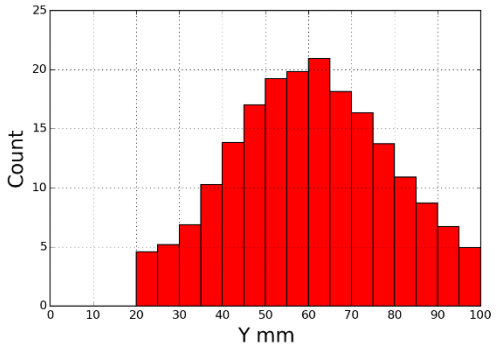


Figure C. 557: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

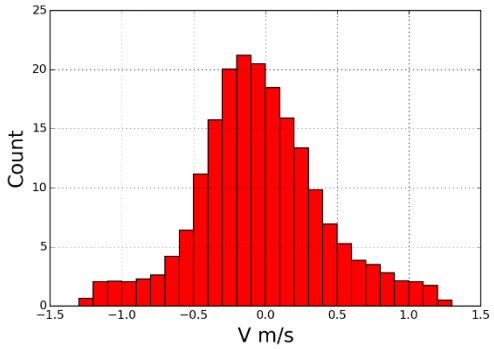


Figure C. 560: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

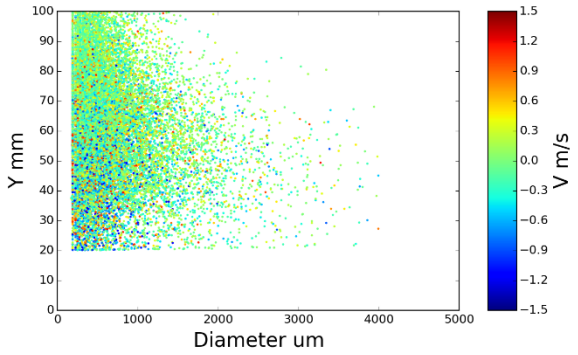


Figure C. 558: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	68.5	67.97	170.5	3995	735.6	629.6	170.5	3997	712.1	605.3
40-60mm	125.32	124.05	170.5	3991	666.3	539.3	170.5	3993	664.8	545.8
60-80mm	114.96	112.72	170.5	3954	571.1	421.0	170.5	3964	576.6	424.9
80-100mm	53.89	54.01	170.5	2794	472.2	287.4	170.5	2908	471.9	283.9
All	362.74	358.79	170.5	3995	620.4	501.1	170.5	3997	617.0	497.5
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 62: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	28.57	182.3	3875	827.6	632.5	170.5	3963	796.9	621.8	-1.220	1.220	-0.090	0.480	-1.220	1.220	-0.020	0.540
40-60mm	69.9	182.3	3895	732.9	541.2	182.3	3993	719.8	543.6	-1.220	1.220	-0.100	0.420	-1.220	1.220	0.010	0.500
60-80mm	73.84	182.3	3549	624.9	427.0	170.5	3551	615.1	419.7	-1.220	1.220	-0.090	0.340	-1.220	1.220	0.030	0.440
80-100mm	37.34	182.3	2794	515.9	301.6	170.5	2908	510.7	296.9	-1.220	1.220	-0.100	0.280	-1.220	1.220	0.050	0.400
All	209.65	182.3	3895	669.1	492.2	170.5	3993	656.1	487.2	-1.220	1.220	-0.090	0.380	-1.220	1.220	0.020	0.470

Table C. 63: Matched Droplet Info

C.2.2.2 All Droplets for .LA Image

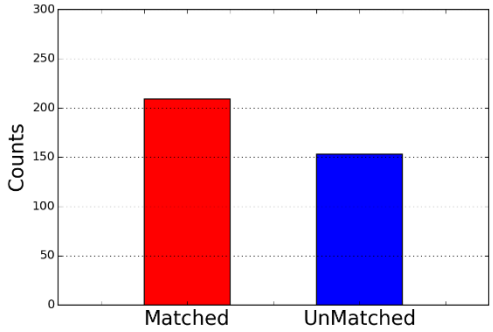


Figure C. 561: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

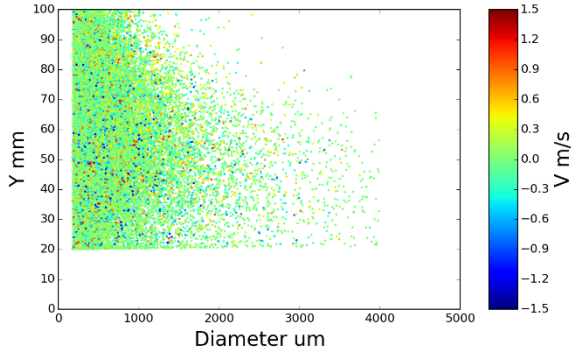


Figure C. 564: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

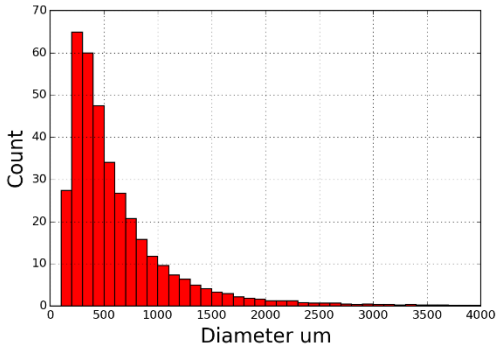


Figure C. 562: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

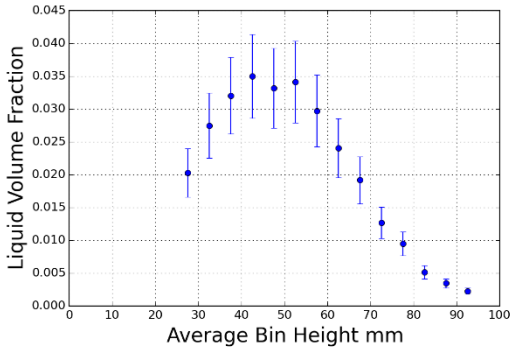


Figure C. 565: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

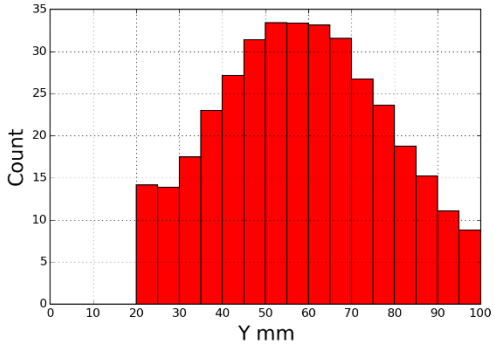


Figure C. 563: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 All Droplets for .LB Image

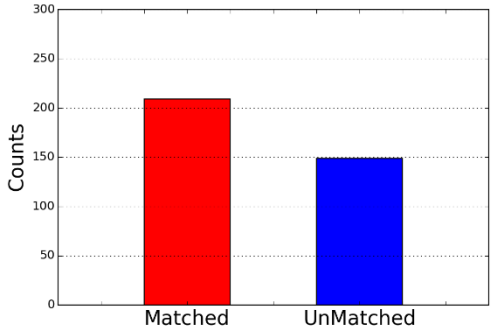


Figure C. 566: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

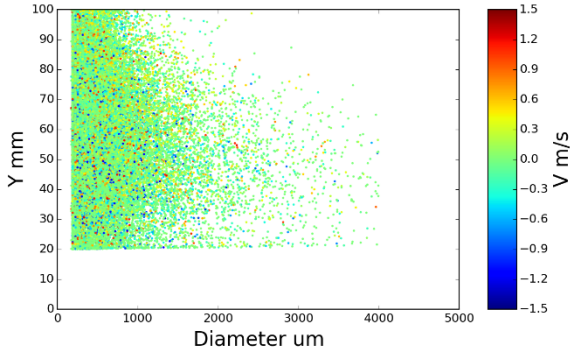


Figure C. 569: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

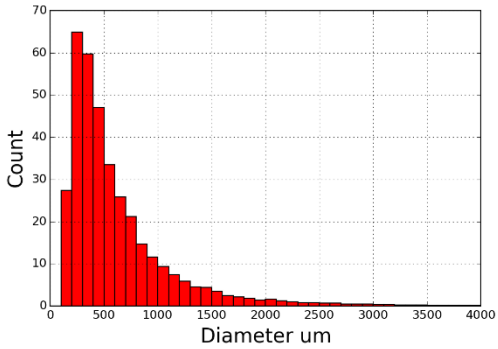


Figure C. 567: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

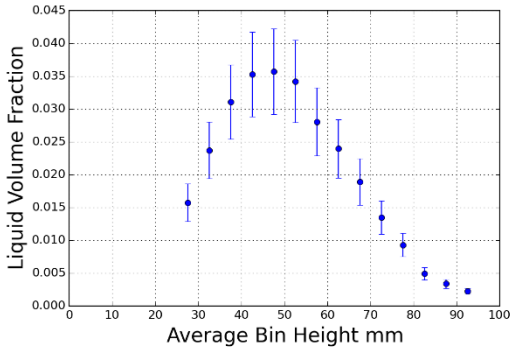


Figure C. 570: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

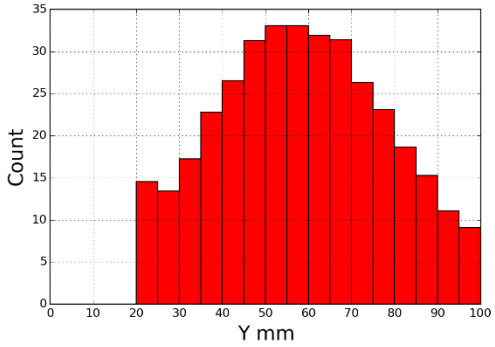


Figure C. 568: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LA Image

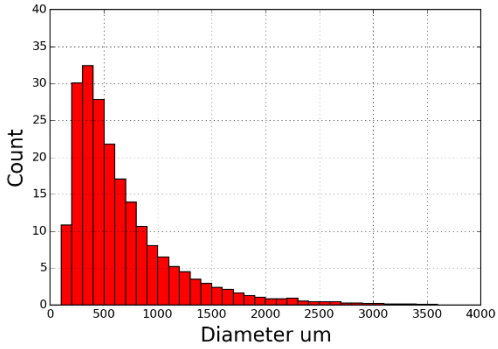


Figure C. 571: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

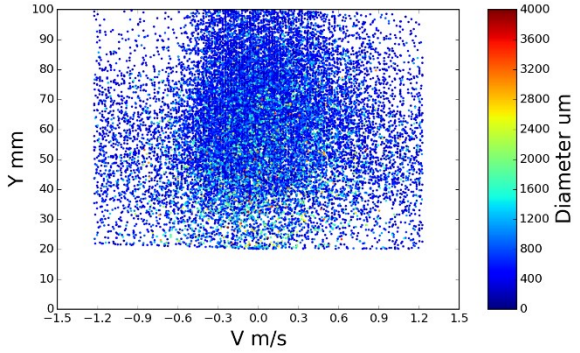


Figure C. 574: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

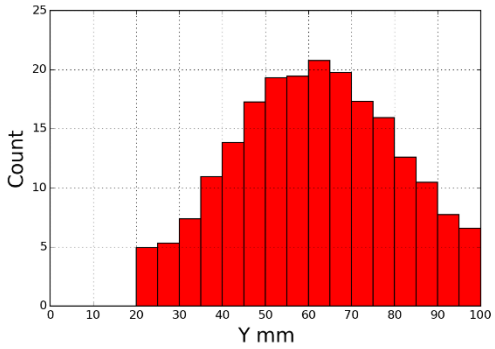


Figure C. 572: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

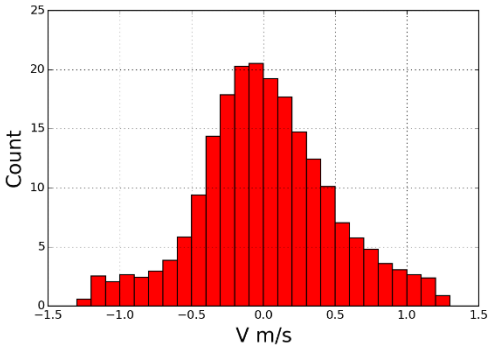


Figure C. 575: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

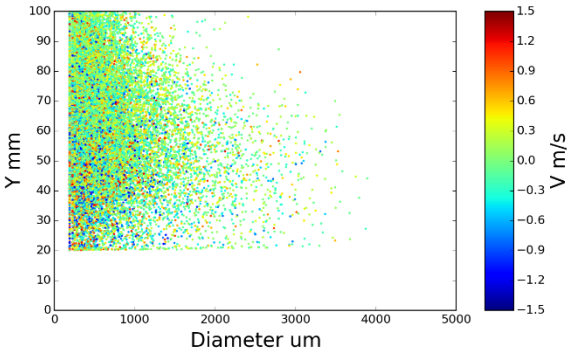


Figure C. 573: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LB Image

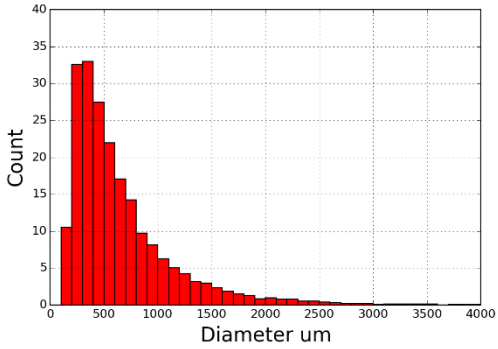


Figure C. 576: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

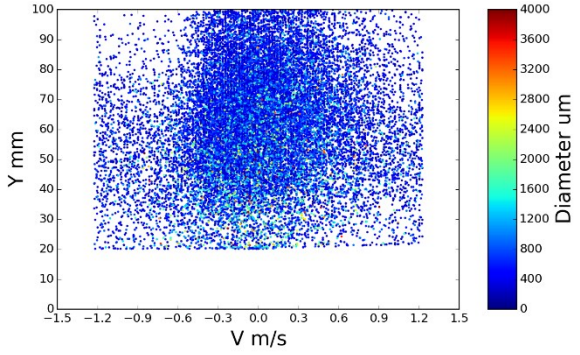


Figure C. 579: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

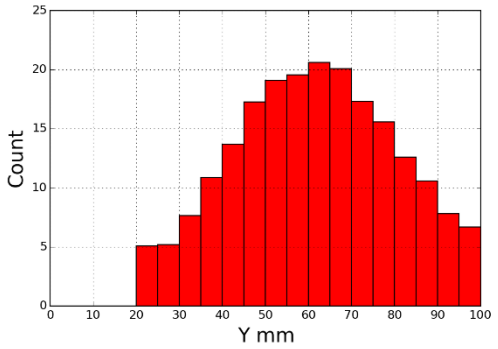


Figure C. 577: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

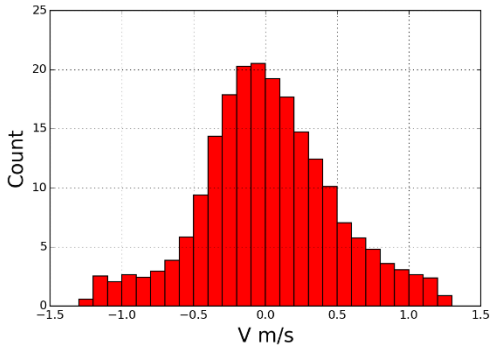


Figure C. 580: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

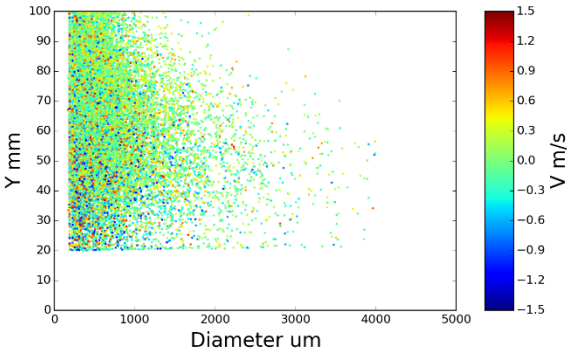


Figure C. 578: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	61.89	59.62	170.5	3992	732.3	628.6	170.5	3967	732.7	615.2
40-60mm	119.58	117.16	170.5	3992	672.8	545.3	170.5	3991	675.8	555.3
60-80mm	112.18	111.48	170.5	3895	586.3	445.8	170.5	3996	586.5	439.3
80-100mm	54.34	54.4	170.5	3188	477.2	293.6	170.5	3367	480.1	301.3
All	348.03	342.74	170.5	3992	625.0	506.7	170.5	3996	625.6	505.2
			Height A (mm)				Height B (mm)			
Highest Particle			99.9758				99.9996			
Lowest Particle			20.1256				20.1027			

Table C. 64: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	25.01	182.3	3796	836.4	625.3	182.3	3967	813.2	625.7	-1.220	1.220	-0.070	0.500	-1.220	1.220	0.010	0.540
40-60mm	65.28	182.3	3820	742.1	552.0	182.3	3991	724.7	548.8	-1.220	1.220	-0.100	0.430	-1.220	1.220	0.030	0.500
60-80mm	71.6	182.3	3714	641.3	450.2	182.3	3815	628.0	441.9	-1.220	1.220	-0.100	0.350	-1.220	1.220	0.050	0.450
80-100mm	37.85	182.3	2800	522.6	306.5	182.3	3367	518.1	306.1	-1.220	1.220	-0.090	0.270	-1.220	1.220	0.050	0.370
All	199.74	182.3	3820	676.2	498.5	182.3	3991	661.7	493.4	-1.220	1.220	-0.090	0.390	-1.220	1.220	0.040	0.470

Table C. 65: Matched Droplet Info

C.2.2.2 All Droplets for .LA Image

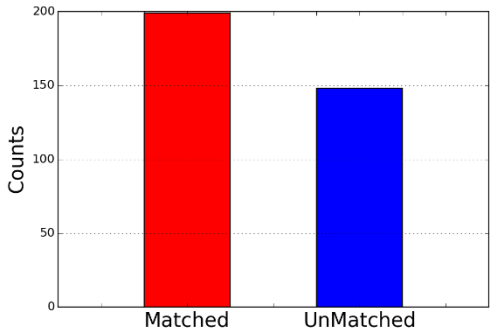


Figure C. 581: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

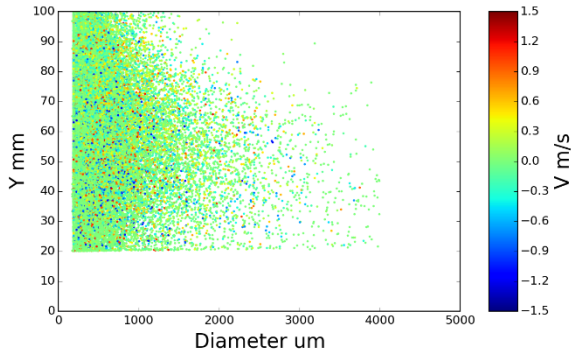


Figure C. 584: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

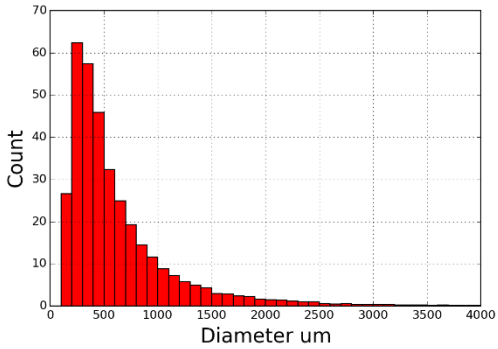


Figure C. 582: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

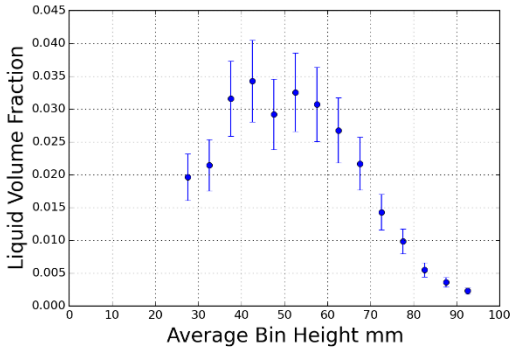


Figure C. 585: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

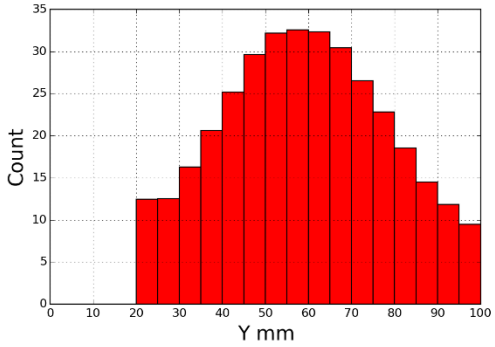


Figure C. 583: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 All Droplets for .LB Image

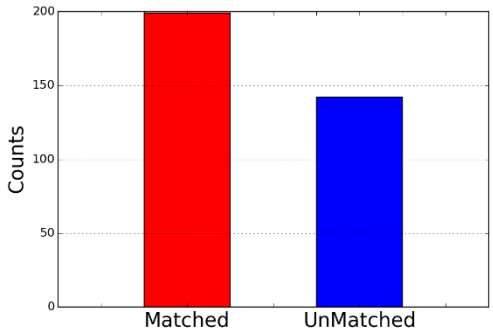


Figure C. 586: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

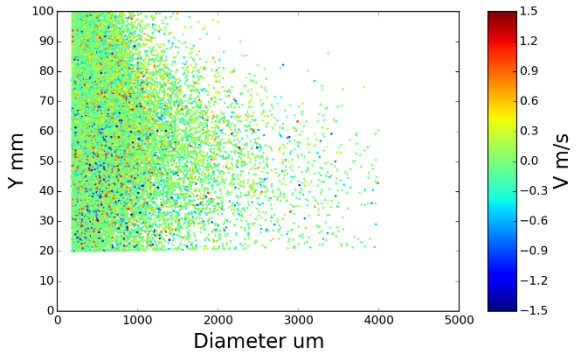


Figure C. 589: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

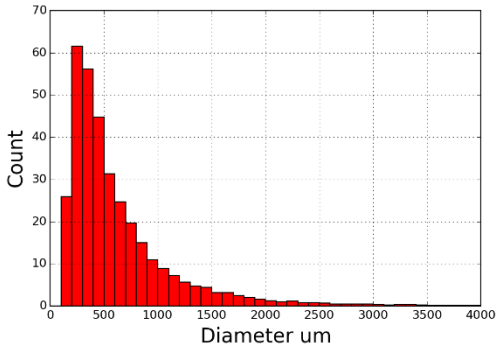


Figure C. 587: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

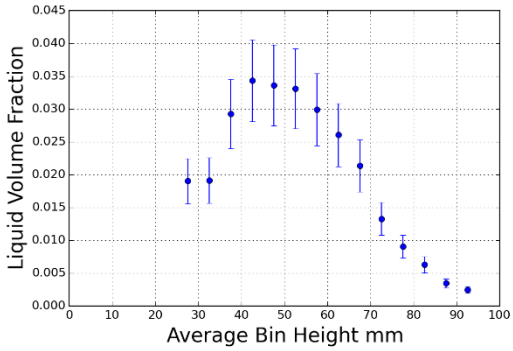


Figure C. 590: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

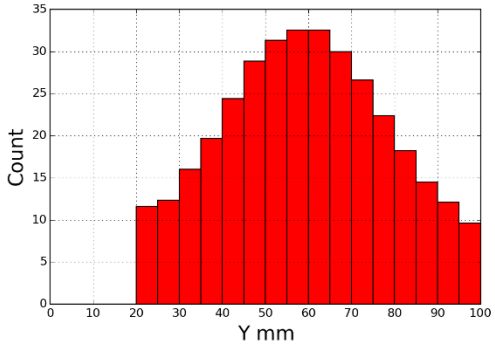


Figure C. 588: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LA Image

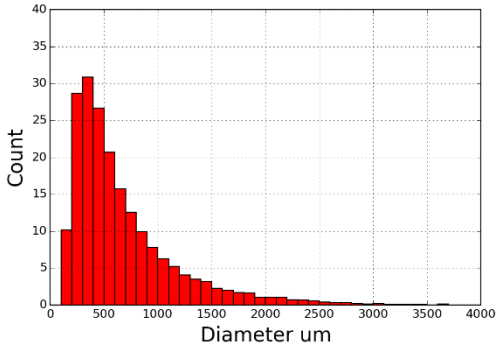


Figure C. 591: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

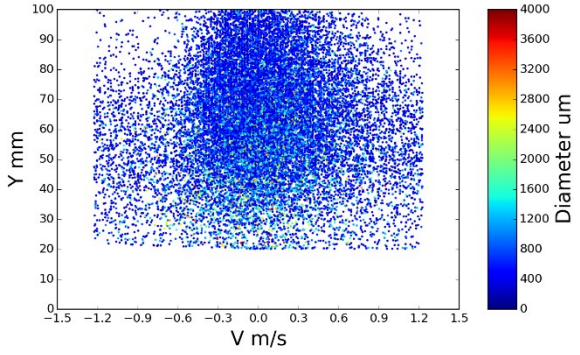


Figure C. 594: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

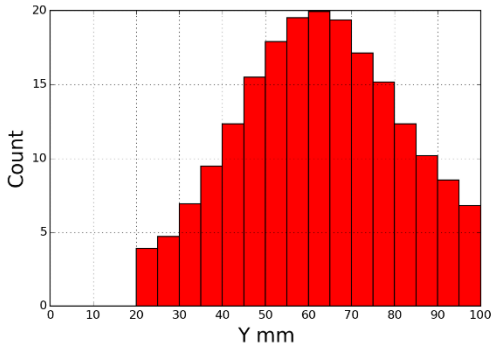


Figure C. 592: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

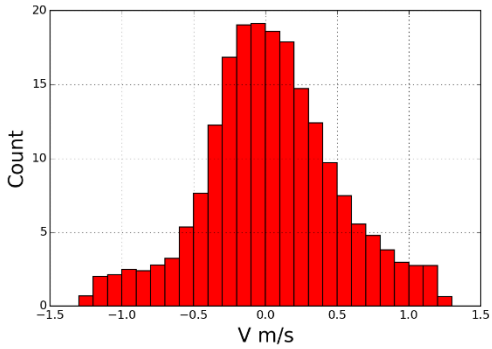


Figure C. 595: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

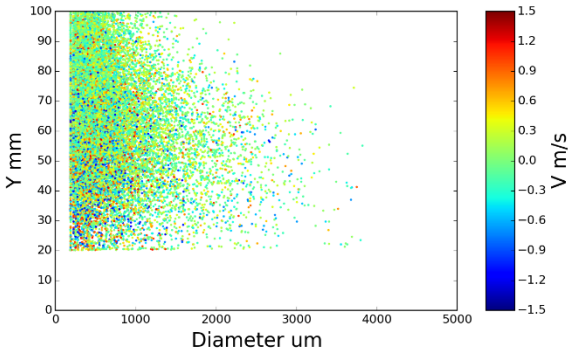


Figure C. 593: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.2.2 Matched Only Droplets for .LB Image

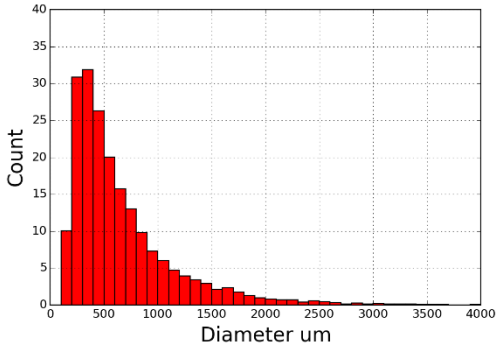


Figure C. 596: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

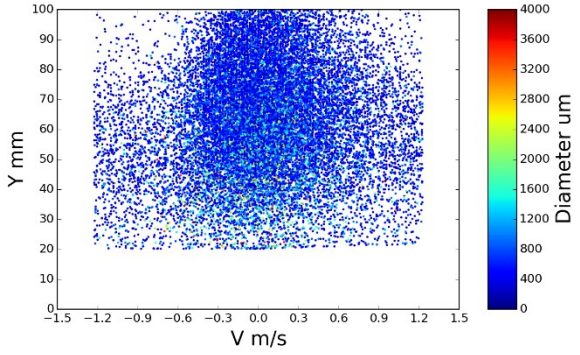


Figure C. 599: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

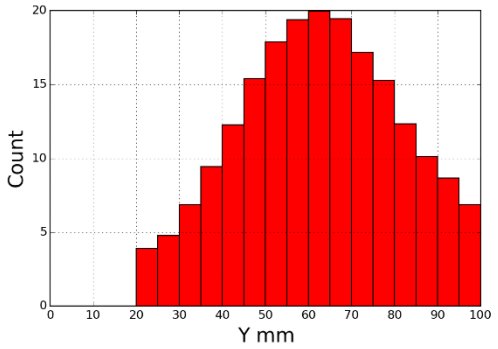


Figure C. 597: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

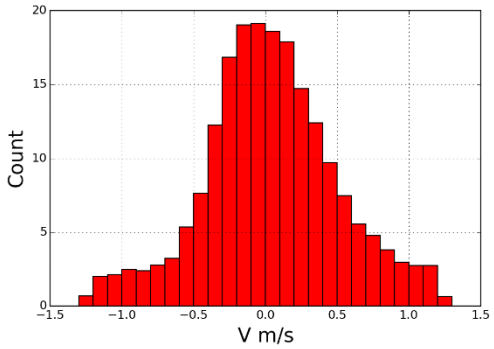


Figure C. 600: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

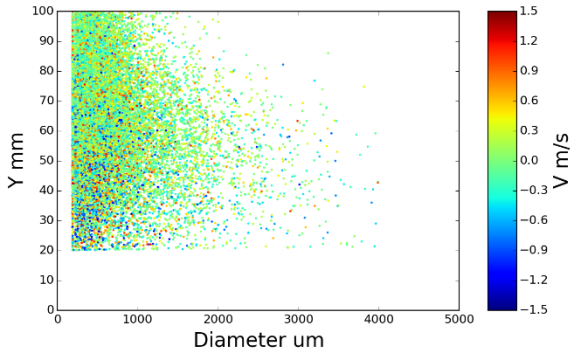


Figure C. 598: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27088 / 3.413
Ref Mass Flow (lb/hr) / (kg/s)	1561 / 0.197
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	15198 / 20.612
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4073 / 12.85
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.51
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.3 / 4.64
Total Bundle Q (Btu/hr) / (kW)	138926 / 40.72
Total Bundle & Preboiler Q (Btu/hr) / (kW)	138926 / 40.72
Top Two Rows HTC Ratio	0.569
Bundle Inlet Quality	-0.07
Bundle Exit Quality	0.99

Table C. 66: Thermal Conditions

C.2.3.1 Lens 100mm Mag 0_29x

C.2.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	18.12	18.49	81.3	2303	359.8	326.0	81.3	2355	355.2	318.4
40-60mm	33.37	33.81	81.3	2212	275.4	229.6	76.0	1994	275.6	231.4
60-80mm	22.53	22.51	81.3	1546	199.7	132.4	81.3	1608	200.1	134.1
80-100mm	0.03	0.01	81.3	90.8	84.5	4.5	99.5	99.5	99.5	0.0
All	74.05	74.82	81.3	2303	272.9	242.1	76.0	2355	272.6	240.7
			Height A (mm)				Height B (mm)			
Highest Particle			80.0080				80.0080			
Lowest Particle			32.0669				32.0663			

Table C. 67: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	14.05	86.2	2303	378.5	303.7	81.3	2355	380.6	312.1	-1.130	1.020	-0.090	0.160	-1.060	1.270	0.150	0.330
40-60mm	27.99	86.2	1667	290.1	222.1	81.3	1750	292.6	228.3	-1.260	1.020	-0.080	0.140	-1.230	1.090	0.150	0.290
60-80mm	18.79	86.2	1546	211.8	133.2	86.2	1608	211.9	135.2	-1.250	1.250	-0.080	0.140	-0.470	1.150	0.150	0.230
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	60.83	86.2	2303	286.3	230.6	81.3	2355	287.6	236.1	-1.260	1.250	-0.080	0.140	-1.230	1.270	0.150	0.280

Table C. 68: Matched Droplet Info

C.2.3.1 All Droplets for .LA Image

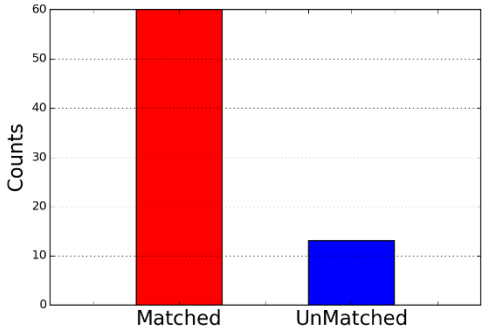


Figure C. 601: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

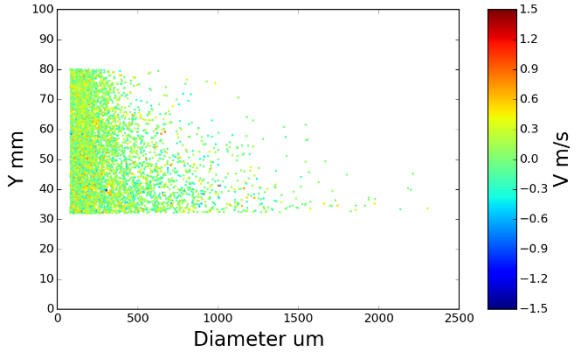


Figure C. 604: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

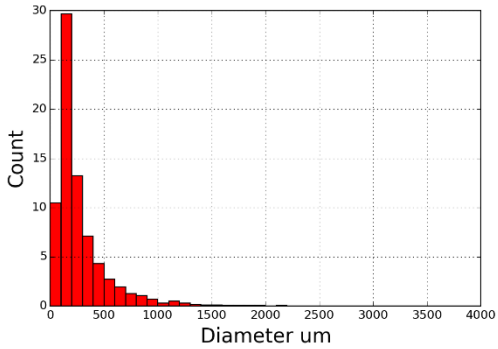


Figure C. 602: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

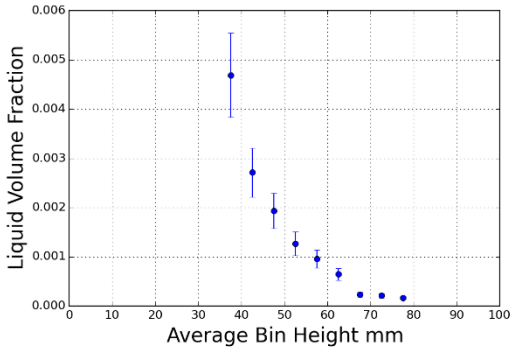


Figure C. 605: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

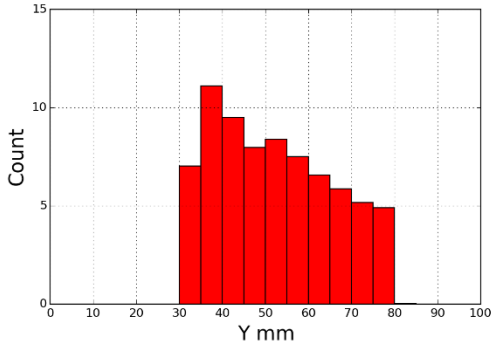


Figure C. 603: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 All Droplets for .LB Image

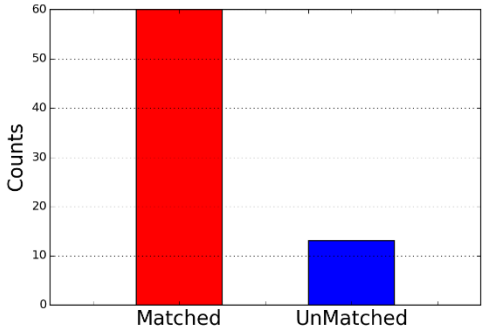


Figure C. 606: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

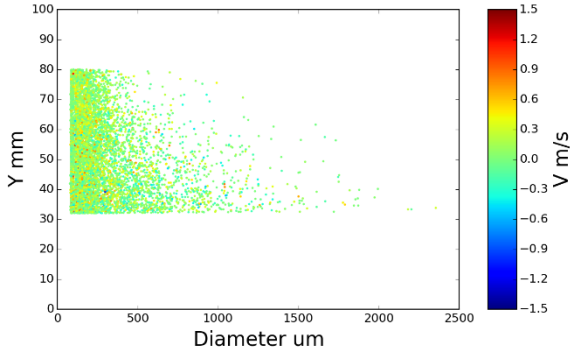


Figure C. 609: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

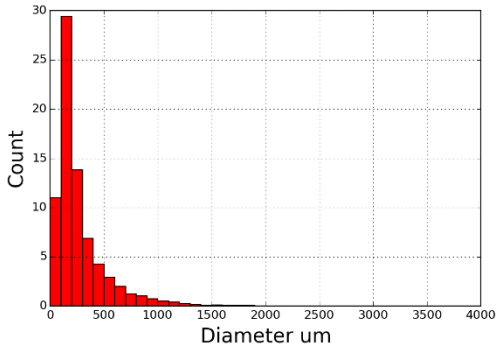


Figure C. 607: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

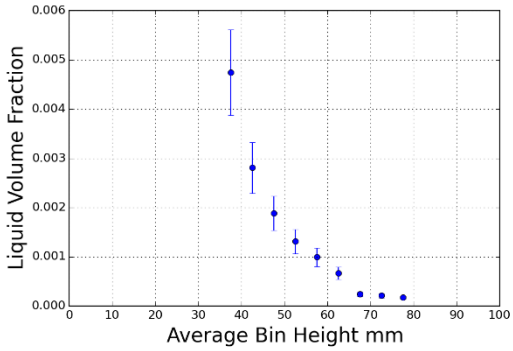


Figure C. 610: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

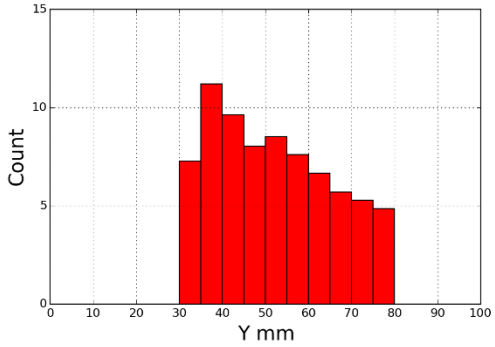


Figure C. 608: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LA Image

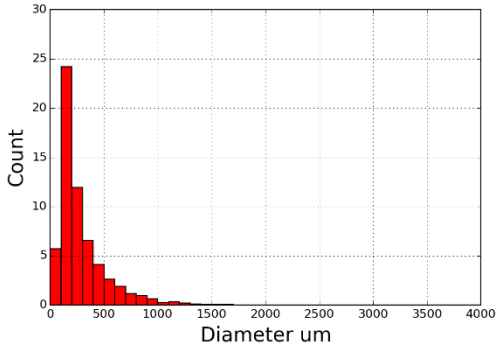


Figure C. 611: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

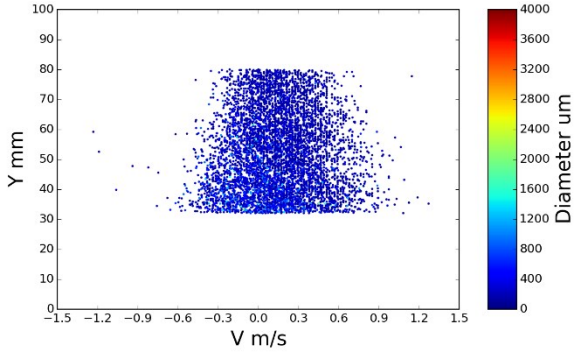


Figure C. 614: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

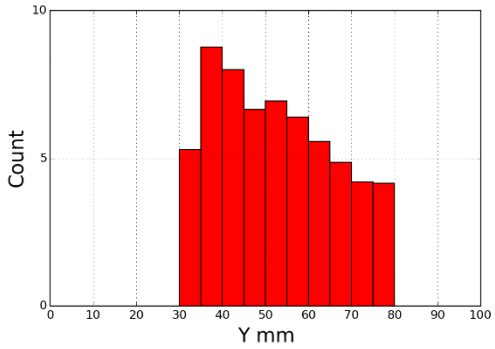


Figure C. 612: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

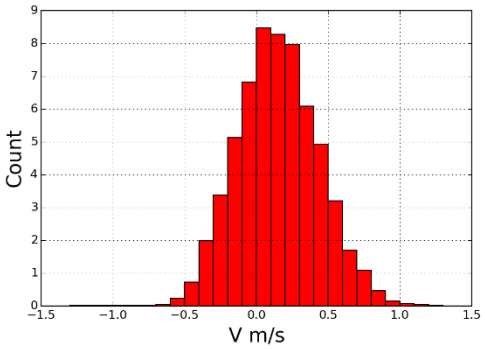


Figure C. 615: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

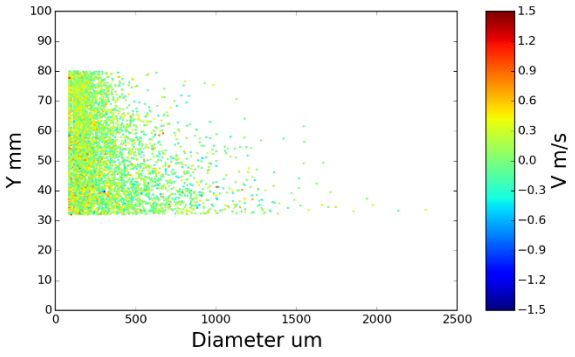


Figure C. 613: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LB Image

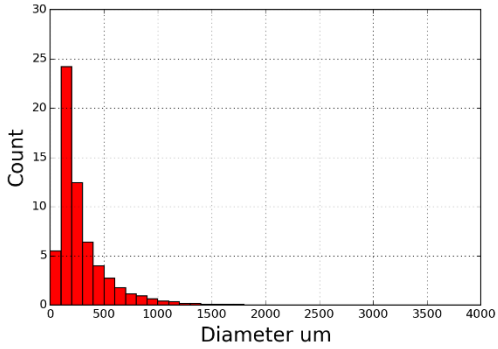


Figure C. 616: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

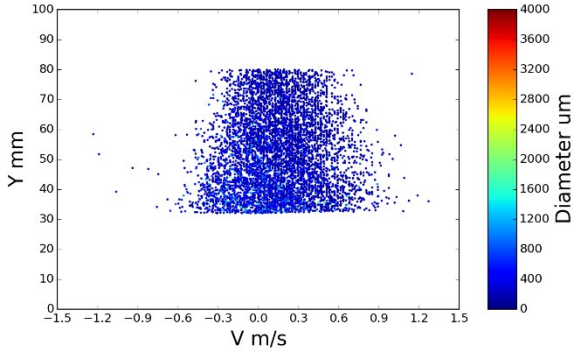


Figure C. 619: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

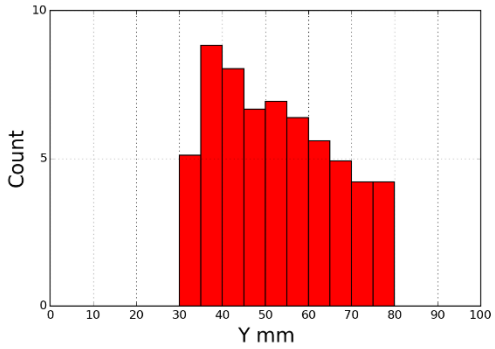


Figure C. 617: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

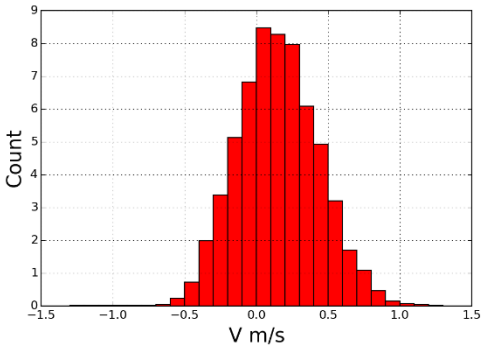


Figure C. 620: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

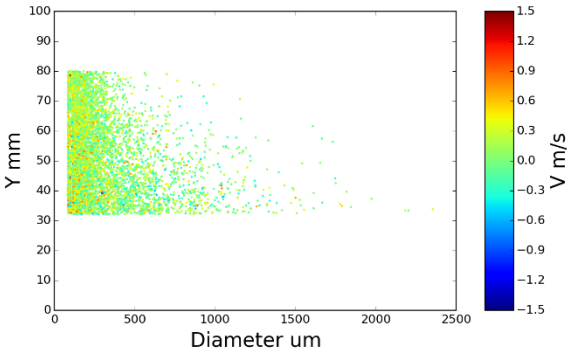


Figure C. 618: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.41	23.19	81.3	2254	360.2	315.1	76.0	2324	360.7	315.4
40-60mm	34.29	34.62	76.0	1715	306.7	262.4	81.3	2189	308.6	265.1
60-80mm	18.29	18.49	76.0	1491	207.0	156.2	81.3	1458	209.7	158.8
80-100mm	0.02	0.0	81.3	107.5	94.4	13.1	-	-	-	-
All	76.01	76.3	76.0	2254	299.1	266.0	76.0	2324	300.5	267.1
			Height A (mm)				Height B (mm)			
Highest Particle			80.0080				79.9964			
Lowest Particle			32.0541				32.0634			

Table C. 69: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	18.4	81.3	2254	383.0	309.4	81.3	2324	386.5	313.6	-1.220	0.820	-0.090	0.160	-1.260	1.230	0.170	0.340
40-60mm	28.29	81.3	1715	324.6	255.9	81.3	2189	327.5	262.9	-1.120	1.250	-0.100	0.150	-1.270	1.120	0.100	0.300
60-80mm	15.1	81.3	1453	223.2	161.0	86.2	1458	223.8	163.3	-1.180	1.270	-0.090	0.150	-0.960	1.120	0.040	0.240
80-100mm	0.01	107.5	107.5	107.5	0.0	10000	-1000.0	107.5	0.0	-0.110	-0.110	-0.110	0.000	-0.020	-0.020	-0.020	0.000
All	61.8	81.3	2254	317.1	261.3	81.3	2324	319.4	266.3	-1.220	1.270	-0.090	0.150	-1.270	1.230	0.110	0.300

Table C. 70: Matched Droplet Info

C.2.3.1 All Droplets for .LA Image

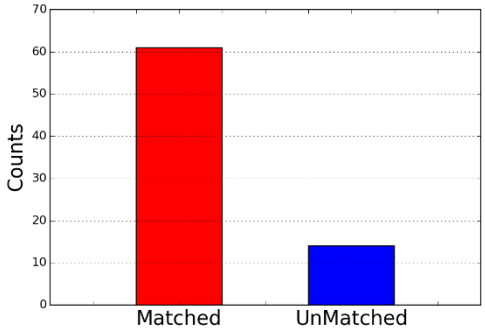


Figure C. 621: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

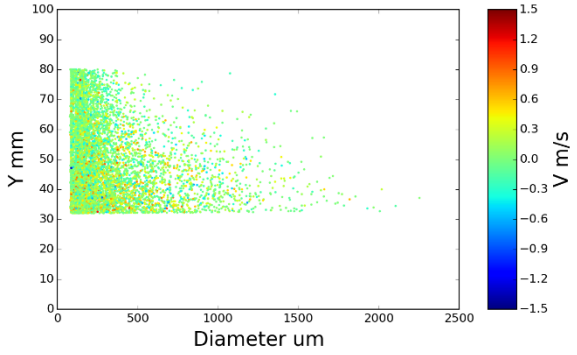


Figure C. 624: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

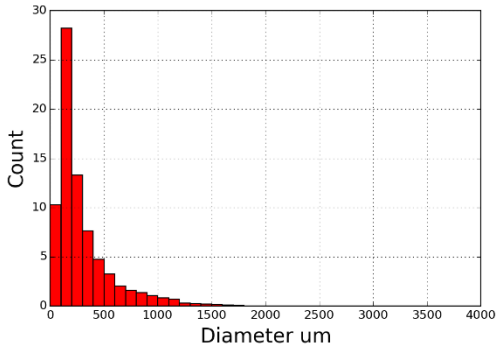


Figure C. 622: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

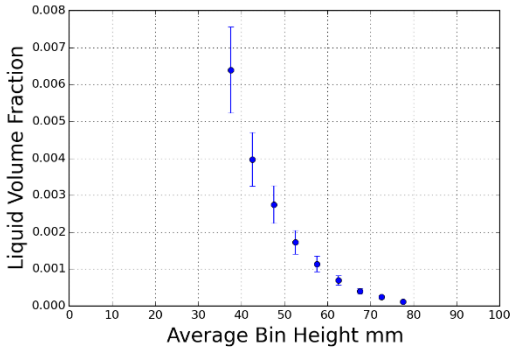


Figure C. 625: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

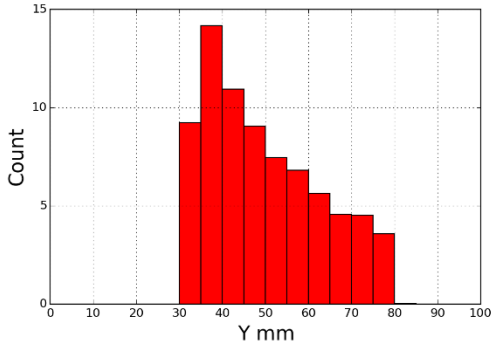


Figure C. 623: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 All Droplets for .LB Image

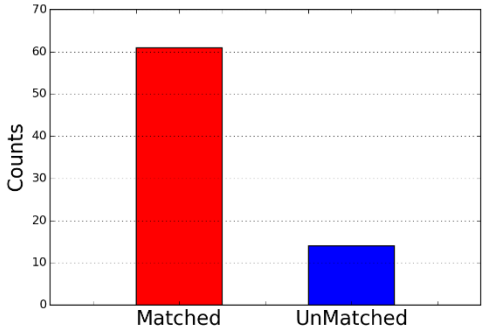


Figure C. 626: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

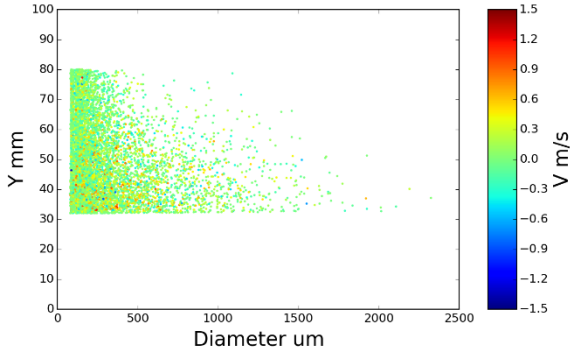


Figure C. 629: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

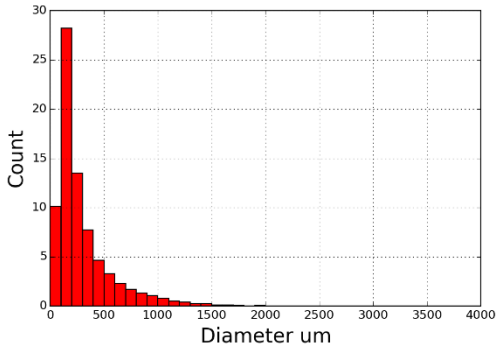


Figure C. 627: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

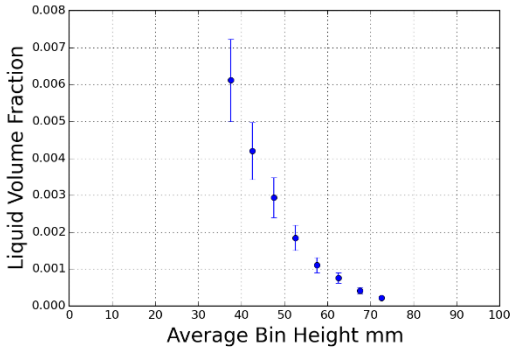


Figure C. 630: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

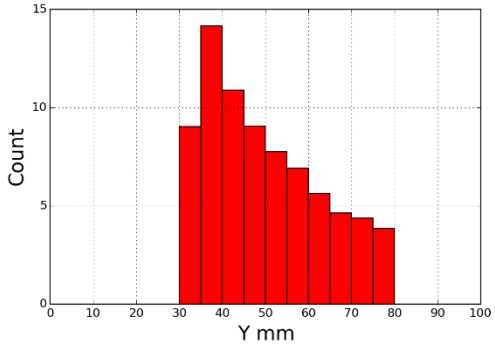


Figure C. 628: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LA Image

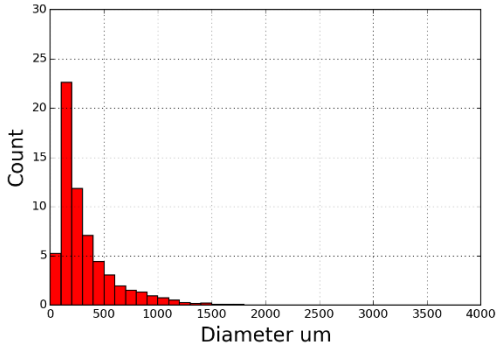


Figure C. 631: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

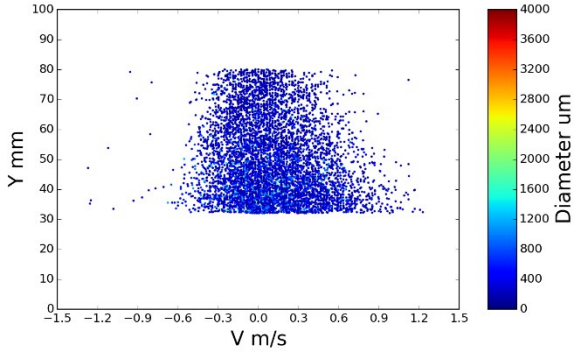


Figure C. 634: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

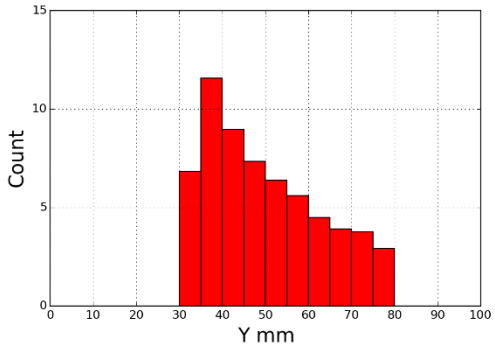


Figure C. 632: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

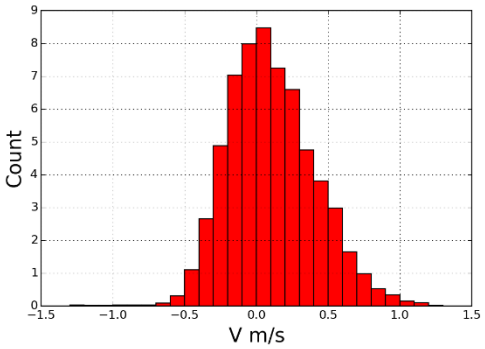


Figure C. 635: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

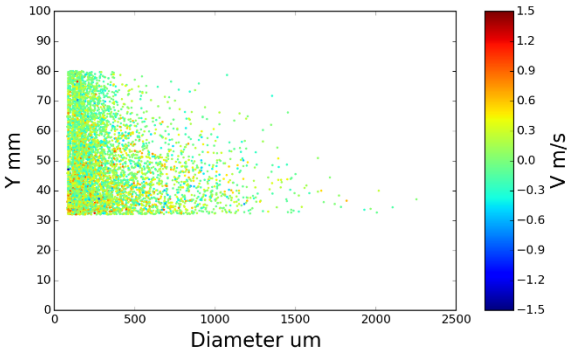


Figure C. 633: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LB Image

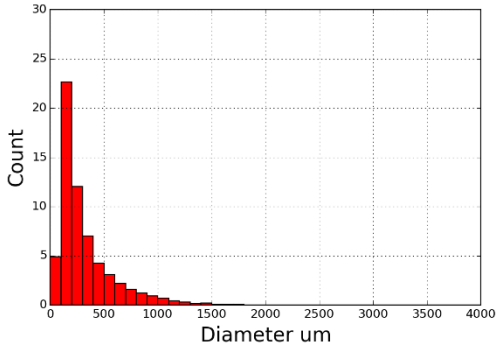


Figure C. 636: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

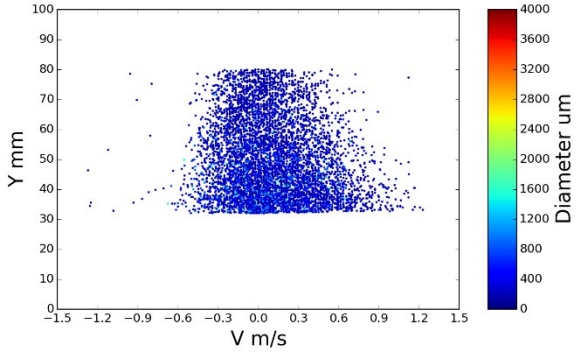


Figure C. 639: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

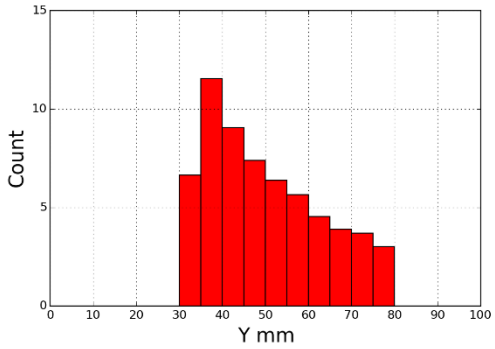


Figure C. 637: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

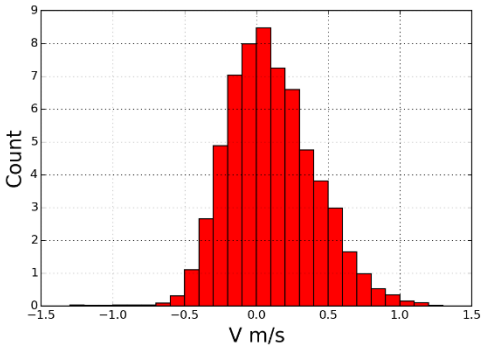


Figure C. 640: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

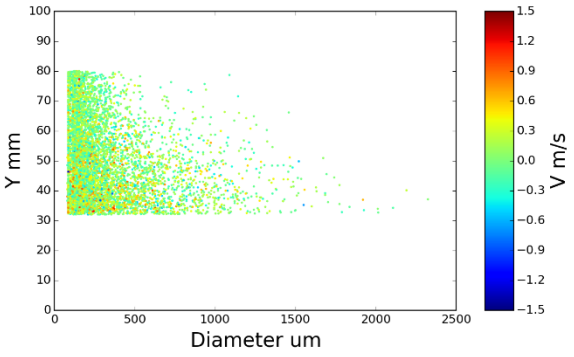


Figure C. 638: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	19.23	18.95	76.0	2290	414.9	326.9	81.3	2185	418.6	326.5
40-60mm	24.95	24.82	81.3	2032	338.2	283.9	76.0	1935	341.9	285.4
60-80mm	13.86	13.97	86.2	1298	201.6	164.8	81.3	1258	201.3	164.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	58.04	57.74	76.0	2290	331.0	287.9	76.0	2185	333.1	288.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.9417				79.9968			
Lowest Particle			32.0657				32.0669			

Table C. 71: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	15.18	86.2	2142	444.7	306.2	81.3	2156	445.1	309.7	-1.210	1.000	-0.110	0.160	-1.250	1.250	0.100	0.360
40-60mm	20.66	81.3	1608	357.5	273.6	81.3	1732	360.2	278.3	-1.210	1.260	-0.130	0.150	-1.020	1.100	0.020	0.310
60-80mm	11.51	86.2	1228	215.2	168.9	81.3	1248	215.1	169.2	-1.040	0.930	-0.120	0.140	-0.830	1.070	-0.040	0.250
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	47.35	81.3	2142	350.9	277.4	81.3	2156	352.0	280.8	-1.210	1.260	-0.120	0.150	-1.250	1.250	0.030	0.320

Table C. 72: Matched Droplet Info

C.2.3.1 All Droplets for .LA Image

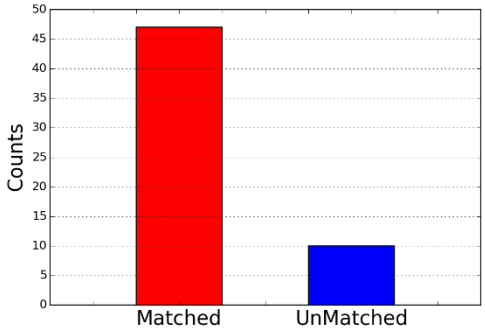


Figure C. 641: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

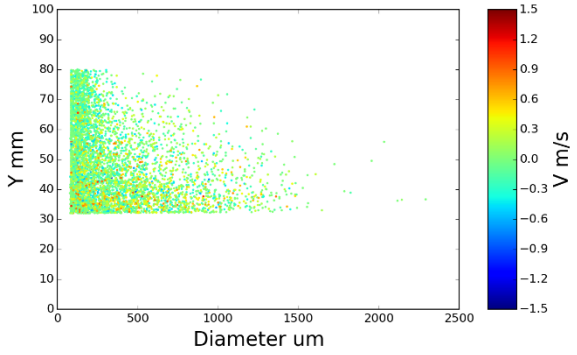


Figure C. 644: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

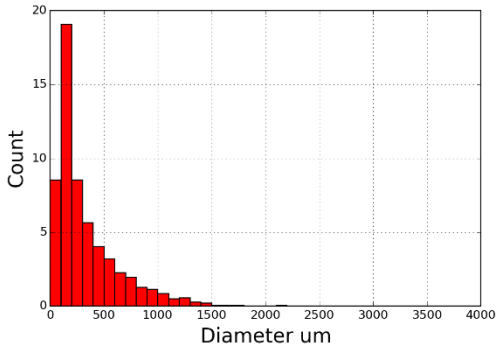


Figure C. 642: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

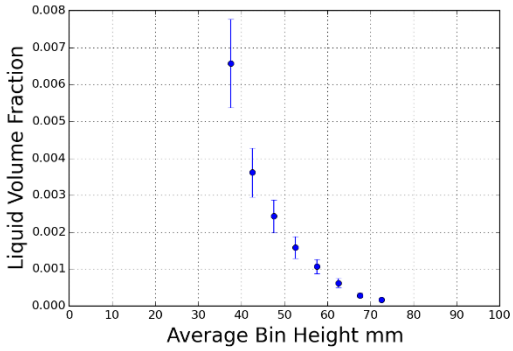


Figure C. 645: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

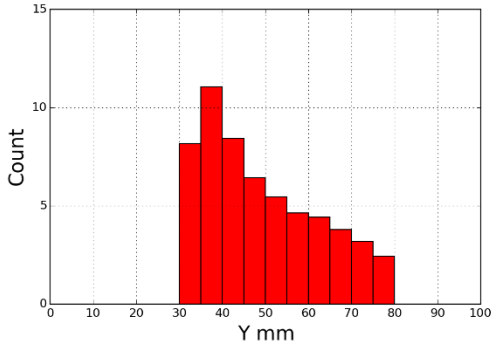


Figure C. 643: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 All Droplets for .LB Image

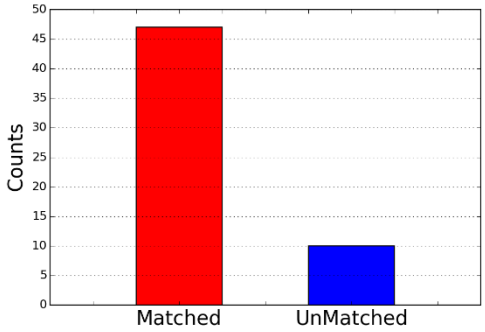


Figure C. 646: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

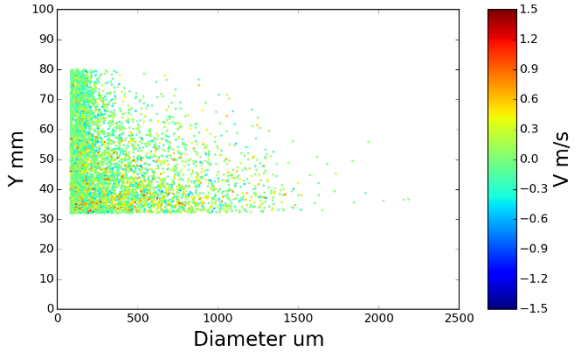


Figure C. 649: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

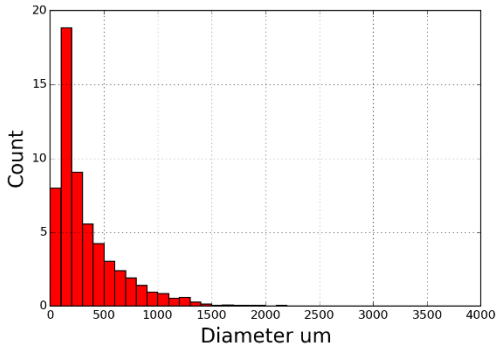


Figure C. 647: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

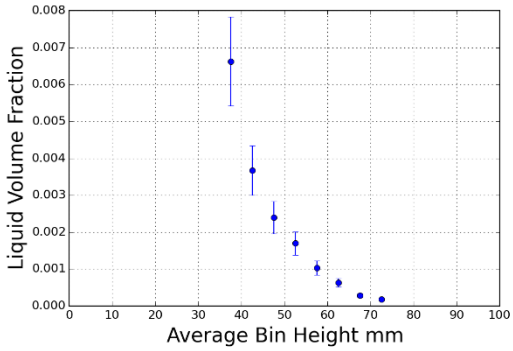


Figure C. 650: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

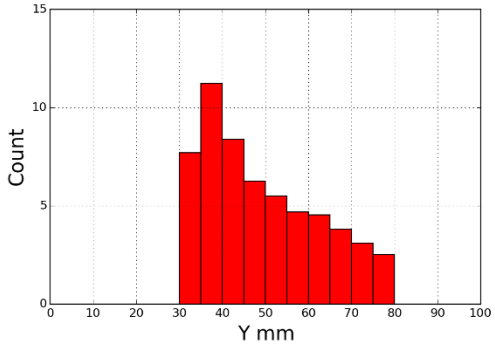


Figure C. 648: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LA Image

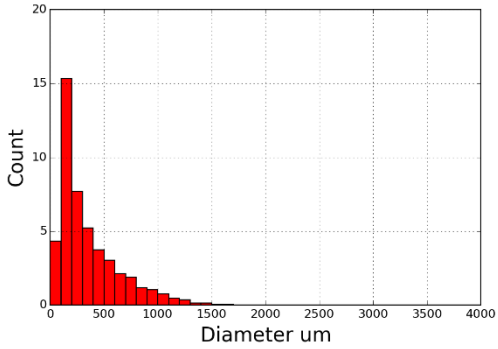


Figure C. 651: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

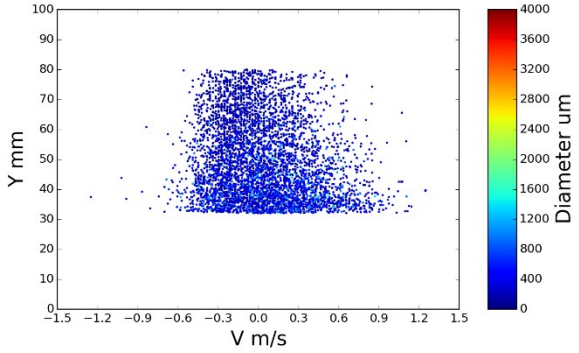


Figure C. 654: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

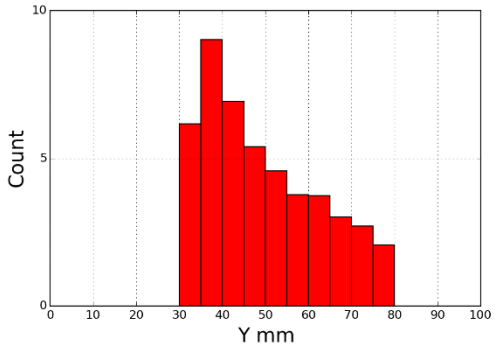


Figure C. 652: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

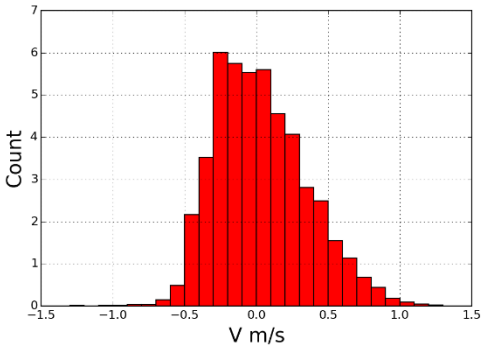


Figure C. 655: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

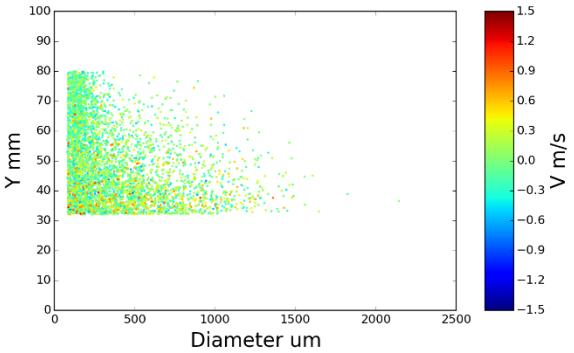


Figure C. 653: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.1 Matched Only Droplets for .LB Image

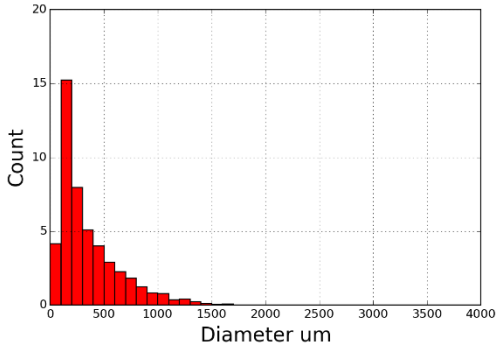


Figure C. 656: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

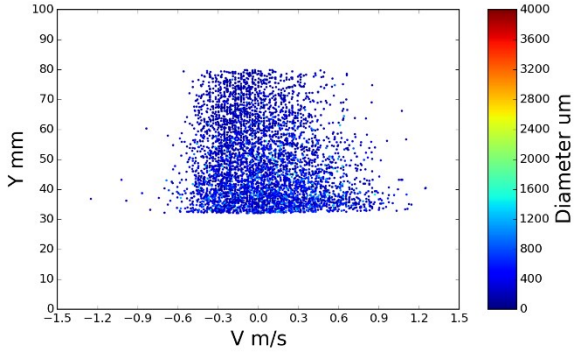


Figure C. 659: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

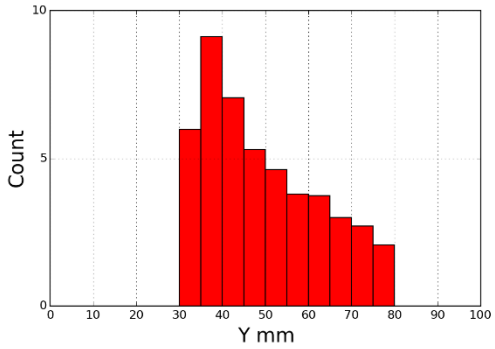


Figure C. 657: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

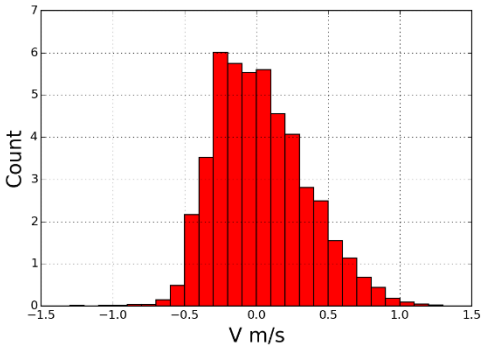


Figure C. 660: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

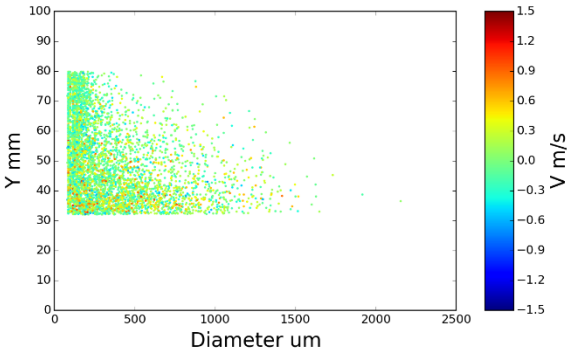


Figure C. 658: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Lens 50mm Mag 0_13x

C.2.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.96	7.29	182.3	2160	658.9	375.2	182.3	2245	658.9	385.3
20-40mm	14.23	14.31	170.5	2703	561.7	365.6	170.5	2514	565.5	360.4
40-60mm	5.05	5.23	182.3	1358	380.0	201.2	182.3	1418	380.4	200.5
60-80mm	1.78	1.95	193.3	1025	314.4	129.9	193.3	922.7	312.0	133.3
80-100mm	0.34	0.35	182.3	700.0	280.9	106.5	193.3	685.0	279.2	100.5
All	28.36	29.13	170.5	2703	534.3	349.6	170.5	2514	535.2	349.5
			Height A (mm)				Height B (mm)			
Highest Particle			97.2869				96.5445			
Lowest Particle			13.8783				13.8584			

Table C. 73: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	4.84	182.3	2160	664.0	357.4	182.3	2245	675.8	380.4	-1.220	1.130	-0.100	0.160	-1.220	1.040	0.070	0.350
20-40mm	11.04	170.5	2279	561.2	332.5	170.5	2514	561.9	337.5	-1.220	1.010	-0.090	0.160	-1.180	1.220	0.020	0.350
40-60mm	4.07	182.3	1358	399.4	207.8	193.3	1418	400.0	202.3	-1.220	0.940	-0.120	0.160	-0.610	1.050	-0.040	0.290
60-80mm	1.49	193.3	1025	326.6	135.2	193.3	922.7	332.3	142.0	-0.530	0.530	-0.140	0.130	-0.550	0.510	-0.030	0.210
80-100mm	0.27	182.3	700.0	298.0	111.4	193.3	685.0	297.8	108.5	-0.730	0.100	-0.160	0.170	-1.020	0.310	0.030	0.250
All	21.71	170.5	2279	534.4	324.6	170.5	2514	537.7	333.2	-1.220	1.130	-0.100	0.160	-1.220	1.220	0.020	0.330

Table C. 74: Matched Droplet Info

C.2.3.2 All Droplets for .LA Image

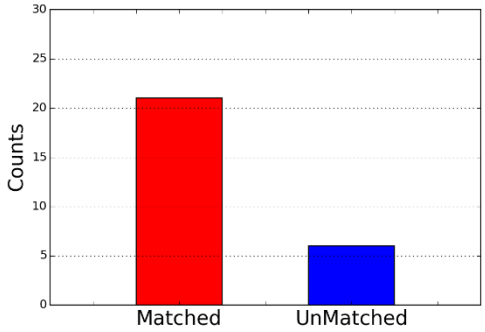


Figure C. 661: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

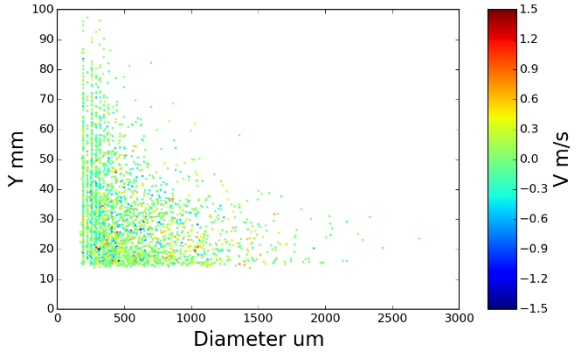


Figure C. 664: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

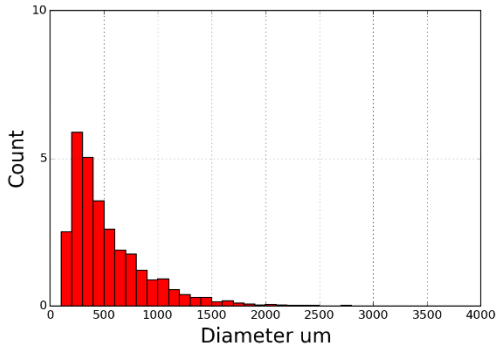


Figure C. 662: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

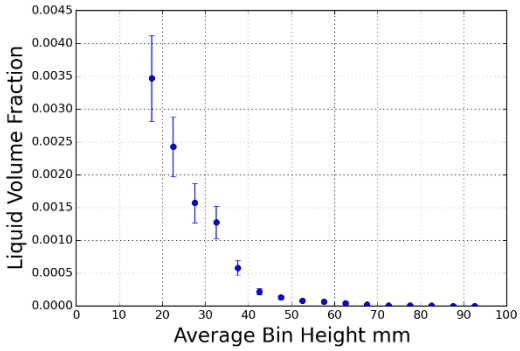


Figure C. 665: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

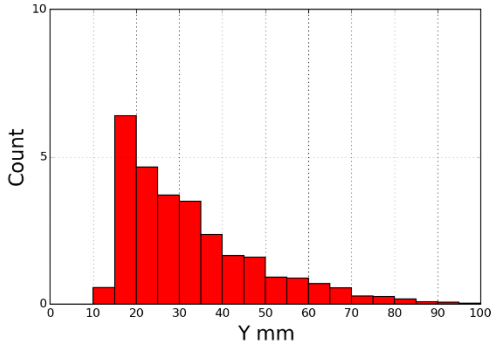


Figure C. 663: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 All Droplets for .LB Image

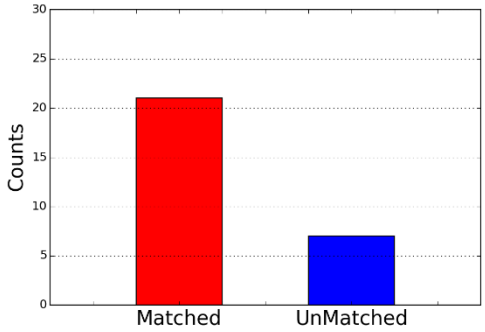


Figure C. 666: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

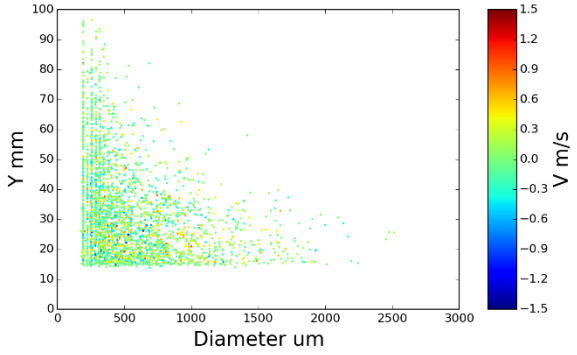


Figure C. 669: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

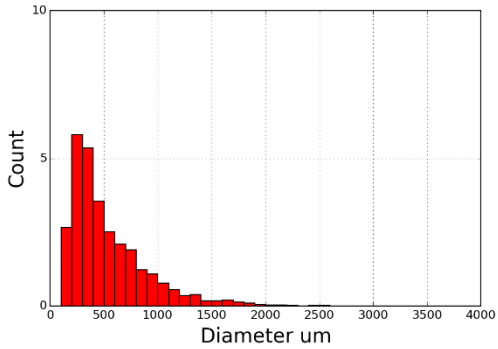


Figure C. 667: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

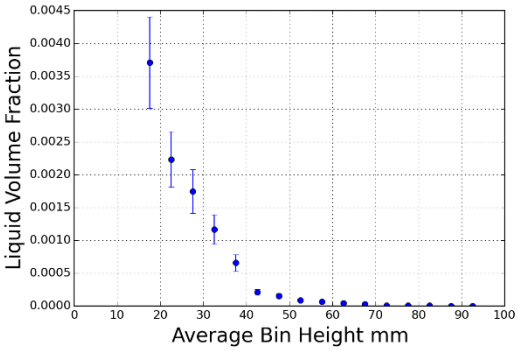


Figure C. 670: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

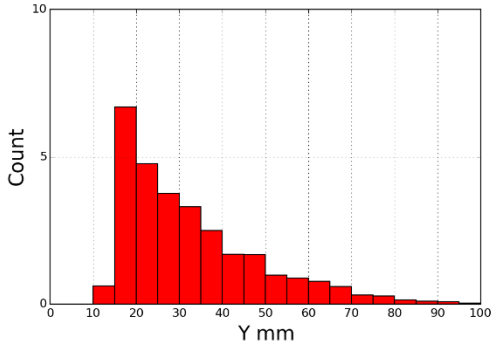


Figure C. 668: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LA Image

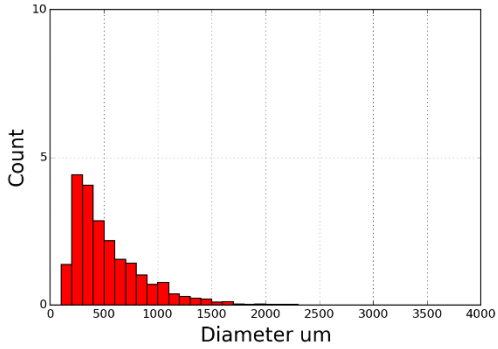


Figure C. 671: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

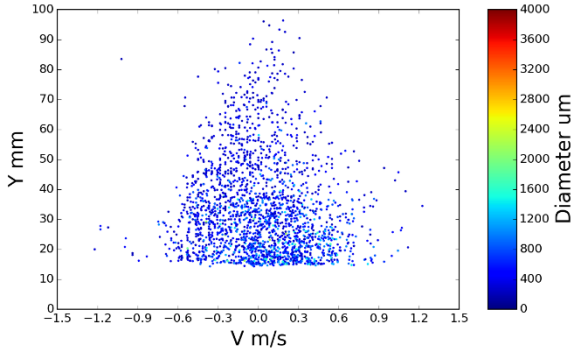


Figure C. 674: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

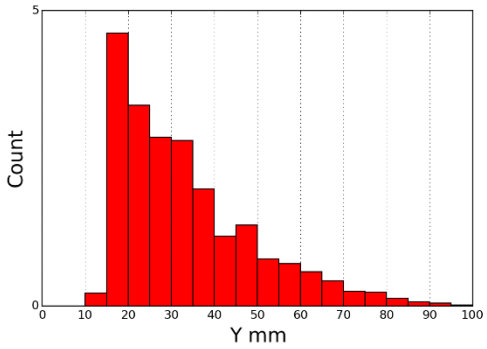


Figure C. 672: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

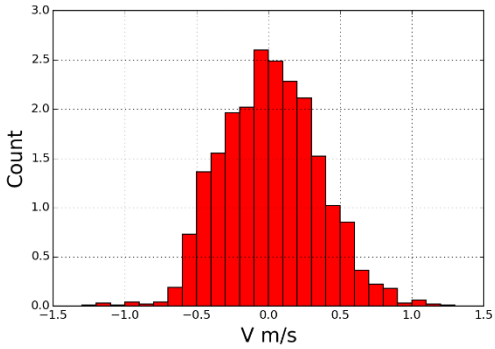


Figure C. 675: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

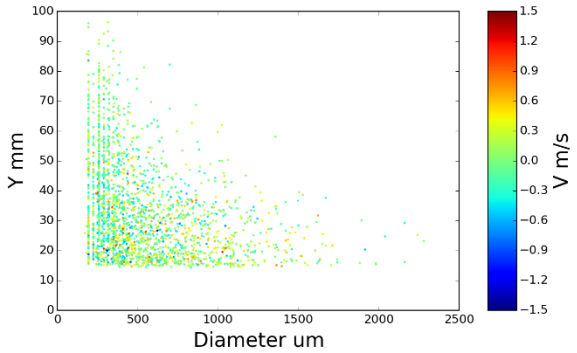


Figure C. 673: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LB Image

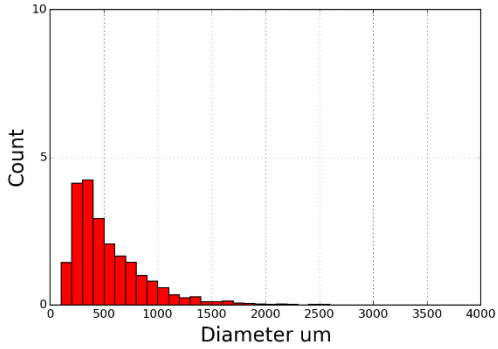


Figure C. 676: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

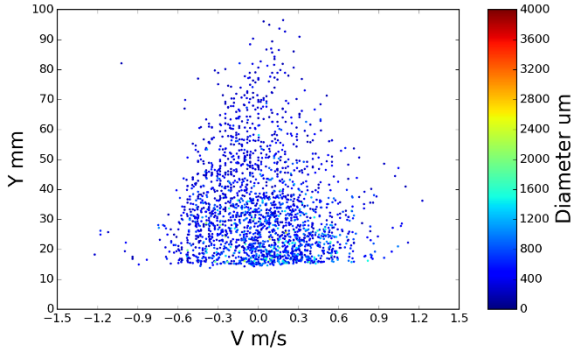


Figure C. 679: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

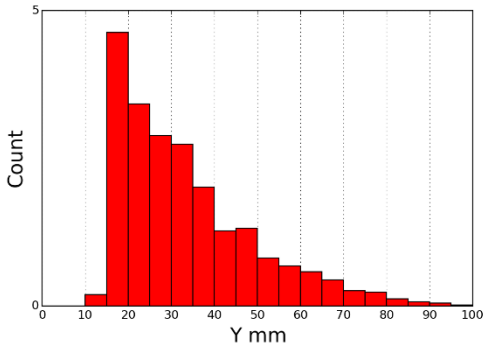


Figure C. 677: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

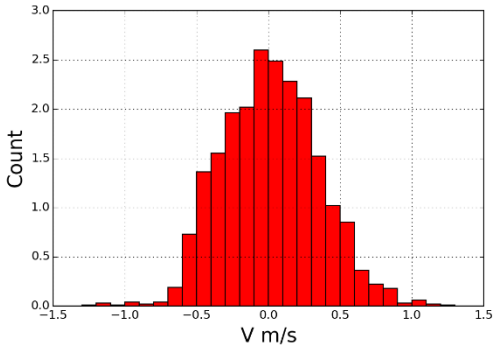


Figure C. 680: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

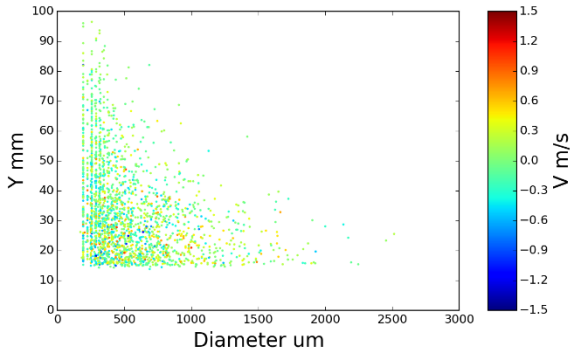


Figure C. 678: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	13.52	13.74	182.3	2952	604.5	368.8	182.3	2398	611.4	363.2
20-40mm	23.6	23.73	182.3	2543	553.0	333.9	170.5	2345	553.9	327.4
40-60mm	7.52	7.87	193.3	1589	421.6	232.5	182.3	1454	414.5	224.5
60-80mm	1.97	1.9	193.3	869.4	318.9	119.8	182.3	748.8	321.1	120.5
80-100mm	0.22	0.19	193.3	992.1	300.9	181.4	193.3	931.6	300.6	168.8
All	46.83	47.43	182.3	2952	535.7	332.8	170.5	2398	537.1	327.4
			Height A (mm)				Height B (mm)			
Highest Particle			98.2863				99.1715			
Lowest Particle			12.8171				12.9118			

Table C. 75: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	9.97	182.3	2081	616.9	336.7	182.3	2085	619.7	347.0	-1.220	1.180	-0.090	0.200	-1.150	1.200	0.170	0.350
20-40mm	18.38	193.3	2159	570.5	305.6	182.3	2345	569.3	313.8	-1.200	1.200	-0.090	0.180	-1.220	1.180	0.090	0.350
40-60mm	6.21	193.3	1421	441.6	229.6	193.3	1454	443.3	227.8	-1.050	0.240	-0.100	0.130	-0.840	1.000	0.030	0.270
60-80mm	1.52	193.3	869.4	335.8	124.4	193.3	748.8	332.3	119.2	-0.510	0.240	-0.090	0.110	-0.940	1.000	0.020	0.220
80-100mm	0.14	193.3	992.1	355.6	207.2	193.3	931.6	333.0	194.1	-0.200	-0.020	-0.100	0.060	-0.310	0.210	-0.070	0.150
All	36.22	182.3	2159	550.5	306.6	182.3	2345	550.2	313.3	-1.220	1.200	-0.090	0.170	-1.220	1.200	0.100	0.340

Table C. 76: Matched Droplet Info

C.2.3.2 All Droplets for .LA Image

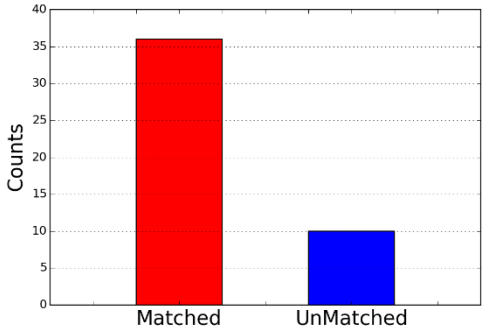


Figure C. 681: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

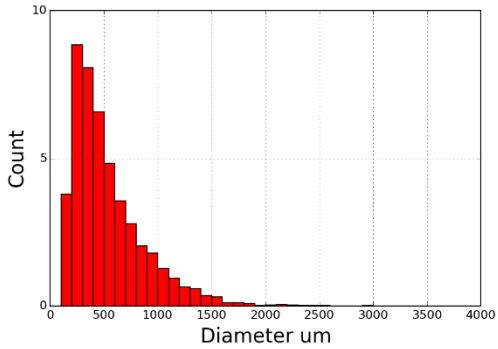


Figure C. 682: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

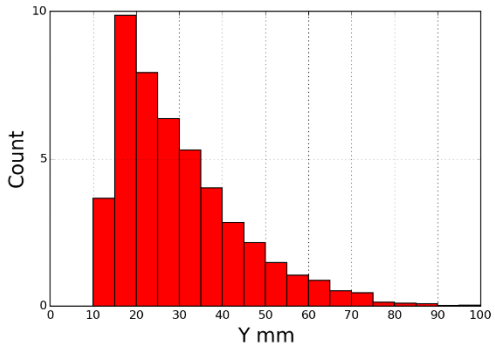


Figure C. 683: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

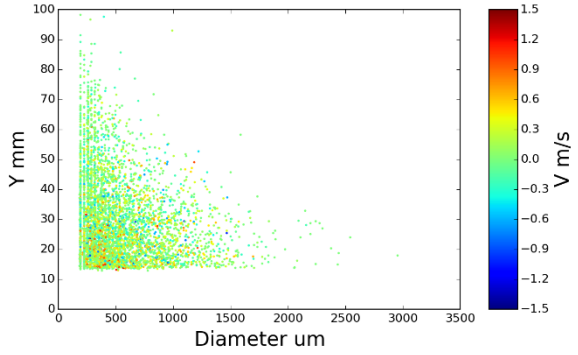


Figure C. 684: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

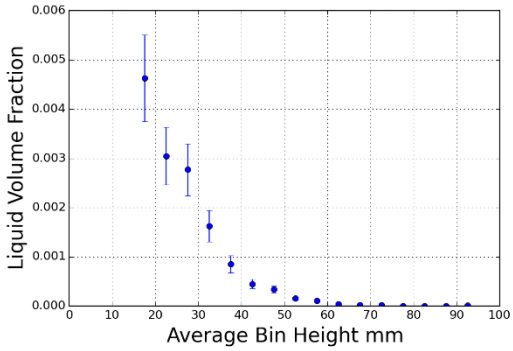


Figure C. 685: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 All Droplets for .LB Image

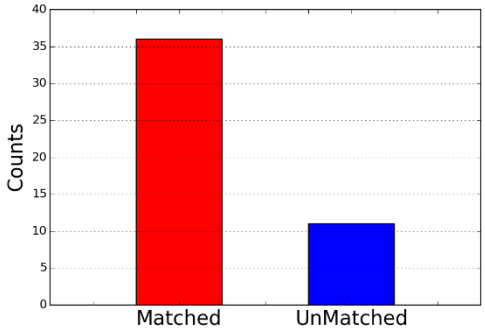


Figure C. 686: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

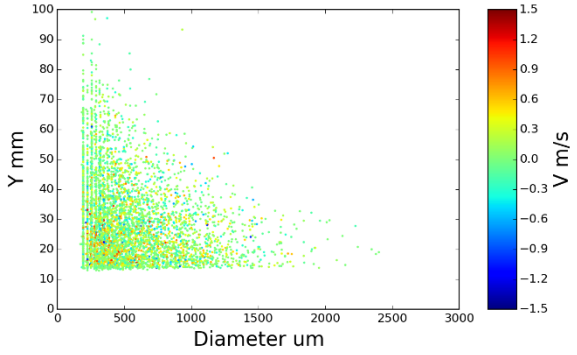


Figure C. 689: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

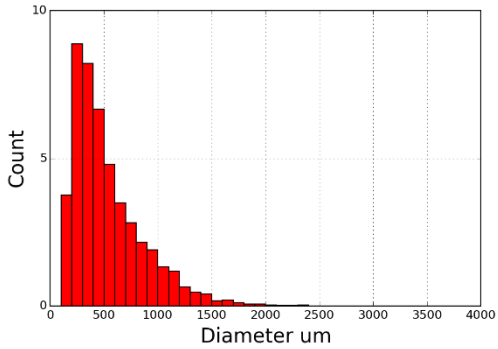


Figure C. 687: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

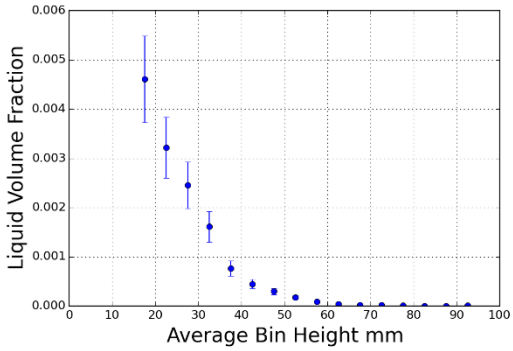


Figure C. 690: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

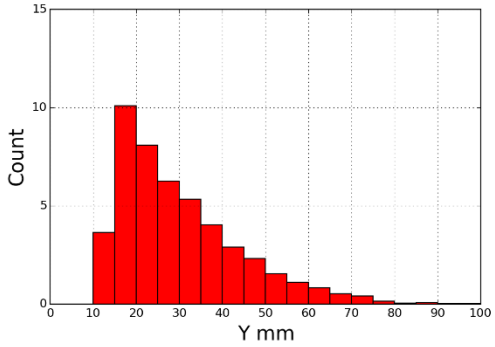


Figure C. 688: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LA Image

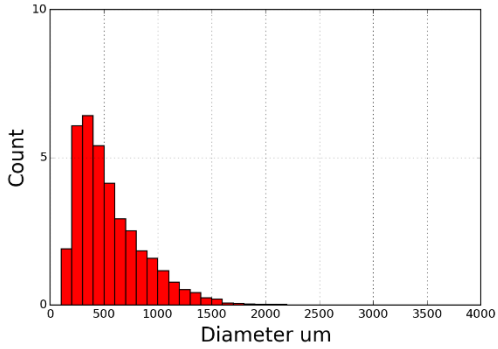


Figure C. 691: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

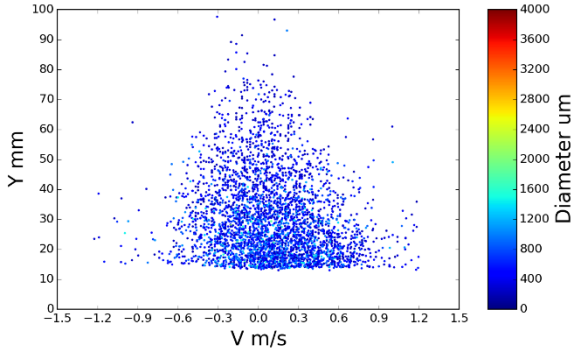


Figure C. 694: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

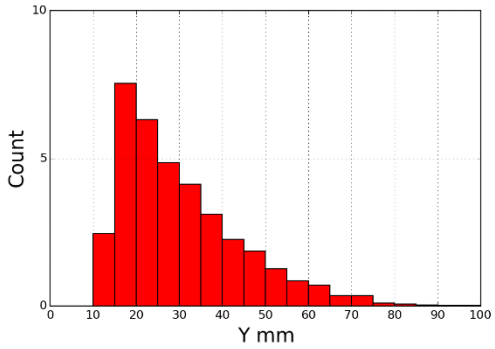


Figure C. 692: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

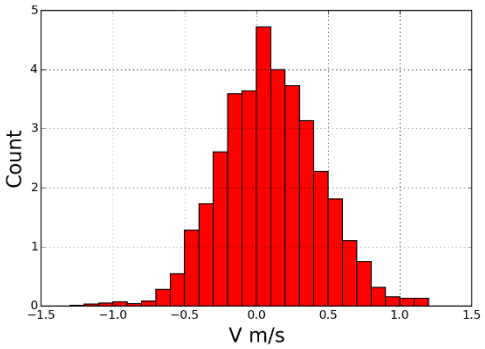


Figure C. 695: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

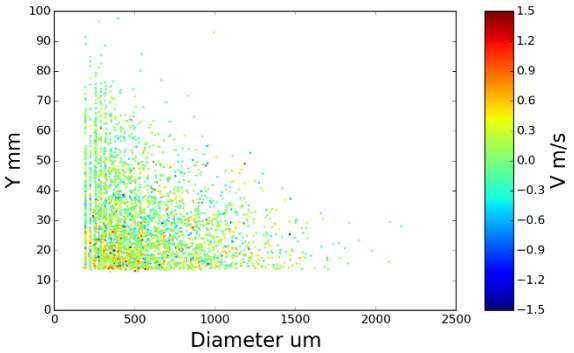


Figure C. 693: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LB Image

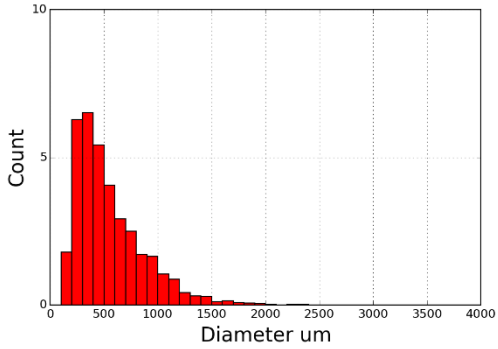


Figure C. 696: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

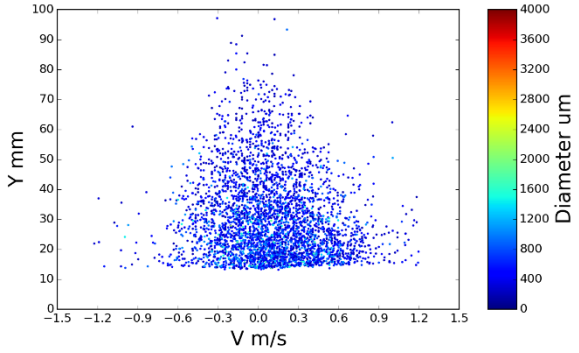


Figure C. 699: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

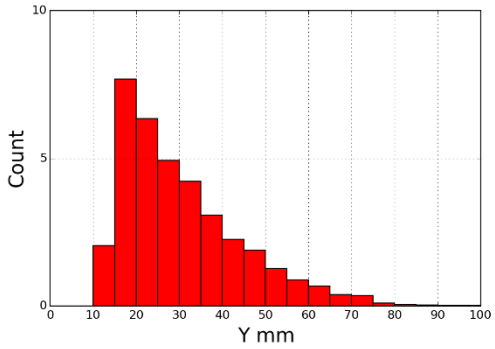


Figure C. 697: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

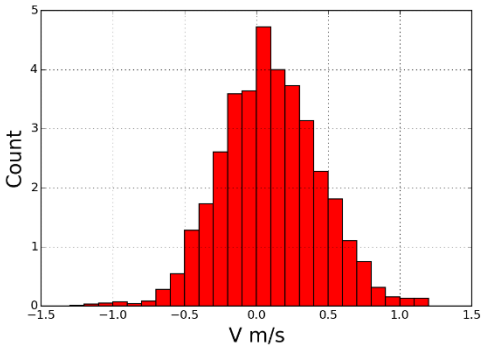


Figure C. 700: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

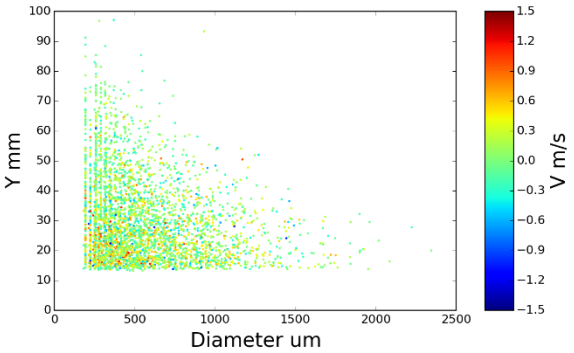


Figure C. 698: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	17.93	18.48	182.3	2935	602.1	351.4	170.5	2888	596.6	357.7
20-40mm	30.35	30.4	182.3	2190	546.1	314.0	182.3	2822	553.1	322.7
40-60mm	9.43	9.84	182.3	1373	431.3	223.8	182.3	1511	429.6	224.2
60-80mm	2.27	2.27	193.3	1549	343.2	182.0	193.3	1580	351.8	182.2
80-100mm	0.17	0.17	193.3	554.4	282.6	99.1	193.3	558.1	274.7	101.5
All	60.15	61.16	182.3	2935	536.4	316.8	170.5	2888	538.1	322.9
			Height A (mm)				Height B (mm)			
Highest Particle			95.1453				95.7449			
Lowest Particle			12.2787				12.1800			

Table C. 77: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	14.05	193.3	2212	615.4	329.3	193.3	2665	621.5	344.6	-1.220	1.110	-0.100	0.190	-1.210	1.220	0.170	0.350
20-40mm	23.98	182.3	2190	568.4	307.8	182.3	2414	572.0	315.5	-1.220	1.180	-0.100	0.170	-1.160	1.220	0.130	0.350
40-60mm	7.57	182.3	1373	457.6	227.8	182.3	1353	457.6	229.2	-1.100	0.260	-0.110	0.130	-1.150	1.090	0.080	0.280
60-80mm	1.75	193.3	1549	374.0	182.3	193.3	1580	375.5	186.3	-0.390	0.220	-0.100	0.110	-0.410	0.620	0.030	0.220
80-100mm	0.14	193.3	554.4	297.1	102.6	193.3	558.1	299.7	103.9	-0.330	0.000	-0.110	0.080	-0.330	0.430	0.050	0.220
All	47.49	182.3	2212	556.7	305.9	182.3	2665	559.8	314.9	-1.220	1.180	-0.100	0.170	-1.210	1.220	0.130	0.340

Table C. 78: Matched Droplet Info

C.2.3.2 All Droplets for .LA Image

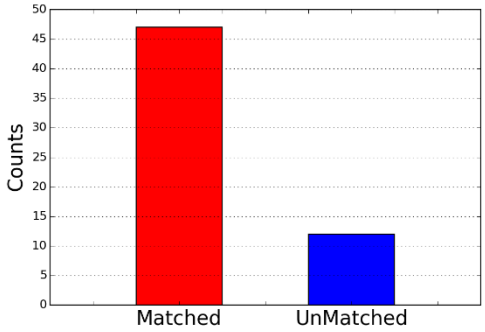


Figure C. 701: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

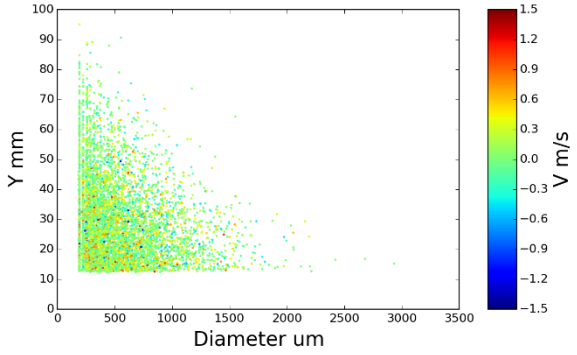


Figure C. 704: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

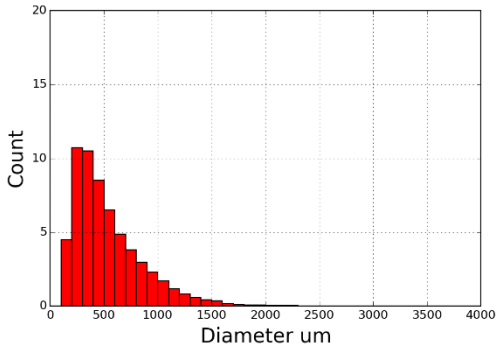


Figure C. 702: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

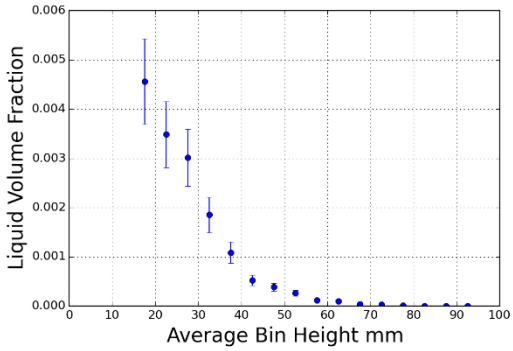


Figure C. 705: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

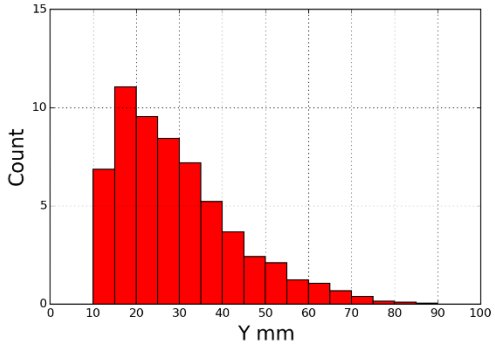


Figure C. 703: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 All Droplets for .LB Image

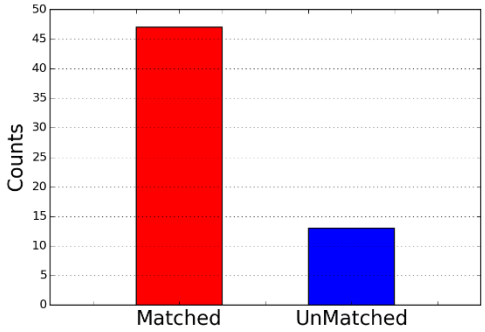


Figure C. 706: CHC Count Comparison R-134a 40F 6900Btu 15000Lb Rot Tri

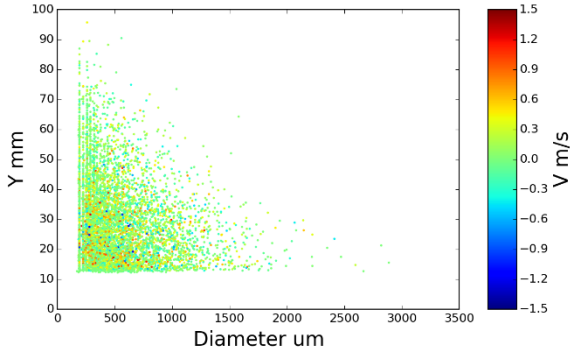


Figure C. 709: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

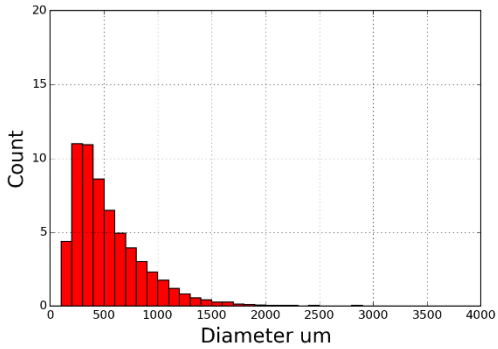


Figure C. 707: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

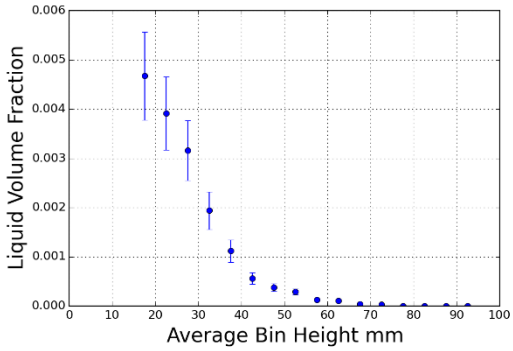


Figure C. 710: Void Fraction R-134a 40F 6900Btu 15000Lb Rot Tri

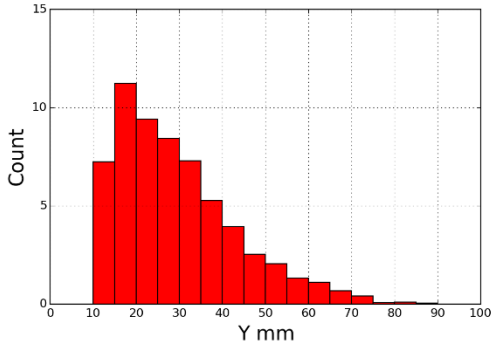


Figure C. 708: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LA Image

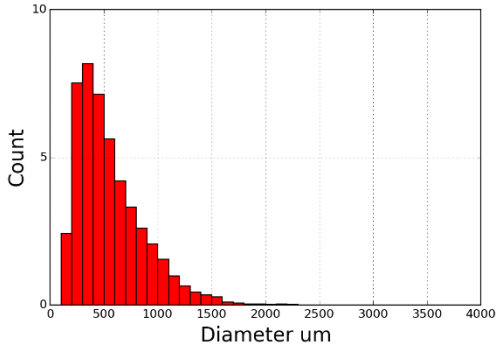


Figure C. 711: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

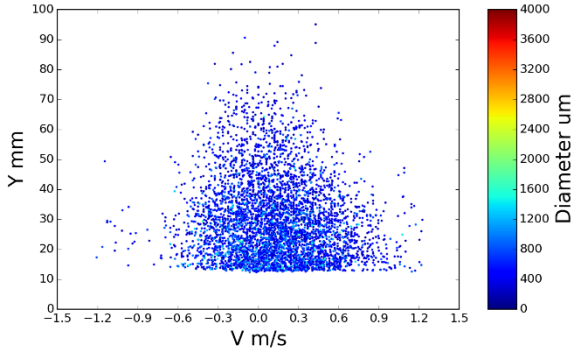


Figure C. 714: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

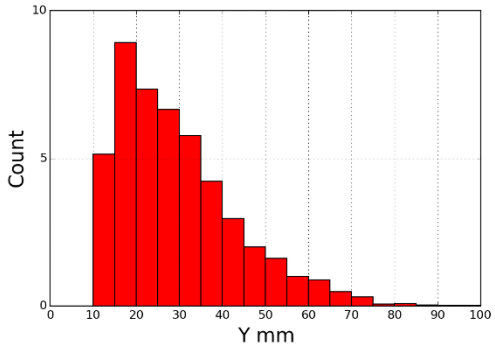


Figure C. 712: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

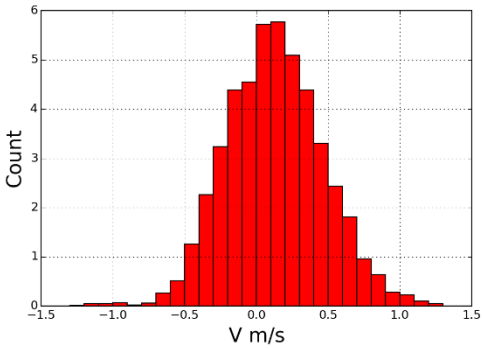


Figure C. 715: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

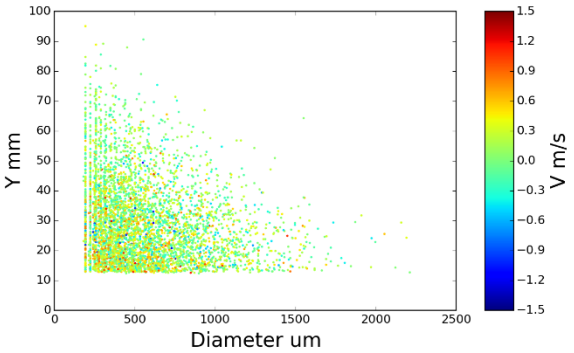


Figure C. 713: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.2.3.2 Matched Only Droplets for .LB Image

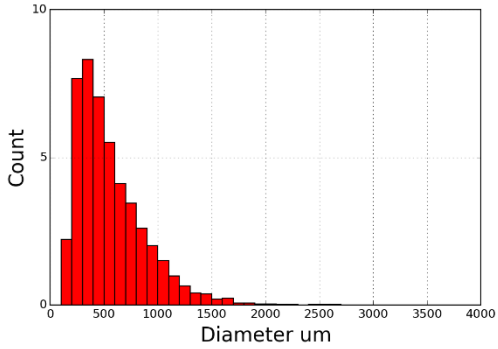


Figure C. 716: Droplet Diameter Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

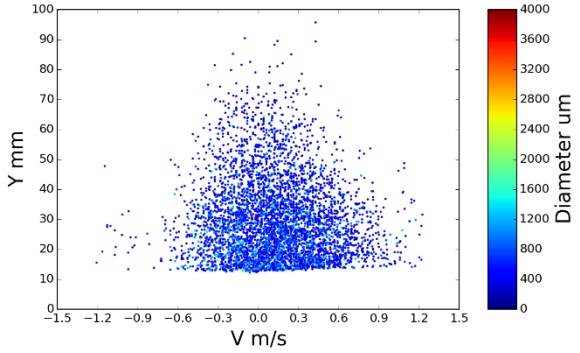


Figure C. 719: Droplet Height vs Vertical Velocity R-134a 40F 6900Btu 15000Lb Rot Tri

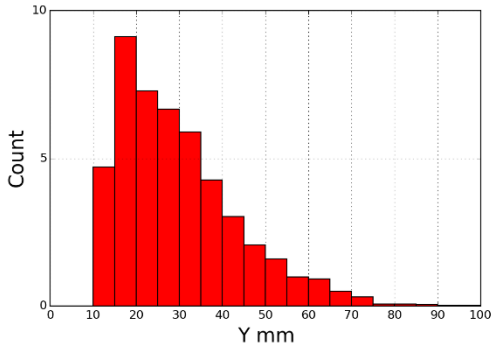


Figure C. 717: Droplet Height Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

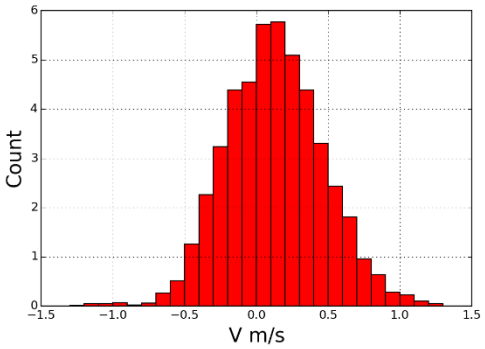


Figure C. 720: Droplet Vertical Velocity Histogram R-134a 40F 6900Btu 15000Lb Rot Tri

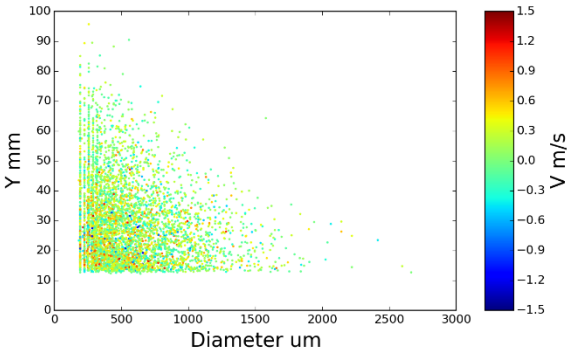


Figure C. 718: Droplet Height vs Diameter R-134a 40F 6900Btu 15000Lb Rot Tri

C.3 - 1556 R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11925 / 1.503
Ref Mass Flow (lb/hr) / (kg/s)	3040 / 0.383
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29592 / 40.133
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4956 / 15.63
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.50
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.3 / 4.61
Total Bundle Q (Btu/hr) / (kW)	175391 / 51.40
Total Bundle & Preboiler Q (Btu/hr) / (kW)	272204 / 79.78
Top Two Rows HTC Ratio	1.040
Bundle Inlet Quality	0.31
Bundle Exit Quality	0.99

Table C. 79: Thermal Conditions

C.3.1.1 Lens 100mm Mag 0_29x

C.3.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	68.06	69.42	76.0	4006	586.2	603.9	76.0	3992	584.1	608.1
40-60mm	163.91	165.53	76.0	4009	558.9	581.4	76.0	4016	545.7	572.2
60-80mm	140.84	145.13	76.0	3988	498.9	504.2	76.0	4010	488.0	501.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	372.82	380.1	76.0	4009	541.2	558.9	76.0	4016	530.7	554.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9699			
Lowest Particle			32.0032				32.0032			

Table C. 80: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	42.89	81.3	3947	691.3	606.1	81.3	3984	683.3	604.5	-2.500	2.530	-0.050	0.440	-2.540	2.550	-0.100	0.600
40-60mm	107.65	81.3	3973	649.0	587.2	81.3	3987	645.6	589.4	-2.540	2.540	-0.030	0.460	-2.550	2.550	-0.150	0.620
60-80mm	99.29	81.3	3787	568.7	503.6	81.3	3980	566.3	507.4	-2.540	2.550	-0.030	0.400	-2.550	2.550	-0.210	0.550
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	249.83	81.3	3973	624.4	561.0	81.3	3987	620.7	563.0	-2.540	2.550	-0.030	0.440	-2.550	2.550	-0.160	0.590

Table C. 81: Matched Droplet Info

C.3.1.1 All Droplets for .LA Image

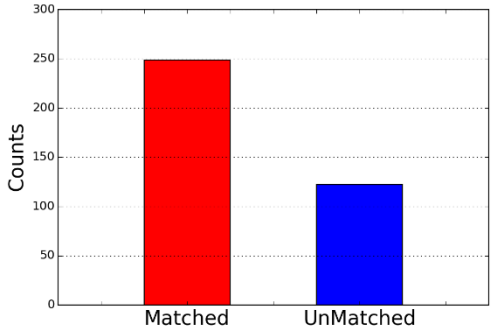


Figure C. 721: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

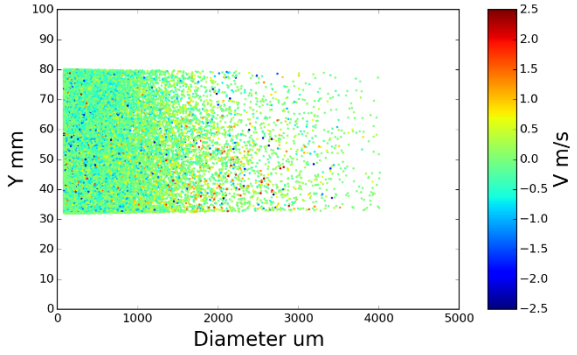


Figure C. 724: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

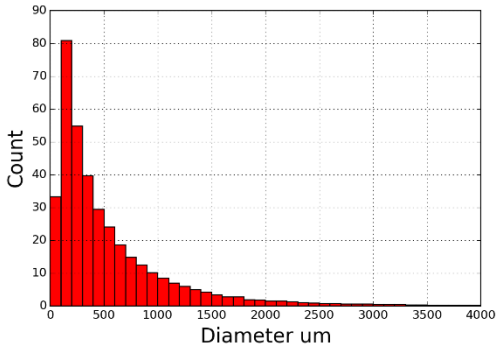


Figure C. 722: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

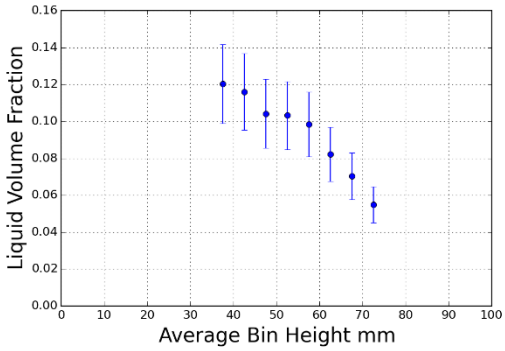


Figure C. 725: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

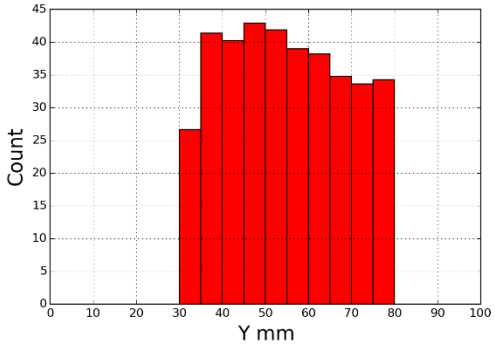


Figure C. 723: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 All Droplets for .LB Image

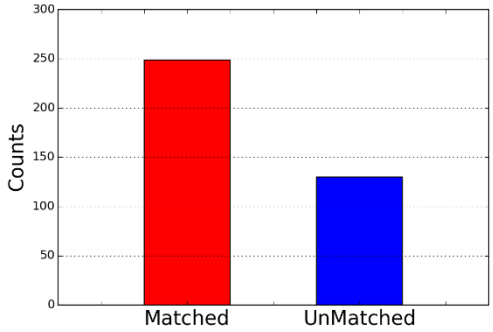


Figure C. 726: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

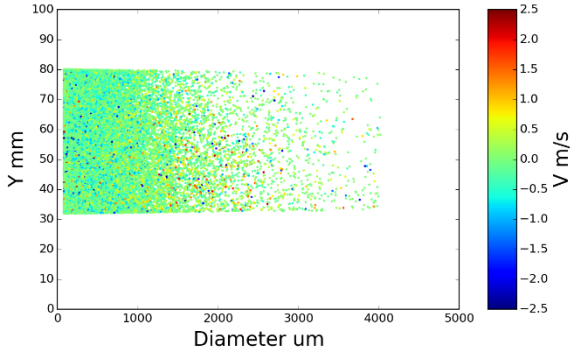


Figure C. 729: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

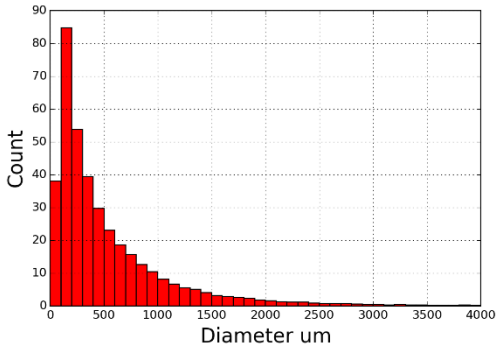


Figure C. 727: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

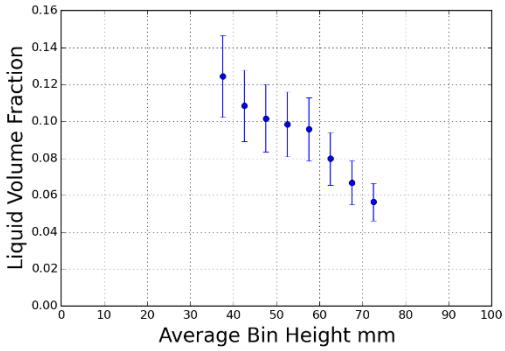


Figure C. 730: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

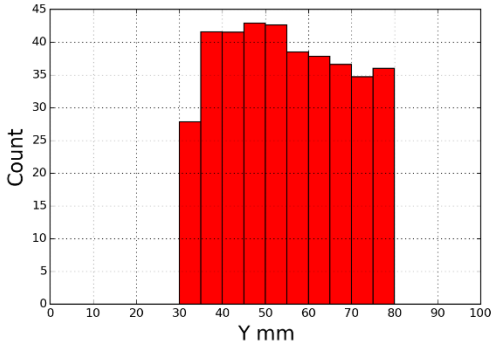


Figure C. 728: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LA Image

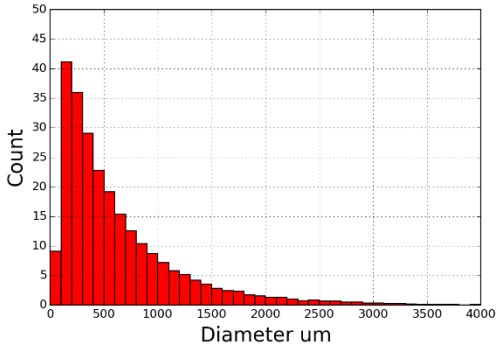


Figure C. 731: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

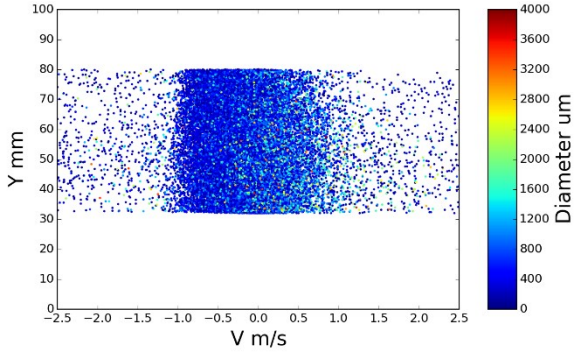


Figure C. 734: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

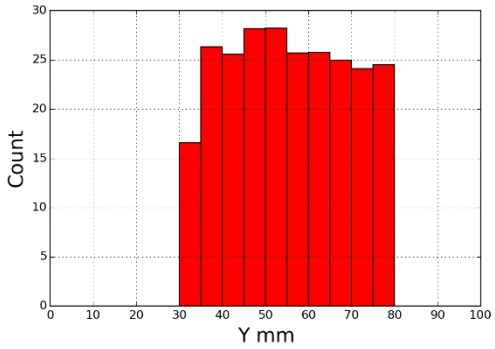


Figure C. 732: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

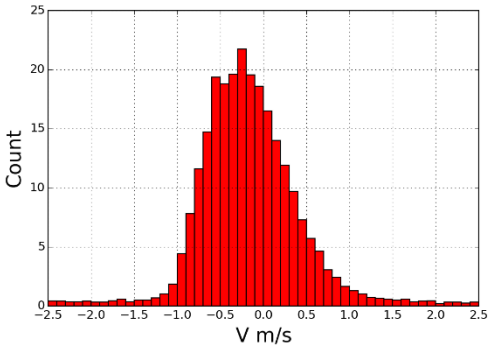


Figure C. 735: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

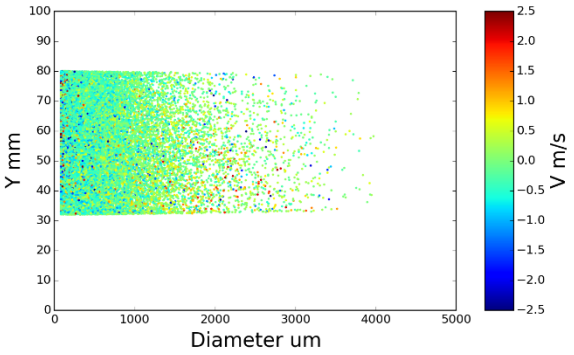


Figure C. 733: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LB Image

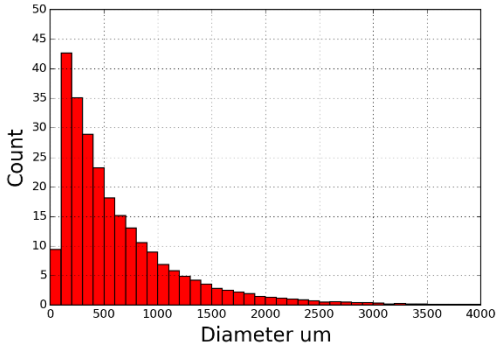


Figure C. 736: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

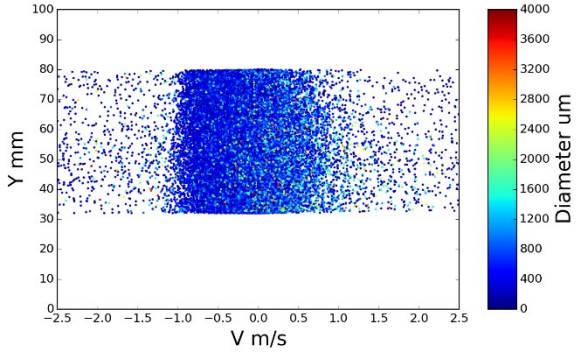


Figure C. 739: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

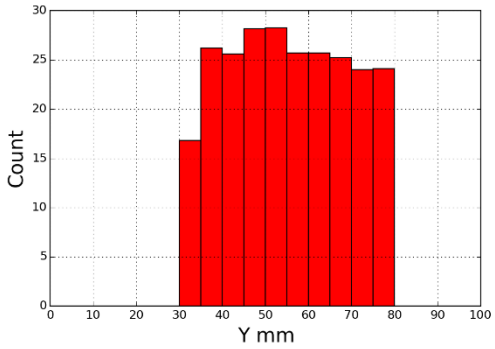


Figure C. 737: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

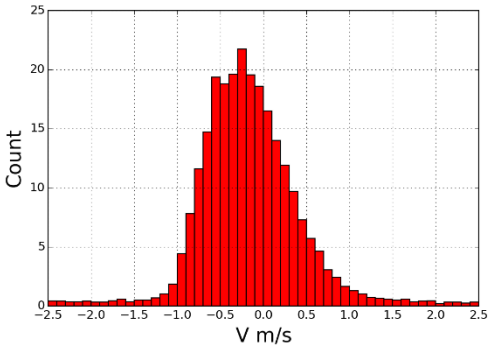


Figure C. 740: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

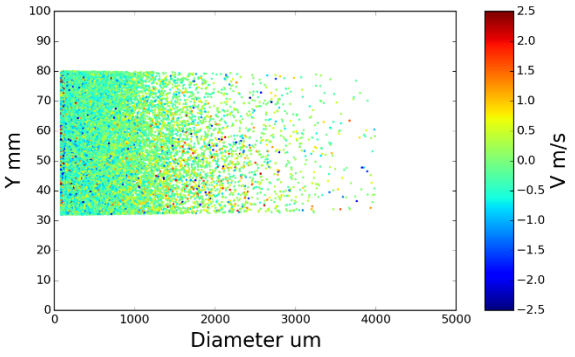


Figure C. 738: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	88.31	88.05	76.0	4002	572.6	555.5	76.0	3997	572.7	560.9
40-60mm	195.52	196.99	76.0	4020	535.5	534.6	76.0	4010	534.6	532.9
60-80mm	159.3	160.52	76.0	3915	493.0	475.3	76.0	3971	490.4	479.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	443.15	445.56	76.0	4020	527.6	519.3	76.0	4010	526.2	521.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9699			
Lowest Particle			32.0032				32.0032			

Table C. 82: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	58.33	81.3	3866	656.6	557.7	76.0	3865	652.9	560.1	-2.510	2.550	-0.050	0.460	-2.540	2.530	0.170	0.620
40-60mm	133.68	81.3	3884	608.5	535.3	76.0	3918	603.0	534.9	-2.550	2.500	-0.040	0.410	-2.530	2.540	0.070	0.610
60-80mm	115.34	81.3	3848	555.7	476.3	81.3	3940	550.0	476.4	-2.540	2.540	-0.020	0.400	-2.550	2.550	-0.050	0.560
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	307.35	81.3	3884	597.8	519.8	76.0	3940	592.6	520.1	-2.550	2.550	-0.030	0.410	-2.550	2.550	0.040	0.600

Table C. 83: Matched Droplet Info

C.3.1.1 All Droplets for .LA Image

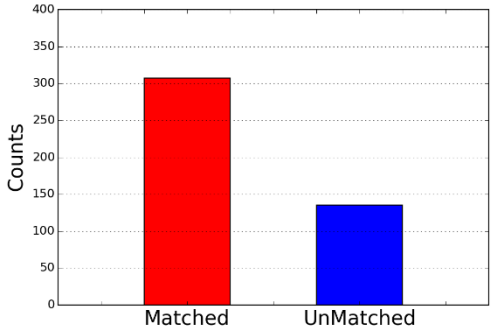


Figure C. 741: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

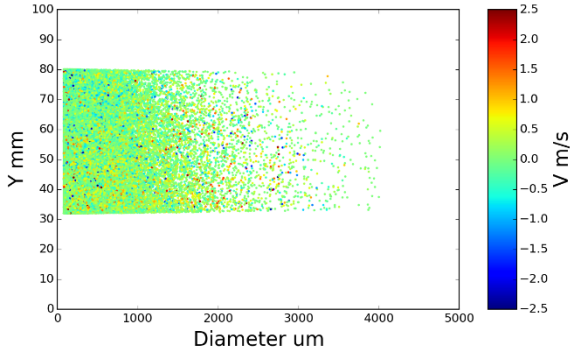


Figure C. 744: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

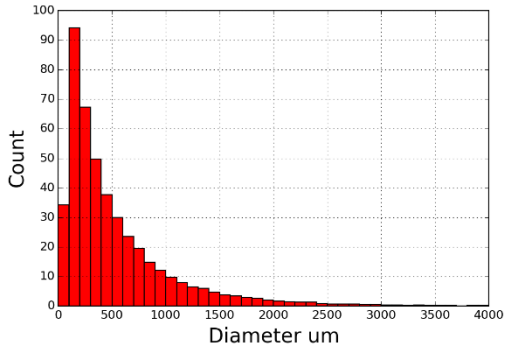


Figure C. 742: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

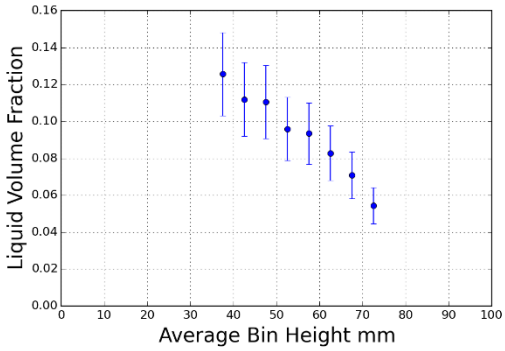


Figure C. 745: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

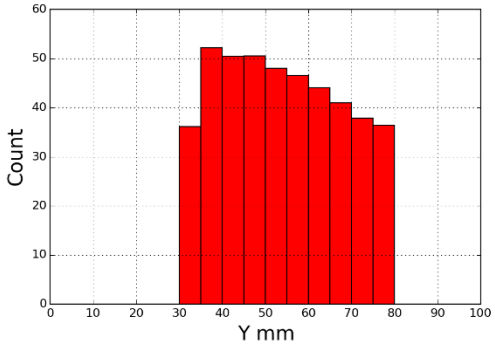


Figure C. 743: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 All Droplets for .LB Image

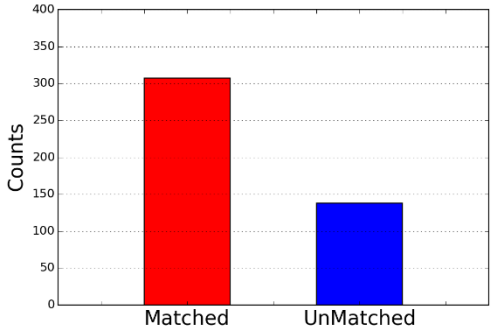


Figure C. 746: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

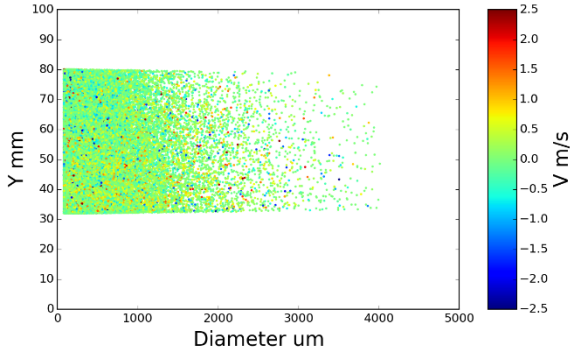


Figure C. 749: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

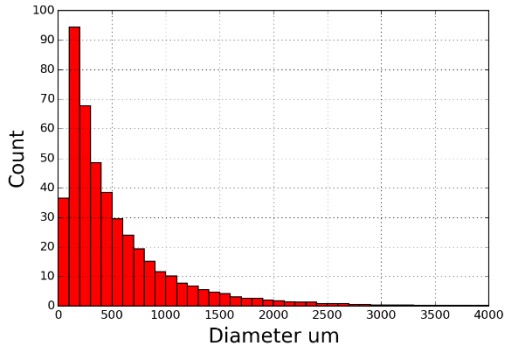


Figure C. 747: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

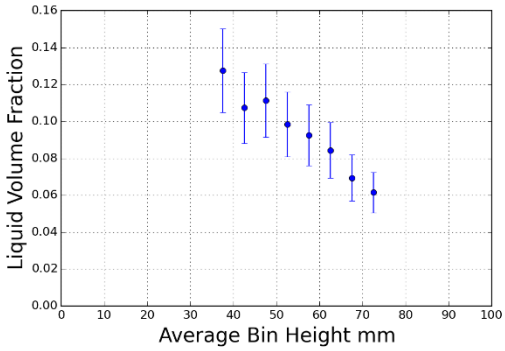


Figure C. 750: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

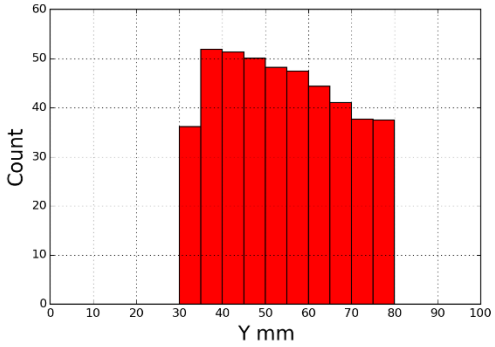


Figure C. 748: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LA Image

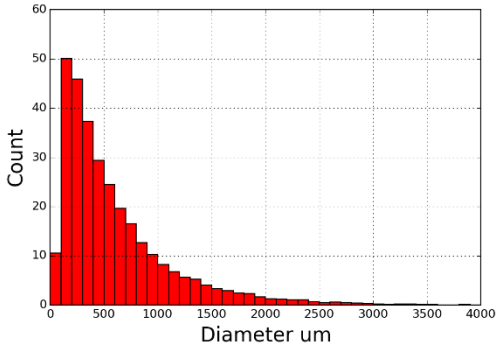


Figure C. 751: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

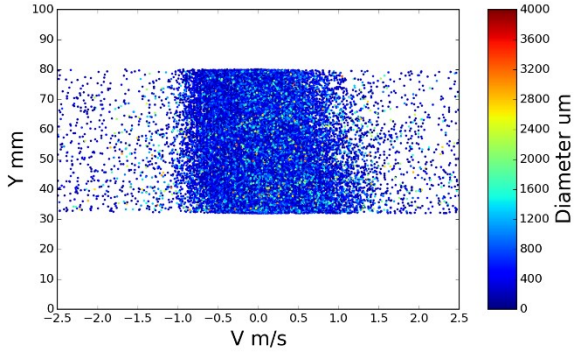


Figure C. 754: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

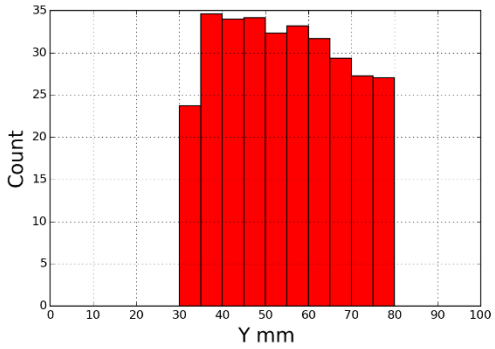


Figure C. 752: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

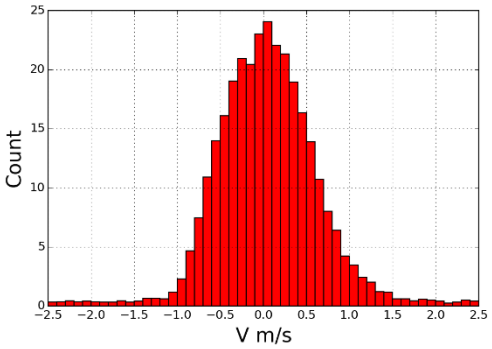


Figure C. 755: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

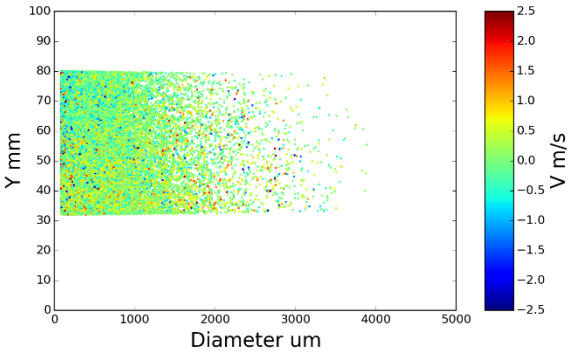


Figure C. 753: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LB Image

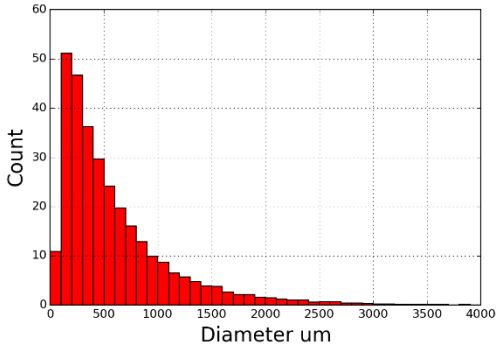


Figure C. 756: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

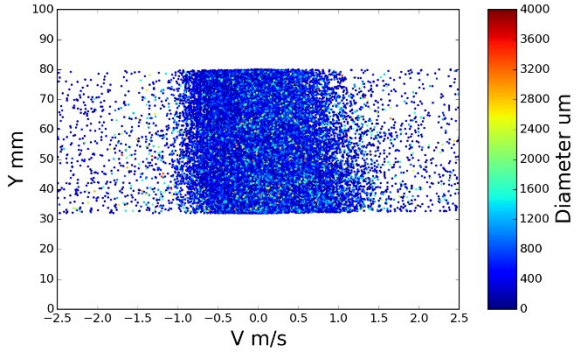


Figure C. 759: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

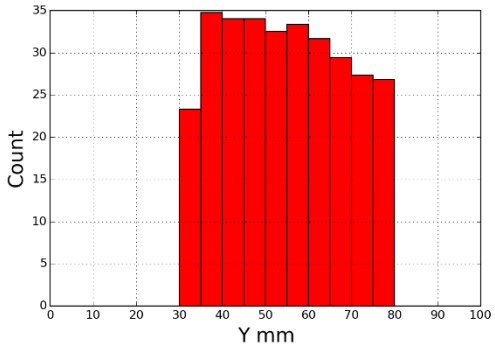


Figure C. 757: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

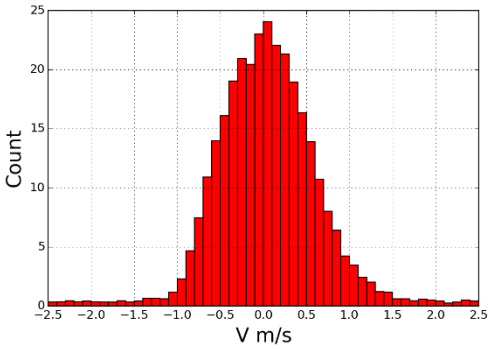


Figure C. 760: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

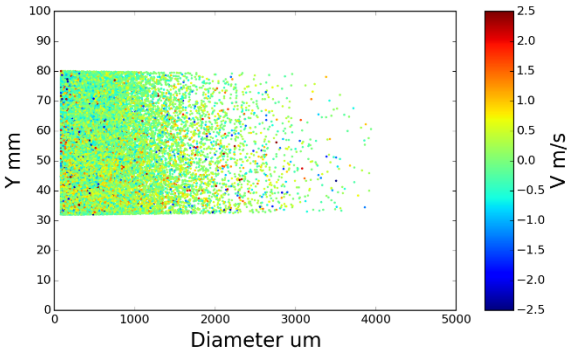


Figure C. 758: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	99.04	99.17	76.0	4020	556.8	553.2	76.0	4016	552.2	547.2
40-60mm	241.65	242.92	76.0	4015	515.4	511.3	76.0	4008	514.0	508.4
60-80mm	205.15	205.86	76.0	3971	495.2	472.5	76.0	3988	492.0	472.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	545.87	548.01	76.0	4020	515.3	505.6	76.0	4016	512.7	502.9
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9699			
Lowest Particle			32.0032				32.0032			

Table C. 84: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	61.93	81.3	3710	649.7	549.4	81.3	3860	646.7	556.0	-2.550	2.550	-0.040	0.470	-2.540	2.550	0.420	0.630
40-60mm	159.87	81.3	3741	587.5	512.9	76.0	3860	579.9	510.5	-2.550	2.550	-0.030	0.460	-2.550	2.550	0.290	0.630
60-80mm	146.72	81.3	3620	554.4	469.4	81.3	3816	547.0	466.4	-2.550	2.550	-0.030	0.380	-2.530	2.550	0.140	0.550
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	368.52	81.3	3741	584.7	503.6	76.0	3860	577.9	502.6	-2.550	2.550	-0.030	0.430	-2.550	2.550	0.250	0.610

Table C. 85: Matched Droplet Info

C.3.1.1 All Droplets for .LA Image

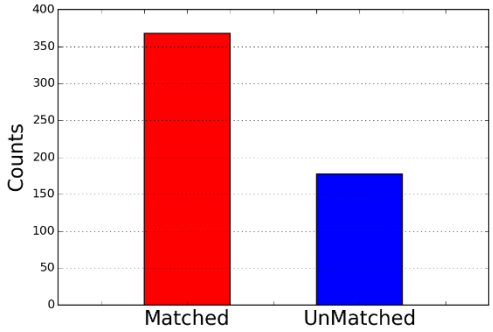


Figure C. 761: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

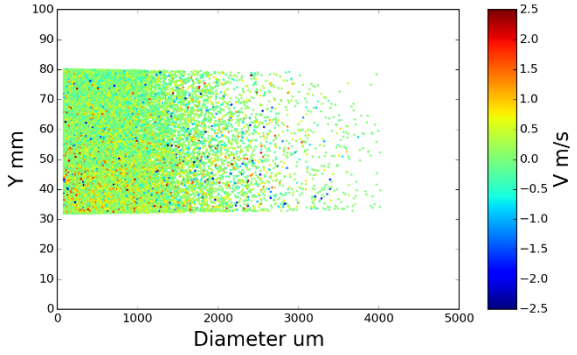


Figure C. 764: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

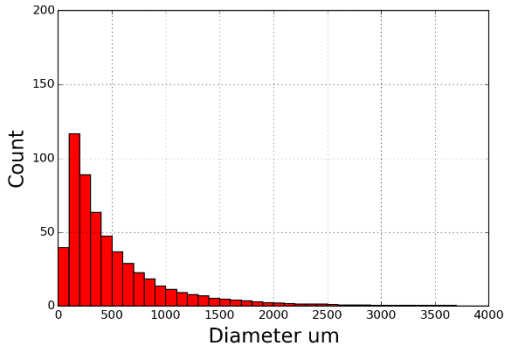


Figure C. 762: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

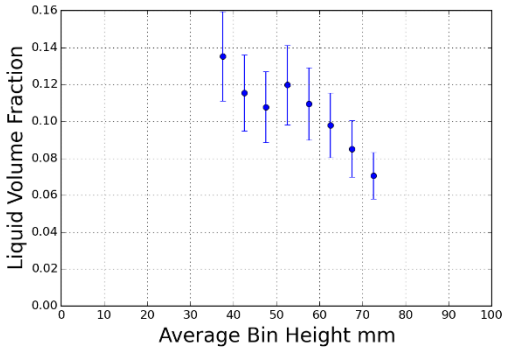


Figure C. 765: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

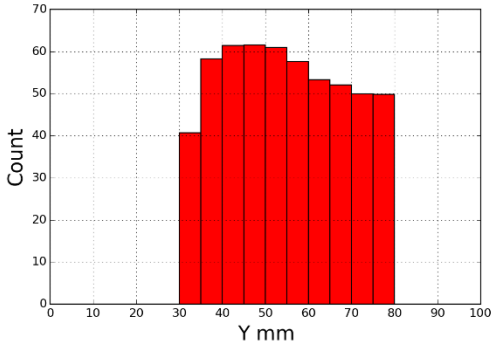


Figure C. 763: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 All Droplets for .LB Image

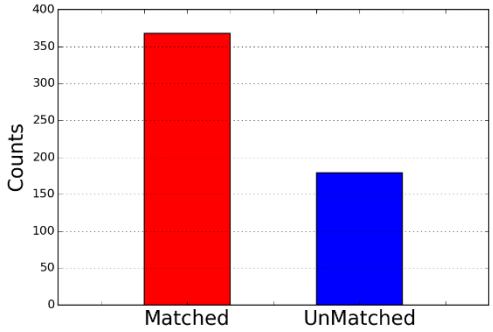


Figure C. 766: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

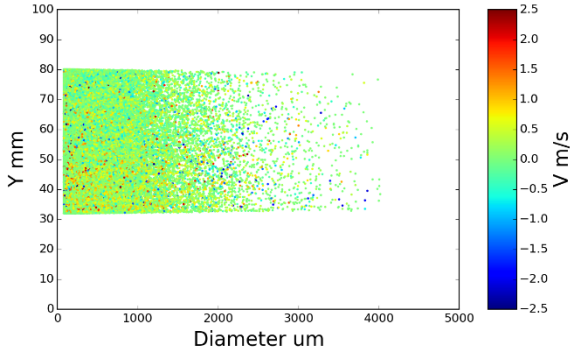


Figure C. 769: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

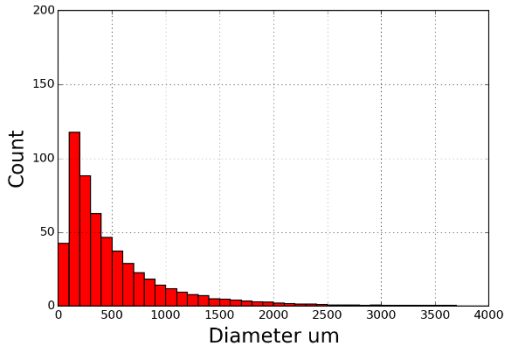


Figure C. 767: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

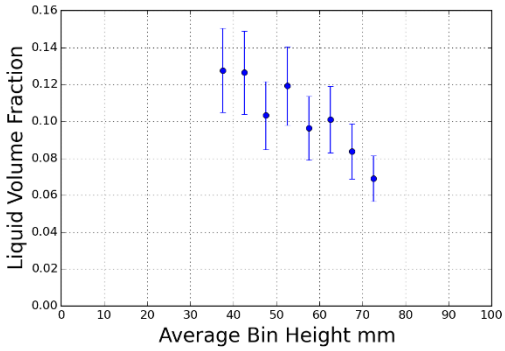


Figure C. 770: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

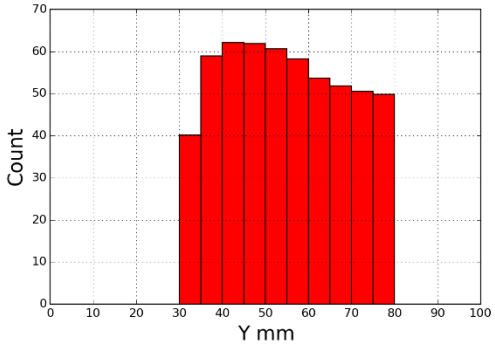


Figure C. 768: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LA Image

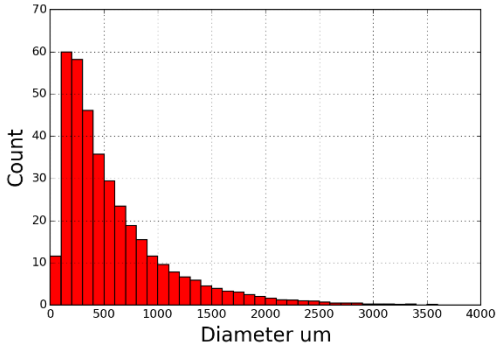


Figure C. 771: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

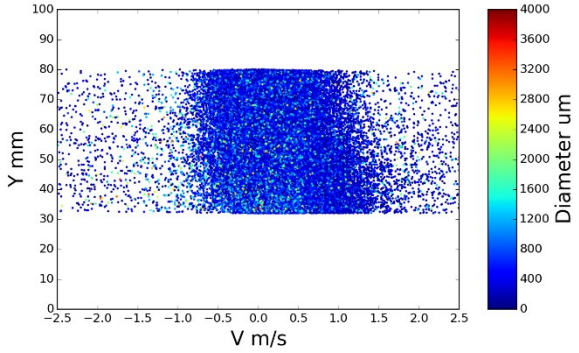


Figure C. 774: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

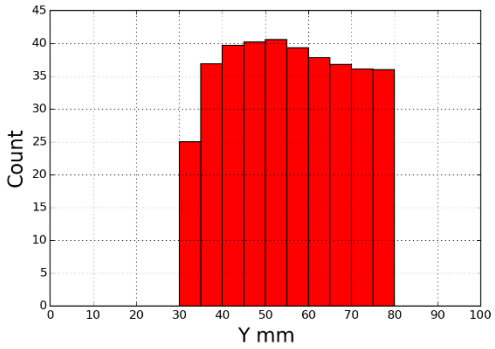


Figure C. 772: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

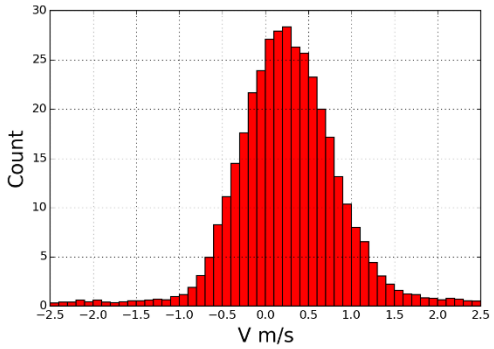


Figure C. 775: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

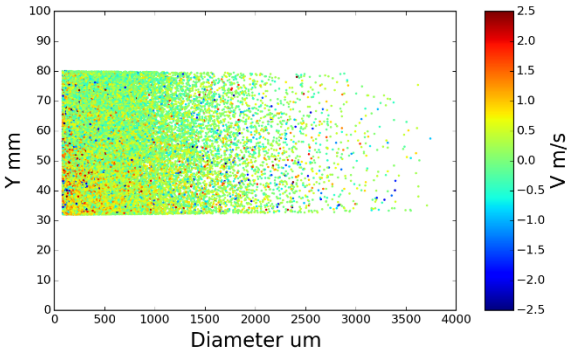


Figure C. 773: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.1 Matched Only Droplets for .LB Image

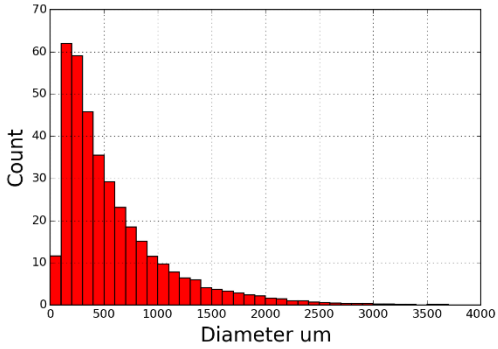


Figure C. 776: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

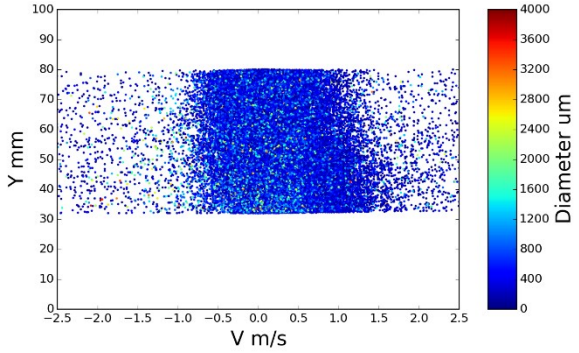


Figure C. 779: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

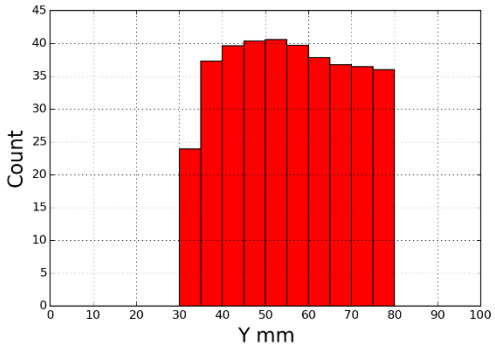


Figure C. 777: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

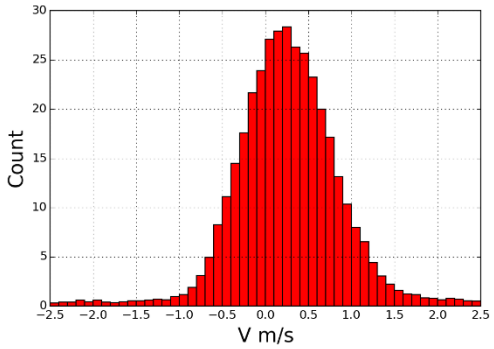


Figure C. 780: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

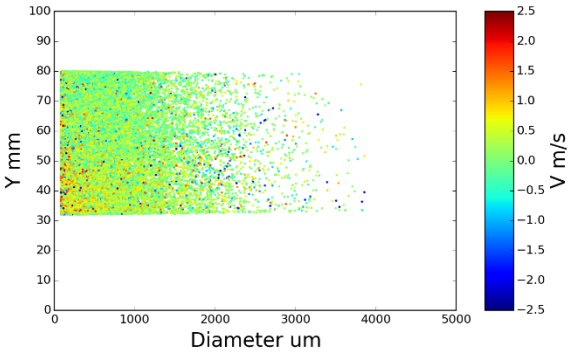


Figure C. 778: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Lens 50mm Mag 0_13x

C.3.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	62.63	63.89	170.5	3962	797.4	654.0	170.5	3914	777.7	632.4
40-60mm	122.02	123.1	170.5	3994	767.7	635.5	170.5	3991	771.9	643.2
60-80mm	119.17	120.0	170.5	3977	717.3	594.1	170.5	3938	716.6	590.9
80-100mm	101.89	103.92	170.5	3978	563.4	424.2	170.5	3785	563.6	424.9
All	405.71	410.91	170.5	3994	706.1	586.5	170.5	3991	704.0	584.0
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 86: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	33.92	182.3	3794	889.3	645.3	182.3	3914	870.5	649.9	-2.440	2.440	-0.090	0.830	-2.450	2.450	0.040	0.880
40-60mm	70.44	182.3	3865	844.6	630.2	170.5	3991	830.8	636.1	-2.450	2.450	-0.110	0.780	-2.450	2.450	-0.080	0.870
60-80mm	74.07	182.3	3821	778.6	597.9	182.3	3938	769.2	598.7	-2.450	2.450	-0.080	0.670	-2.450	2.450	-0.160	0.740
80-100mm	67.2	182.3	3782	614.4	443.9	170.5	3785	609.6	437.0	-2.450	2.450	-0.080	0.620	-2.450	2.450	-0.240	0.680
All	245.63	182.3	3865	767.9	585.9	170.5	3991	757.8	587.0	-2.450	2.450	-0.090	0.710	-2.450	2.450	-0.130	0.790

Table C. 87: Matched Droplet Info

C.3.1.2 All Droplets for .LA Image

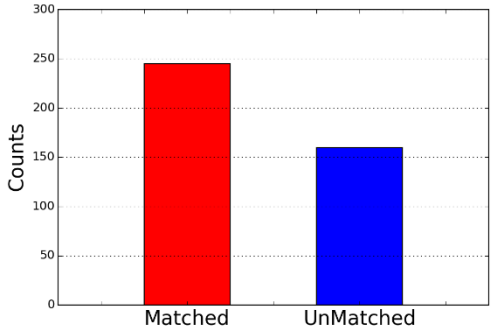


Figure C. 781: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

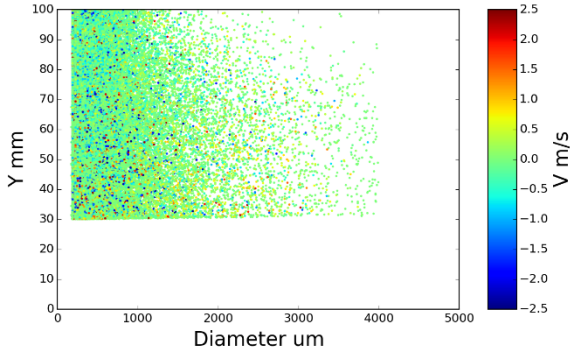


Figure C. 784: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

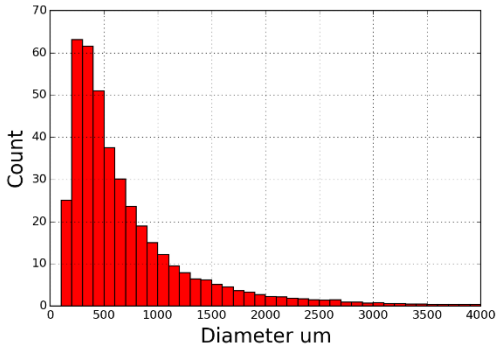


Figure C. 782: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

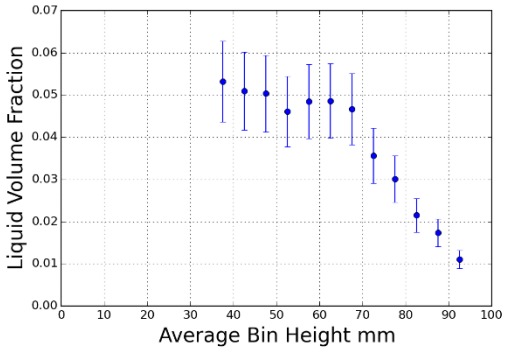


Figure C. 785: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

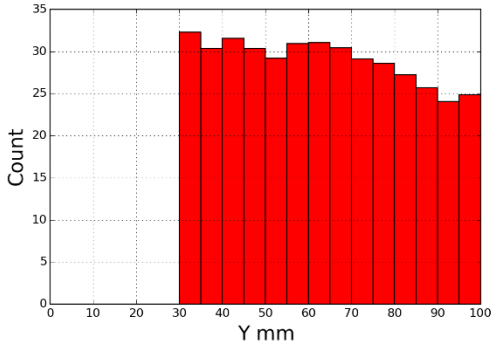


Figure C. 783: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 All Droplets for .LB Image

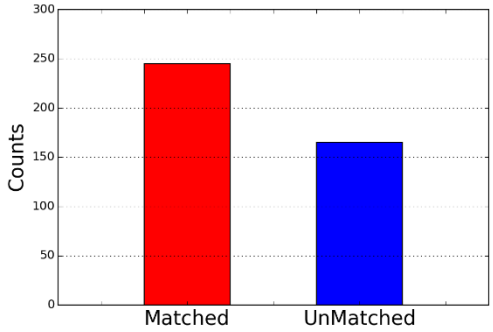


Figure C. 786: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

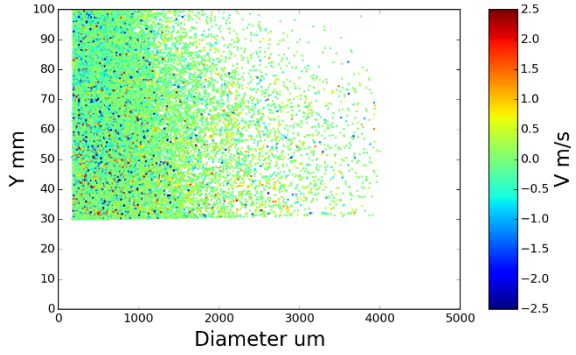


Figure C. 789: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

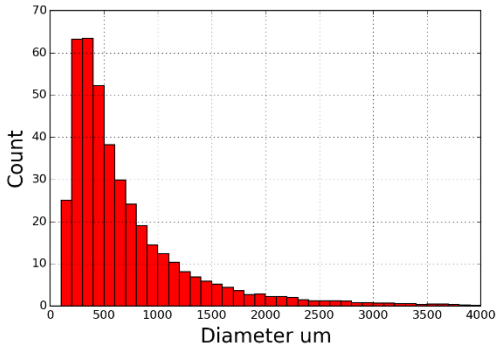


Figure C. 787: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

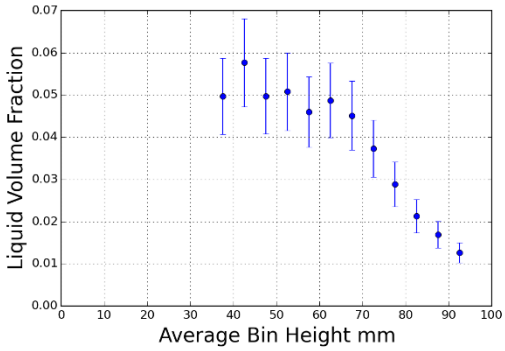


Figure C. 790: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

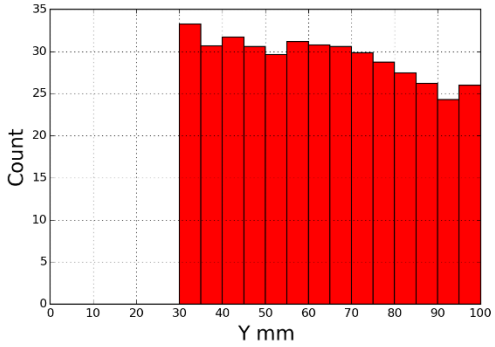


Figure C. 788: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LA Image

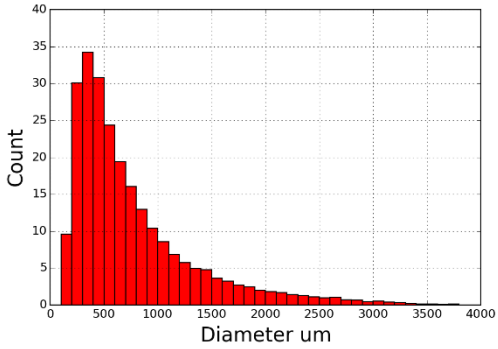


Figure C. 791: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

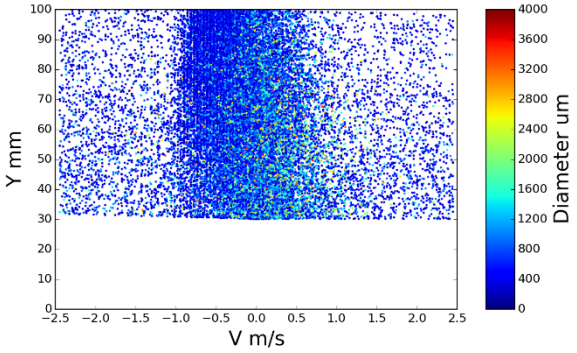


Figure C. 794: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

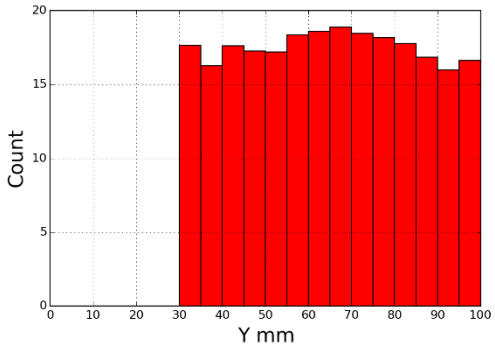


Figure C. 792: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

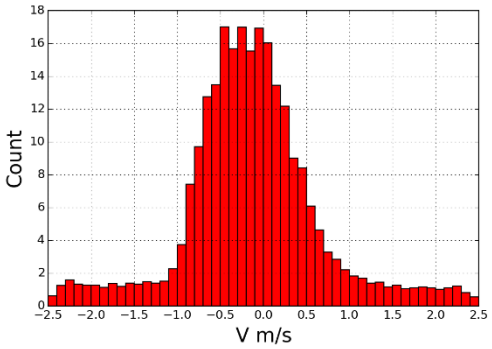


Figure C. 795: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

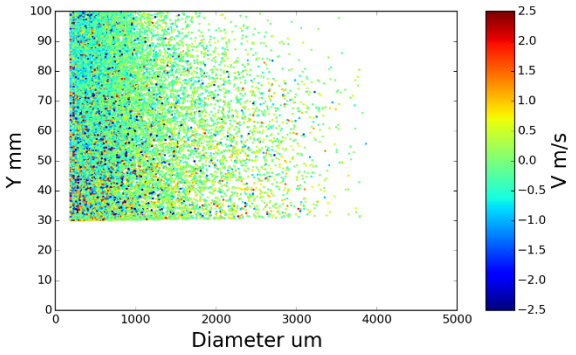


Figure C. 793: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LB Image

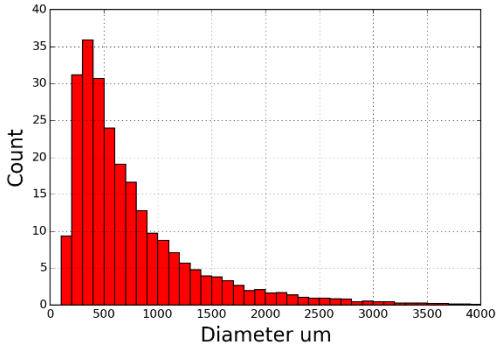


Figure C. 796: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

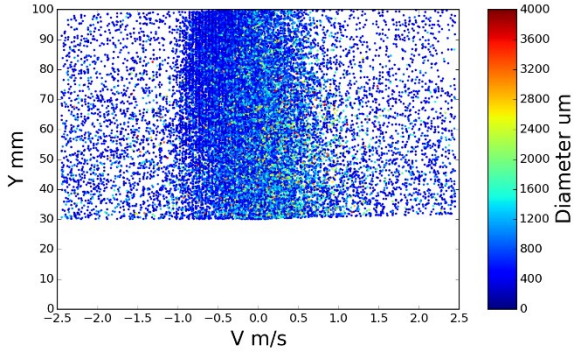


Figure C. 799: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

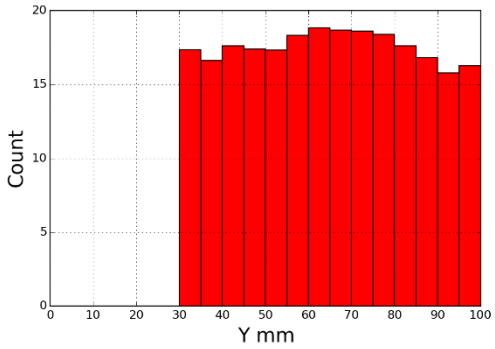


Figure C. 797: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

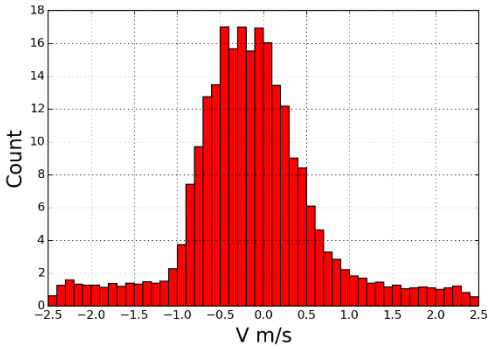


Figure C. 800: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

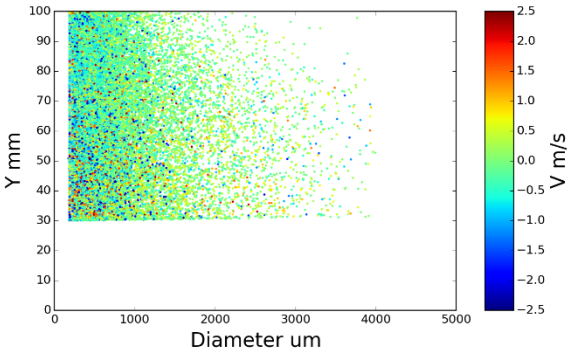


Figure C. 798: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	72.01	73.7	170.5	3995	748.5	615.3	170.5	3932	750.0	610.9
40-60mm	149.86	153.87	170.5	3987	728.0	595.0	170.5	3994	726.6	593.5
60-80mm	148.83	149.18	170.5	3959	679.9	536.2	170.5	3990	687.9	542.1
80-100mm	131.6	134.93	170.5	3870	576.1	428.8	170.5	3962	573.5	424.6
All	502.32	511.72	170.5	3995	676.9	545.4	170.5	3994	678.3	545.2
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 88: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	38.13	182.3	3929	826.1	609.8	182.3	3932	806.0	611.5	-2.450	2.450	-0.110	0.940	-2.450	2.450	0.130	0.970
40-60mm	83.41	182.3	3887	806.9	601.8	170.5	3994	792.7	603.5	-2.450	2.450	-0.130	0.880	-2.450	2.450	0.050	0.950
60-80mm	90.27	182.3	3933	741.6	540.3	170.5	3990	732.9	536.2	-2.450	2.450	-0.110	0.750	-2.450	2.450	-0.010	0.850
80-100mm	85.52	182.3	3847	629.7	441.6	170.5	3906	622.1	433.8	-2.450	2.450	-0.080	0.720	-2.450	2.450	-0.110	0.770
All	297.33	182.3	3933	738.6	547.5	170.5	3994	727.1	544.7	-2.450	2.450	-0.110	0.810	-2.450	2.450	-0.000	0.880

Table C. 89: Matched Droplet Info

C.3.1.2 All Droplets for .LA Image

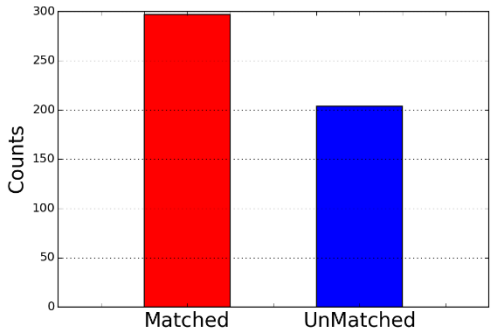


Figure C. 801: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

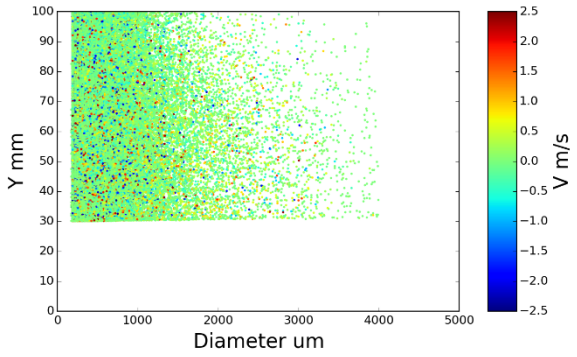


Figure C. 804: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

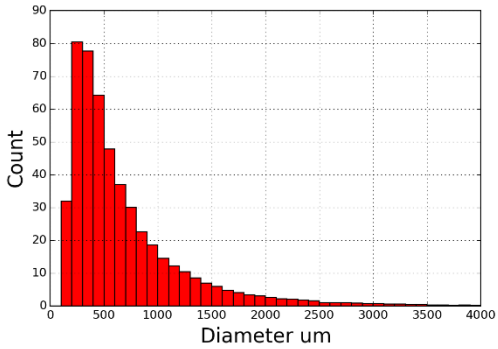


Figure C. 802: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

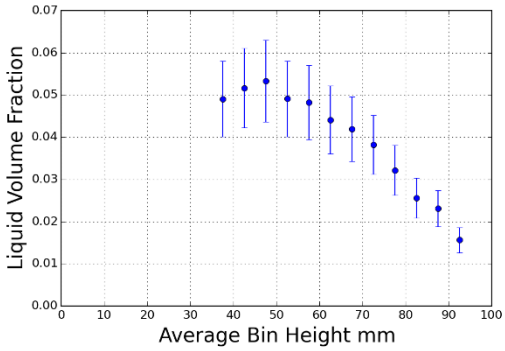


Figure C. 805: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

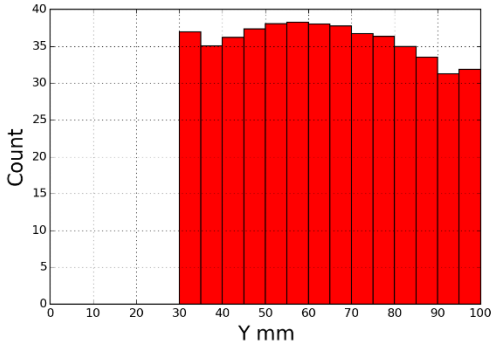


Figure C. 803: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 All Droplets for .LB Image

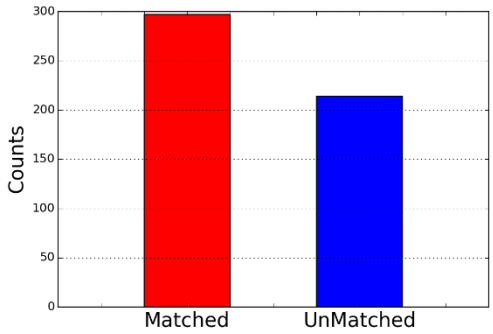


Figure C. 806: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

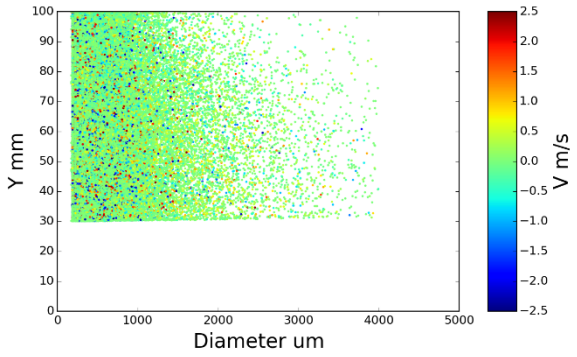


Figure C. 809: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

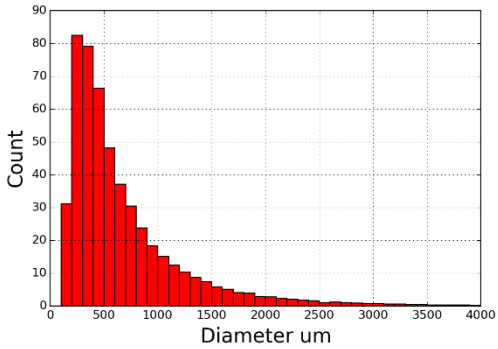


Figure C. 807: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

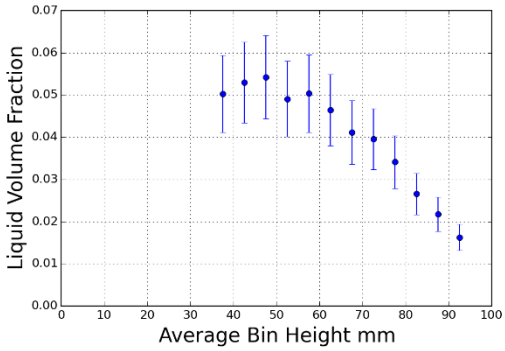


Figure C. 810: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

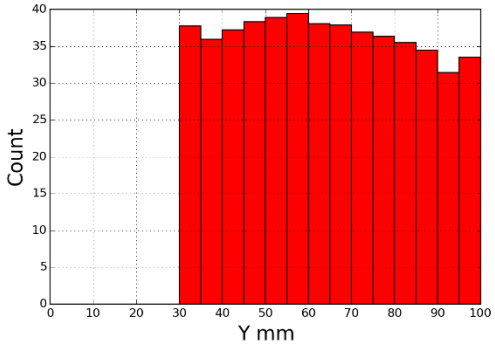


Figure C. 808: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LA Image

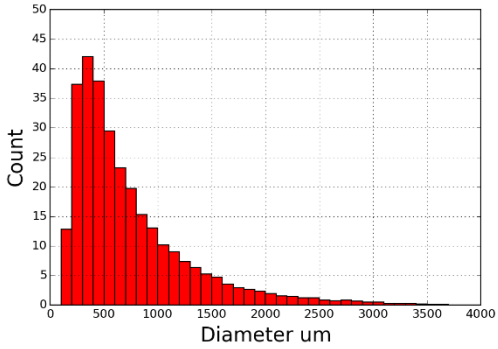


Figure C. 811: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

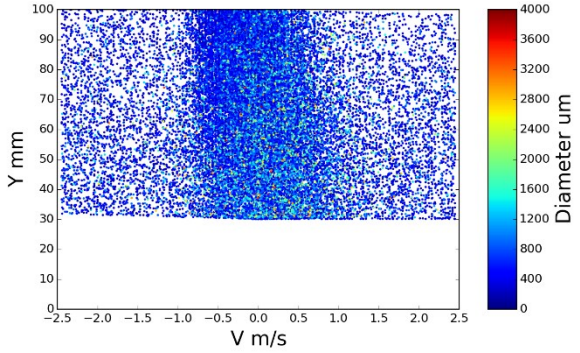


Figure C. 814: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

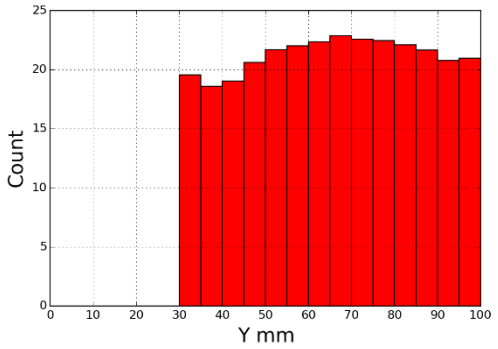


Figure C. 812: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

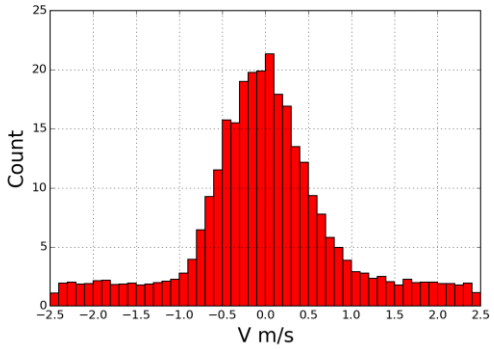


Figure C. 815: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

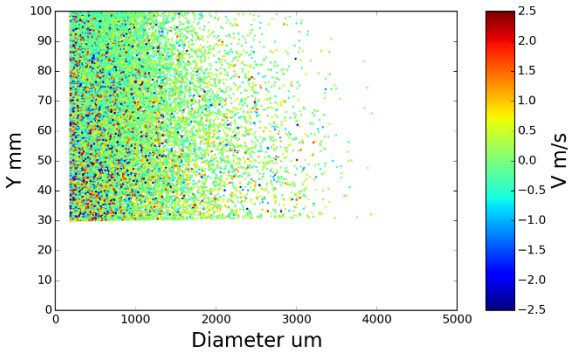


Figure C. 813: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LB Image

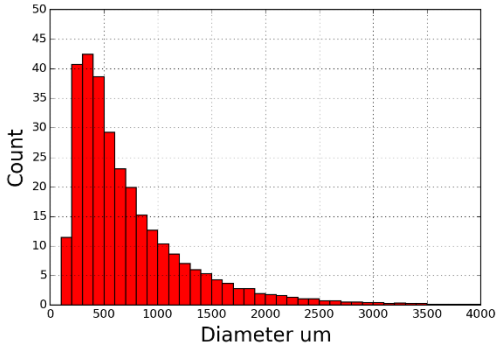


Figure C. 816: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

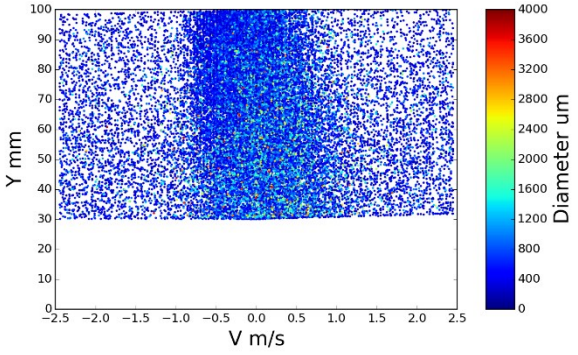


Figure C. 819: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

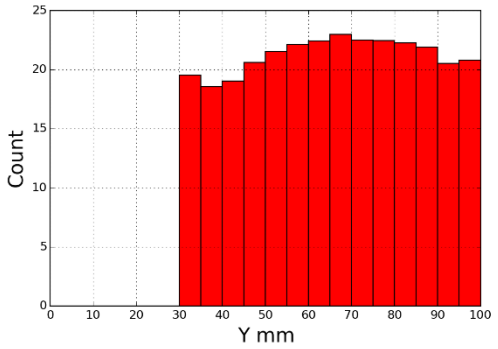


Figure C. 817: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

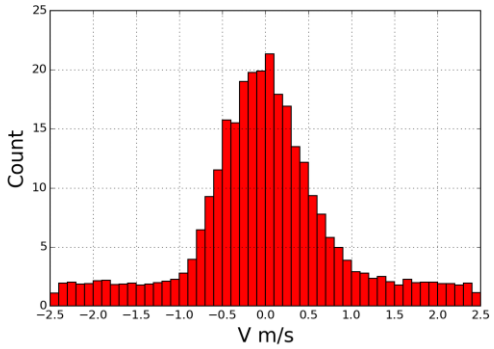


Figure C. 820: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

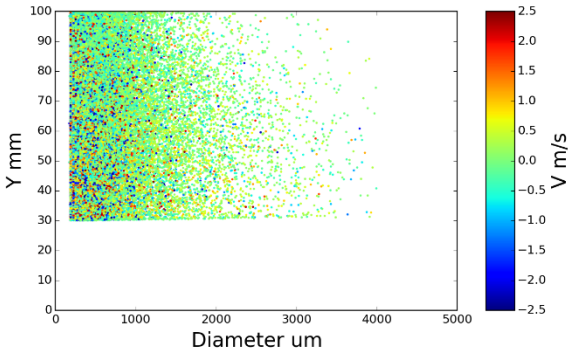


Figure C. 818: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	75.65	75.56	170.5	3945	739.2	598.5	170.5	3982	740.3	606.6
40-60mm	166.92	163.62	170.5	3984	710.5	583.8	170.5	3994	714.7	589.0
60-80mm	172.57	171.93	170.5	3993	682.5	537.1	170.5	3996	688.5	543.9
80-100mm	161.94	162.35	170.5	3907	574.4	409.0	170.5	3781	577.0	410.0
All	577.11	573.52	170.5	3993	667.7	531.5	170.5	3996	671.2	536.2
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 90: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	38.3	182.3	3558	817.1	592.2	182.3	3940	800.0	590.1	-2.450	2.440	-0.120	0.970	-2.450	2.450	0.200	1.030
40-60mm	88.44	182.3	3865	781.4	582.0	170.5	3992	766.4	579.2	-2.450	2.450	-0.100	0.930	-2.450	2.450	0.140	1.000
60-80mm	102.12	170.5	3852	749.2	542.0	170.5	3983	737.3	542.1	-2.450	2.450	-0.110	0.840	-2.450	2.450	0.030	0.900
80-100mm	104.2	182.3	3687	631.5	428.7	170.5	3781	627.0	426.0	-2.450	2.450	-0.090	0.730	-2.450	2.450	-0.050	0.780
All	333.06	170.5	3865	728.7	531.6	170.5	3992	717.7	529.2	-2.450	2.450	-0.100	0.850	-2.450	2.450	0.060	0.910

Table C. 91: Matched Droplet Info

C.3.1.2 All Droplets for .LA Image

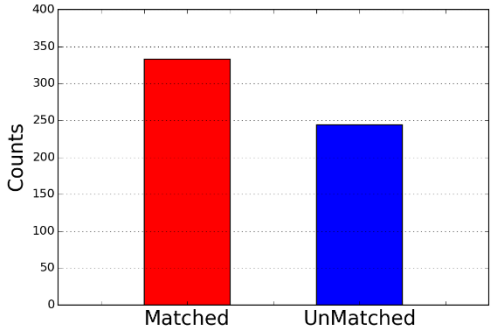


Figure C. 821: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

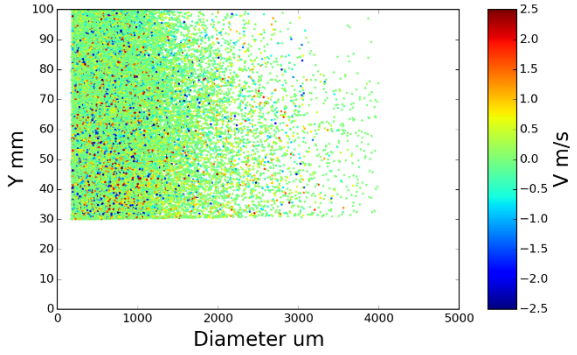


Figure C. 824: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

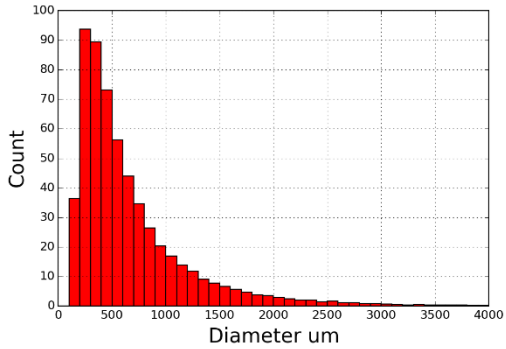


Figure C. 822: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

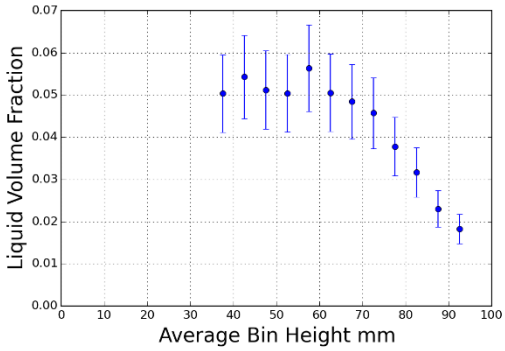


Figure C. 825: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

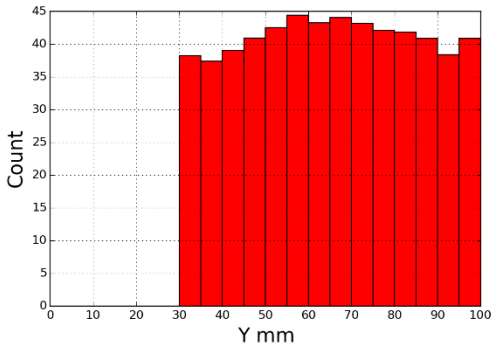


Figure C. 823: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 All Droplets for .LB Image

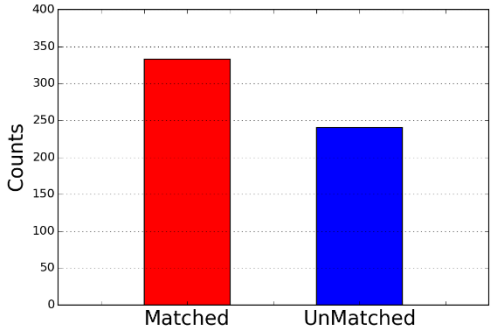


Figure C. 826: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

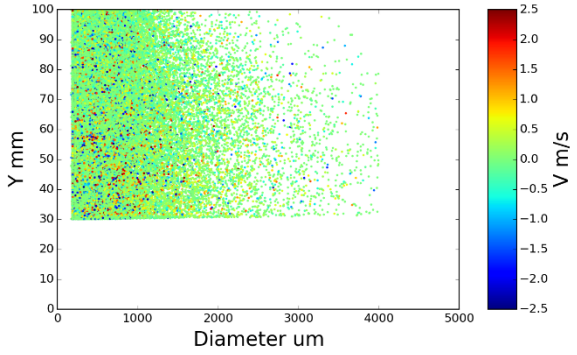


Figure C. 829: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

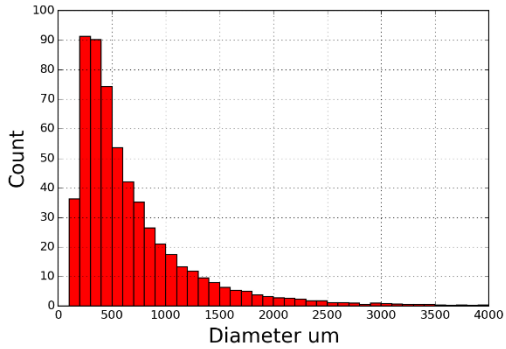


Figure C. 827: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

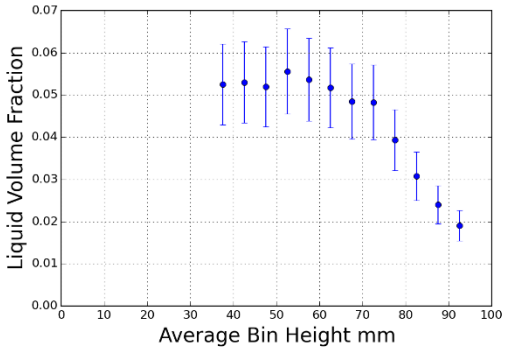


Figure C. 830: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

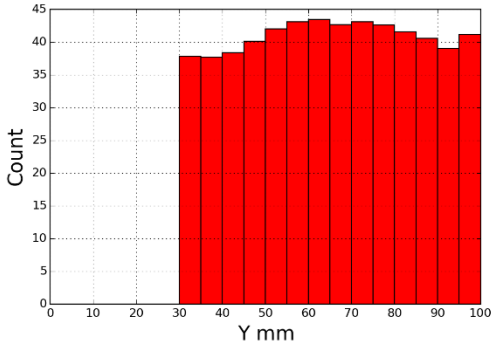


Figure C. 828: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LA Image

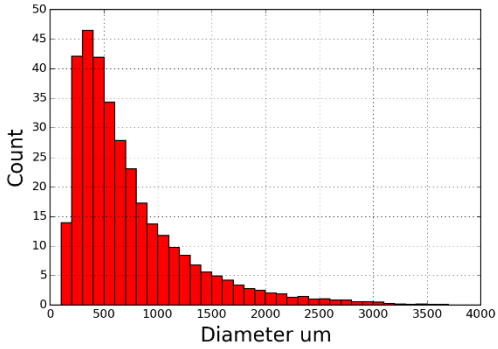


Figure C. 831: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

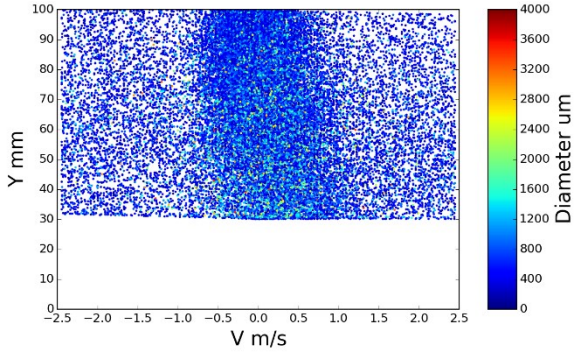


Figure C. 834: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

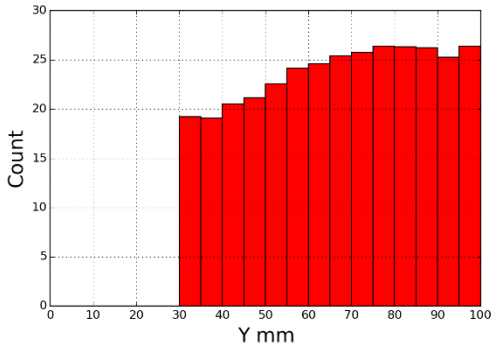


Figure C. 832: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

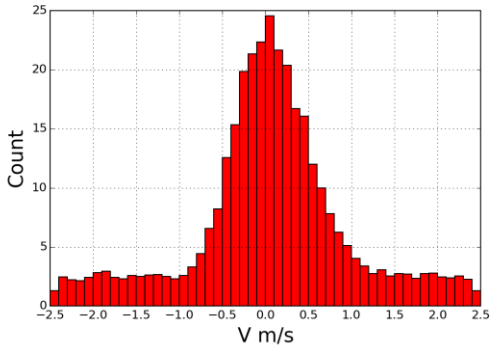


Figure C. 835: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

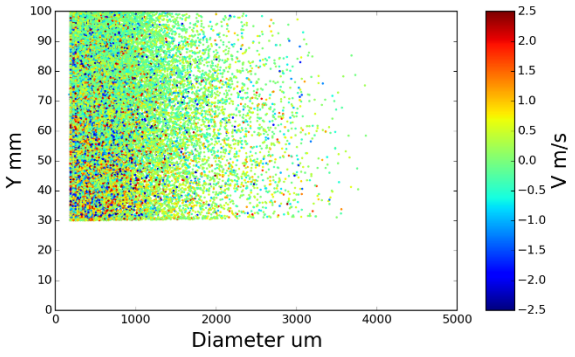


Figure C. 833: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.1.2 Matched Only Droplets for .LB Image

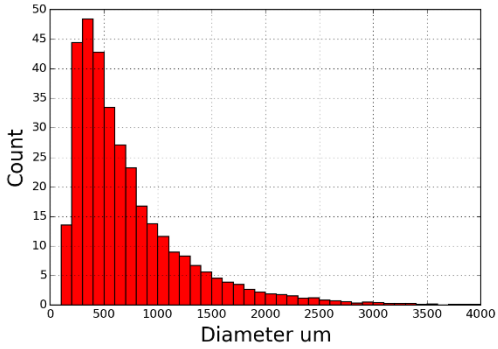


Figure C. 836: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

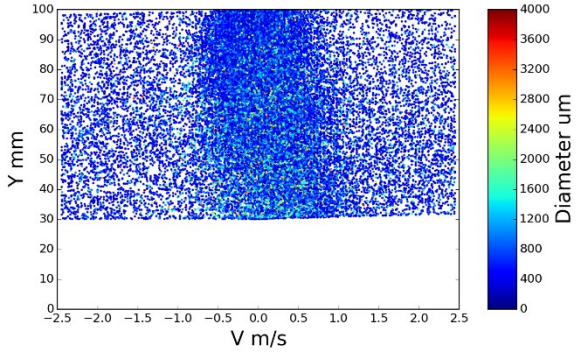


Figure C. 839: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

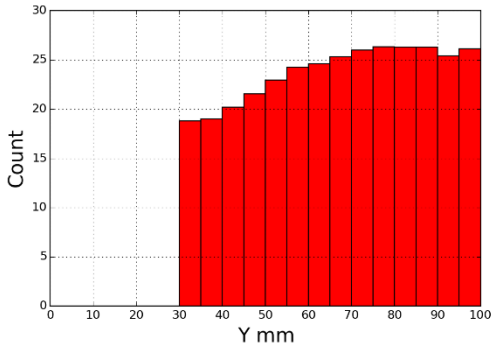


Figure C. 837: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

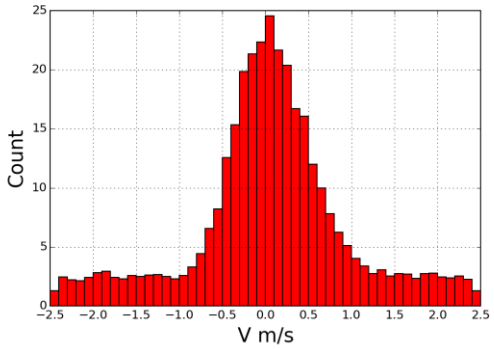


Figure C. 840: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

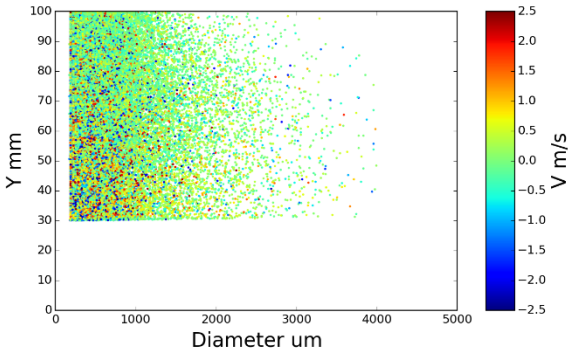


Figure C. 838: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11924 / 1.502
Ref Mass Flow (lb/hr) / (kg/s)	3050 / 0.384
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29687 / 40.263
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4324 / 13.64
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.49
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.3 / 4.59
Total Bundle Q (Btu/hr) / (kW)	176456 / 51.71
Total Bundle & Preboiler Q (Btu/hr) / (kW)	272698 / 79.92
Top Two Rows HTC Ratio	0.946
Bundle Inlet Quality	0.31
Bundle Exit Quality	1.00

Table C. 92: Thermal Conditions

C.3.2.1 Lens 100mm Mag 0_29x

C.3.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	54.06	56.74	76.0	3918	588.8	562.2	76.0	3995	572.1	559.3
40-60mm	122.57	126.49	76.0	3984	567.0	546.2	76.0	3966	550.1	543.1
60-80mm	106.39	108.36	76.0	3967	499.1	471.7	76.0	3906	487.4	466.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	283.02	291.59	76.0	3984	545.6	524.0	76.0	3995	531.1	520.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9585			
Lowest Particle			32.0032				32.0032			

Table C. 93: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	35.65	81.3	3918	698.3	566.8	76.0	3995	690.5	566.1	-2.550	2.510	-0.020	0.460	-2.540	2.530	-0.070	0.600
40-60mm	83.21	81.3	3853	667.3	547.3	81.3	3853	660.8	548.9	-2.550	2.540	-0.010	0.430	-2.550	2.540	-0.110	0.600
60-80mm	77.43	81.3	3678	571.2	473.6	76.0	3906	562.0	467.1	-2.550	2.550	-0.010	0.400	-2.520	2.550	-0.150	0.550
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	196.29	81.3	3918	635.0	525.9	76.0	3995	627.3	524.4	-2.550	2.550	-0.010	0.420	-2.550	2.550	-0.120	0.580

Table C. 94: Matched Droplet Info

C.3.2.1 All Droplets for .LA Image

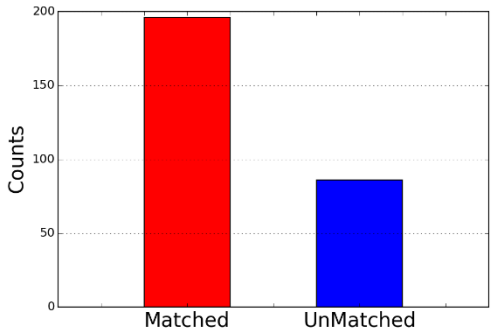


Figure C. 841: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

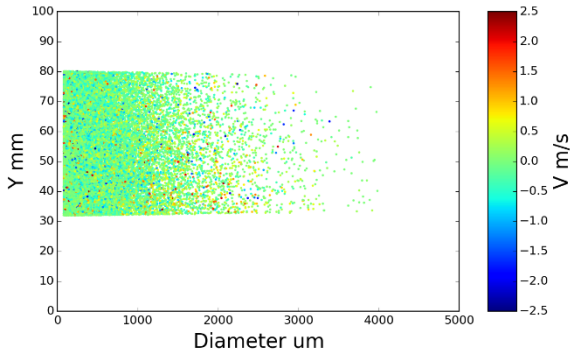


Figure C. 844: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

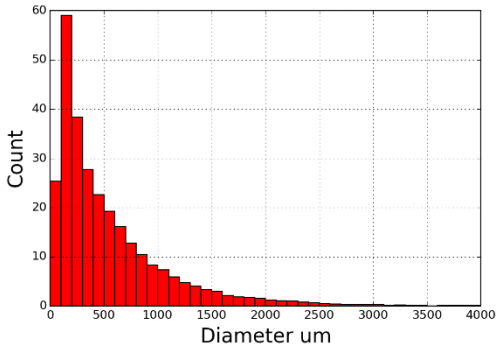


Figure C. 842: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

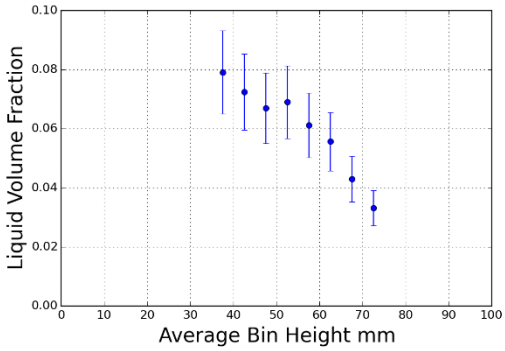


Figure C. 845: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

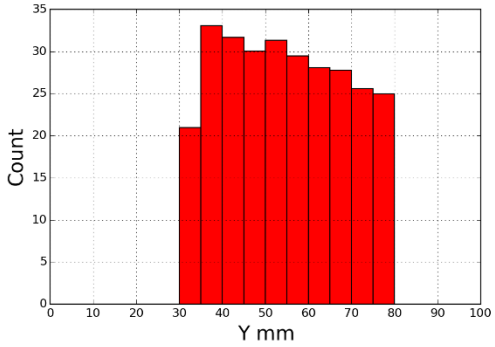


Figure C. 843: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 All Droplets for .LB Image

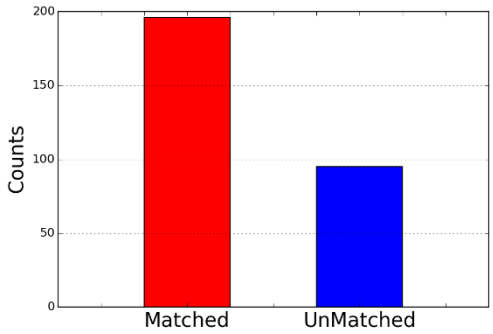


Figure C. 846: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

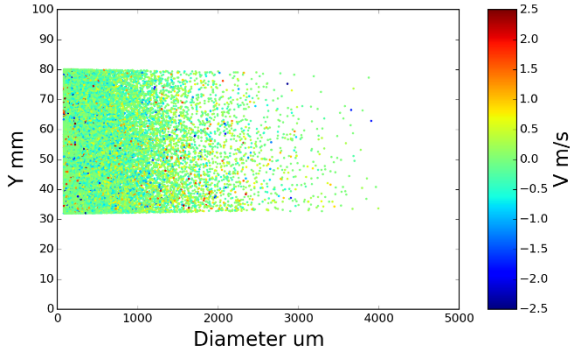


Figure C. 849: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

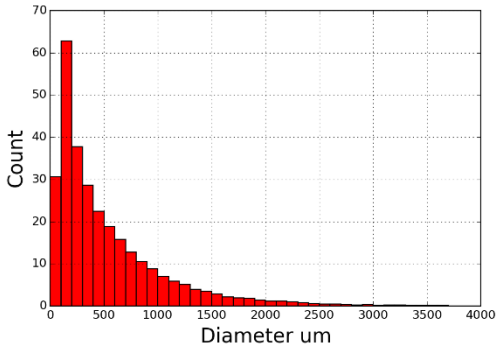


Figure C. 847: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

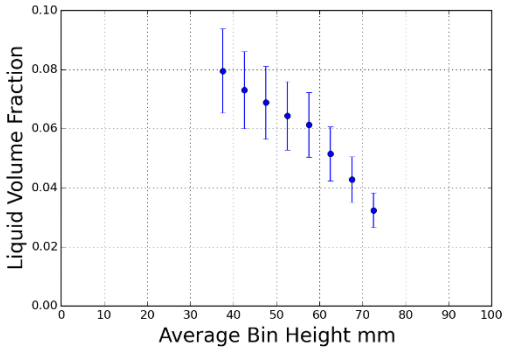


Figure C. 850: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

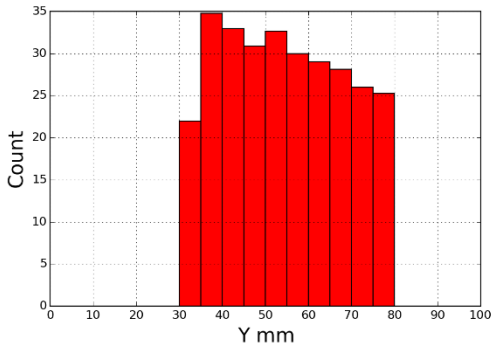


Figure C. 848: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LA Image

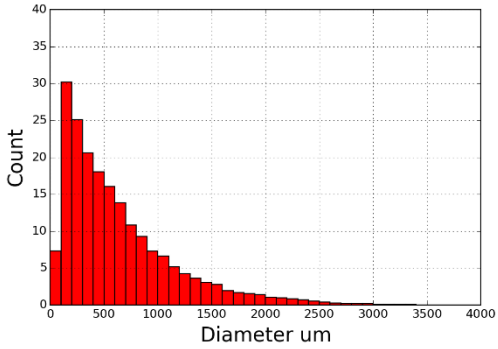


Figure C. 851: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

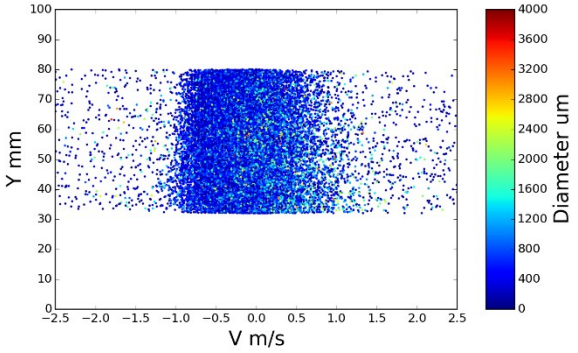


Figure C. 854: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

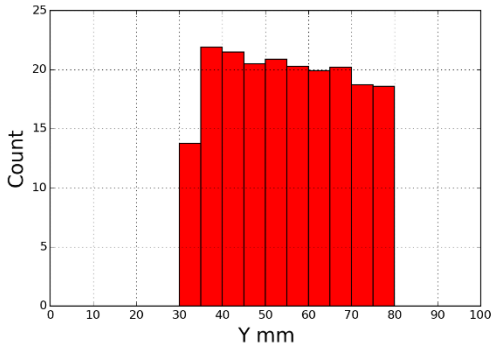


Figure C. 852: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

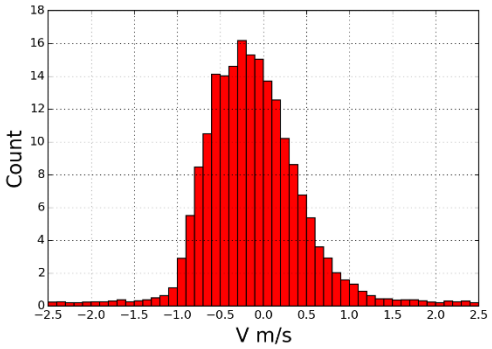


Figure C. 855: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

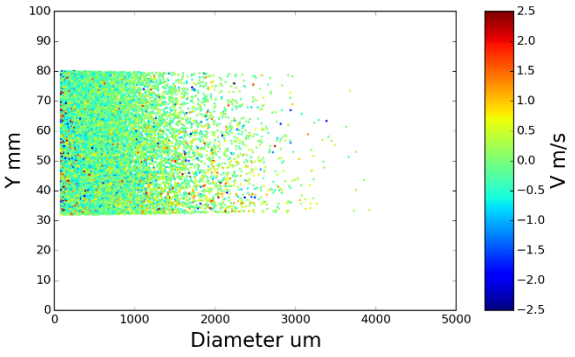


Figure C. 853: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LB Image

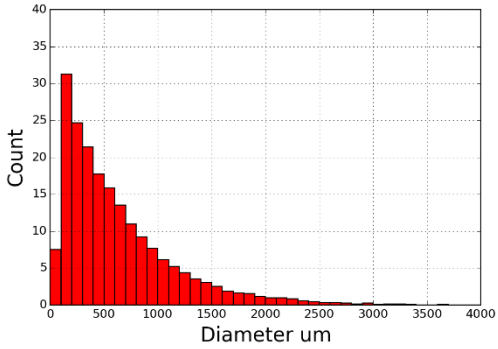


Figure C. 856: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

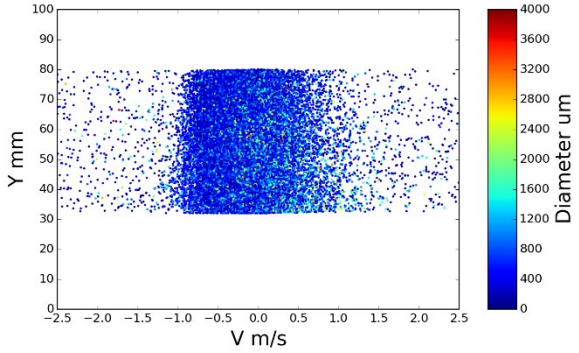


Figure C. 859: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

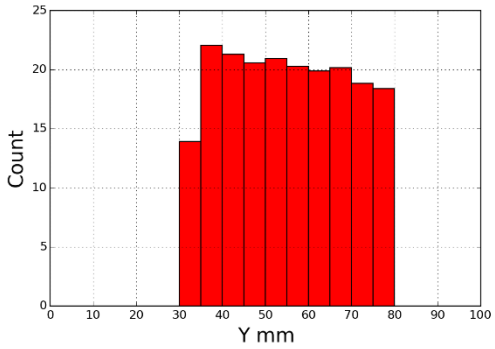


Figure C. 857: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

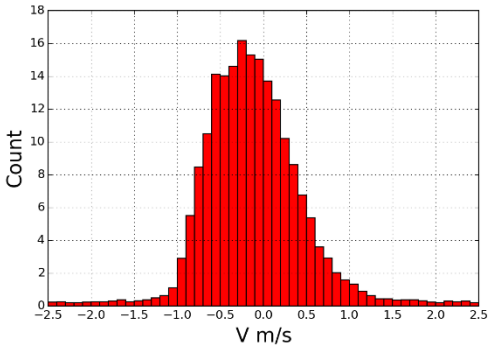


Figure C. 860: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

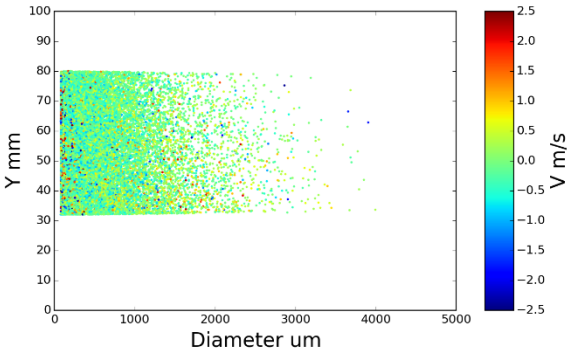


Figure C. 858: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	65.25	66.46	76.0	4014	589.5	536.2	81.3	3933	582.8	532.3
40-60mm	149.68	150.96	76.0	3988	556.6	515.1	76.0	4007	551.5	516.8
60-80mm	126.15	127.65	76.0	3909	511.0	462.1	76.0	3987	505.2	459.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	341.08	345.07	76.0	4014	546.0	501.3	76.0	4007	540.4	500.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9699			
Lowest Particle			32.0111				32.0032			

Table C. 95: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	44.98	81.3	3466	675.5	517.2	81.3	3629	673.5	519.9	-2.550	2.510	0.010	0.420	-2.550	2.550	0.190	0.620
40-60mm	106.91	81.3	3919	636.9	513.7	76.0	4007	633.6	517.5	-2.540	2.550	0.030	0.390	-2.550	2.550	0.100	0.590
60-80mm	95.63	81.3	3867	574.3	456.5	76.0	3987	567.9	453.3	-2.530	2.540	-0.000	0.340	-2.550	2.540	0.030	0.520
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	247.52	81.3	3919	619.7	494.6	76.0	4007	615.4	495.7	-2.550	2.550	0.010	0.380	-2.550	2.550	0.090	0.570

Table C. 96: Matched Droplet Info

C.3.2.1 All Droplets for .LA Image

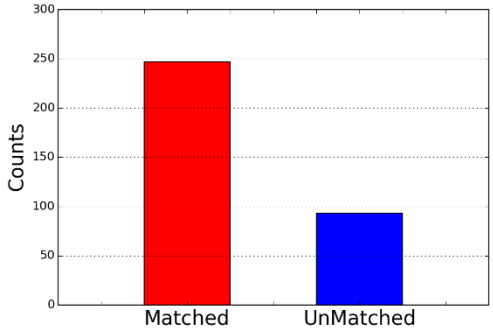


Figure C. 861: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

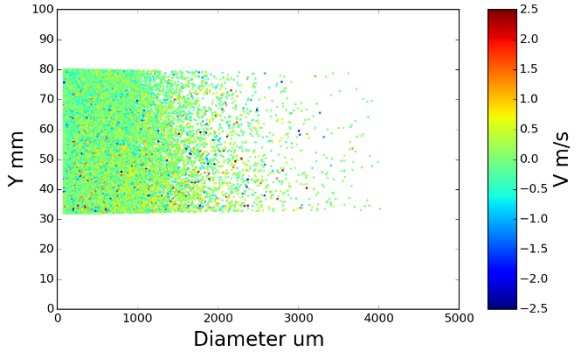


Figure C. 864: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

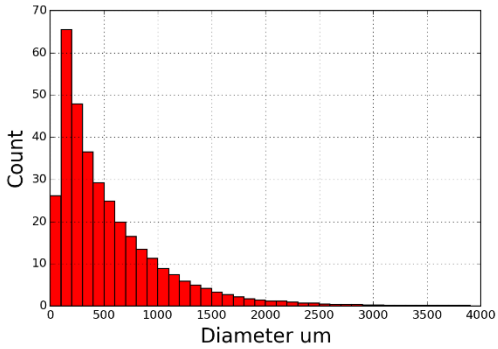


Figure C. 862: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

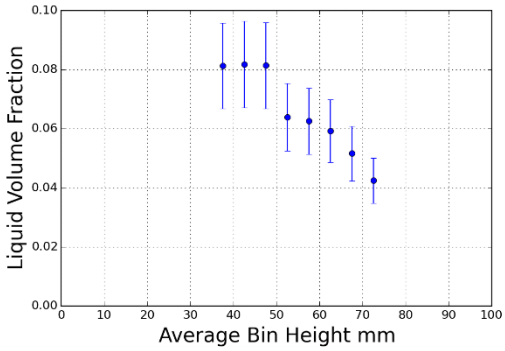


Figure C. 865: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

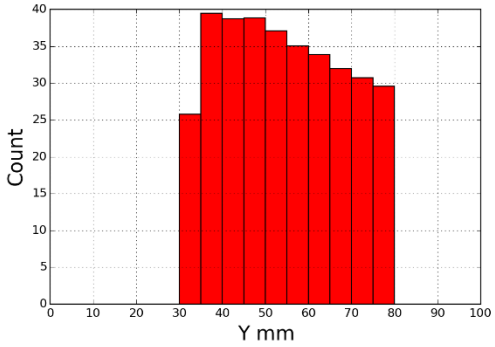


Figure C. 863: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 All Droplets for .LB Image

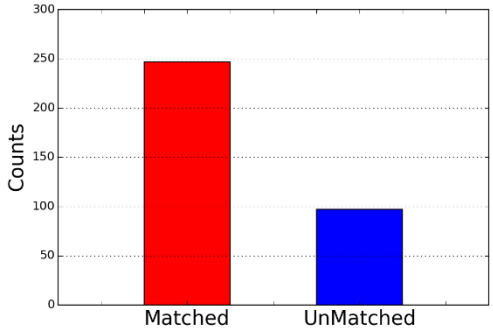


Figure C. 866: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

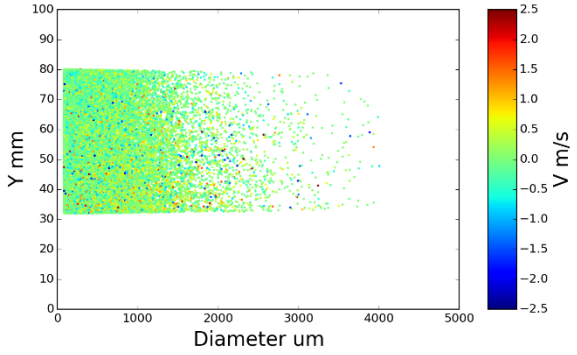


Figure C. 869: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

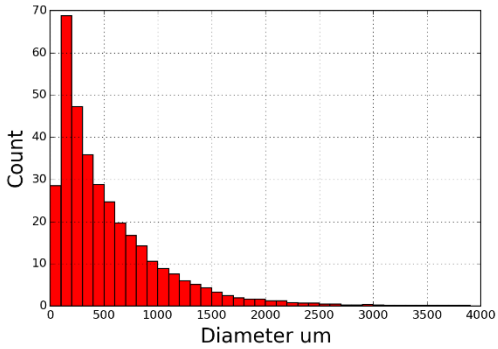


Figure C. 867: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

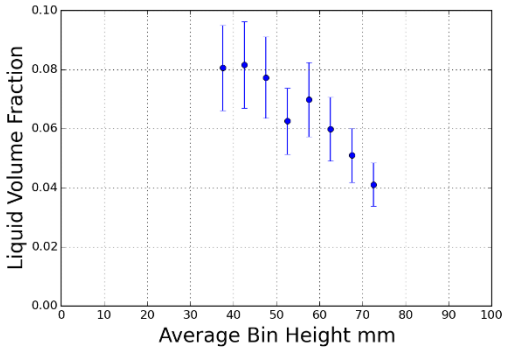


Figure C. 870: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

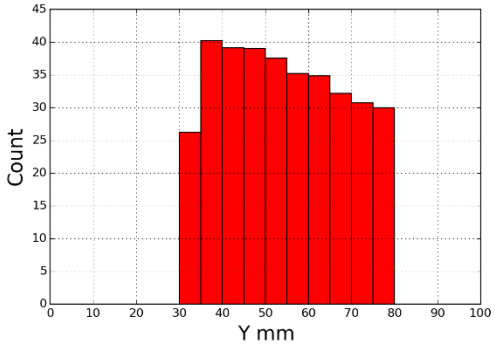


Figure C. 868: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LA Image

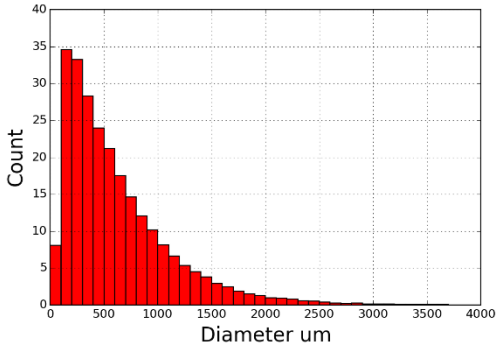


Figure C. 871: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

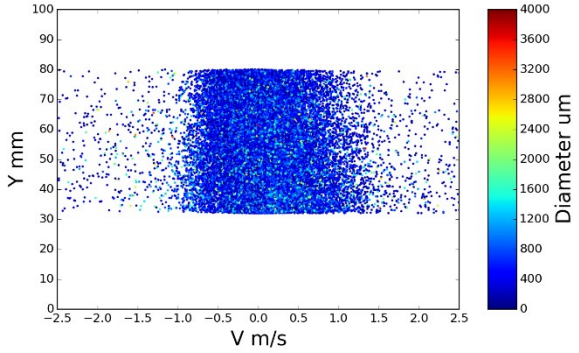


Figure C. 874: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

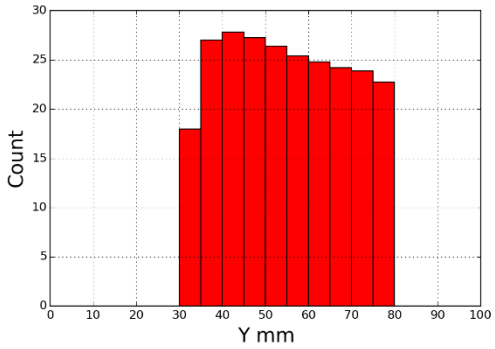


Figure C. 872: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

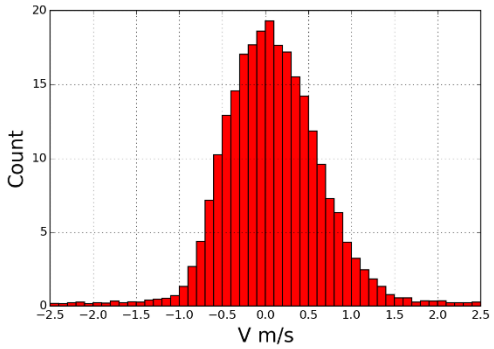


Figure C. 875: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

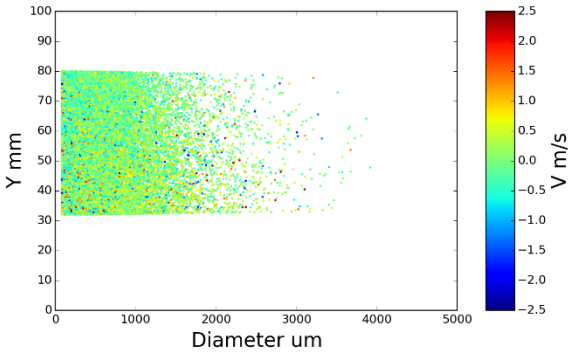


Figure C. 873: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LB Image

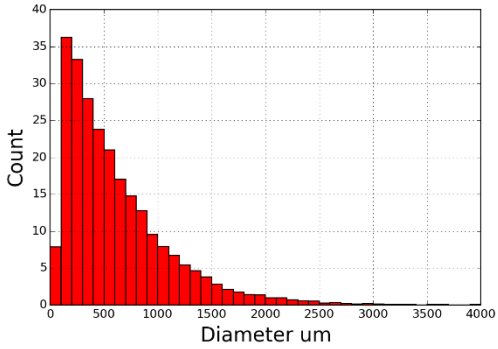


Figure C. 876: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

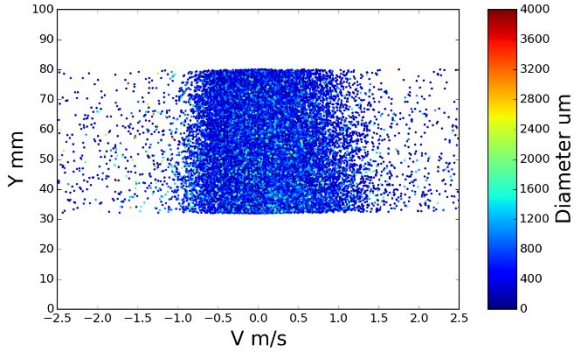


Figure C. 879: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

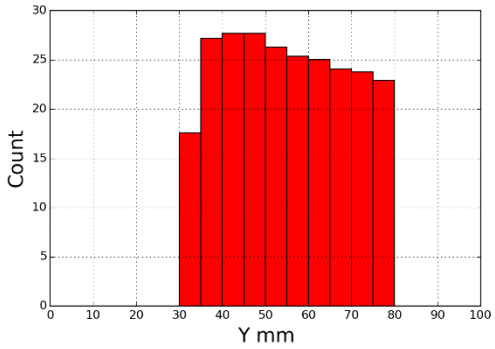


Figure C. 877: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

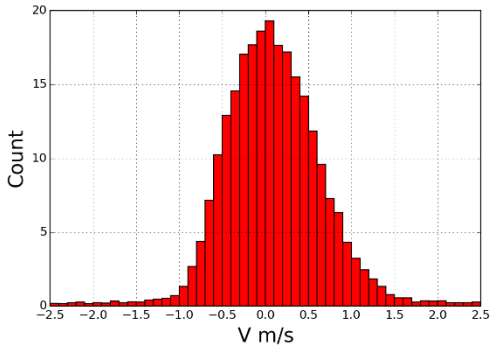


Figure C. 880: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

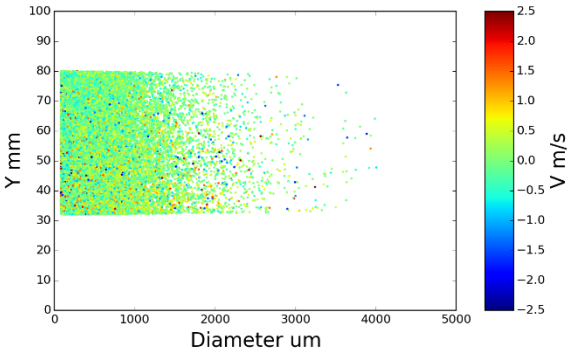


Figure C. 878: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	81.37	81.78	76.0	3961	575.1	525.8	76.0	4013	568.0	524.6
40-60mm	183.78	185.35	76.0	4011	538.4	501.7	76.0	3974	531.4	497.8
60-80mm	145.17	145.6	76.0	3974	502.2	455.4	76.0	3709	492.8	445.3
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	410.32	412.73	76.0	4011	532.9	491.6	76.0	4013	525.0	486.3
			Height A (mm)				Height B (mm)			
Highest Particle			79.9699				79.9699			
Lowest Particle			32.0032				32.0032			

Table C. 97: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	56.3	81.3	3890	653.9	522.8	81.3	4013	653.0	528.5	-2.550	2.510	0.000	0.410	-2.510	2.540	0.430	0.610
40-60mm	130.96	81.3	3640	608.6	498.2	76.0	3974	602.9	500.8	-2.540	2.530	0.010	0.400	-2.540	2.550	0.290	0.590
60-80mm	107.49	81.3	3720	566.3	453.6	76.0	3680	560.0	451.2	-2.550	2.550	0.010	0.360	-2.550	2.540	0.140	0.530
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	294.75	81.3	3890	601.8	488.4	76.0	4013	596.6	489.9	-2.550	2.550	0.010	0.390	-2.550	2.550	0.260	0.580

Table C. 98: Matched Droplet Info

C.3.2.1 All Droplets for .LA Image

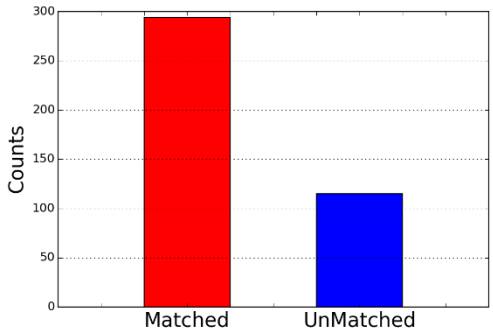


Figure C. 881: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

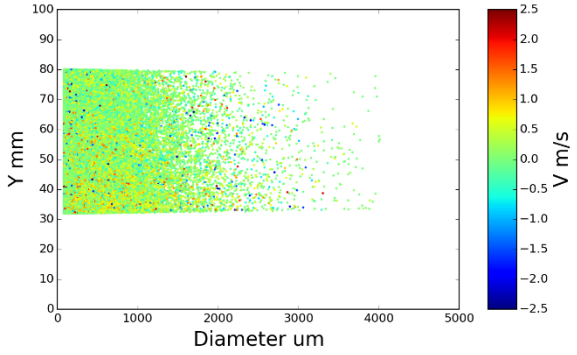


Figure C. 884: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

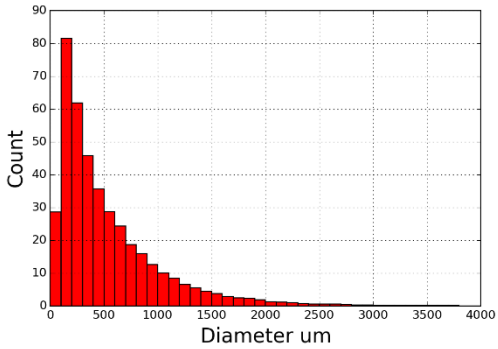


Figure C. 882: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

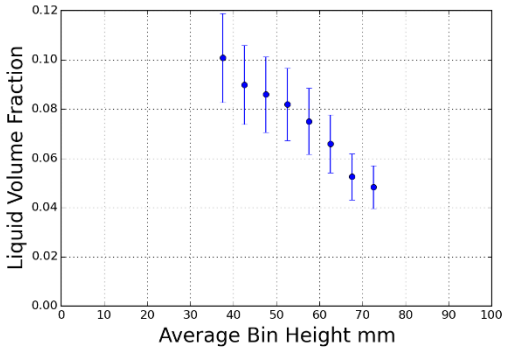


Figure C. 885: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

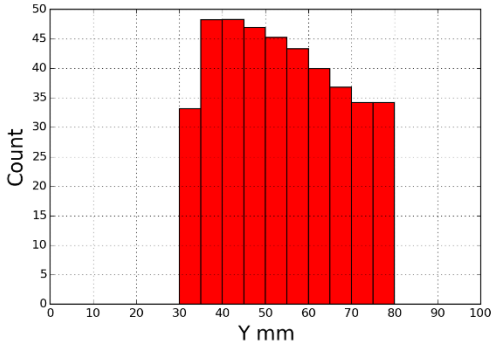


Figure C. 883: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 All Droplets for .LB Image

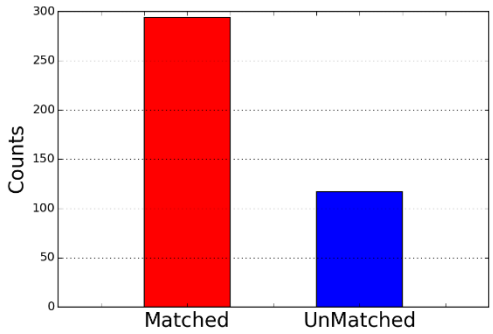


Figure C. 886: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

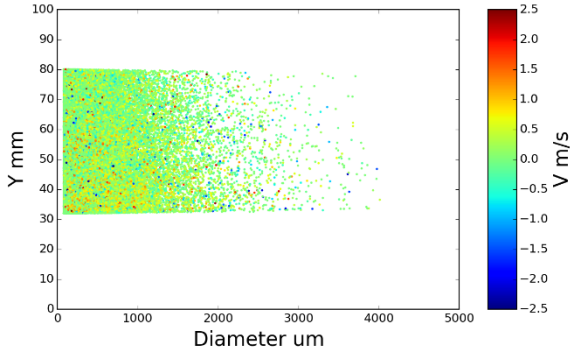


Figure C. 889: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

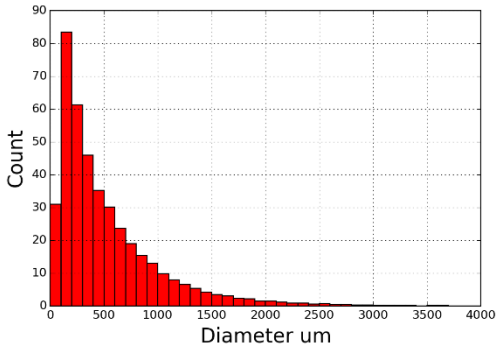


Figure C. 887: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

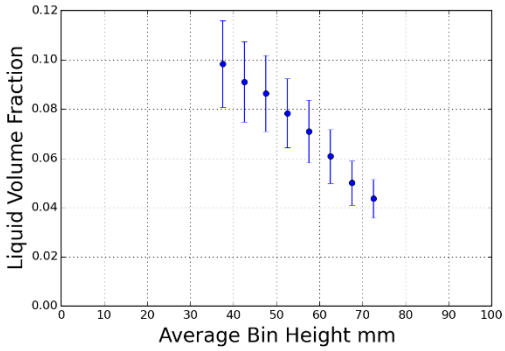


Figure C. 890: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

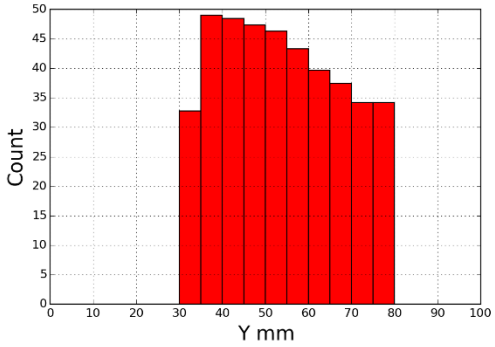


Figure C. 888: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LA Image

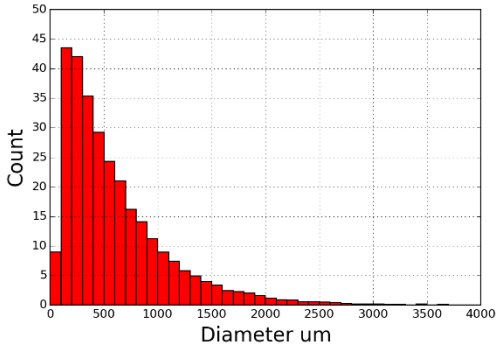


Figure C. 891: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

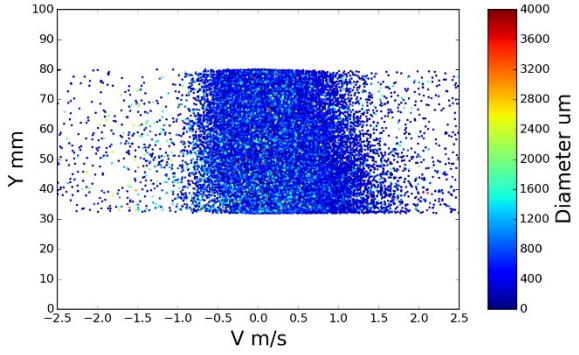


Figure C. 894: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

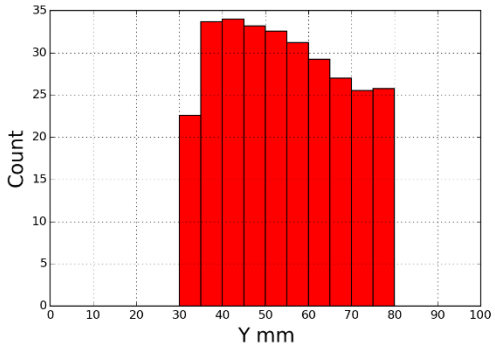


Figure C. 892: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

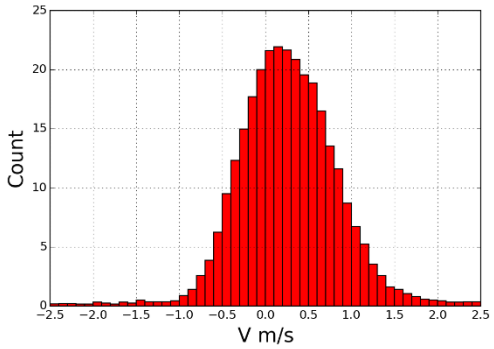


Figure C. 895: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

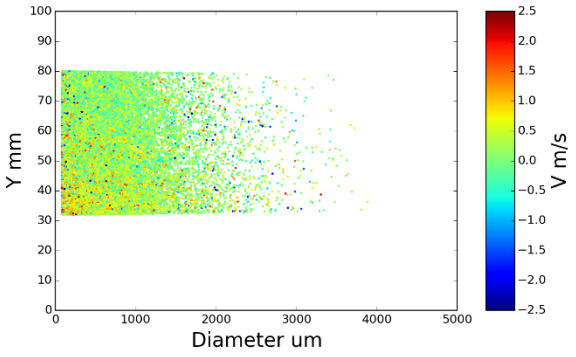


Figure C. 893: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.1 Matched Only Droplets for .LB Image

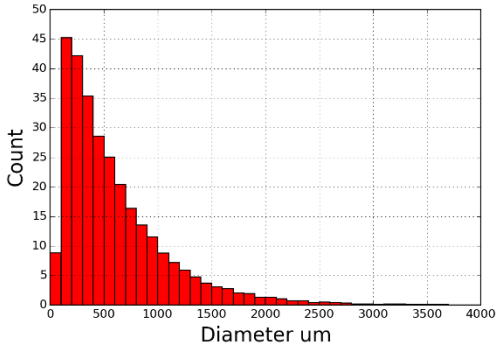


Figure C. 896: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

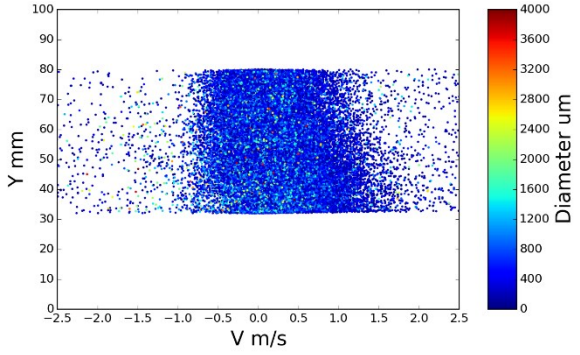


Figure C. 899: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

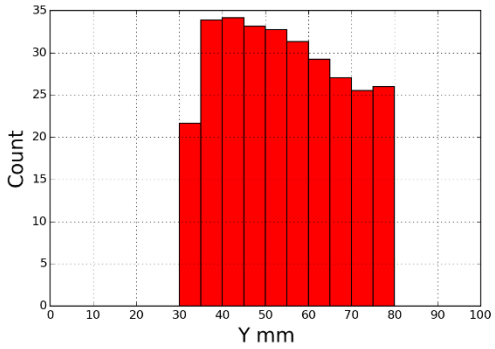


Figure C. 897: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

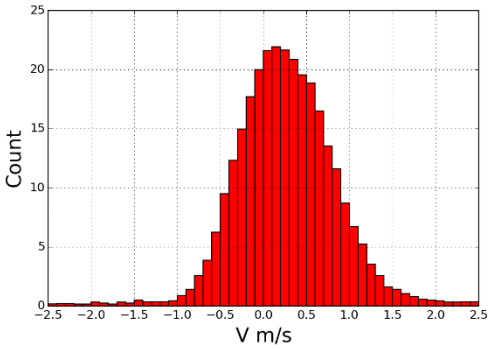


Figure C. 900: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

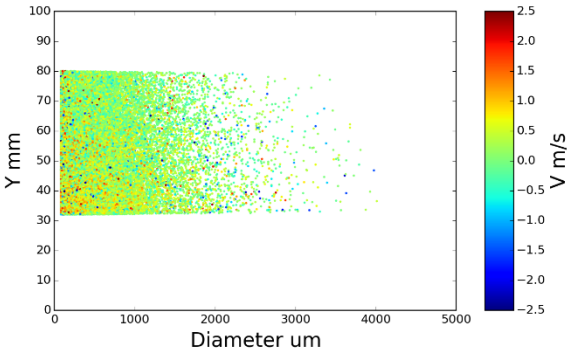


Figure C. 898: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Lens 50mm Mag 0_13x

C.3.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	100.25	100.7	170.5	3991	773.1	574.0	170.5	3991	769.2	569.8
40-60mm	90.72	91.61	170.5	3988	749.6	544.2	170.5	3899	752.8	553.0
60-80mm	84.98	85.97	170.5	3752	664.4	478.6	170.5	3838	664.0	475.7
80-100mm	71.68	73.02	170.5	3398	521.1	326.2	170.5	3399	524.1	324.8
All	347.63	351.3	170.5	3991	688.5	509.1	170.5	3991	688.2	508.8
			Height A (mm)				Height B (mm)			
Highest Particle			99.9776				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 99: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	61.08	182.3	3867	841.9	564.8	182.3	3921	823.1	562.0	-2.450	2.430	-0.050	0.670	-2.450	2.450	-0.060	0.810
40-60mm	59.88	182.3	3724	813.4	537.8	182.3	3761	805.6	542.3	-2.450	2.450	-0.040	0.600	-2.450	2.440	-0.110	0.730
60-80mm	59.81	182.3	3689	709.0	475.8	170.5	3838	706.7	477.6	-2.450	2.440	-0.070	0.530	-2.450	2.450	-0.150	0.650
80-100mm	52.98	182.3	3383	561.2	338.4	182.3	3399	563.4	337.1	-2.450	2.450	-0.090	0.470	-2.450	2.450	-0.140	0.540
All	233.75	182.3	3867	737.0	502.9	170.5	3921	730.3	502.3	-2.450	2.450	-0.060	0.580	-2.450	2.450	-0.110	0.700

Table C. 100: Matched Droplet Info

C.3.2.2 All Droplets for .LA Image

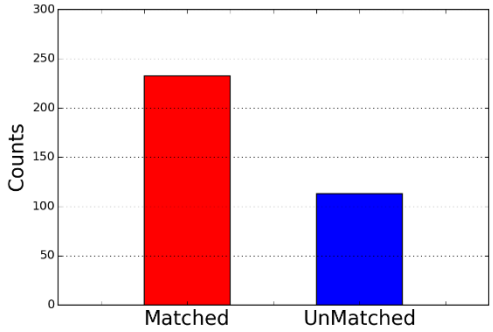


Figure C. 901: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

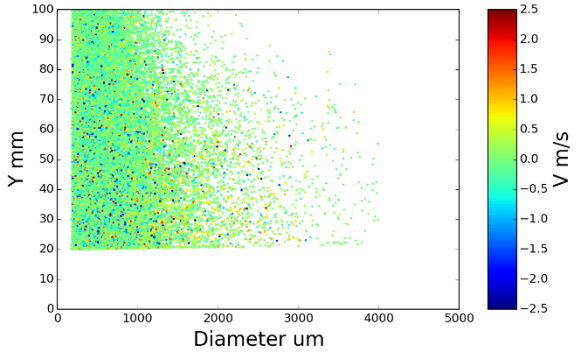


Figure C. 904: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

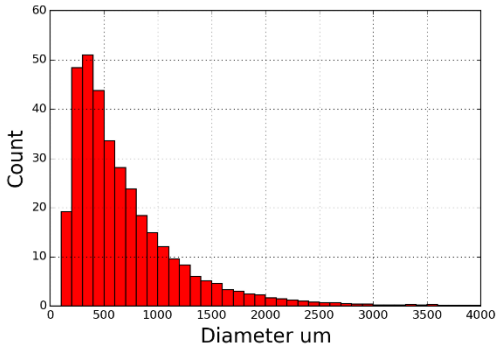


Figure C. 902: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

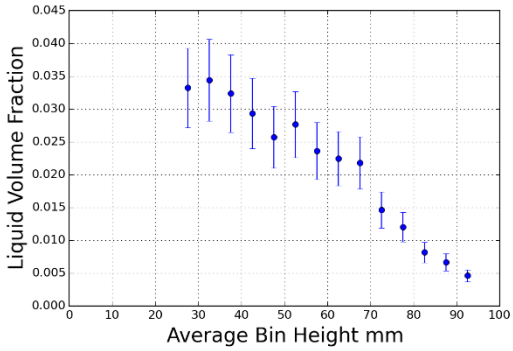


Figure C. 905: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

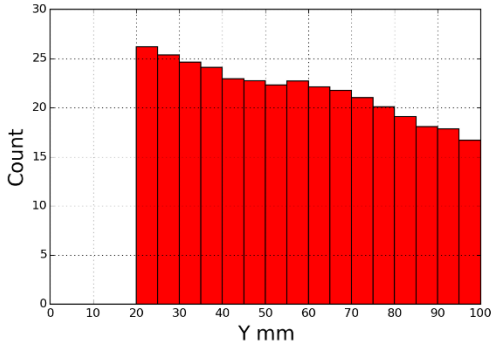


Figure C. 903: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 All Droplets for .LB Image

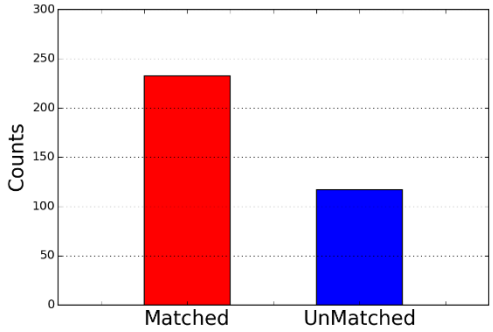


Figure C. 906: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

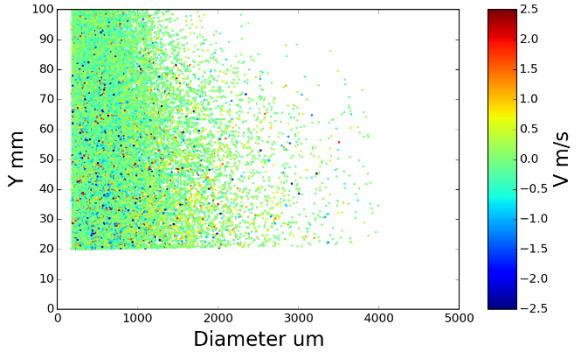


Figure C. 909: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

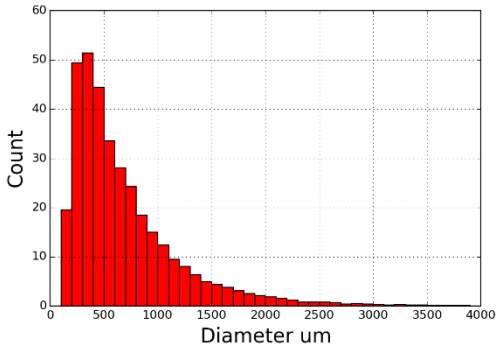


Figure C. 907: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

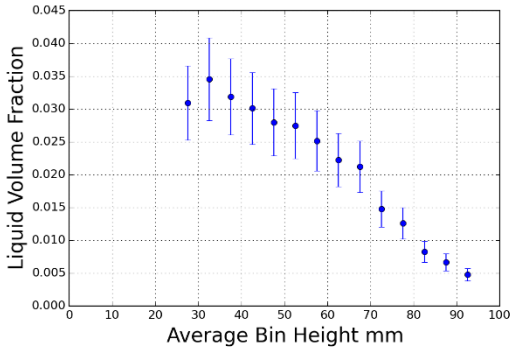


Figure C. 910: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

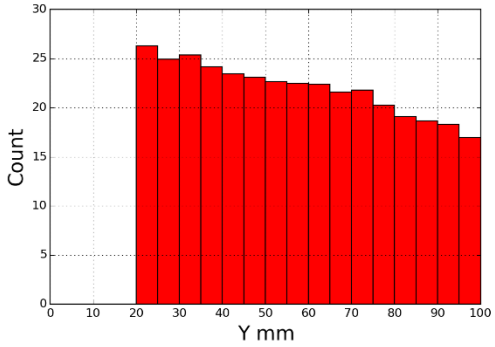


Figure C. 908: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LA Image

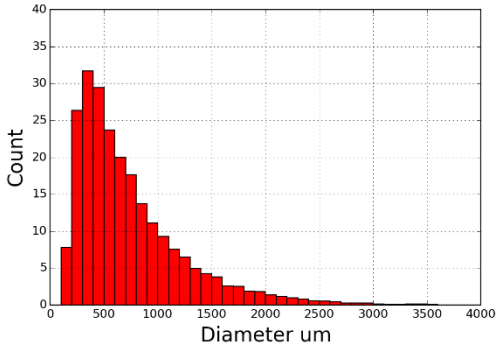


Figure C. 911: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

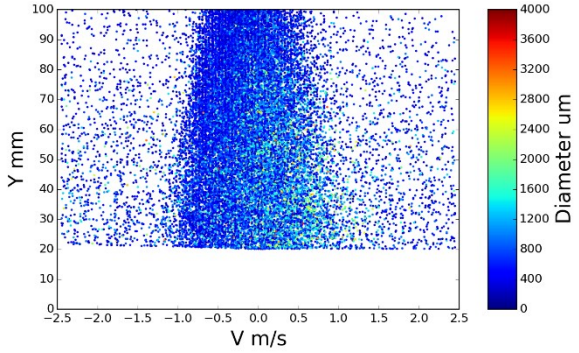


Figure C. 914: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

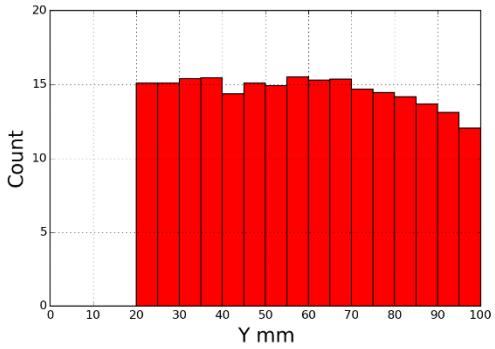


Figure C. 912: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

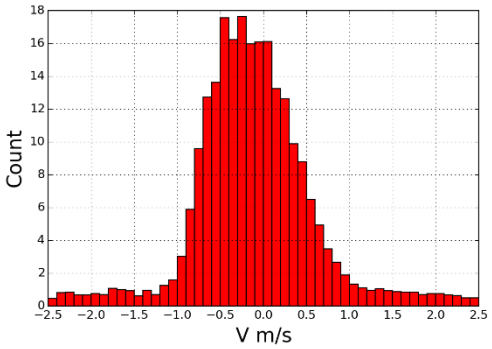


Figure C. 915: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

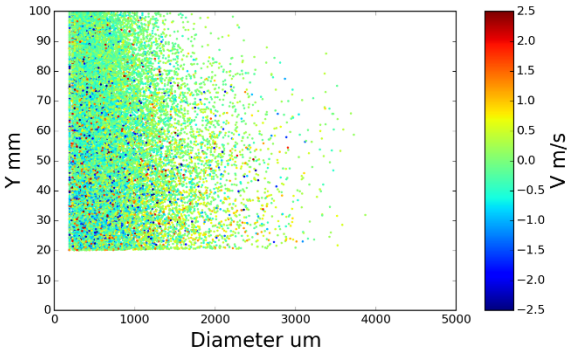


Figure C. 913: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LB Image

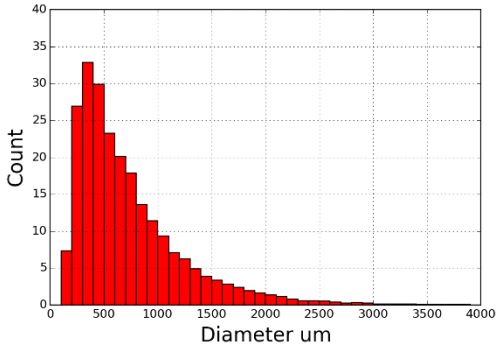


Figure C. 916: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

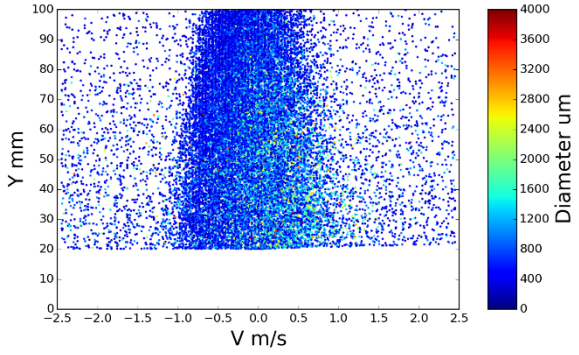


Figure C. 919: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

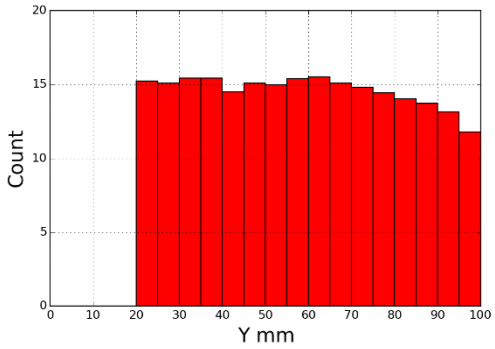


Figure C. 917: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

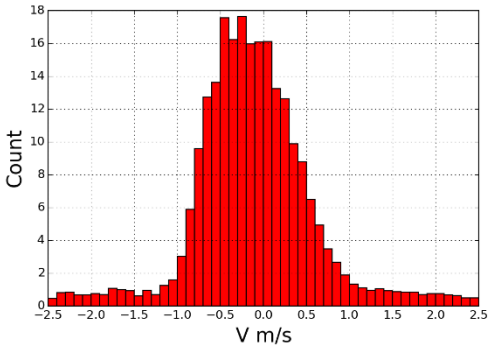


Figure C. 920: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

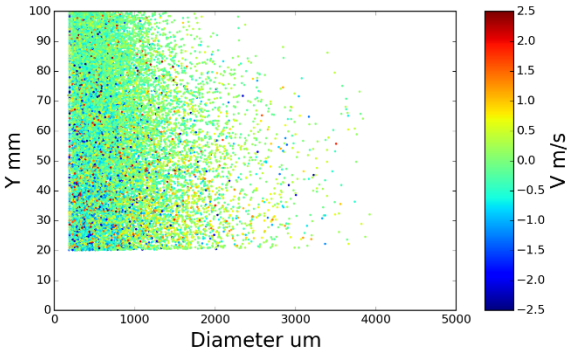


Figure C. 918: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	116.4	116.56	170.5	3993	739.8	528.9	170.5	3998	743.9	530.0
40-60mm	96.27	97.55	170.5	3831	721.7	507.7	170.5	3969	724.0	507.1
60-80mm	80.63	79.9	170.5	3891	664.0	450.3	170.5	3680	670.8	452.4
80-100mm	67.03	67.6	182.3	2876	520.5	319.3	170.5	3323	524.5	322.8
All	360.33	361.61	170.5	3993	677.2	479.6	170.5	3998	681.4	480.6
			Height A (mm)				Height B (mm)			
Highest Particle			99.9733				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 101: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	72.6	182.3	3718	811.9	525.1	182.3	3828	802.8	529.0	-2.450	2.450	-0.050	0.680	-2.450	2.450	0.110	0.830
40-60mm	65.18	182.3	3807	786.4	506.1	182.3	3883	776.8	503.4	-2.440	2.440	-0.020	0.580	-2.450	2.420	0.020	0.720
60-80mm	57.28	182.3	3371	717.9	455.8	182.3	3475	710.9	452.0	-2.450	2.440	-0.020	0.520	-2.420	2.450	-0.080	0.630
80-100mm	49.7	182.3	2876	557.4	332.1	182.3	3323	558.7	330.5	-2.450	2.440	-0.050	0.460	-2.450	2.440	-0.110	0.550
All	244.76	182.3	3807	731.4	479.5	182.3	3883	725.0	478.3	-2.450	2.450	-0.040	0.580	-2.450	2.450	-0.000	0.710

Table C. 102: Matched Droplet Info

C.3.2.2 All Droplets for .LA Image

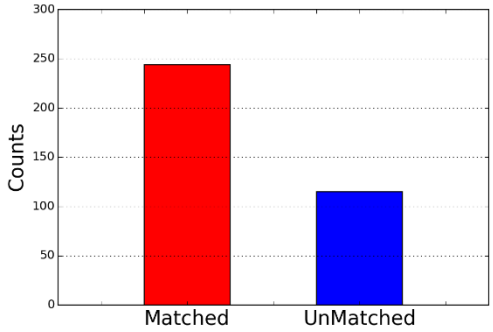


Figure C. 921: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

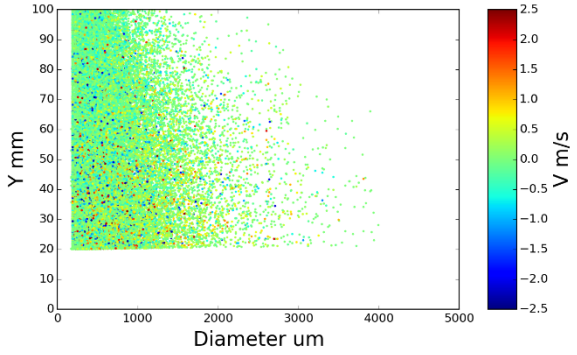


Figure C. 924: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

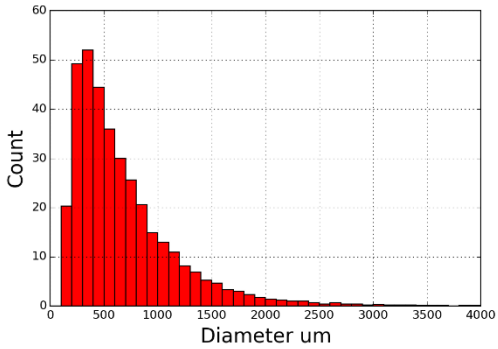


Figure C. 922: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

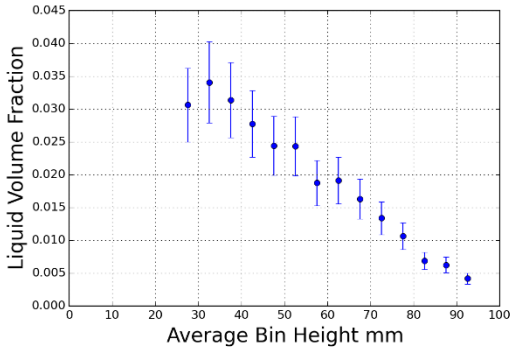


Figure C. 925: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

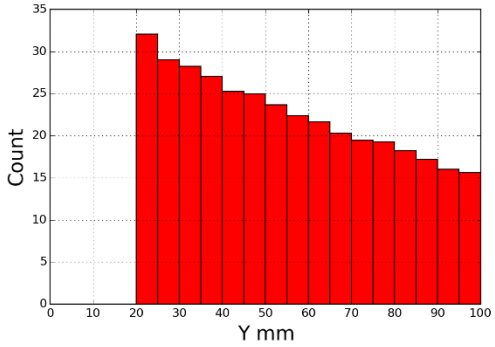


Figure C. 923: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 All Droplets for .LB Image

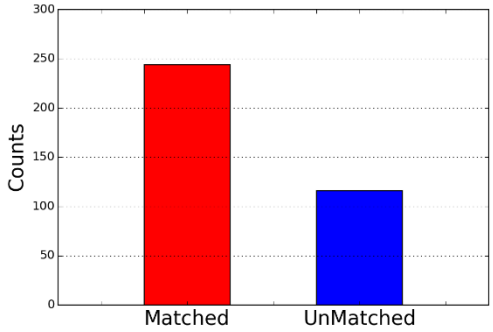


Figure C. 926: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

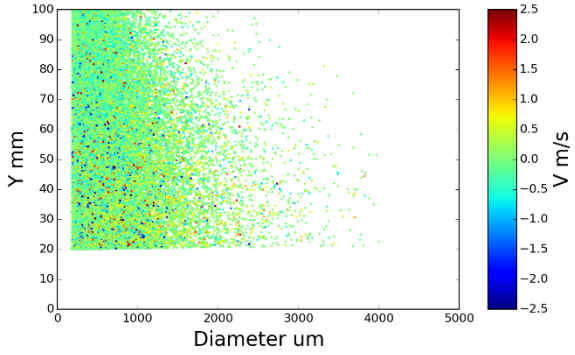


Figure C. 929: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

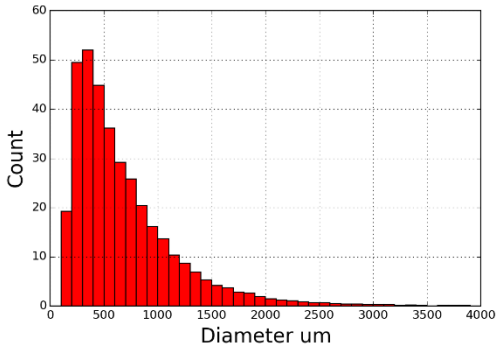


Figure C. 927: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

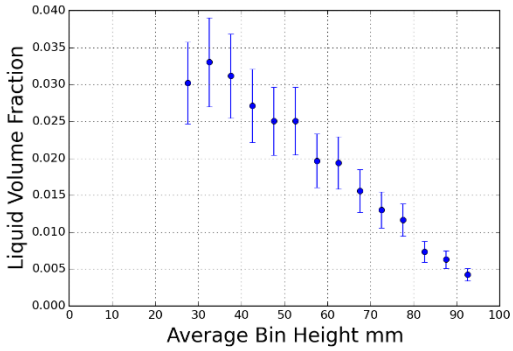


Figure C. 930: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

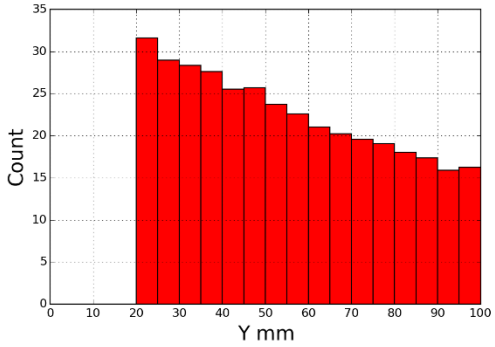


Figure C. 928: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LA Image

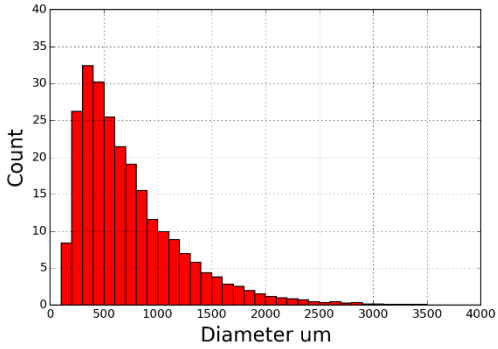


Figure C. 931: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

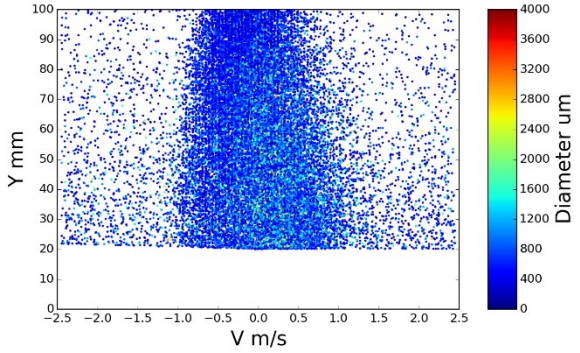


Figure C. 934: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

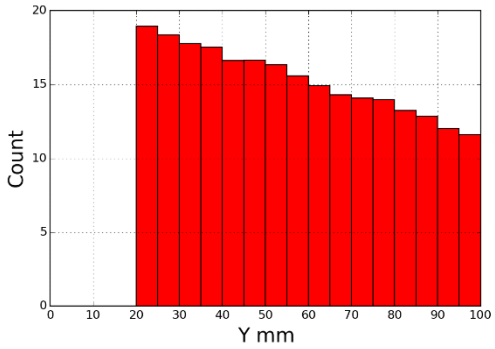


Figure C. 932: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

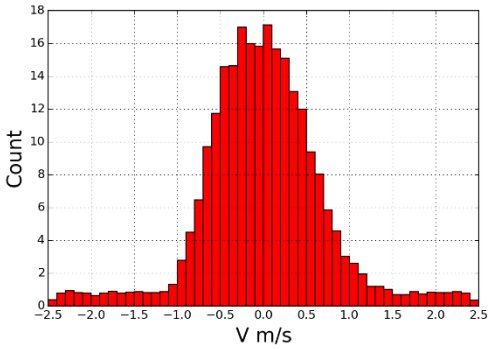


Figure C. 935: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

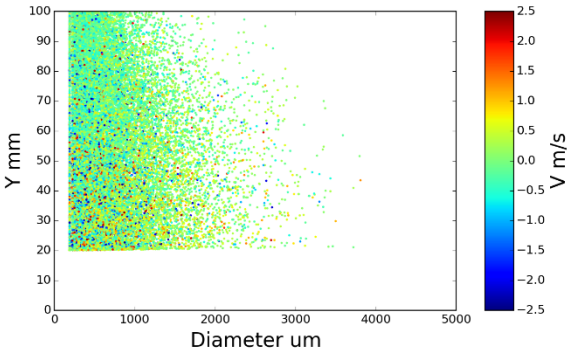


Figure C. 933: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LB Image

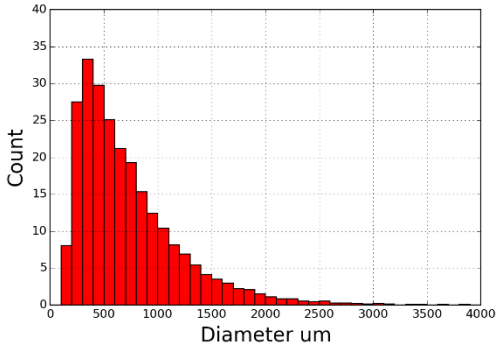


Figure C. 936: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

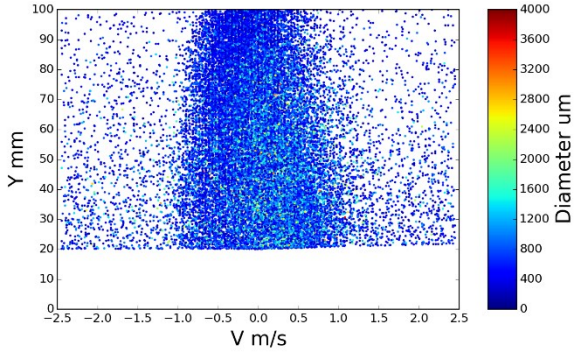


Figure C. 939: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

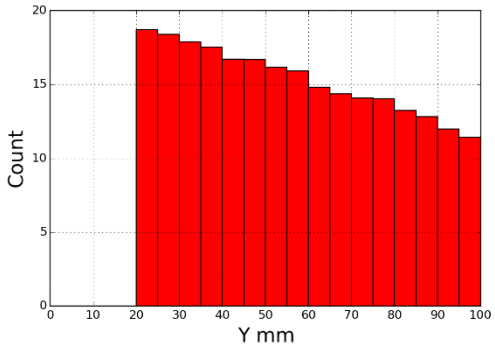


Figure C. 937: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

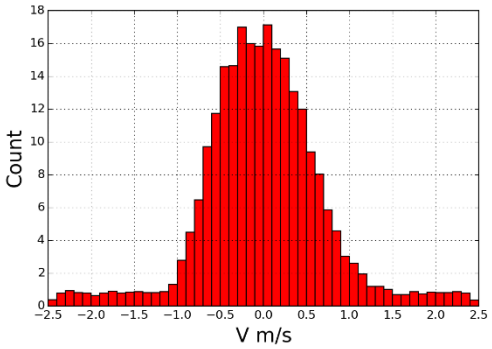


Figure C. 940: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

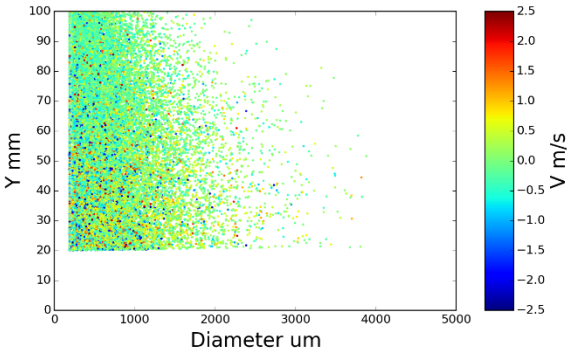


Figure C. 938: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	142.11	142.84	170.5	3944	734.8	536.8	170.5	3896	742.1	542.4
40-60mm	127.71	128.62	170.5	3984	709.1	511.3	170.5	3910	714.2	519.6
60-80mm	107.87	108.44	170.5	3914	663.9	461.2	170.5	3960	664.1	462.7
80-100mm	89.53	90.29	170.5	3635	528.4	331.6	170.5	3486	532.8	340.6
All	467.22	470.19	170.5	3984	671.8	484.6	170.5	3960	676.3	490.5
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 103: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	87.53	182.3	3716	817.5	538.2	170.5	3834	806.3	540.3	-2.450	2.450	-0.050	0.750	-2.450	2.450	0.250	0.850
40-60mm	80.68	182.3	3674	777.3	516.1	182.3	3859	767.8	516.5	-2.450	2.450	-0.040	0.700	-2.450	2.450	0.150	0.810
60-80mm	72.52	182.3	3526	721.1	466.6	182.3	3875	713.0	461.2	-2.450	2.450	-0.030	0.590	-2.450	2.450	0.040	0.700
80-100mm	62.94	182.3	3528	571.2	346.1	182.3	3486	569.1	347.8	-2.450	2.450	-0.070	0.560	-2.450	2.450	-0.040	0.640
All	303.67	182.3	3716	732.8	489.0	170.5	3875	724.6	488.1	-2.450	2.450	-0.050	0.660	-2.450	2.450	0.110	0.770

Table C. 104: Matched Droplet Info

C.3.2.2 All Droplets for .LA Image

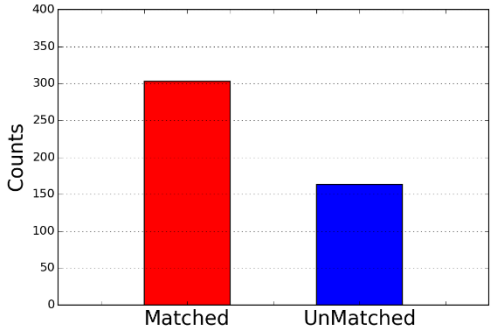


Figure C. 941: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

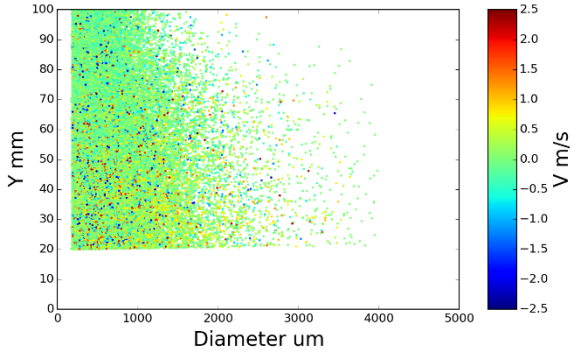


Figure C. 944: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

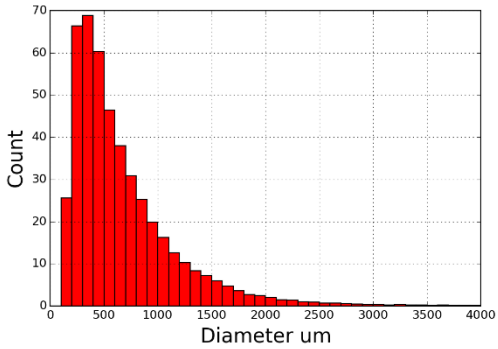


Figure C. 942: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

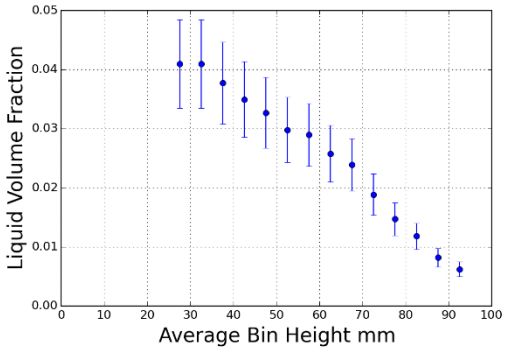


Figure C. 945: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

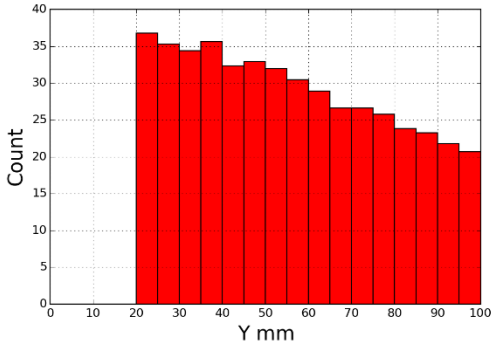


Figure C. 943: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 All Droplets for .LB Image

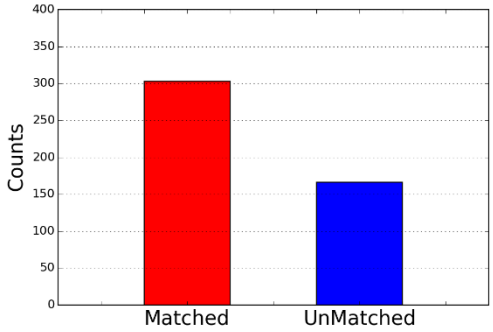


Figure C. 946: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

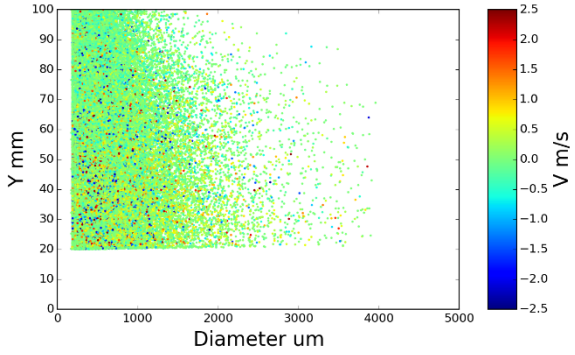


Figure C. 949: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

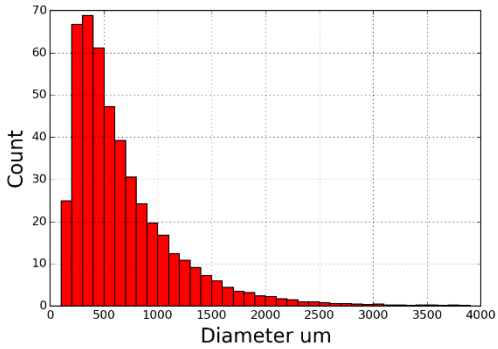


Figure C. 947: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

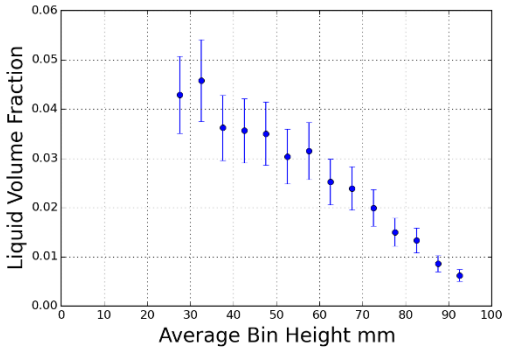


Figure C. 950: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

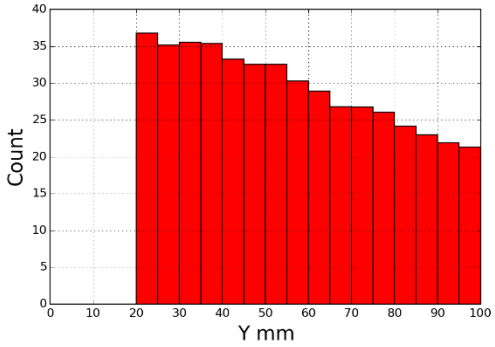


Figure C. 948: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LA Image

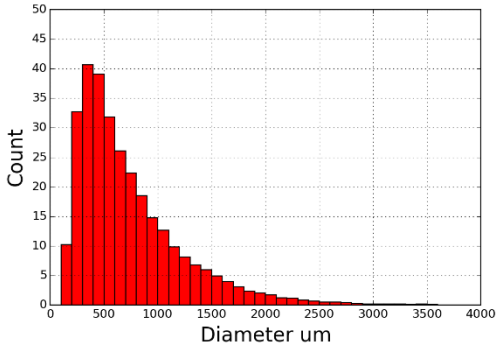


Figure C. 951: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

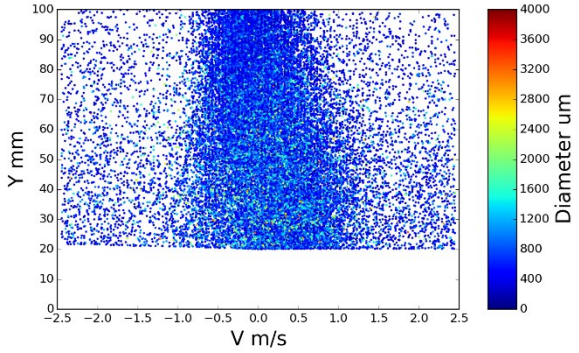


Figure C. 954: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

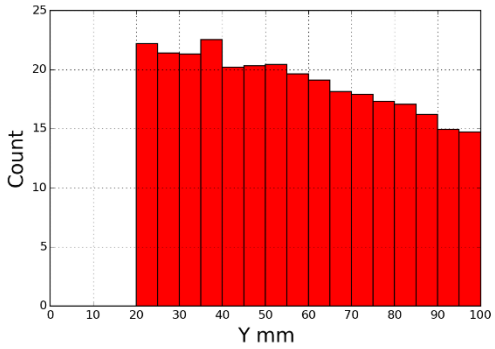


Figure C. 952: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

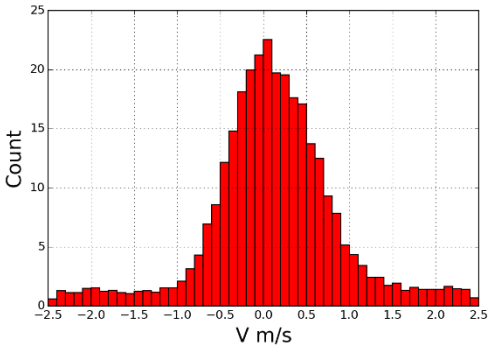


Figure C. 955: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

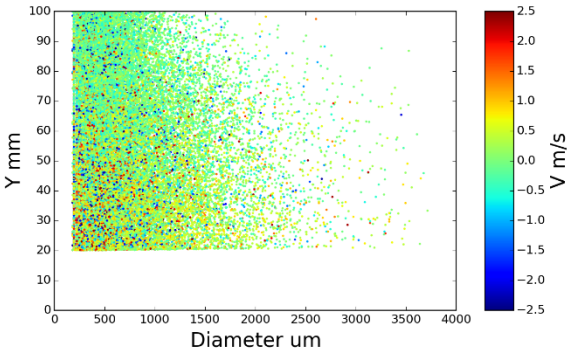


Figure C. 953: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.2.2 Matched Only Droplets for .LB Image

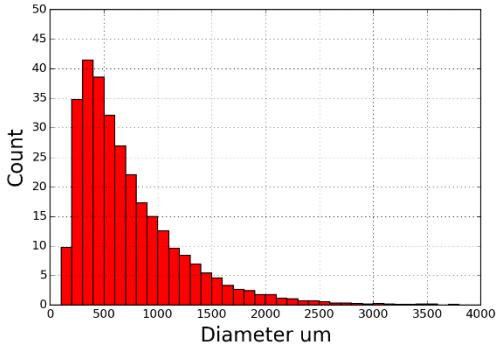


Figure C. 956: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

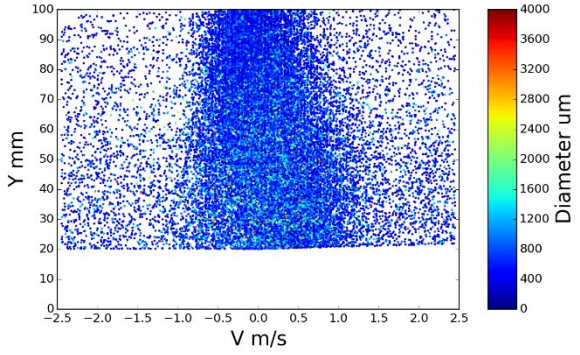


Figure C. 959: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

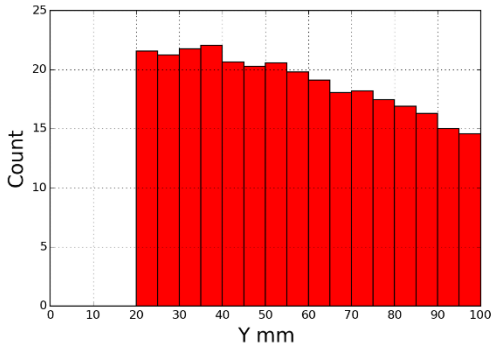


Figure C. 957: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

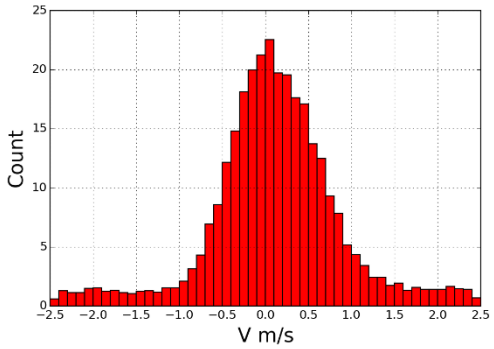


Figure C. 960: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

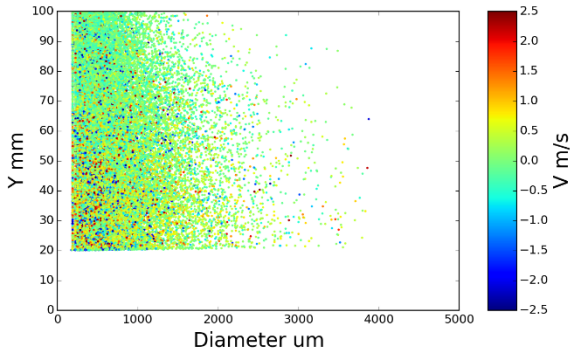


Figure C. 958: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11935 / 1.504
Ref Mass Flow (lb/hr) / (kg/s)	3049 / 0.384
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29678 / 40.251
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	2604 / 8.22
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.47
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.2 / 4.56
Total Bundle Q (Btu/hr) / (kW)	176338 / 51.68
Total Bundle & Preboiler Q (Btu/hr) / (kW)	273285 / 80.09
Top Two Rows HTC Ratio	0.531
Bundle Inlet Quality	0.31
Bundle Exit Quality	1.00

Table C. 105: Thermal Conditions

C.3.3.1 Lens 100mm Mag 0_29x

C.3.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	5.61	5.72	81.3	2228	454.2	420.4	76.0	2299	454.3	427.8
40-60mm	12.19	12.19	81.3	1905	370.6	305.5	81.3	1932	369.2	305.8
60-80mm	11.54	11.47	81.3	1630	291.8	249.2	81.3	1576	293.9	251.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	29.34	29.38	81.3	2228	355.6	317.1	76.0	2299	356.3	320.3
			Height A (mm)				Height B (mm)			
Highest Particle			79.9571				79.9594			
Lowest Particle			32.0117				32.0032			

Table C. 106: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.04	86.2	2228	486.2	405.7	76.0	2299	494.7	424.1	-1.990	1.100	-0.050	0.250	-1.720	2.360	-0.050	0.540
40-60mm	9.57	81.3	1905	401.4	293.5	81.3	1932	400.6	297.4	-2.360	2.290	-0.040	0.250	-1.940	2.390	-0.140	0.470
60-80mm	9.41	86.2	1630	312.7	251.0	81.3	1576	313.4	255.8	-1.910	2.360	-0.050	0.230	-2.400	2.420	-0.120	0.410
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	23.02	81.3	2228	380.0	307.4	76.0	2299	381.4	315.3	-2.360	2.360	-0.050	0.240	-2.400	2.420	-0.120	0.460

Table C. 107: Matched Droplet Info

C.3.3.1 All Droplets for .LA Image

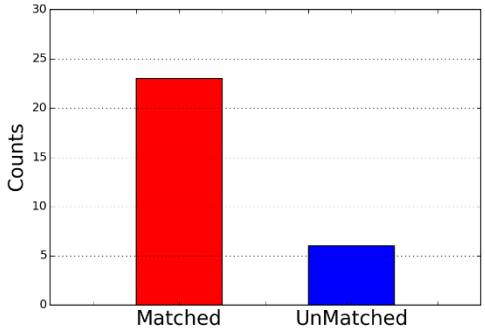


Figure C. 961: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

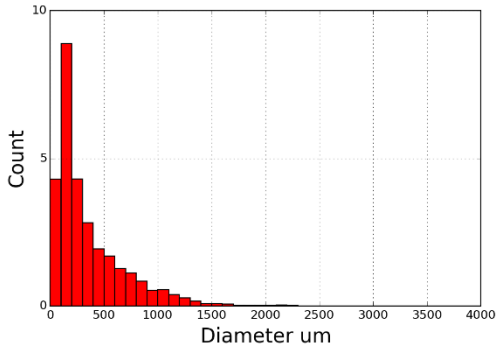


Figure C. 962: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

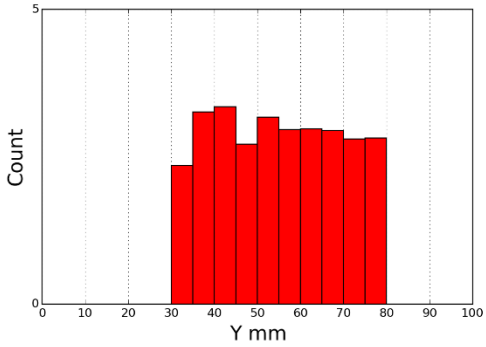


Figure C. 963: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

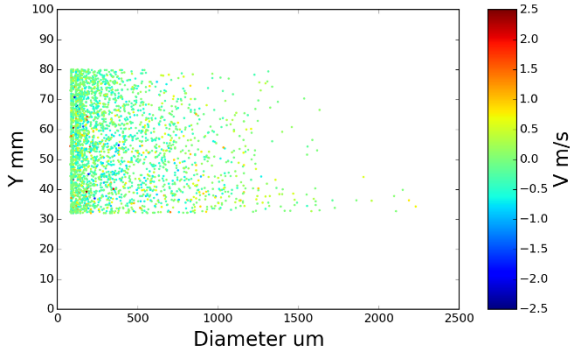


Figure C. 964: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

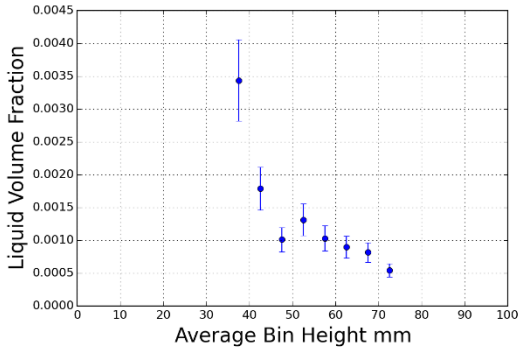


Figure C. 965: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 All Droplets for .LB Image

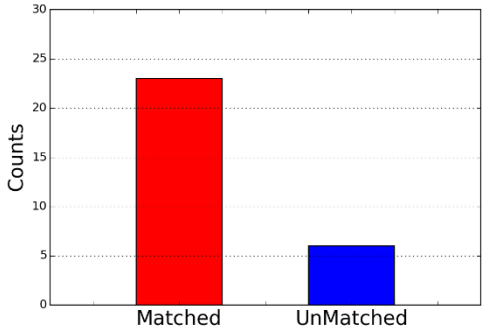


Figure C. 966: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

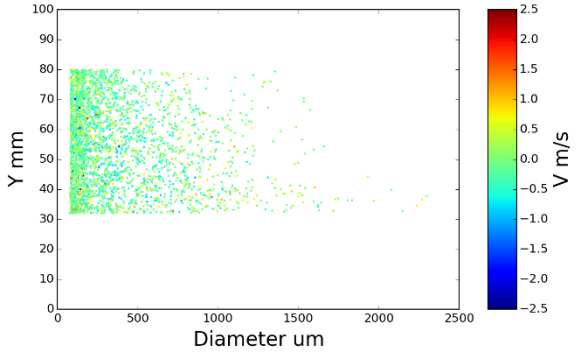


Figure C. 969: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

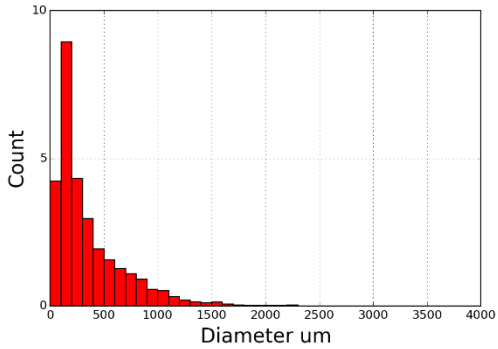


Figure C. 967: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

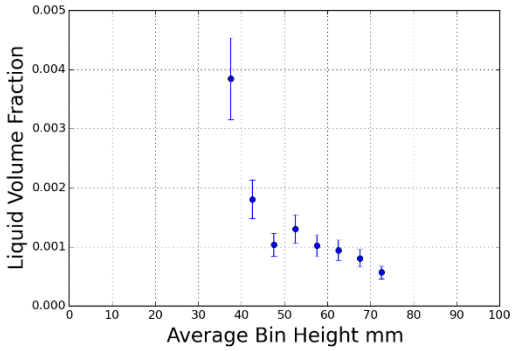


Figure C. 970: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

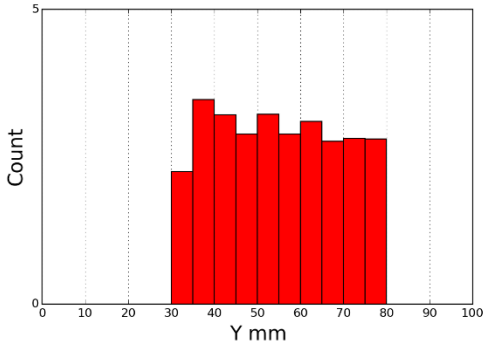


Figure C. 968: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LA Image

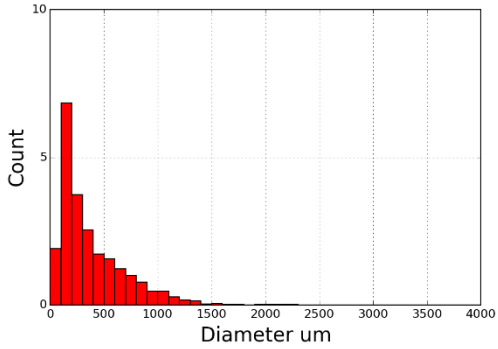


Figure C. 971: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

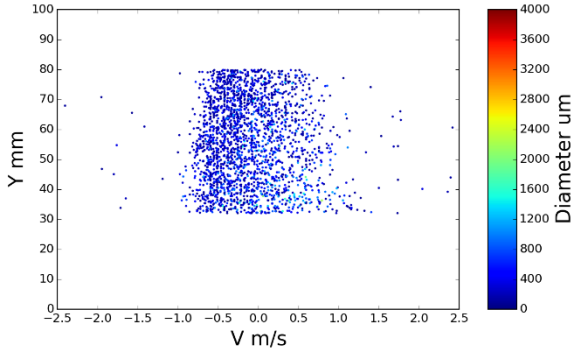


Figure C. 974: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

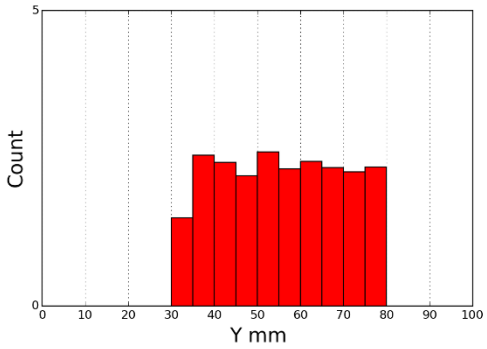


Figure C. 972: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

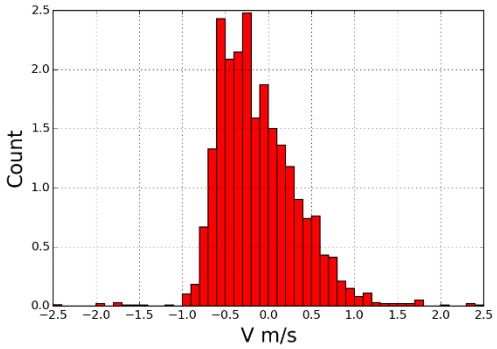


Figure C. 975: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

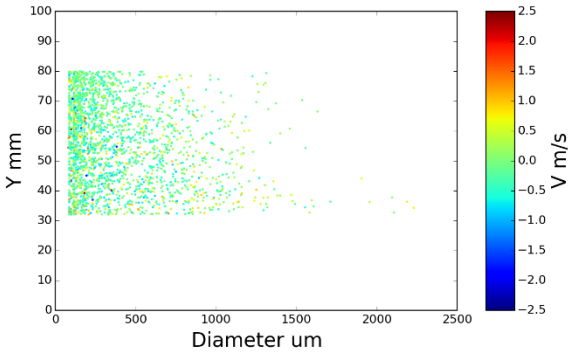


Figure C. 973: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LB Image

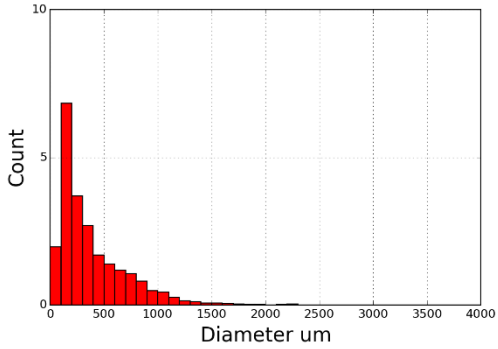


Figure C. 976: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

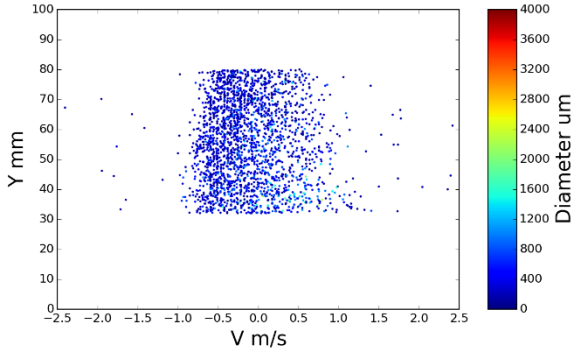


Figure C. 979: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

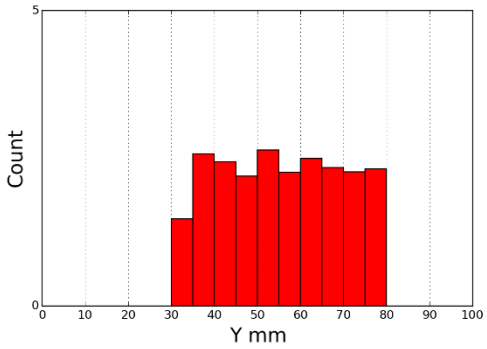


Figure C. 977: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

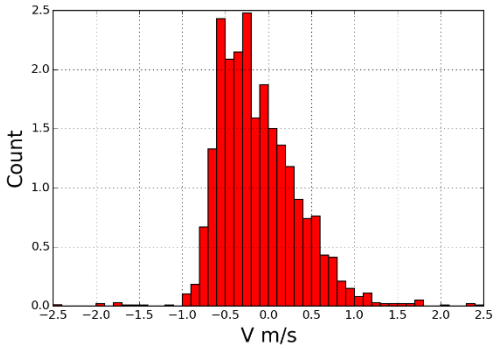


Figure C. 980: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

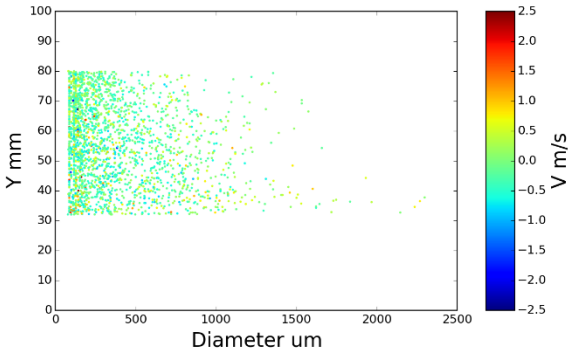


Figure C. 978: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	5.36	5.37	81.3	1730	405.0	329.2	86.2	1923	404.5	329.2
40-60mm	10.46	10.32	76.0	2016	356.4	293.5	81.3	2051	361.9	291.7
60-80mm	7.43	7.46	81.3	1343	293.8	208.5	81.3	1299	292.2	212.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	23.25	23.15	76.0	2016	347.6	281.7	81.3	2051	349.3	281.8
			Height A (mm)				Height B (mm)			
Highest Particle			79.9466				79.9571			
Lowest Particle			32.0264				32.0136			

Table C. 108: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.11	81.3	1730	436.6	321.1	86.2	1923	435.8	325.0	-2.130	2.210	-0.000	0.300	-1.810	2.050	0.120	0.570
40-60mm	7.91	81.3	2016	381.6	281.6	86.2	2051	384.8	286.3	-2.110	1.700	-0.010	0.270	-2.240	2.250	0.050	0.500
60-80mm	6.11	81.3	1258	310.0	200.8	81.3	1211	309.3	204.8	-2.080	0.500	-0.010	0.200	-0.890	2.120	0.010	0.430
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	18.13	81.3	2016	369.9	271.7	81.3	2051	370.9	276.0	-2.130	2.210	-0.010	0.260	-2.240	2.250	0.050	0.500

Table C. 109: Matched Droplet Info

C.3.3.1 All Droplets for .LA Image

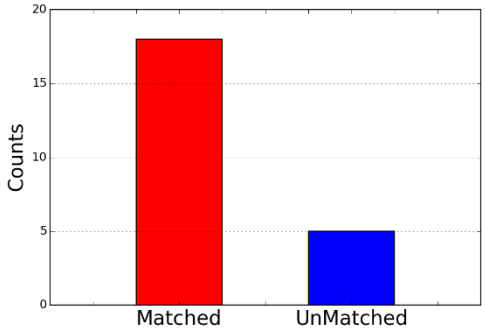


Figure C. 981: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

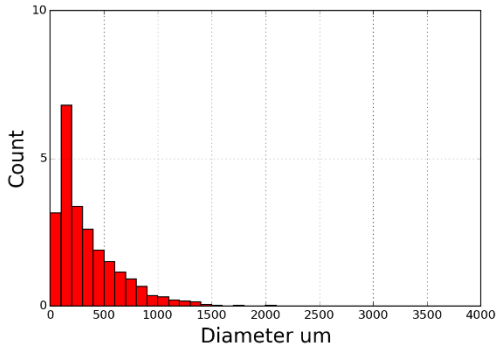


Figure C. 982: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

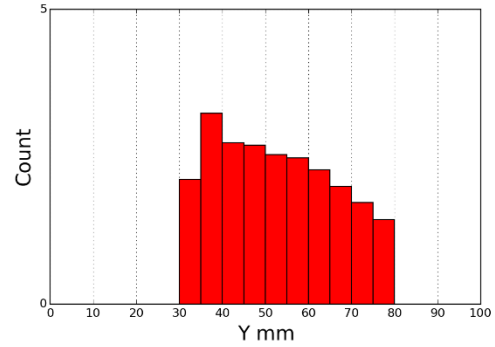


Figure C. 983: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

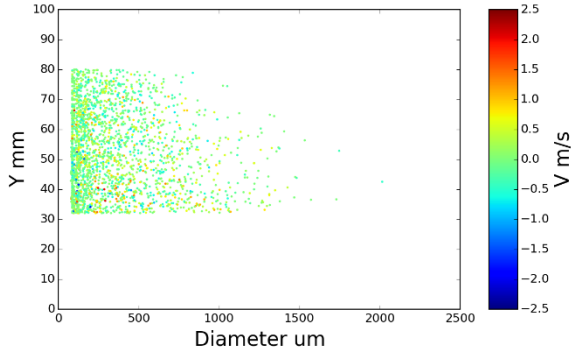


Figure C. 984: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

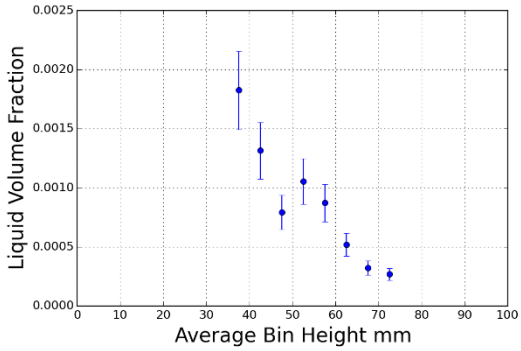


Figure C. 985: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 All Droplets for .LB Image

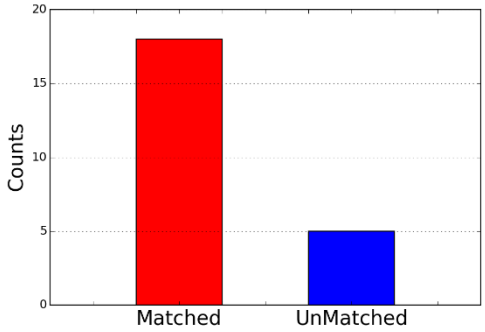


Figure C. 986: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

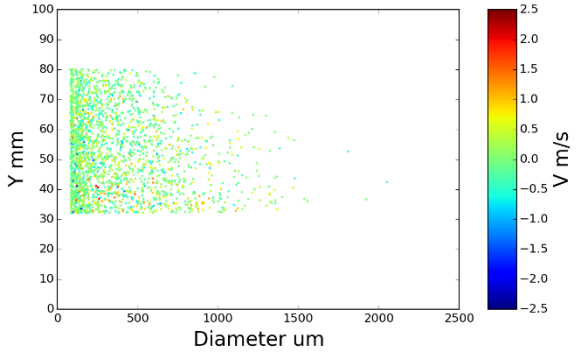


Figure C. 989: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

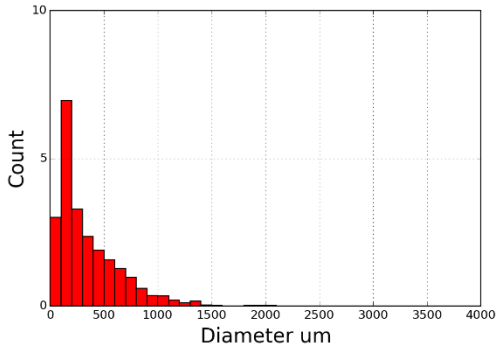


Figure C. 987: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

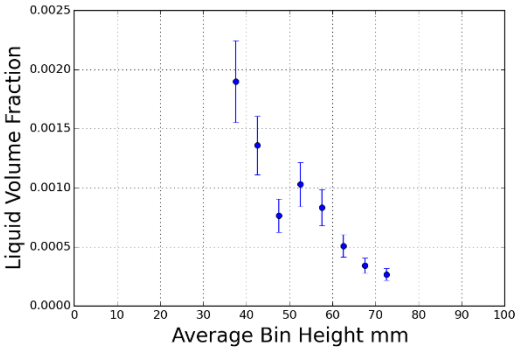


Figure C. 990: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

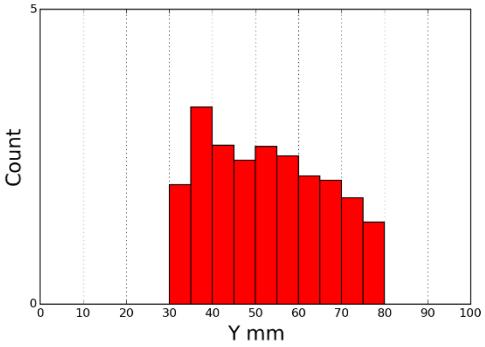


Figure C. 988: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LA Image

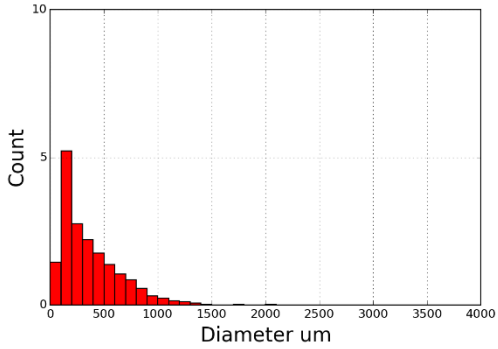


Figure C. 991: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

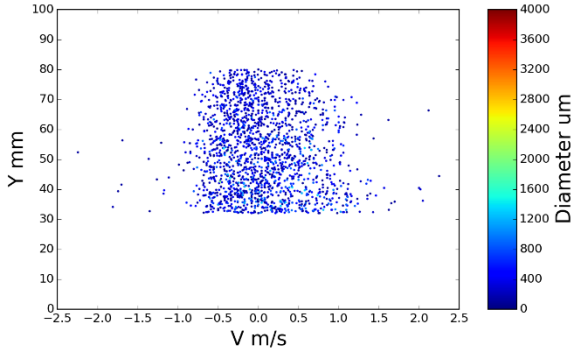


Figure C. 994: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

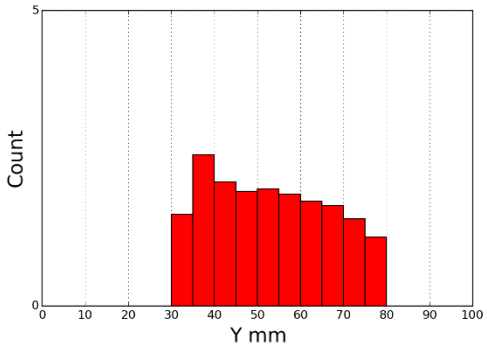


Figure C. 992: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

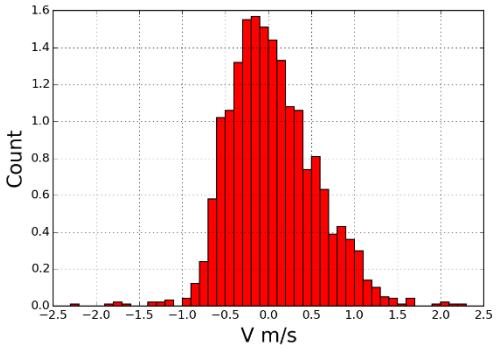


Figure C. 995: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

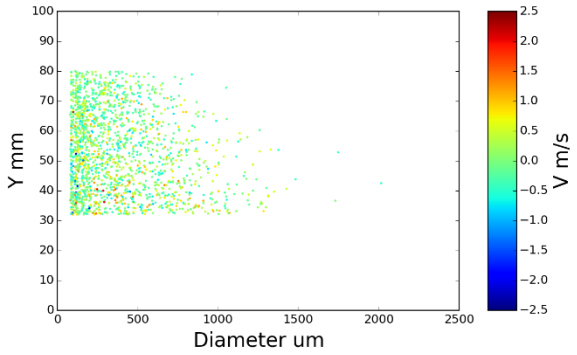


Figure C. 993: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LB Image

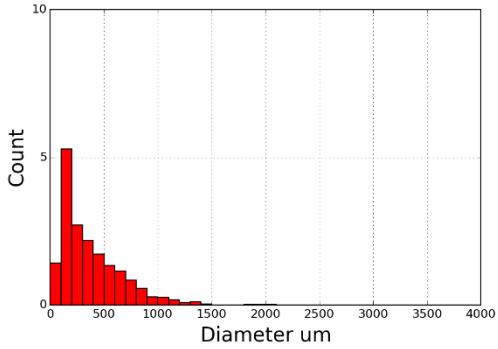


Figure C. 996: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

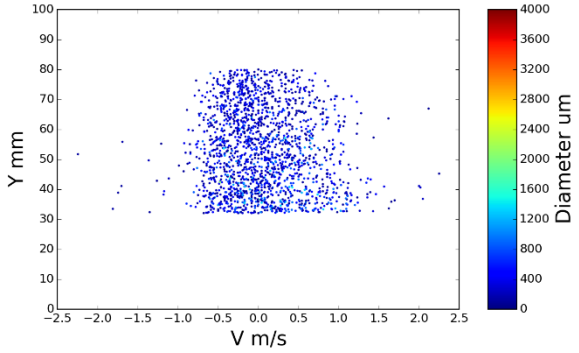


Figure C. 999: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

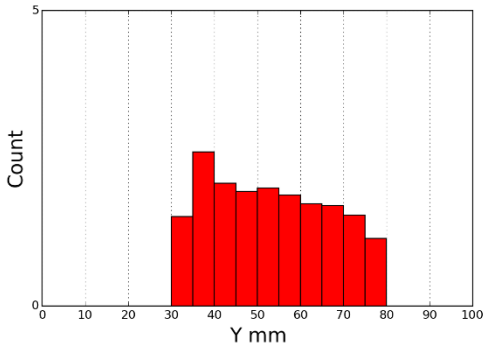


Figure C. 997: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

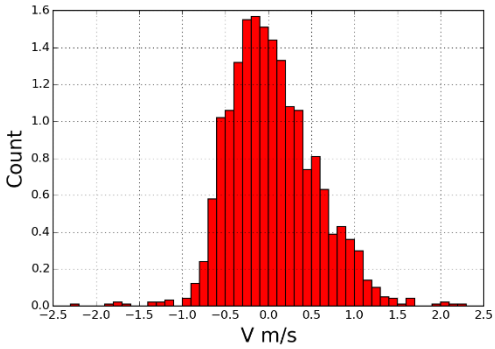


Figure C. 1000: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

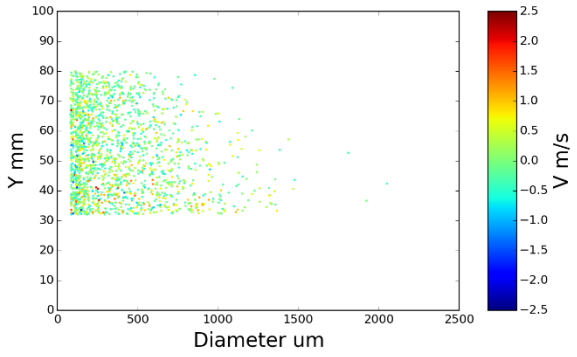


Figure C. 998: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	9.89	9.85	81.3	2759	412.5	355.2	81.3	2600	416.0	360.4
40-60mm	19.9	20.02	76.0	2243	389.9	317.7	81.3	2415	389.9	317.3
60-80mm	14.98	14.77	81.3	1895	326.7	246.4	76.0	1572	322.9	242.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	44.77	44.64	76.0	2759	373.7	307.0	76.0	2600	373.5	307.7
			Height A (mm)				Height B (mm)			
Highest Particle			79.9622				79.9571			
Lowest Particle			32.0159				32.0153			

Table C. 110: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	7.93	81.3	2208	434.9	337.1	81.3	2296	441.3	344.9	-2.150	2.040	0.020	0.260	-1.170	2.460	0.460	0.510
40-60mm	16.29	81.3	2243	415.7	310.0	81.3	2415	416.7	314.9	-2.520	2.220	0.010	0.230	-1.950	2.040	0.280	0.500
60-80mm	12.19	81.3	1471	353.9	240.8	81.3	1426	350.4	240.8	-1.860	2.420	-0.010	0.220	-1.480	1.300	0.120	0.390
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	36.41	81.3	2243	399.2	297.1	81.3	2415	399.8	301.6	-2.520	2.420	0.010	0.230	-1.950	2.460	0.260	0.480

Table C. 111: Matched Droplet Info

C.3.3.1 All Droplets for .LA Image

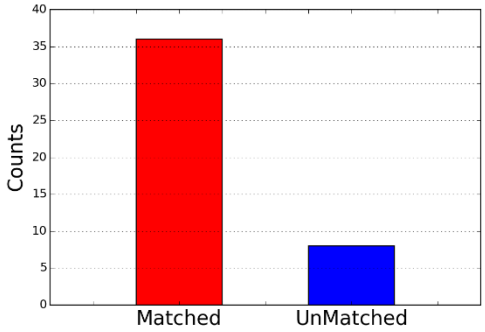


Figure C. 1001: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

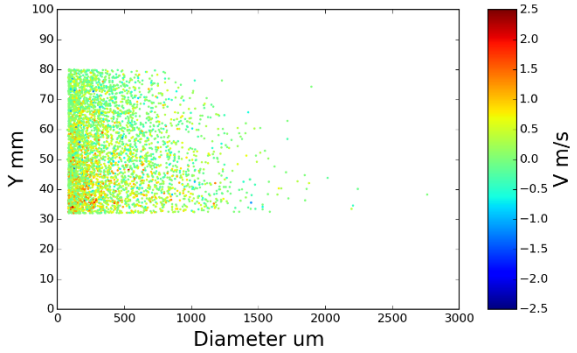


Figure C. 1004: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

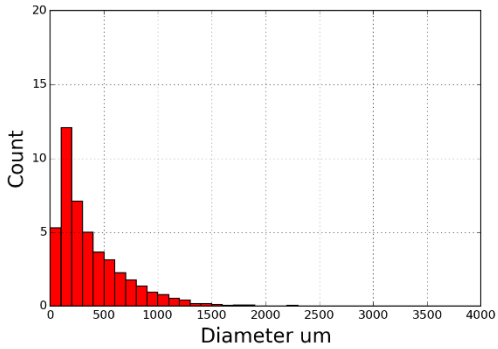


Figure C. 1002: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

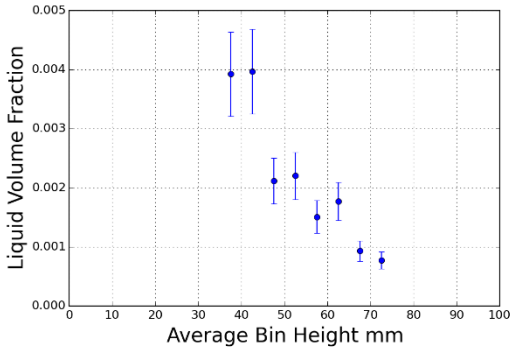


Figure C. 1005: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

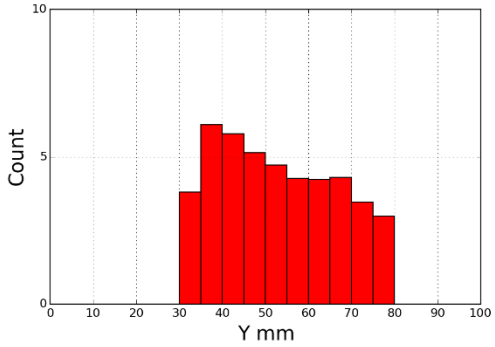


Figure C. 1003: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 All Droplets for .LB Image

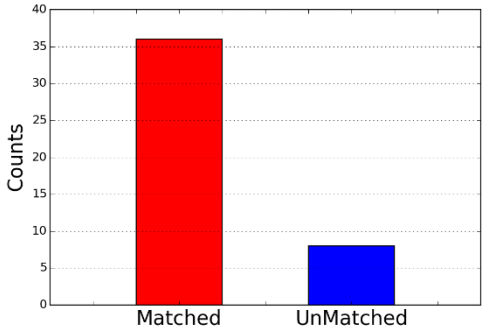


Figure C. 1006: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

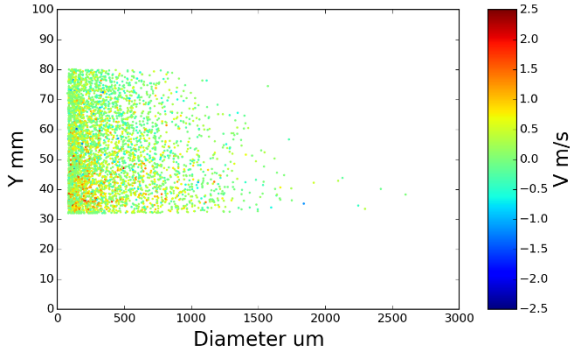


Figure C. 1009: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

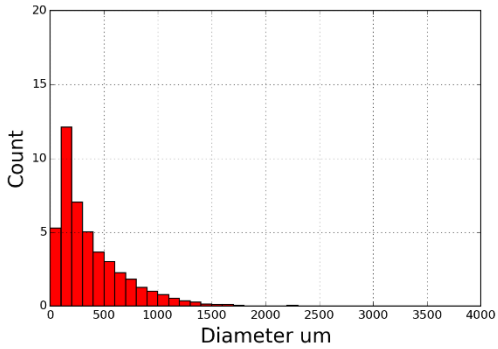


Figure C. 1007: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

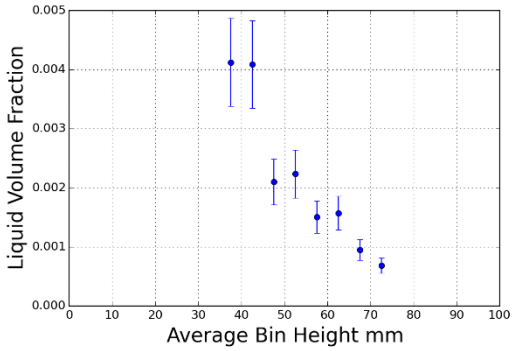


Figure C. 1010: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

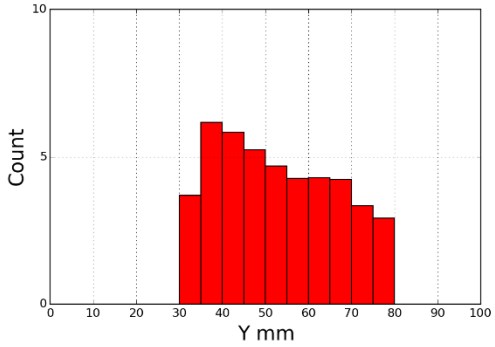


Figure C. 1008: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LA Image

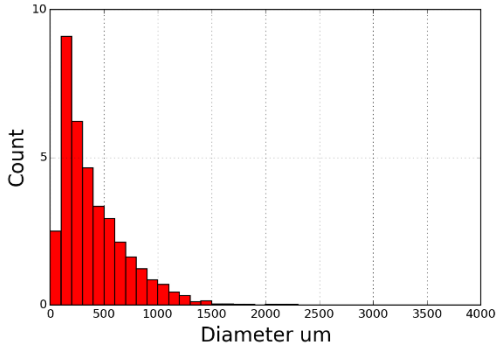


Figure C. 1011: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

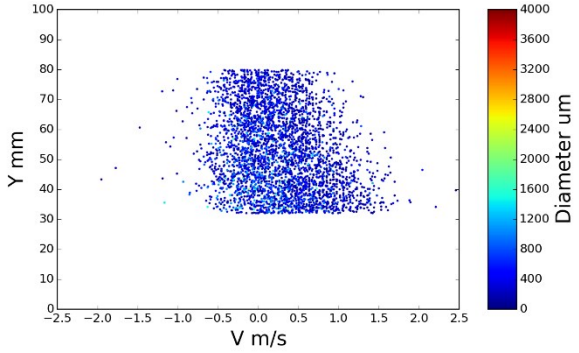


Figure C. 1014: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

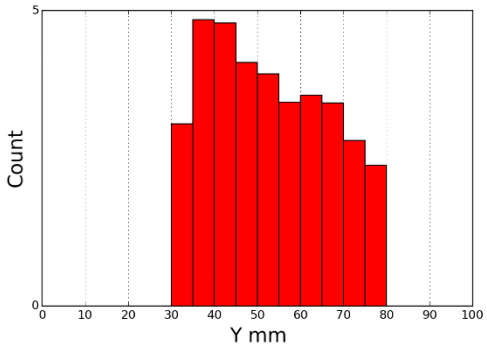


Figure C. 1012: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

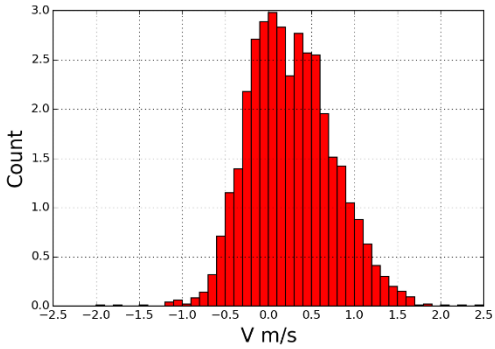


Figure C. 1015: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

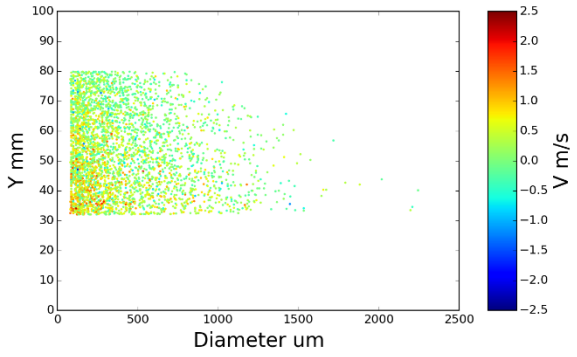


Figure C. 1013: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.1 Matched Only Droplets for .LB Image

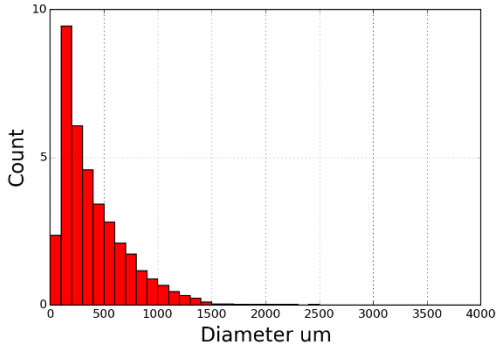


Figure C. 1016: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

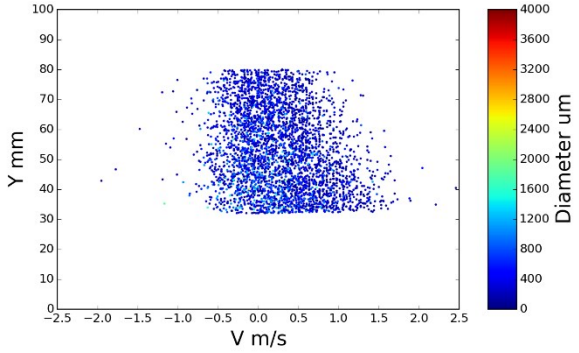


Figure C. 1019: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

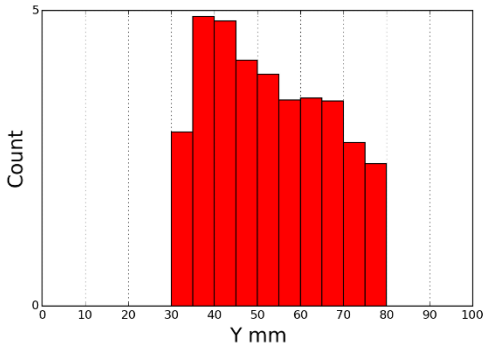


Figure C. 1017: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

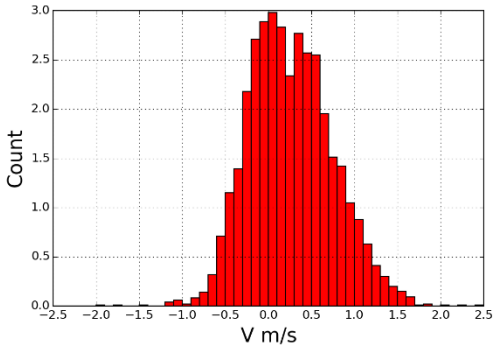


Figure C. 1020: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

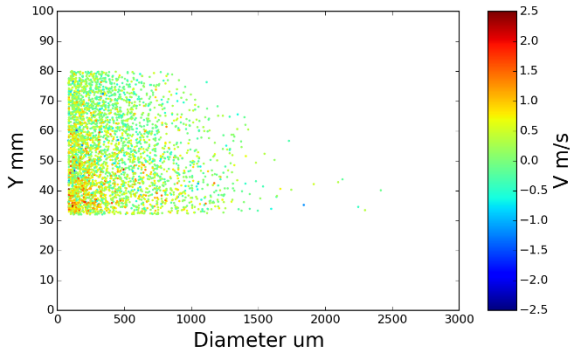


Figure C. 1018: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Lens 50mm Mag 0_13x

C.3.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	3.48	3.45	193.3	2132	621.8	342.3	193.3	1833	616.6	331.3
20-40mm	13.26	13.39	182.3	2380	604.5	346.8	182.3	2287	611.1	342.6
40-60mm	10.87	10.98	182.3	1825	554.9	290.0	170.5	1833	554.8	292.7
60-80mm	8.71	8.62	182.3	1517	454.8	244.8	182.3	1522	456.2	241.4
80-100mm	4.92	5.01	182.3	1209	377.8	173.0	182.3	1164	377.6	174.4
All	41.25	41.46	182.3	2380	534.1	305.9	170.5	2287	536.1	303.9
			Height A (mm)				Height B (mm)			
Highest Particle			100.0282				100.0282			
Lowest Particle			14.5313				14.6202			

Table C. 112: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	2.55	193.3	2132	647.4	328.7	193.3	1633	625.3	322.5	-2.330	2.410	-0.010	0.290	-2.160	2.310	0.170	0.620
20-40mm	10.24	182.3	2008	607.5	307.5	193.3	2153	613.8	319.3	-2.440	1.930	-0.010	0.320	-2.350	2.290	0.070	0.580
40-60mm	8.76	182.3	1592	573.6	270.1	182.3	1650	571.7	276.7	-2.420	2.290	0.000	0.260	-2.410	1.840	-0.000	0.480
60-80mm	7.28	193.3	1517	476.6	238.8	193.3	1522	475.0	238.2	-1.770	1.960	-0.030	0.190	-2.170	2.280	-0.030	0.400
80-100mm	4.31	193.3	1209	392.1	175.8	193.3	1164	396.1	179.1	-2.200	1.970	-0.070	0.230	-2.080	1.620	-0.080	0.340
All	33.14	182.3	2132	544.9	282.2	182.3	2153	544.9	287.2	-2.440	2.410	-0.020	0.270	-2.410	2.310	0.020	0.500

Table C. 113: Matched Droplet Info

C.3.3.2 All Droplets for .LA Image

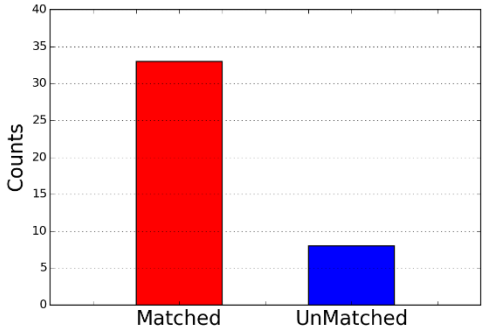


Figure C. 1021: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

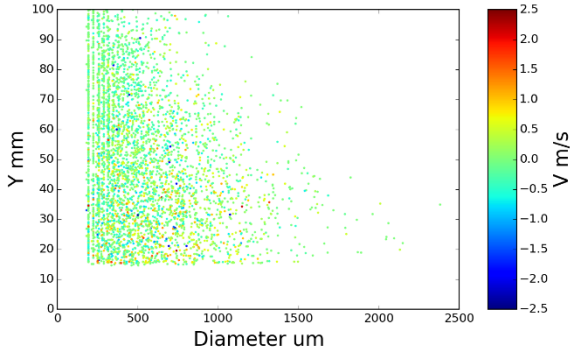


Figure C. 1024: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

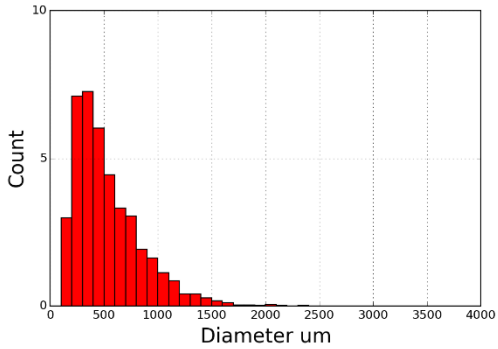


Figure C. 1022: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

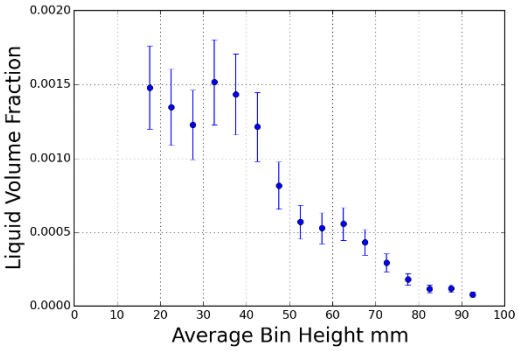


Figure C. 1025: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

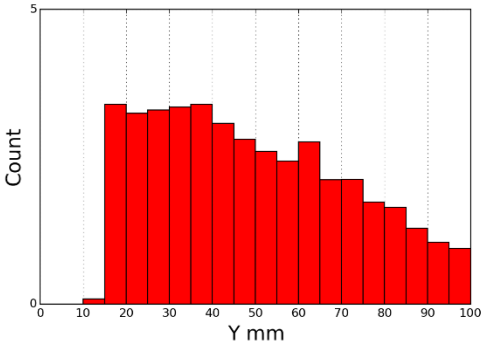


Figure C. 1023: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 All Droplets for .LB Image

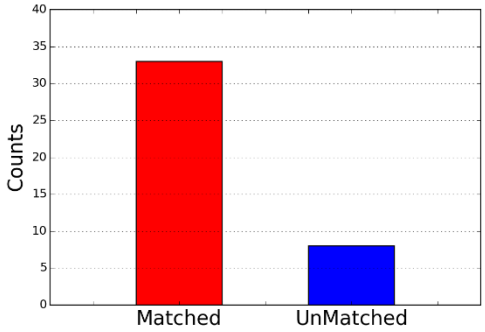


Figure C. 1026: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

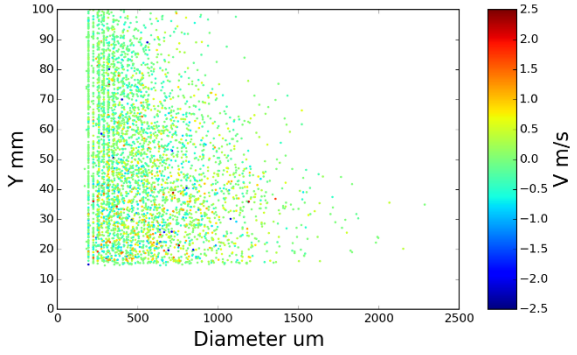


Figure C. 1029: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

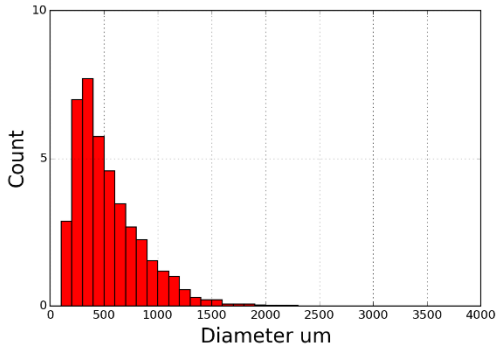


Figure C. 1027: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

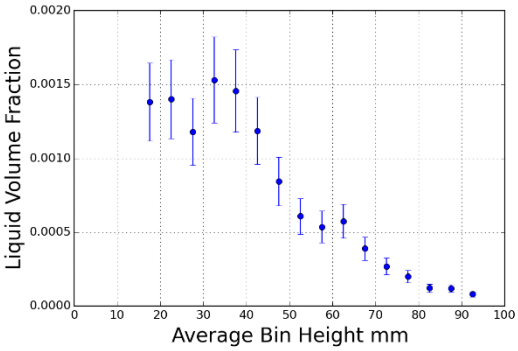


Figure C. 1030: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

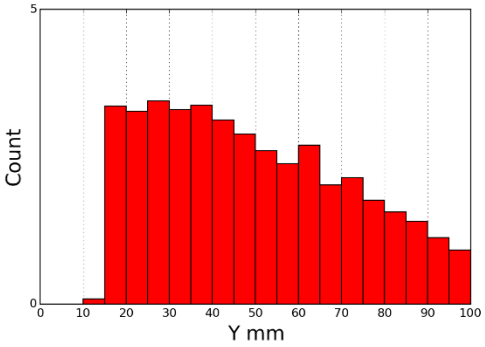


Figure C. 1028: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LA Image

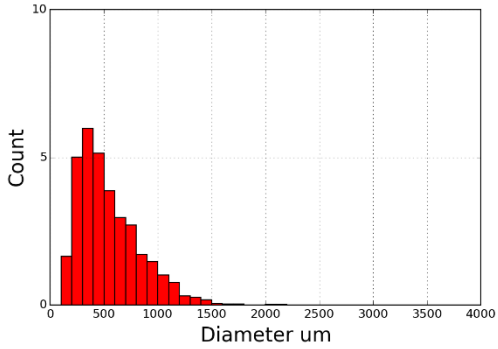


Figure C. 1031: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

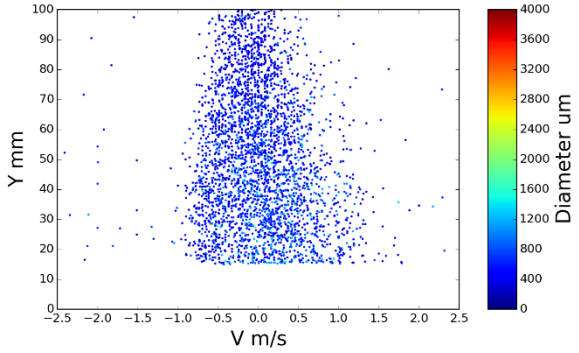


Figure C. 1034: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

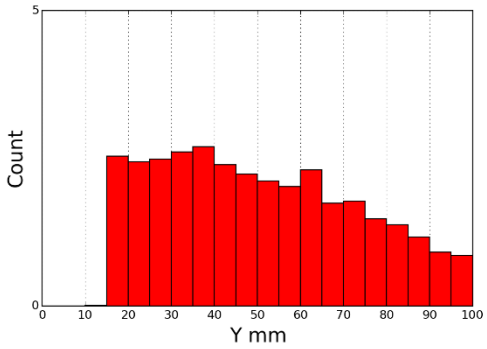


Figure C. 1032: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

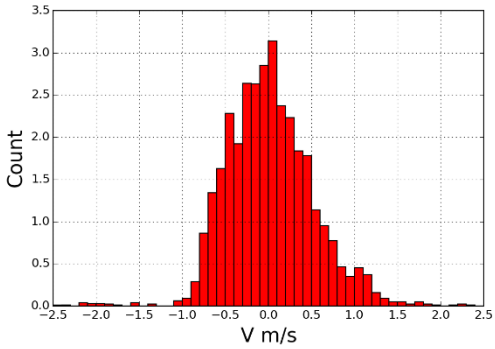


Figure C. 1035: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

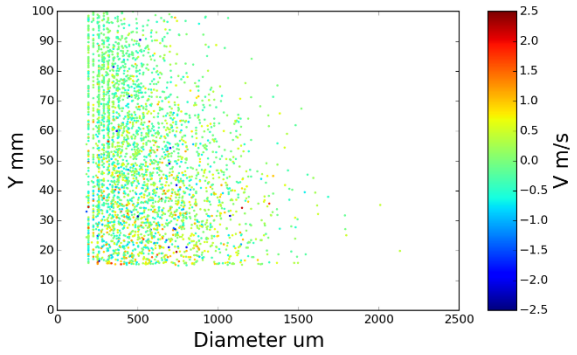


Figure C. 1033: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LB Image

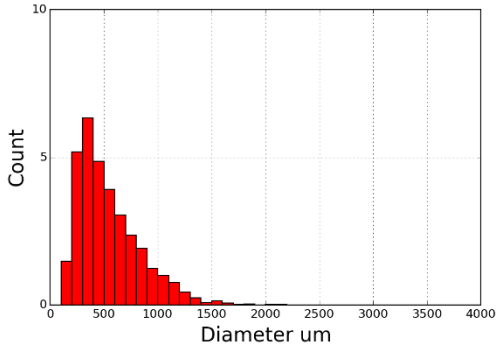


Figure C. 1036: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

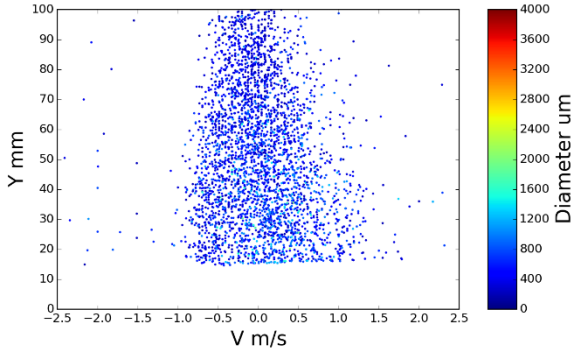


Figure C. 1039: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

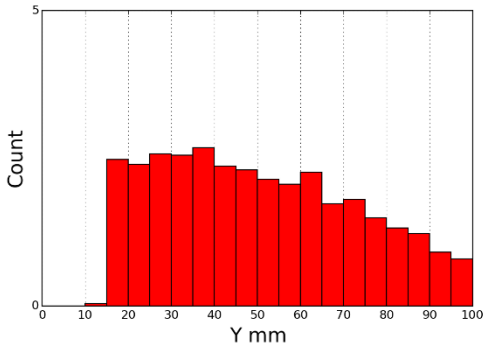


Figure C. 1037: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

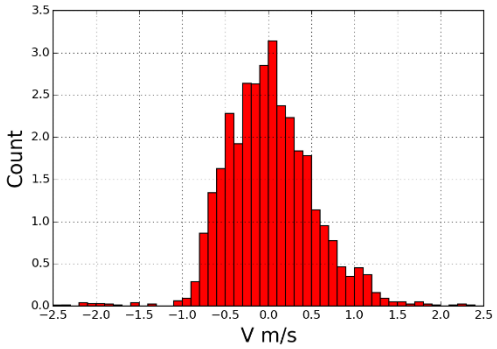


Figure C. 1040: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

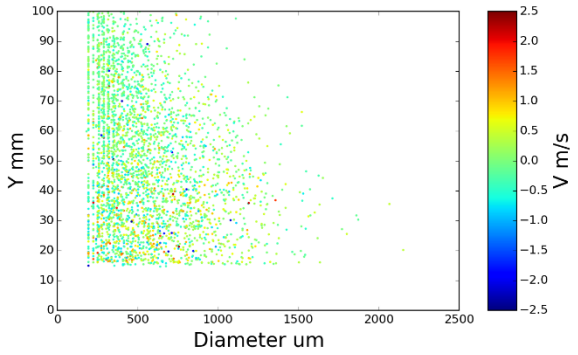


Figure C. 1038: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	5.46	5.46	193.3	2264	570.2	314.1	182.3	2263	581.3	322.8
20-40mm	15.7	15.67	170.5	2118	587.7	326.9	182.3	2904	594.4	328.0
40-60mm	12.33	12.46	182.3	1837	535.1	277.0	193.3	2252	540.8	281.5
60-80mm	9.0	9.11	170.5	1514	437.9	211.9	182.3	1451	436.4	216.3
80-100mm	4.55	4.63	182.3	1125	357.6	166.5	193.3	1160	364.4	165.4
All	47.04	47.33	170.5	2264	521.0	290.2	182.3	2904	525.8	293.7
			Height A (mm)				Height B (mm)			
Highest Particle			99.9673				99.9711			
Lowest Particle			13.7582				13.8682			

Table C. 114: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	3.97	193.3	2003	594.4	292.8	182.3	2263	598.0	305.9	-2.440	2.300	0.030	0.310	-1.850	2.390	0.280	0.600
20-40mm	12.31	182.3	1889	601.5	304.5	193.3	1855	605.0	311.0	-2.440	2.180	0.010	0.310	-2.340	2.380	0.190	0.590
40-60mm	10.08	193.3	1837	560.3	268.6	193.3	2252	561.9	276.4	-2.220	2.200	-0.010	0.240	-0.910	2.210	0.090	0.470
60-80mm	7.59	193.3	1514	456.0	211.5	193.3	1451	456.5	211.7	-2.050	2.140	-0.010	0.220	-2.090	2.240	0.010	0.440
80-100mm	3.7	182.3	1125	383.1	172.6	193.3	1160	385.7	169.8	-0.480	0.900	-0.040	0.140	-2.280	1.060	-0.040	0.340
All	37.65	182.3	2003	538.9	275.9	182.3	2263	541.0	281.7	-2.440	2.300	-0.000	0.260	-2.340	2.390	0.120	0.520

Table C. 115: Matched Droplet Info

C.3.3.2 All Droplets for .LA Image

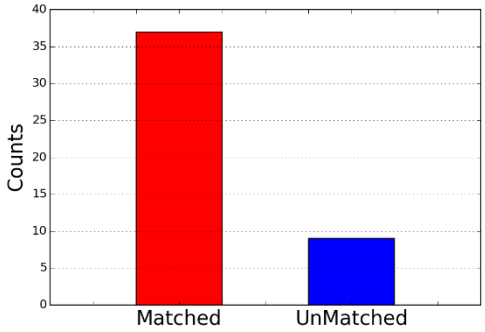


Figure C. 1041: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

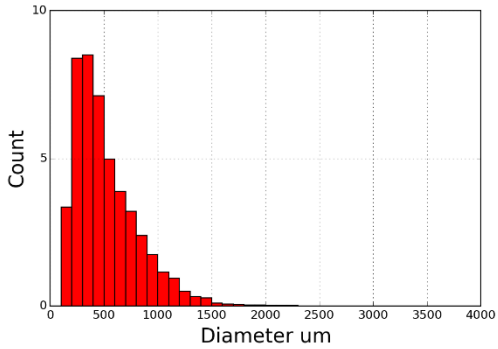


Figure C. 1042: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

Figure C. 1043: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

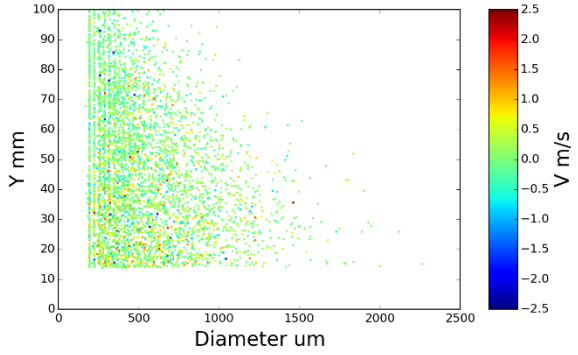


Figure C. 1044: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

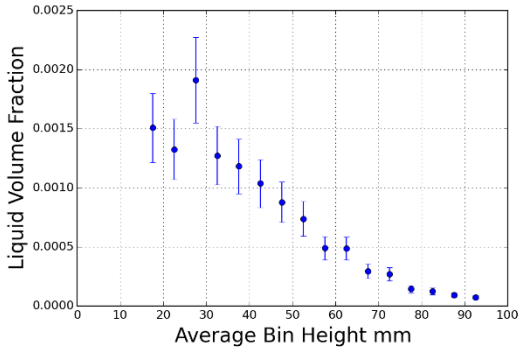


Figure C. 1045: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 All Droplets for .LB Image

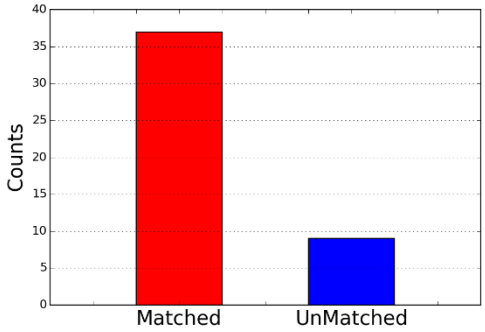


Figure C. 1046: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

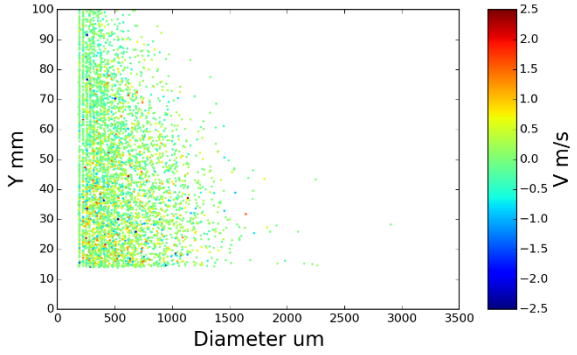


Figure C. 1049: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

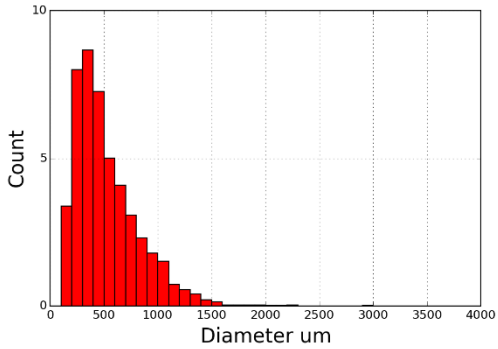


Figure C. 1047: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

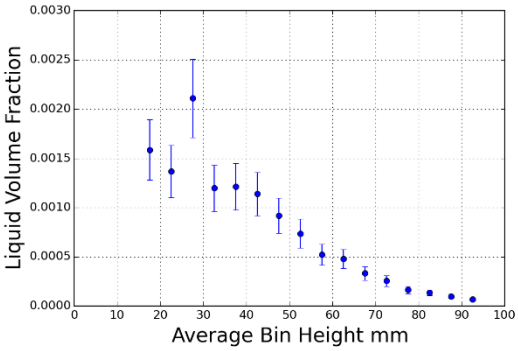


Figure C. 1050: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

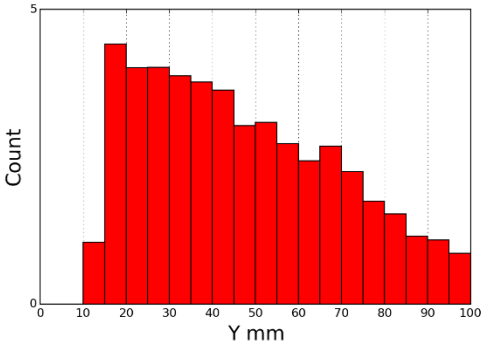


Figure C. 1048: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LA Image

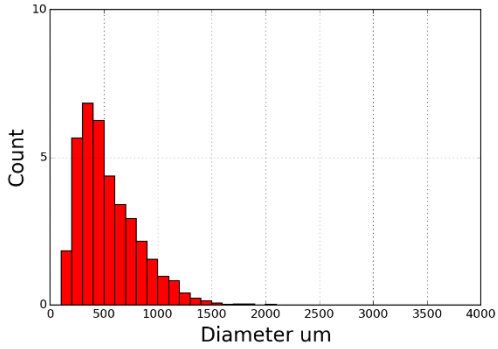


Figure C. 1051: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

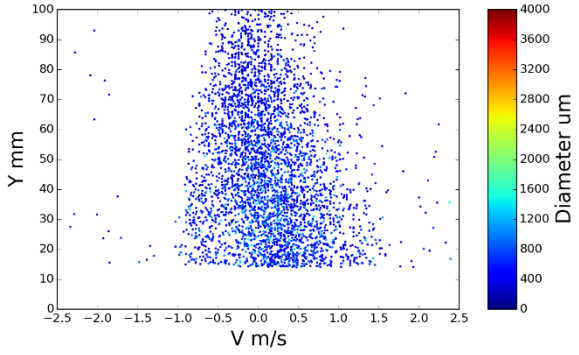


Figure C. 1054: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

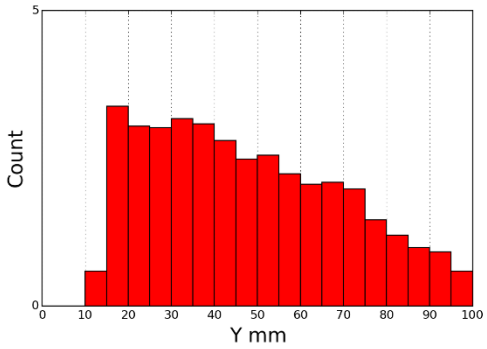


Figure C. 1052: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

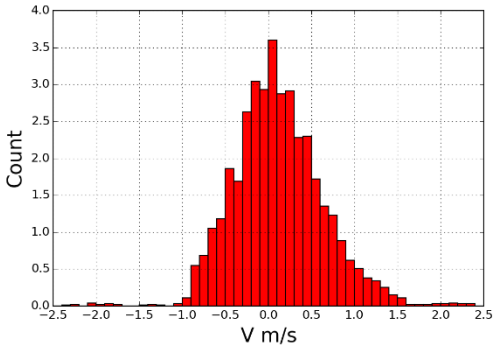


Figure C. 1055: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

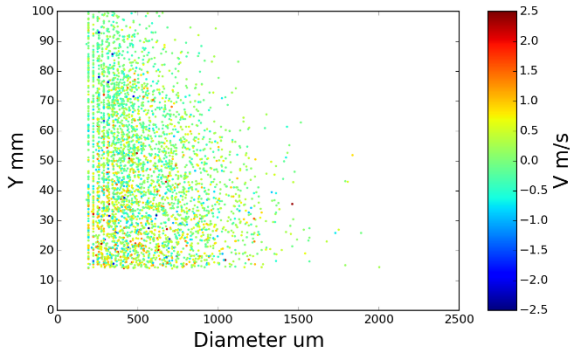


Figure C. 1053: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LB Image

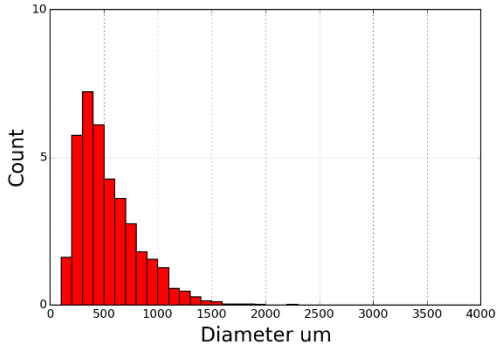


Figure C. 1056: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

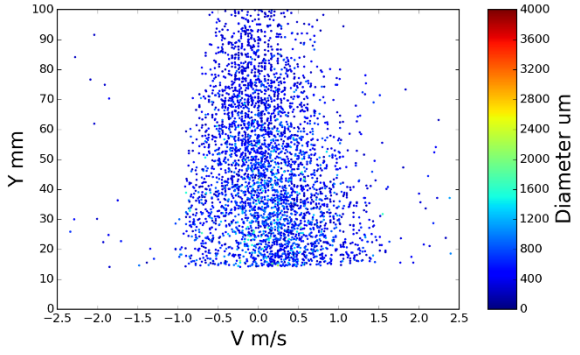


Figure C. 1059: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

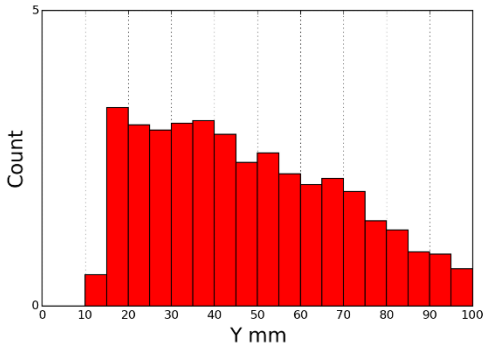


Figure C. 1057: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

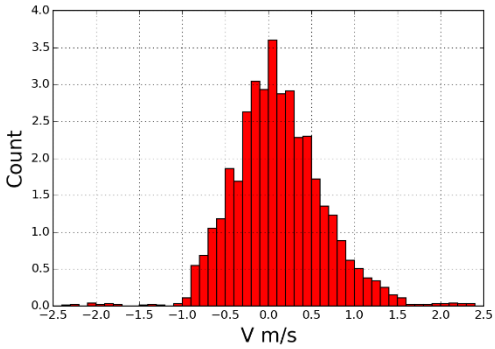


Figure C. 1060: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

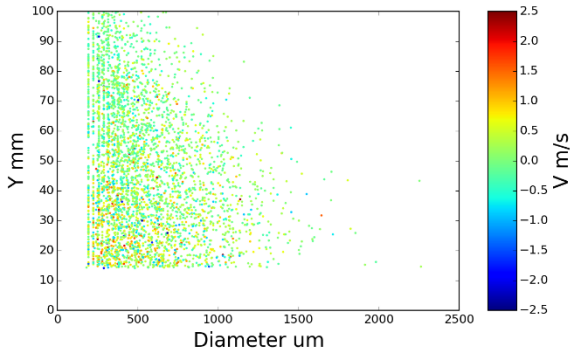


Figure C. 1058: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	8.17	8.53	182.3	2203	589.6	328.7	170.5	2253	585.6	325.4
20-40mm	21.5	21.87	182.3	3014	591.7	333.8	182.3	2896	592.7	334.3
40-60mm	17.61	17.7	170.5	2437	532.6	297.6	170.5	2102	534.1	297.6
60-80mm	11.31	11.45	182.3	1818	463.0	242.8	182.3	1732	462.3	240.0
80-100mm	5.48	5.47	182.3	1194	399.9	195.9	182.3	1149	399.2	194.7
All	64.11	65.08	170.5	3014	535.9	305.1	170.5	2896	536.3	304.7
			Height A (mm)				Height B (mm)			
Highest Particle			100.0298				100.0282			
Lowest Particle			12.9288				12.4754			

Table C. 116: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.33	193.3	2148	604.0	304.4	193.3	2253	603.1	308.5	-2.370	2.310	0.010	0.390	-2.440	2.410	0.290	0.600
20-40mm	17.47	182.3	2355	609.7	310.0	193.3	2476	614.8	322.2	-2.290	2.380	0.010	0.300	-2.330	2.400	0.250	0.570
40-60mm	14.48	182.3	1922	557.5	286.8	182.3	2102	558.0	289.7	-2.450	2.450	0.020	0.240	-2.390	2.100	0.180	0.490
60-80mm	9.61	193.3	1700	486.5	242.1	182.3	1732	486.6	240.7	-2.440	1.310	-0.010	0.220	-2.450	2.380	0.100	0.460
80-100mm	4.69	193.3	1194	421.0	198.2	182.3	1149	419.8	198.3	-2.450	1.730	-0.030	0.240	-2.390	1.130	-0.000	0.380
All	52.6	182.3	2355	555.1	289.3	182.3	2476	556.6	295.1	-2.450	2.450	0.000	0.280	-2.450	2.410	0.190	0.520

Table C. 117: Matched Droplet Info

C.3.3.2 All Droplets for .LA Image

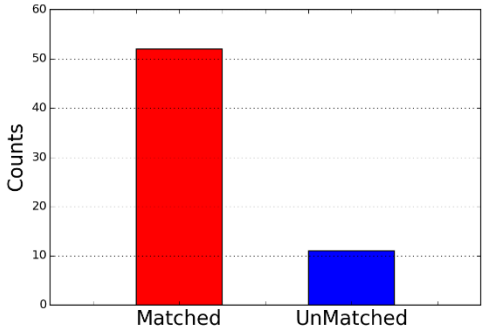


Figure C. 1061: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

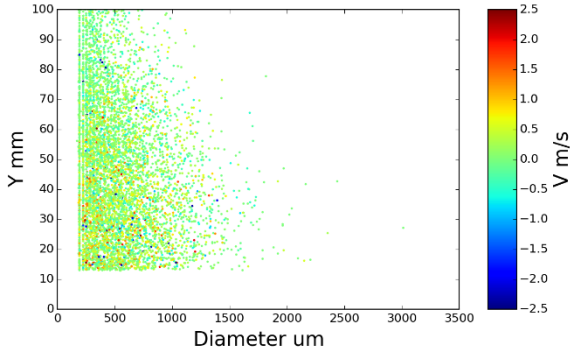


Figure C. 1064: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

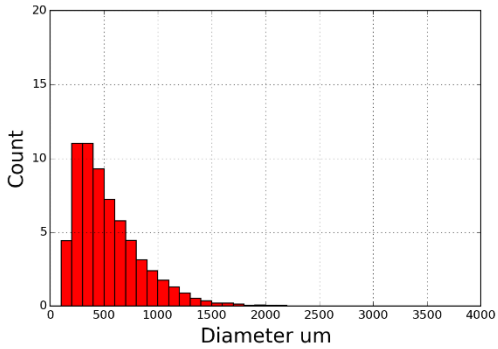


Figure C. 1062: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

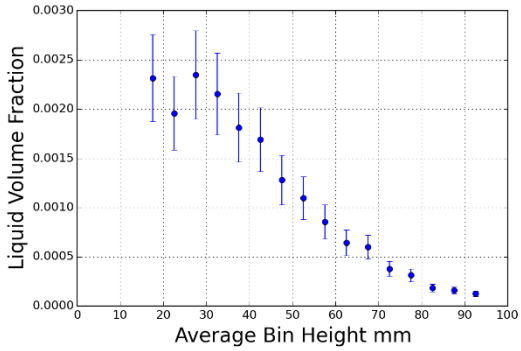


Figure C. 1065: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

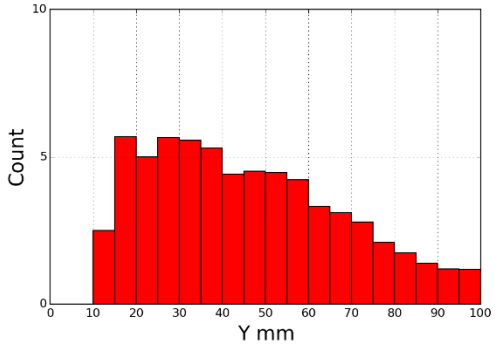


Figure C. 1063: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 All Droplets for .LB Image

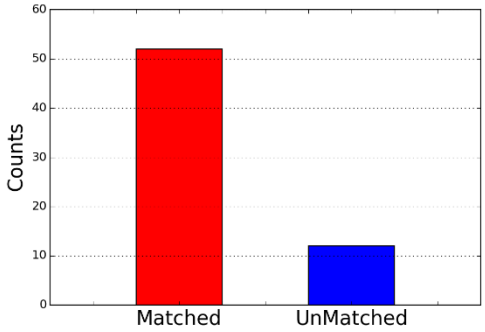


Figure C. 1066: CHC Count Comparison R-134a 40F 5000Btu 30000Lb Rot Tri

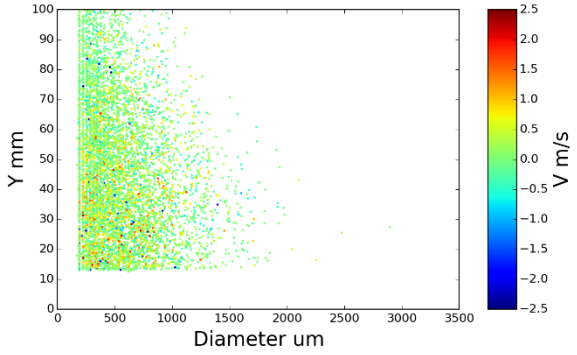


Figure C. 1069: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

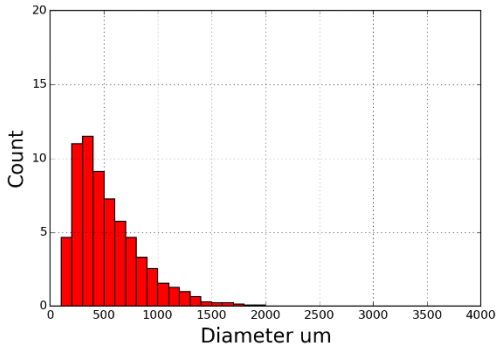


Figure C. 1067: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

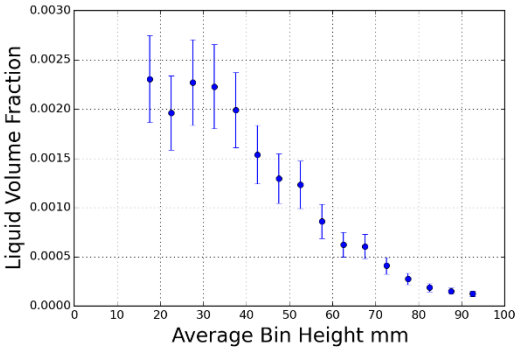


Figure C. 1070: Void Fraction R-134a 40F 5000Btu 30000Lb Rot Tri

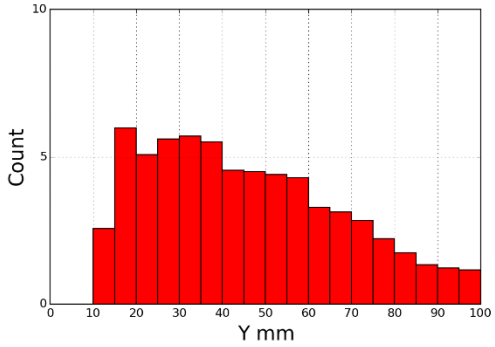


Figure C. 1068: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LA Image

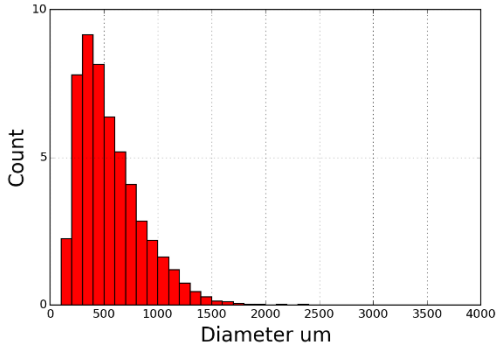


Figure C. 1071: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

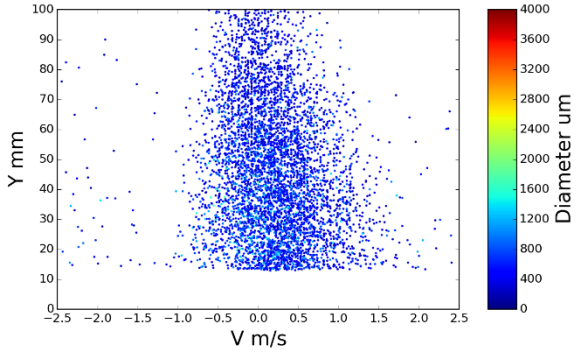


Figure C. 1074: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

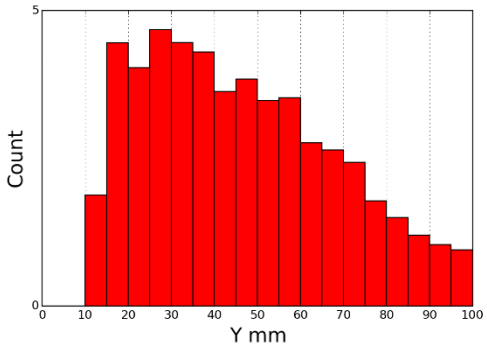


Figure C. 1072: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

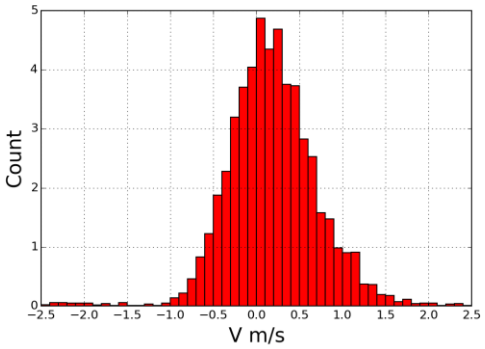


Figure C. 1075: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

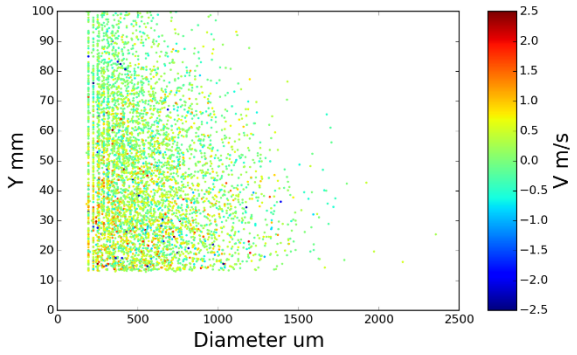


Figure C. 1073: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.3.3.2 Matched Only Droplets for .LB Image

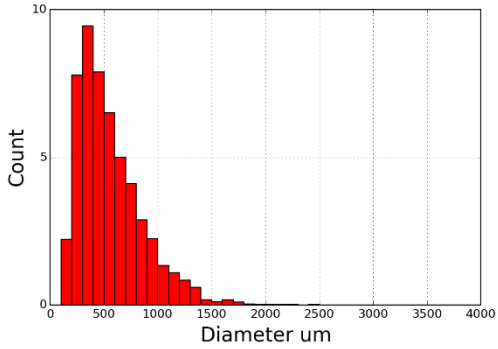


Figure C. 1076: Droplet Diameter Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

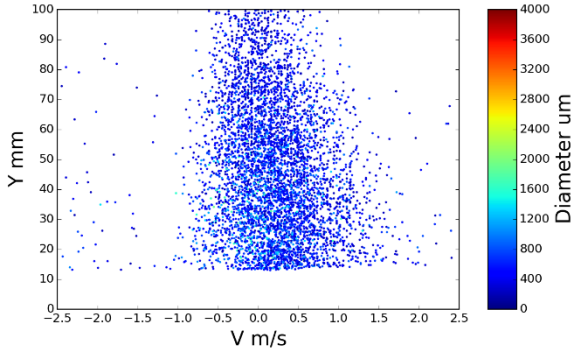


Figure C. 1079: Droplet Height vs Vertical Velocity R-134a 40F 5000Btu 30000Lb Rot Tri

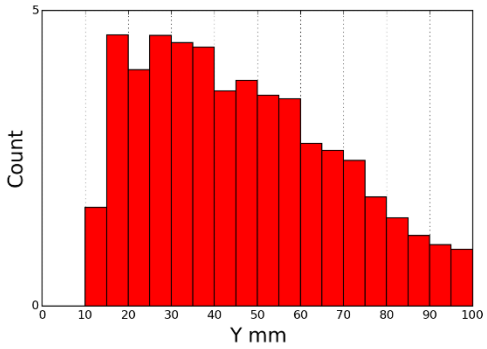


Figure C. 1077: Droplet Height Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

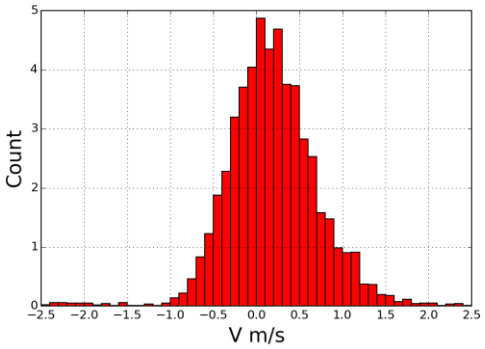


Figure C. 1080: Droplet Vertical Velocity Histogram R-134a 40F 5000Btu 30000Lb Rot Tri

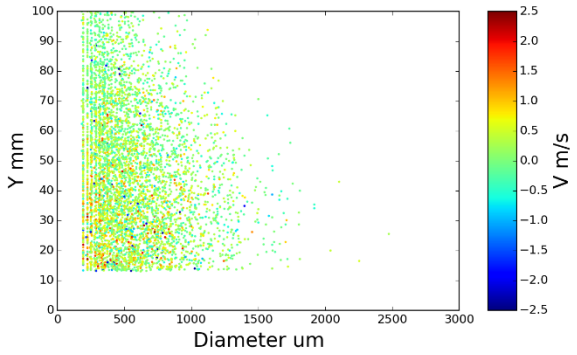


Figure C. 1078: Droplet Height vs Diameter R-134a 40F 5000Btu 30000Lb Rot Tri

C.4 - 1556 R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27312 / 3.441
Ref Mass Flow (lb/hr) / (kg/s)	3073 / 0.387
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29913 / 40.569
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	9395 / 29.64
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	39.8 / 4.31
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.0 / 4.46
Total Bundle Q (Btu/hr) / (kW)	269266 / 78.91
Total Bundle & Preboiler Q (Btu/hr) / (kW)	269266 / 78.91
Top Two Rows HTC Ratio	1.017
Bundle Inlet Quality	-0.07
Bundle Exit Quality	0.98

Table C. 118: Thermal Conditions

C.4.1.1 Lens 100mm Mag 0_29x

C.4.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.33	23.26	76.0	3998	449.6	546.8	76.0	3975	445.1	545.6
40-60mm	61.16	61.82	76.0	4019	464.4	524.9	76.0	4007	460.2	526.9
60-80mm	138.99	139.01	76.0	4008	465.6	523.2	76.0	3977	461.2	523.1
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	228.83	228.77	76.0	4019	463.6	526.2	76.0	4007	459.2	526.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8935			
Lowest Particle			31.9268				31.9268			

Table C. 119: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	8.89	76.0	3812	579.7	576.1	76.0	3830	573.9	582.9	-2.550	2.400	-0.060	0.740	-2.490	2.460	-0.060	0.820
40-60mm	30.08	76.0	3993	580.2	550.7	76.0	4007	572.4	556.4	-2.510	2.550	-0.070	0.590	-2.550	2.550	-0.130	0.700
60-80mm	90.81	76.0	3927	533.5	524.4	76.0	3977	527.0	523.7	-2.550	2.550	-0.070	0.460	-2.550	2.520	-0.120	0.560
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	129.78	76.0	3993	547.5	534.7	76.0	4007	540.8	536.1	-2.550	2.550	-0.070	0.510	-2.550	2.550	-0.120	0.620

Table C. 120: Matched Droplet Info

C.4.1.1 All Droplets for .LA Image

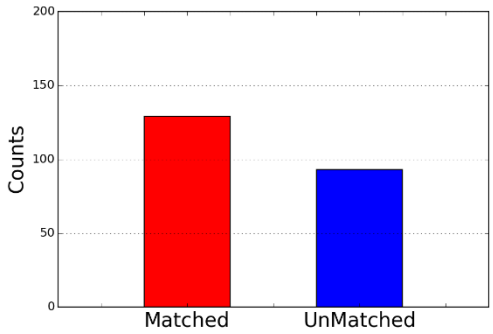


Figure C. 1081: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

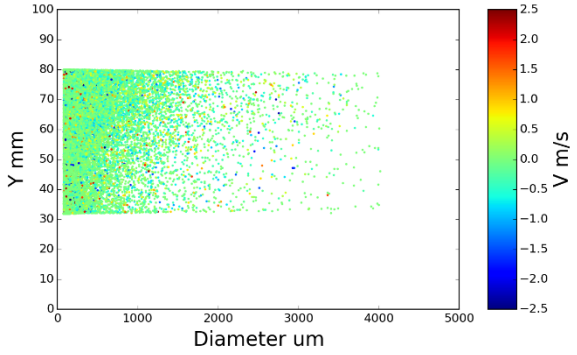


Figure C. 1084: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

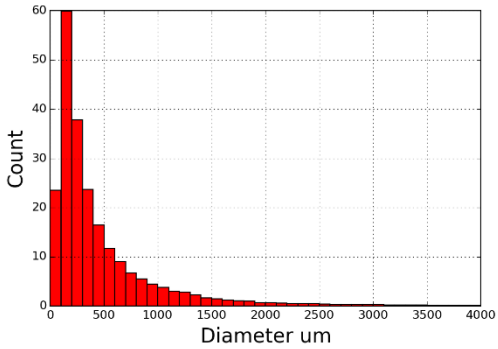


Figure C. 1082: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

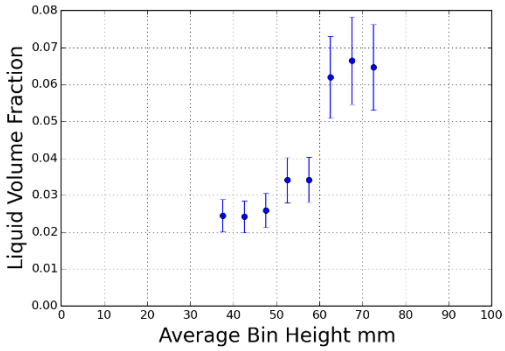


Figure C. 1085: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

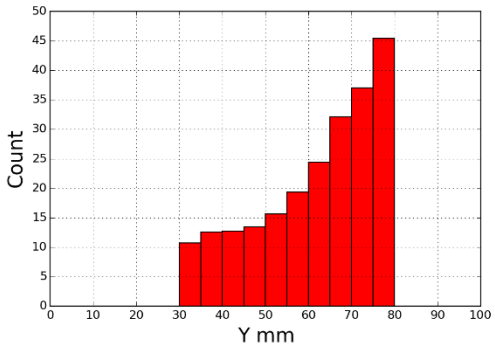


Figure C. 1083: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 All Droplets for .LB Image

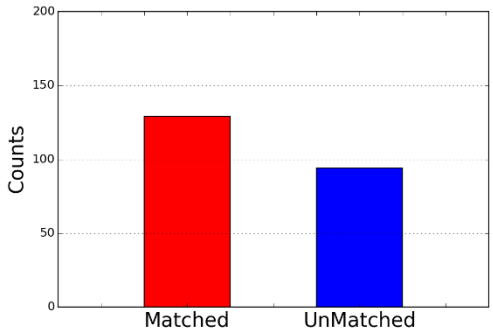


Figure C. 1086: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

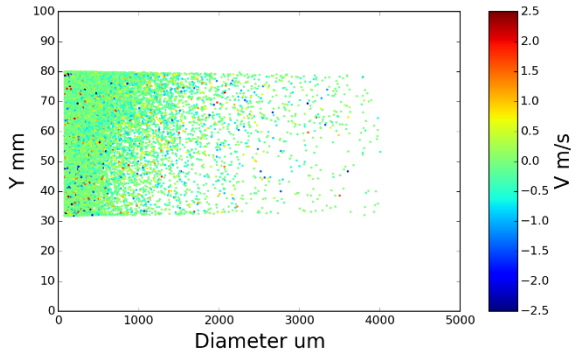


Figure C. 1089: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

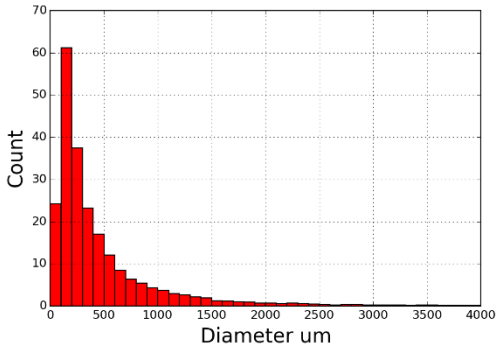


Figure C. 1087: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

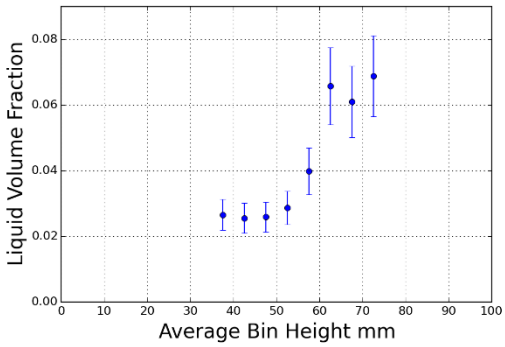


Figure C. 1090: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

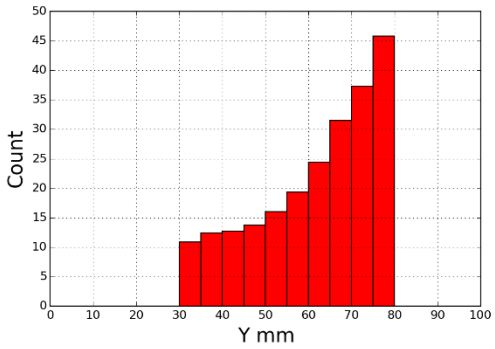


Figure C. 1088: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LA Image

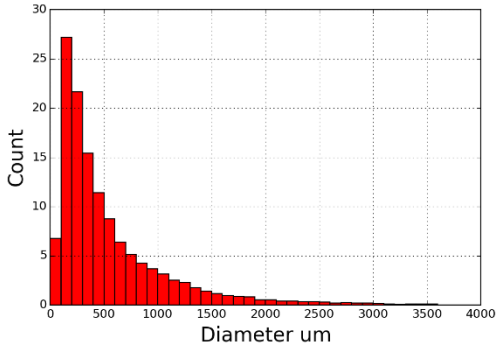


Figure C. 1091: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

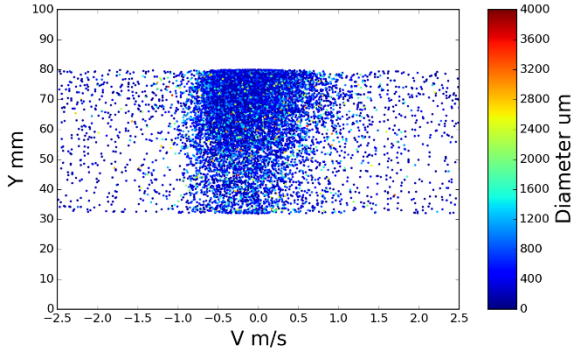


Figure C. 1094: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

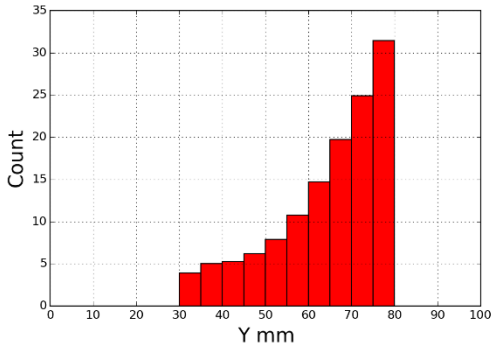


Figure C. 1092: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

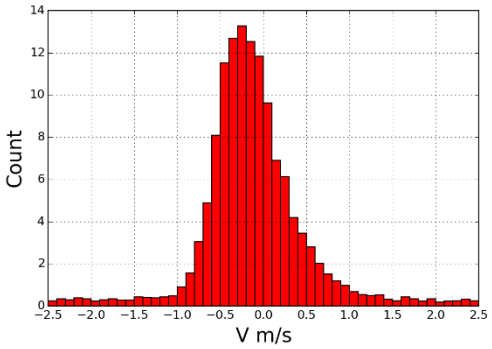


Figure C. 1095: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

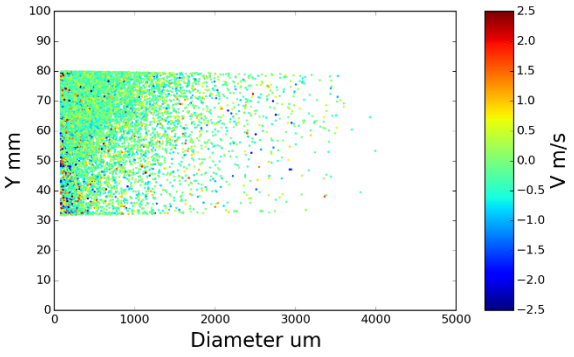


Figure C. 1093: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LB Image

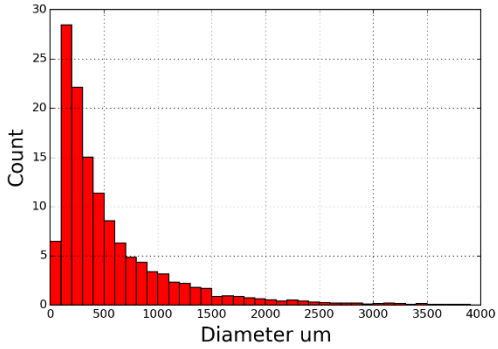


Figure C. 1096: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

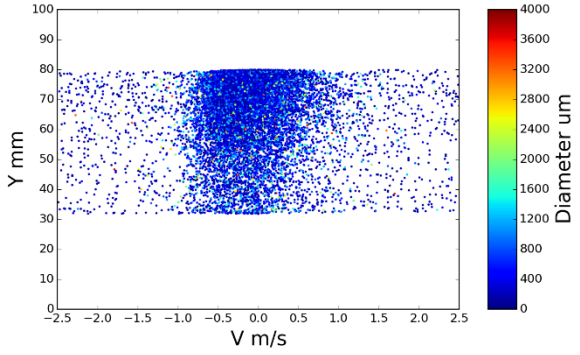


Figure C. 1099: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

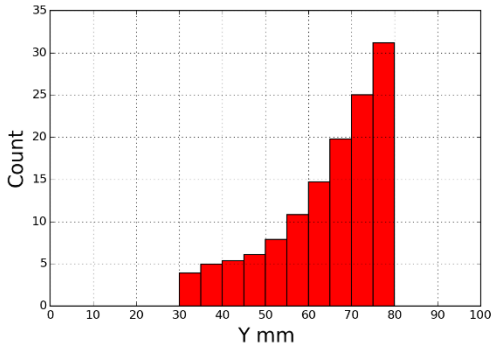


Figure C. 1097: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

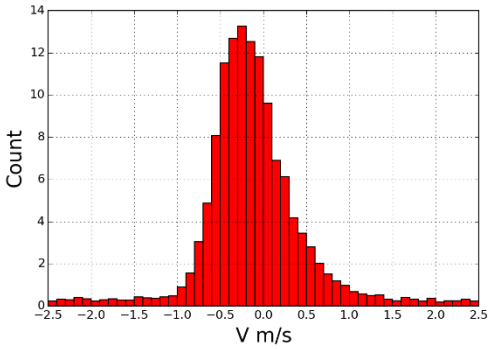


Figure C. 1100: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

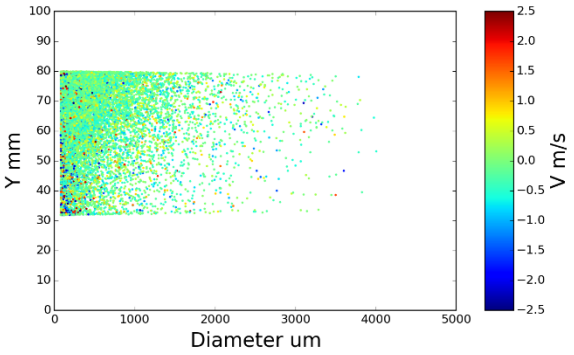


Figure C. 1098: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	18.78	17.61	76.0	3965	471.8	562.5	76.0	3938	465.5	565.1
40-60mm	42.07	42.97	76.0	4004	516.9	579.5	76.0	4016	508.9	572.0
60-80mm	99.45	99.98	76.0	4007	512.9	578.1	76.0	4012	509.9	578.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	164.81	165.33	76.0	4007	509.1	576.9	76.0	4016	504.7	575.7
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8935			
Lowest Particle			31.9268				31.9268			

Table C. 121: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.82	81.3	3755	650.6	625.6	76.0	3734	638.6	627.7	-2.550	2.500	-0.060	0.760	-2.490	2.550	0.020	0.850
40-60mm	20.93	76.0	3676	645.4	600.6	76.0	3835	636.8	599.5	-2.550	2.520	-0.080	0.580	-2.520	2.530	-0.080	0.700
60-80mm	63.26	76.0	3948	602.8	593.6	76.0	4001	596.0	595.7	-2.550	2.550	-0.080	0.430	-2.550	2.520	-0.090	0.560
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	91.01	76.0	3948	616.2	598.0	76.0	4001	608.5	599.3	-2.550	2.550	-0.070	0.500	-2.550	2.550	-0.080	0.620

Table C. 122: Matched Droplet Info

C.4.1.1 All Droplets for .LA Image

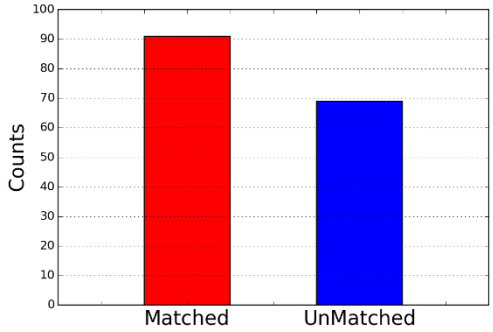


Figure C. 1101: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

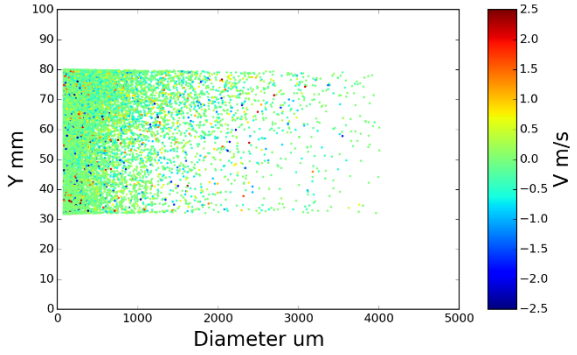


Figure C. 1104: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

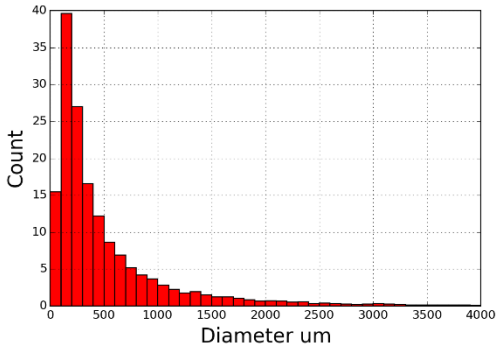


Figure C. 1102: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

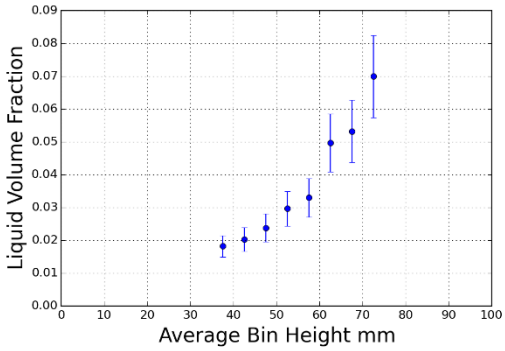


Figure C. 1105: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

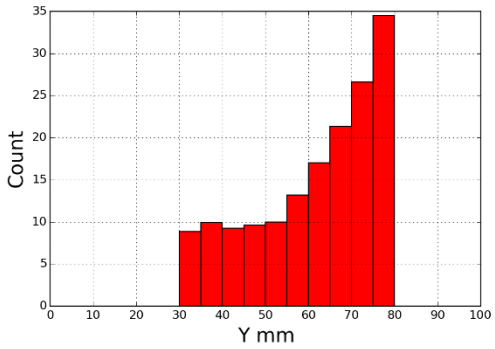


Figure C. 1103: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 All Droplets for .LB Image

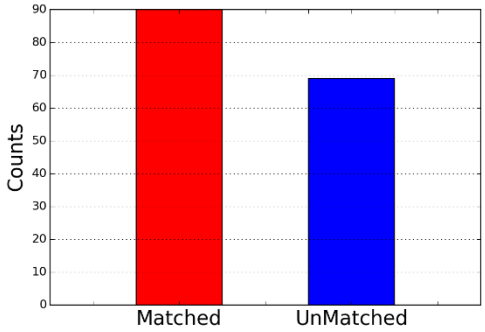


Figure C. 1106: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

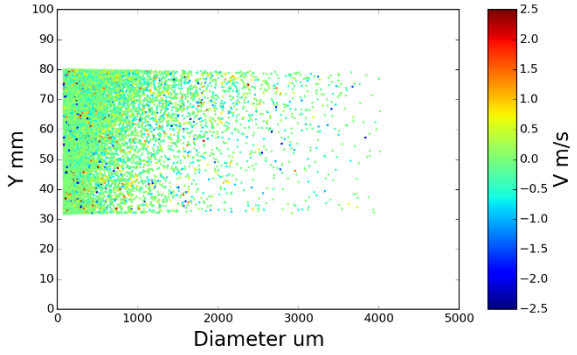


Figure C. 1109: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

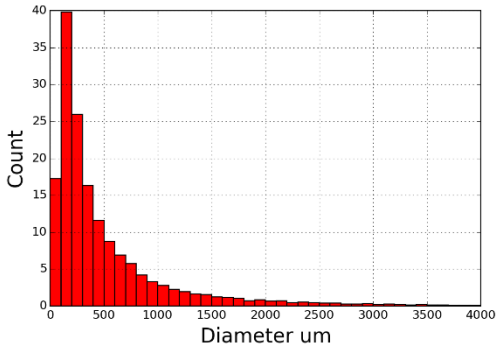


Figure C. 1107: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

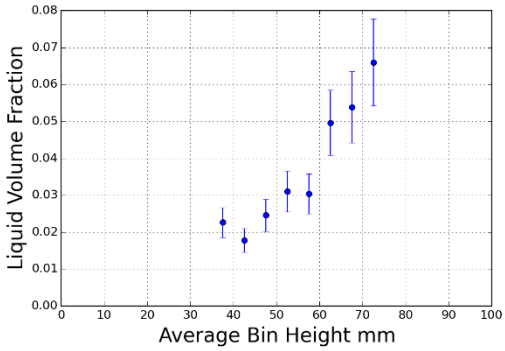


Figure C. 1110: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

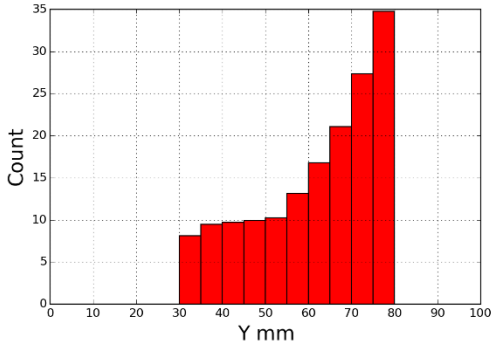


Figure C. 1108: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LA Image

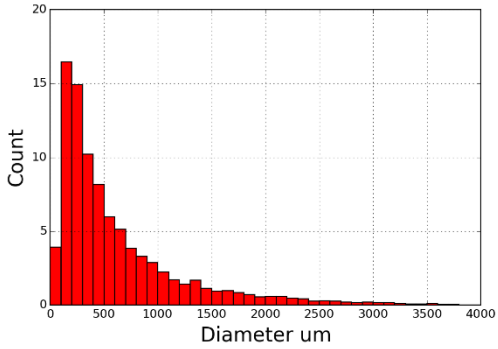


Figure C. 1111: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

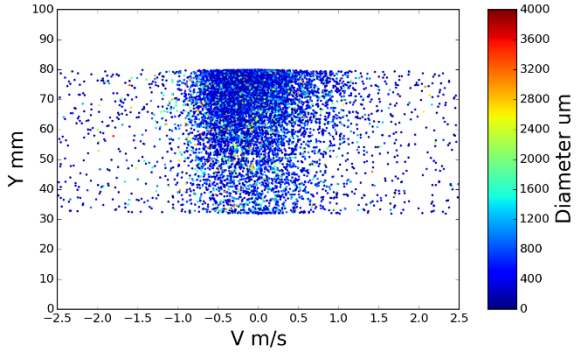


Figure C. 1114: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

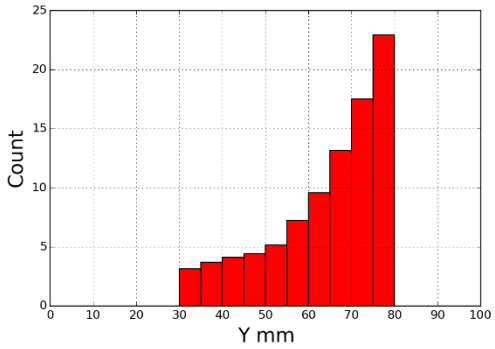


Figure C. 1112: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

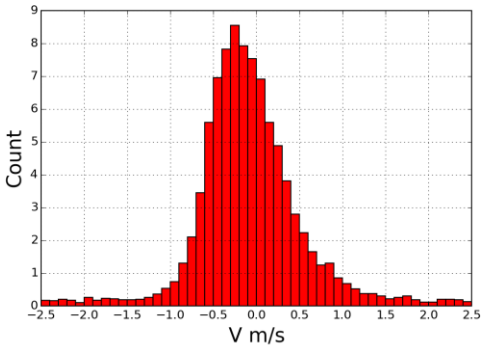


Figure C. 1115: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

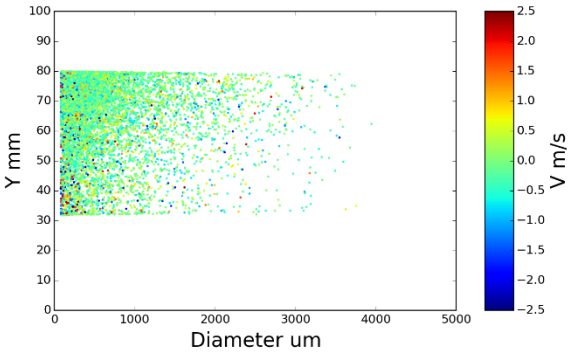


Figure C. 1113: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LB Image

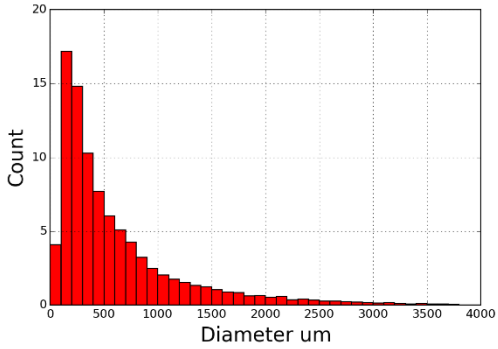


Figure C. 1116: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

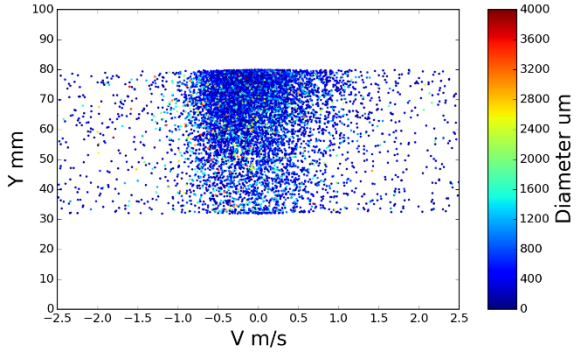


Figure C. 1119: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

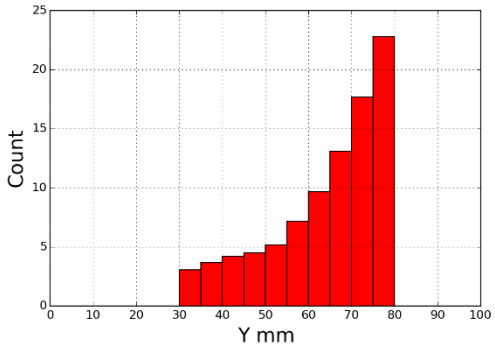


Figure C. 1117: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

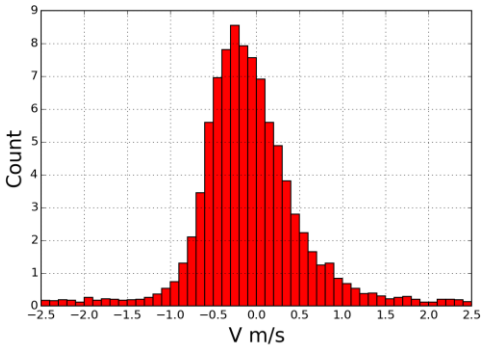


Figure C. 1120: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

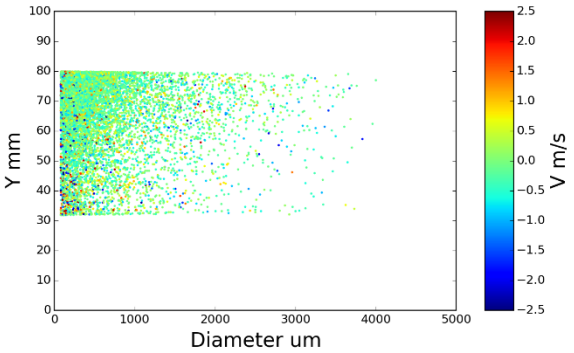


Figure C. 1118: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	12.82	13.68	76.0	3994	533.0	657.5	76.0	3921	480.5	614.8
40-60mm	32.54	32.2	76.0	3946	506.5	569.7	76.0	3986	509.2	576.0
60-80mm	73.71	75.02	76.0	4005	526.0	583.7	76.0	4006	524.1	594.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	123.9	126.01	76.0	4005	521.4	588.5	76.0	4006	515.2	592.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8935			
Lowest Particle			31.9268				31.9268			

Table C. 123: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.05	76.0	3627	754.6	683.6	76.0	3715	735.7	687.0	-2.510	2.430	-0.010	0.810	-2.540	2.540	0.100	0.920
40-60mm	13.93	81.3	3802	691.3	638.4	76.0	3944	682.3	641.9	-2.440	2.530	-0.040	0.660	-2.460	2.530	0.040	0.760
60-80mm	45.95	76.0	3852	626.4	599.8	76.0	3850	619.0	606.0	-2.550	2.550	-0.050	0.470	-2.500	2.540	-0.070	0.570
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	63.93	76.0	3852	648.6	615.2	76.0	3944	640.1	620.4	-2.550	2.550	-0.050	0.540	-2.540	2.540	-0.040	0.640

Table C. 124: Matched Droplet Info

C.4.1.1 All Droplets for .LA Image

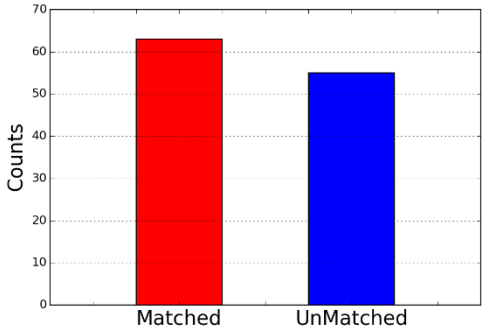


Figure C. 1121: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

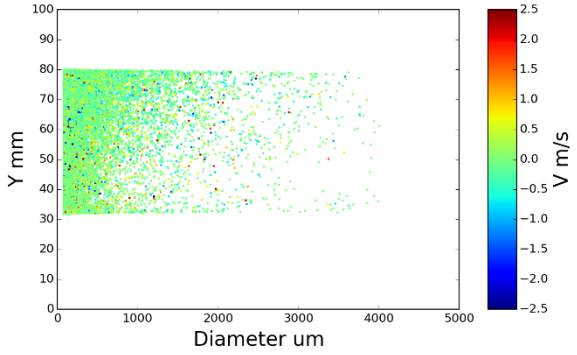


Figure C. 1124: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

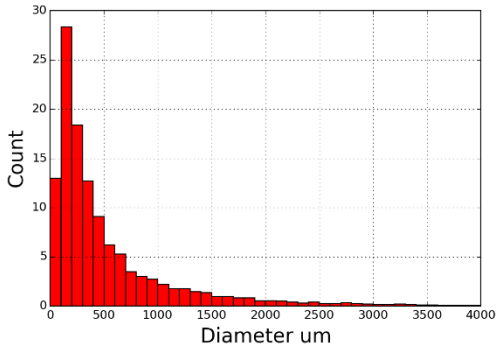


Figure C. 1122: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

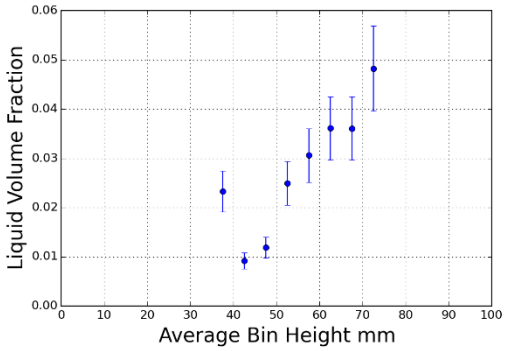


Figure C. 1125: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

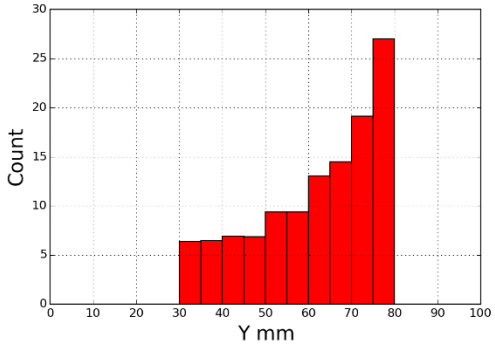


Figure C. 1123: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 All Droplets for .LB Image

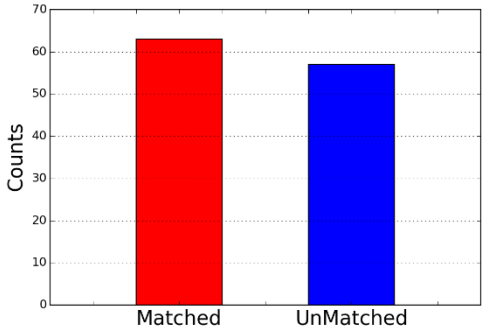


Figure C. 1126: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

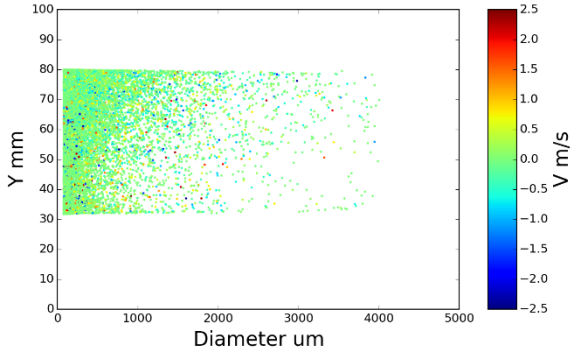


Figure C. 1129: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

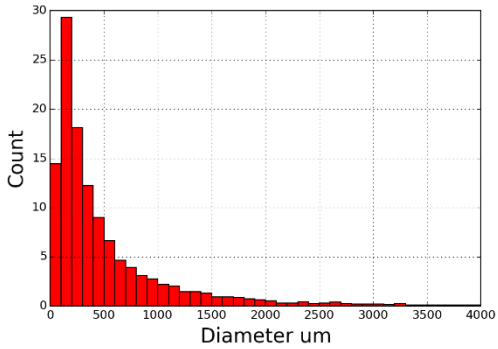


Figure C. 1127: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

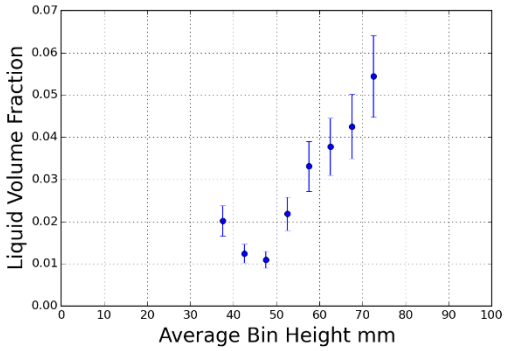


Figure C. 1130: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

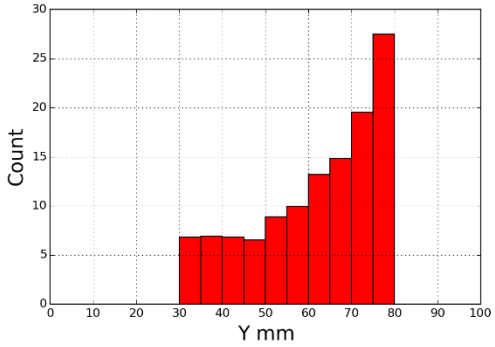


Figure C. 1128: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LA Image

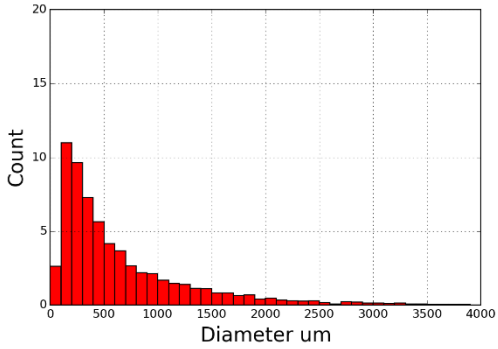


Figure C. 1131: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

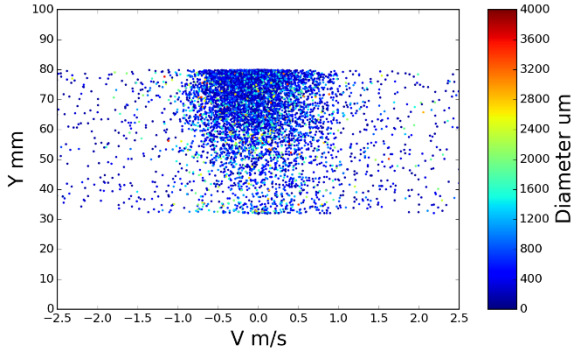


Figure C. 1134: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

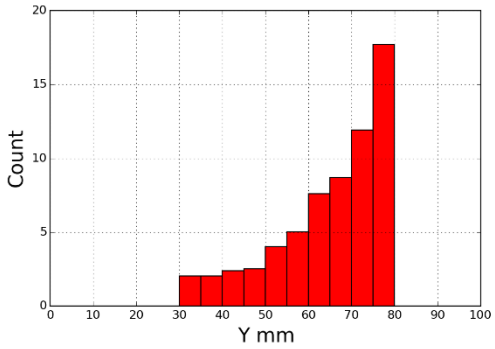


Figure C. 1132: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

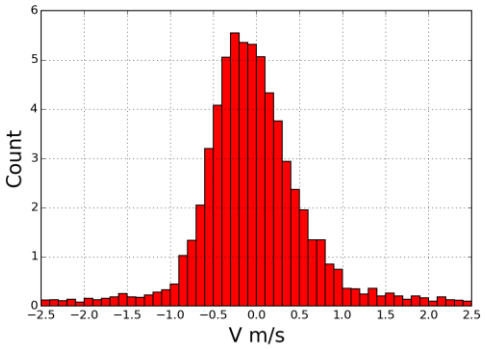


Figure C. 1135: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

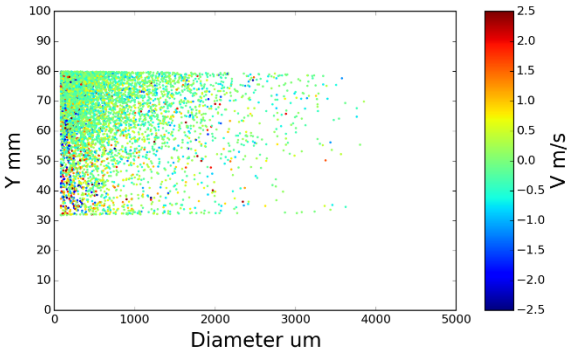


Figure C. 1133: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.1 Matched Only Droplets for .LB Image

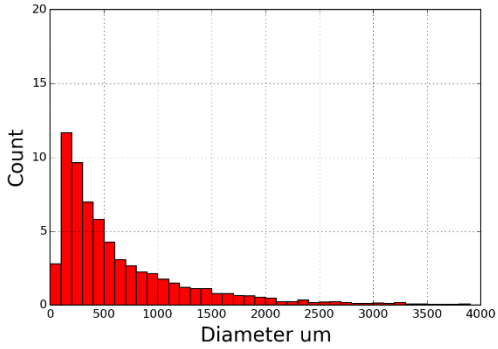


Figure C. 1136: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

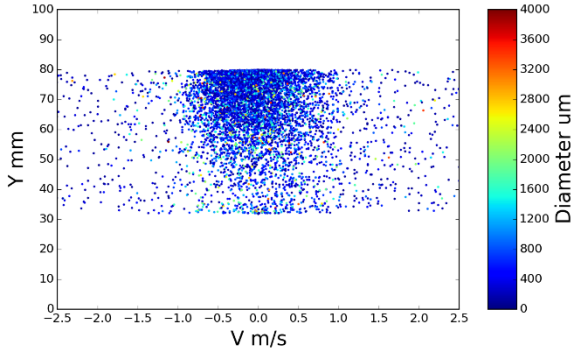


Figure C. 1139: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

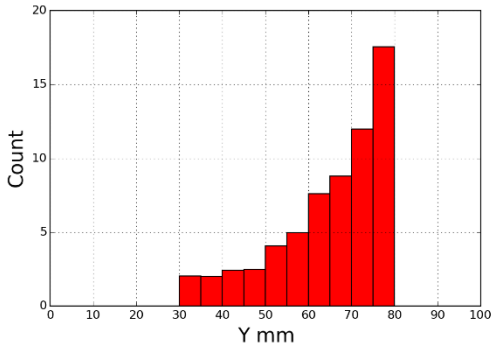


Figure C. 1137: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

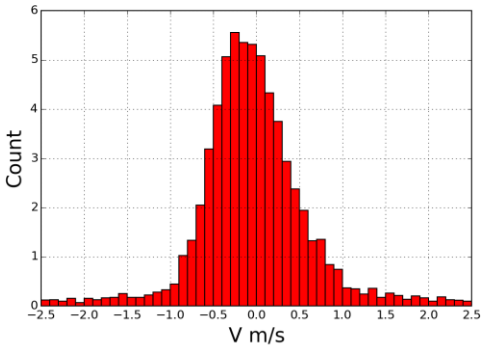


Figure C. 1140: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

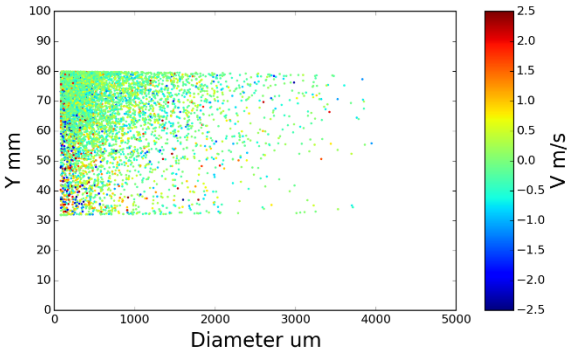


Figure C. 1138: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Lens 50mm Mag 0_13x

C.4.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.95	23.95	182.3	3963	686.3	606.5	170.5	3905	686.5	598.6
40-60mm	76.86	76.68	170.5	3994	699.2	590.1	170.5	3990	694.6	596.0
60-80mm	126.48	125.8	170.5	3992	661.0	550.3	170.5	3982	666.2	547.3
80-100mm	127.13	126.96	170.5	3989	600.1	465.0	170.5	3996	599.3	460.6
All	354.54	353.72	170.5	3994	649.1	536.3	170.5	3996	649.7	534.5
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				100.0171			
Lowest Particle			30.1022				30.1022			

Table C. 125: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	9.81	182.3	3841	773.2	585.8	170.5	3886	752.1	585.5	-2.450	2.450	-0.100	0.980	-2.450	2.450	-0.030	1.000
40-60mm	38.63	182.3	3635	789.9	600.5	182.3	3987	774.8	610.6	-2.450	2.450	-0.110	0.870	-2.450	2.450	-0.080	0.930
60-80mm	74.7	182.3	3931	737.5	557.5	182.3	3982	725.3	557.2	-2.450	2.450	-0.110	0.780	-2.450	2.450	-0.130	0.830
80-100mm	83.05	182.3	3694	658.3	469.7	182.3	3996	651.6	470.1	-2.450	2.450	-0.110	0.680	-2.450	2.450	-0.180	0.740
All	206.2	182.3	3931	717.1	536.7	170.5	3996	706.4	538.7	-2.450	2.450	-0.110	0.770	-2.450	2.450	-0.140	0.820

Table C. 126: Matched Droplet Info

C.4.1.2 All Droplets for .LA Image

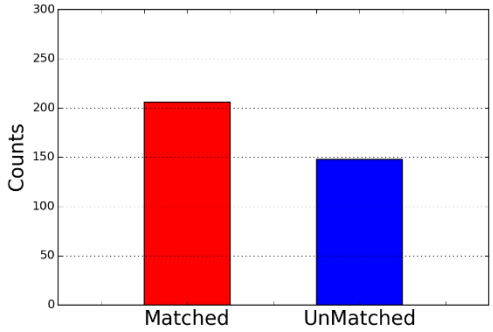


Figure C. 1141: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

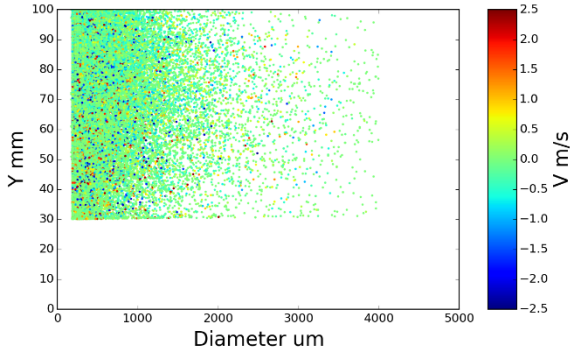


Figure C. 1144: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

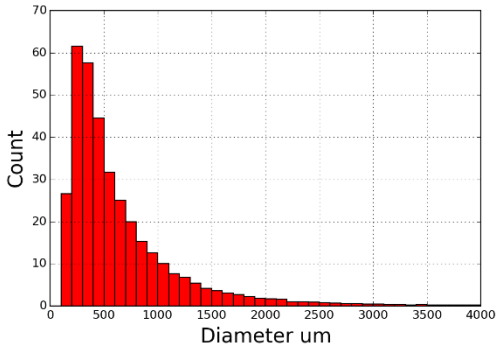


Figure C. 1142: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

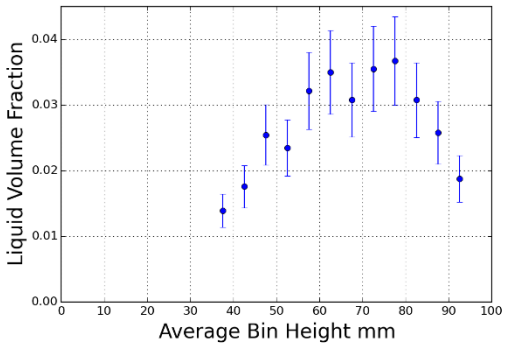


Figure C. 1145: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

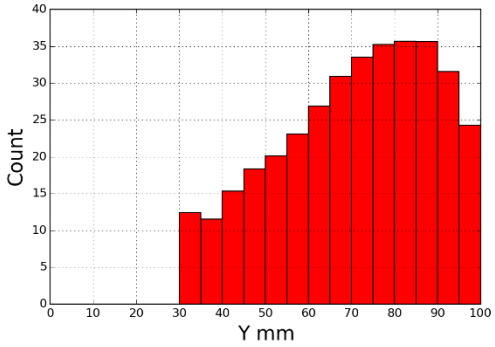


Figure C. 1143: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 All Droplets for .LB Image

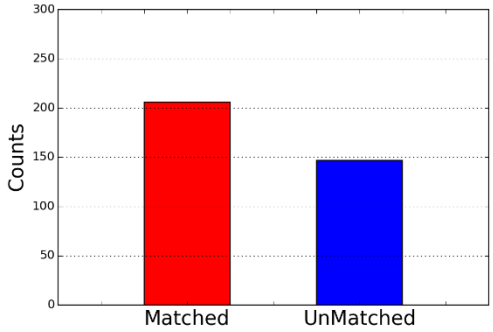


Figure C. 1146: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

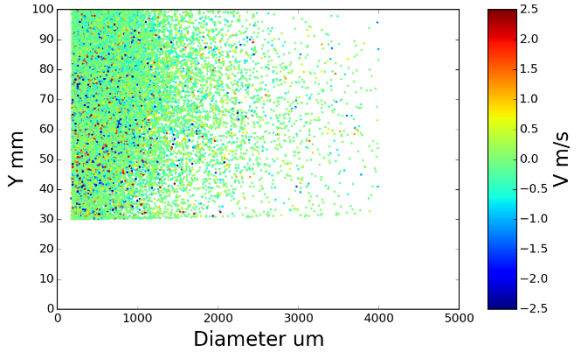


Figure C. 1149: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

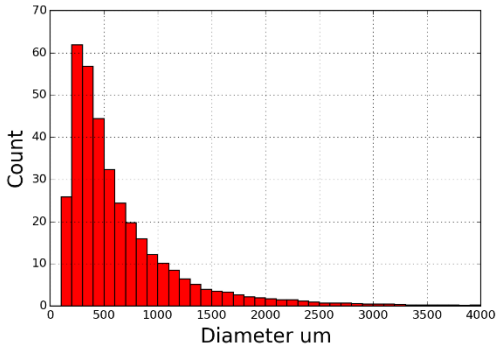


Figure C. 1147: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

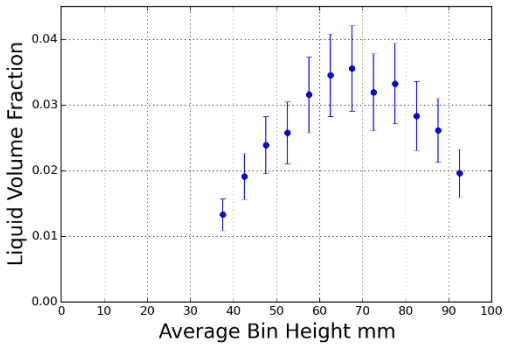


Figure C. 1150: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

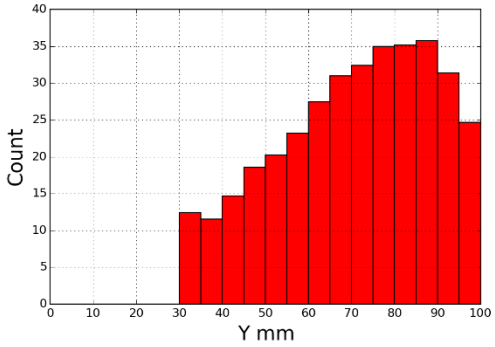


Figure C. 1148: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LA Image

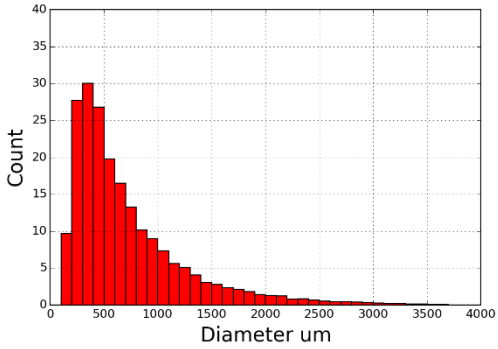


Figure C. 1151: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

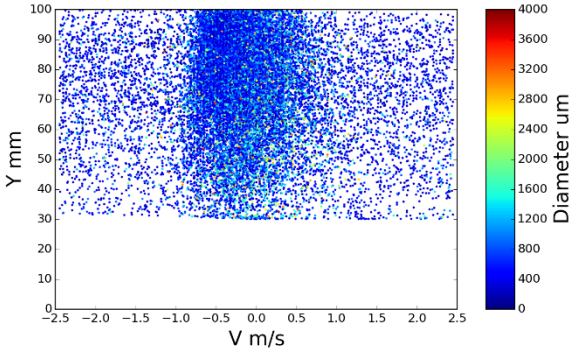


Figure C. 1154: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

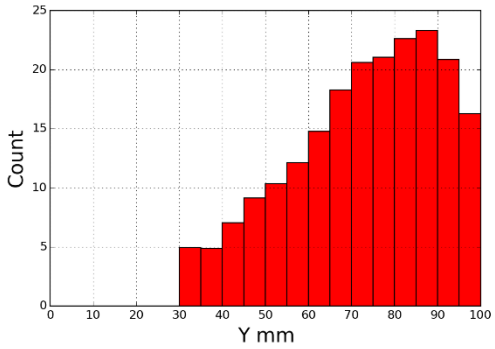


Figure C. 1152: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

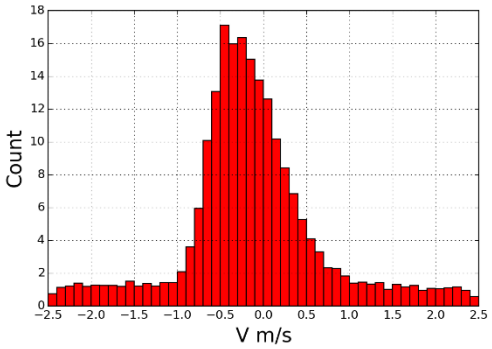


Figure C. 1155: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

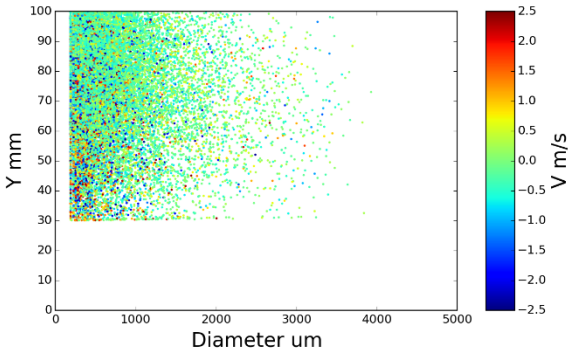


Figure C. 1153: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LB Image

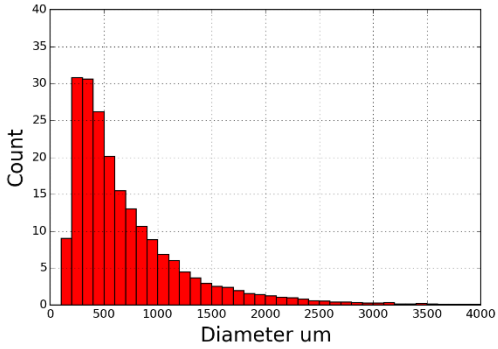


Figure C. 1156: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

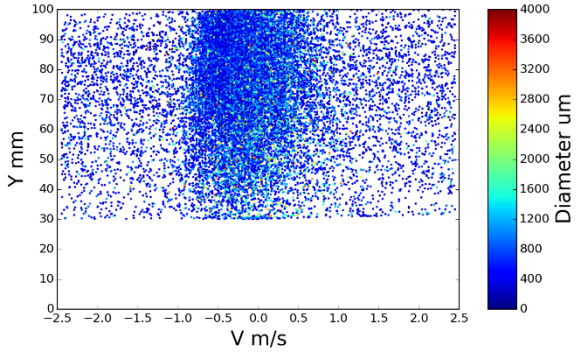


Figure C. 1159: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

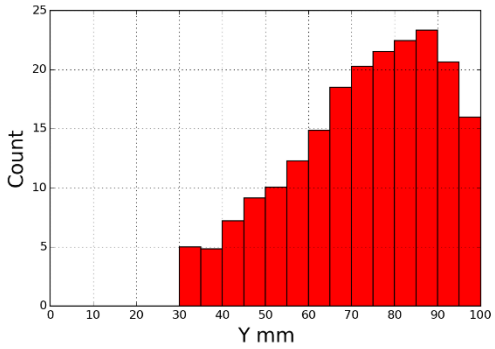


Figure C. 1157: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

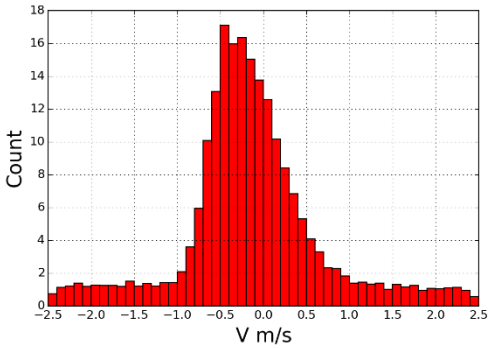


Figure C. 1160: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

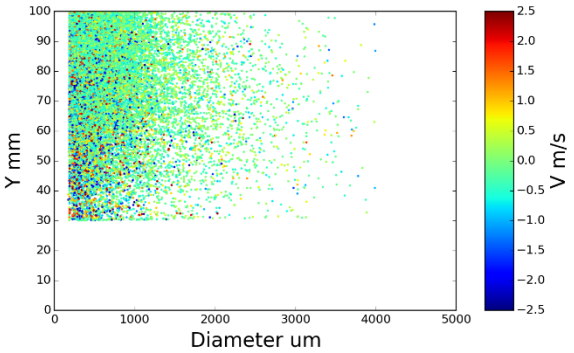


Figure C. 1158: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	18.89	18.45	170.5	3898	730.6	630.6	170.5	3942	714.2	612.9
40-60mm	53.1	51.98	170.5	3992	739.3	655.8	170.5	3977	742.0	652.2
60-80mm	95.64	94.66	170.5	3998	702.6	597.7	170.5	3983	698.5	592.5
80-100mm	128.51	126.8	170.5	3997	620.9	499.7	170.5	3992	629.2	506.6
All	296.42	292.09	170.5	3998	675.4	573.3	170.5	3992	677.0	571.7
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				100.0171			
Lowest Particle			30.1022				30.1022			

Table C. 127: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.98	182.3	3547	835.7	613.7	193.4	3575	820.5	619.5	-2.370	2.450	-0.060	0.960	-2.430	2.440	-0.060	1.070
40-60mm	24.18	182.3	3862	839.2	647.8	170.5	3940	819.3	653.1	-2.450	2.450	-0.090	0.860	-2.450	2.450	-0.060	0.900
60-80mm	53.97	182.3	3955	774.9	596.5	182.3	3966	760.5	593.8	-2.450	2.450	-0.100	0.740	-2.450	2.450	-0.100	0.840
80-100mm	81.04	182.3	3815	700.5	524.0	182.3	3979	694.1	524.6	-2.450	2.450	-0.110	0.700	-2.450	2.450	-0.140	0.760
All	166.17	182.3	3955	750.6	573.8	170.5	3979	739.4	574.0	-2.450	2.450	-0.100	0.750	-2.450	2.450	-0.110	0.820

Table C. 128: Matched Droplet Info

C.4.1.2 All Droplets for .LA Image

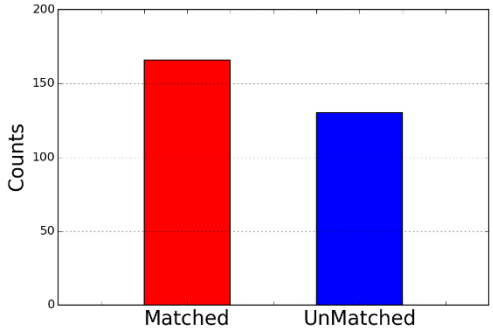


Figure C. 1161: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

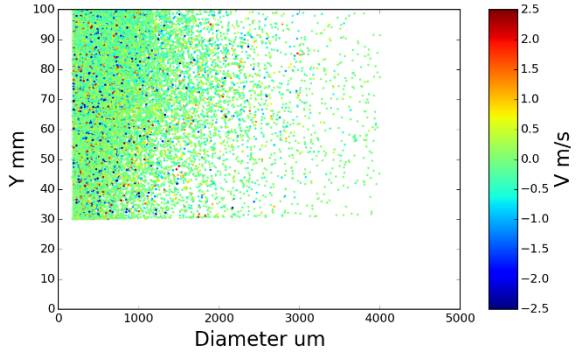


Figure C. 1164: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

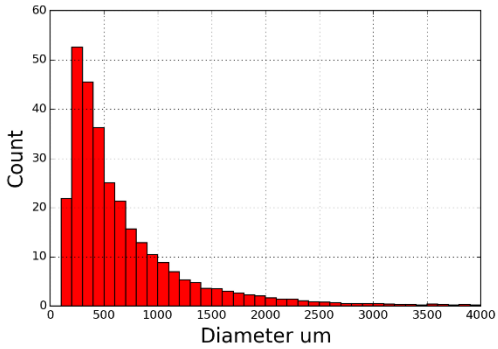


Figure C. 1162: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

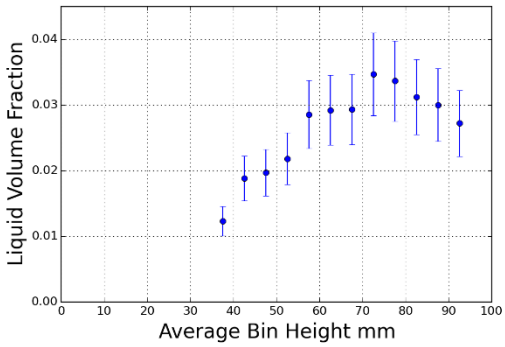


Figure C. 1165: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

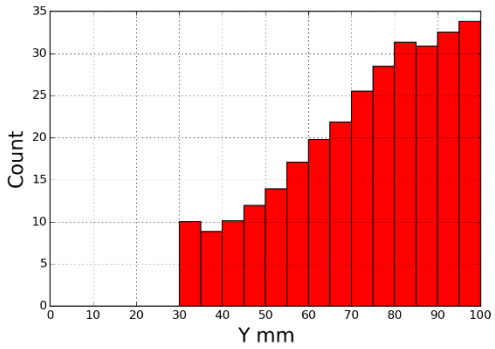


Figure C. 1163: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 All Droplets for .LB Image

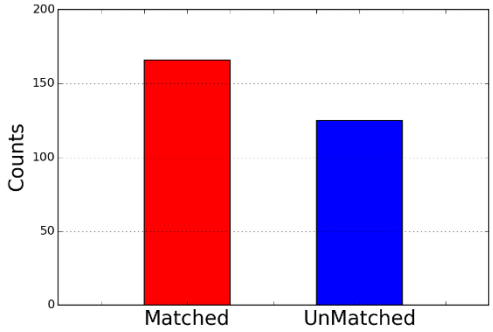


Figure C. 1166: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

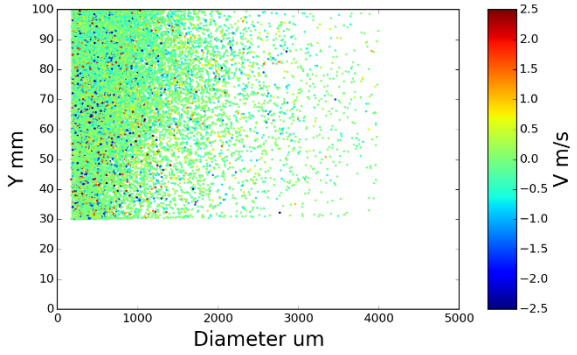


Figure C. 1169: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

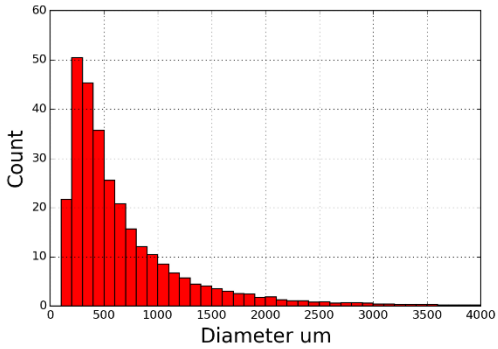


Figure C. 1167: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

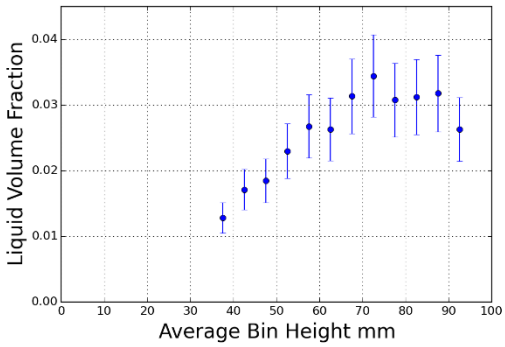


Figure C. 1170: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

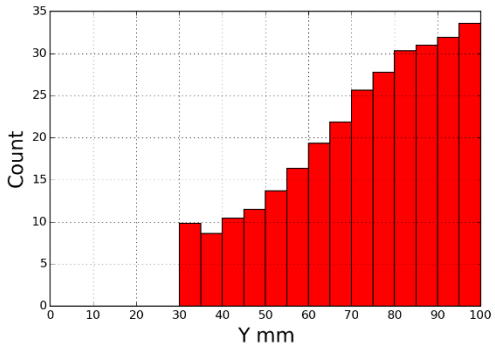


Figure C. 1168: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LA Image

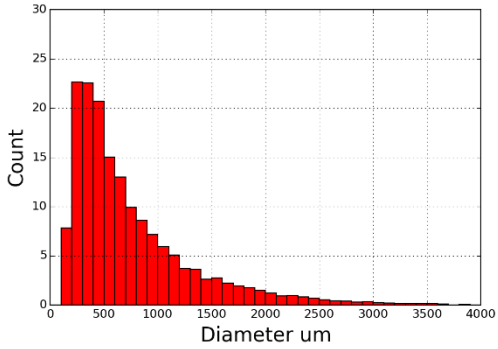


Figure C. 1171: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

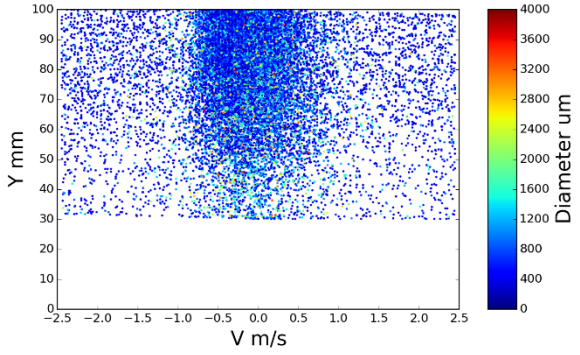


Figure C. 1174: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

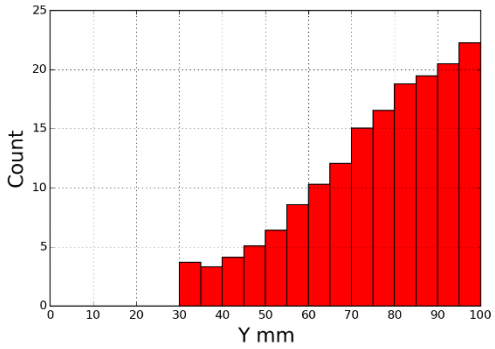


Figure C. 1172: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

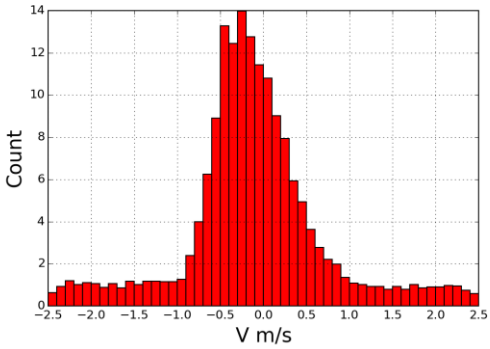


Figure C. 1175: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

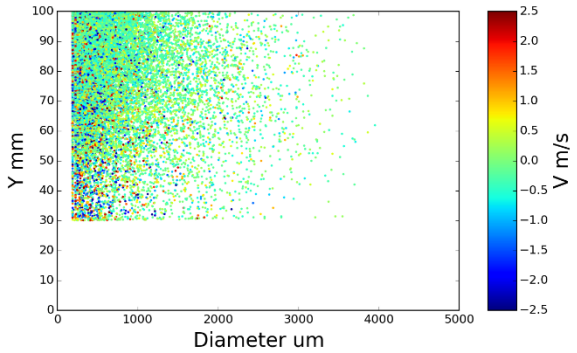


Figure C. 1173: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LB Image

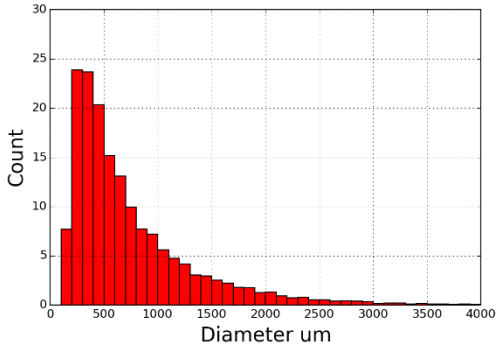


Figure C. 1176: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

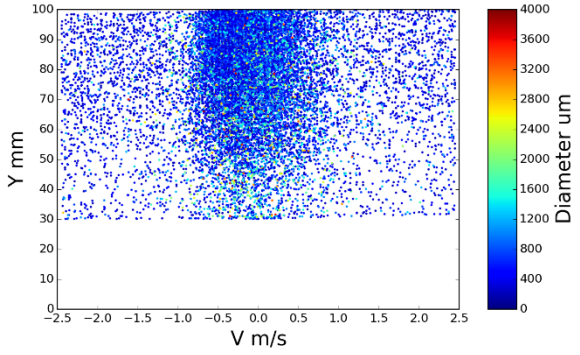


Figure C. 1179: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

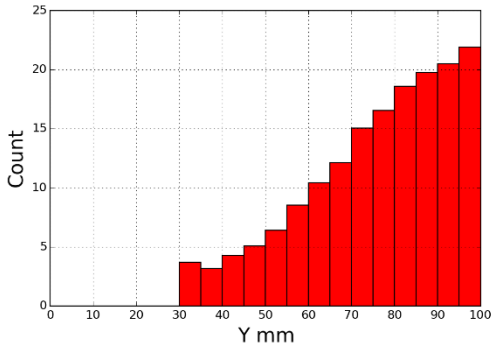


Figure C. 1177: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

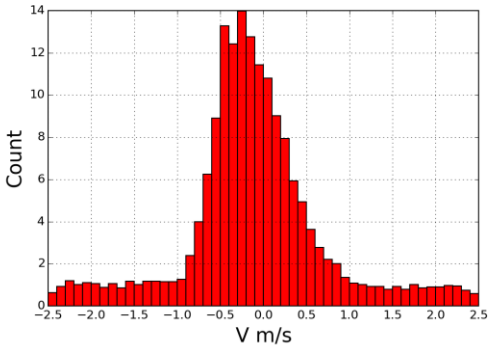


Figure C. 1180: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

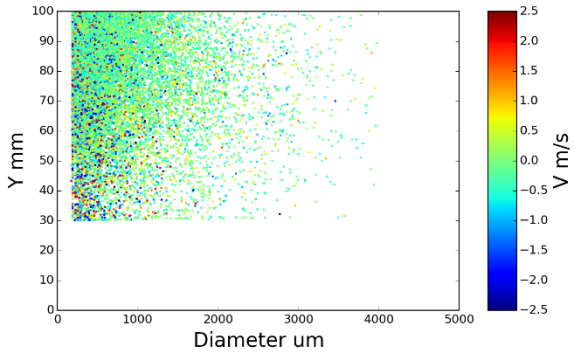


Figure C. 1178: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	15.81	16.28	170.5	3953	705.9	631.4	170.5	3959	720.4	631.8
40-60mm	40.26	39.36	170.5	3979	746.5	648.3	170.5	3957	749.7	638.5
60-80mm	73.0	72.6	170.5	3998	722.7	621.1	170.5	3965	727.0	625.3
80-100mm	103.89	102.99	170.5	3965	652.2	539.9	170.5	3998	653.4	536.0
All	233.15	231.29	170.5	3998	694.2	593.4	170.5	3998	697.5	591.5
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				100.0171			
Lowest Particle			30.1282				30.1267			

Table C. 129: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.99	193.4	3892	856.6	682.8	182.3	3959	824.1	682.6	-2.410	2.430	-0.000	0.980	-2.450	2.450	0.060	1.050
40-60mm	18.29	182.3	3824	860.7	653.4	182.3	3882	853.7	664.1	-2.450	2.440	-0.120	0.880	-2.450	2.450	-0.030	0.920
60-80mm	40.75	182.3	3998	828.6	638.8	182.3	3965	809.3	640.3	-2.450	2.450	-0.110	0.720	-2.450	2.450	-0.070	0.800
80-100mm	64.64	182.3	3791	725.8	544.4	182.3	3951	715.3	545.4	-2.450	2.450	-0.120	0.650	-2.450	2.450	-0.140	0.730
All	129.68	170.5	3998	783.1	600.9	170.5	3965	769.3	603.3	-2.450	2.450	-0.110	0.730	-2.450	2.450	-0.090	0.800

Table C. 130: Matched Droplet Info

C.4.1.2 All Droplets for .LA Image

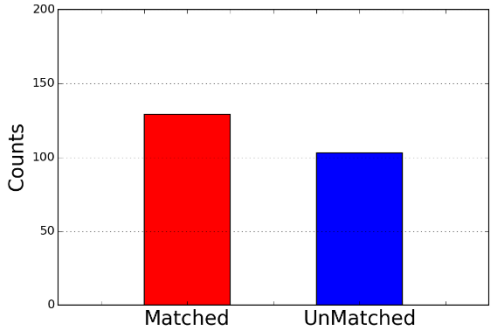


Figure C. 1181: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

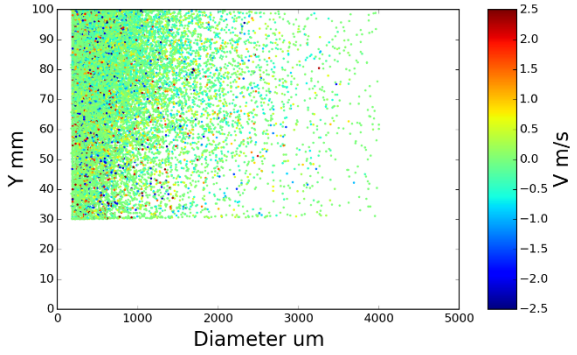


Figure C. 1184: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

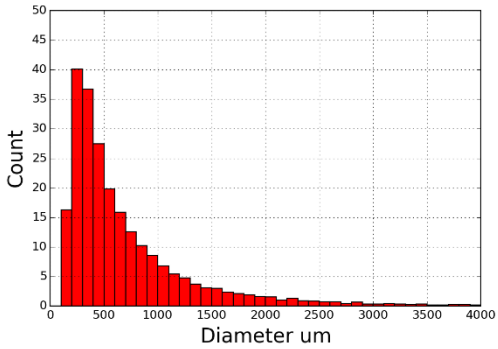


Figure C. 1182: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

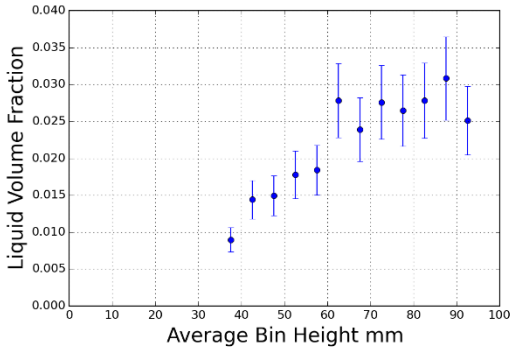


Figure C. 1185: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

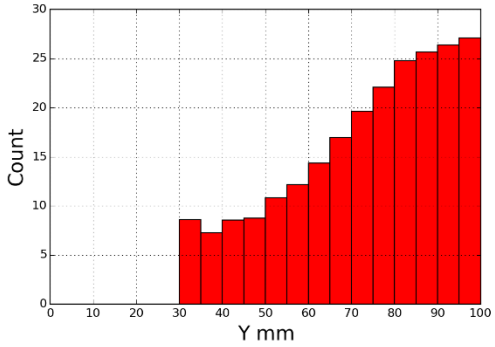


Figure C. 1183: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 All Droplets for .LB Image

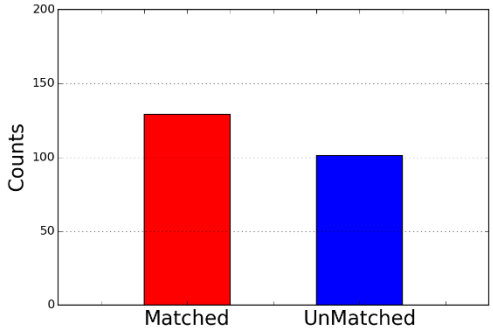


Figure C. 1186: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

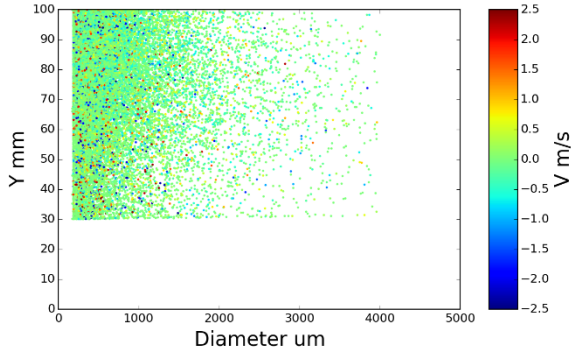


Figure C. 1189: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

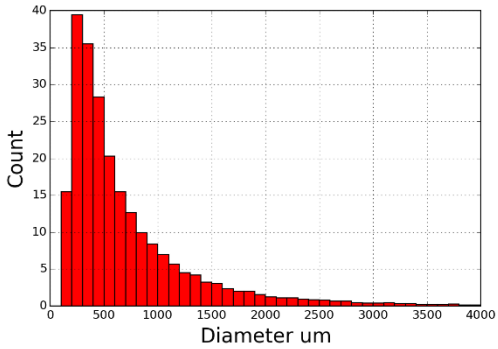


Figure C. 1187: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

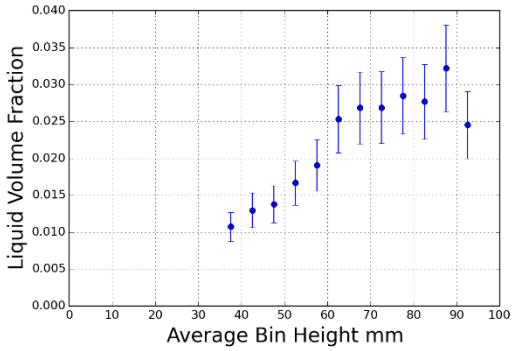


Figure C. 1190: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

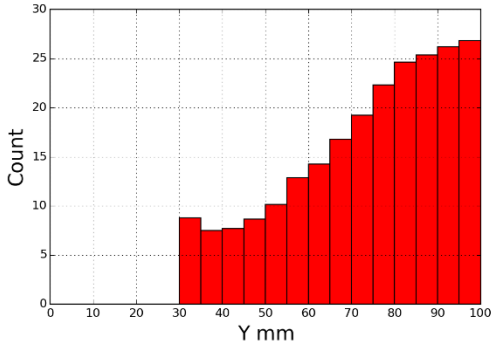


Figure C. 1188: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LA Image

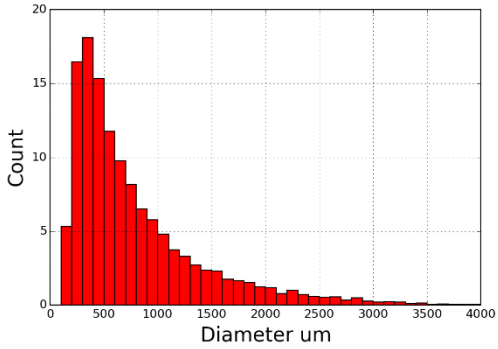


Figure C. 1191: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

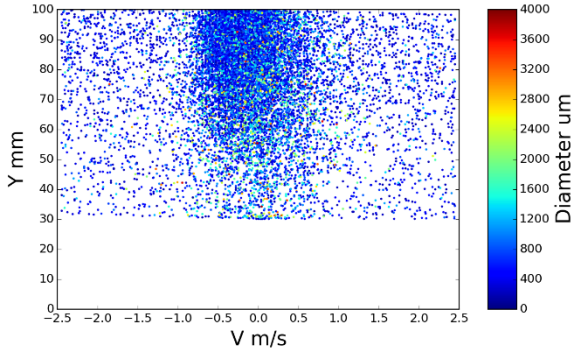


Figure C. 1194: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

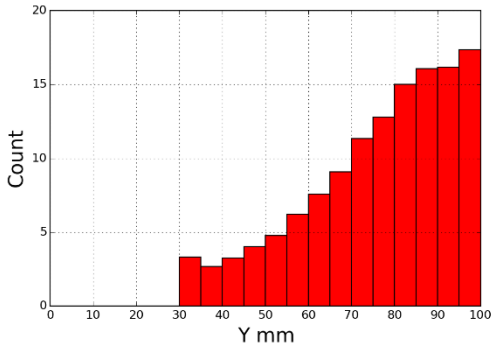


Figure C. 1192: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

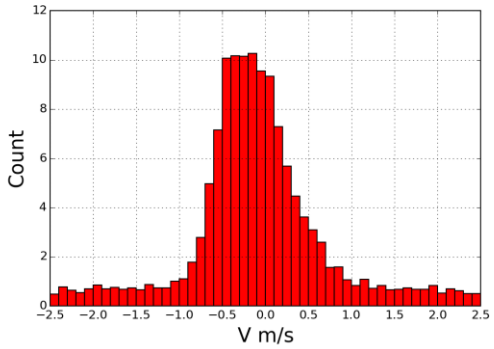


Figure C. 1195: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

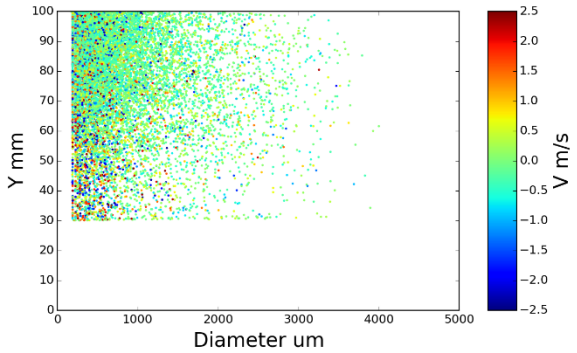


Figure C. 1193: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.1.2 Matched Only Droplets for .LB Image

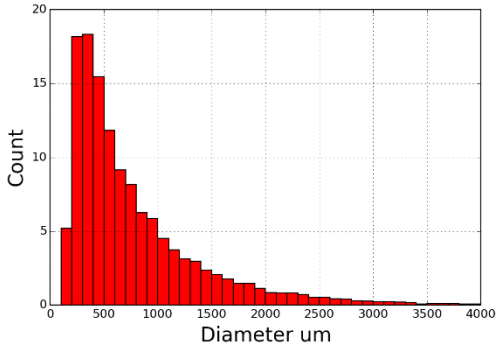


Figure C. 1196: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

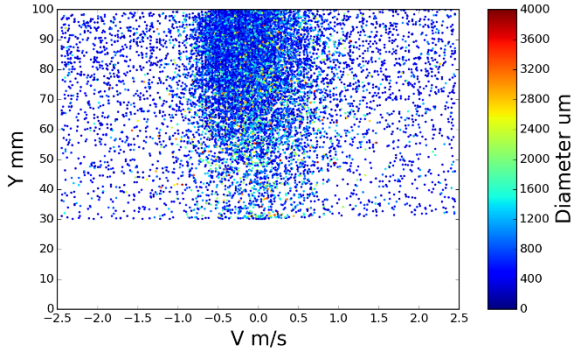


Figure C. 1199: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

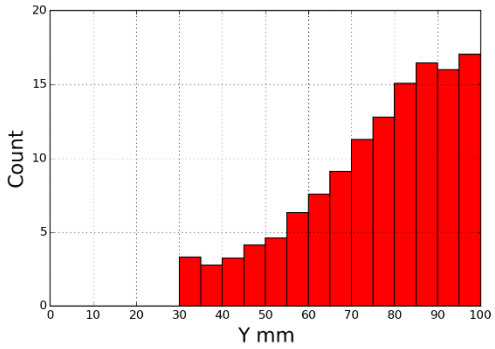


Figure C. 1197: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

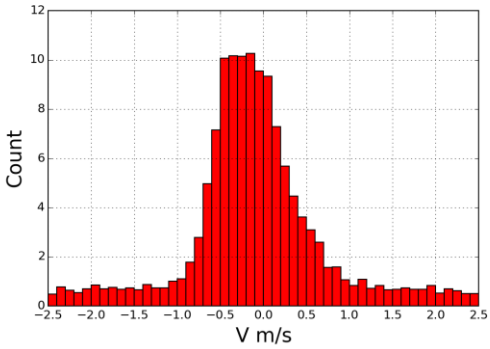


Figure C. 1200: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

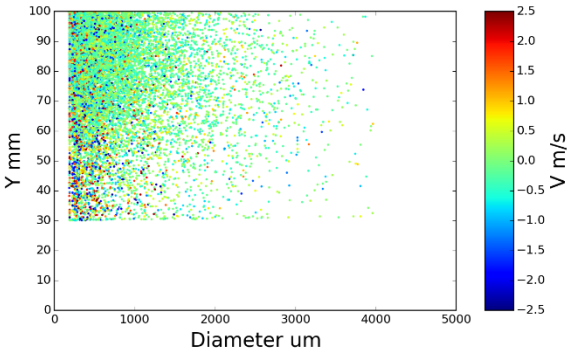


Figure C. 1198: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27317 / 3.442
Ref Mass Flow (lb/hr) / (kg/s)	3069 / 0.387
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29878 / 40.522
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	8070 / 25.46
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.2 / 4.53
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.4 / 4.67
Total Bundle Q (Btu/hr) / (kW)	272281 / 79.80
Total Bundle & Preboiler Q (Btu/hr) / (kW)	272281 / 79.80
Top Two Rows HTC Ratio	0.912
Bundle Inlet Quality	-0.07
Bundle Exit Quality	0.99

Table C. 131: Thermal Conditions

C.4.2.1 Lens 100mm Mag 0_29x

C.4.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	62.13	64.04	76.0	3981	578.6	594.9	76.0	4011	577.7	596.9
40-60mm	137.8	138.01	76.0	4010	530.4	534.3	76.0	4016	524.8	534.3
60-80mm	115.27	119.87	76.0	3964	476.8	450.2	76.0	3830	462.5	438.3
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	315.2	321.92	76.0	4010	520.3	519.7	76.0	4016	512.1	516.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8842			
Lowest Particle			31.9382				31.9268			

Table C. 132: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	40.24	81.3	3850	680.4	596.3	76.0	4011	676.6	601.0	-2.550	2.480	-0.060	0.460	-2.530	2.540	-0.150	0.590
40-60mm	93.17	81.3	3845	609.9	526.8	76.0	4016	609.1	533.6	-2.550	2.520	-0.060	0.440	-2.550	2.530	-0.180	0.570
60-80mm	84.56	81.3	3820	536.8	440.4	81.3	3830	536.8	445.2	-2.540	2.540	-0.060	0.380	-2.550	2.550	-0.240	0.530
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	217.97	81.3	3850	594.6	512.1	76.0	4016	593.7	517.8	-2.550	2.540	-0.060	0.420	-2.550	2.550	-0.200	0.560

Table C. 133: Matched Droplet Info

C.4.2.1 All Droplets for .LA Image

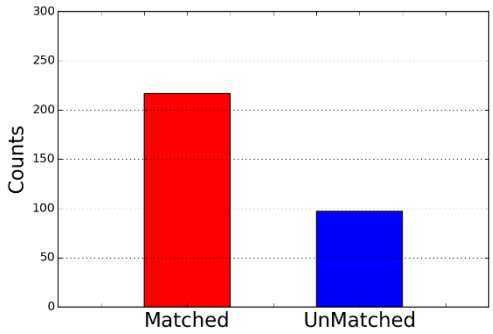


Figure C. 1201: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

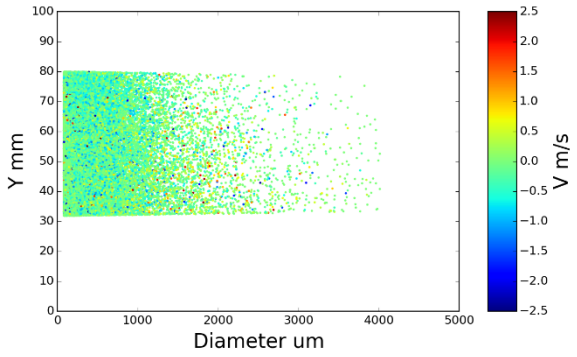


Figure C. 1204: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

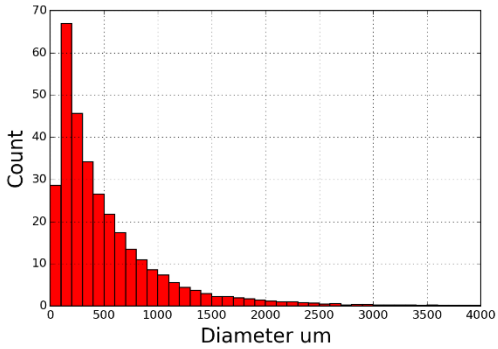


Figure C. 1202: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

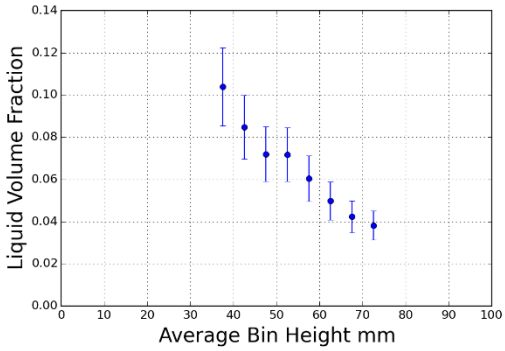


Figure C. 1205: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

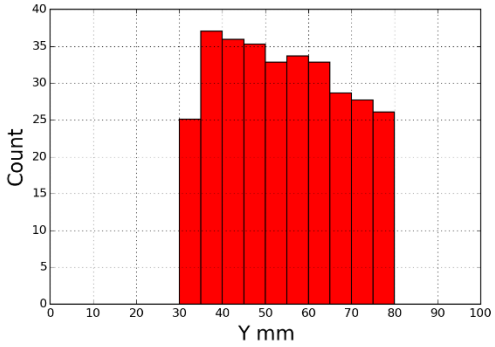


Figure C. 1203: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 All Droplets for .LB Image

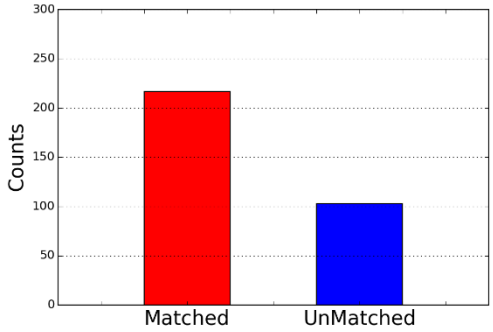


Figure C. 1206: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

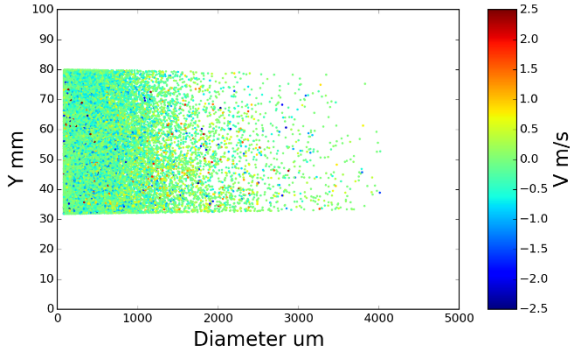


Figure C. 1209: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

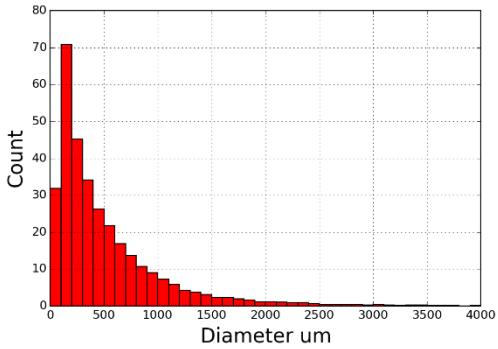


Figure C. 1207: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

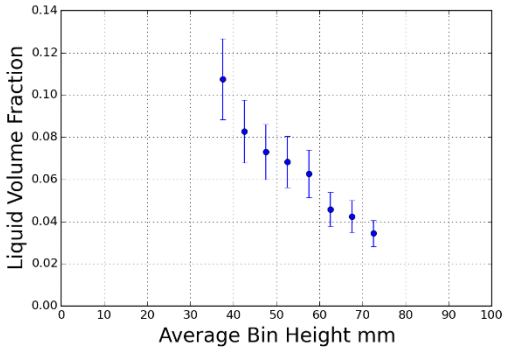


Figure C. 1210: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

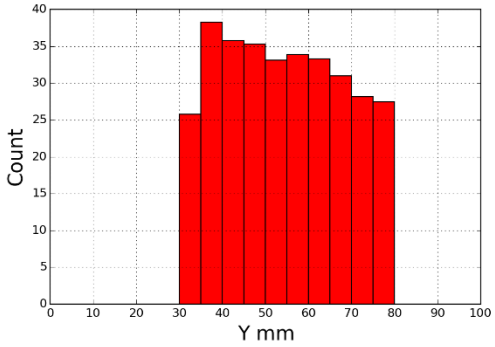


Figure C. 1208: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LA Image

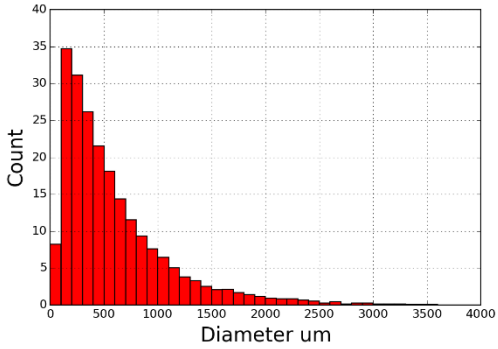


Figure C. 1211: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

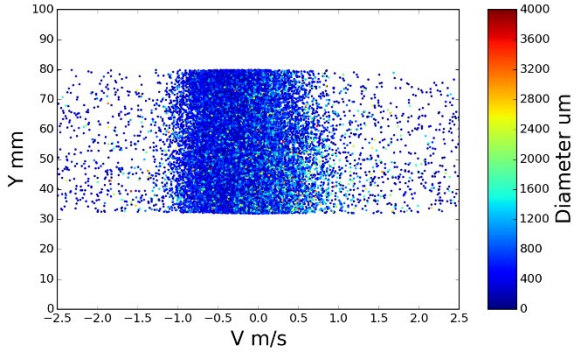


Figure C. 1214: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

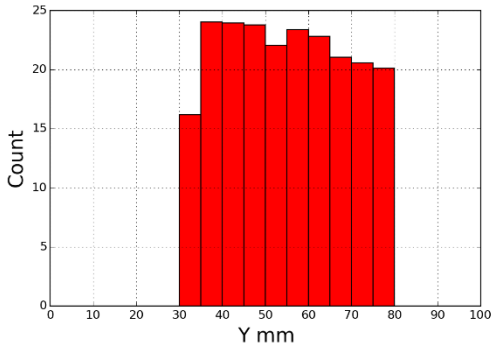


Figure C. 1212: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

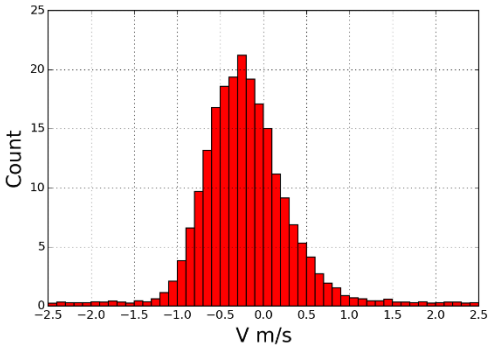


Figure C. 1215: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

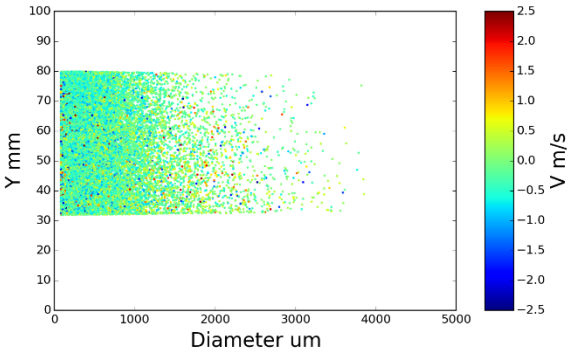


Figure C. 1213: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LB Image

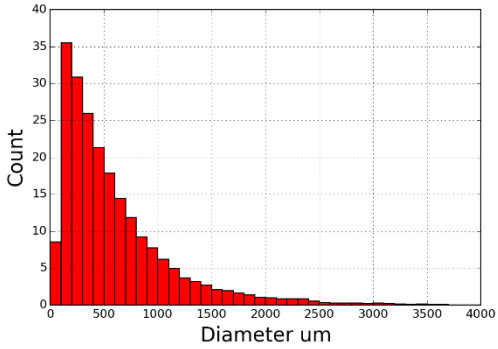


Figure C. 1216: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

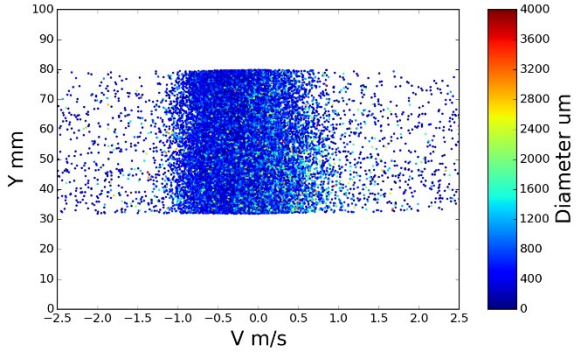


Figure C. 1219: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

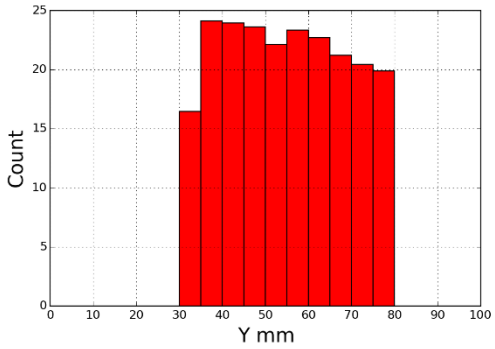


Figure C. 1217: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

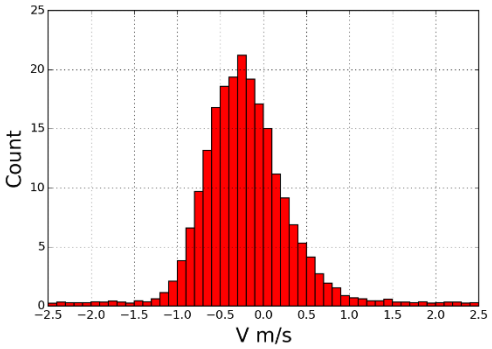


Figure C. 1220: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

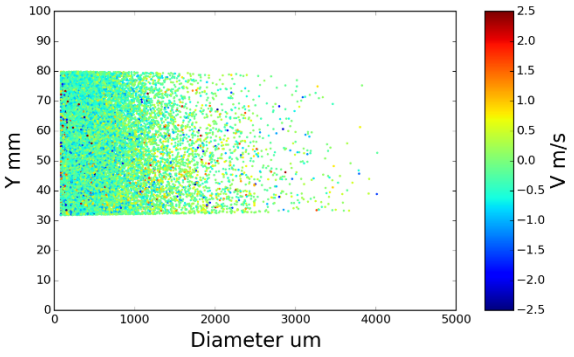


Figure C. 1218: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	82.09	80.87	76.0	3978	578.1	568.4	76.0	4017	576.8	571.7
40-60mm	180.31	181.15	76.0	4020	532.2	512.8	76.0	3988	530.8	515.9
60-80mm	136.35	137.76	76.0	3948	484.4	448.1	76.0	3986	479.0	441.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	398.75	399.78	76.0	4020	525.3	505.2	76.0	4017	522.2	505.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8935			
Lowest Particle			31.9268				31.9268			

Table C. 134: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	54.9	81.3	3861	657.9	560.8	76.0	3896	655.6	565.2	-2.490	2.530	-0.040	0.440	-2.540	2.550	0.090	0.590
40-60mm	124.49	81.3	3831	603.3	503.9	81.3	3874	597.4	504.5	-2.550	2.550	-0.040	0.410	-2.530	2.550	0.010	0.570
60-80mm	100.18	81.3	3736	549.2	447.9	76.0	3859	541.3	442.5	-2.530	2.500	-0.040	0.360	-2.540	2.550	-0.070	0.510
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	279.57	81.3	3861	594.6	498.2	76.0	3896	588.7	497.9	-2.550	2.550	-0.040	0.400	-2.540	2.550	-0.000	0.560

Table C. 135: Matched Droplet Info

C.4.2.1 All Droplets for .LA Image

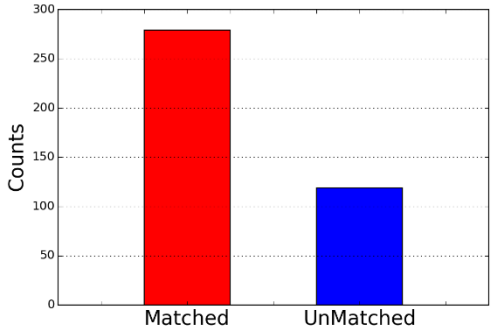


Figure C. 1221: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

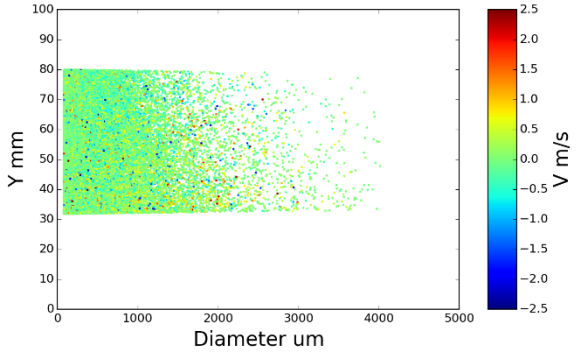


Figure C. 1224: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

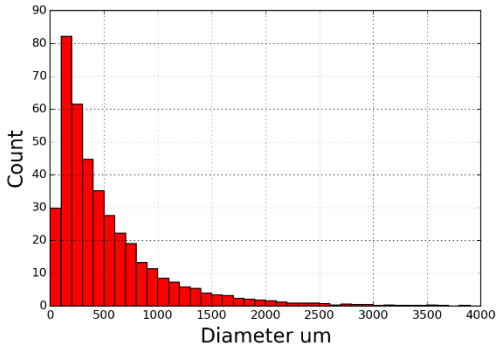


Figure C. 1222: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

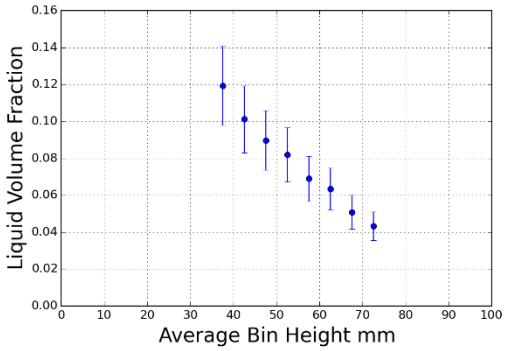


Figure C. 1225: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

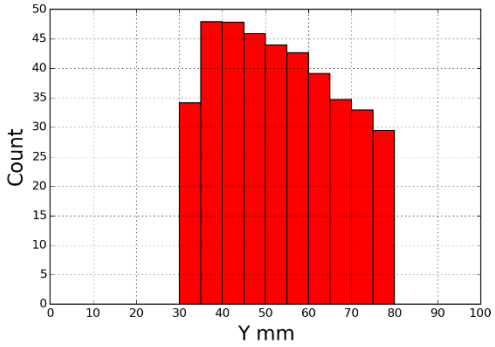


Figure C. 1223: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 All Droplets for .LB Image

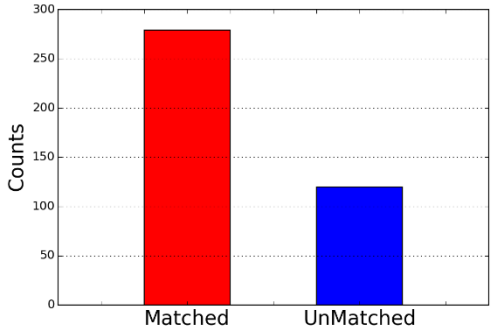


Figure C. 1226: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

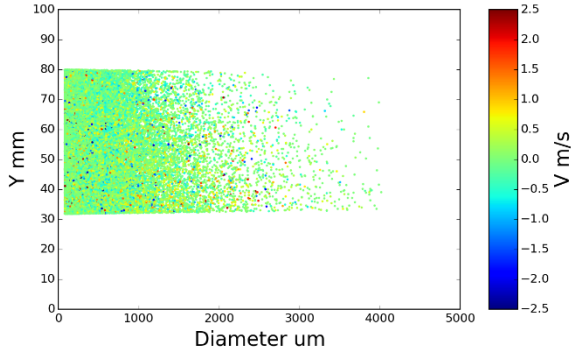


Figure C. 1229: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

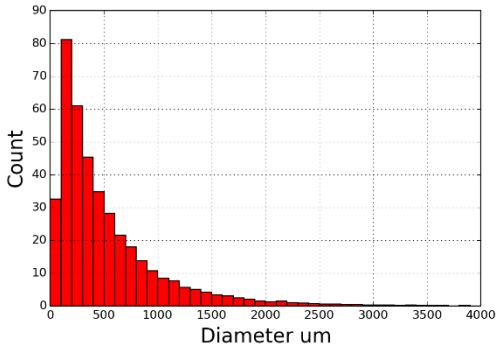


Figure C. 1227: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

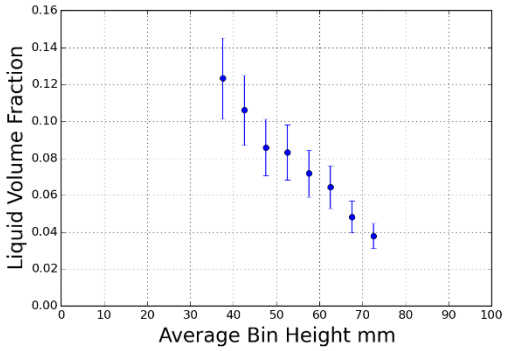


Figure C. 1230: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

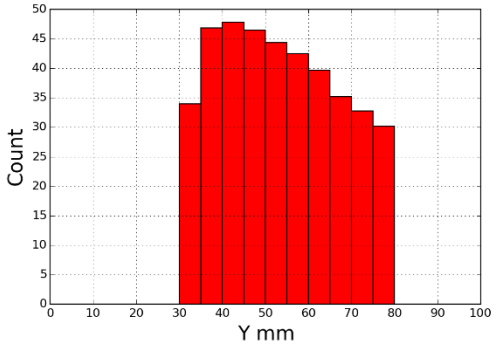


Figure C. 1228: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LA Image

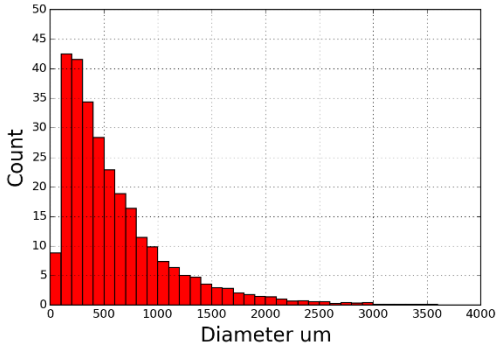


Figure C. 1231: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

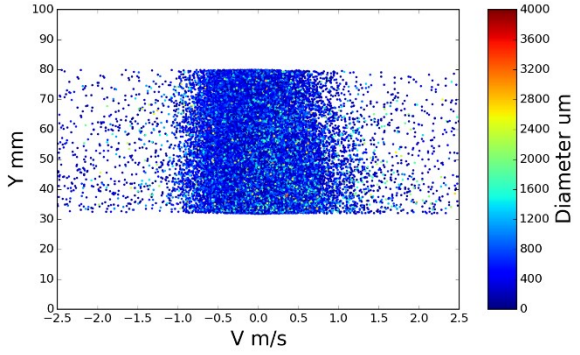


Figure C. 1234: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

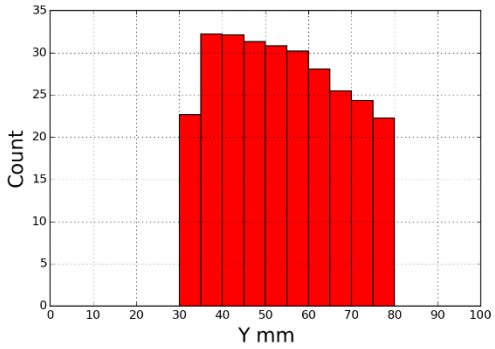


Figure C. 1232: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

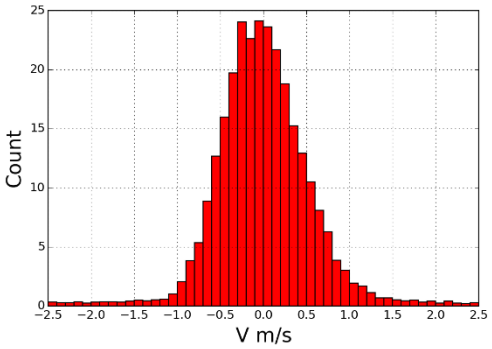


Figure C. 1235: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

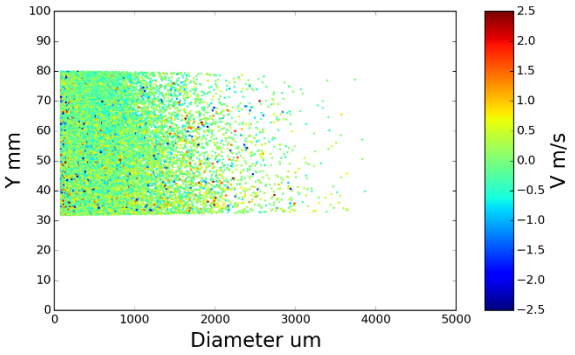


Figure C. 1233: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LB Image

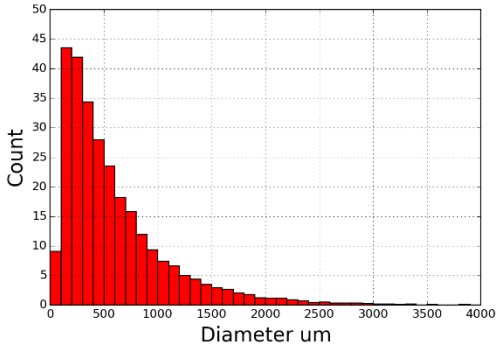


Figure C. 1236: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

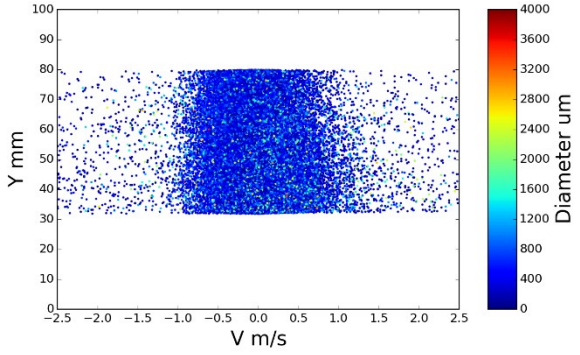


Figure C. 1239: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

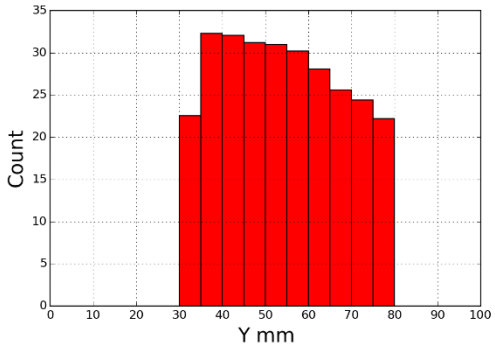


Figure C. 1237: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

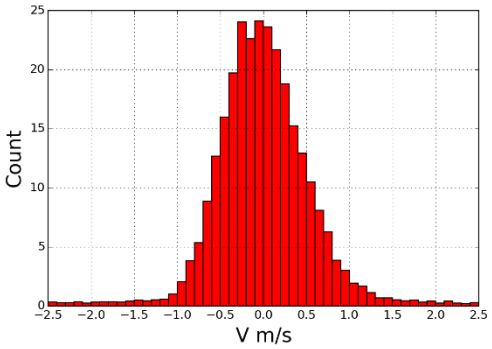


Figure C. 1240: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

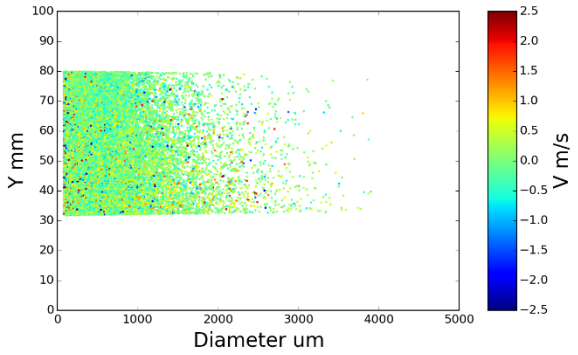


Figure C. 1238: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	91.78	92.29	76.0	3924	563.5	545.6	76.0	3902	558.7	535.7
40-60mm	207.18	206.14	76.0	4007	517.0	503.9	76.0	4008	516.8	505.5
60-80mm	162.99	164.69	76.0	3991	483.2	442.6	76.0	3963	479.1	439.1
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	461.95	463.12	76.0	4007	514.3	492.9	76.0	4008	511.7	490.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.8935				79.8833			
Lowest Particle			31.9268				31.9268			

Table C. 136: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	61.17	81.3	3687	641.5	535.0	81.3	3837	639.9	539.9	-2.550	2.550	-0.020	0.460	-2.550	2.520	0.320	0.590
40-60mm	140.36	81.3	3805	593.3	513.0	81.3	4008	587.4	513.3	-2.550	2.550	-0.020	0.430	-2.550	2.520	0.200	0.580
60-80mm	120.73	81.3	3832	544.1	441.4	81.3	3945	538.5	439.4	-2.530	2.550	-0.030	0.380	-2.530	2.520	0.070	0.520
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	322.26	81.3	3832	584.0	493.2	81.3	4008	578.9	493.6	-2.550	2.550	-0.030	0.420	-2.550	2.520	0.170	0.570

Table C. 137: Matched Droplet Info

C.4.2.1 All Droplets for .LA Image

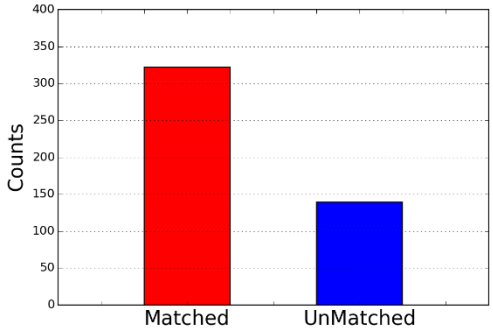


Figure C. 1241: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

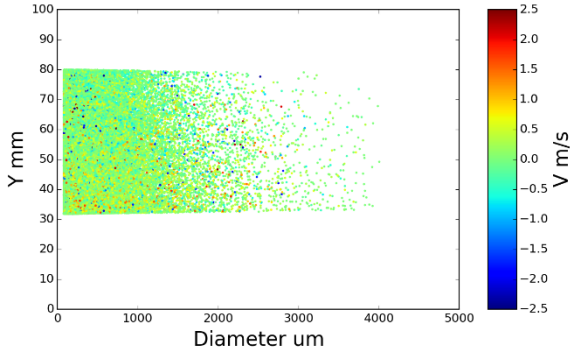


Figure C. 1244: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

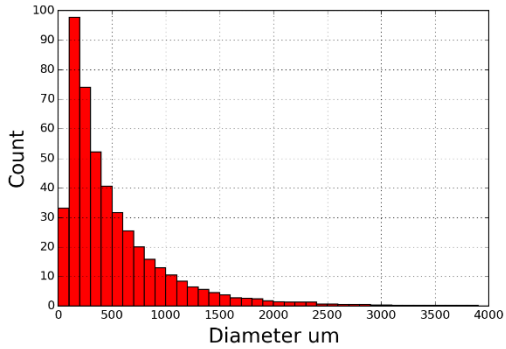


Figure C. 1242: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

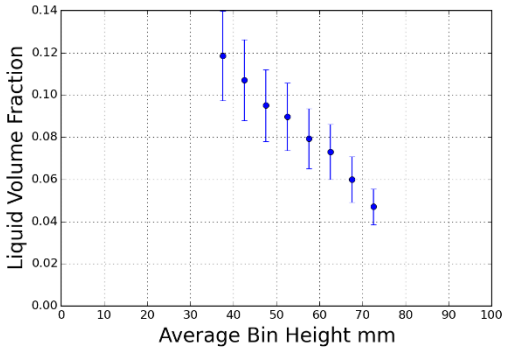


Figure C. 1245: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

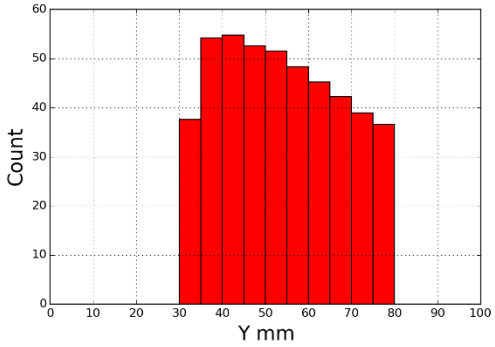


Figure C. 1243: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 All Droplets for .LB Image

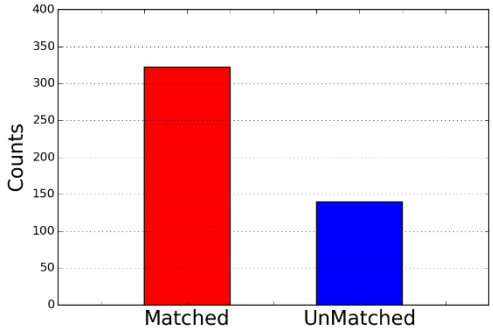


Figure C. 1246: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

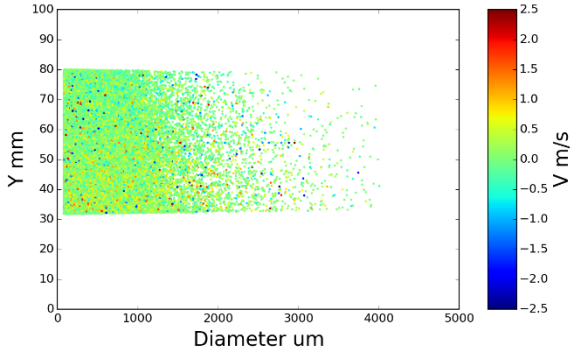


Figure C. 1249: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

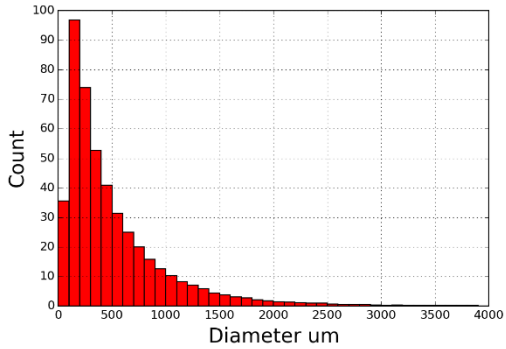


Figure C. 1247: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

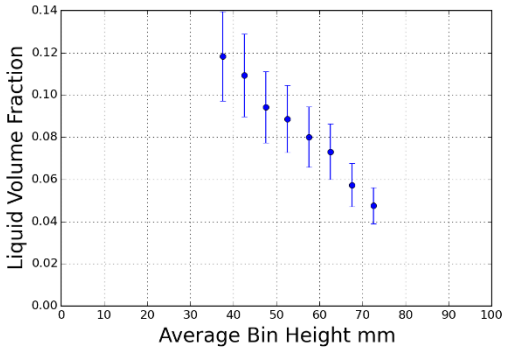


Figure C. 1250: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

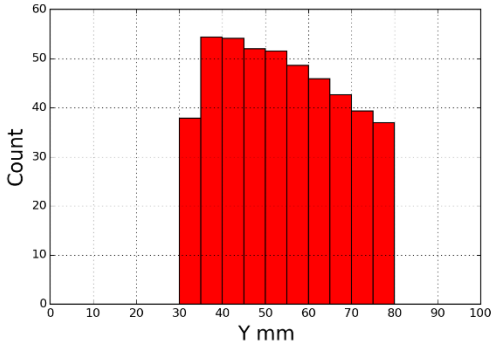


Figure C. 1248: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LA Image

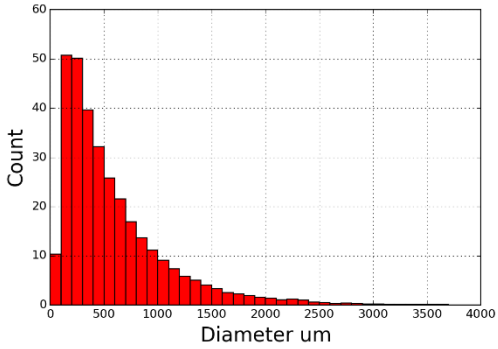


Figure C. 1251: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

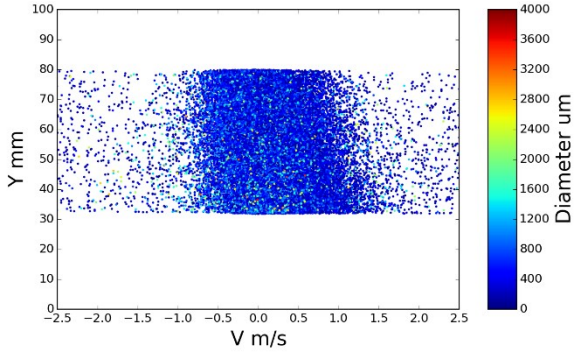


Figure C. 1254: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

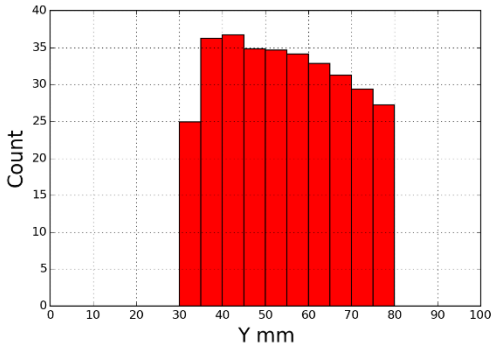


Figure C. 1252: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

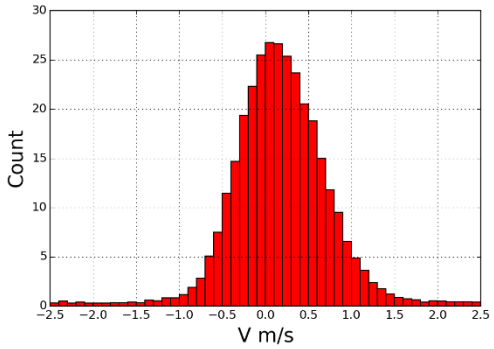


Figure C. 1255: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

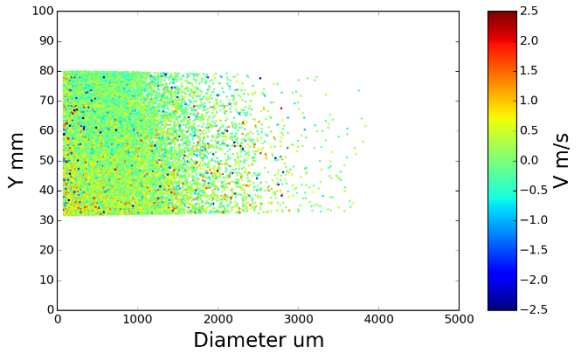


Figure C. 1253: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.1 Matched Only Droplets for .LB Image

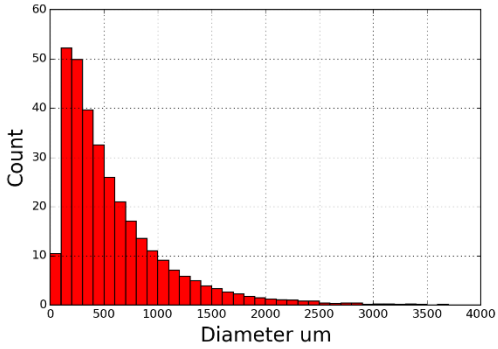


Figure C. 1256: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

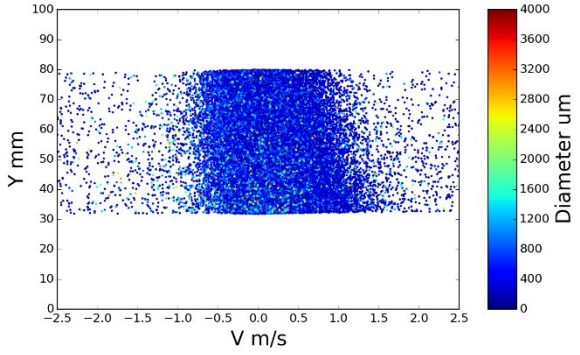


Figure C. 1259: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

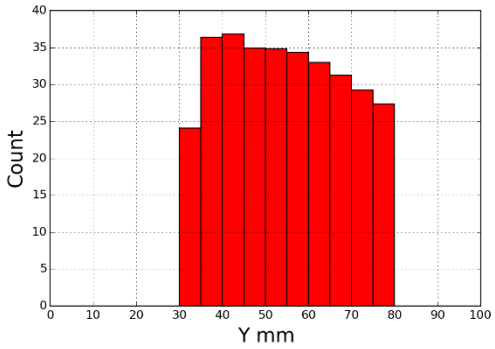


Figure C. 1257: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

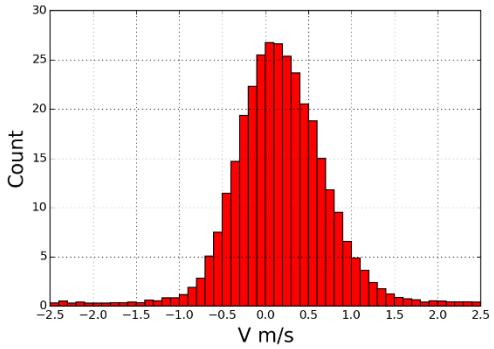


Figure C. 1260: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

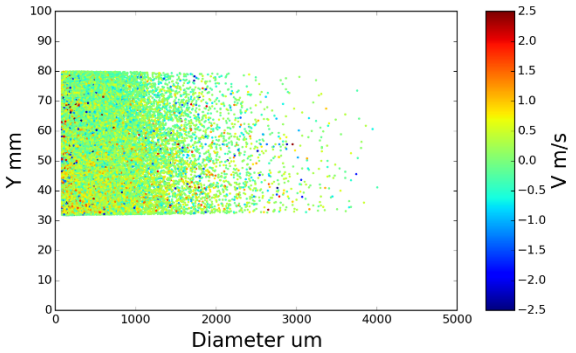


Figure C. 1258: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Lens 50mm Mag 0_13x

C.4.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	126.87	126.22	170.5	3983	773.5	605.8	170.5	3979	777.7	607.4
40-60mm	114.85	114.16	170.5	3961	723.5	570.9	182.3	3987	731.1	569.8
60-80mm	100.8	100.95	170.5	3929	639.1	461.7	170.5	3924	633.5	454.2
80-100mm	80.72	81.69	170.5	3321	513.5	312.3	170.5	3425	516.4	315.8
All	423.25	423.02	170.5	3983	678.4	526.0	170.5	3987	680.3	524.8
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				99.9886			
Lowest Particle			20.1062				20.1062			

Table C. 138: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	73.46	182.3	3893	862.8	604.3	182.3	3979	848.3	608.1	-2.450	2.450	-0.080	0.760	-2.450	2.450	-0.050	0.840
40-60mm	71.07	182.3	3959	796.4	570.1	182.3	3952	786.1	569.7	-2.450	2.450	-0.060	0.670	-2.450	2.450	-0.160	0.760
60-80mm	69.02	182.3	3609	684.2	459.4	182.3	3924	677.0	459.0	-2.450	2.450	-0.060	0.600	-2.450	2.450	-0.220	0.660
80-100mm	57.72	182.3	3321	550.8	326.3	170.5	3425	550.7	323.0	-2.450	2.430	-0.110	0.520	-2.450	2.450	-0.240	0.590
All	271.27	182.3	3959	733.6	523.1	170.5	3979	725.6	523.0	-2.450	2.450	-0.080	0.650	-2.450	2.450	-0.160	0.730

Table C. 139: Matched Droplet Info

C.4.2.2 All Droplets for .LA Image

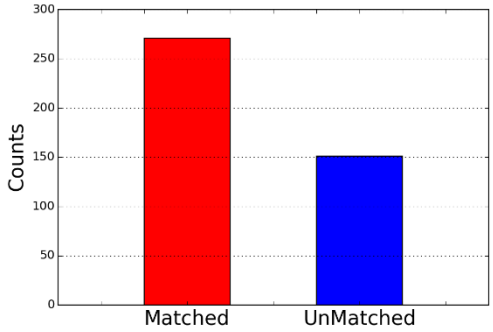


Figure C. 1261: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

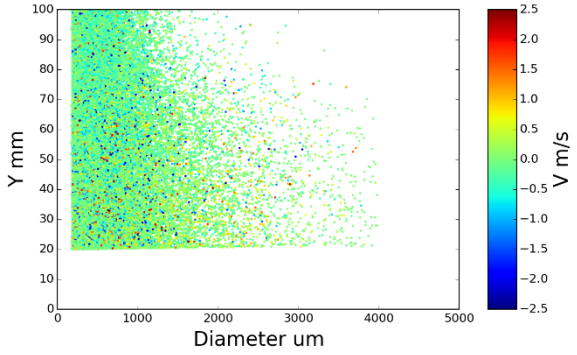


Figure C. 1264: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

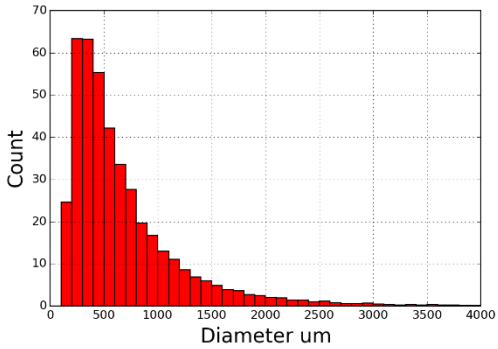


Figure C. 1262: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

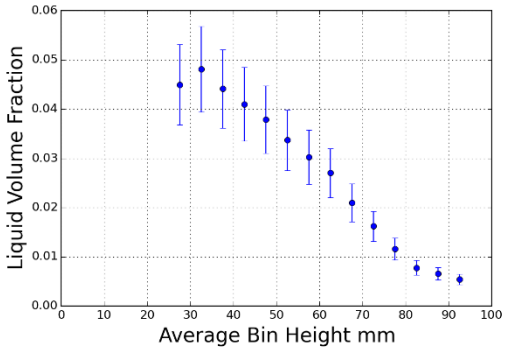


Figure C. 1265: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

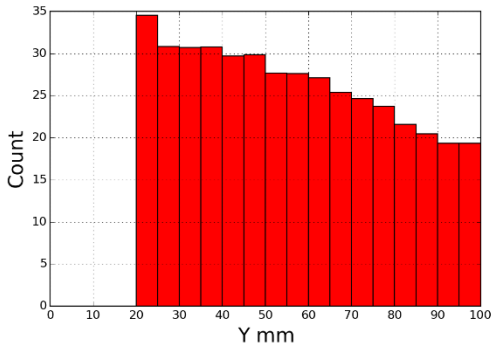


Figure C. 1263: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 All Droplets for .LB Image

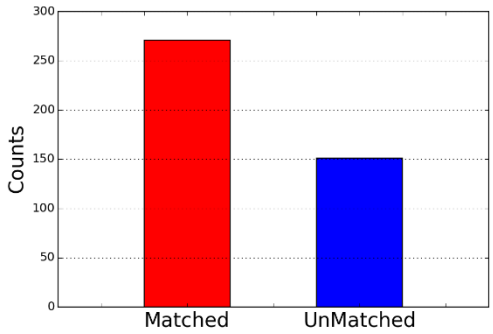


Figure C. 1266: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

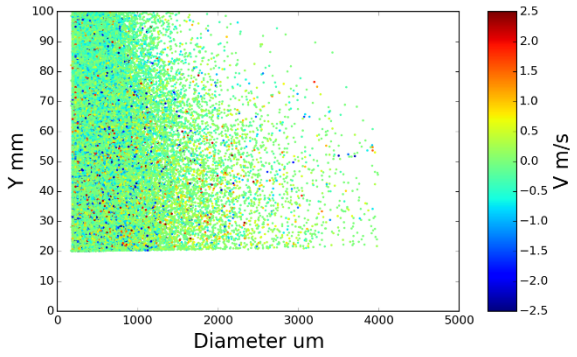


Figure C. 1269: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

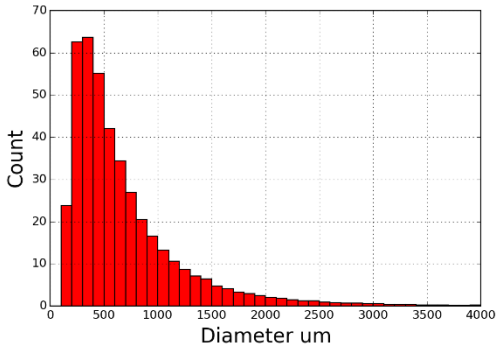


Figure C. 1267: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

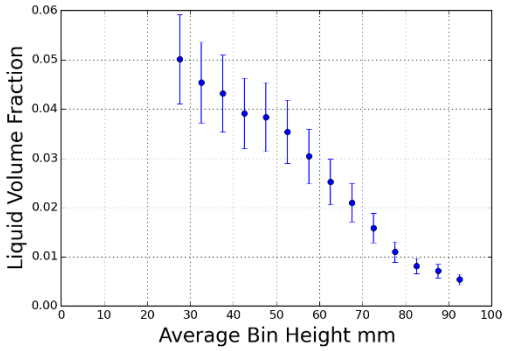


Figure C. 1270: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

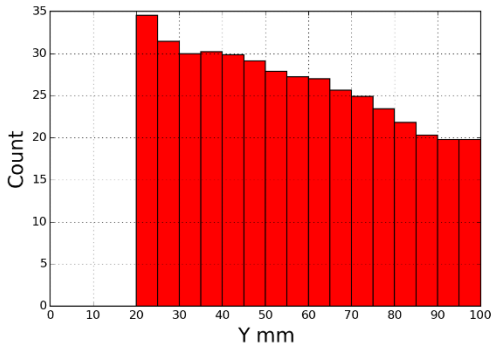


Figure C. 1268: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LA Image

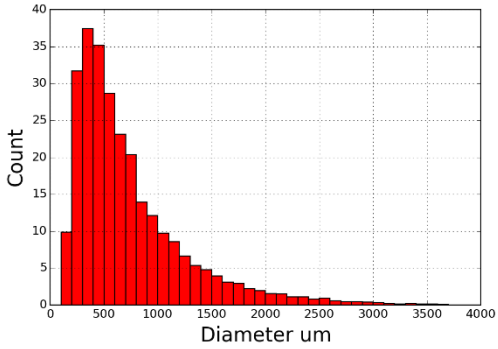


Figure C. 1271: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

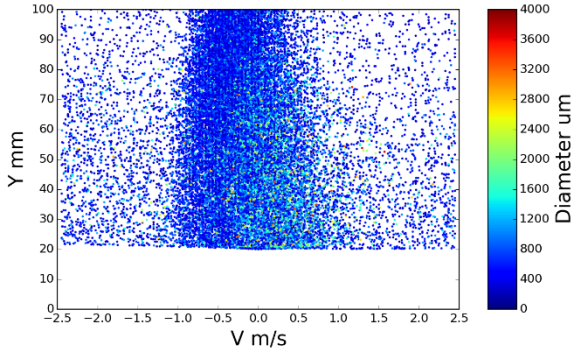


Figure C. 1274: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

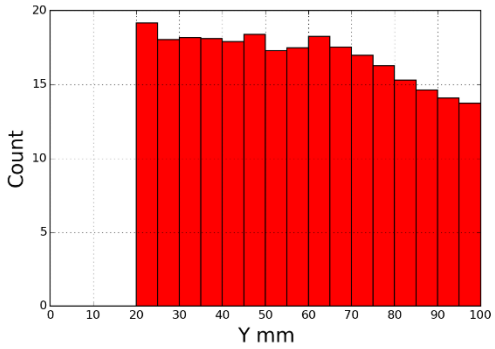


Figure C. 1272: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

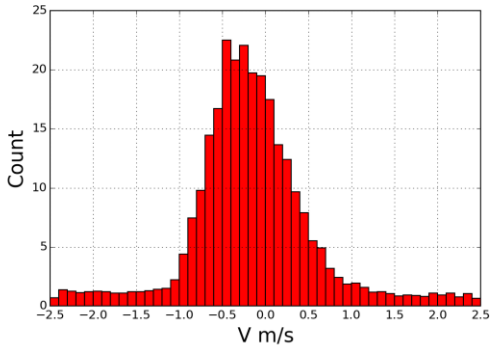


Figure C. 1275: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

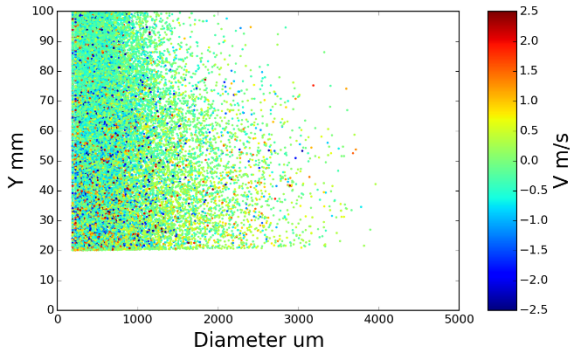


Figure C. 1273: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LB Image

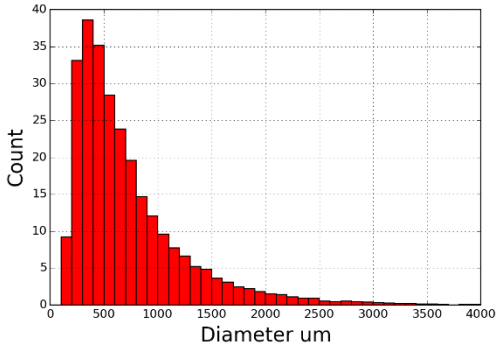


Figure C. 1276: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

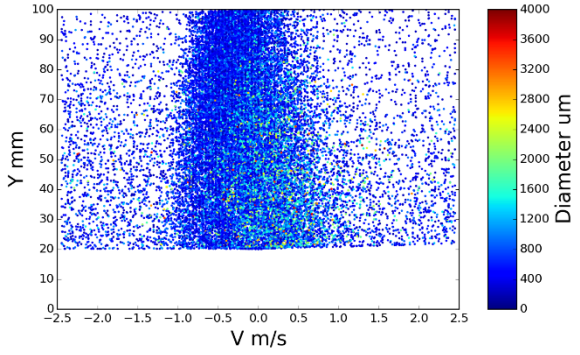


Figure C. 1279: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

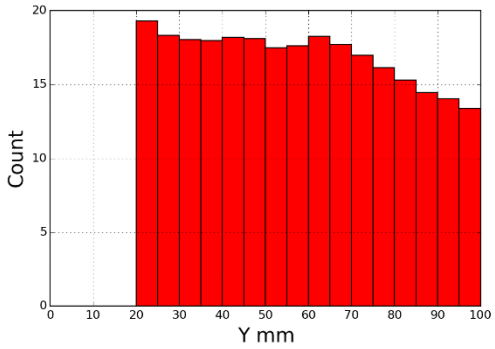


Figure C. 1277: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

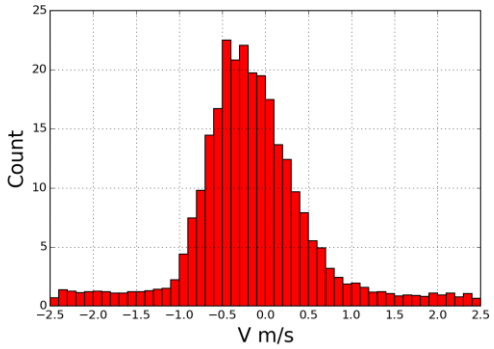


Figure C. 1280: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

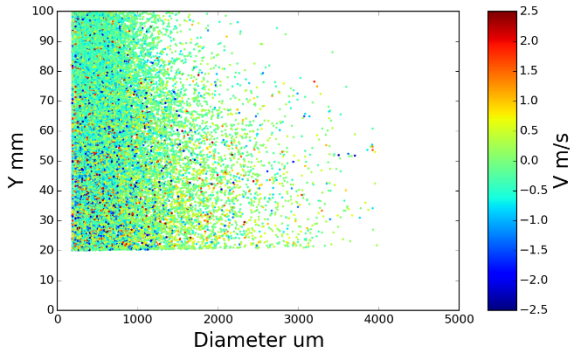


Figure C. 1278: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	148.17	147.74	170.5	3983	772.1	611.1	170.5	3985	773.4	601.3
40-60mm	131.86	133.47	170.5	3954	717.6	548.1	170.5	3953	717.1	547.1
60-80mm	108.94	109.42	170.5	3988	648.6	468.4	170.5	3984	652.5	468.5
80-100mm	84.72	86.69	170.5	3460	525.5	318.9	170.5	3395	529.2	323.1
All	473.7	477.33	170.5	3988	684.4	525.9	170.5	3985	685.6	521.8
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				100.0171			
Lowest Particle			20.1062				20.1062			

Table C. 140: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	85.45	182.3	3763	859.5	603.6	182.3	3970	844.3	606.3	-2.450	2.450	-0.090	0.830	-2.450	2.450	0.100	0.890
40-60mm	81.37	182.3	3757	784.9	547.2	182.3	3929	773.9	547.9	-2.450	2.450	-0.080	0.740	-2.450	2.450	-0.010	0.820
60-80mm	73.25	182.3	3931	705.4	477.1	182.3	3927	700.1	475.7	-2.450	2.450	-0.080	0.630	-2.450	2.450	-0.080	0.720
80-100mm	59.63	182.3	3460	570.2	334.4	182.3	3226	567.5	330.8	-2.450	2.450	-0.120	0.570	-2.450	2.450	-0.190	0.630
All	299.7	182.3	3931	744.0	523.1	182.3	3970	735.0	522.7	-2.450	2.450	-0.090	0.710	-2.450	2.450	-0.030	0.790

Table C. 141: Matched Droplet Info

C.4.2.2 All Droplets for .LA Image

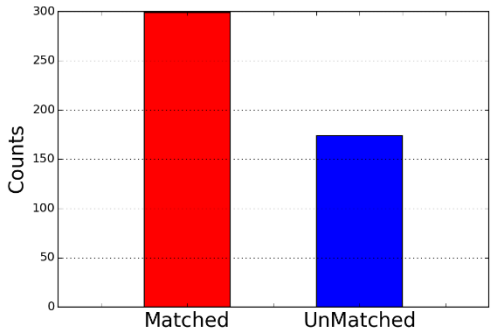


Figure C. 1281: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

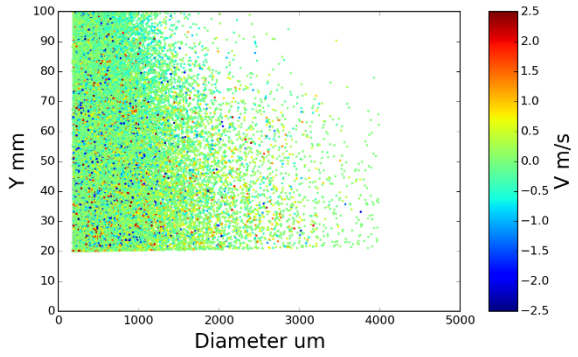


Figure C. 1284: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

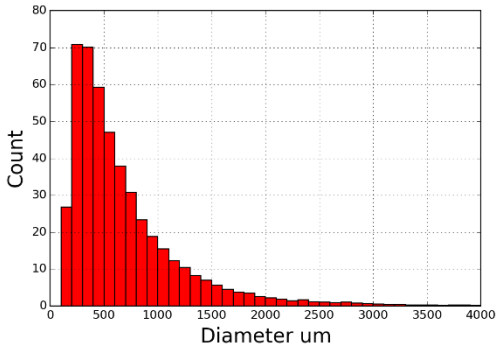


Figure C. 1282: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

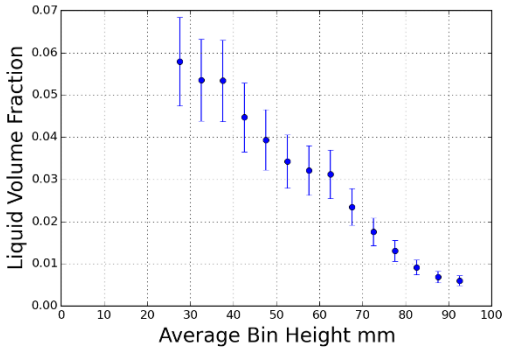


Figure C. 1285: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

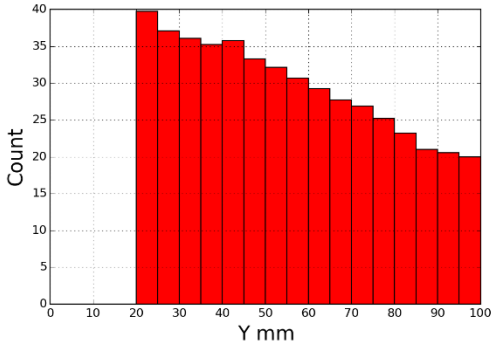


Figure C. 1283: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 All Droplets for .LB Image

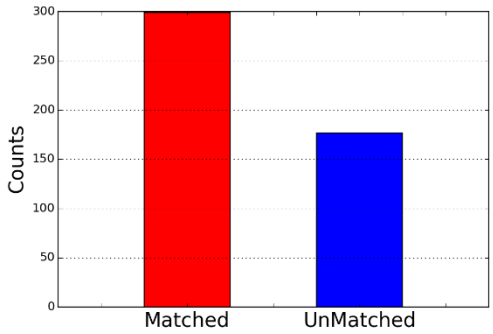


Figure C. 1286: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

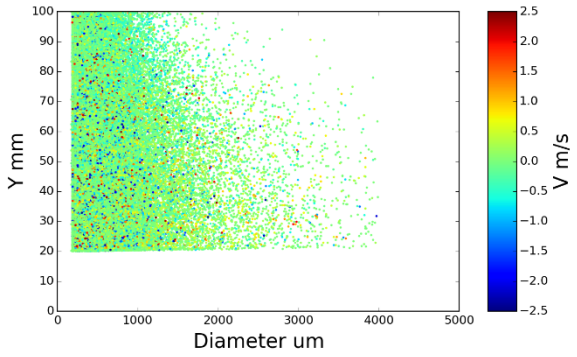


Figure C. 1289: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

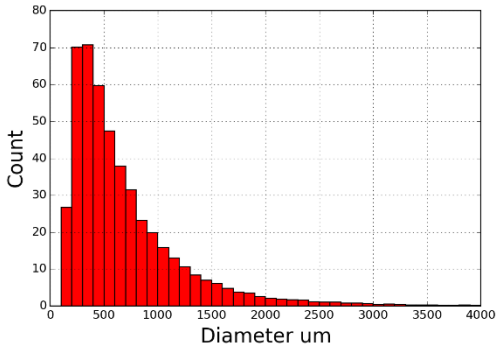


Figure C. 1287: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

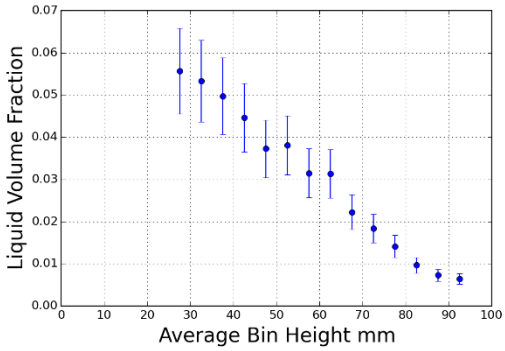


Figure C. 1290: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

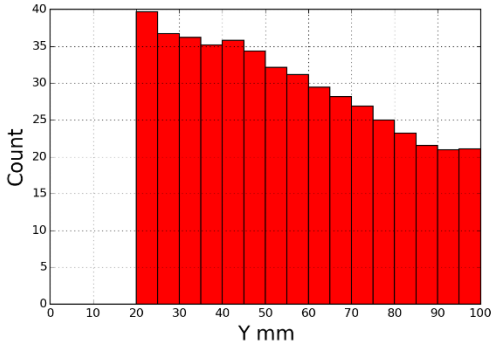


Figure C. 1288: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LA Image

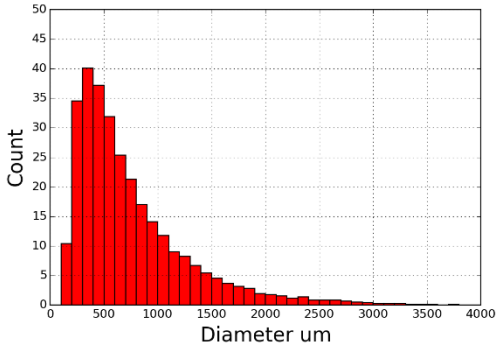


Figure C. 1291: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

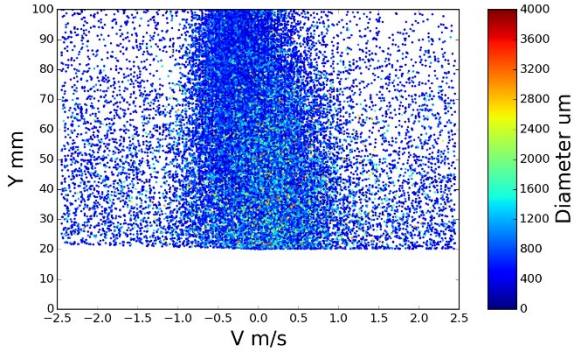


Figure C. 1294: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

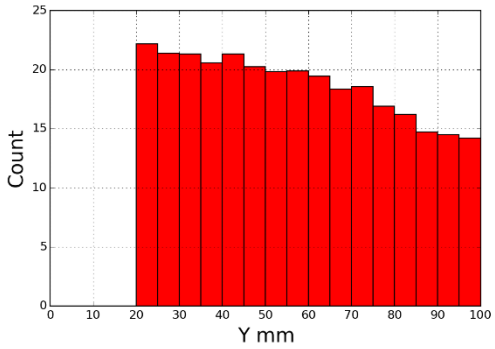


Figure C. 1292: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

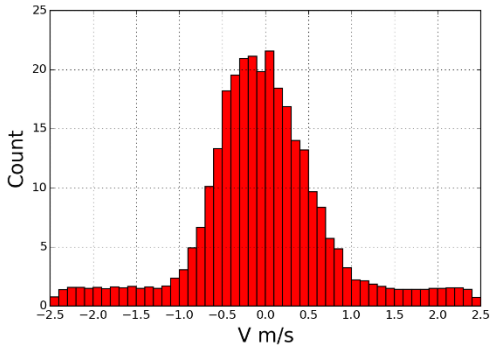


Figure C. 1295: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

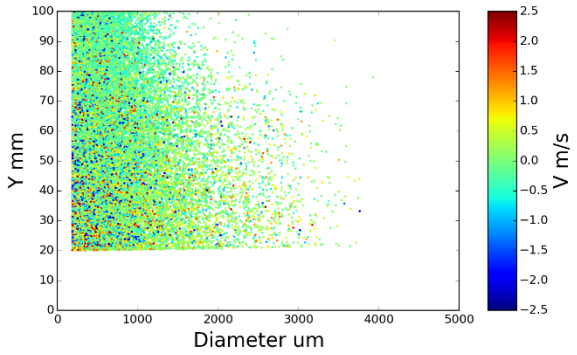


Figure C. 1293: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LB Image

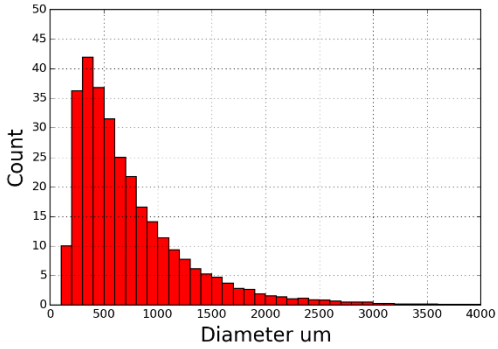


Figure C. 1296: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

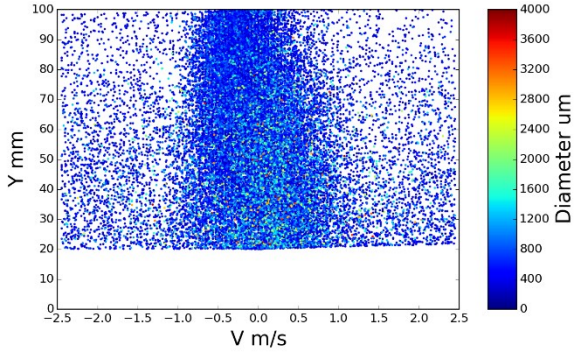


Figure C. 1299: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

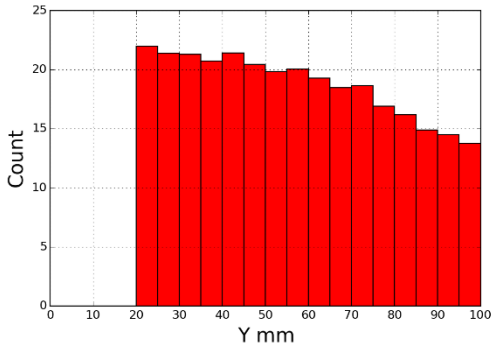


Figure C. 1297: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

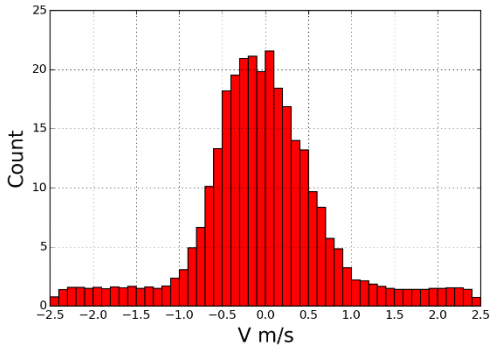


Figure C. 1300: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

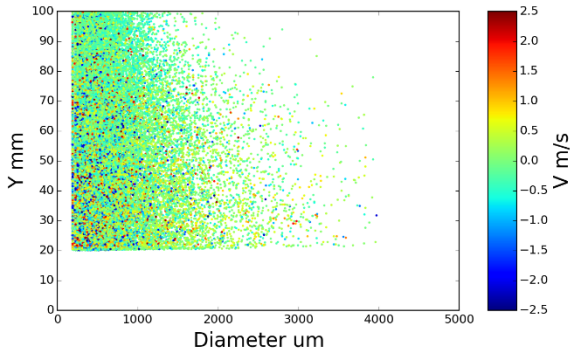


Figure C. 1298: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	157.89	158.02	170.5	3998	751.4	595.7	170.5	3990	756.4	594.5
40-60mm	155.09	153.35	170.5	3976	695.0	552.8	170.5	3998	702.9	559.7
60-80mm	129.76	129.34	170.5	3908	647.0	472.5	170.5	3954	648.6	473.3
80-100mm	99.49	100.51	182.3	3409	550.0	348.7	170.5	3861	554.0	355.9
All	542.25	541.25	170.5	3998	673.3	520.9	170.5	3998	677.9	523.5
			Height A (mm)				Height B (mm)			
Highest Particle			100.0171				100.0171			
Lowest Particle			20.1062				20.1062			

Table C. 142: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	87.27	182.3	3737	838.1	584.2	170.5	3986	821.6	581.4	-2.450	2.450	-0.080	0.890	-2.450	2.450	0.190	0.950
40-60mm	89.42	182.3	3827	763.5	553.7	170.5	3953	753.4	555.4	-2.450	2.450	-0.100	0.860	-2.450	2.450	0.100	0.920
60-80mm	82.42	182.3	3650	708.3	483.9	170.5	3835	697.9	480.9	-2.450	2.450	-0.090	0.730	-2.450	2.450	0.000	0.800
80-100mm	66.19	182.3	3206	604.5	367.1	182.3	3132	600.3	367.9	-2.450	2.450	-0.120	0.620	-2.450	2.450	-0.110	0.680
All	325.3	182.3	3827	737.2	518.9	170.5	3986	726.4	517.3	-2.450	2.450	-0.100	0.800	-2.450	2.450	0.060	0.860

Table C. 143: Matched Droplet Info

C.4.2.2 All Droplets for .LA Image

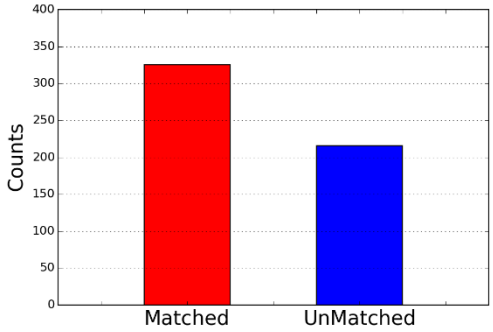


Figure C. 1301: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

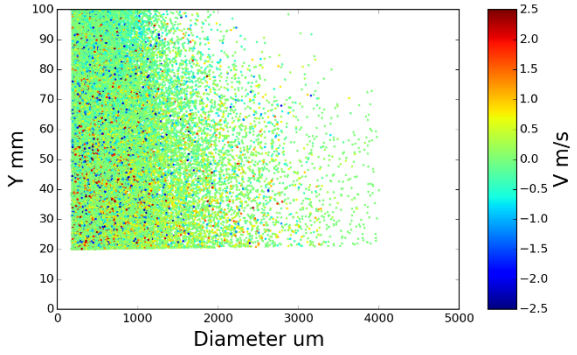


Figure C. 1304: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

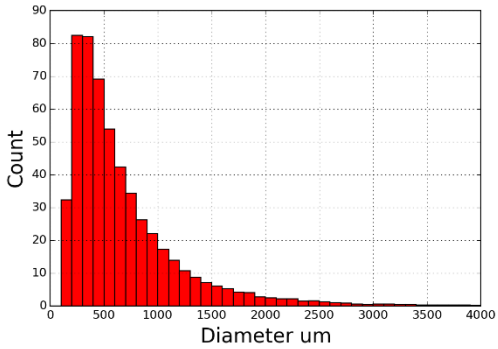


Figure C. 1302: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

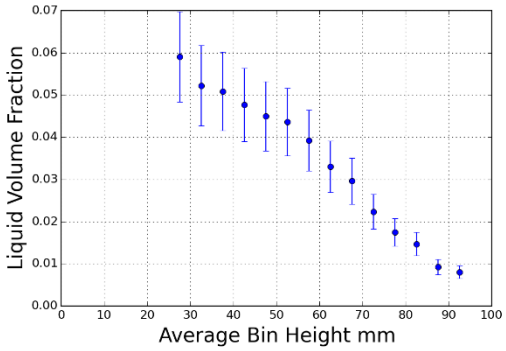


Figure C. 1305: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

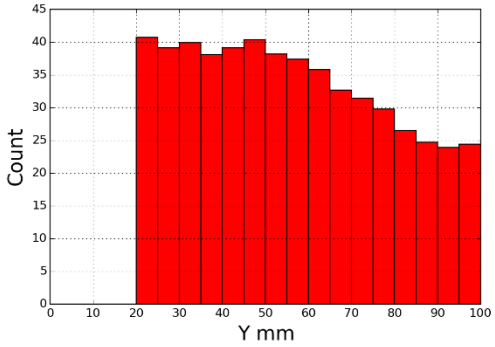


Figure C. 1303: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 All Droplets for .LB Image

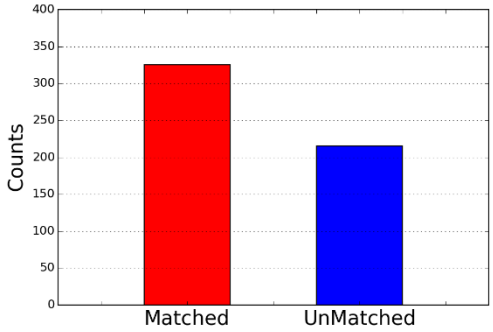


Figure C. 1306: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

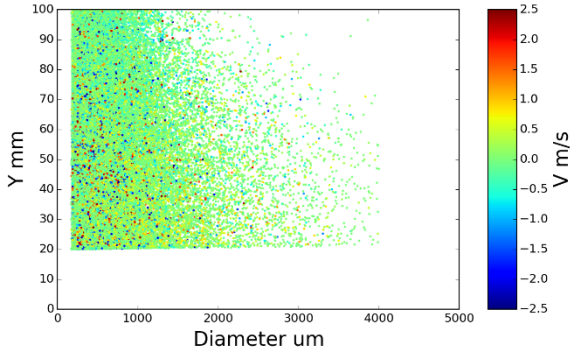


Figure C. 1309: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

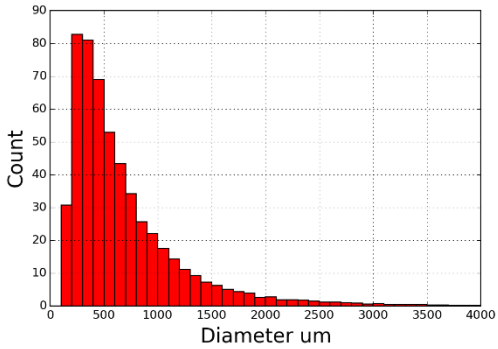


Figure C. 1307: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

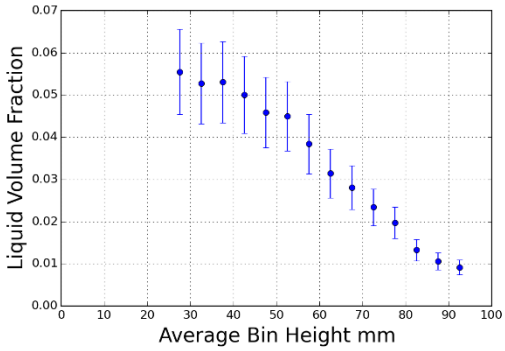


Figure C. 1310: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

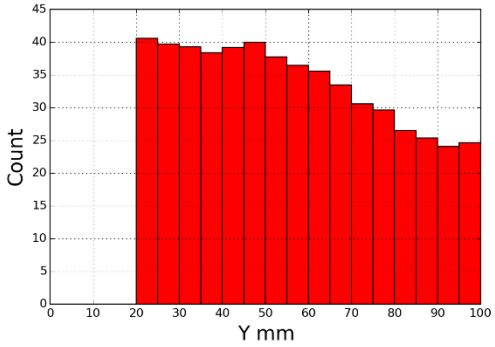


Figure C. 1308: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LA Image

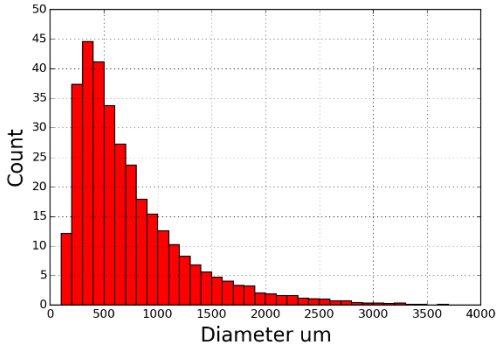


Figure C. 1311: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

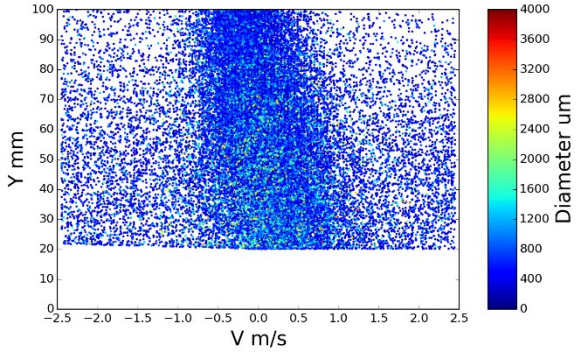


Figure C. 1314: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

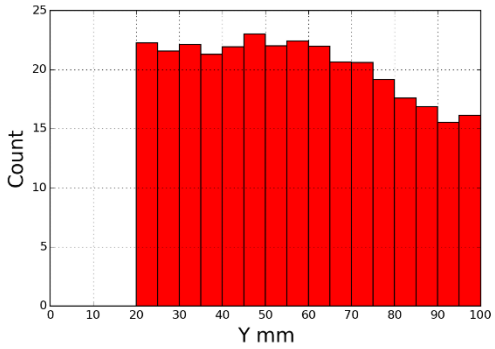


Figure C. 1312: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

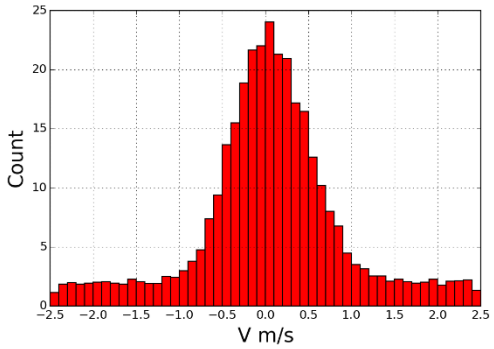


Figure C. 1315: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

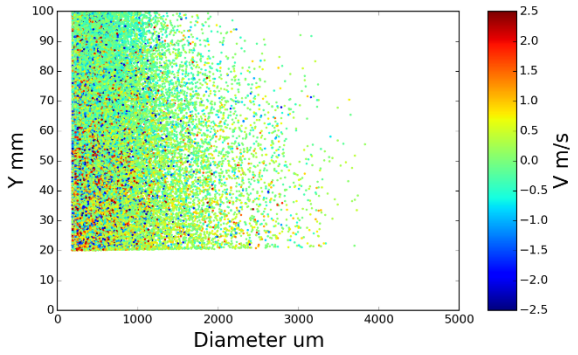


Figure C. 1313: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.2.2 Matched Only Droplets for .LB Image

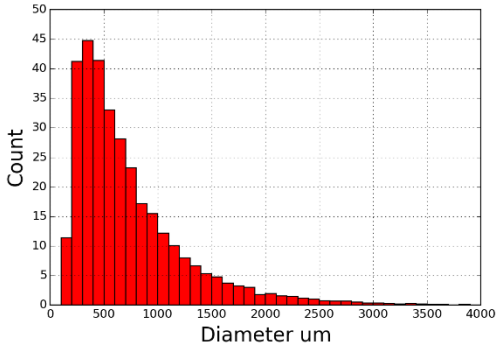


Figure C. 1316: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

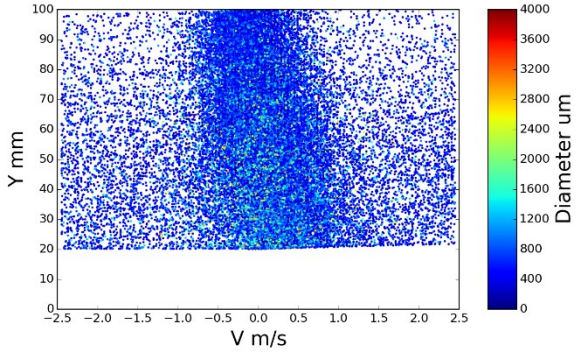


Figure C. 1319: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

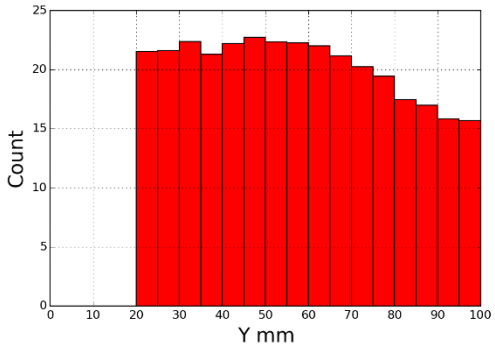


Figure C. 1317: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

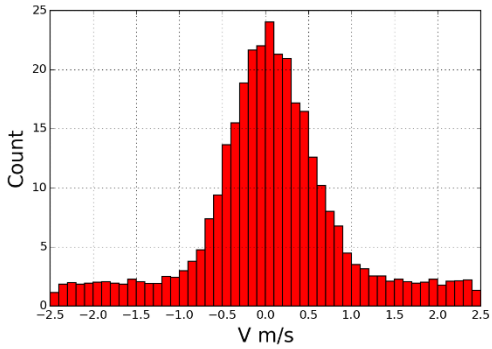


Figure C. 1320: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

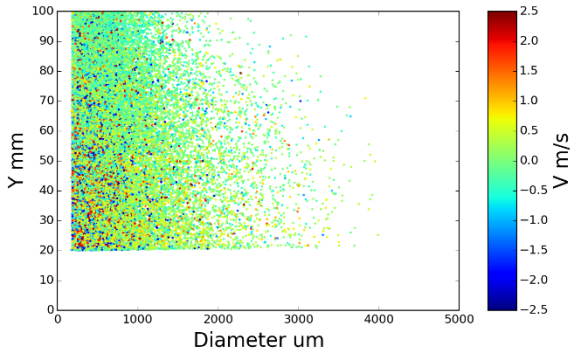


Figure C. 1318: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27338 / 3.444
Ref Mass Flow (lb/hr) / (kg/s)	3082 / 0.388
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29999 / 40.686
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4827 / 15.23
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	40.1 / 4.51
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	40.3 / 4.64
Total Bundle Q (Btu/hr) / (kW)	274201 / 80.36
Total Bundle & Preboiler Q (Btu/hr) / (kW)	274201 / 80.36
Top Two Rows HTC Ratio	0.521
Bundle Inlet Quality	-0.07
Bundle Exit Quality	0.99

Table C. 144: Thermal Conditions

C.4.3.1 Lens 100mm Mag 0_29x

C.4.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	8.9	8.86	81.3	2465	393.0	388.7	81.3	2380	391.2	383.4
40-60mm	14.19	13.96	76.0	2199	328.1	299.0	81.3	2038	327.9	294.0
60-80mm	12.22	12.21	86.2	1427	255.0	184.1	81.3	1440	254.3	182.7
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	35.31	35.03	76.0	2465	319.2	297.6	81.3	2380	318.2	293.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.8807				79.8807			
Lowest Particle			31.9268				31.9373			

Table C. 145: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.88	81.3	2254	422.4	355.1	81.3	2377	423.0	367.1	-2.030	2.370	-0.050	0.370	-2.510	2.210	-0.320	0.520
40-60mm	10.91	81.3	1787	348.3	279.4	81.3	1872	347.9	285.7	-2.380	1.900	-0.100	0.270	-2.500	2.060	-0.410	0.410
60-80mm	10.35	86.2	1427	268.9	182.5	86.2	1440	268.2	185.2	-1.700	1.020	-0.140	0.220	-1.500	2.440	-0.430	0.290
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	27.14	81.3	2254	334.1	273.5	81.3	2377	334.1	280.7	-2.380	2.370	-0.110	0.280	-2.510	2.440	-0.400	0.400

Table C. 146: Matched Droplet Info

C.4.3.1 All Droplets for .LA Image

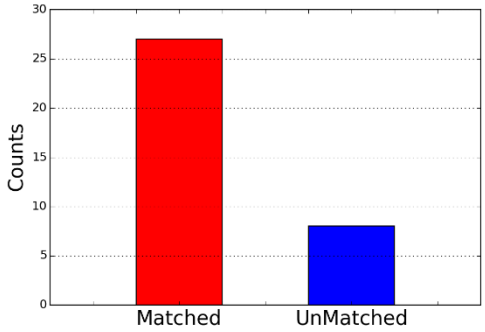


Figure C. 1321: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

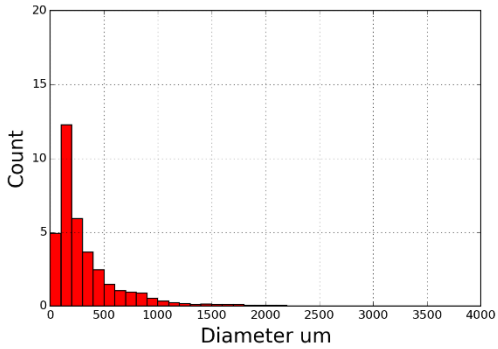


Figure C. 1322: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

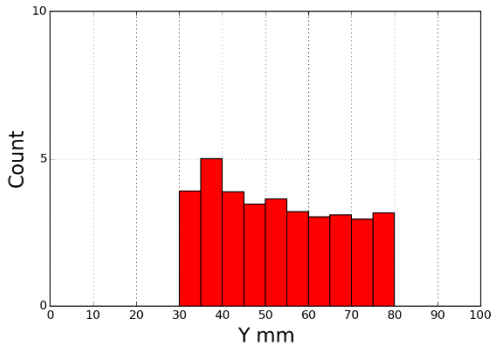


Figure C. 1323: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

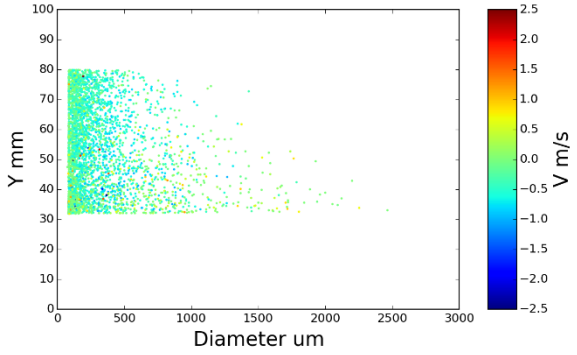


Figure C. 1324: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

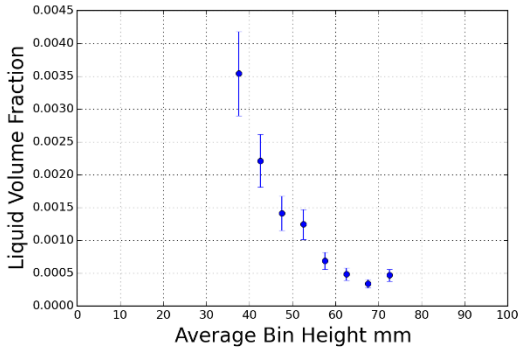


Figure C. 1325: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 All Droplets for .LB Image

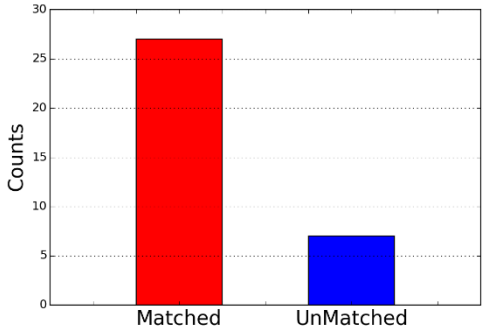


Figure C. 1326: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

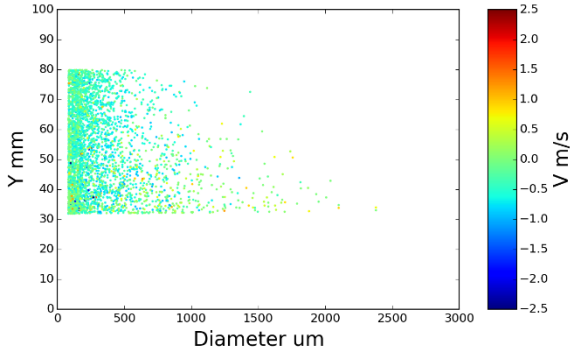


Figure C. 1329: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

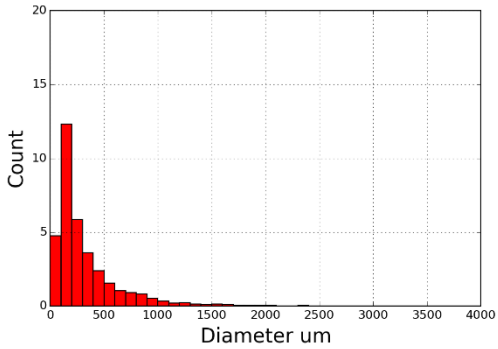


Figure C. 1327: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

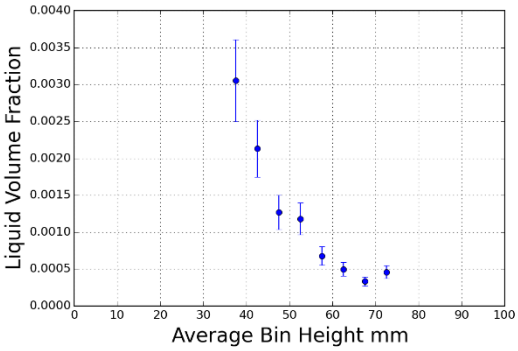


Figure C. 1330: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

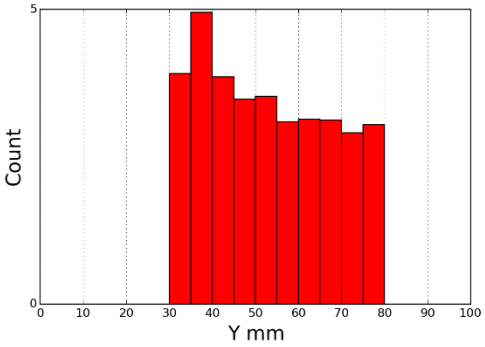


Figure C. 1328: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LA Image

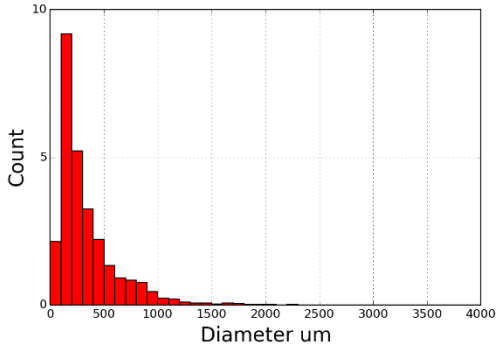


Figure C. 1331: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

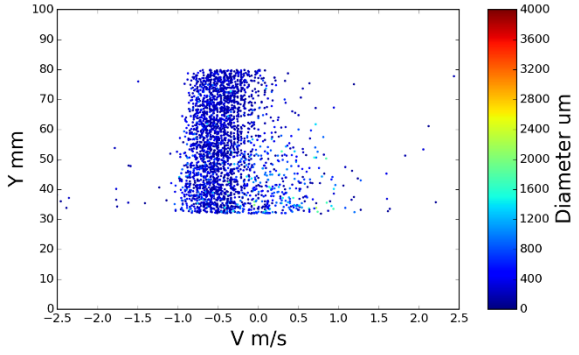


Figure C. 1334: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

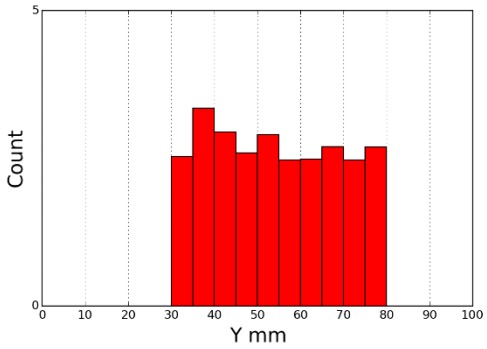


Figure C. 1332: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

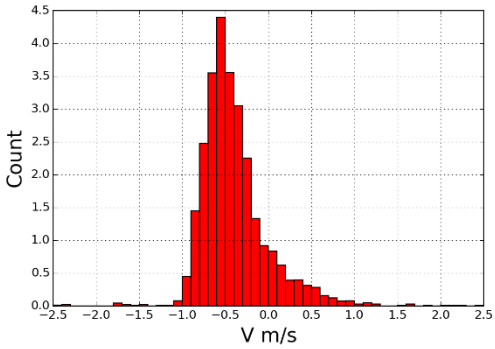


Figure C. 1335: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

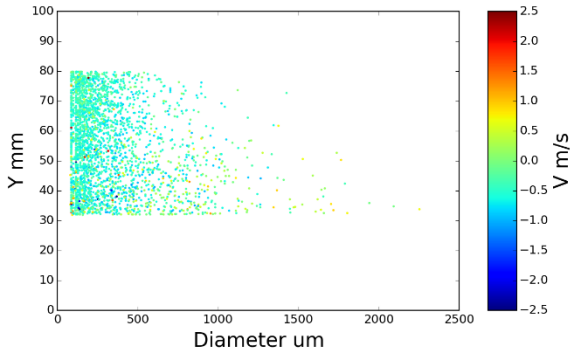


Figure C. 1333: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LB Image

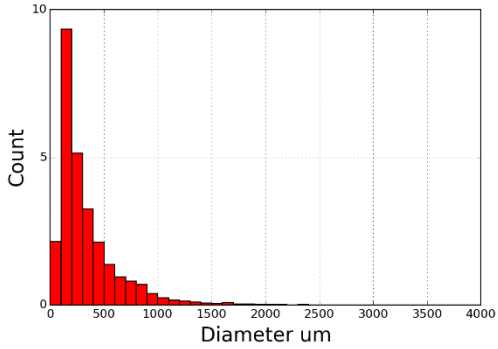


Figure C. 1336: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

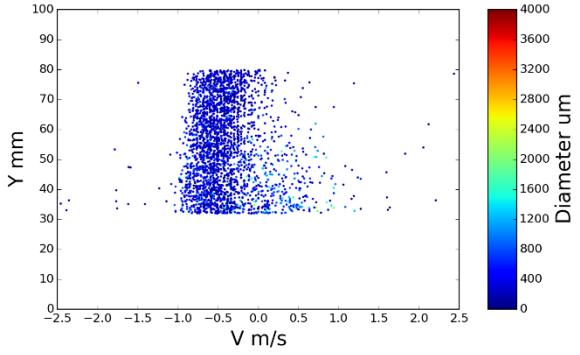


Figure C. 1339: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

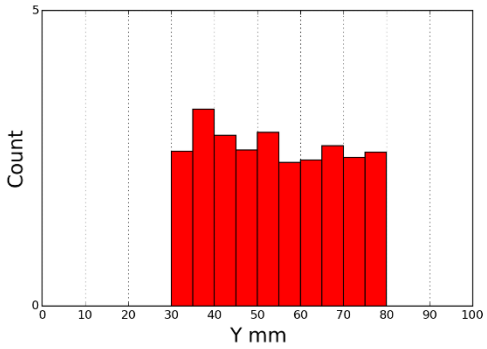


Figure C. 1337: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

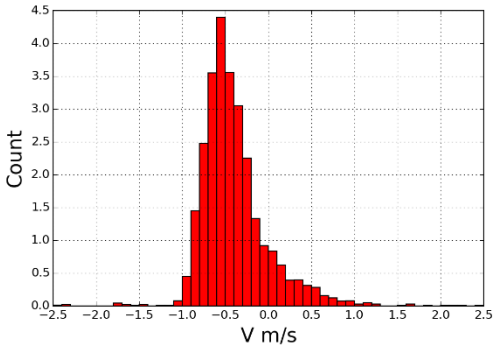


Figure C. 1340: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

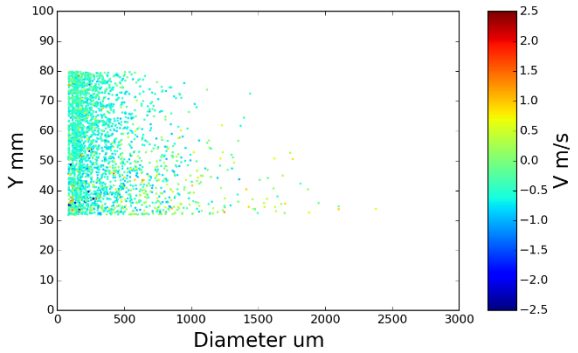


Figure C. 1338: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	14.08	13.88	76.0	2296	443.8	354.7	76.0	2193	447.1	357.6
40-60mm	22.28	21.94	76.0	2058	366.8	291.0	76.0	2155	366.8	292.1
60-80mm	15.31	15.27	81.3	1568	285.1	211.6	76.0	1501	285.4	211.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	51.67	51.09	76.0	2296	363.6	296.0	76.0	2193	364.3	297.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.8817				79.8695			
Lowest Particle			31.9384				31.9268			

Table C. 147: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.58	81.3	2187	490.5	344.0	81.3	2193	492.9	354.5	-2.470	2.290	-0.010	0.320	-1.870	2.280	0.080	0.570
40-60mm	17.21	81.3	2058	400.1	281.7	81.3	2155	397.5	285.4	-2.350	2.500	-0.020	0.290	-2.230	2.500	-0.070	0.500
60-80mm	12.82	81.3	1432	302.7	206.9	81.3	1501	301.9	210.4	-1.830	2.510	-0.020	0.230	-2.180	1.650	-0.170	0.360
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	40.61	81.3	2187	392.9	288.2	81.3	2193	392.2	294.1	-2.470	2.510	-0.020	0.280	-2.230	2.500	-0.060	0.490

Table C. 148: Matched Droplet Info

C.4.3.1 All Droplets for .LA Image

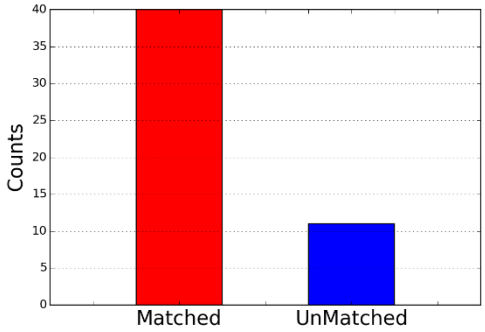


Figure C. 1341: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

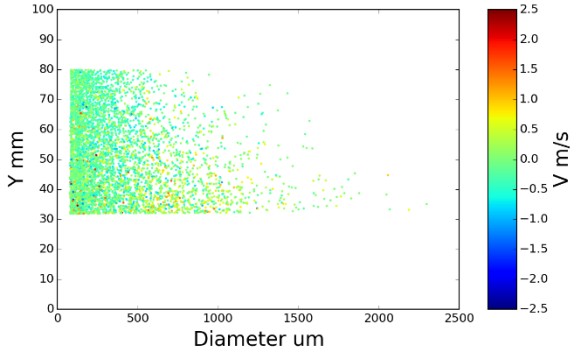


Figure C. 1344: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

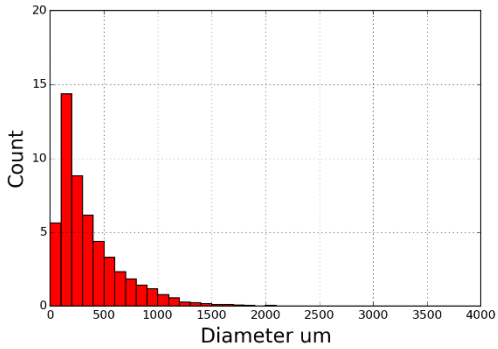


Figure C. 1342: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

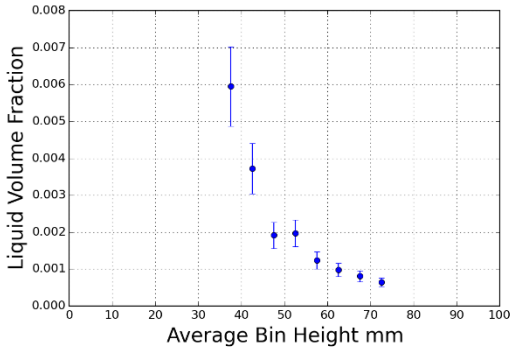


Figure C. 1345: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

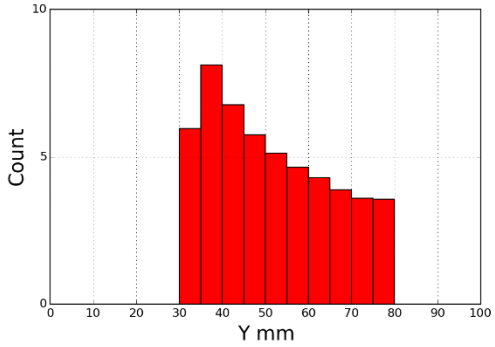


Figure C. 1343: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 All Droplets for .LB Image

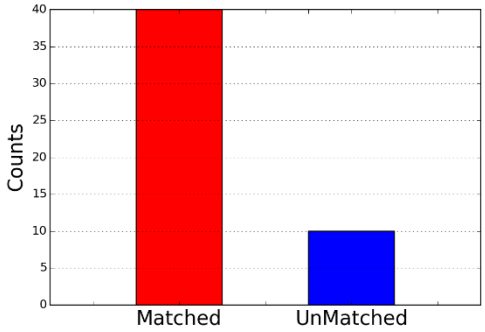


Figure C. 1346: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

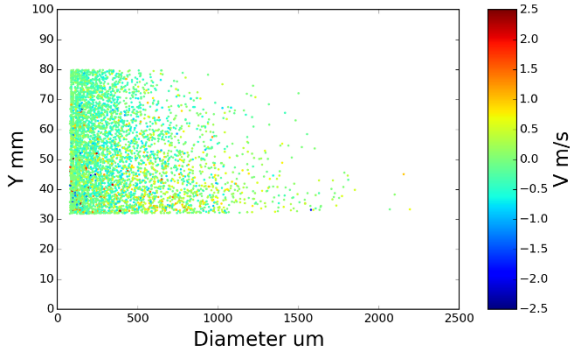


Figure C. 1349: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

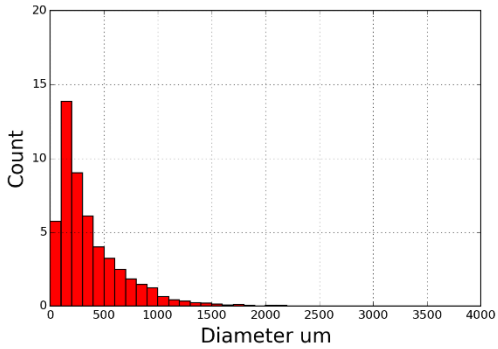


Figure C. 1347: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

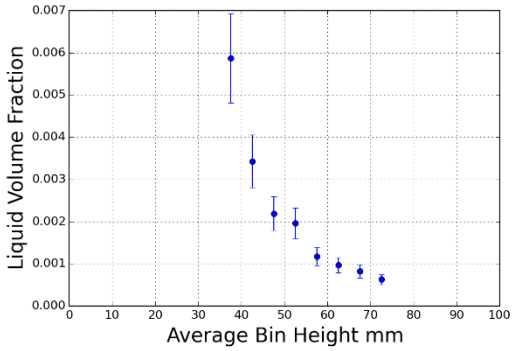


Figure C. 1350: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

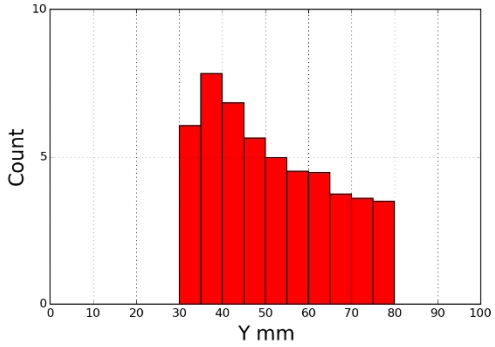


Figure C. 1348: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LA Image

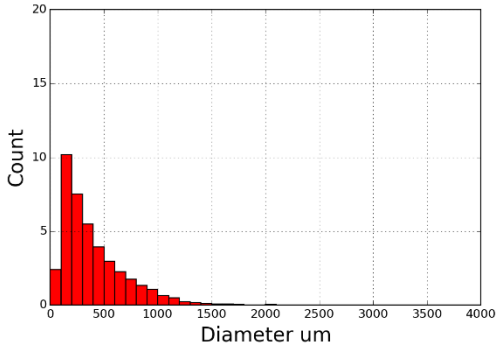


Figure C. 1351: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

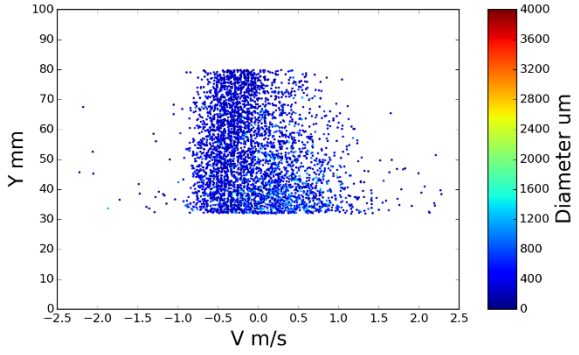


Figure C. 1354: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

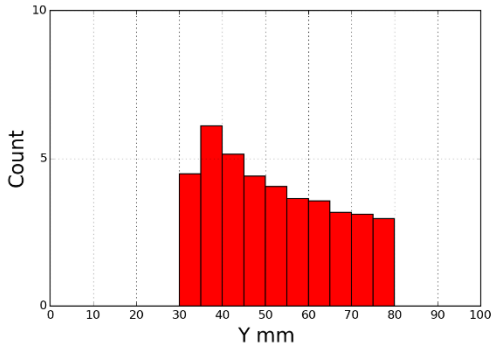


Figure C. 1352: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

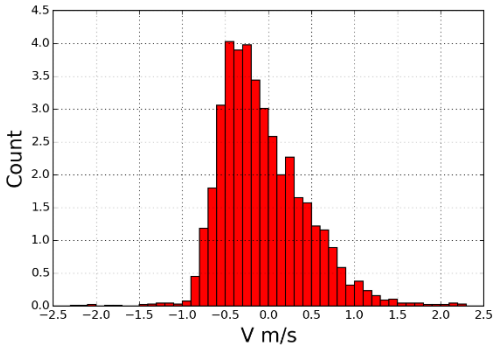


Figure C. 1355: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

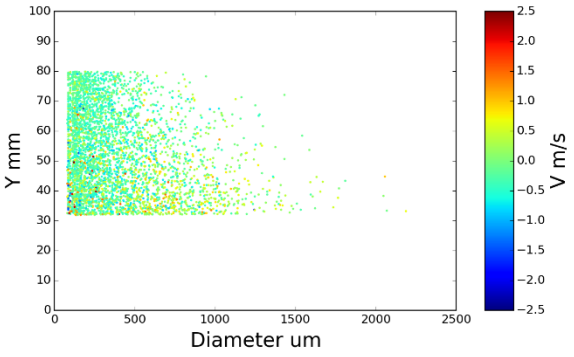


Figure C. 1353: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LB Image

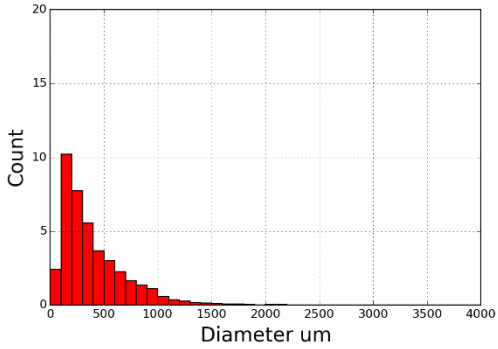


Figure C. 1356: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

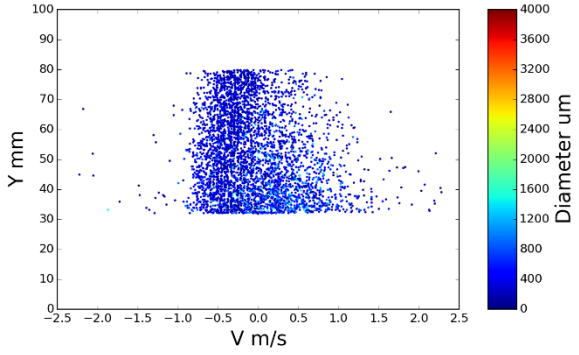


Figure C. 1359: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

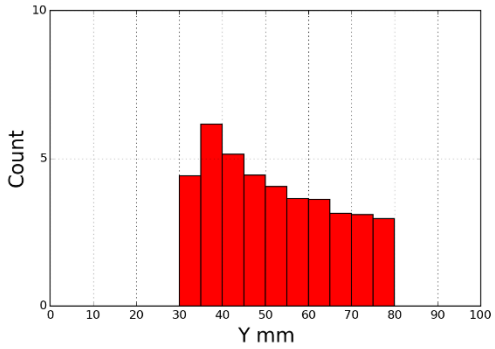


Figure C. 1357: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

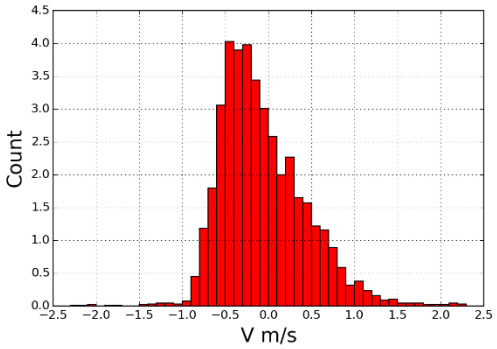


Figure C. 1360: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

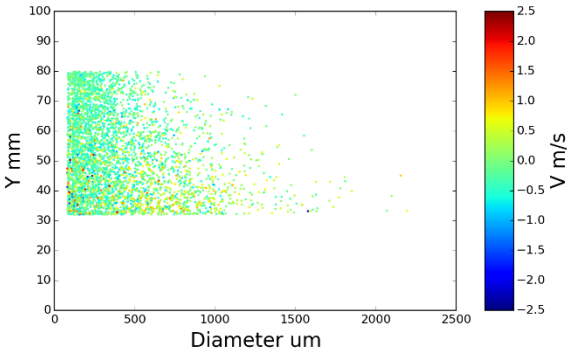


Figure C. 1358: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	20.8	21.0	81.3	2665	408.2	318.5	81.3	2613	403.5	314.8
40-60mm	26.61	26.18	76.0	1983	346.7	271.3	76.0	1921	351.6	268.7
60-80mm	15.88	15.35	76.0	1586	282.6	205.5	81.3	1467	280.8	201.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	63.29	62.53	76.0	2665	350.8	277.7	76.0	2613	351.6	275.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.8680				79.8703			
Lowest Particle			31.9366				31.9384			

Table C. 149: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	16.51	81.3	2331	429.9	295.7	81.3	2613	430.0	302.6	-2.490	2.240	0.000	0.260	-2.530	2.110	0.230	0.500
40-60mm	20.75	81.3	1564	374.5	255.6	81.3	1697	373.9	259.8	-2.520	2.550	0.020	0.270	-2.110	2.430	0.040	0.480
60-80mm	12.74	81.3	1434	301.7	194.8	81.3	1467	297.8	196.9	-2.270	2.540	0.010	0.230	-2.050	1.830	-0.110	0.380
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	50.0	81.3	2331	374.2	260.8	81.3	2613	373.0	265.8	-2.520	2.550	0.010	0.260	-2.530	2.430	0.070	0.480

Table C. 150: Matched Droplet Info

C.4.3.1 All Droplets for .LA Image

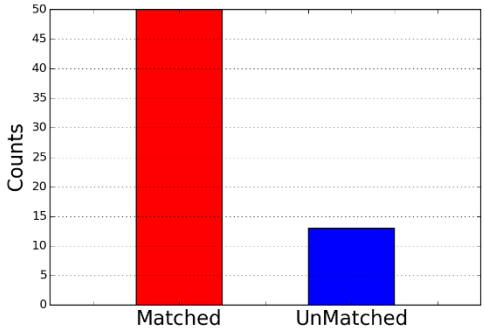


Figure C. 1361: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

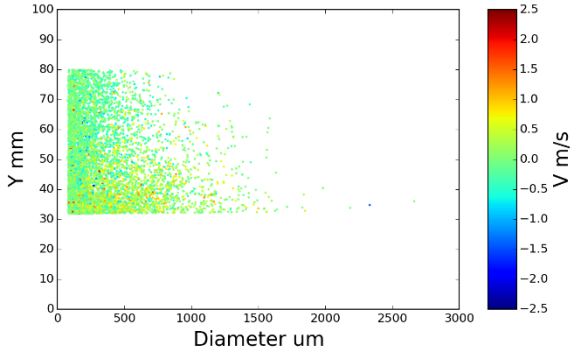


Figure C. 1364: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

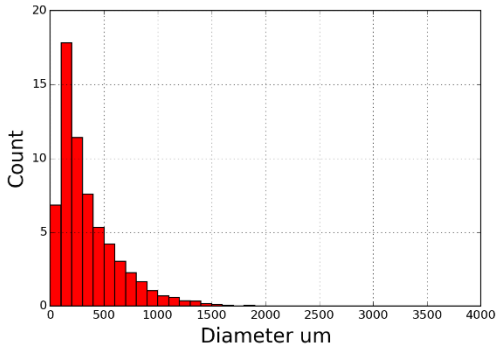


Figure C. 1362: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

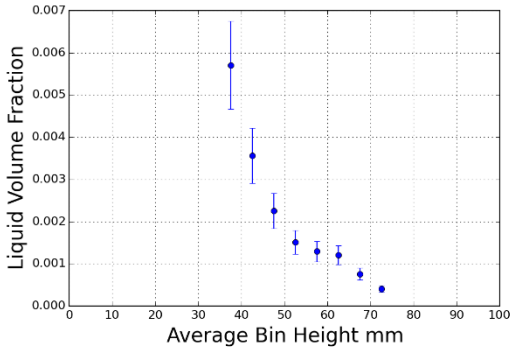


Figure C. 1365: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

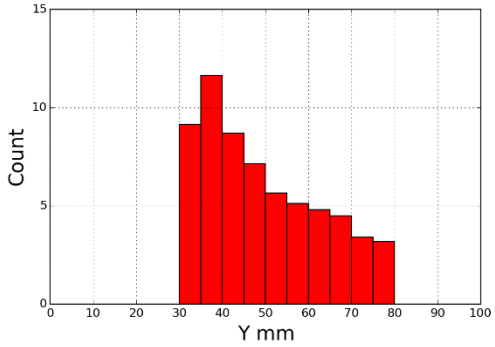


Figure C. 1363: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 All Droplets for .LB Image

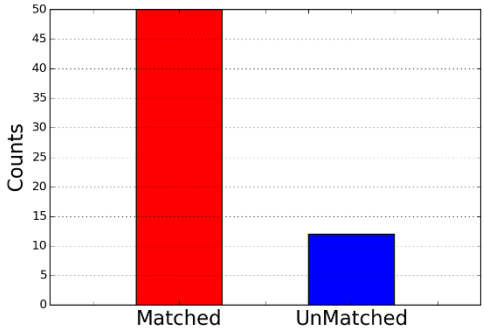


Figure C. 1366: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

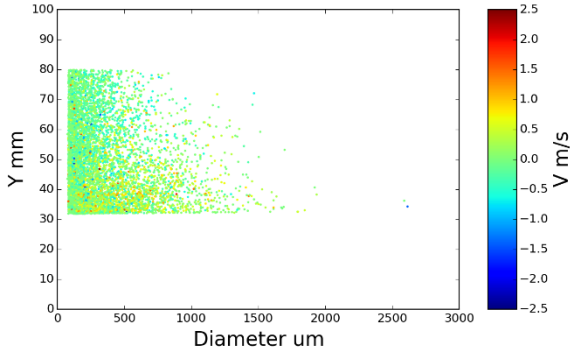


Figure C. 1369: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

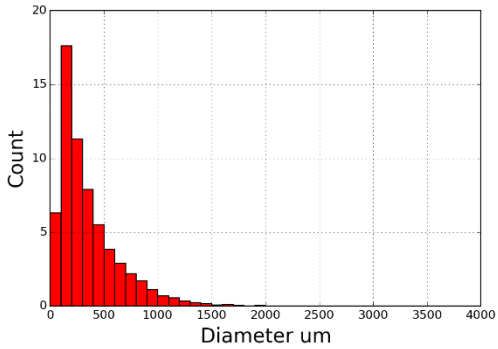


Figure C. 1367: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

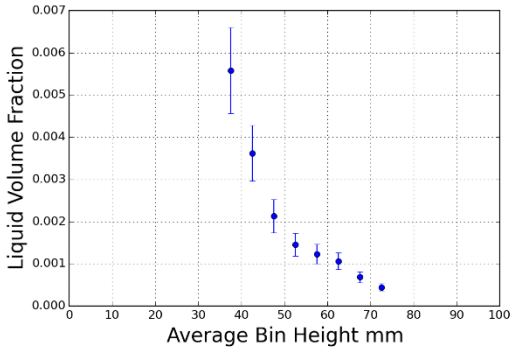


Figure C. 1370: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

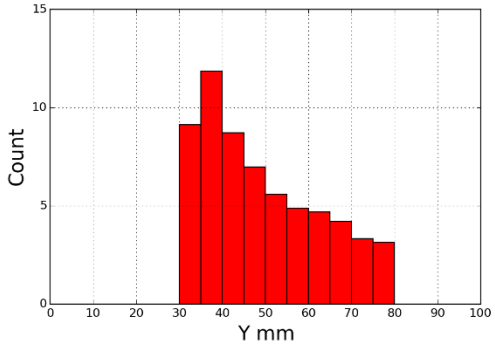


Figure C. 1368: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LA Image

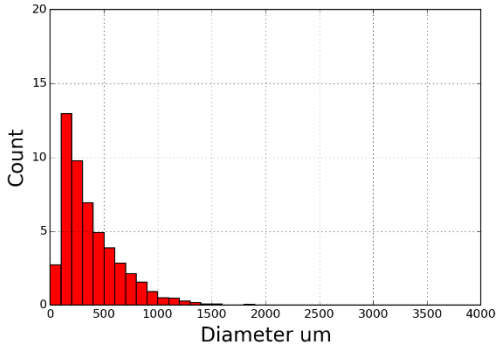


Figure C. 1371: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

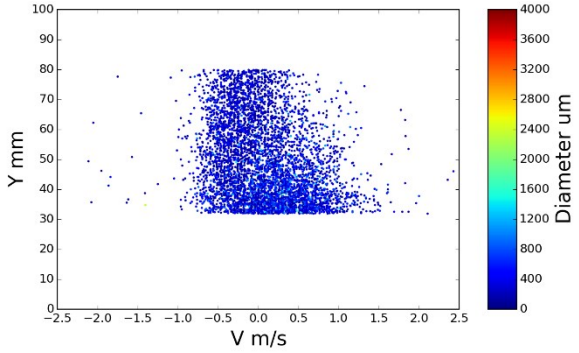


Figure C. 1374: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

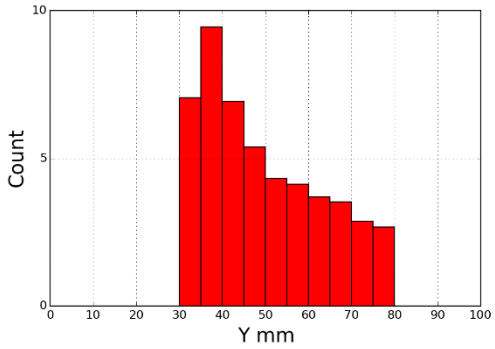


Figure C. 1372: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

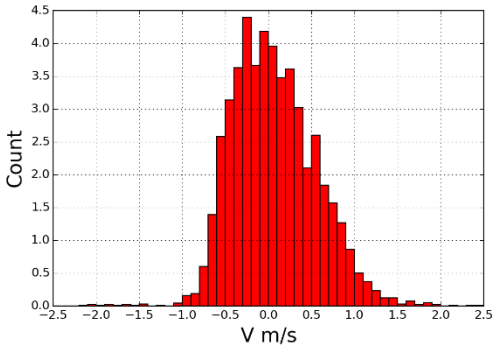


Figure C. 1375: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

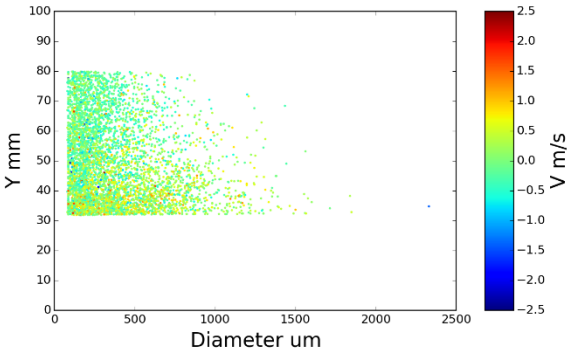


Figure C. 1373: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.1 Matched Only Droplets for .LB Image

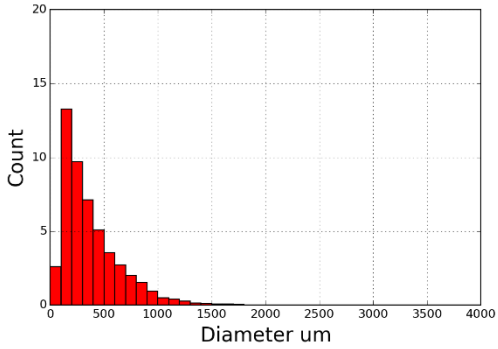


Figure C. 1376: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

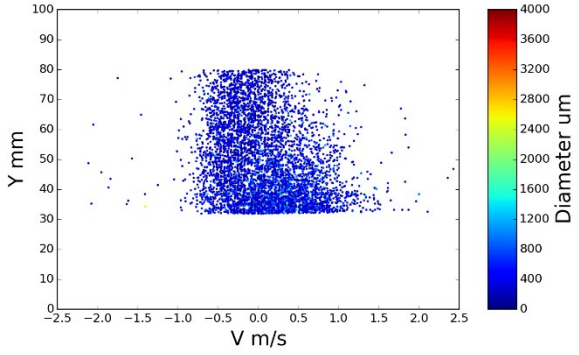


Figure C. 1379: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

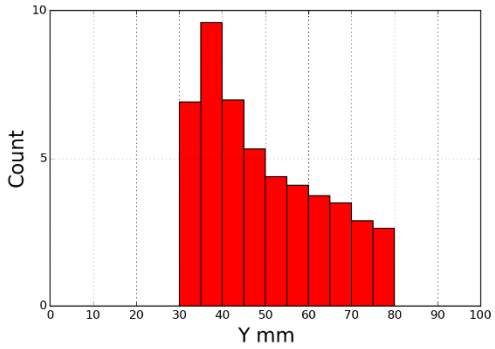


Figure C. 1377: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

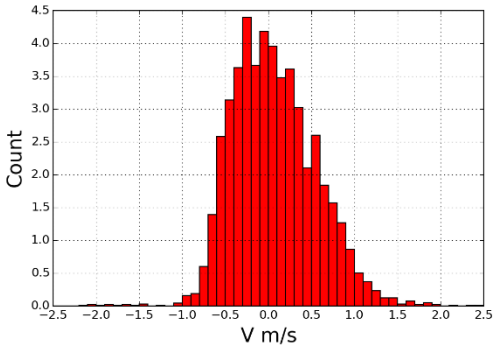


Figure C. 1380: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

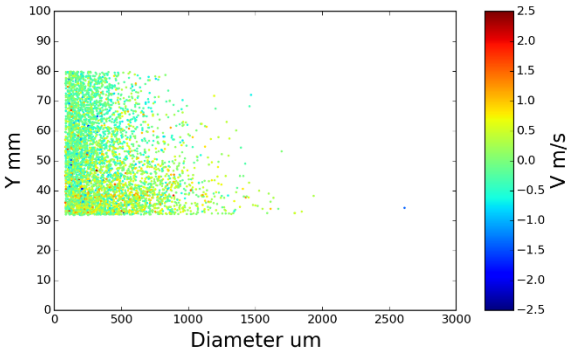


Figure C. 1378: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Lens 50mm Mag 0_13x

C.4.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	14.95	15.07	193.4	3126	618.8	363.8	182.3	3066	620.2	362.2
20-40mm	36.53	37.33	182.3	3218	625.5	381.5	182.3	3267	616.3	378.9
40-60mm	20.14	20.77	182.3	2722	531.9	303.6	182.3	2398	525.5	301.3
60-80mm	13.09	12.94	182.3	1697	437.9	236.2	182.3	1768	440.7	235.4
80-100mm	7.75	7.88	193.4	1171	363.1	173.9	182.3	1194	361.8	172.8
All	92.49	94.02	182.3	3218	555.4	342.3	182.3	3267	551.2	339.9
			Height A (mm)				Height B (mm)			
Highest Particle			100.0457				100.0457			
Lowest Particle			14.5085				14.2411			

Table C. 151: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	10.06	193.4	2223	660.2	346.8	193.4	2359	651.7	351.8	-2.410	2.410	-0.000	0.500	-2.330	2.440	0.200	0.630
20-40mm	26.02	182.3	3135	654.4	362.0	182.3	3141	645.5	368.2	-2.440	2.350	-0.010	0.370	-2.450	2.320	0.060	0.610
40-60mm	16.13	182.3	1987	549.9	290.3	182.3	2031	549.5	293.0	-2.270	2.320	-0.020	0.290	-2.400	2.110	-0.120	0.560
60-80mm	10.73	182.3	1697	463.4	236.8	182.3	1768	463.4	238.7	-2.320	2.080	-0.060	0.290	-2.450	2.330	-0.260	0.450
80-100mm	6.48	193.4	1171	384.6	176.9	193.4	1194	384.5	177.1	-2.080	2.080	-0.130	0.270	-1.630	1.630	-0.270	0.350
All	69.44	182.3	3135	576.2	326.5	182.3	3141	571.9	329.8	-2.440	2.410	-0.030	0.360	-2.450	2.440	-0.040	0.580

Table C. 152: Matched Droplet Info

C.4.3.2 All Droplets for .LA Image

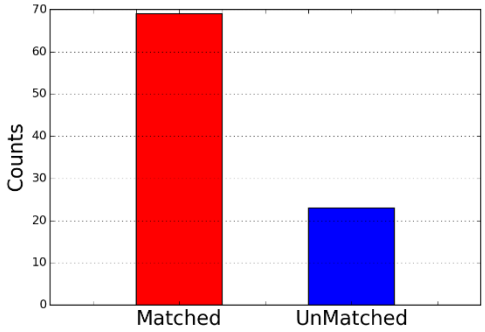


Figure C. 1381: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

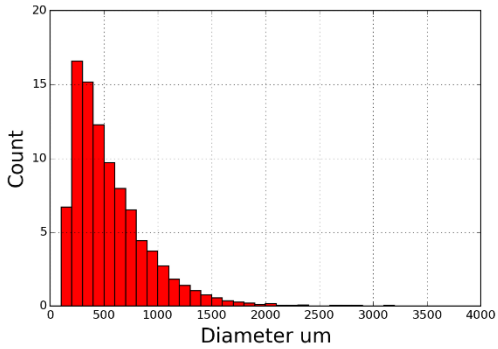


Figure C. 1382: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

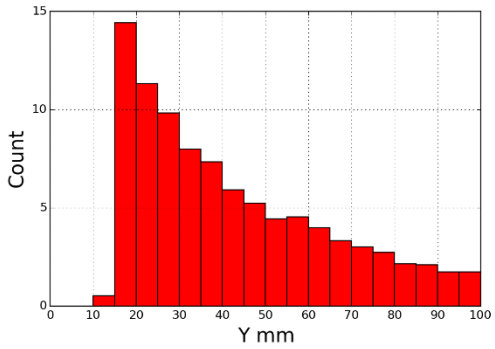


Figure C. 1383: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

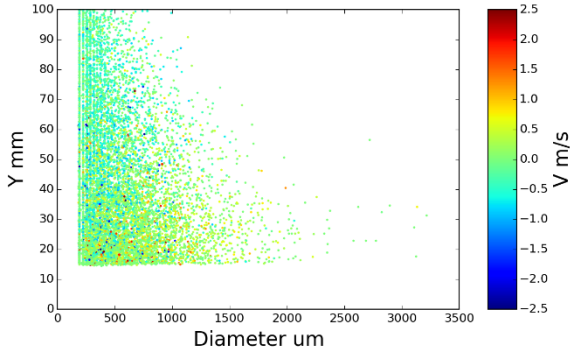


Figure C. 1384: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

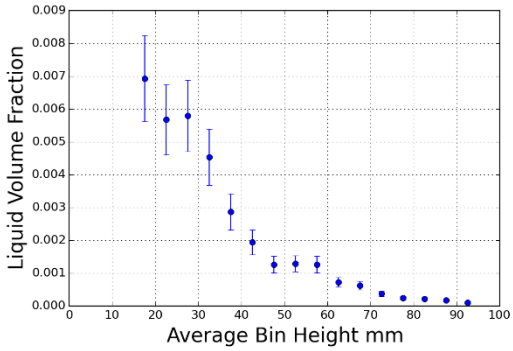


Figure C. 1385: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 All Droplets for .LB Image

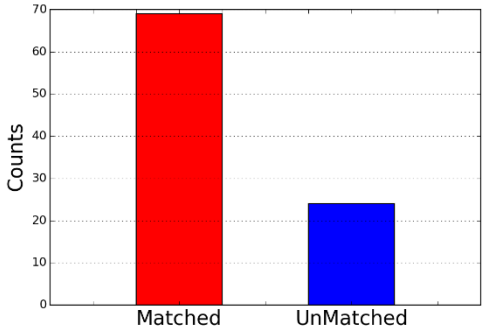


Figure C. 1386: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

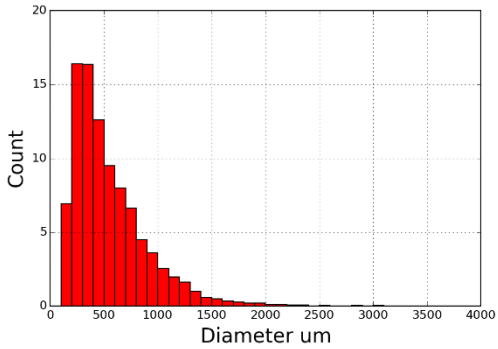


Figure C. 1387: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

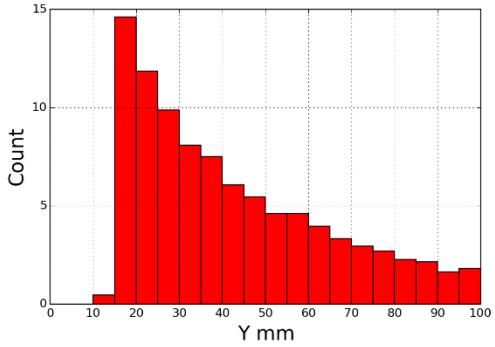


Figure C. 1388: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

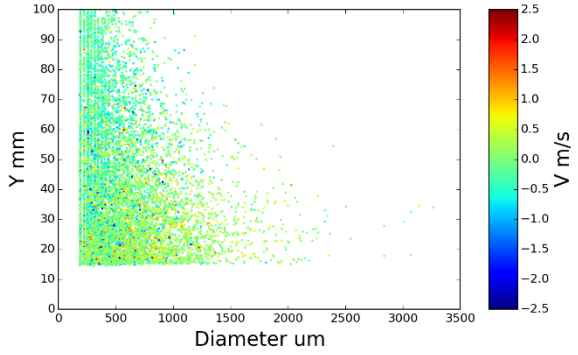


Figure C. 1389: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

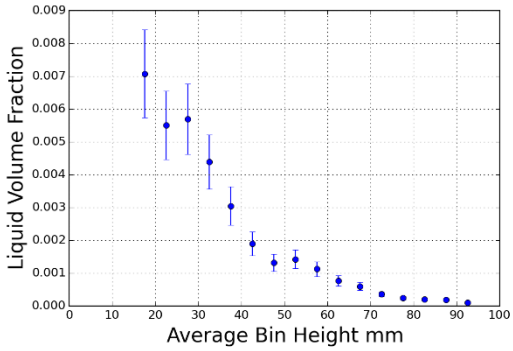


Figure C. 1390: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LA Image

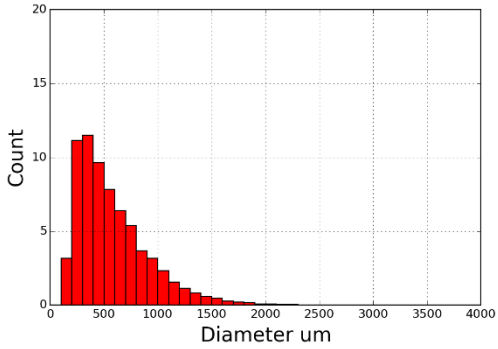


Figure C. 1391: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

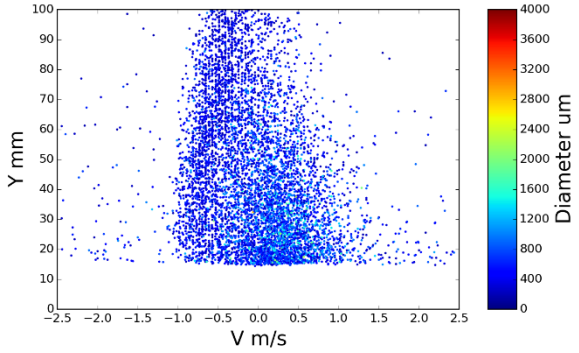


Figure C. 1394: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

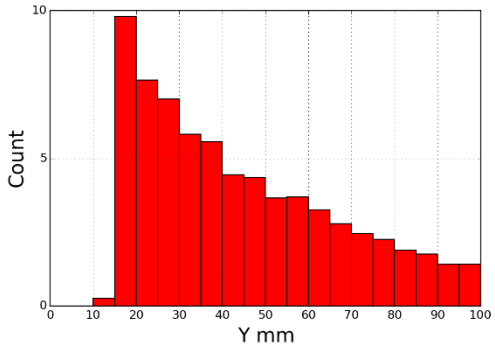


Figure C. 1392: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

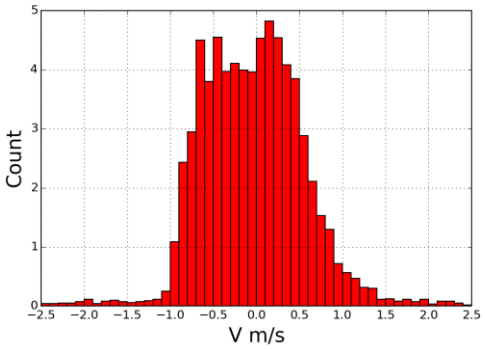


Figure C. 1395: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

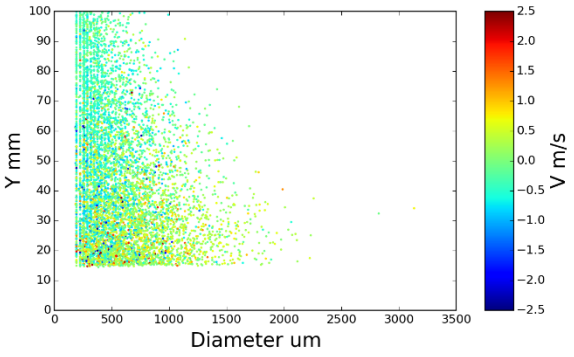


Figure C. 1393: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LB Image

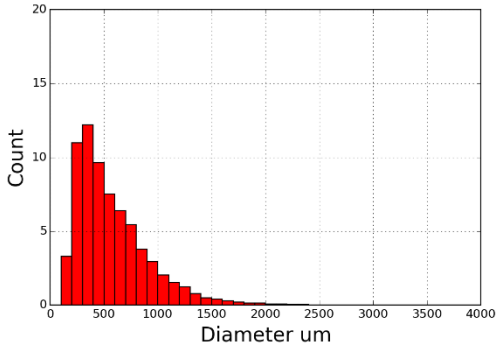


Figure C. 1396: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

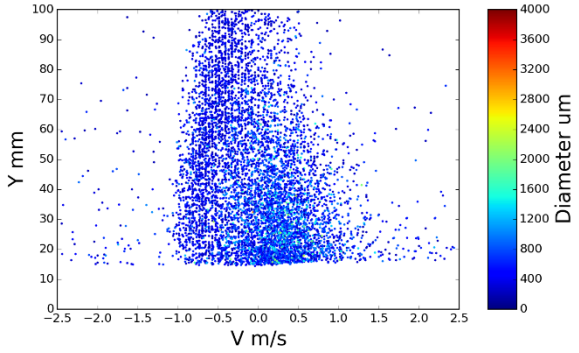


Figure C. 1399: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

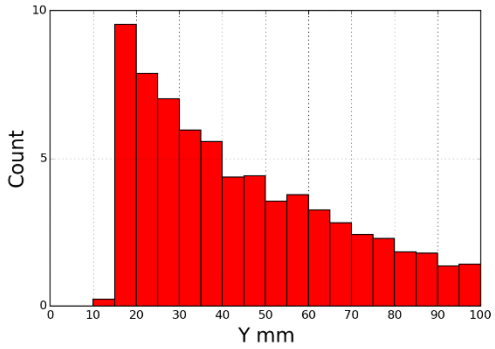


Figure C. 1397: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

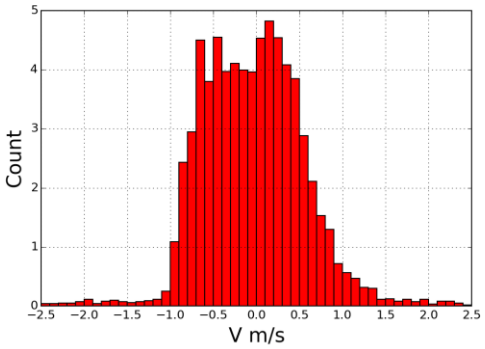


Figure C. 1400: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

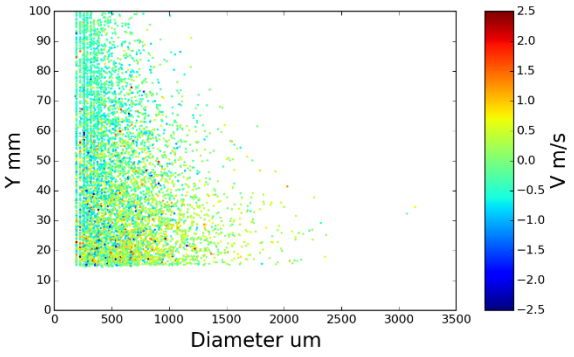


Figure C. 1398: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	20.32	20.93	182.3	2754	585.9	345.1	182.3	3263	586.6	334.2
20-40mm	42.6	43.1	170.5	2545	576.0	349.9	170.5	2804	572.2	346.3
40-60mm	17.59	17.79	182.3	1971	495.9	273.3	170.5	2046	491.6	276.8
60-80mm	9.82	9.75	182.3	1652	413.4	212.6	193.4	1779	409.3	204.5
80-100mm	5.38	5.25	193.4	1135	332.6	144.7	193.4	1167	335.8	148.2
All	95.71	96.84	170.5	2754	533.0	323.6	170.5	3263	531.2	319.8
			Height A (mm)				Height B (mm)			
Highest Particle			99.9886				100.0457			
Lowest Particle			13.5660				13.4803			

Table C. 153: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	14.7	182.3	2723	612.4	326.4	182.3	3263	615.6	333.7	-2.410	2.450	-0.000	0.440	-2.300	2.450	0.280	0.570
20-40mm	30.87	182.3	2349	598.8	335.0	170.5	2804	591.2	339.4	-2.440	2.450	-0.010	0.390	-2.450	2.420	0.150	0.620
40-60mm	13.46	182.3	1630	521.1	267.4	182.3	1816	517.5	273.4	-2.410	2.450	-0.020	0.300	-2.280	2.400	-0.120	0.540
60-80mm	7.83	182.3	1482	434.1	208.8	193.4	1487	428.9	201.1	-1.960	2.150	-0.070	0.240	-2.200	2.240	-0.290	0.380
80-100mm	4.24	193.4	1135	357.4	148.8	193.4	1167	355.5	154.3	-0.570	1.060	-0.120	0.200	-2.280	0.690	-0.310	0.260
All	71.1	182.3	2723	554.4	310.0	170.5	3263	550.3	314.3	-2.440	2.450	-0.020	0.360	-2.450	2.450	0.050	0.600

Table C. 154: Matched Droplet Info

C.4.3.2 All Droplets for .LA Image

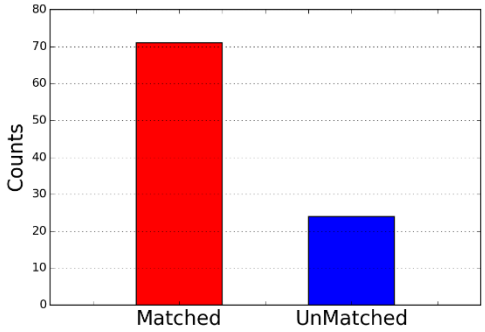


Figure C. 1401: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

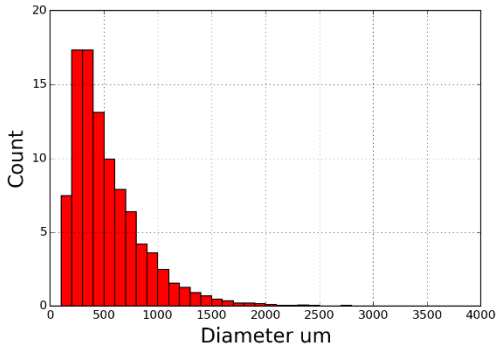


Figure C. 1402: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

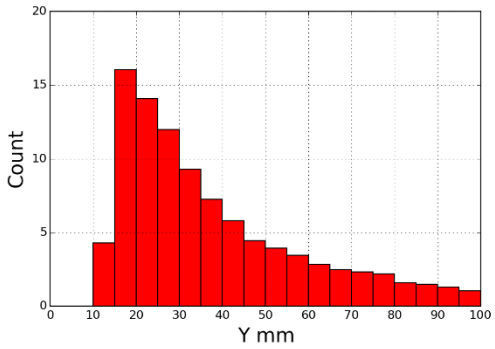


Figure C. 1403: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

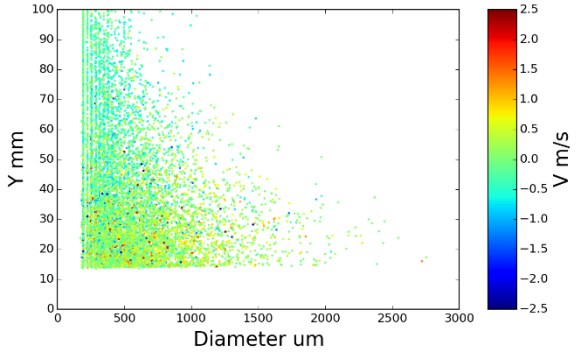


Figure C. 1404: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

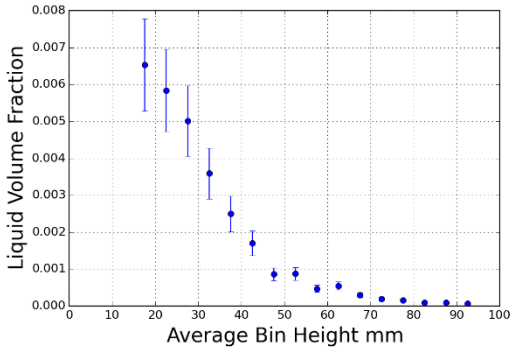


Figure C. 1405: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 All Droplets for .LB Image

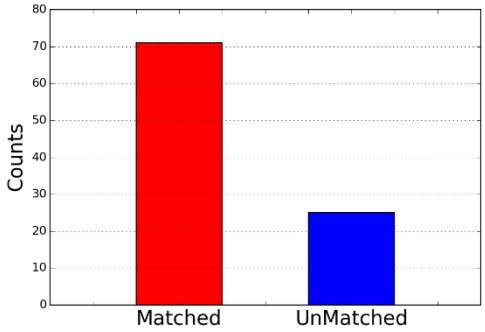


Figure C. 1406: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

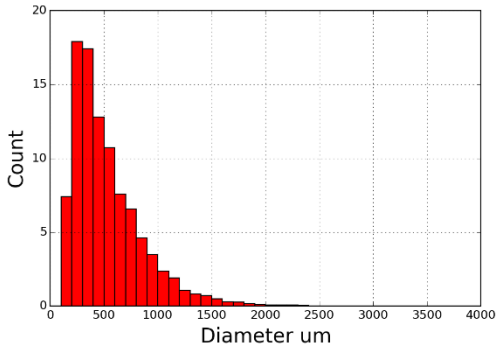


Figure C. 1407: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

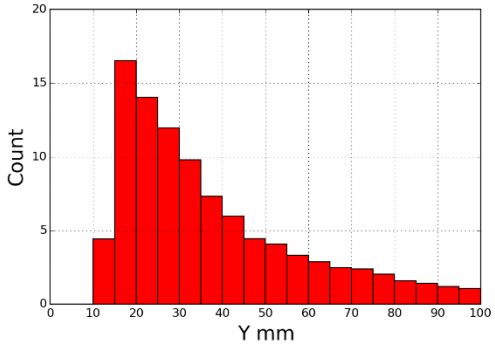


Figure C. 1408: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

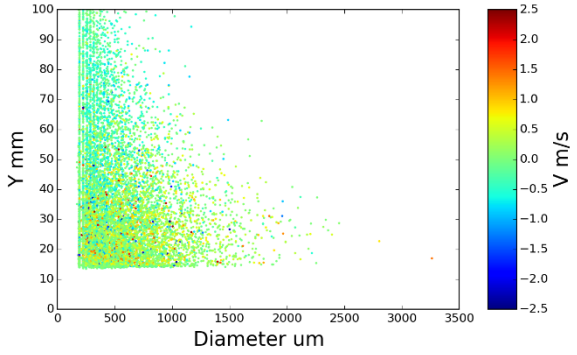


Figure C. 1409: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

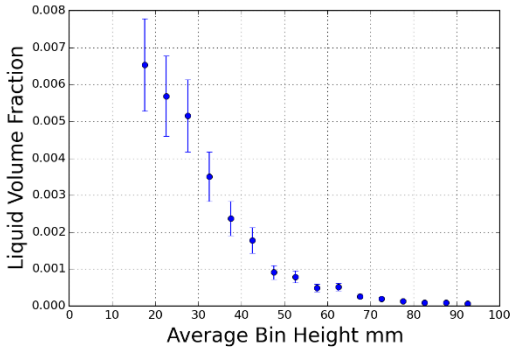


Figure C. 1410: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LA Image

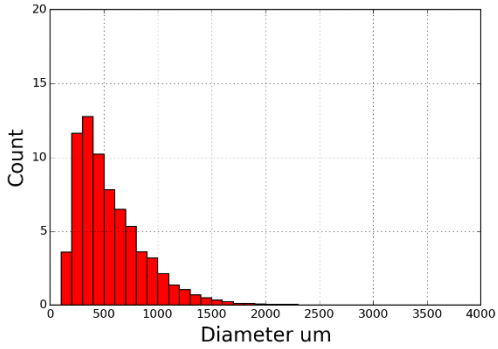


Figure C. 1411: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

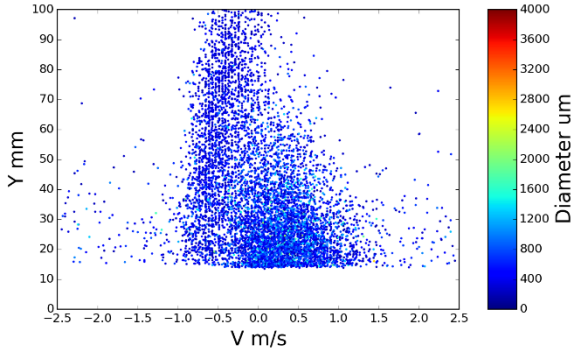


Figure C. 1414: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

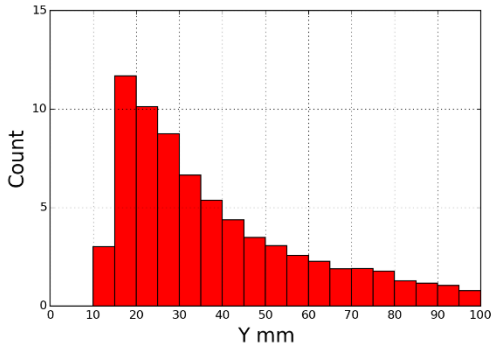


Figure C. 1412: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

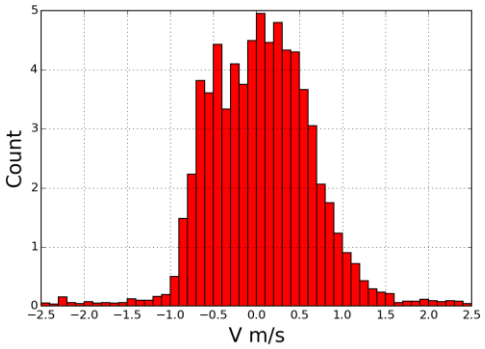


Figure C. 1415: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

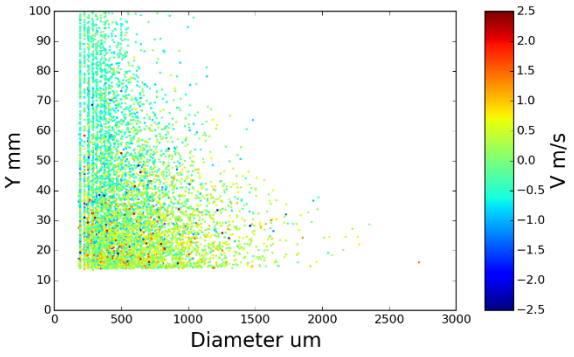


Figure C. 1413: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LB Image

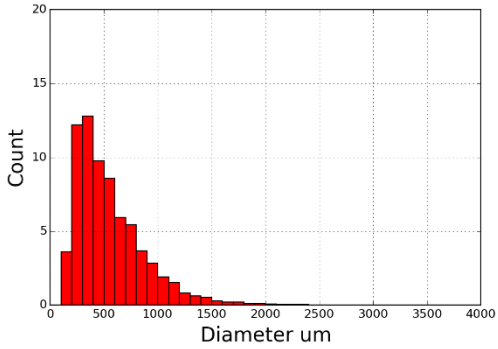


Figure C. 1416: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

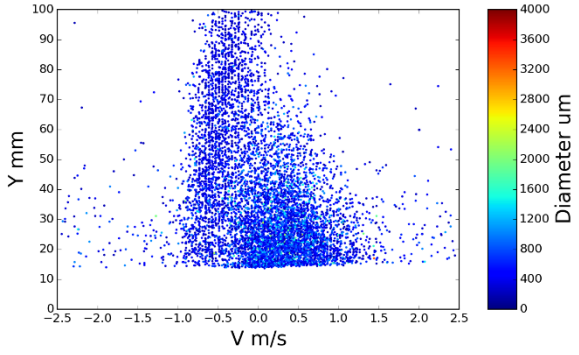


Figure C. 1419: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

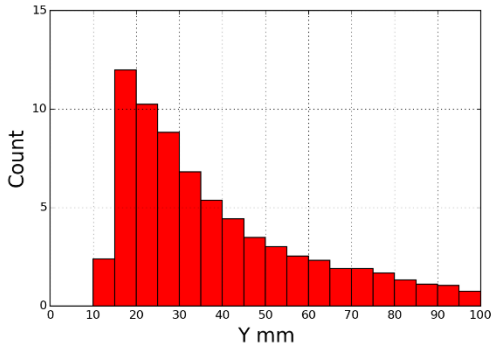


Figure C. 1417: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

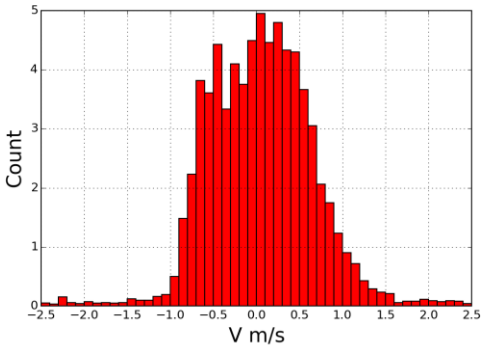


Figure C. 1420: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

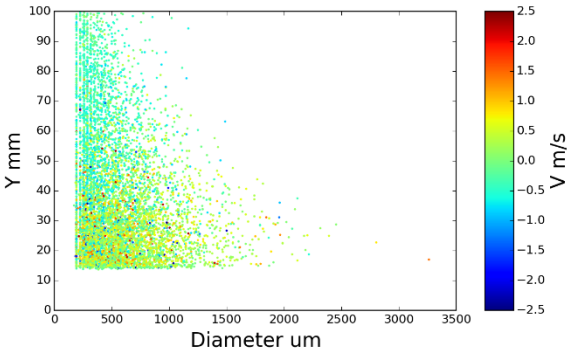


Figure C. 1418: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	25.64	26.02	182.3	2732	567.9	319.4	182.3	2539	567.3	322.4
20-40mm	51.87	52.12	170.5	2513	545.8	309.1	170.5	2384	544.9	307.1
40-60mm	25.15	25.49	182.3	2214	479.9	262.1	182.3	1990	481.4	263.0
60-80mm	12.81	12.97	182.3	1740	419.9	203.3	182.3	1700	422.0	200.9
80-100mm	6.28	6.35	193.4	1047	341.0	152.2	193.4	1090	339.0	152.8
All	121.78	122.99	170.5	2732	513.0	292.7	170.5	2539	512.8	292.4
			Height A (mm)				Height B (mm)			
Highest Particle			100.0457				100.0171			
Lowest Particle			12.7996				12.7663			

Table C. 155: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	18.67	182.3	1975	595.1	305.0	193.4	2428	599.9	318.3	-2.450	2.390	-0.010	0.440	-2.420	2.330	0.360	0.580
20-40mm	38.26	182.3	2248	570.7	297.9	182.3	2384	564.9	300.1	-2.450	2.450	-0.000	0.380	-2.370	2.440	0.280	0.580
40-60mm	19.18	193.4	1866	504.4	250.5	182.3	1939	503.9	254.6	-2.380	2.450	-0.000	0.330	-2.450	2.430	0.090	0.530
60-80mm	10.33	182.3	1740	447.4	204.4	182.3	1700	444.2	202.2	-2.420	2.160	0.010	0.290	-2.450	2.420	-0.060	0.480
80-100mm	5.19	193.4	1047	359.0	154.8	193.4	1090	358.7	156.5	-2.450	2.360	-0.040	0.260	-2.360	2.330	-0.140	0.340
All	91.64	182.3	2248	535.9	281.6	182.3	2428	533.6	286.0	-2.450	2.450	-0.000	0.370	-2.450	2.440	0.200	0.570

Table C. 156: Matched Droplet Info

C.4.3.2 All Droplets for .LA Image

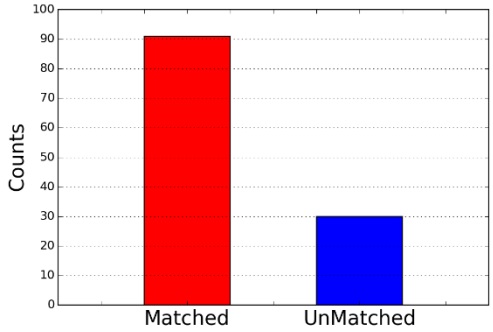


Figure C. 1421: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

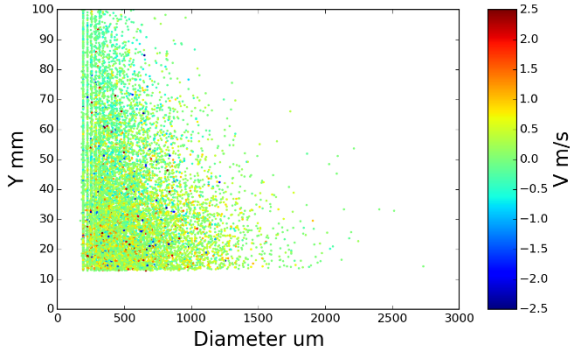


Figure C. 1424: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

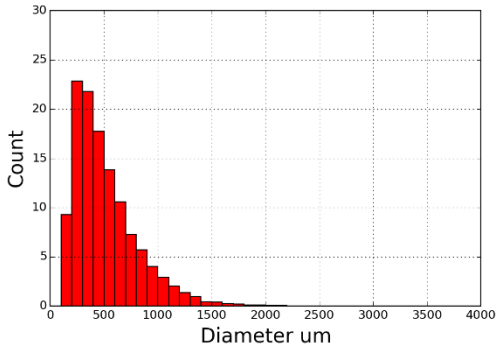


Figure C. 1422: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

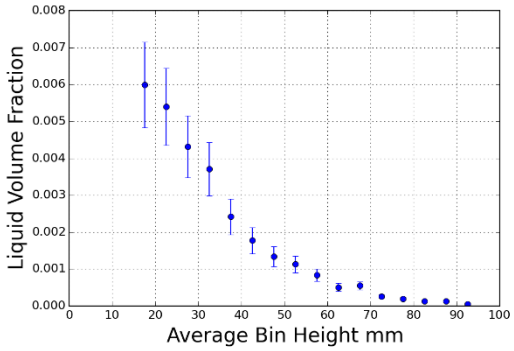


Figure C. 1425: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

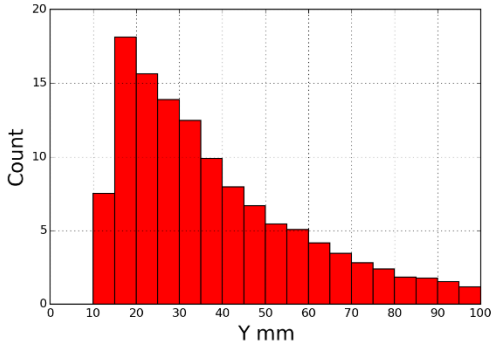


Figure C. 1423: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 All Droplets for .LB Image

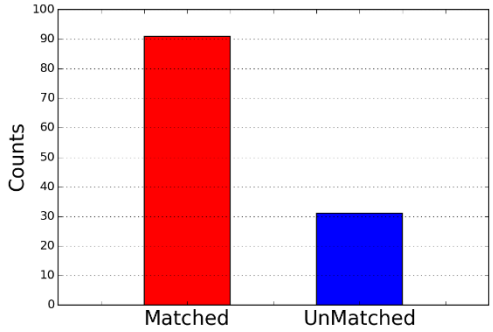


Figure C. 1426: CHC Count Comparison R-134a 40F 10000Btu 30000Lb Rot Tri

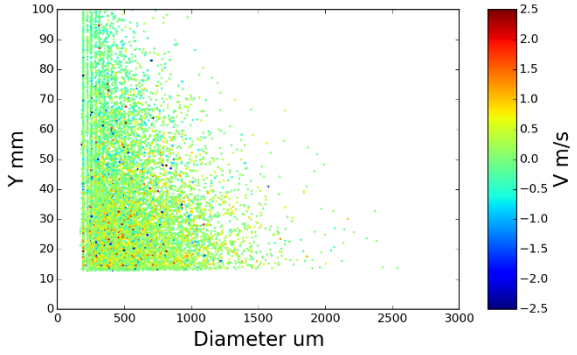


Figure C. 1429: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

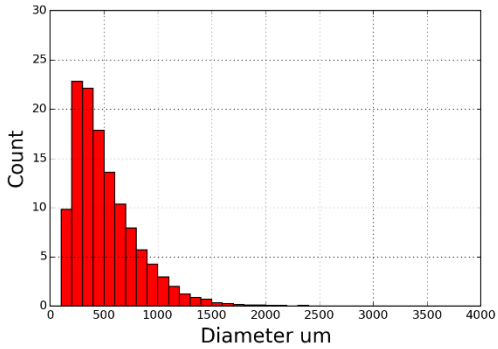


Figure C. 1427: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

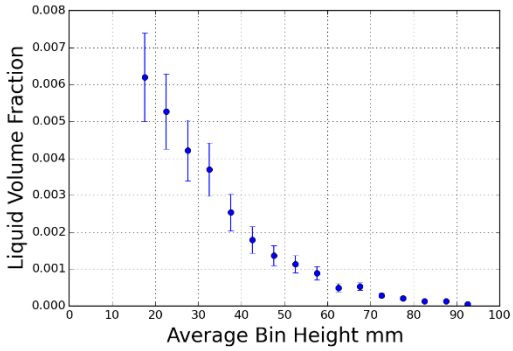


Figure C. 1430: Void Fraction R-134a 40F 10000Btu 30000Lb Rot Tri

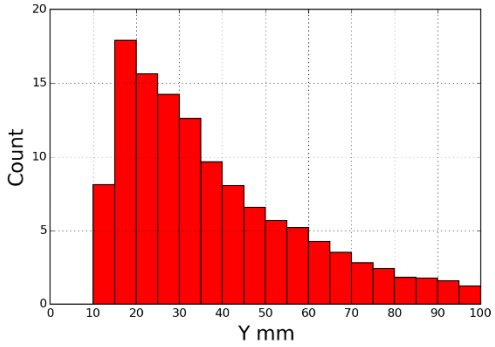


Figure C. 1428: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LA Image

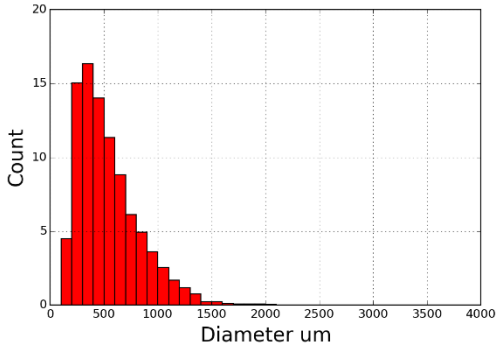


Figure C. 1431: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

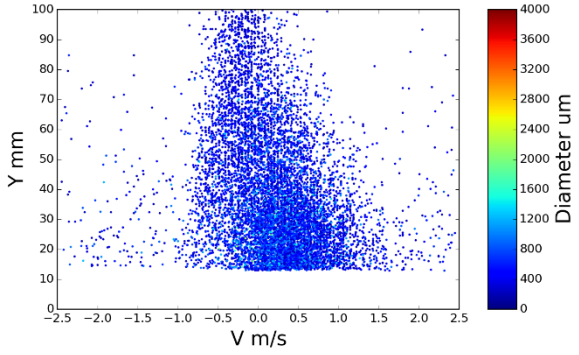


Figure C. 1434: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

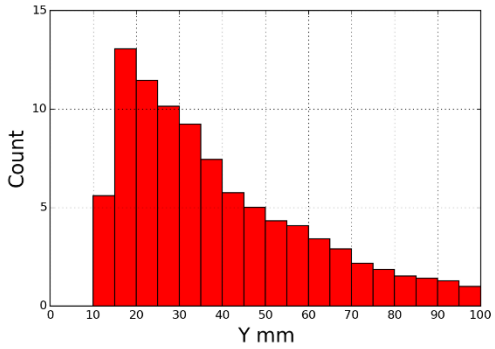


Figure C. 1432: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

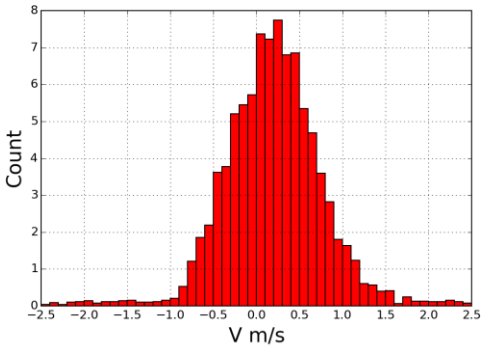


Figure C. 1435: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

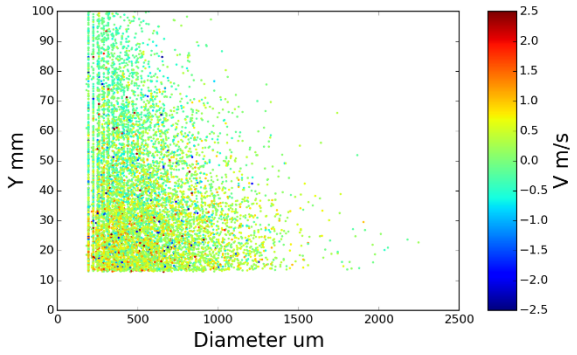


Figure C. 1433: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.4.3.2 Matched Only Droplets for .LB Image

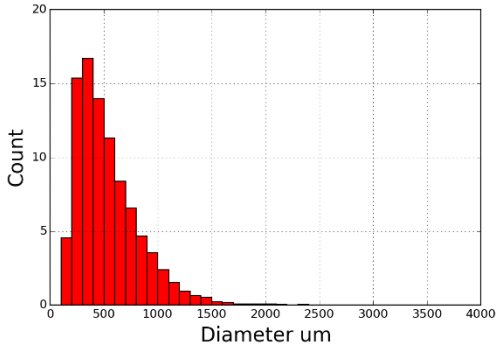


Figure C. 1436: Droplet Diameter Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

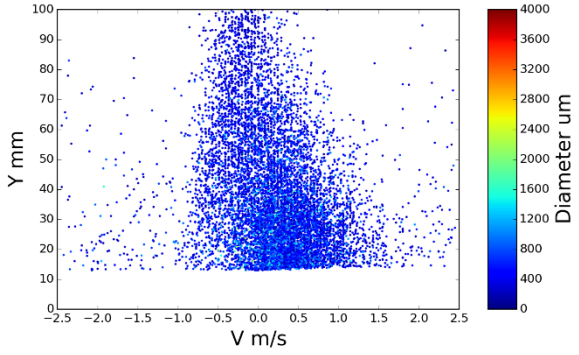


Figure C. 1439: Droplet Height vs Vertical Velocity R-134a 40F 10000Btu 30000Lb Rot Tri

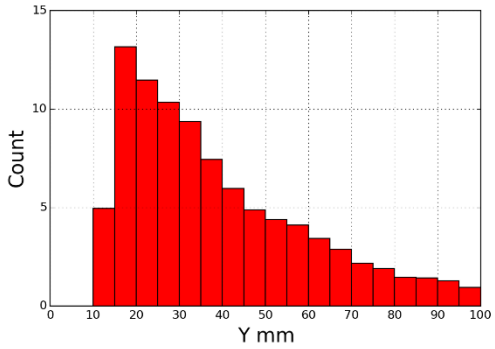


Figure C. 1437: Droplet Height Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

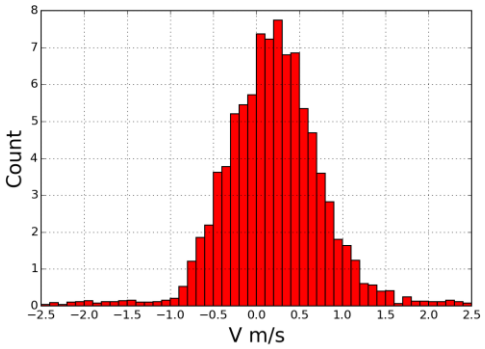


Figure C. 1440: Droplet Vertical Velocity Histogram R-134a 40F 10000Btu 30000Lb Rot Tri

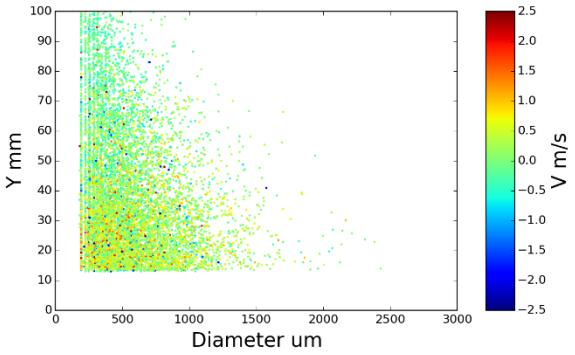


Figure C. 1438: Droplet Height vs Diameter R-134a 40F 10000Btu 30000Lb Rot Tri

C.5 - 1556 R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	12418 / 1.565
Ref Mass Flow (lb/hr) / (kg/s)	1520 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14797 / 20.068
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4964 / 15.66
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.4 / 12.42
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	54.6 / 12.54
Total Bundle Q (Btu/hr) / (kW)	142022 / 41.62
Total Bundle & Preboiler Q (Btu/hr) / (kW)	142022 / 41.62
Top Two Rows HTC Ratio	1.036
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 157: Thermal Conditions

C.5.1.1 Lens 100mm Mag 0_29x

C.5.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	41.83	42.6	76.1	4012	491.6	537.3	76.1	3992	488.9	542.6
40-60mm	128.41	128.97	76.1	3982	469.4	497.2	76.1	3981	464.5	494.9
60-80mm	81.21	82.89	76.1	3923	379.5	401.1	76.1	3997	376.4	393.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	251.68	254.8	76.1	4012	444.1	477.8	76.1	3997	439.9	475.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.8857				79.8729			
Lowest Particle			31.9135				31.9135			

Table C. 158: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	24.21	81.3	3973	562.1	536.6	81.3	3992	552.8	534.0	-0.930	0.960	-0.070	0.220	-0.950	0.940	-0.090	0.310
40-60mm	87.96	81.3	3982	519.4	483.7	76.1	3981	514.2	486.9	-0.950	0.950	-0.060	0.190	-0.960	0.960	-0.040	0.300
60-80mm	60.69	81.3	3529	416.2	395.4	81.3	3626	412.2	392.7	-0.950	0.950	-0.060	0.160	-0.940	0.950	-0.020	0.240
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	172.86	81.3	3982	489.1	466.2	76.1	3992	483.8	466.7	-0.950	0.960	-0.060	0.180	-0.960	0.960	-0.040	0.280

Table C. 159: Matched Droplet Info

C.5.1.1 All Droplets for .LA Image

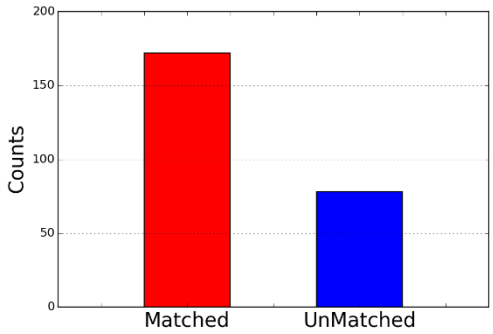


Figure C. 1441: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

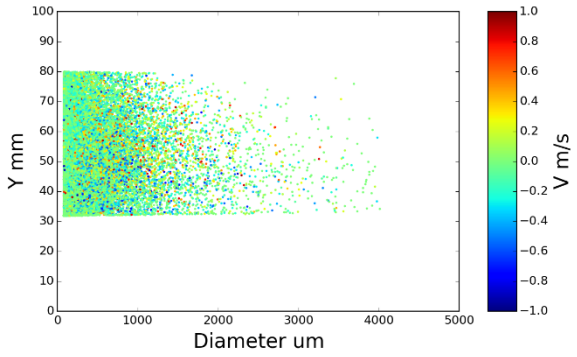


Figure C. 1444: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

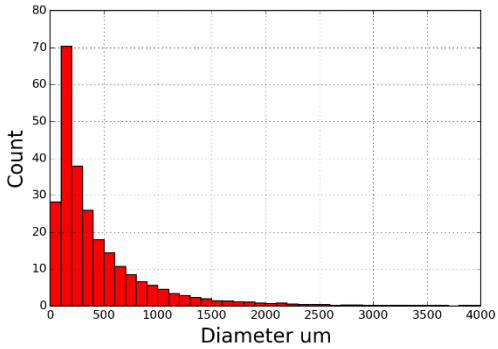


Figure C. 1442: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

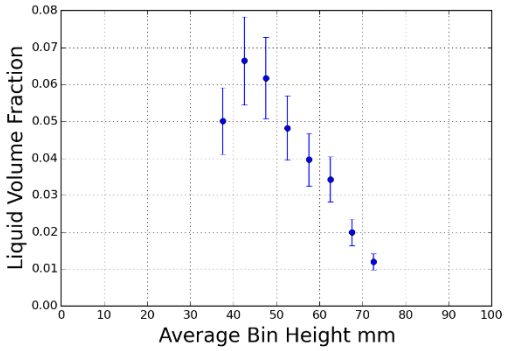


Figure C. 1445: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

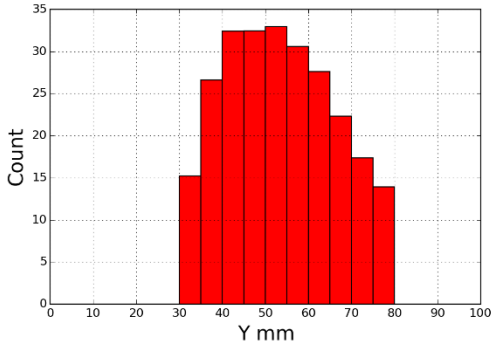


Figure C. 1443: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 All Droplets for .LB Image

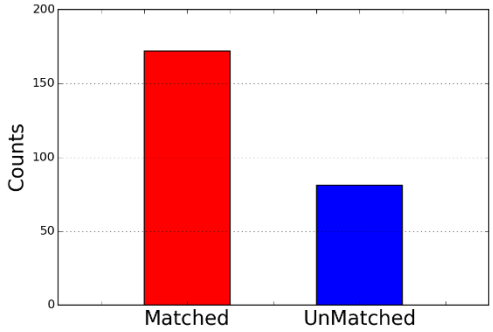


Figure C. 1446: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

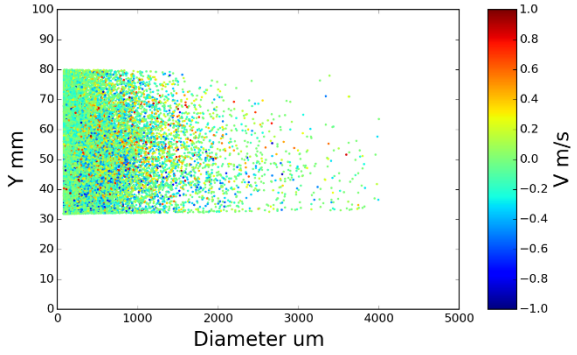


Figure C. 1449: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

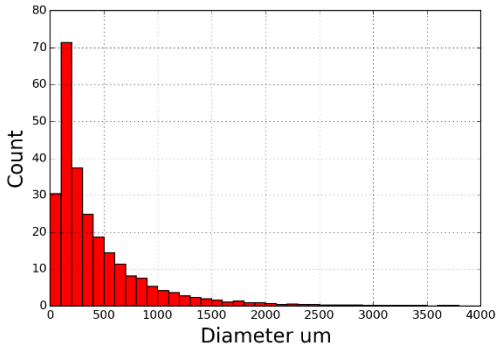


Figure C. 1447: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

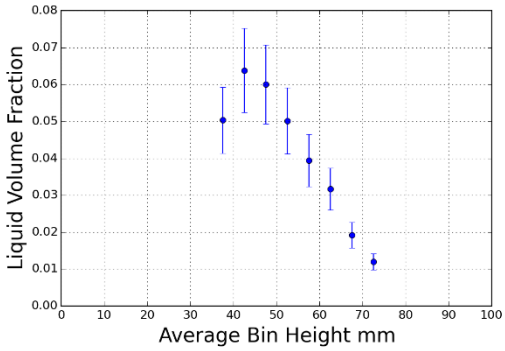


Figure C. 1450: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

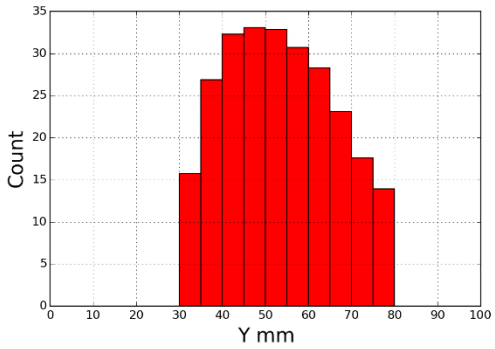


Figure C. 1448: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LA Image

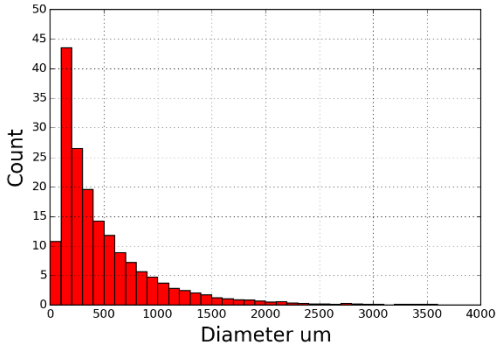


Figure C. 1451: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

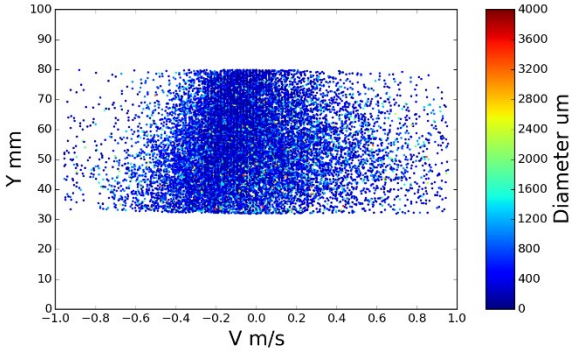


Figure C. 1454: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

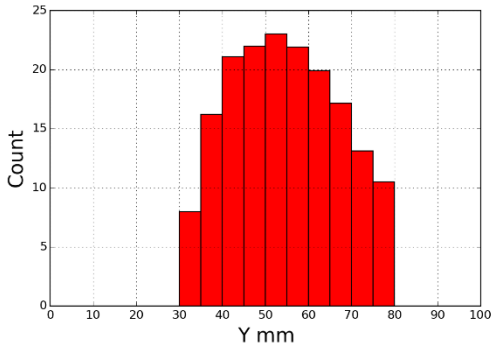


Figure C. 1452: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

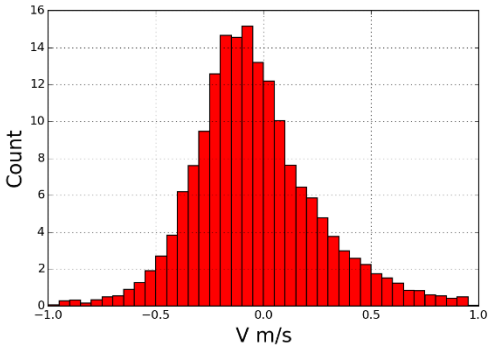


Figure C. 1455: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

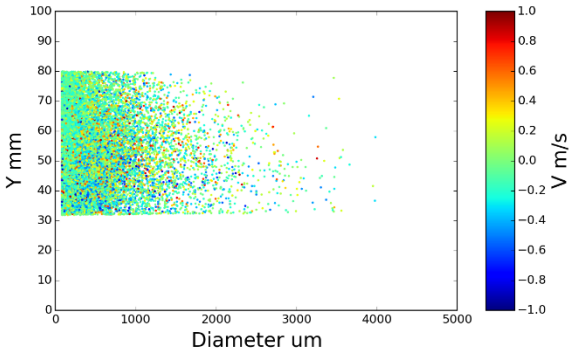


Figure C. 1453: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LB Image

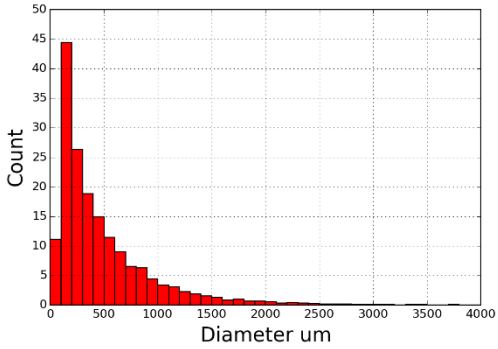


Figure C. 1456: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

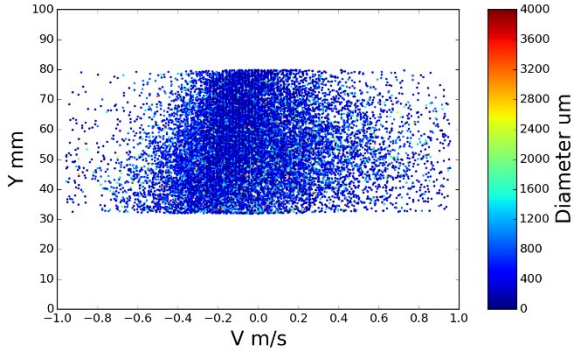


Figure C. 1459: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

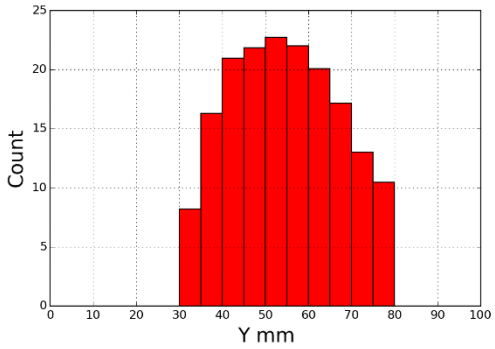


Figure C. 1457: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

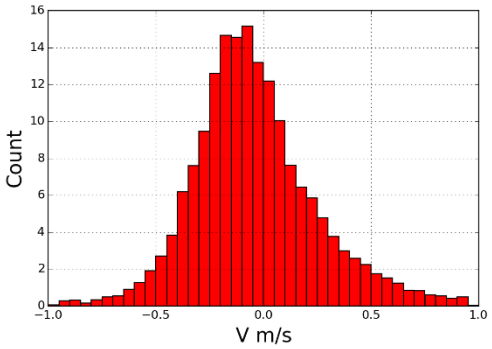


Figure C. 1460: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

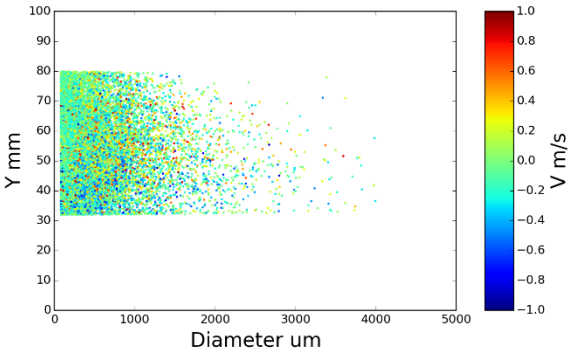


Figure C. 1458: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	44.4	43.79	76.1	4023	505.2	541.8	76.1	4024	526.9	573.0
40-60mm	142.48	143.45	76.1	4024	472.0	499.9	76.1	4025	476.8	507.2
60-80mm	95.07	95.51	76.1	4010	399.1	408.4	76.1	3817	393.2	399.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	282.44	283.26	76.1	4024	452.7	479.9	76.1	4025	456.3	487.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.8729				79.8857			
Lowest Particle			31.9135				31.9135			

Table C. 160: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	22.95	81.3	3733	597.2	545.5	76.1	3917	592.5	549.0	-0.960	0.910	-0.050	0.240	-0.960	0.960	-0.020	0.350
40-60mm	95.74	81.3	3959	520.2	496.0	76.1	3968	514.3	496.2	-0.960	0.950	-0.050	0.190	-0.960	0.960	0.020	0.330
60-80mm	71.54	81.3	3894	439.6	408.9	76.1	3817	433.2	403.5	-0.960	0.930	-0.060	0.150	-0.940	0.960	0.030	0.270
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	190.23	81.3	3959	499.2	474.7	76.1	3968	493.3	473.6	-0.960	0.950	-0.050	0.180	-0.960	0.960	0.020	0.310

Table C. 161: Matched Droplet Info

C.5.1.1 All Droplets for .LA Image

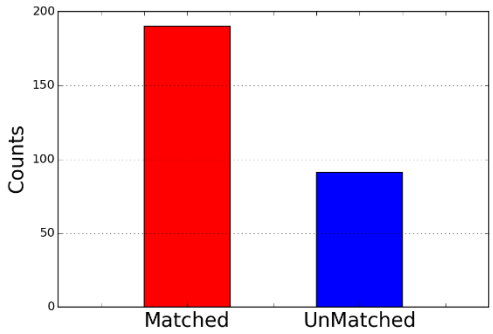


Figure C. 1461: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

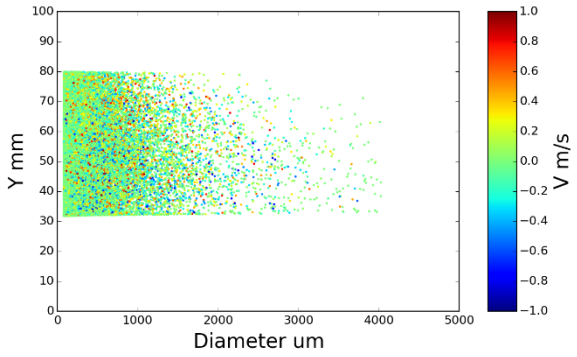


Figure C. 1464: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

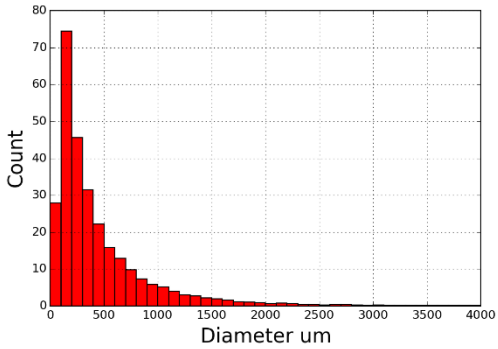


Figure C. 1462: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

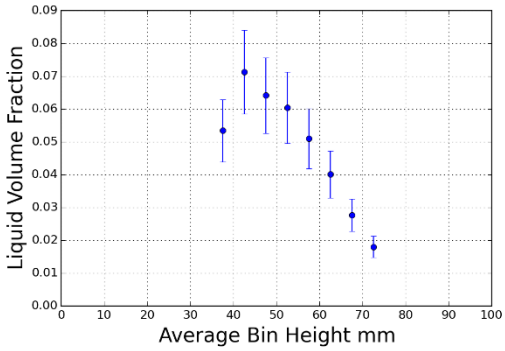


Figure C. 1465: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

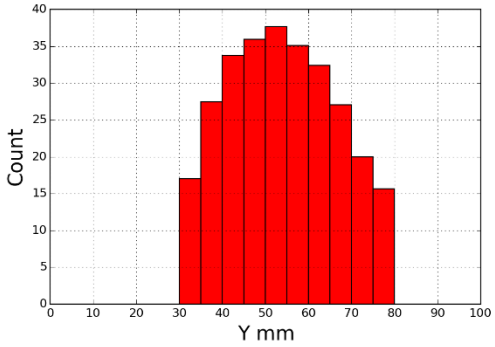


Figure C. 1463: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 All Droplets for .LB Image

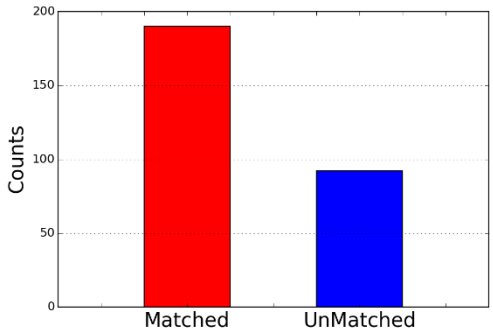


Figure C. 1466: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

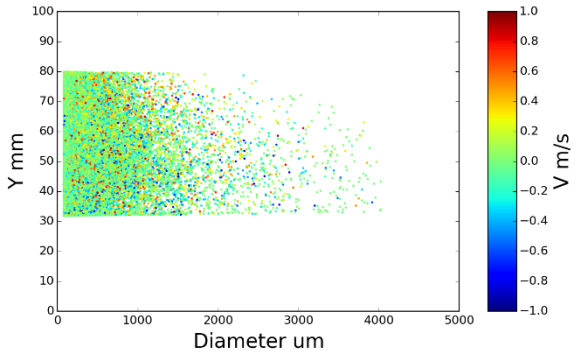


Figure C. 1469: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

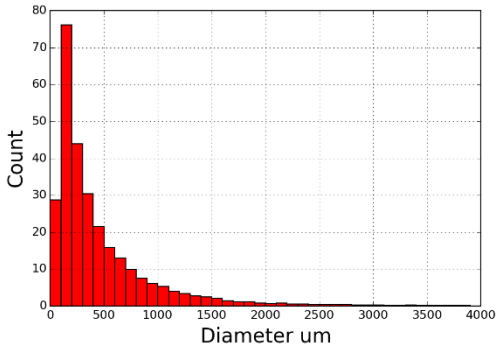


Figure C. 1467: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

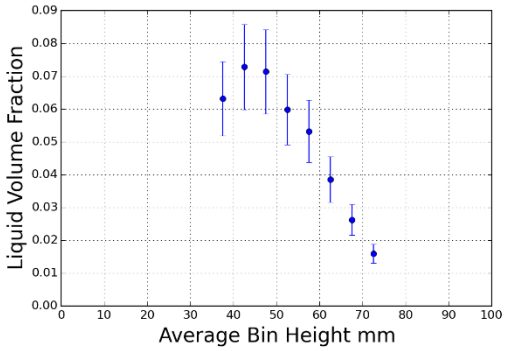


Figure C. 1470: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

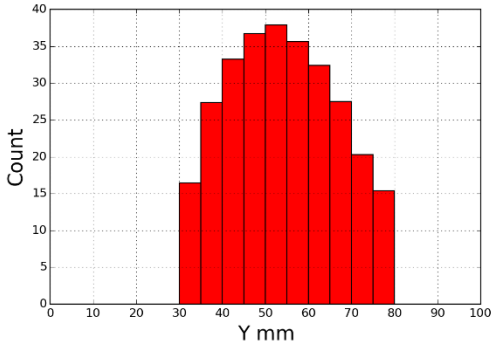


Figure C. 1468: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LA Image

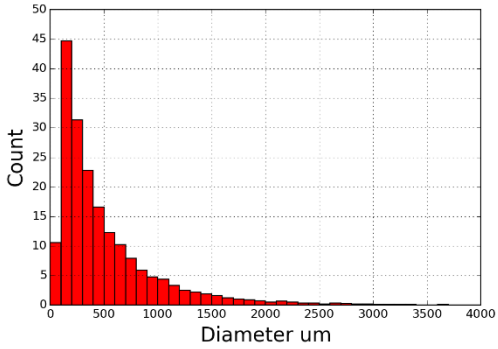


Figure C. 1471: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

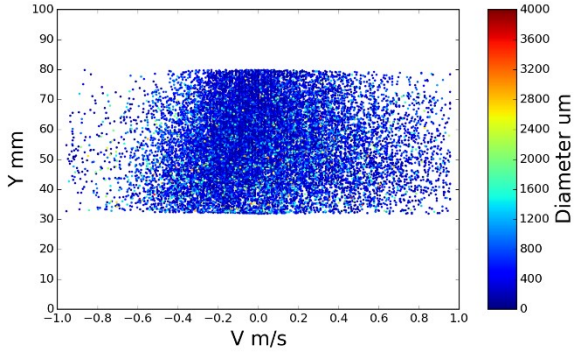


Figure C. 1474: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

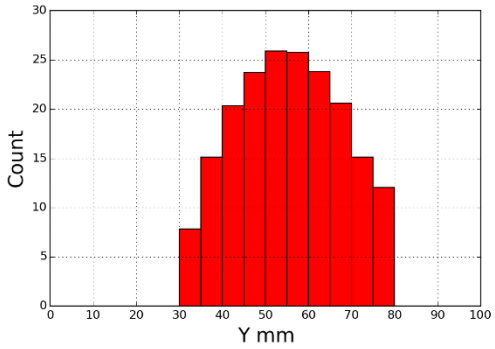


Figure C. 1472: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

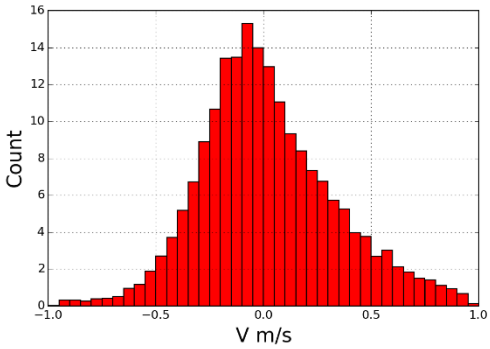


Figure C. 1475: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

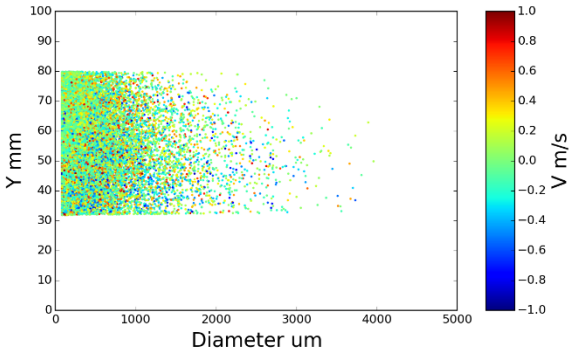


Figure C. 1473: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LB Image

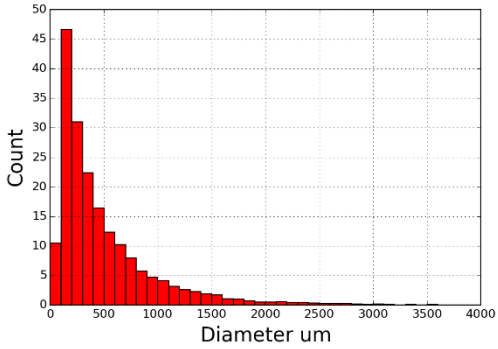


Figure C. 1476: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

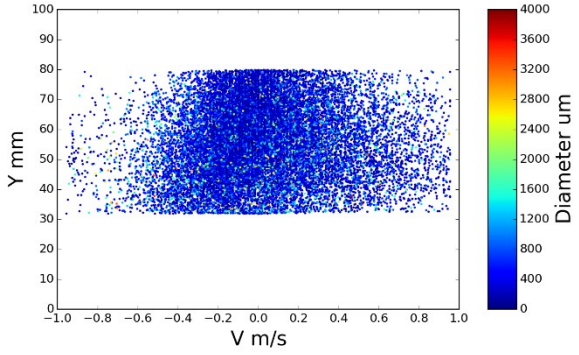


Figure C. 1479: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

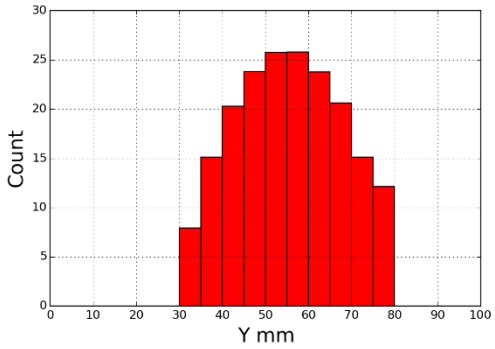


Figure C. 1477: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

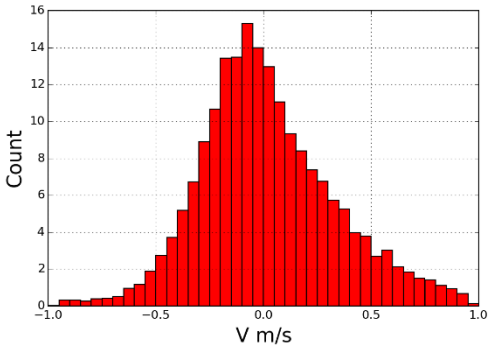


Figure C. 1480: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

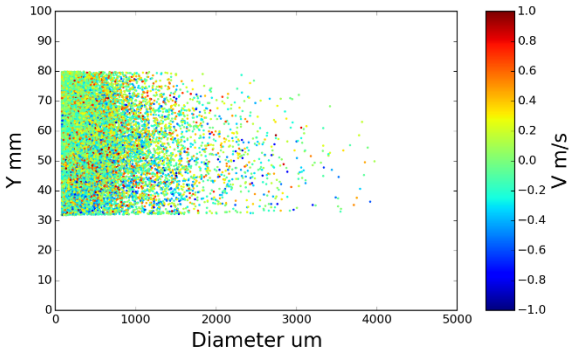


Figure C. 1478: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	42.7	42.84	76.1	3968	537.8	561.4	76.1	3980	532.2	561.1
40-60mm	138.01	139.17	76.1	4014	464.4	489.5	76.1	4022	472.8	504.2
60-80mm	87.54	88.31	76.1	3964	383.8	382.9	76.1	3993	379.6	381.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	268.56	270.69	76.1	4014	449.8	473.3	76.1	4022	451.7	480.8
			Height A (mm)				Height B (mm)			
Highest Particle			79.8729				79.8741			
Lowest Particle			31.9135				31.9135			

Table C. 162: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	21.28	81.3	3918	624.8	560.0	86.3	3923	613.5	561.8	-0.950	0.950	-0.040	0.240	-0.950	0.950	0.010	0.350
40-60mm	90.33	81.3	3904	521.1	494.9	76.1	3958	515.6	495.4	-0.960	0.950	-0.050	0.190	-0.960	0.960	0.020	0.320
60-80mm	67.17	81.3	3964	426.7	393.3	81.3	3993	422.0	389.6	-0.940	0.940	-0.060	0.160	-0.950	0.950	0.020	0.270
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	178.78	81.3	3964	498.0	472.5	76.1	3993	491.9	471.5	-0.960	0.950	-0.050	0.180	-0.960	0.960	0.020	0.310

Table C. 163: Matched Droplet Info

C.5.1.1 All Droplets for .LA Image

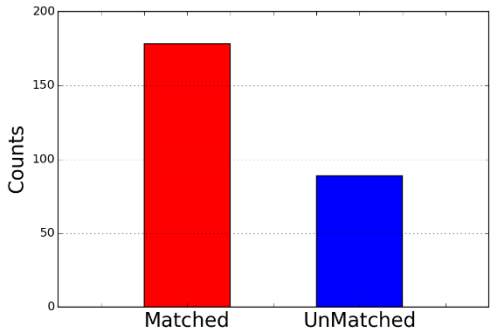


Figure C. 1481: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

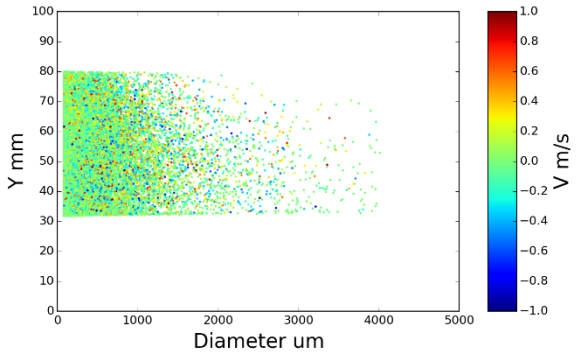


Figure C. 1484: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

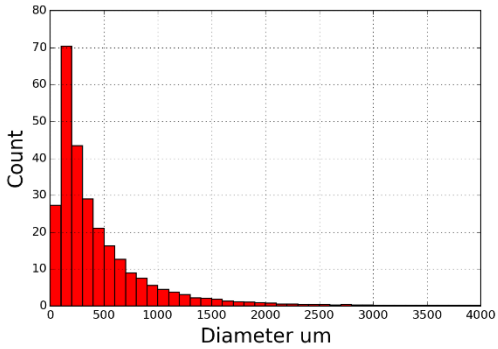


Figure C. 1482: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

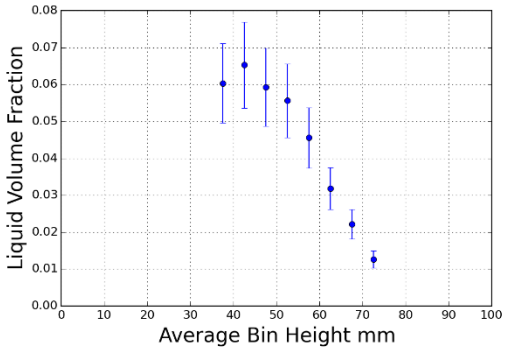


Figure C. 1485: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

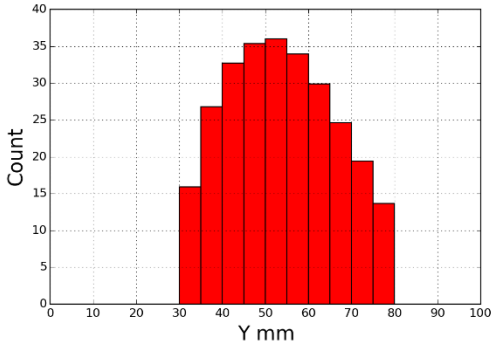


Figure C. 1483: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 All Droplets for .LB Image

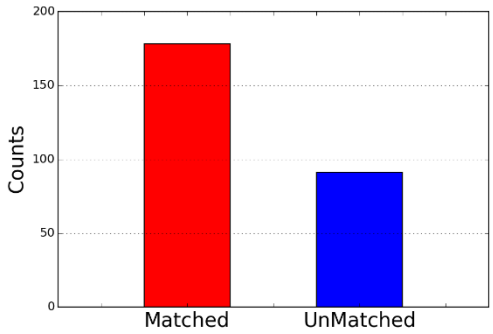


Figure C. 1486: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

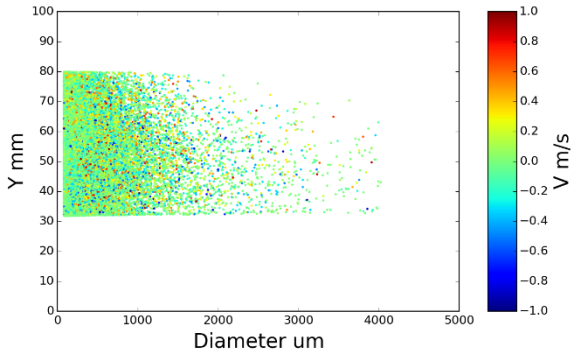


Figure C. 1489: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

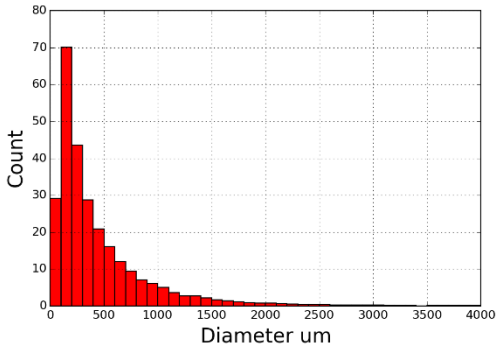


Figure C. 1487: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

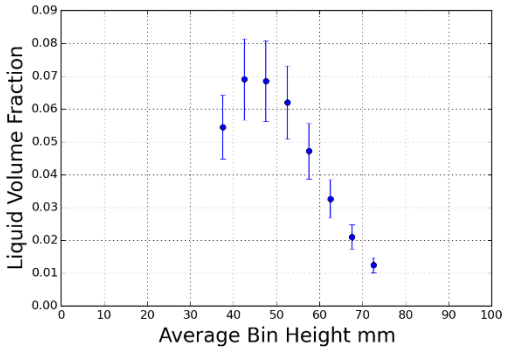


Figure C. 1490: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

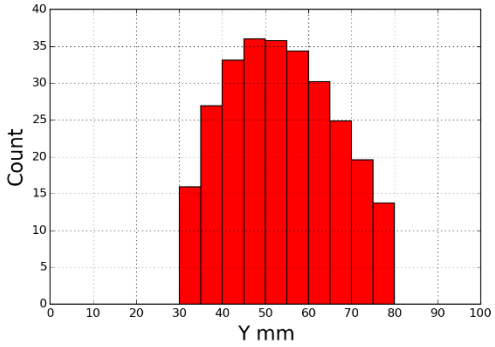


Figure C. 1488: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LA Image

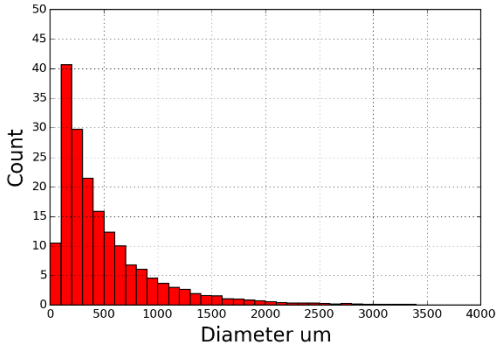


Figure C. 1491: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

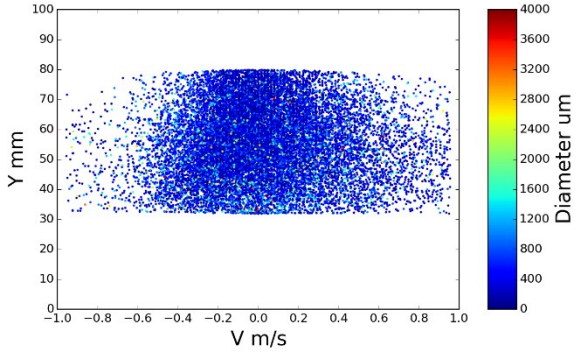


Figure C. 1494: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

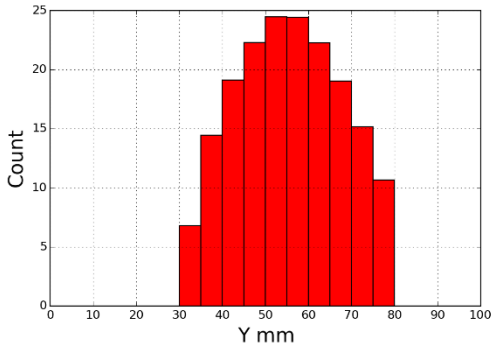


Figure C. 1492: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

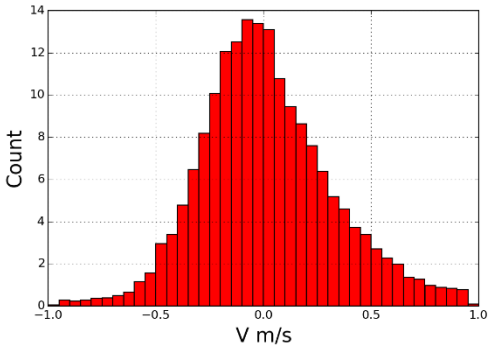


Figure C. 1495: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

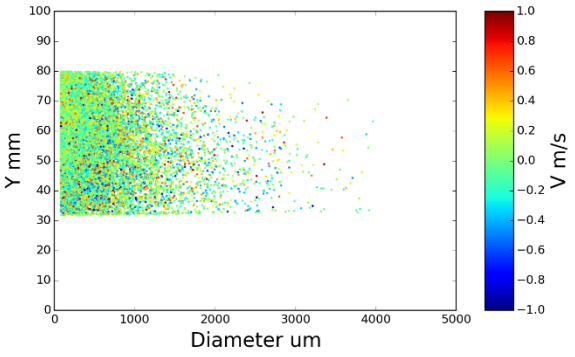


Figure C. 1493: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.1 Matched Only Droplets for .LB Image

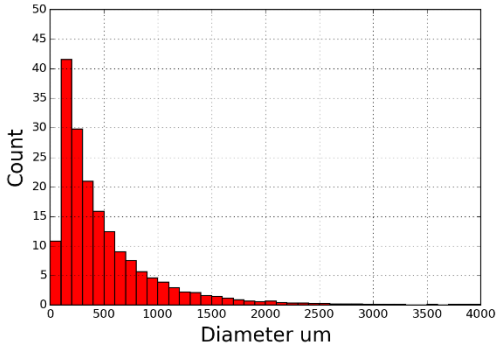


Figure C. 1496: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

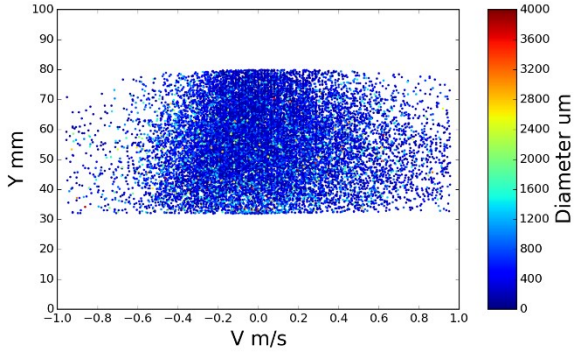


Figure C. 1499: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

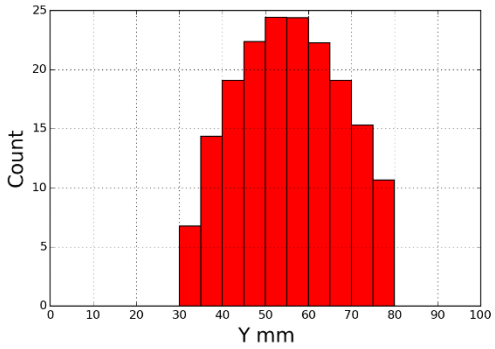


Figure C. 1497: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

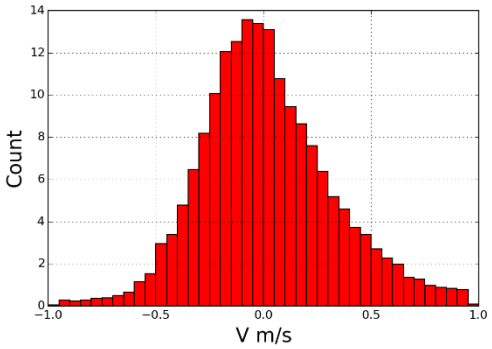


Figure C. 1500: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

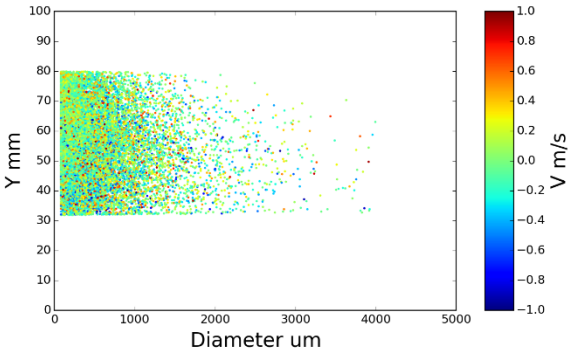


Figure C. 1498: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Lens 50mm Mag 0_13x

C.5.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	25.97	26.36	170.5	3980	751.0	618.4	170.5	3990	745.1	619.9
40-60mm	83.62	83.32	182.3	3935	688.1	558.0	170.5	3993	694.5	573.3
60-80mm	53.38	52.88	170.5	3934	616.4	456.1	170.5	3970	618.8	458.2
80-100mm	11.58	11.67	170.5	3648	538.4	326.0	170.5	3849	535.5	323.8
All	174.55	174.23	170.5	3980	665.6	529.0	170.5	3993	668.5	537.8
			Height A (mm)				Height B (mm)			
Highest Particle			99.9886				99.9926			
Lowest Particle			30.1022				30.1022			

Table C. 164: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	12.27	182.3	3754	817.2	585.7	182.3	3952	789.8	582.8	-0.950	0.950	-0.040	0.350	-0.950	0.950	-0.060	0.400
40-60mm	49.74	182.3	3643	736.3	534.6	182.3	3884	722.0	539.9	-0.950	0.950	-0.070	0.280	-0.950	0.950	-0.050	0.360
60-80mm	35.92	182.3	3625	672.5	453.9	182.3	3860	663.9	452.8	-0.950	0.950	-0.070	0.230	-0.950	0.950	-0.000	0.330
80-100mm	8.62	193.4	3648	584.7	327.5	193.4	3849	579.1	336.1	-0.920	0.950	-0.060	0.180	-0.940	0.950	-0.000	0.290
All	106.55	182.3	3754	711.8	504.4	182.3	3952	698.9	506.5	-0.950	0.950	-0.070	0.270	-0.950	0.950	-0.030	0.350

Table C. 165: Matched Droplet Info

C.5.1.2 All Droplets for .LA Image

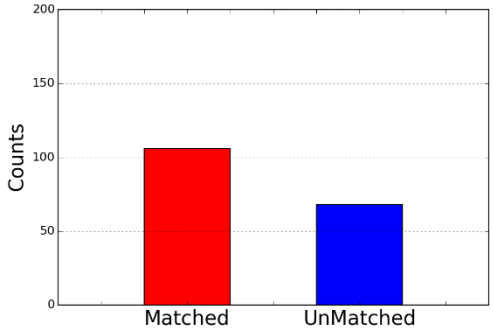


Figure C. 1501: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

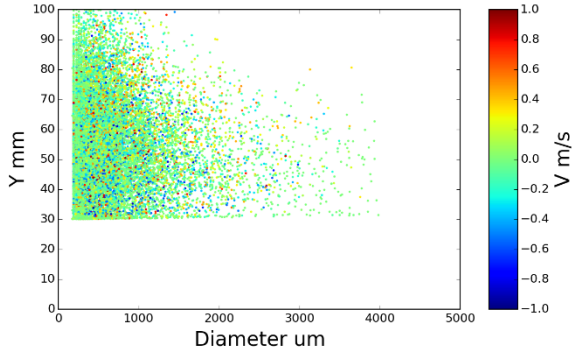


Figure C. 1504: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

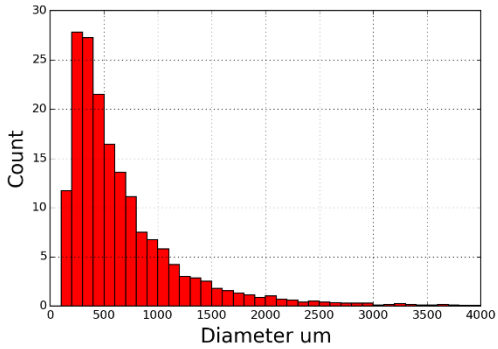


Figure C. 1502: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

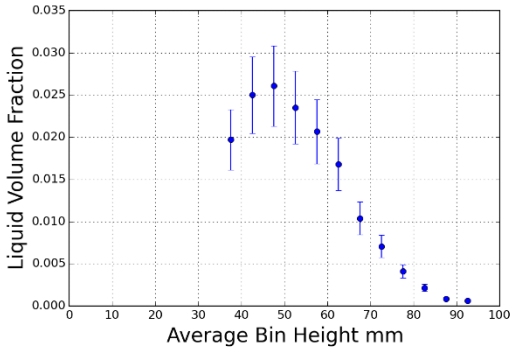


Figure C. 1505: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

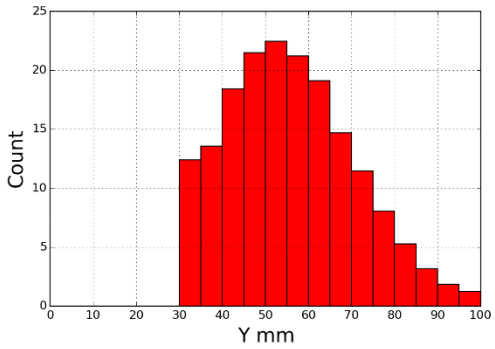


Figure C. 1503: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 All Droplets for .LB Image

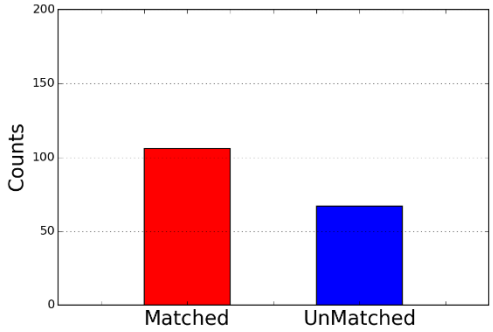


Figure C. 1506: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

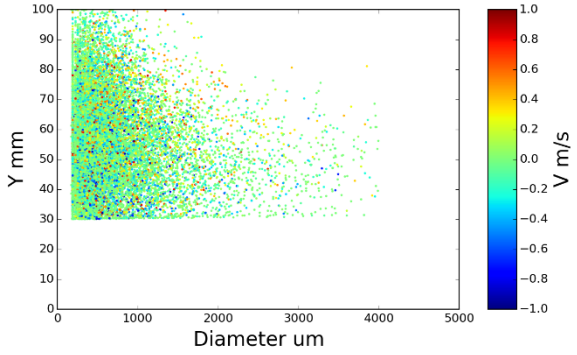


Figure C. 1509: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

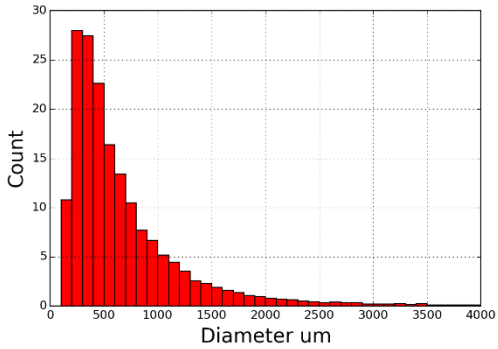


Figure C. 1507: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

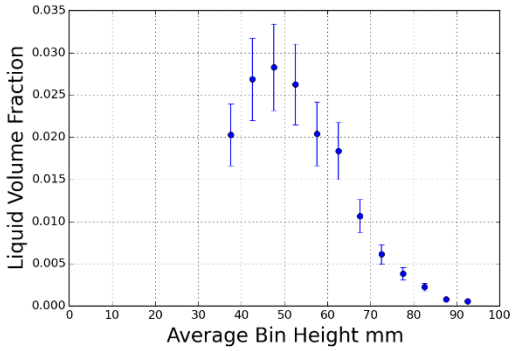


Figure C. 1510: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

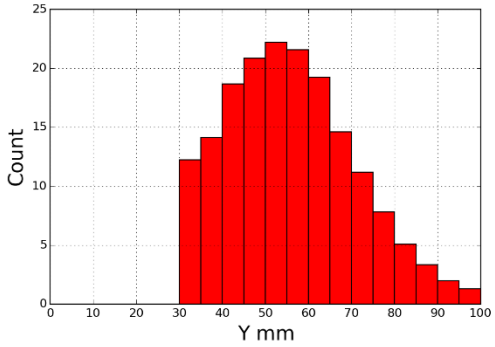


Figure C. 1508: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LA Image

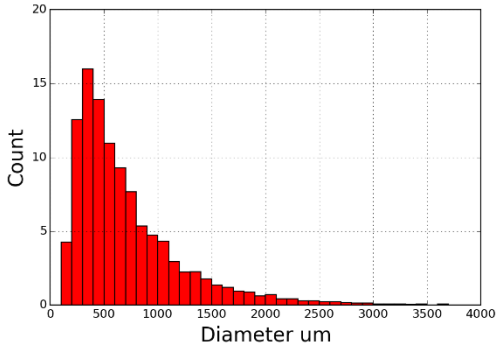


Figure C. 1511: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

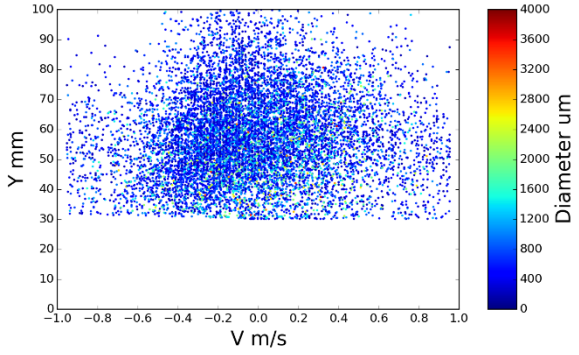


Figure C. 1514: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

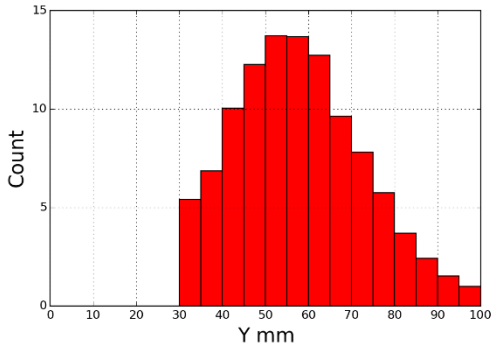


Figure C. 1512: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

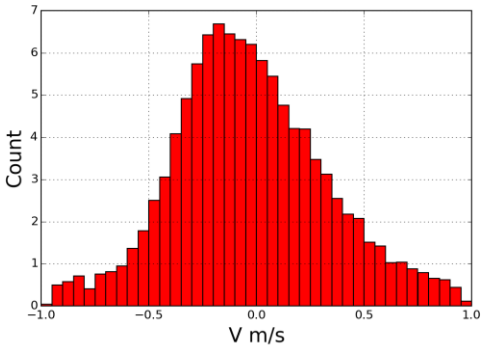


Figure C. 1515: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

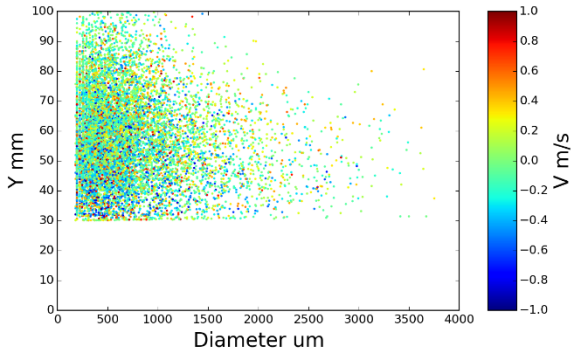


Figure C. 1513: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LB Image

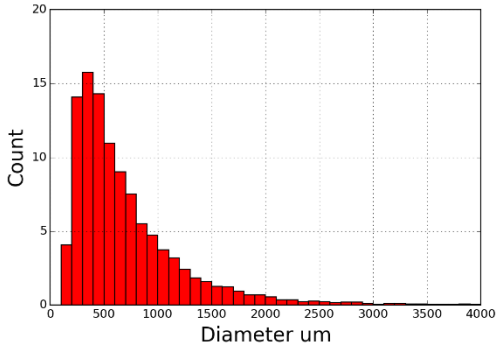


Figure C. 1516: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

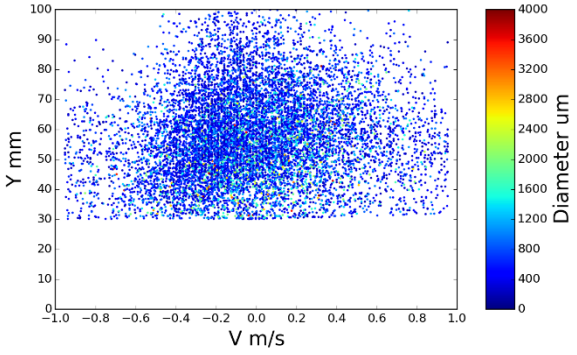


Figure C. 1519: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

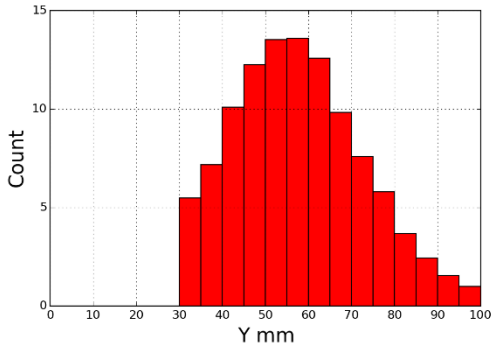


Figure C. 1517: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

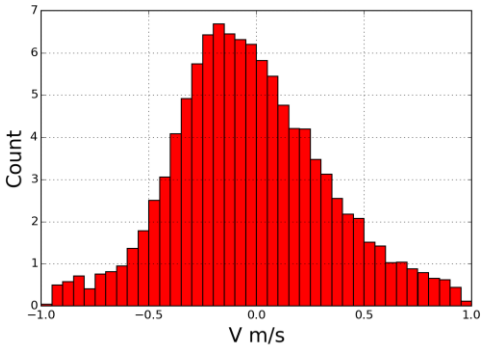


Figure C. 1520: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

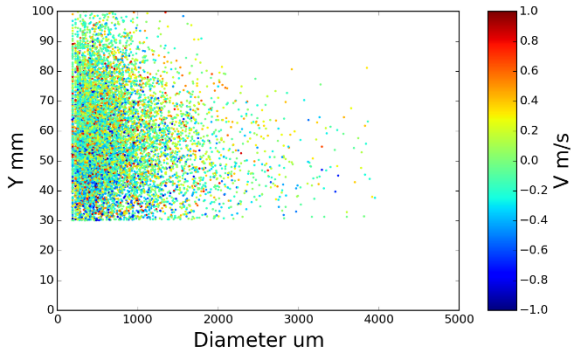


Figure C. 1518: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	30.56	30.86	170.5	3992	707.7	573.9	170.5	3932	694.2	559.6
40-60mm	92.76	91.79	170.5	3991	653.0	519.1	170.5	3948	668.5	531.7
60-80mm	59.16	58.94	170.5	3836	607.6	441.9	170.5	3680	609.0	437.2
80-100mm	15.64	15.63	182.3	3863	545.1	318.4	182.3	3208	550.5	322.6
All	198.12	197.23	170.5	3992	639.4	495.1	170.5	3948	645.4	497.7
			Height A (mm)				Height B (mm)			
Highest Particle			99.9886				99.9352			
Lowest Particle			30.1022				30.1022			

Table C. 166: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	13.59	182.3	3548	783.1	548.2	182.3	3883	764.3	554.4	-0.940	0.950	-0.070	0.360	-0.950	0.950	-0.020	0.420
40-60mm	53.61	182.3	3769	710.7	506.8	170.5	3948	699.1	511.1	-0.950	0.950	-0.060	0.300	-0.950	0.950	-0.020	0.400
60-80mm	40.26	182.3	3711	663.0	446.3	170.5	3680	651.1	440.1	-0.950	0.950	-0.080	0.230	-0.950	0.950	-0.010	0.350
80-100mm	11.79	182.3	3203	590.9	314.8	193.4	3208	582.5	319.4	-0.930	0.920	-0.060	0.180	-0.920	0.920	0.030	0.310
All	119.25	182.3	3769	691.0	478.7	170.5	3948	679.0	479.9	-0.950	0.950	-0.070	0.280	-0.950	0.950	-0.010	0.380

Table C. 167: Matched Droplet Info

C.5.1.2 All Droplets for .LA Image

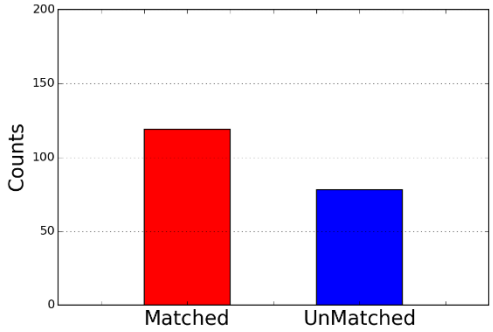


Figure C. 1521: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

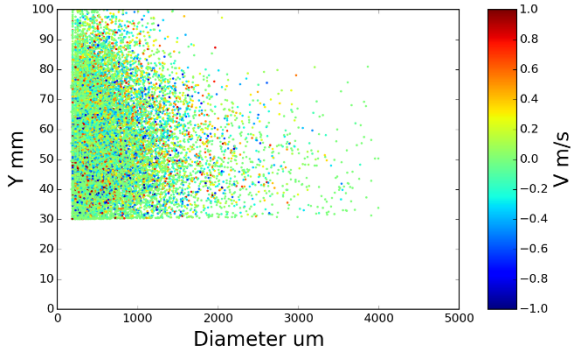


Figure C. 1524: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

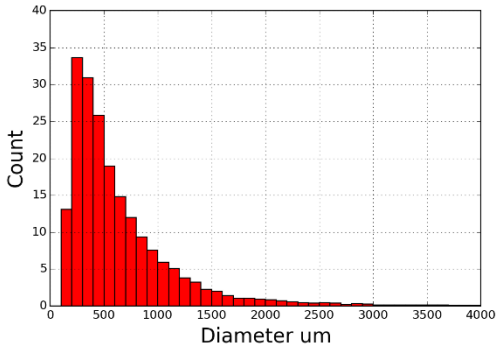


Figure C. 1522: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

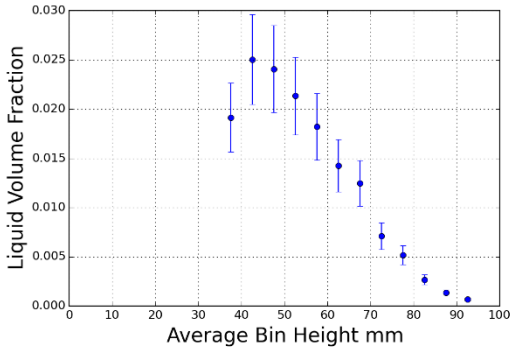


Figure C. 1525: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

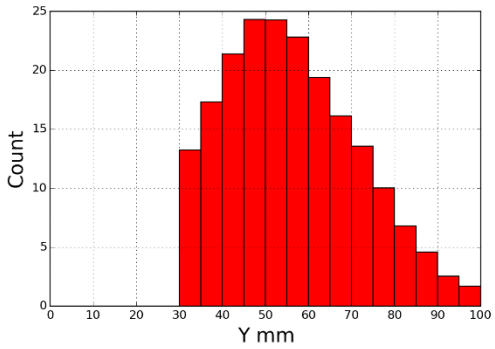


Figure C. 1523: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 All Droplets for .LB Image

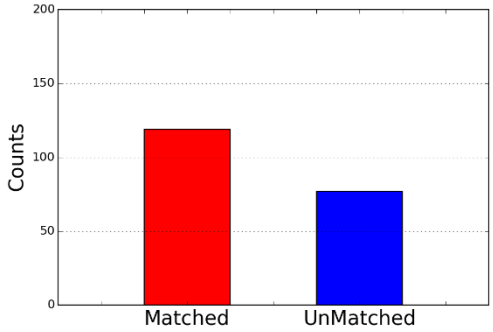


Figure C. 1526: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

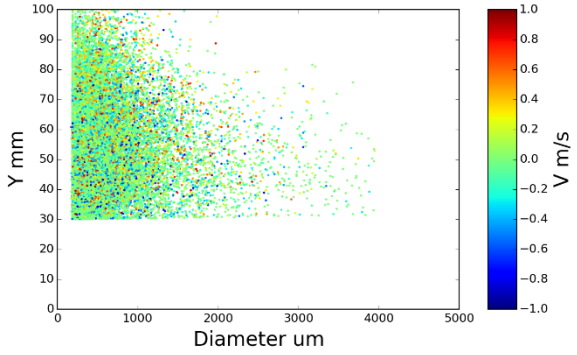


Figure C. 1529: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

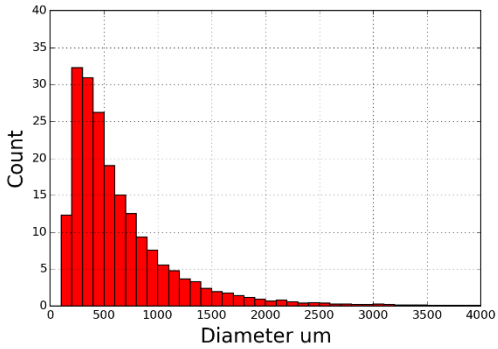


Figure C. 1527: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

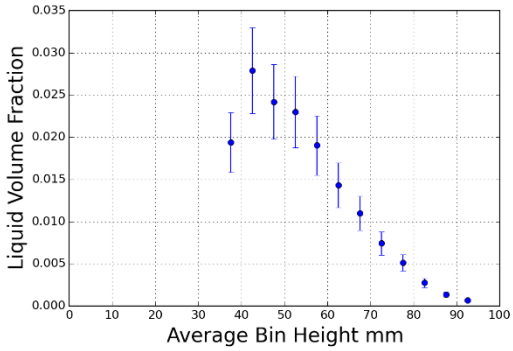


Figure C. 1530: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

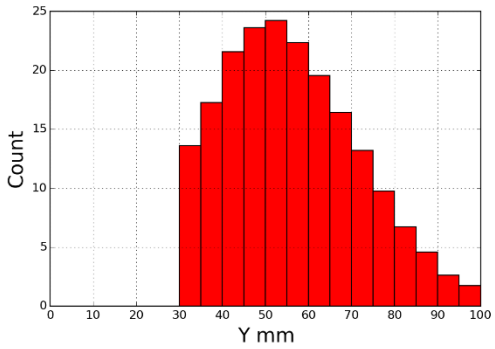


Figure C. 1528: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LA Image

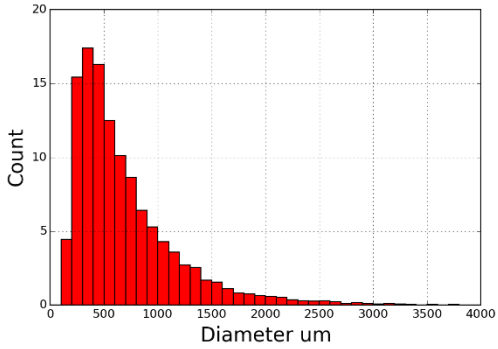


Figure C. 1531: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

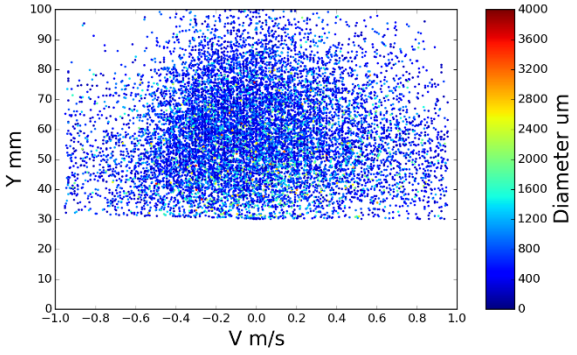


Figure C. 1534: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

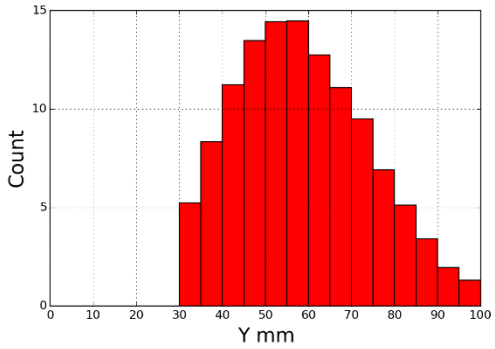


Figure C. 1532: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

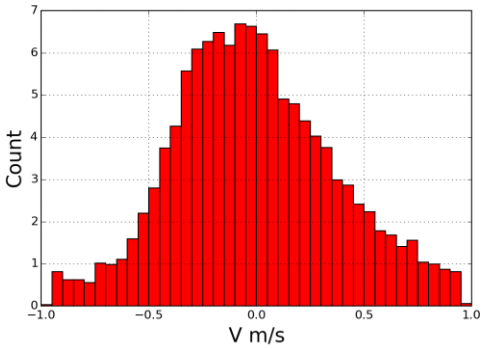


Figure C. 1535: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

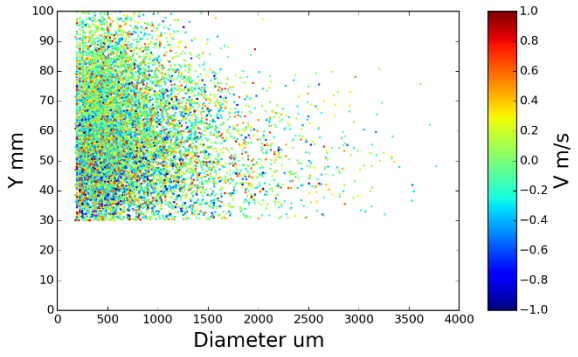


Figure C. 1533: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LB Image

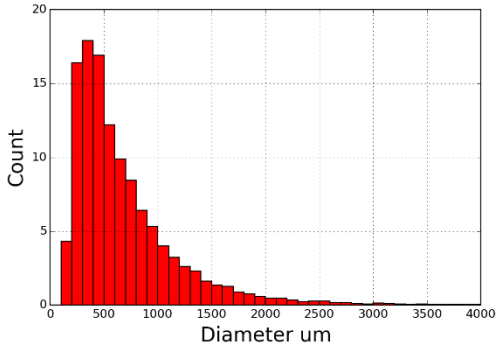


Figure C. 1536: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

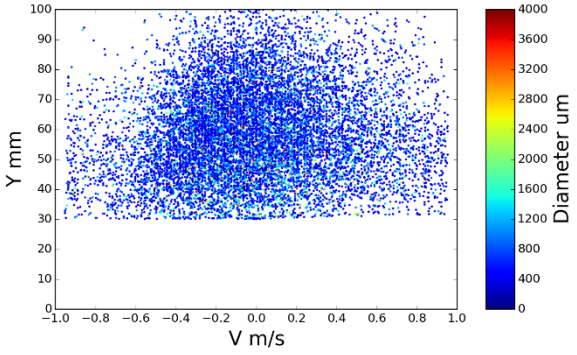


Figure C. 1539: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

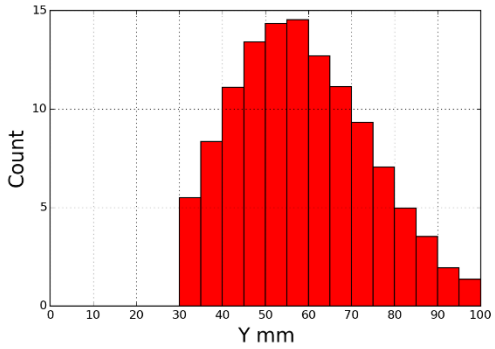


Figure C. 1537: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

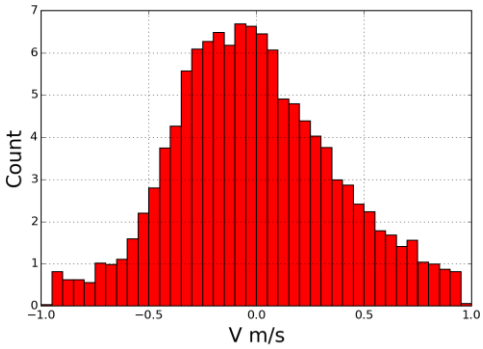


Figure C. 1540: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

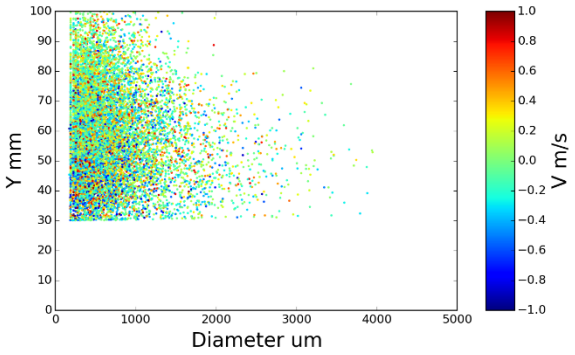


Figure C. 1538: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	31.56	31.27	170.5	3938	722.8	593.8	170.5	3976	705.0	564.5
40-60mm	91.46	91.09	170.5	3989	666.1	536.1	182.3	3988	674.6	533.5
60-80mm	54.66	53.73	170.5	3880	595.2	427.8	182.3	3982	599.4	433.6
80-100mm	11.76	11.96	182.3	1956	553.2	306.6	170.5	1815	552.1	299.1
All	189.44	188.05	170.5	3989	648.1	508.5	170.5	3988	650.4	502.4
			Height A (mm)				Height B (mm)			
Highest Particle			99.9936				99.9089			
Lowest Particle			30.1022				30.1022			

Table C. 168: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	14.0	182.3	3495	789.3	562.1	170.5	3543	761.9	552.0	-0.950	0.950	-0.050	0.360	-0.950	0.950	-0.040	0.420
40-60mm	53.18	182.3	3544	727.7	513.3	182.3	3974	713.1	515.7	-0.950	0.950	-0.060	0.290	-0.950	0.950	-0.010	0.380
60-80mm	37.0	182.3	3768	653.0	438.8	182.3	3982	641.4	439.1	-0.950	0.950	-0.060	0.240	-0.950	0.950	-0.020	0.340
80-100mm	8.96	182.3	1956	608.1	313.8	182.3	1815	599.4	305.3	-0.900	0.930	-0.050	0.180	-0.910	0.950	-0.020	0.290
All	113.14	182.3	3768	701.4	486.2	170.5	3982	686.6	485.1	-0.950	0.950	-0.060	0.280	-0.950	0.950	-0.020	0.370

Table C. 169: Matched Droplet Info

C.5.1.2 All Droplets for .LA Image

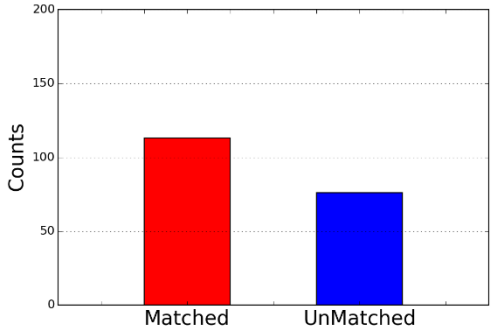


Figure C. 1541: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

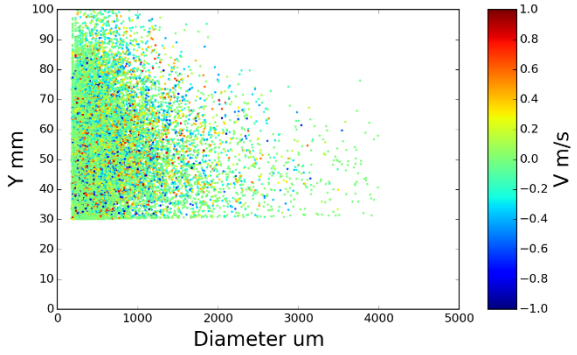


Figure C. 1544: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

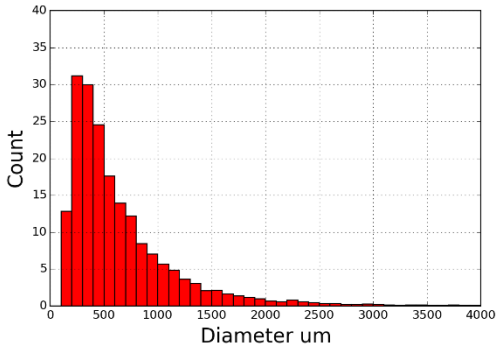


Figure C. 1542: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

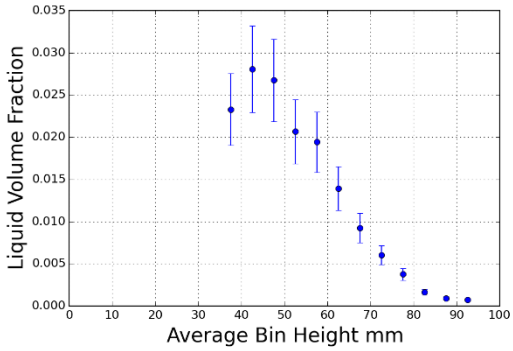


Figure C. 1545: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

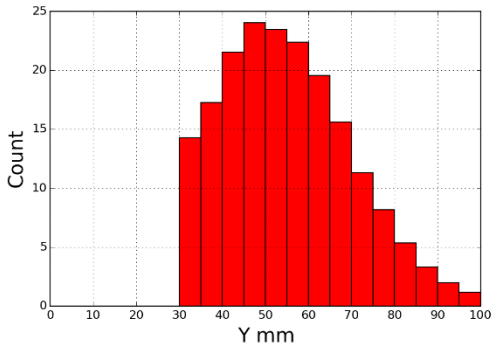


Figure C. 1543: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 All Droplets for .LB Image

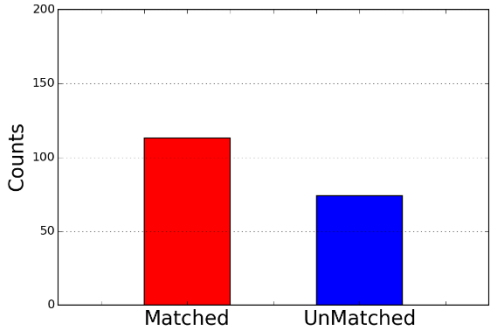


Figure C. 1546: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

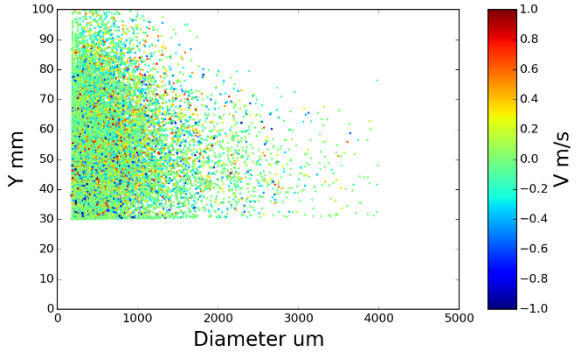


Figure C. 1549: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

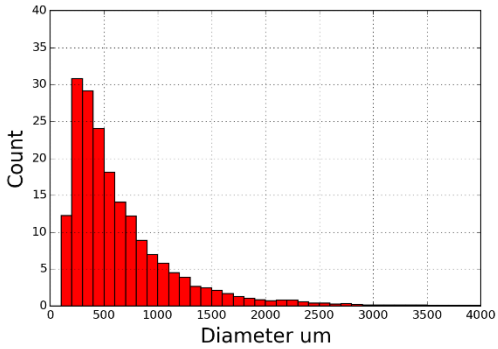


Figure C. 1547: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

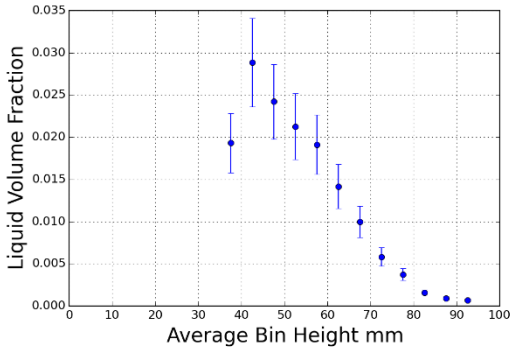


Figure C. 1550: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

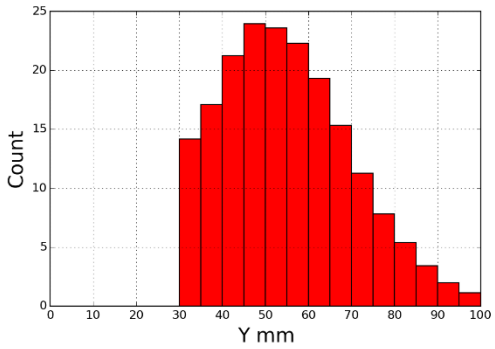


Figure C. 1548: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LA Image

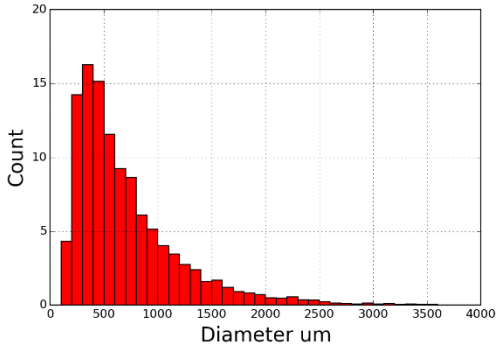


Figure C. 1551: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

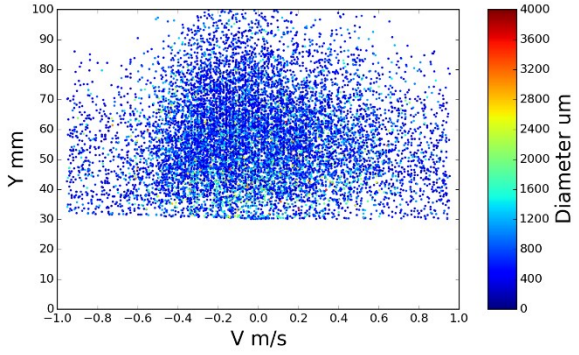


Figure C. 1554: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

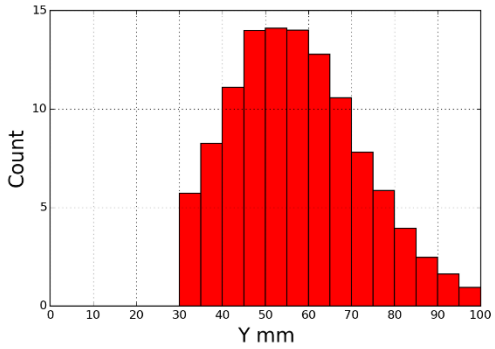


Figure C. 1552: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

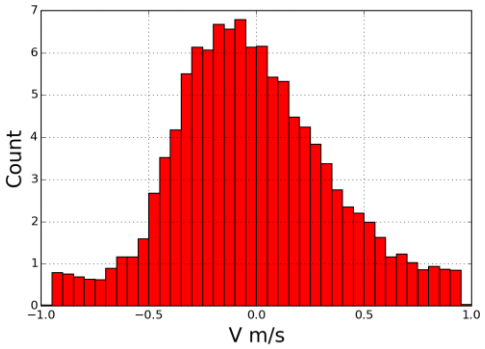


Figure C. 1555: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

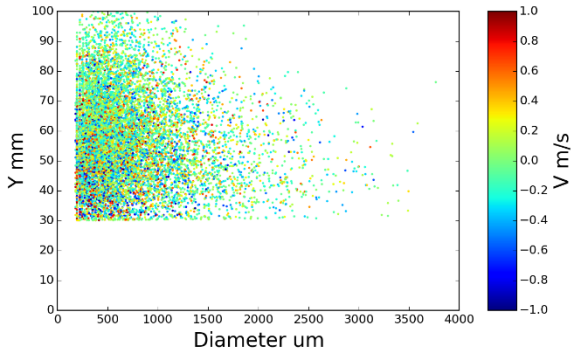


Figure C. 1553: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.1.2 Matched Only Droplets for .LB Image

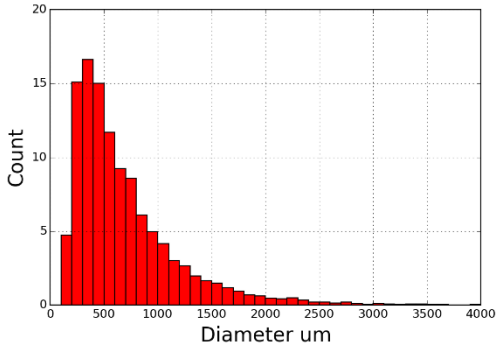


Figure C. 1556: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

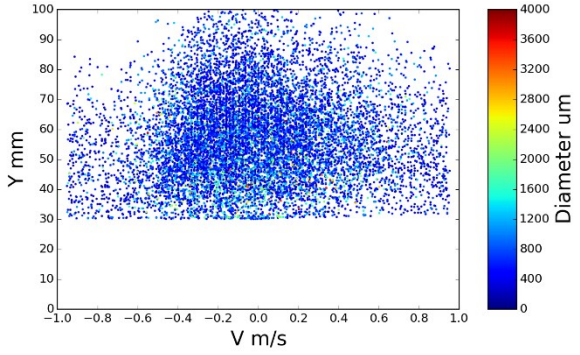


Figure C. 1559: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

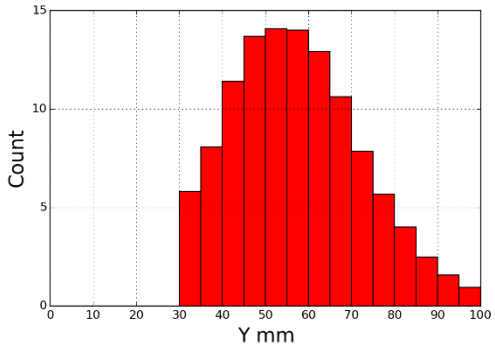


Figure C. 1557: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

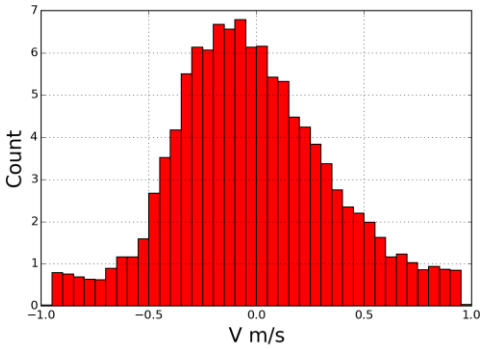


Figure C. 1560: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

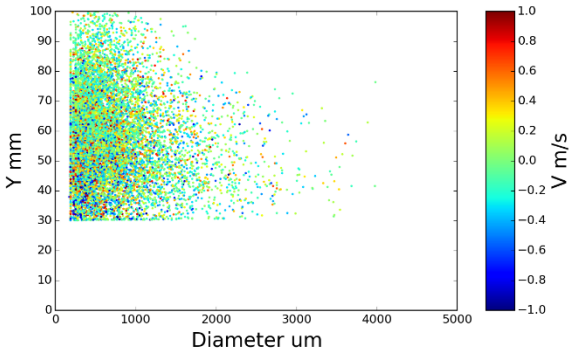


Figure C. 1558: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	12568 / 1.583
Ref Mass Flow (lb/hr) / (kg/s)	1521 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14806 / 20.080
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4756 / 15.00
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.5 / 12.51
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	54.7 / 12.62
Total Bundle Q (Btu/hr) / (kW)	142203 / 41.68
Total Bundle & Preboiler Q (Btu/hr) / (kW)	142203 / 41.68
Top Two Rows HTC Ratio	0.920
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 170: Thermal Conditions

C.5.2.1 Lens 100mm Mag 0_29x

C.5.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	71.6	72.97	76.1	3943	475.9	489.1	81.3	3827	462.3	469.2
40-60mm	121.38	122.89	76.1	3571	381.7	361.9	76.1	3924	382.0	364.9
60-80mm	48.78	48.88	81.3	3140	268.5	253.9	76.1	2846	267.9	251.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	241.76	244.74	76.1	3943	386.8	393.5	76.1	3924	383.1	386.8
			Height A (mm)				Height B (mm)			
Highest Particle			79.8729				79.8729			
Lowest Particle			31.9135				31.9226			

Table C. 171: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	47.13	81.3	3738	526.0	469.0	81.3	3810	521.3	473.7	-0.960	0.940	-0.060	0.190	-0.960	0.960	-0.050	0.290
40-60mm	90.2	81.3	3567	421.3	363.1	81.3	3803	419.9	364.5	-0.950	0.950	-0.060	0.160	-0.960	0.960	-0.030	0.270
60-80mm	38.29	81.3	2851	292.0	261.6	81.3	2846	291.7	260.1	-0.910	0.940	-0.060	0.130	-0.960	0.950	-0.010	0.220
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	175.62	81.3	3738	421.2	385.0	81.3	3810	419.4	387.0	-0.960	0.950	-0.060	0.160	-0.960	0.960	-0.030	0.260

Table C. 172: Matched Droplet Info

C.5.2.1 All Droplets for .LA Image

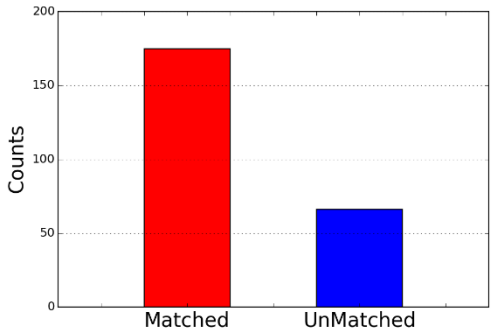


Figure C. 1561: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

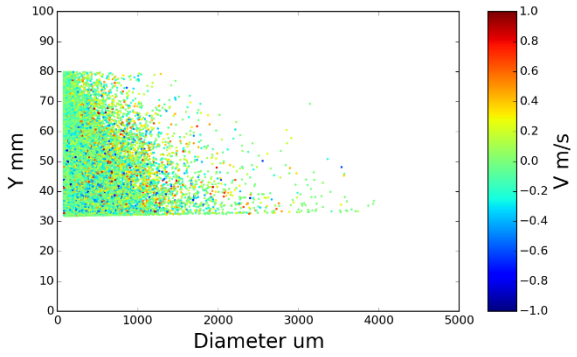


Figure C. 1564: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

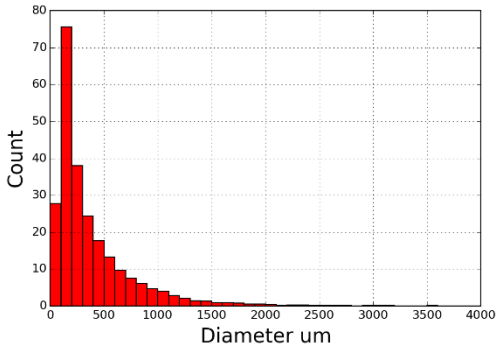


Figure C. 1562: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

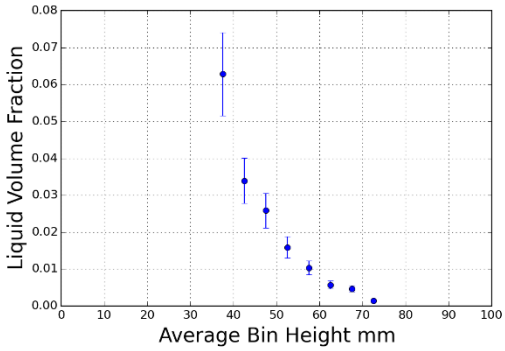


Figure C. 1565: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

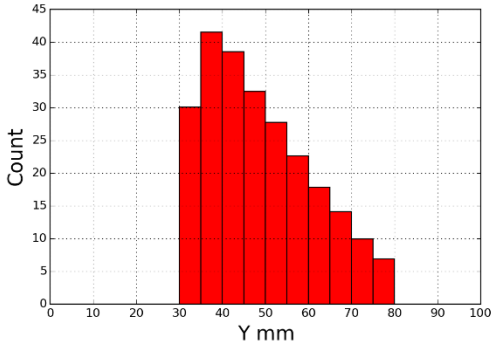


Figure C. 1563: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 All Droplets for .LB Image

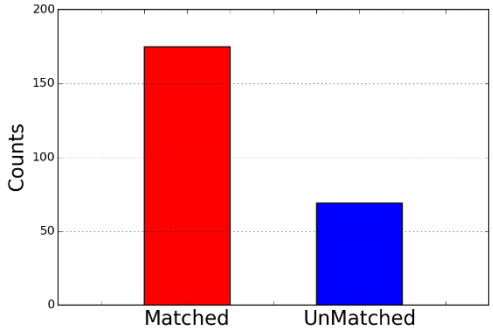


Figure C. 1566: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

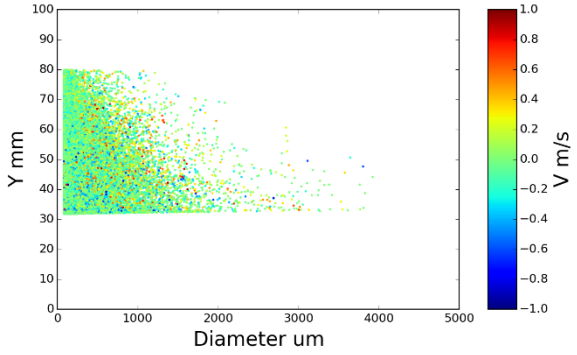


Figure C. 1569: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

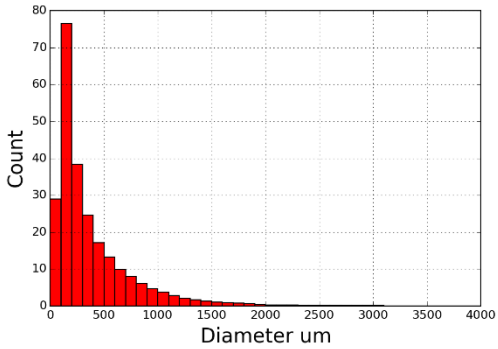


Figure C. 1567: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

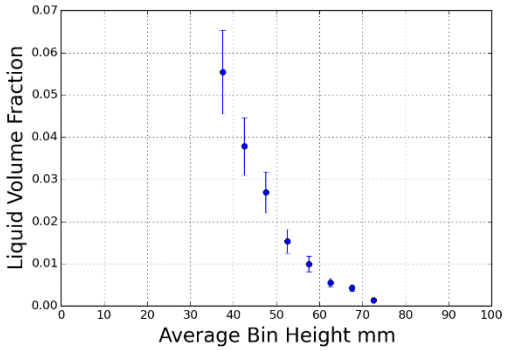


Figure C. 1570: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

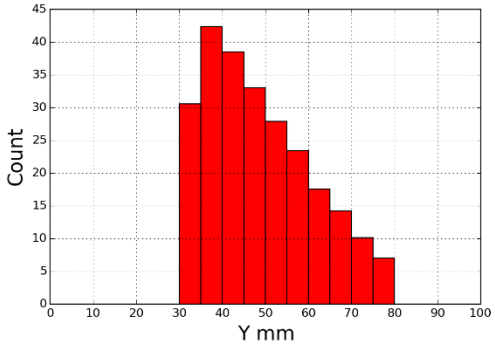


Figure C. 1568: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LA Image

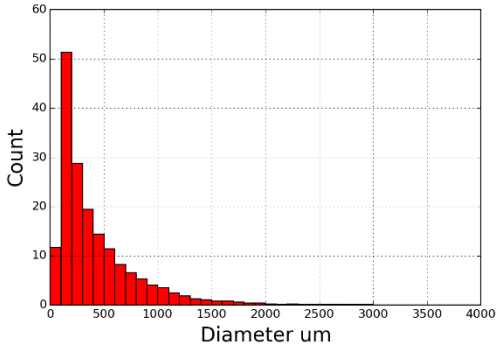


Figure C. 1571: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

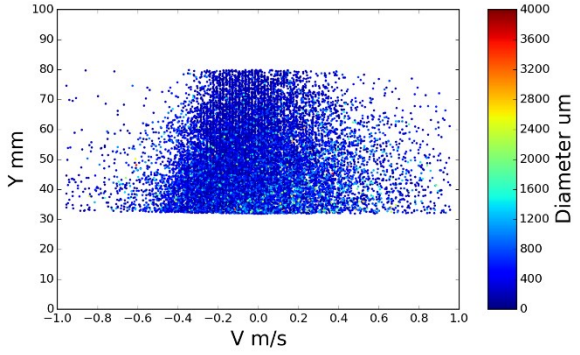


Figure C. 1574: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

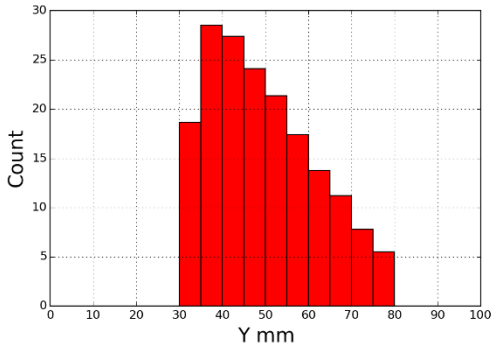


Figure C. 1572: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

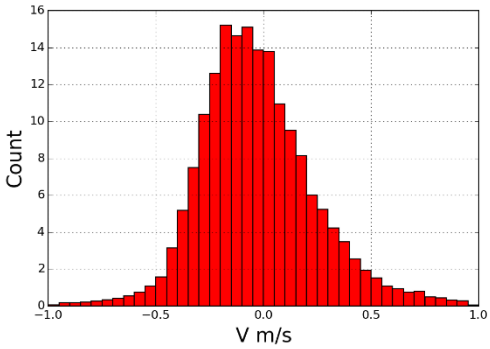


Figure C. 1575: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

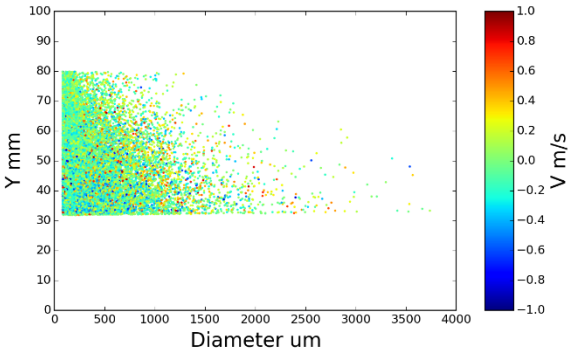


Figure C. 1573: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LB Image

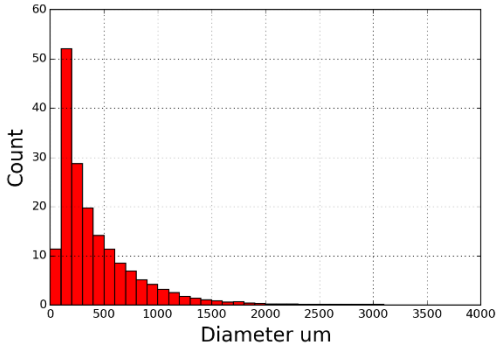


Figure C. 1576: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

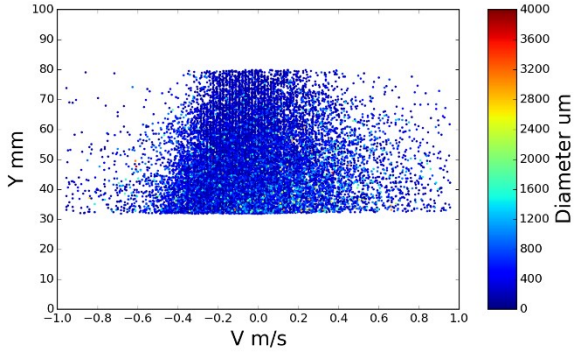


Figure C. 1579: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

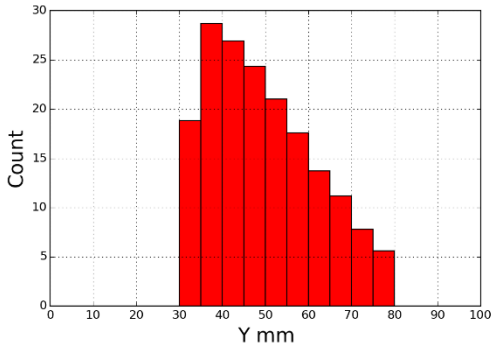


Figure C. 1577: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

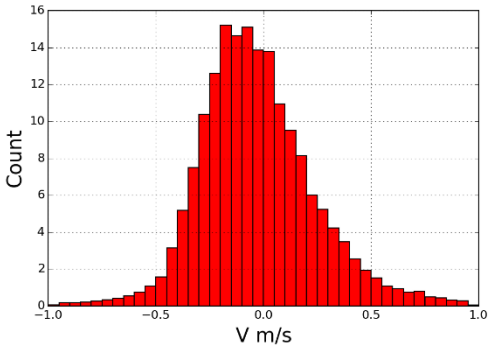


Figure C. 1580: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

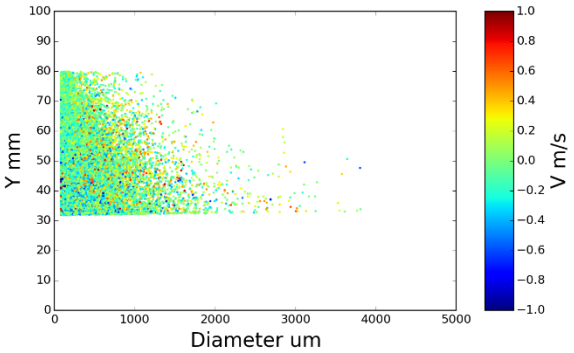


Figure C. 1578: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	85.34	85.5	76.1	3939	479.2	481.6	76.1	3997	480.2	483.6
40-60mm	151.31	153.85	76.1	3473	378.2	356.7	76.1	3635	375.2	352.6
60-80mm	57.16	56.29	81.3	2962	262.3	247.4	76.1	2620	259.5	240.7
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	293.81	295.64	76.1	3939	385.0	387.7	76.1	3997	383.6	386.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.8738				79.8729			
Lowest Particle			31.9135				31.9135			

Table C. 173: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	56.43	81.3	3784	524.5	465.5	81.3	3890	519.3	470.1	-0.940	0.930	-0.050	0.190	-0.950	0.960	0.060	0.310
40-60mm	111.48	81.3	3314	414.8	357.4	81.3	3290	410.8	354.9	-0.960	0.960	-0.060	0.160	-0.960	0.960	0.060	0.280
60-80mm	44.52	81.3	2502	285.8	252.9	81.3	2620	281.4	249.7	-0.950	0.910	-0.070	0.130	-0.930	0.940	0.020	0.210
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	212.43	81.3	3784	416.9	380.4	81.3	3890	412.3	379.9	-0.960	0.960	-0.060	0.160	-0.960	0.960	0.050	0.280

Table C. 174: Matched Droplet Info

C.5.2.1 All Droplets for .LA Image

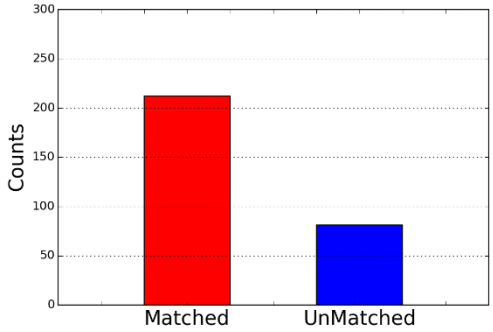


Figure C. 1581: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

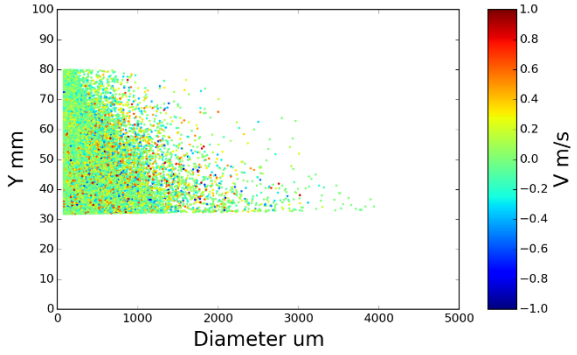


Figure C. 1584: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

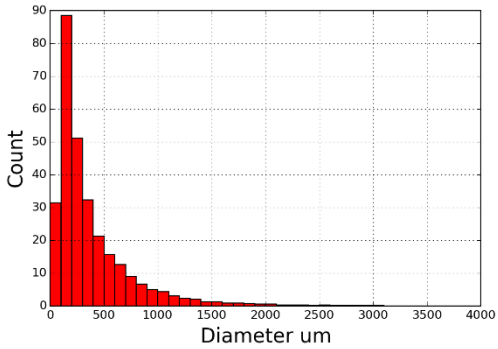


Figure C. 1582: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

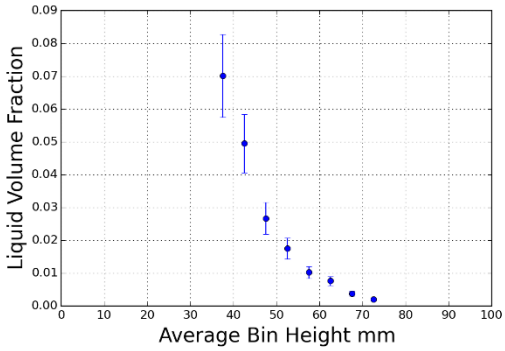


Figure C. 1585: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

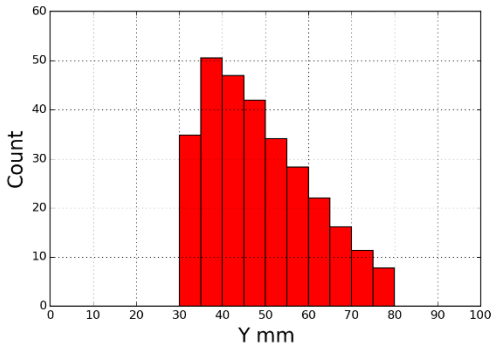


Figure C. 1583: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 All Droplets for .LB Image

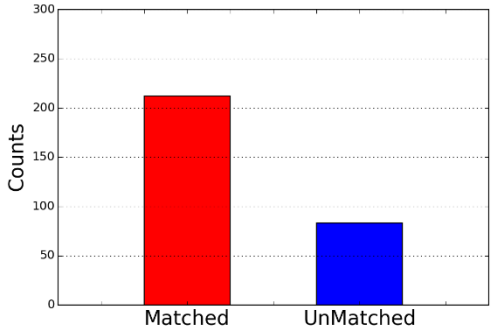


Figure C. 1586: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

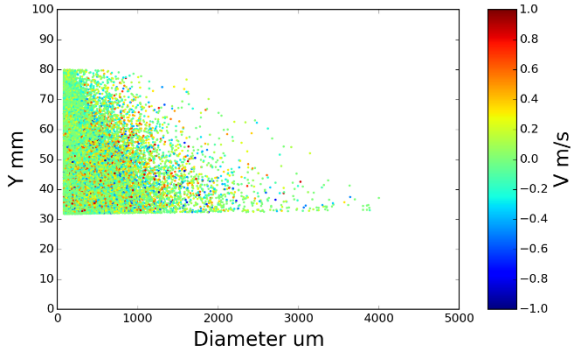


Figure C. 1589: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

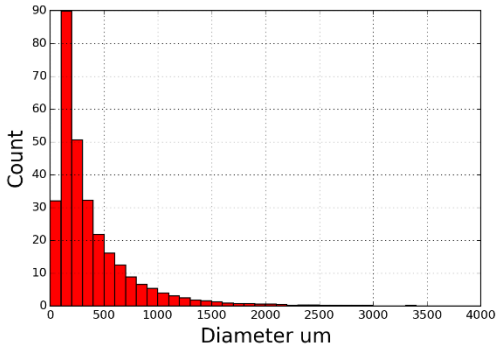


Figure C. 1587: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

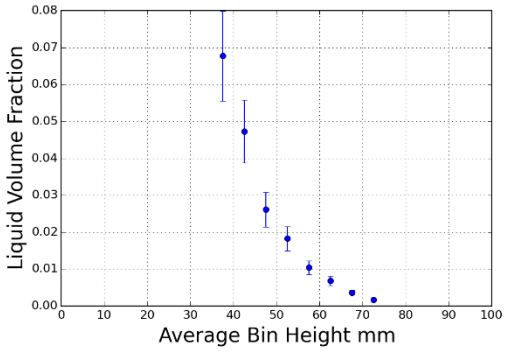


Figure C. 1590: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

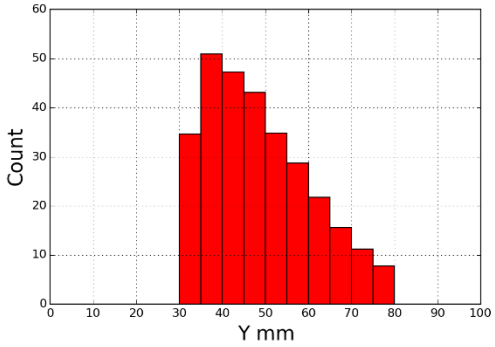


Figure C. 1588: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LA Image

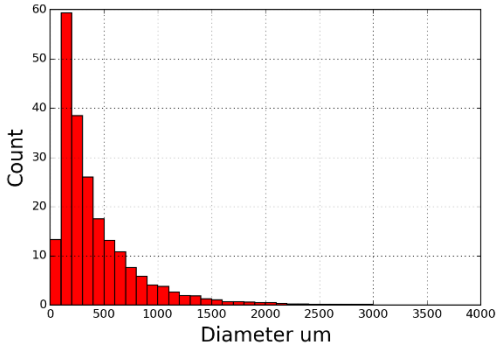


Figure C. 1591: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

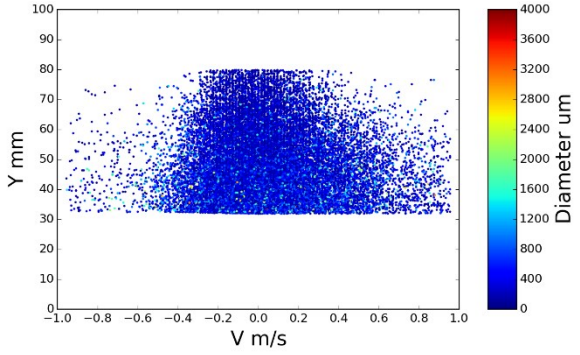


Figure C. 1594: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

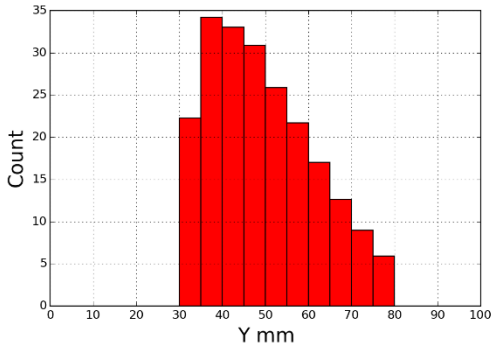


Figure C. 1592: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

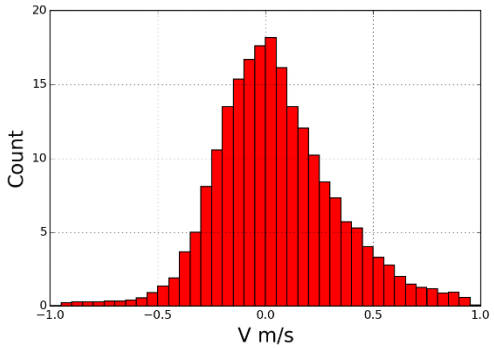


Figure C. 1595: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

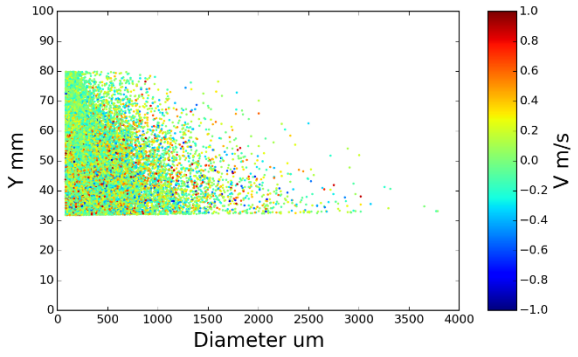


Figure C. 1593: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LB Image

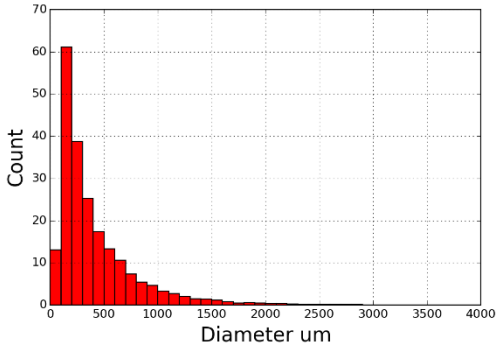


Figure C. 1596: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

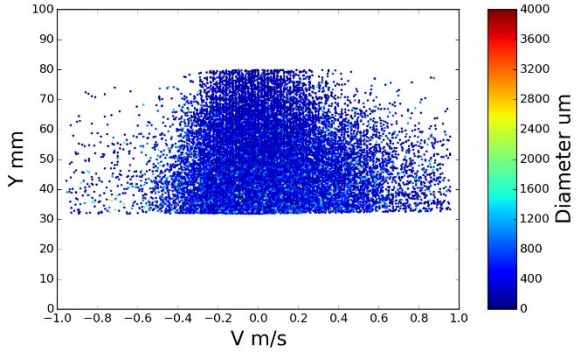


Figure C. 1599: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

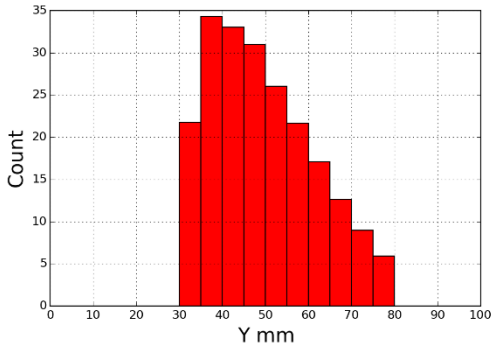


Figure C. 1597: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

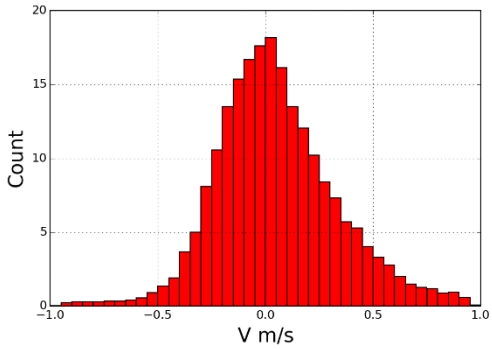


Figure C. 1600: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

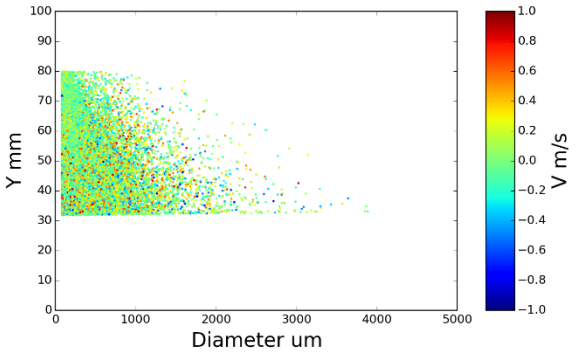


Figure C. 1598: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	85.15	85.88	76.1	3945	471.3	450.5	76.1	3997	472.8	456.9
40-60mm	148.9	150.19	76.1	4026	362.4	347.7	76.1	3930	360.9	344.9
60-80mm	59.89	60.5	81.3	2446	259.7	236.3	76.1	2635	257.7	234.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	293.94	296.59	76.1	4026	373.0	370.0	76.1	3997	372.2	371.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.8729				79.8736			
Lowest Particle			31.9135				31.9135			

Table C. 175: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	57.08	81.3	3731	516.6	432.8	81.3	3934	514.0	439.7	-0.960	0.950	-0.050	0.180	-0.940	0.950	0.100	0.300
40-60mm	109.73	76.1	3792	394.4	342.1	76.1	3815	392.8	343.7	-0.960	0.960	-0.040	0.160	-0.940	0.950	0.090	0.280
60-80mm	46.97	81.3	2446	283.8	249.0	81.3	2635	282.2	248.2	-0.950	0.900	-0.050	0.120	-0.910	0.960	0.050	0.220
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	213.78	76.1	3792	402.8	361.0	76.1	3934	400.2	363.3	-0.960	0.960	-0.050	0.160	-0.940	0.960	0.090	0.280

Table C. 176: Matched Droplet Info

C.5.2.1 All Droplets for .LA Image

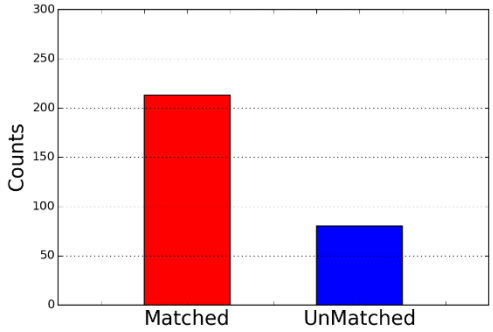


Figure C. 1601: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

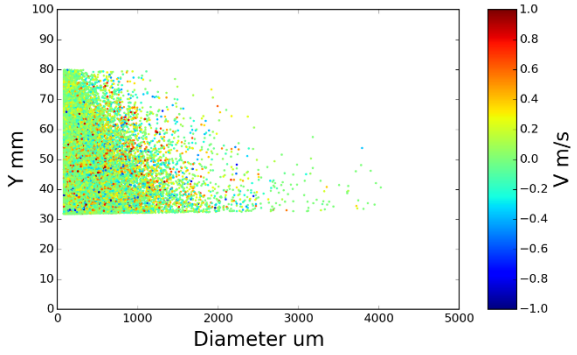


Figure C. 1604: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

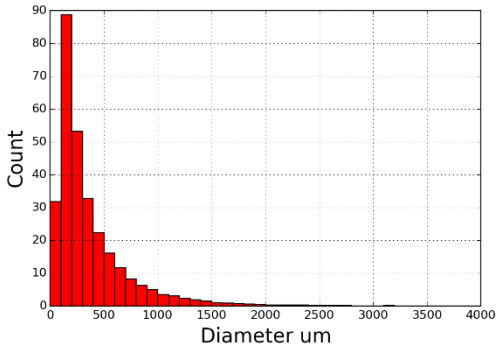


Figure C. 1602: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

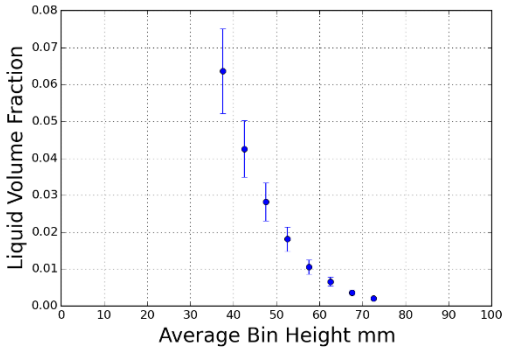


Figure C. 1605: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

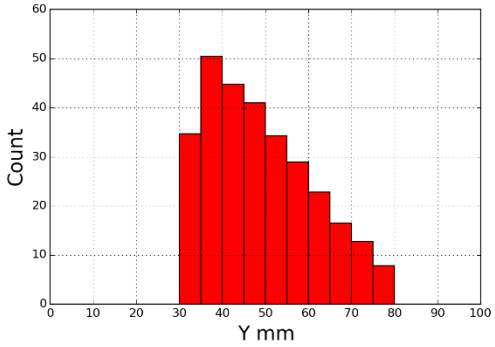


Figure C. 1603: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 All Droplets for .LB Image

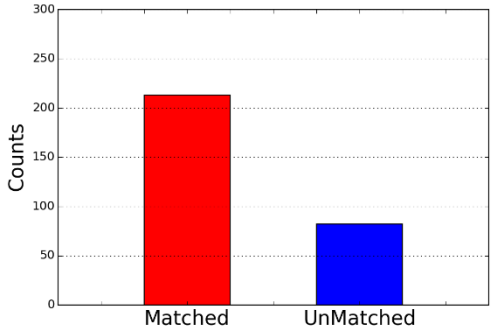


Figure C. 1606: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

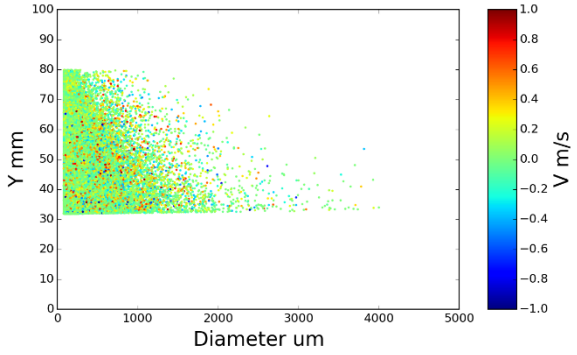


Figure C. 1609: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

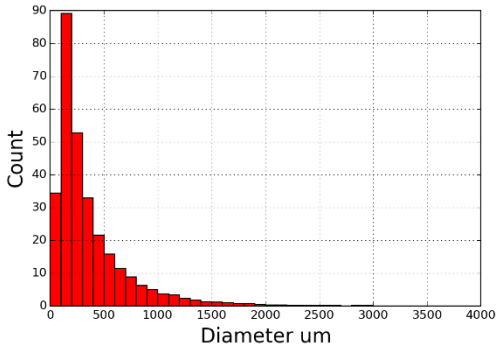


Figure C. 1607: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

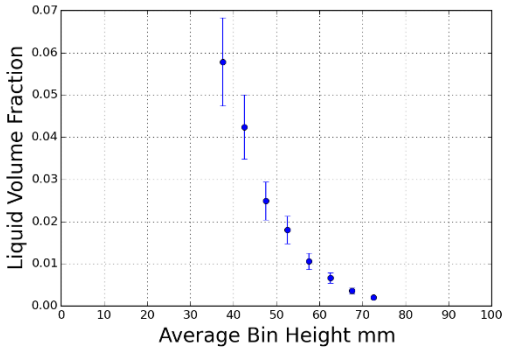


Figure C. 1610: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

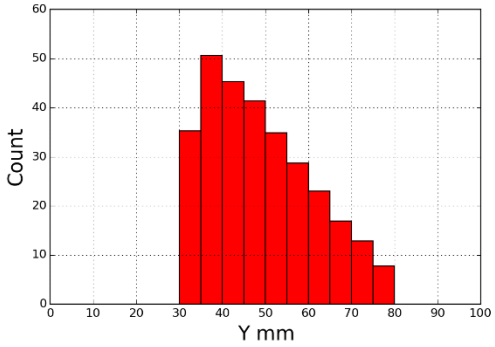


Figure C. 1608: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LA Image

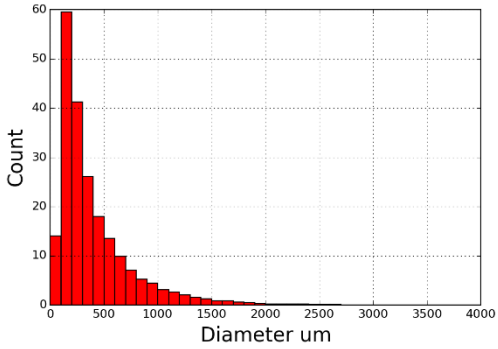


Figure C. 1611: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

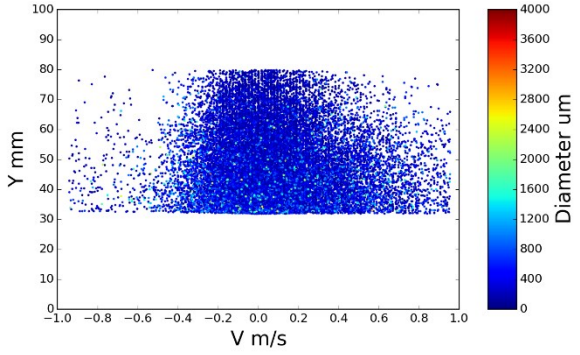


Figure C. 1614: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

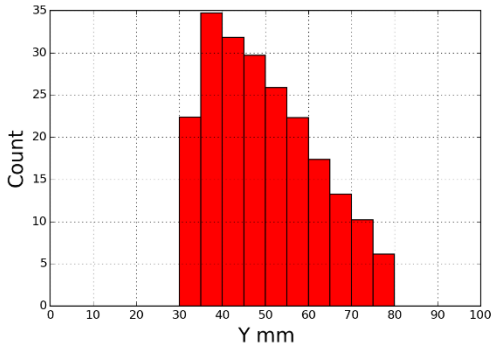


Figure C. 1612: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

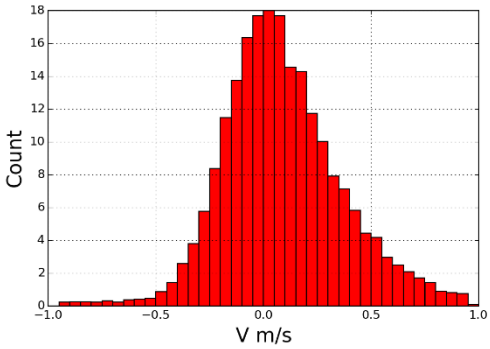


Figure C. 1615: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

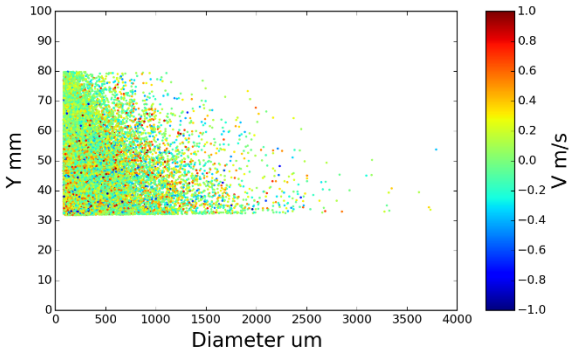


Figure C. 1613: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.1 Matched Only Droplets for .LB Image

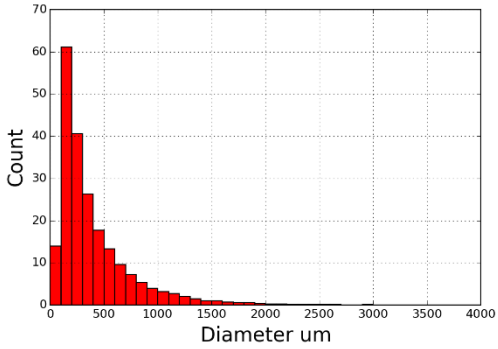


Figure C. 1616: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

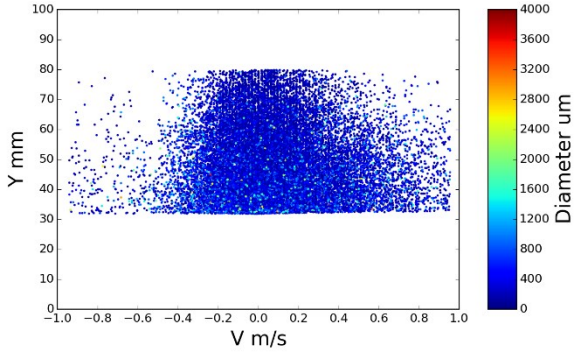


Figure C. 1619: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

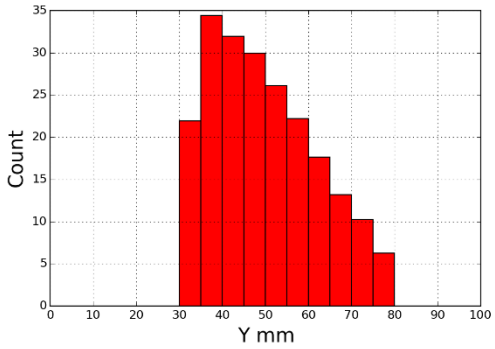


Figure C. 1617: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

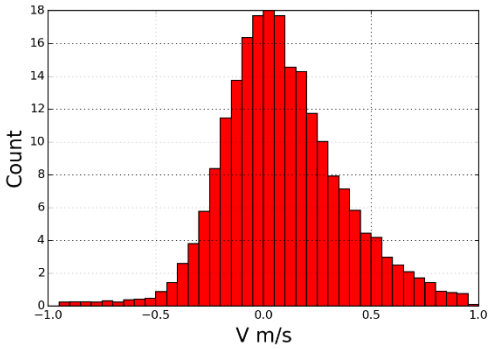


Figure C. 1620: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

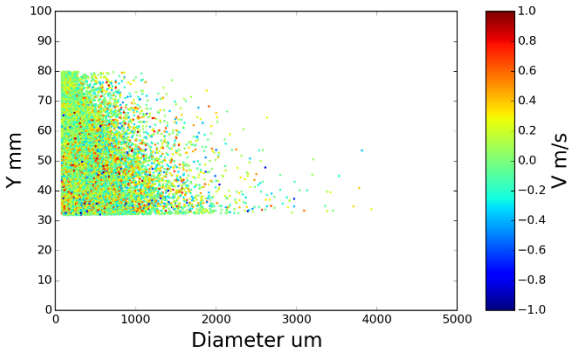


Figure C. 1618: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Lens 50mm Mag 0_13x

C.5.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	109.78	108.06	170.5	3992	716.9	586.4	170.5	3996	721.9	589.9
40-60mm	81.76	82.89	170.5	3891	576.8	427.3	182.3	3960	573.3	416.3
60-80mm	23.38	24.03	170.5	2637	493.9	298.8	170.5	2351	487.9	297.2
80-100mm	2.92	2.93	193.4	1587	446.2	251.5	193.4	1594	433.0	247.6
All	217.84	217.91	170.5	3992	636.8	509.4	170.5	3996	635.7	507.1
			Height A (mm)				Height B (mm)			
Highest Particle			99.9029				99.8668			
Lowest Particle			20.1062				20.1062			

Table C. 177: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	58.97	182.3	3726	770.3	558.9	182.3	3996	756.5	567.3	-0.950	0.950	-0.060	0.320	-0.950	0.950	-0.050	0.390
40-60mm	54.28	182.3	3713	624.1	431.1	182.3	3960	615.8	422.8	-0.950	0.950	-0.060	0.260	-0.950	0.950	-0.020	0.350
60-80mm	17.93	182.3	2637	526.1	307.0	193.4	2351	523.7	302.7	-0.920	0.920	-0.060	0.170	-0.950	0.950	-0.030	0.270
80-100mm	2.4	193.4	1587	476.1	260.2	193.4	1594	467.1	255.6	-0.890	0.400	-0.060	0.120	-0.860	0.690	-0.050	0.200
All	133.58	182.3	3726	672.9	485.8	182.3	3996	662.9	486.1	-0.950	0.950	-0.060	0.270	-0.950	0.950	-0.030	0.350

Table C. 178: Matched Droplet Info

C.5.2.2 All Droplets for .LA Image

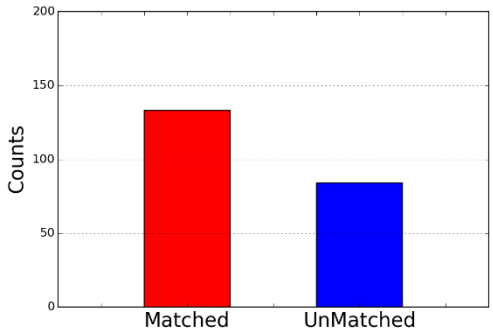


Figure C. 1621: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

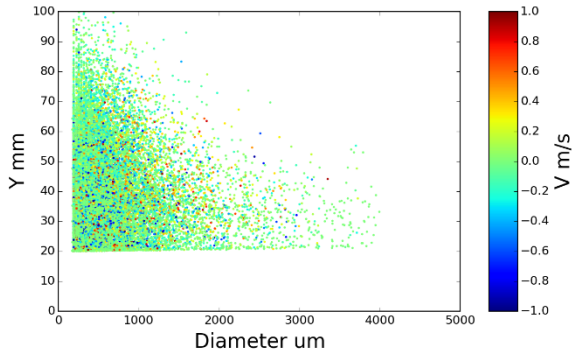


Figure C. 1624: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

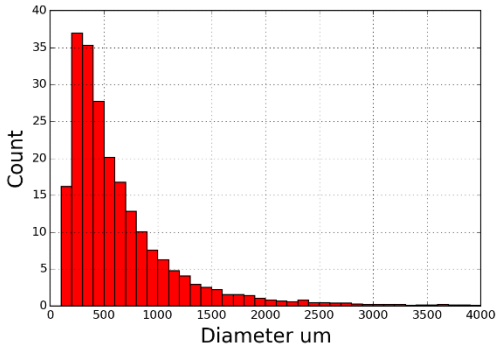


Figure C. 1622: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

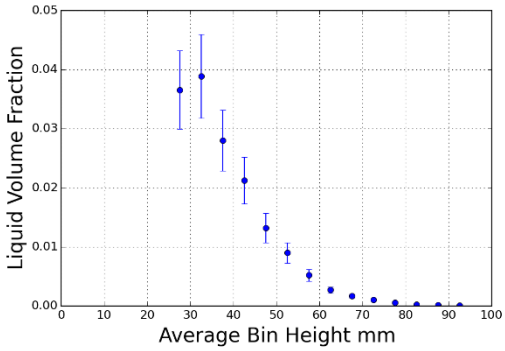


Figure C. 1625: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

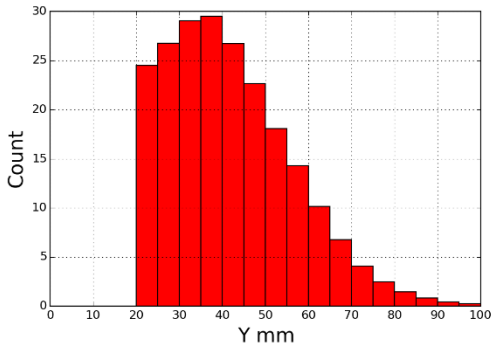


Figure C. 1623: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 All Droplets for .LB Image

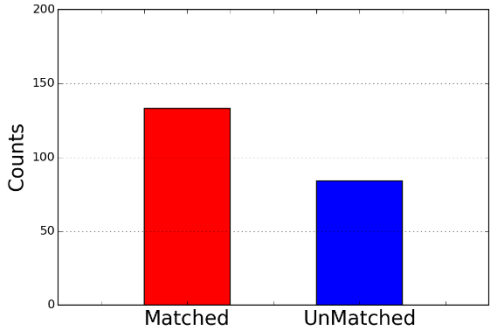


Figure C. 1626: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

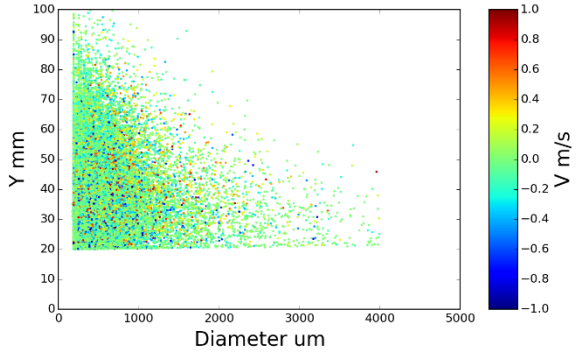


Figure C. 1629: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

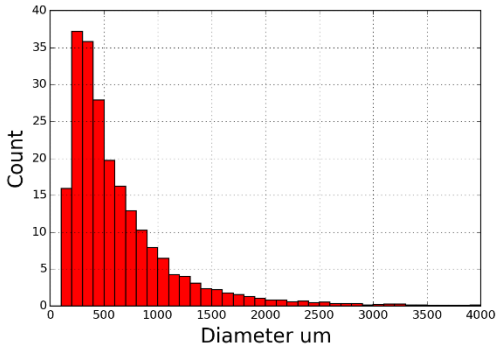


Figure C. 1627: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

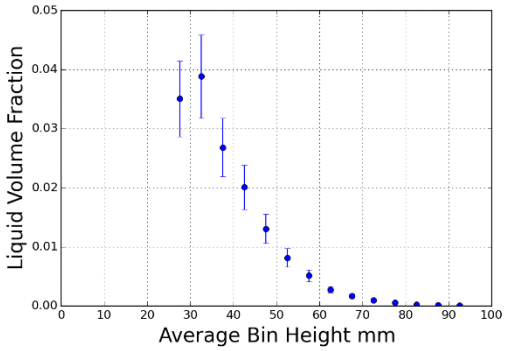


Figure C. 1630: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

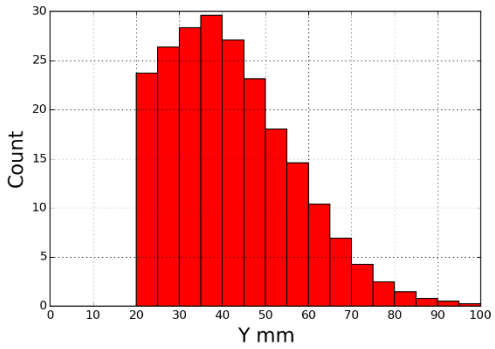


Figure C. 1628: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LA Image

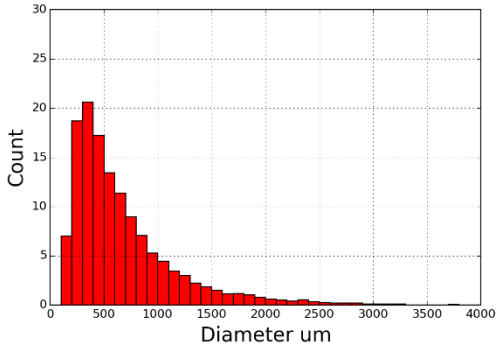


Figure C. 1631: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

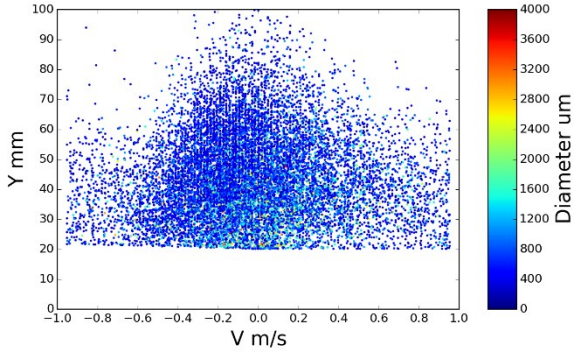


Figure C. 1634: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

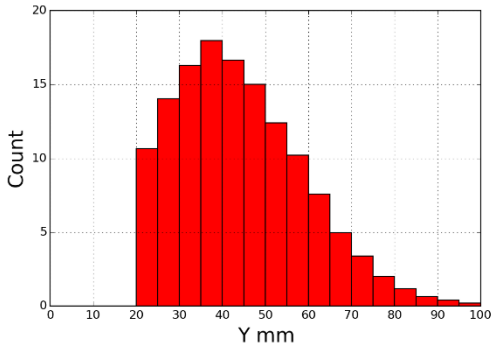


Figure C. 1632: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

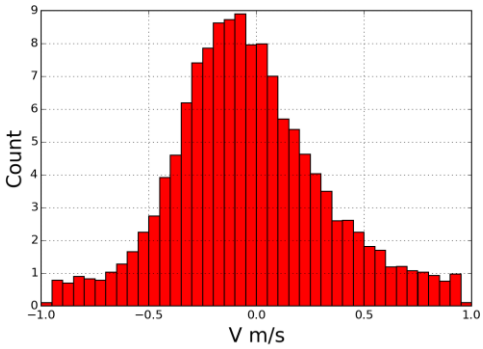


Figure C. 1635: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

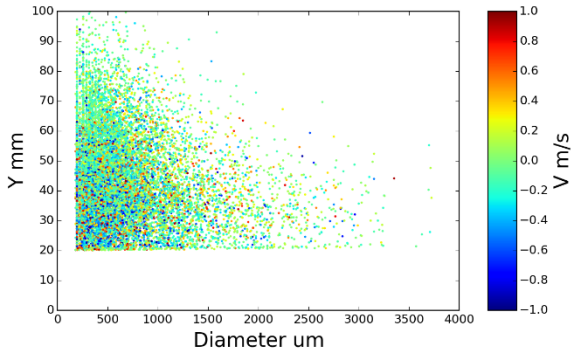


Figure C. 1633: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LB Image

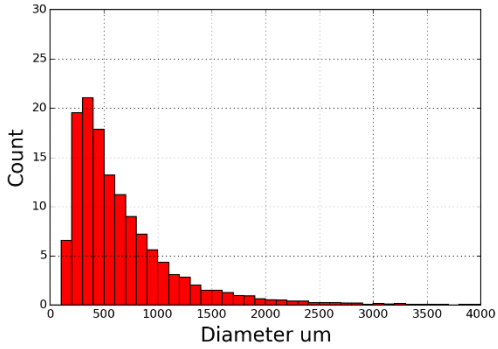


Figure C. 1636: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

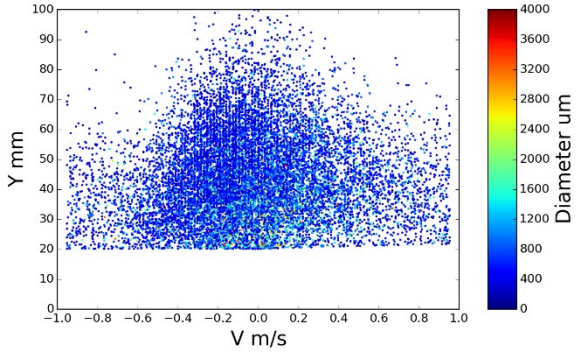


Figure C. 1639: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

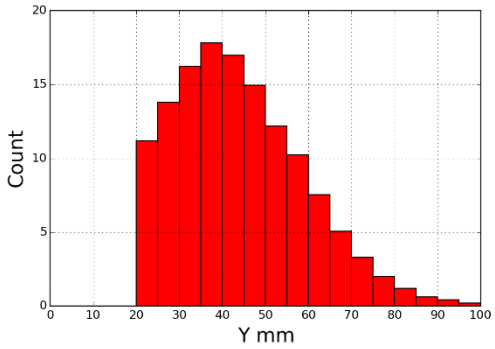


Figure C. 1637: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

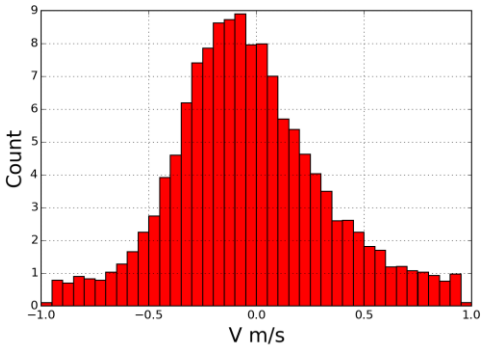


Figure C. 1640: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

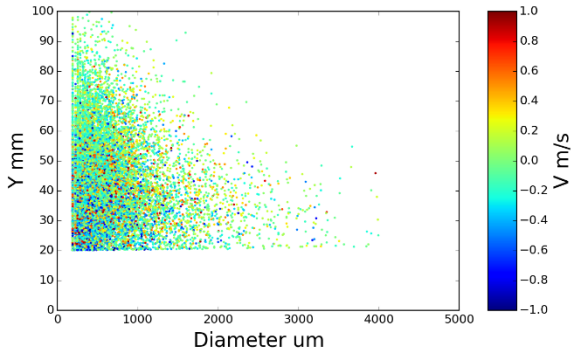


Figure C. 1638: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	127.49	126.27	170.5	3989	698.7	556.0	170.5	3990	697.1	554.0
40-60mm	95.66	96.56	170.5	3983	560.1	394.2	170.5	3769	561.1	390.4
60-80mm	30.68	31.18	170.5	2948	482.0	298.6	182.3	2872	483.0	291.1
80-100mm	3.19	3.45	193.4	1364	458.2	224.8	193.4	1438	444.9	224.1
All	257.02	257.46	170.5	3989	618.2	479.1	170.5	3990	616.8	474.9
			Height A (mm)				Height B (mm)			
Highest Particle			99.9314				99.7030			
Lowest Particle			20.1062				20.1062			

Table C. 179: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	69.15	182.3	3901	759.1	539.2	170.5	3979	745.0	541.9	-0.950	0.950	-0.070	0.330	-0.950	0.950	-0.000	0.390
40-60mm	63.17	182.3	3324	605.8	395.6	182.3	3769	600.9	395.2	-0.950	0.950	-0.060	0.260	-0.950	0.950	0.000	0.350
60-80mm	23.53	182.3	2441	515.6	302.1	182.3	2329	512.2	293.4	-0.950	0.950	-0.060	0.180	-0.950	0.950	0.020	0.280
80-100mm	2.75	193.4	1364	475.8	224.3	193.4	1335	476.8	220.2	-0.850	0.830	-0.050	0.120	-0.450	0.920	0.030	0.200
All	158.6	182.3	3901	657.0	461.1	170.5	3979	648.2	460.4	-0.950	0.950	-0.060	0.280	-0.950	0.950	0.010	0.360

Table C. 180: Matched Droplet Info

C.5.2.2 All Droplets for .LA Image

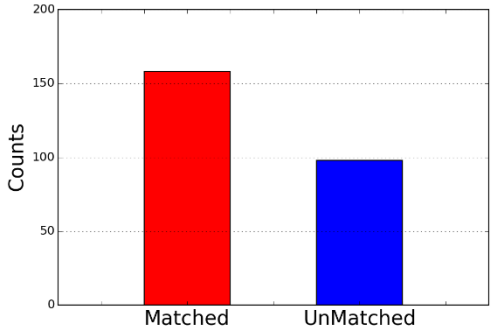


Figure C. 1641: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

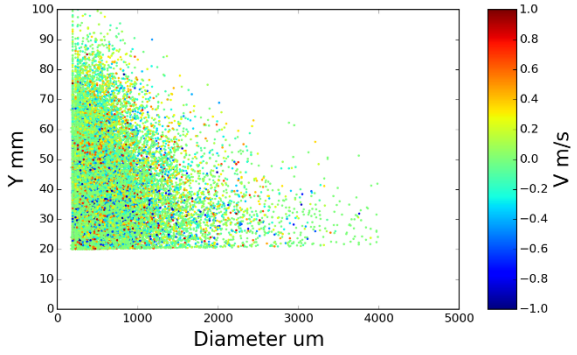


Figure C. 1644: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

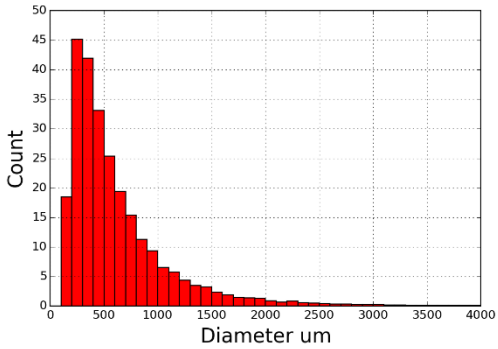


Figure C. 1642: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

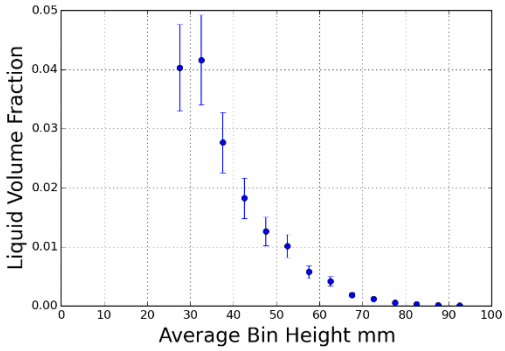


Figure C. 1645: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

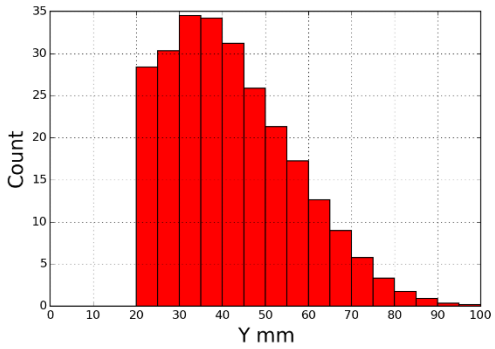


Figure C. 1643: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 All Droplets for .LB Image

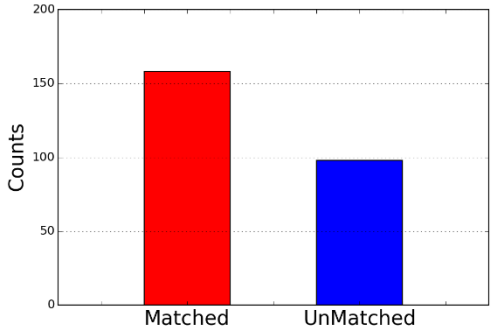


Figure C. 1646: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

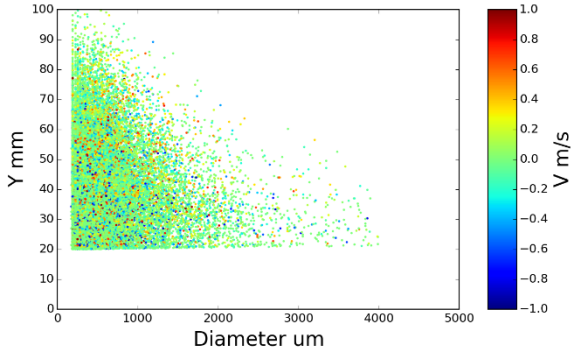


Figure C. 1649: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

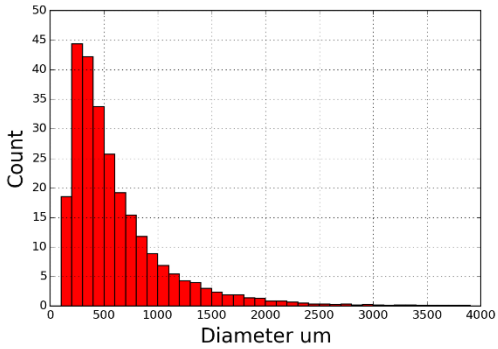


Figure C. 1647: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

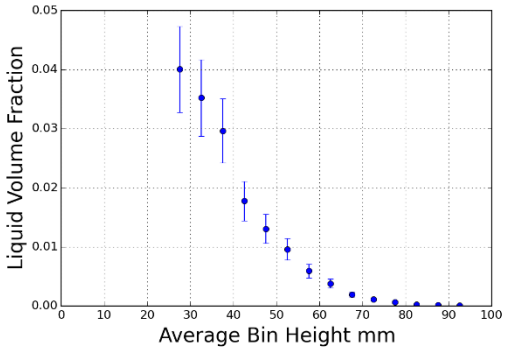


Figure C. 1650: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

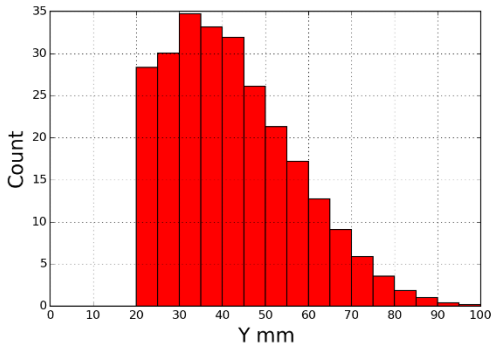


Figure C. 1648: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LA Image

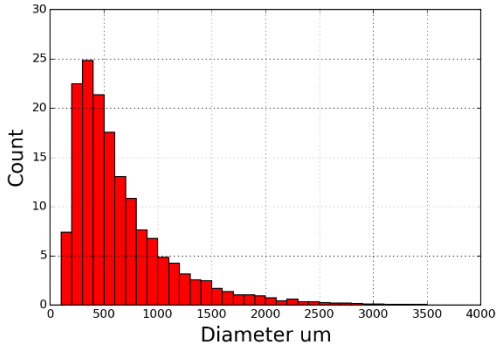


Figure C. 1651: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

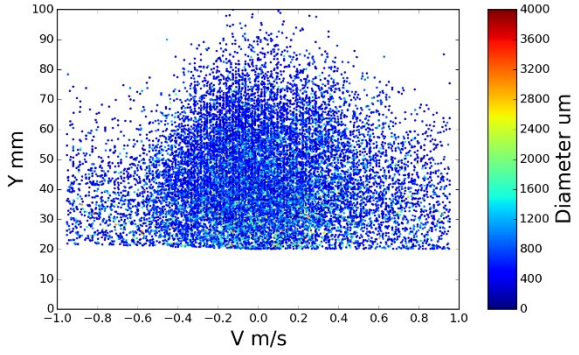


Figure C. 1654: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

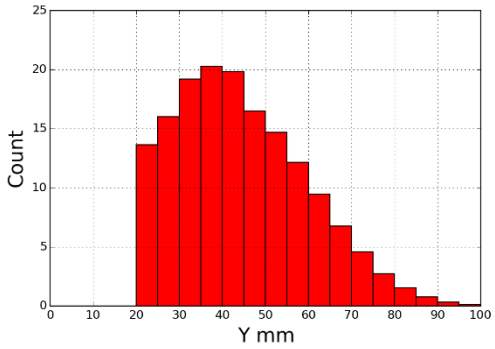


Figure C. 1652: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

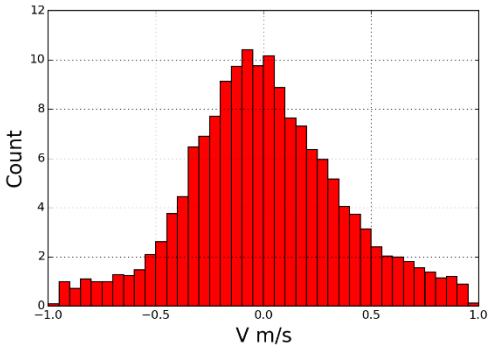


Figure C. 1655: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

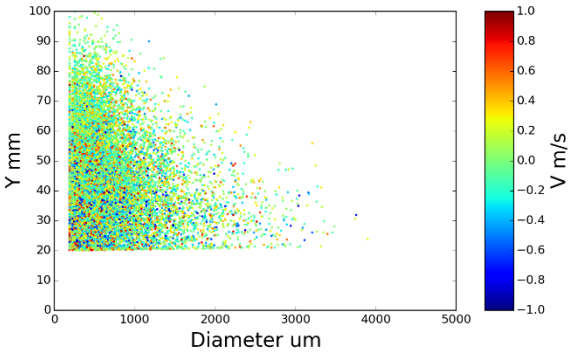


Figure C. 1653: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LB Image

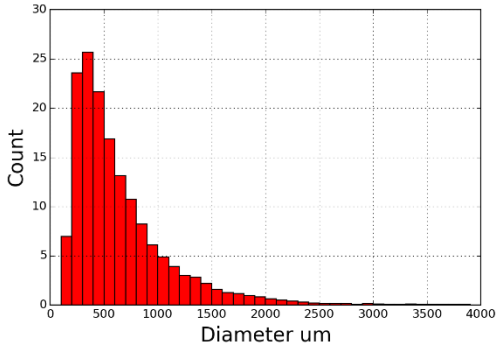


Figure C. 1656: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

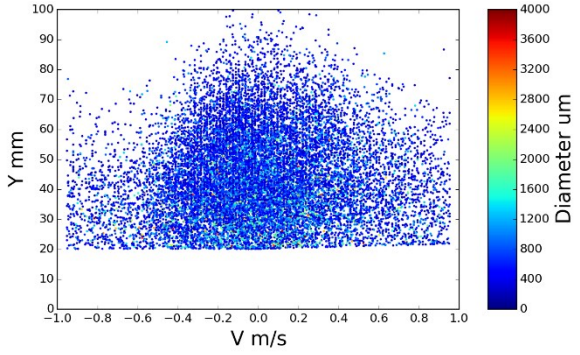


Figure C. 1659: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

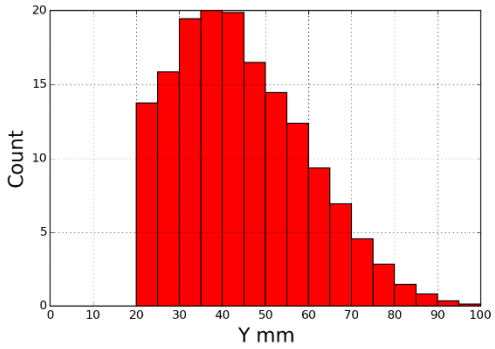


Figure C. 1657: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

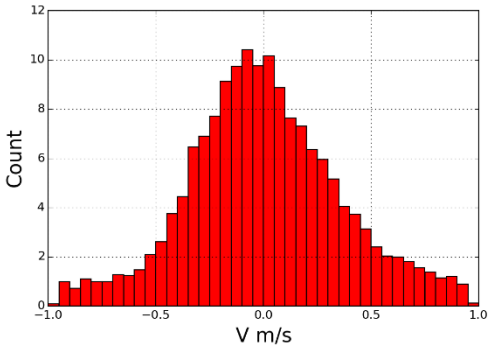


Figure C. 1660: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

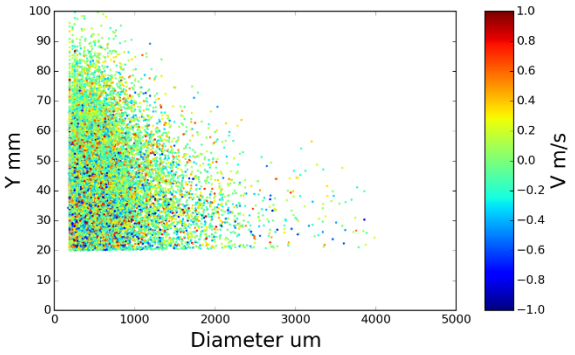


Figure C. 1658: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	130.05	130.91	170.5	3997	693.7	554.4	170.5	3972	697.9	560.7
40-60mm	101.62	101.8	170.5	3861	557.4	402.3	170.5	3952	560.5	408.1
60-80mm	32.37	33.59	182.3	3106	472.2	300.6	170.5	2653	469.0	292.8
80-100mm	3.74	3.81	193.4	1862	437.8	241.2	182.3	1815	440.4	230.4
All	267.78	270.11	170.5	3997	611.6	479.2	170.5	3972	614.0	483.8
			Height A (mm)				Height B (mm)			
Highest Particle			99.9625				99.8259			
Lowest Particle			20.1062				20.1062			

Table C. 181: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	70.19	170.5	3608	754.1	528.6	170.5	3896	738.5	527.6	-0.950	0.950	-0.070	0.340	-0.950	0.950	0.020	0.400
40-60mm	64.62	182.3	3560	610.1	408.6	182.3	3571	606.1	411.5	-0.950	0.950	-0.060	0.270	-0.950	0.950	0.040	0.370
60-80mm	23.66	182.3	2474	513.7	311.8	182.3	2653	505.0	297.4	-0.950	0.950	-0.070	0.180	-0.950	0.950	0.050	0.310
80-100mm	3.03	193.4	1862	468.1	244.0	193.4	1815	469.0	236.2	-0.450	0.320	-0.070	0.090	-0.840	0.910	0.050	0.270
All	161.5	170.5	3608	655.9	460.7	170.5	3896	645.9	458.6	-0.950	0.950	-0.070	0.290	-0.950	0.950	0.030	0.370

Table C. 182: Matched Droplet Info

C.5.2.2 All Droplets for .LA Image

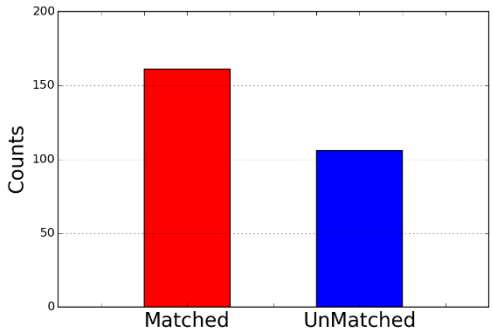


Figure C. 1661: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

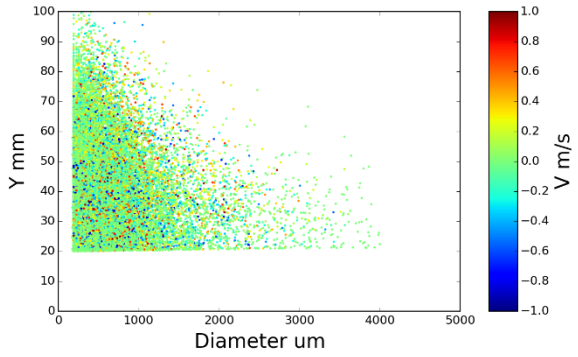


Figure C. 1664: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

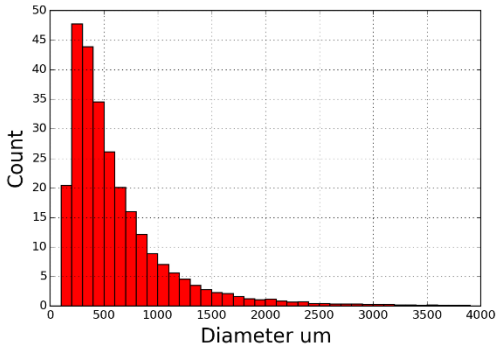


Figure C. 1662: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

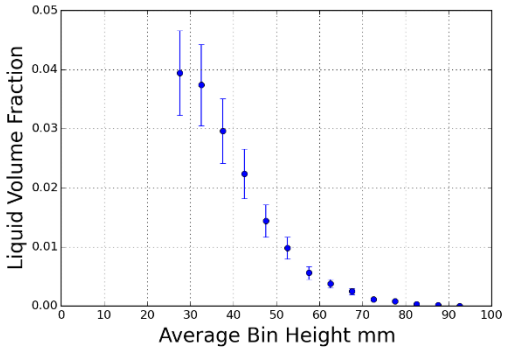


Figure C. 1665: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

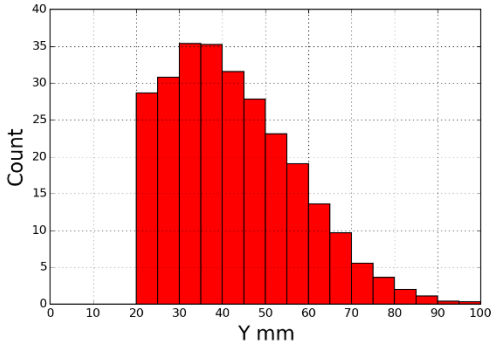


Figure C. 1663: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 All Droplets for .LB Image

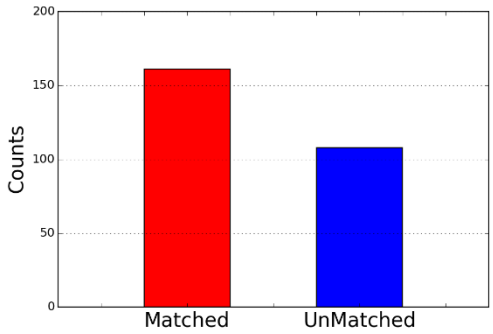


Figure C. 1666: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

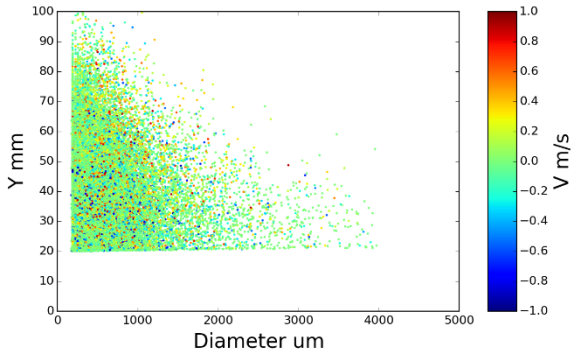


Figure C. 1669: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

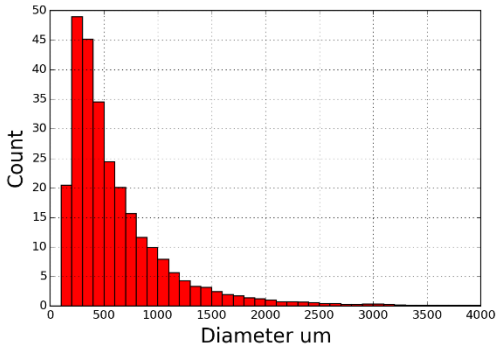


Figure C. 1667: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

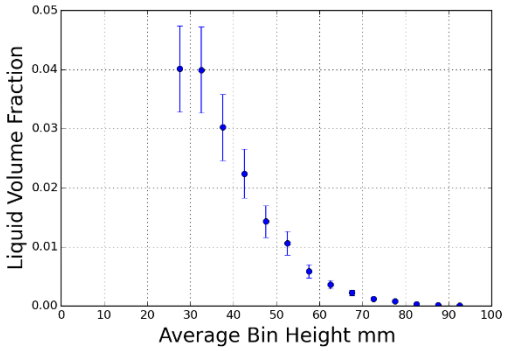


Figure C. 1670: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

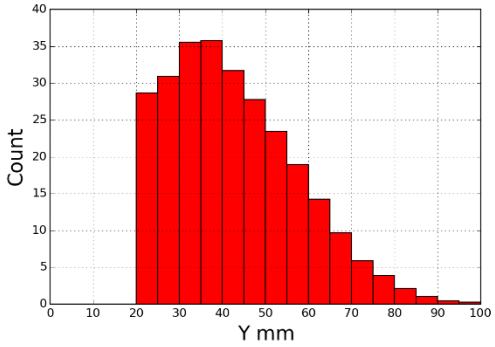


Figure C. 1668: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LA Image

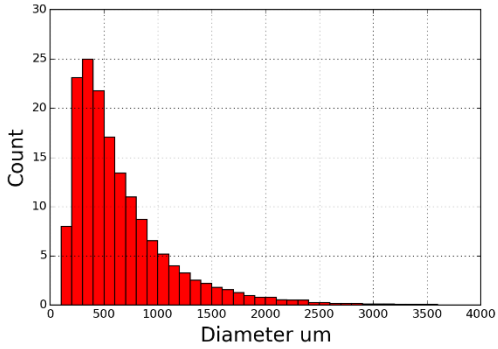


Figure C. 1671: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

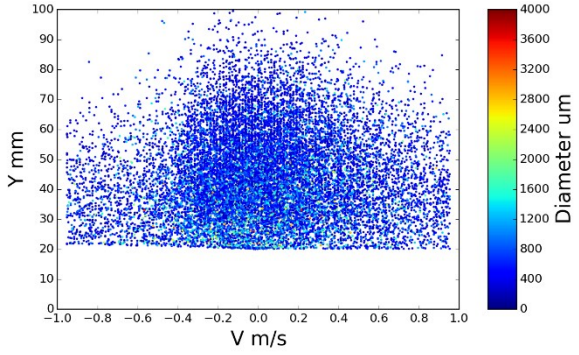


Figure C. 1674: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

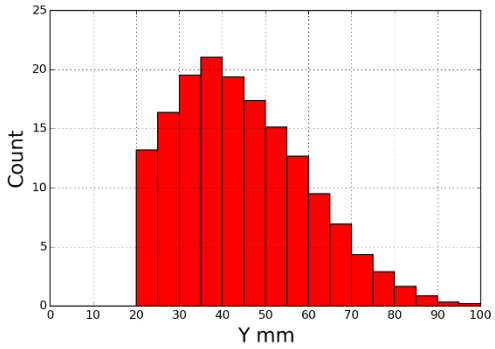


Figure C. 1672: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

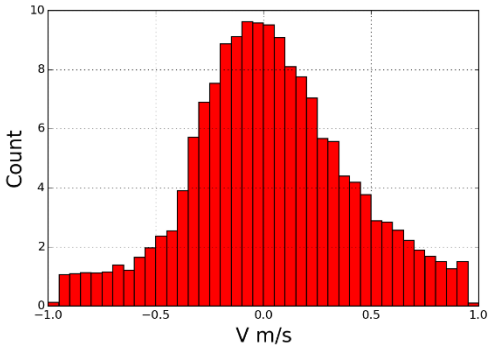


Figure C. 1675: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

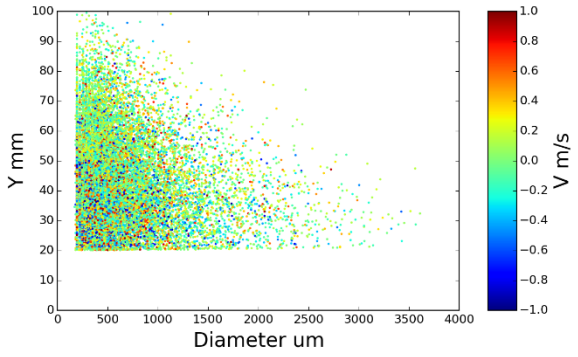


Figure C. 1673: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.2.2 Matched Only Droplets for .LB Image

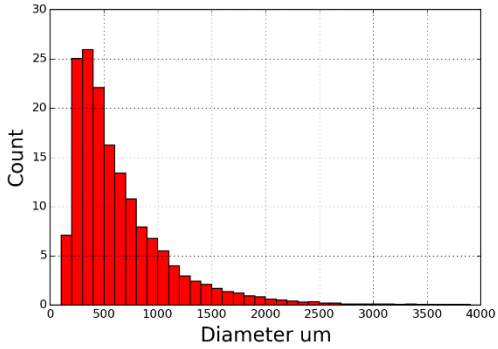


Figure C. 1676: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

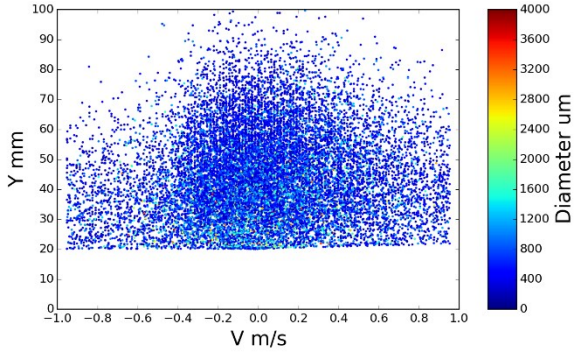


Figure C. 1679: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

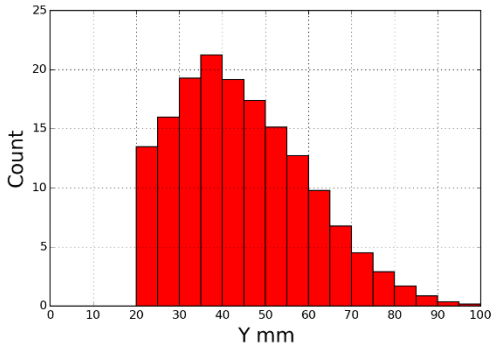


Figure C. 1677: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

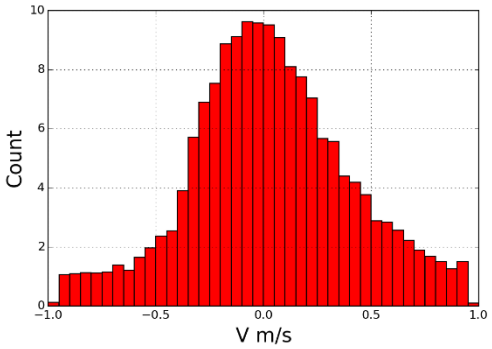


Figure C. 1680: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

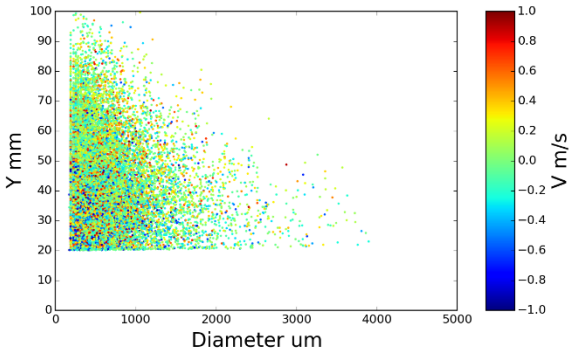


Figure C. 1678: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	12577 / 1.585
Ref Mass Flow (lb/hr) / (kg/s)	1525 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14845 / 20.133
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	3076 / 9.71
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.6 / 12.54
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	54.7 / 12.63
Total Bundle Q (Btu/hr) / (kW)	142560 / 41.78
Total Bundle & Preboiler Q (Btu/hr) / (kW)	142560 / 41.78
Top Two Rows HTC Ratio	0.552
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 183: Thermal Conditions

C.5.3.1 Lens 100mm Mag 0_29x

C.5.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	3.61	3.53	81.3	1938	233.6	236.0	86.3	1940	228.5	234.3
40-60mm	6.46	6.45	86.3	928.9	162.2	96.5	81.3	987.2	161.8	98.8
60-80mm	4.51	4.42	86.3	300.3	123.2	37.0	76.1	278.9	122.2	35.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	14.58	14.4	81.3	1938	167.8	141.6	76.1	1940	166.0	140.6
			Height A (mm)				Height B (mm)			
Highest Particle			79.7582				79.8092			
Lowest Particle			32.0060				31.9358			

Table C. 184: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	2.77	81.3	1938	229.3	225.8	86.3	1940	228.8	235.2	-0.740	0.160	-0.150	0.110	-0.410	0.570	-0.090	0.170
40-60mm	5.05	86.3	928.9	170.0	97.0	86.3	987.2	170.0	102.0	-0.810	0.940	-0.150	0.120	-0.540	0.450	-0.080	0.160
60-80mm	3.3	86.3	271.3	128.2	35.0	86.3	278.9	127.8	35.3	-0.410	0.560	-0.140	0.110	-0.780	0.450	-0.050	0.150
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	11.12	81.3	1938	172.3	136.8	86.3	1940	172.2	142.6	-0.810	0.940	-0.150	0.120	-0.780	0.570	-0.070	0.160

Table C. 185: Matched Droplet Info

C.5.3.1 All Droplets for .LA Image

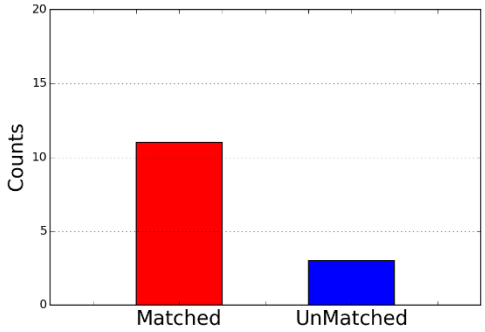


Figure C. 1681: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

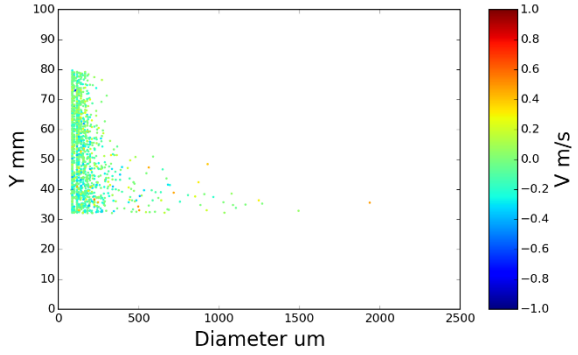


Figure C. 1684: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

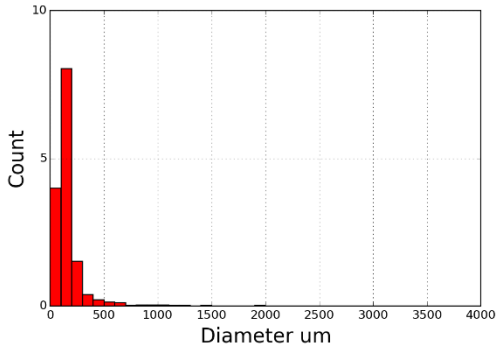


Figure C. 1682: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

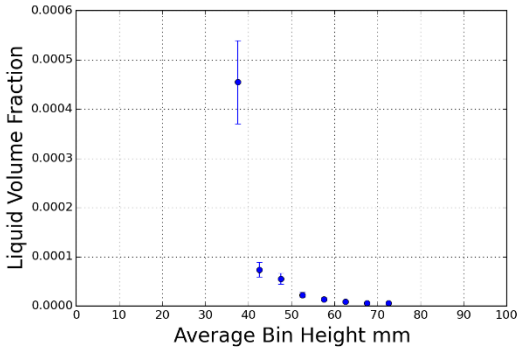


Figure C. 1685: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

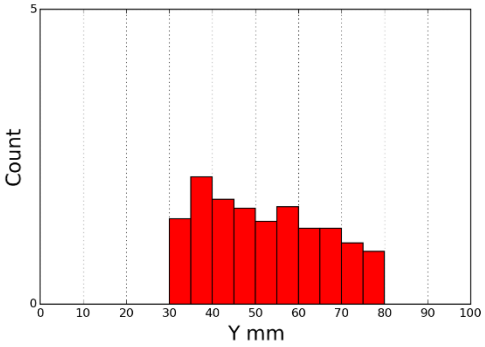


Figure C. 1683: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 All Droplets for .LB Image

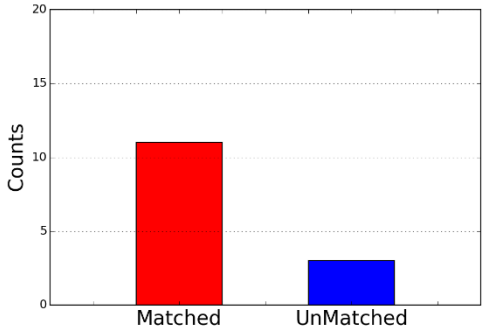


Figure C. 1686: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

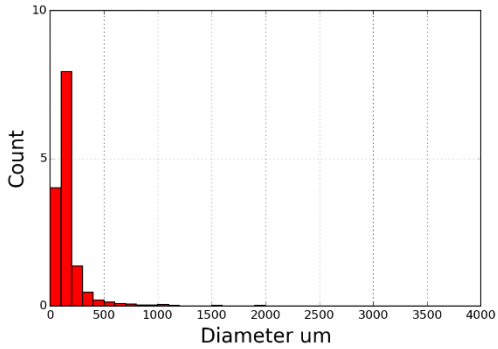


Figure C. 1687: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

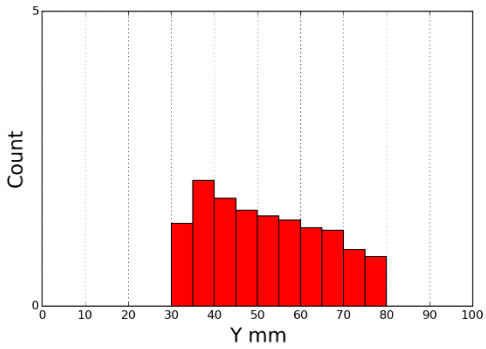


Figure C. 1688: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

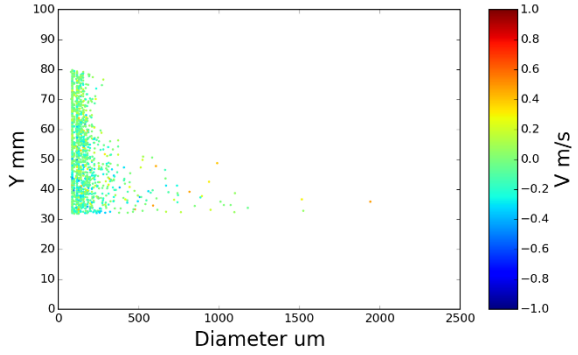


Figure C. 1689: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

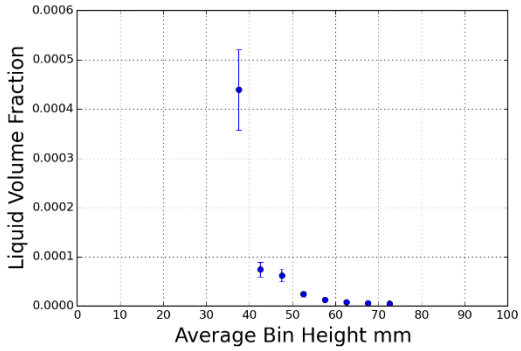


Figure C. 1690: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LA Image

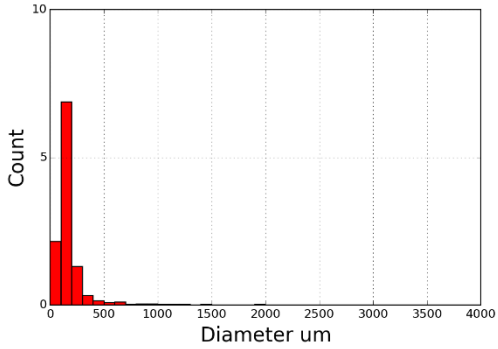


Figure C. 1691: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

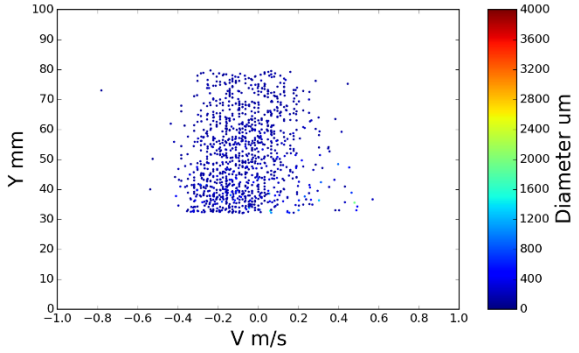


Figure C. 1694: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

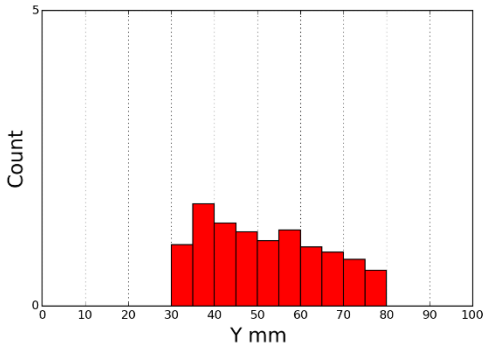


Figure C. 1692: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

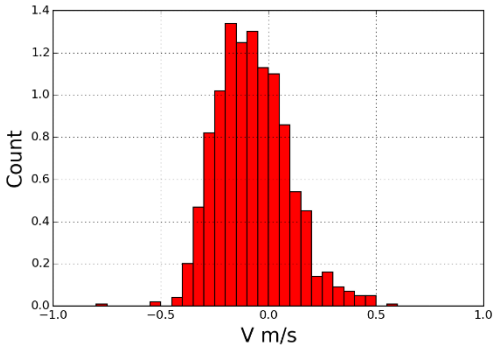


Figure C. 1695: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

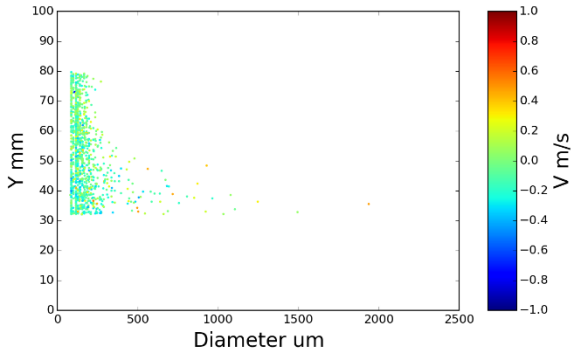


Figure C. 1693: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LB Image

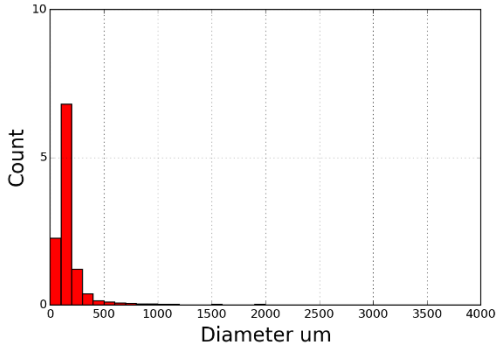


Figure C. 1696: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

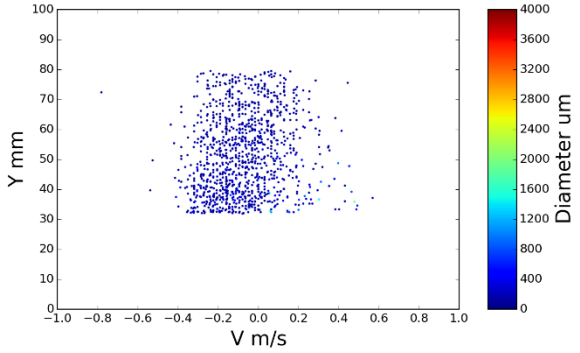


Figure C. 1699: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

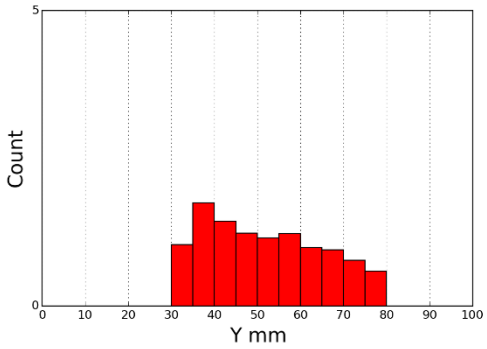


Figure C. 1697: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

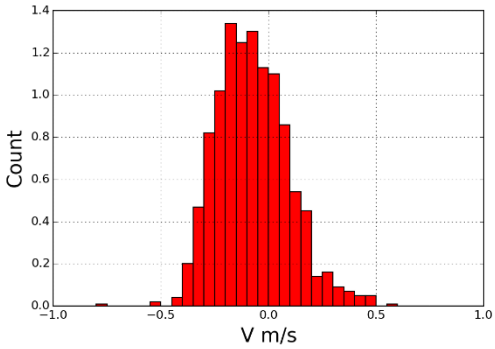


Figure C. 1700: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

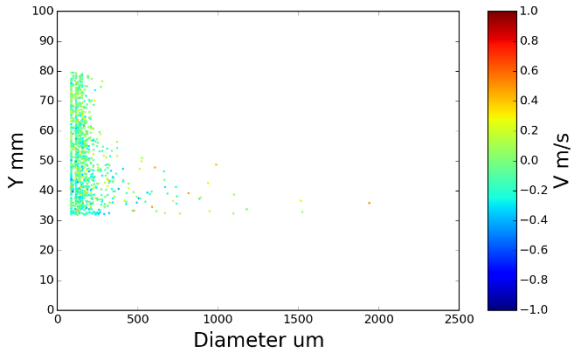


Figure C. 1698: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	6.02	5.99	81.3	1379	249.3	194.6	76.1	1454	250.8	199.1
40-60mm	8.13	8.67	81.3	787.2	166.7	102.7	81.3	883.7	162.8	99.8
60-80mm	4.72	4.48	81.3	319.0	124.9	37.9	81.3	313.8	123.5	38.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	18.87	19.14	81.3	1379	182.6	139.1	76.1	1454	181.1	140.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.7837				79.8729			
Lowest Particle			31.9262				31.9135			

Table C. 186: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.69	86.3	1379	250.1	181.1	86.3	1454	257.5	193.7	-0.460	0.190	-0.110	0.110	-0.430	0.890	0.110	0.220
40-60mm	6.65	81.3	787.2	171.8	101.8	86.3	883.7	172.0	100.9	-0.960	0.600	-0.110	0.110	-0.750	0.860	0.070	0.190
60-80mm	3.58	86.3	319.0	131.7	38.9	86.3	313.8	130.2	39.0	-0.830	0.190	-0.130	0.100	-0.380	0.390	0.010	0.150
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	14.92	81.3	1379	186.8	131.8	86.3	1454	188.8	138.2	-0.960	0.600	-0.120	0.110	-0.750	0.890	0.070	0.200

Table C. 187: Matched Droplet Info

C.5.3.1 All Droplets for .LA Image

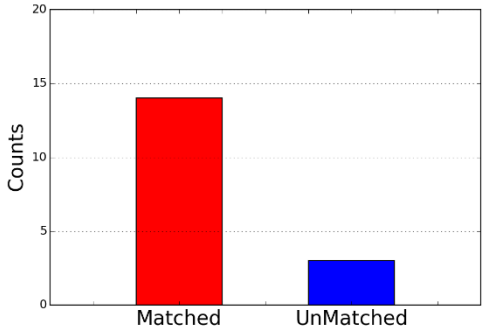


Figure C. 1701: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

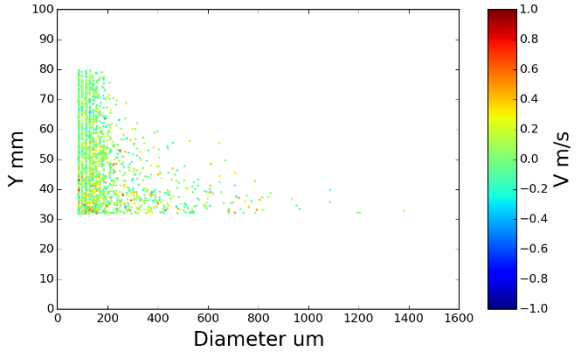


Figure C. 1704: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

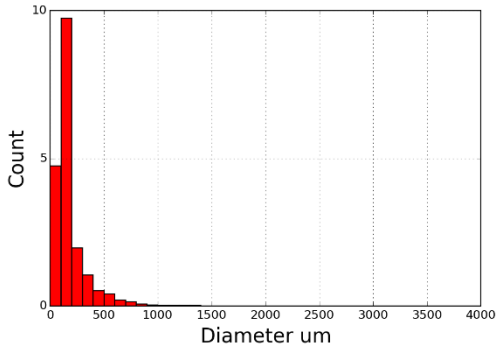


Figure C. 1702: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

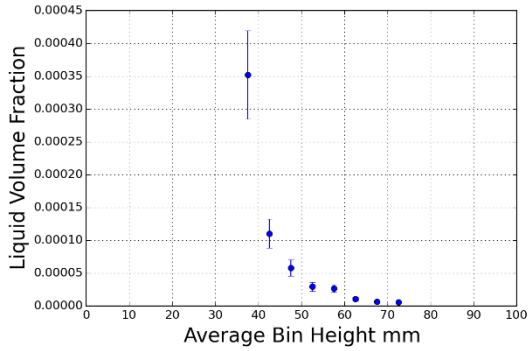


Figure C. 1705: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

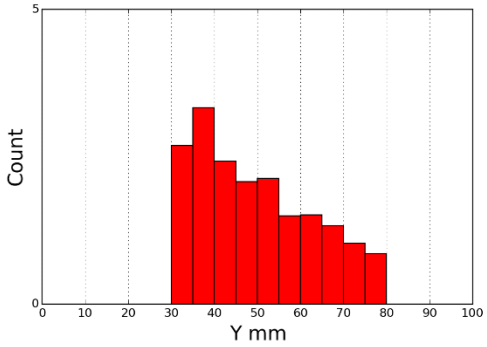


Figure C. 1703: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 All Droplets for .LB Image

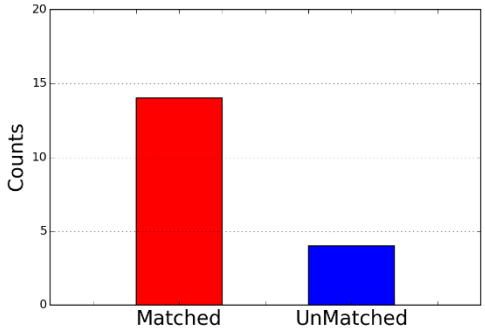


Figure C. 1706: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

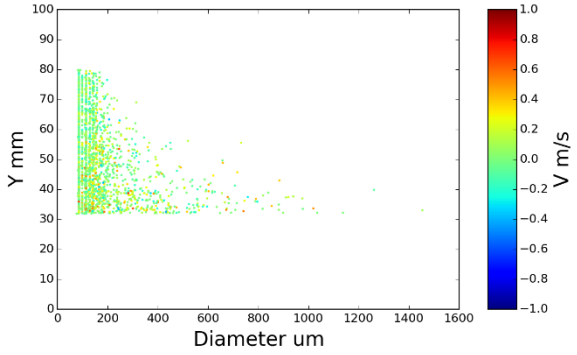


Figure C. 1709: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

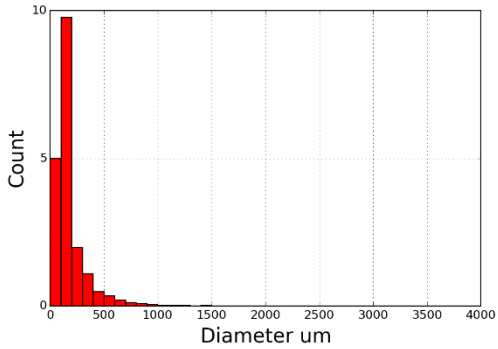


Figure C. 1707: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

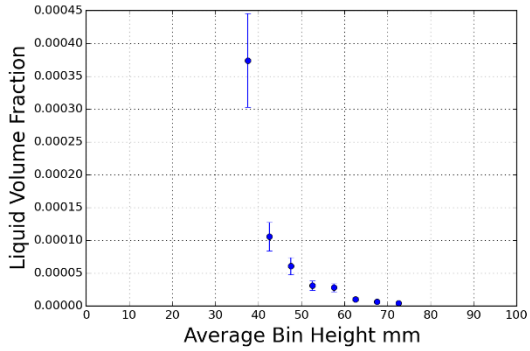


Figure C. 1710: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

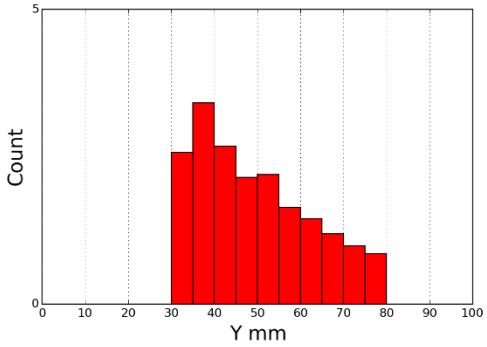


Figure C. 1708: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LA Image

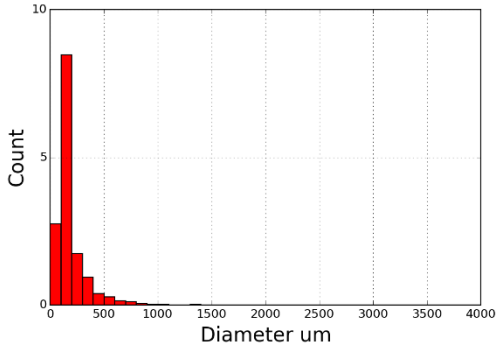


Figure C. 1711: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

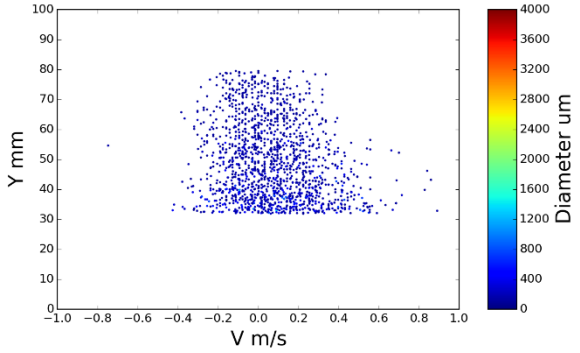


Figure C. 1714: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

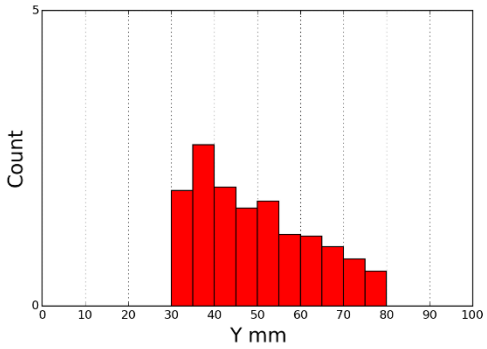


Figure C. 1712: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

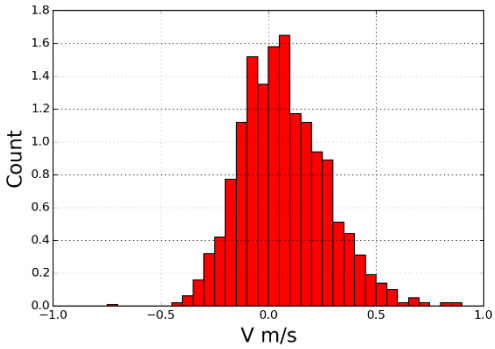


Figure C. 1715: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

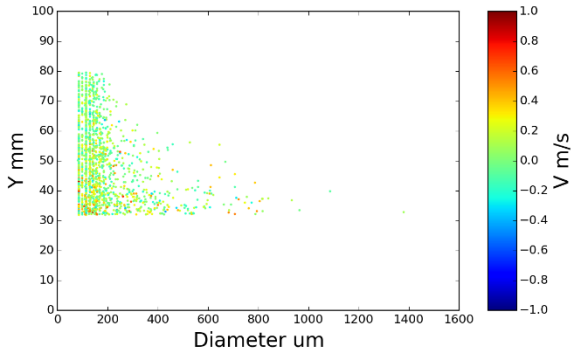


Figure C. 1713: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LB Image

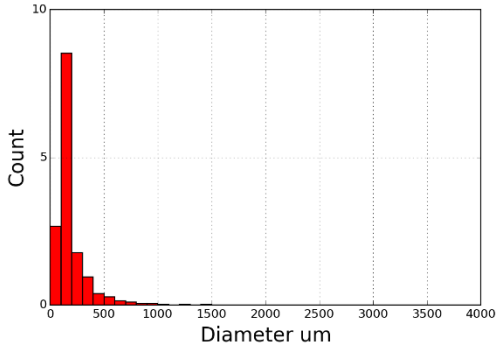


Figure C. 1716: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

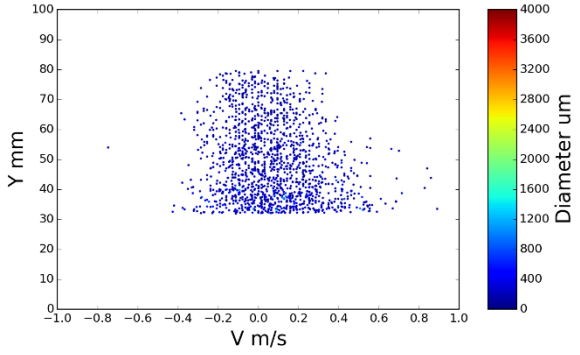


Figure C. 1719: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

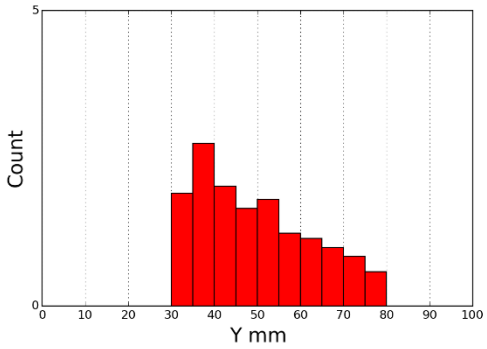


Figure C. 1717: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

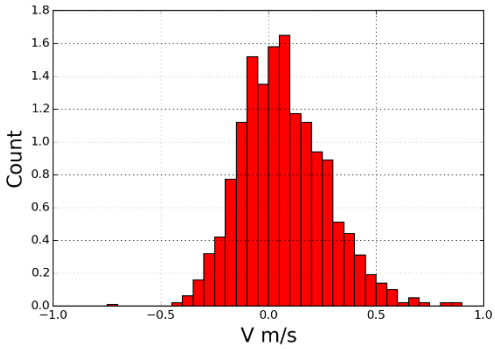


Figure C. 1720: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

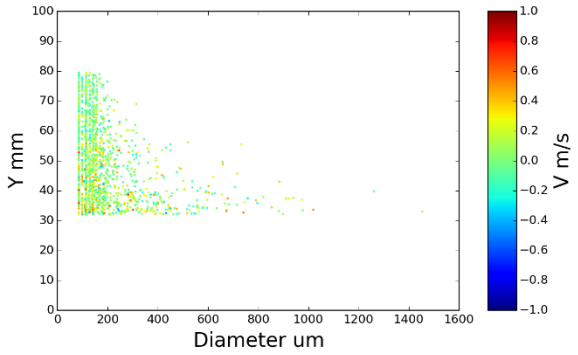


Figure C. 1718: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	7.05	7.12	81.3	1525	236.5	181.1	81.3	1482	233.0	177.9
40-60mm	9.03	9.13	81.3	1058	166.3	108.6	81.3	1128	165.4	109.6
60-80mm	4.85	4.95	81.3	964.3	126.8	57.8	81.3	905.4	125.9	55.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	20.93	21.2	81.3	1525	180.8	136.8	81.3	1482	178.9	135.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.7837				79.8729			
Lowest Particle			31.9262				31.9262			

Table C. 188: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.62	86.3	1400	235.1	169.9	86.3	1377	236.3	172.7	-0.360	0.430	-0.080	0.090	-0.380	0.850	0.130	0.220
40-60mm	7.05	81.3	1058	173.4	103.5	86.3	1128	173.3	106.1	-0.770	0.780	-0.090	0.100	-0.540	0.750	0.100	0.180
60-80mm	3.76	86.3	448.4	131.6	45.0	81.3	446.5	130.6	44.7	-0.450	0.180	-0.100	0.090	-0.350	0.370	0.040	0.140
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	16.43	81.3	1400	184.9	128.5	81.3	1377	184.8	130.6	-0.770	0.780	-0.090	0.090	-0.540	0.850	0.100	0.190

Table C. 189: Matched Droplet Info

C.5.3.1 All Droplets for .LA Image

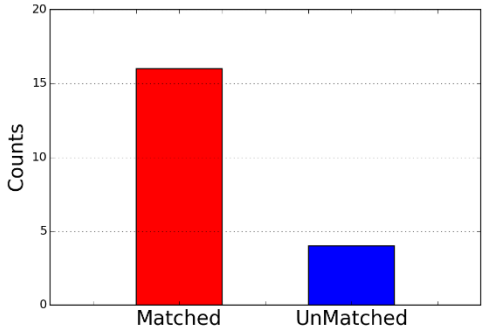


Figure C. 1721: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

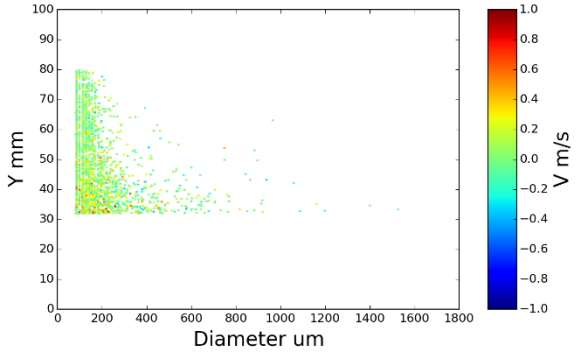


Figure C. 1724: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

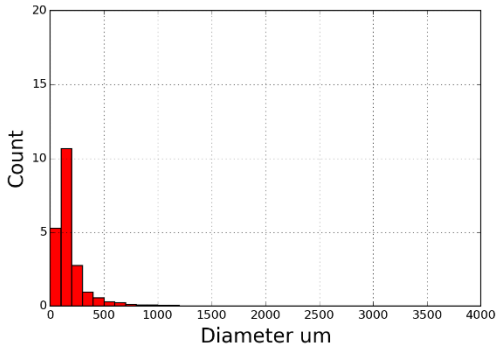


Figure C. 1722: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

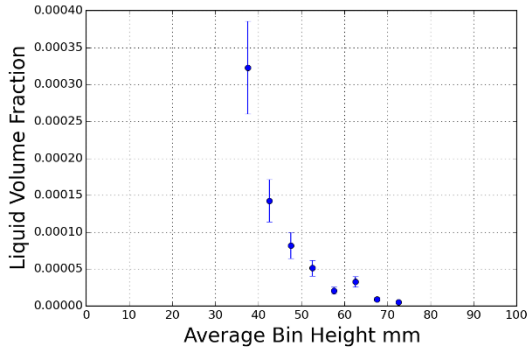


Figure C. 1725: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

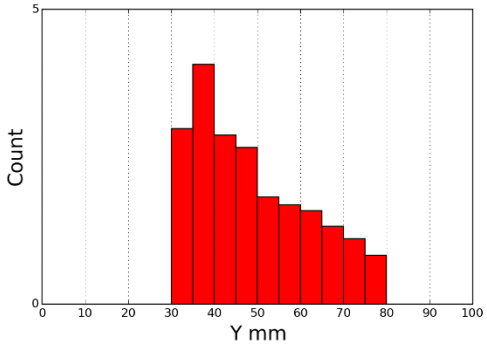


Figure C. 1723: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 All Droplets for .LB Image

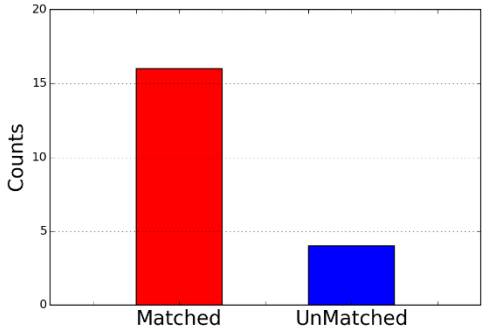


Figure C. 1726: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

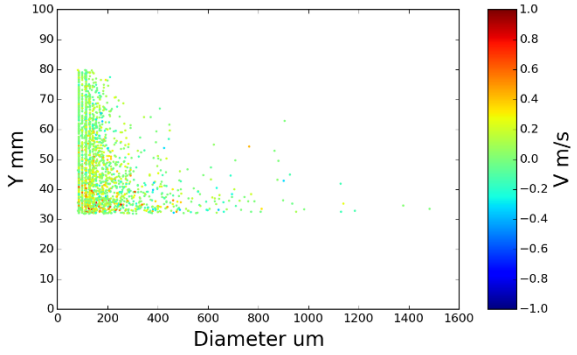


Figure C. 1729: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

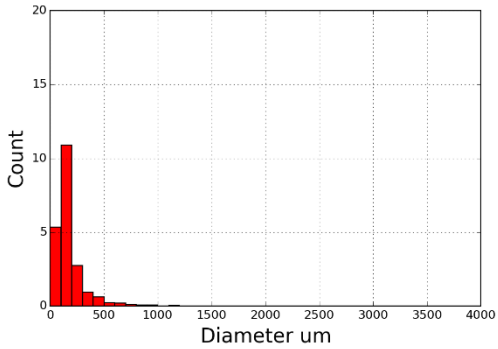


Figure C. 1727: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

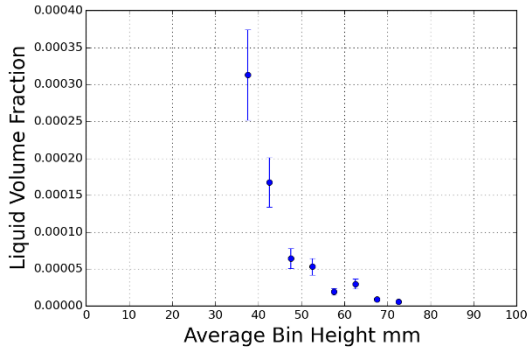


Figure C. 1730: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

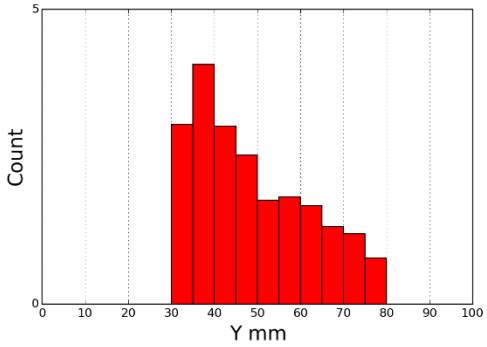


Figure C. 1728: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LA Image

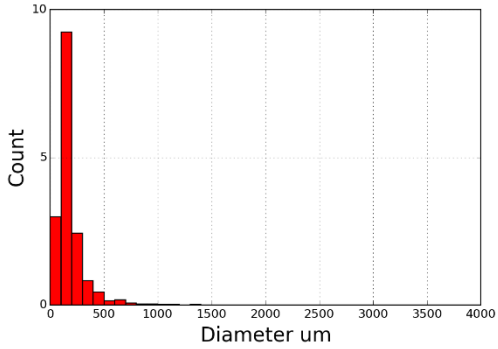


Figure C. 1731: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

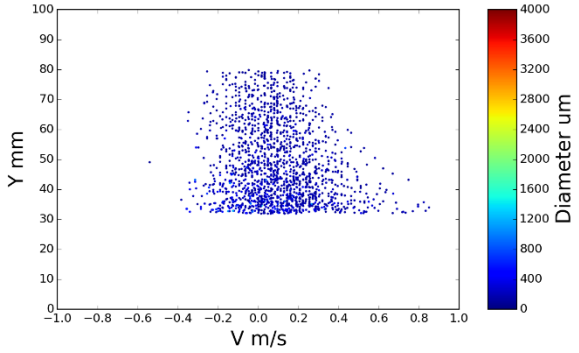


Figure C. 1734: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

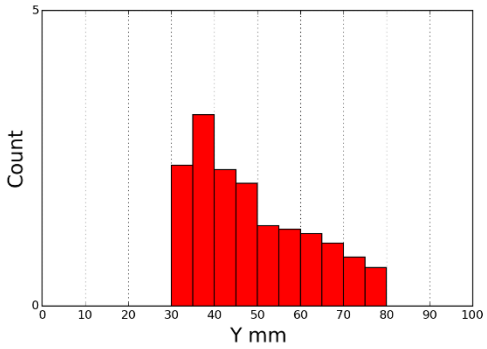


Figure C. 1732: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

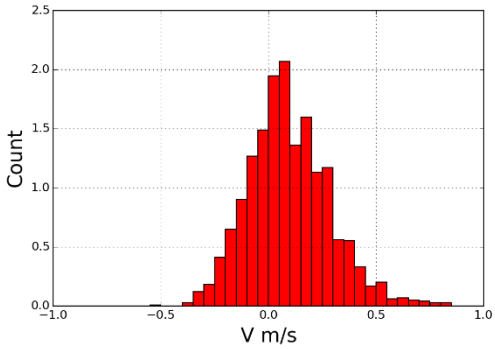


Figure C. 1735: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

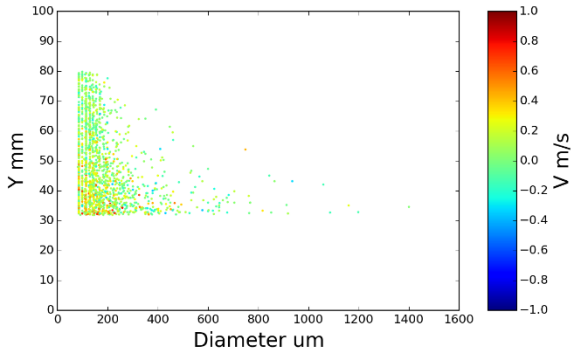


Figure C. 1733: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.1 Matched Only Droplets for .LB Image

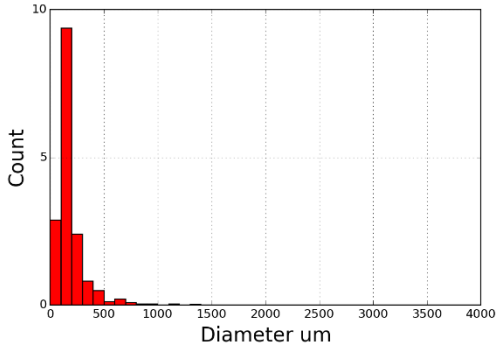


Figure C. 1736: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

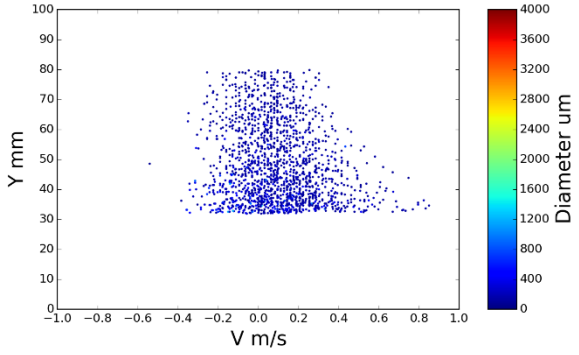


Figure C. 1739: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

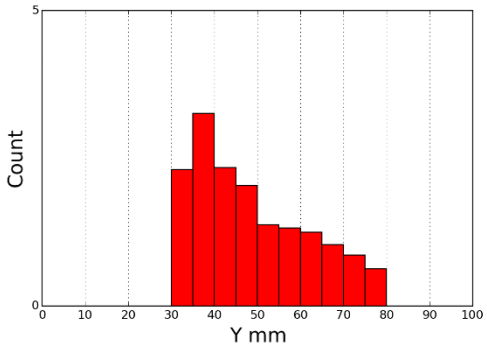


Figure C. 1737: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

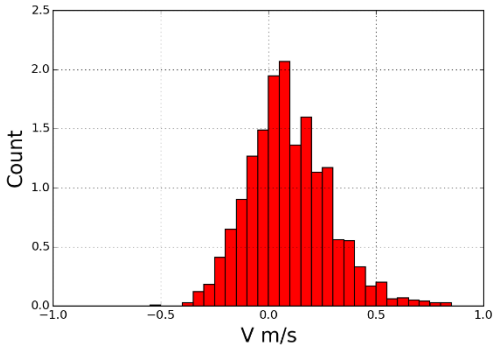


Figure C. 1740: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

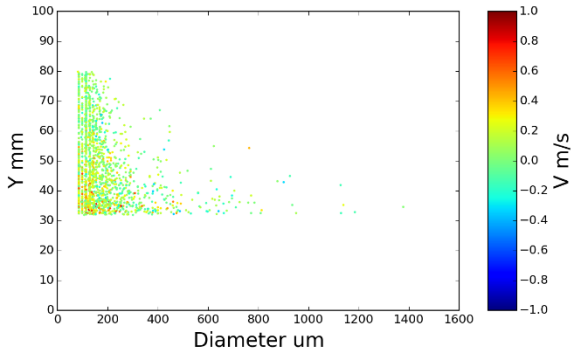


Figure C. 1738: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Lens 50mm Mag 0_13x

C.5.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	3.72	3.78	182.3	1856	585.8	313.4	193.4	1888	590.9	323.6
20-40mm	6.15	6.13	182.3	1808	482.0	283.4	182.3	1828	480.9	276.3
40-60mm	0.94	1.06	193.4	942.9	312.2	133.9	182.3	1019	305.3	147.5
60-80mm	0.1	0.13	193.4	347.1	261.1	53.6	193.4	381.3	254.1	64.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	10.91	11.1	182.3	1856	500.7	294.3	182.3	1888	498.9	295.5
			Height A (mm)				Height B (mm)			
Highest Particle			71.8284				74.7701			
Lowest Particle			14.4123				14.3942			

Table C. 190: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	2.71	182.3	1714	597.3	297.9	193.4	1806	605.2	315.5	-0.780	0.580	-0.090	0.120	-0.600	0.850	0.030	0.250
20-40mm	4.88	182.3	1579	474.9	241.9	193.4	1828	478.6	256.5	-0.520	0.170	-0.110	0.090	-0.850	0.860	0.010	0.250
40-60mm	0.68	193.4	942.9	334.8	139.7	193.4	748.9	325.8	115.3	-0.300	0.040	-0.130	0.080	-0.390	0.660	-0.030	0.180
60-80mm	0.08	193.4	347.1	267.1	54.1	193.4	381.3	264.7	64.5	-0.250	-0.110	-0.190	0.060	-0.210	0.060	-0.080	0.100
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	8.35	182.3	1714	501.2	266.1	193.4	1828	505.7	280.8	-0.780	0.580	-0.100	0.100	-0.850	0.860	0.020	0.240

Table C. 191: Matched Droplet Info

C.5.3.2 All Droplets for .LA Image

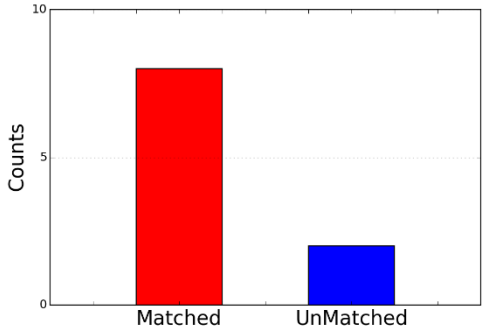


Figure C. 1741: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

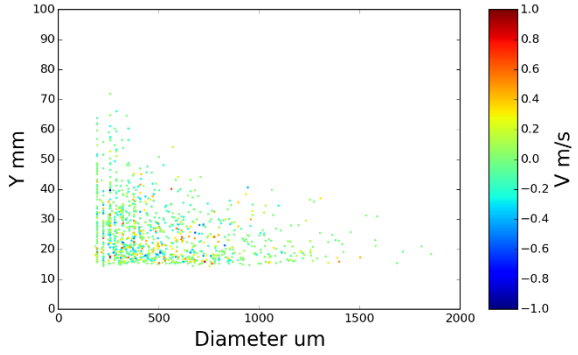


Figure C. 1744: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

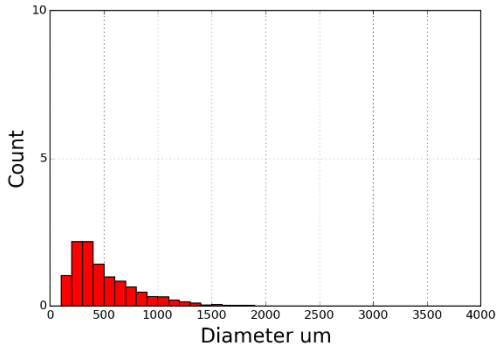


Figure C. 1742: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

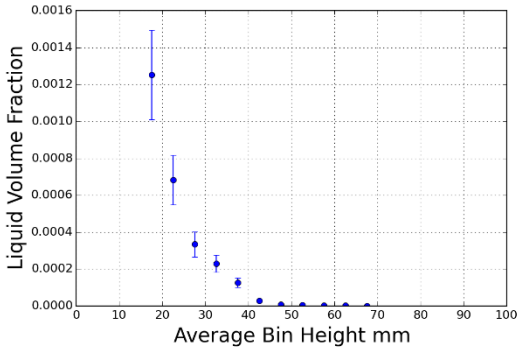


Figure C. 1745: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

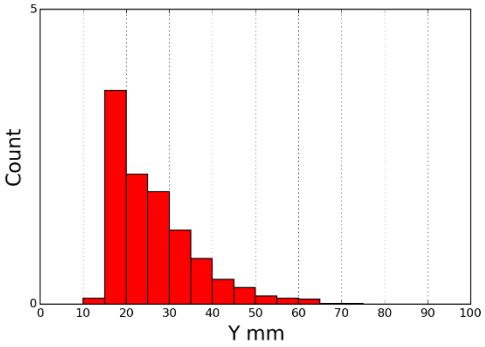


Figure C. 1743: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 All Droplets for .LB Image

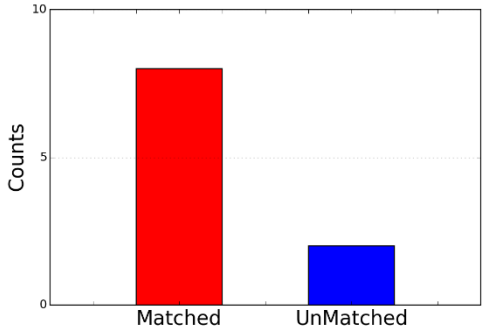


Figure C. 1746: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

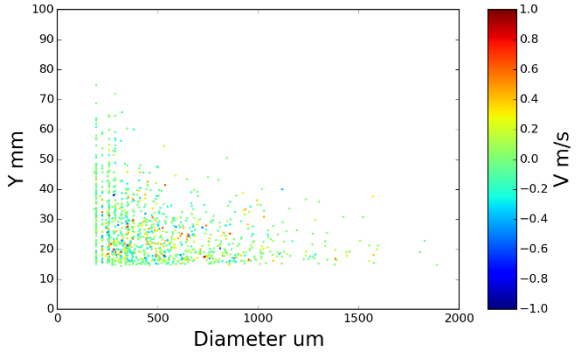


Figure C. 1749: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

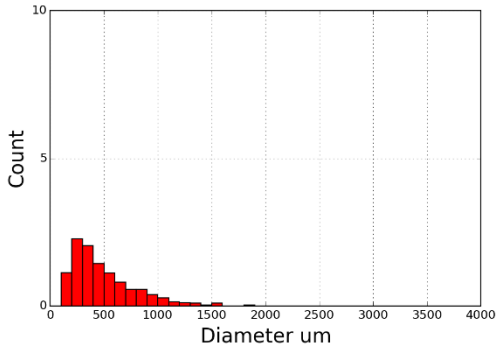


Figure C. 1747: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

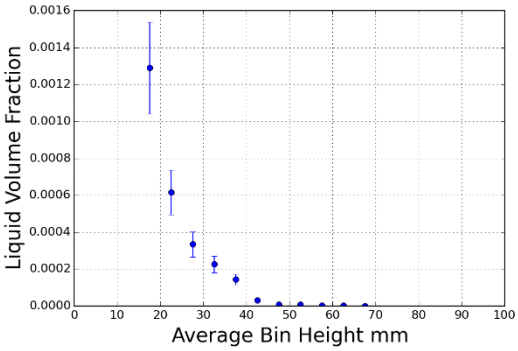


Figure C. 1750: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

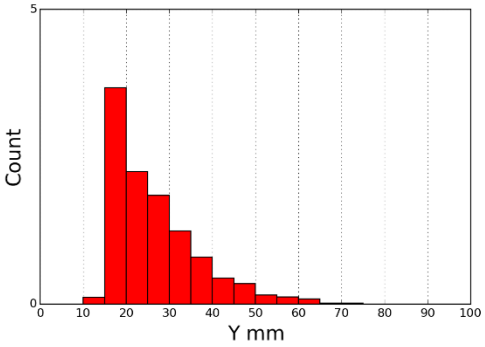


Figure C. 1748: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LA Image

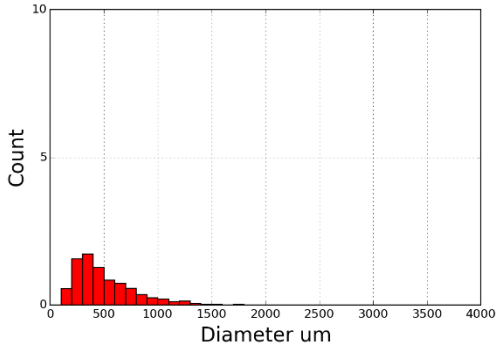


Figure C. 1751: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

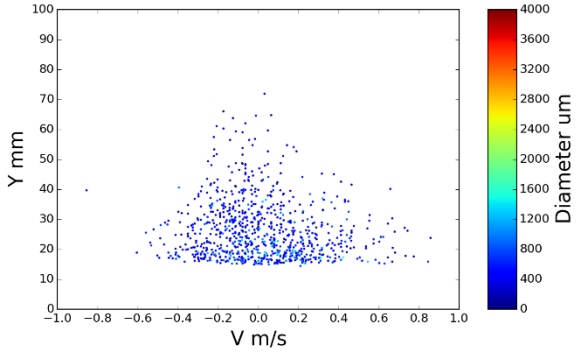


Figure C. 1754: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

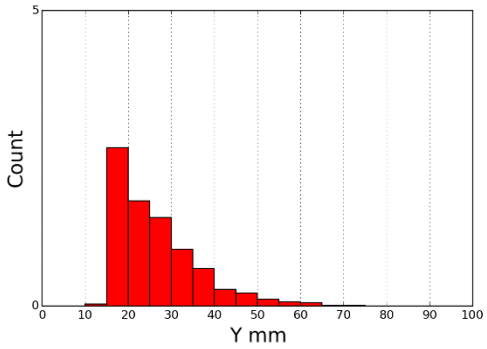


Figure C. 1752: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

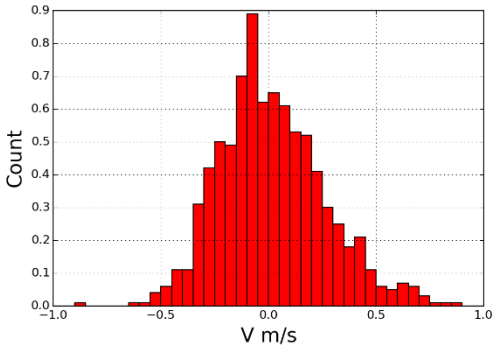


Figure C. 1755: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

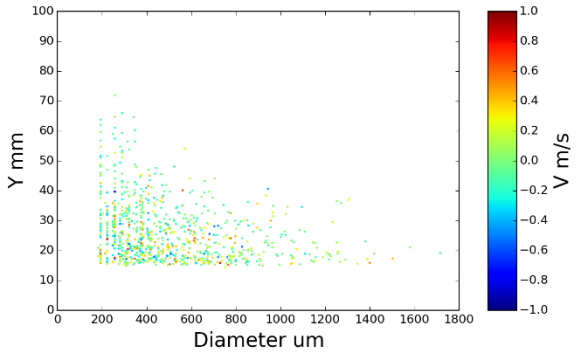


Figure C. 1753: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LB Image

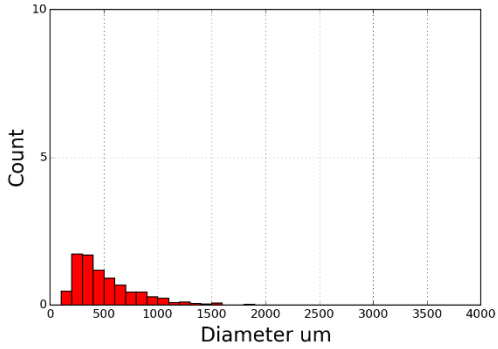


Figure C. 1756: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

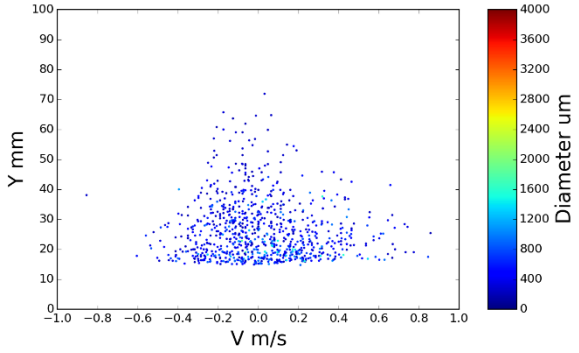


Figure C. 1759: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

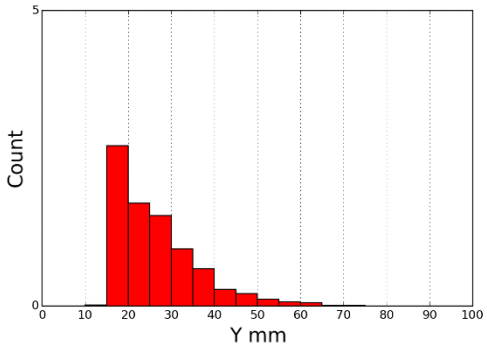


Figure C. 1757: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

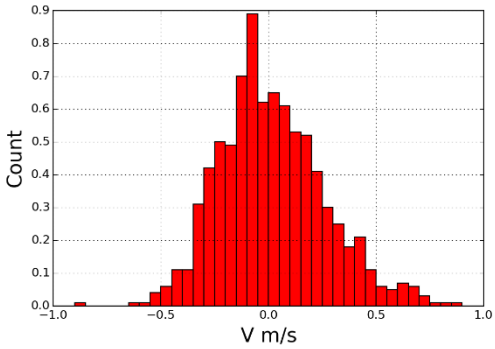


Figure C. 1760: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

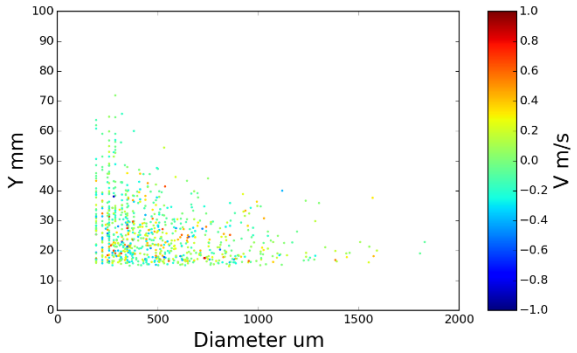


Figure C. 1758: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.34	6.4	193.4	1817	514.0	284.3	193.4	1651	519.3	291.1
20-40mm	9.02	8.98	182.3	1722	438.9	244.0	193.4	1869	441.4	247.6
40-60mm	1.6	1.51	193.4	904.6	313.0	141.7	193.4	904.6	317.9	144.0
60-80mm	0.22	0.18	193.4	353.0	243.8	51.7	193.4	381.3	244.7	58.1
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	17.18	17.07	182.3	1817	452.4	258.6	193.4	1869	457.6	263.9
			Height A (mm)				Height B (mm)			
Highest Particle			74.0846				68.8010			
Lowest Particle			13.5240				13.5146			

Table C. 192: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	5.08	193.4	1646	516.2	261.1	193.4	1620	524.4	283.1	-0.780	0.740	-0.090	0.110	-0.600	0.910	0.050	0.240
20-40mm	7.47	193.4	1616	442.0	219.7	193.4	1655	443.8	230.3	-0.860	0.950	-0.100	0.110	-0.830	0.940	0.040	0.220
40-60mm	1.21	193.4	904.6	342.1	149.4	193.4	904.6	344.1	149.1	-0.350	0.080	-0.110	0.080	-0.350	0.400	0.030	0.150
60-80mm	0.15	193.4	353.0	261.1	52.3	193.4	381.3	248.6	59.6	-0.250	0.000	-0.110	0.070	-0.210	0.270	-0.010	0.130
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	13.91	193.4	1646	458.4	236.1	193.4	1655	461.9	250.6	-0.860	0.950	-0.100	0.100	-0.830	0.940	0.040	0.230

Table C. 193: Matched Droplet Info

C.5.3.2 All Droplets for .LA Image

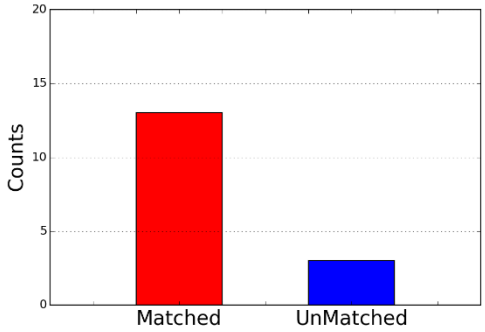


Figure C. 1761: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

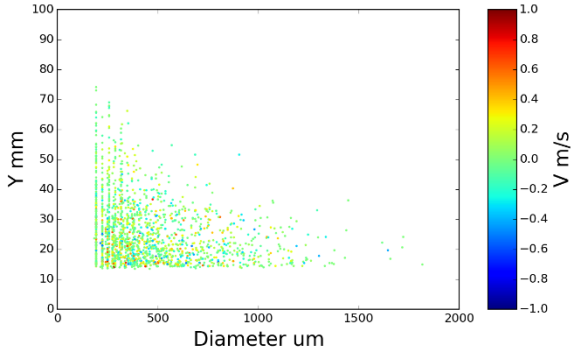


Figure C. 1764: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

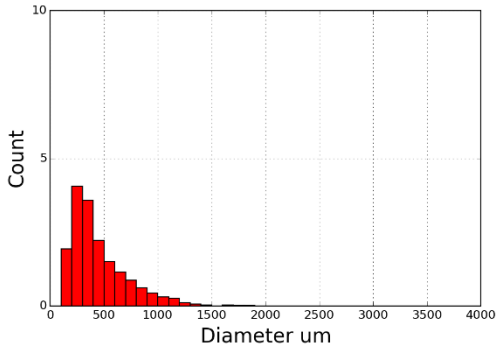


Figure C. 1762: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

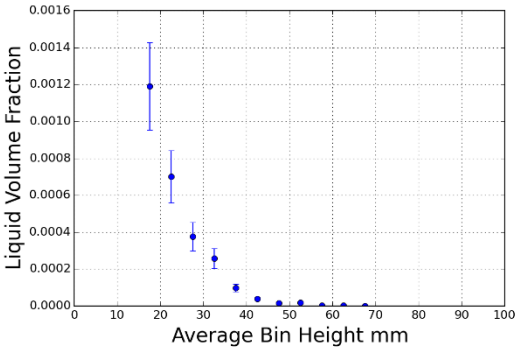


Figure C. 1765: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

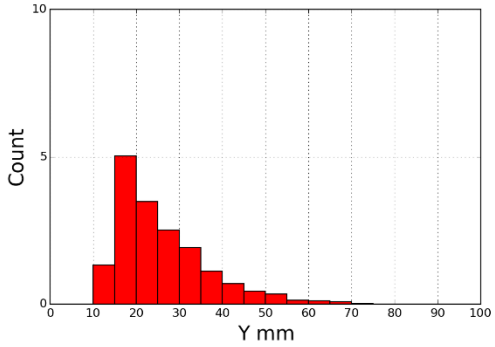


Figure C. 1763: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 All Droplets for .LB Image

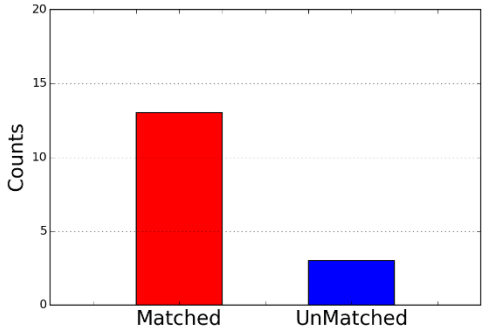


Figure C. 1766: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

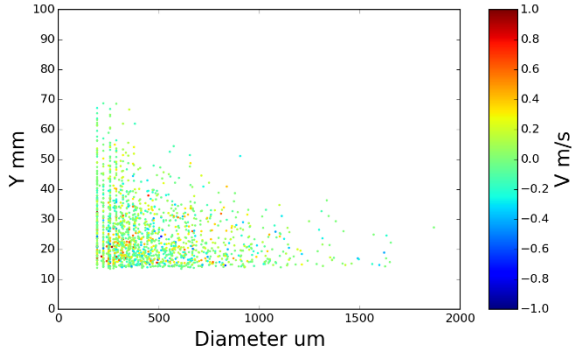


Figure C. 1769: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

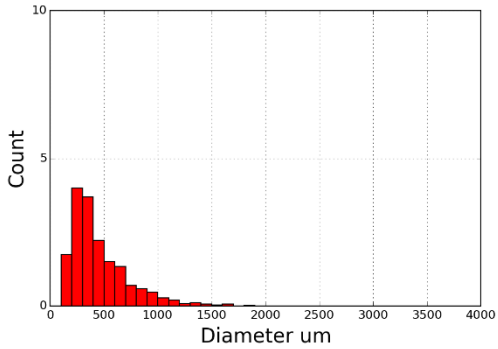


Figure C. 1767: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

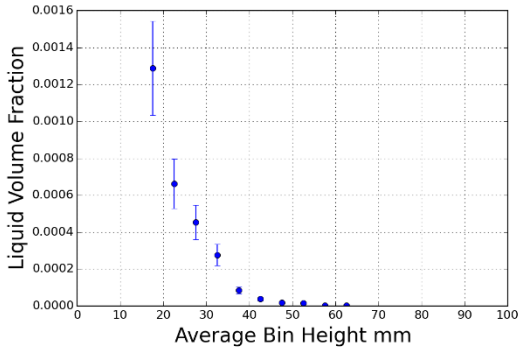


Figure C. 1770: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

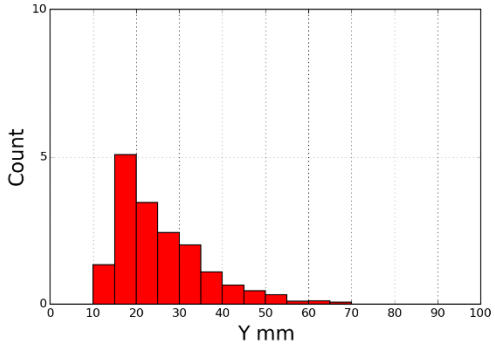


Figure C. 1768: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LA Image

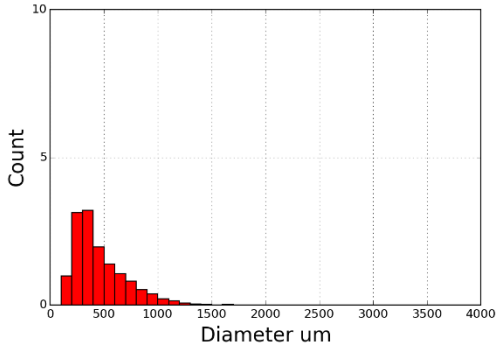


Figure C. 1771: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

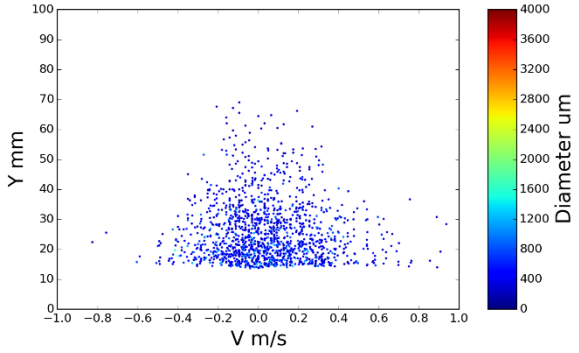


Figure C. 1774: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

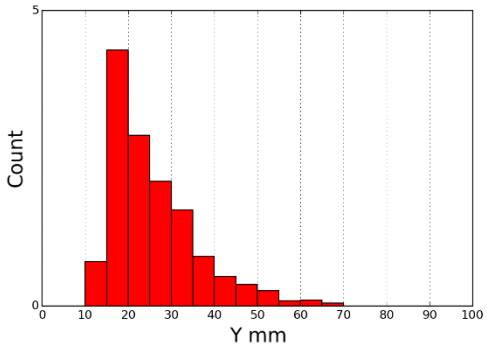


Figure C. 1772: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

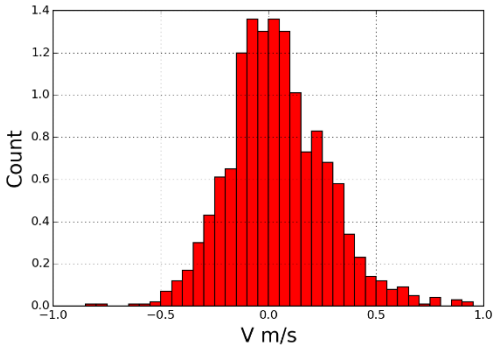


Figure C. 1775: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

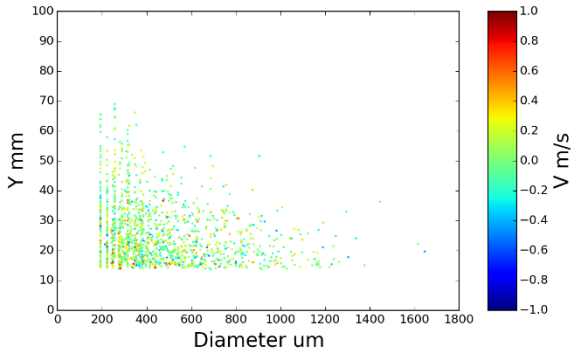


Figure C. 1773: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LB Image

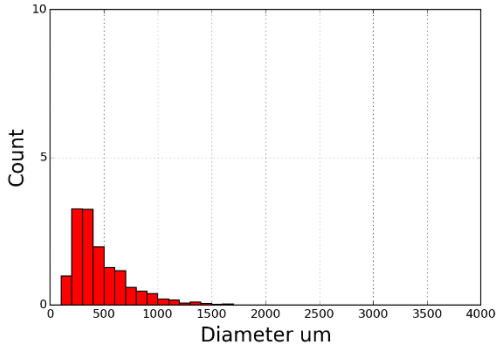


Figure C. 1776: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

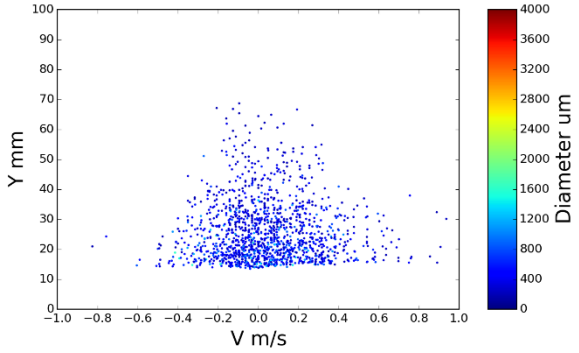


Figure C. 1779: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

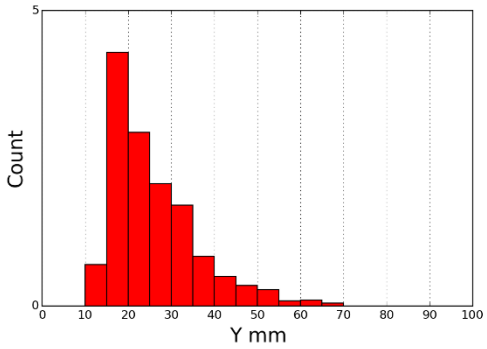


Figure C. 1777: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

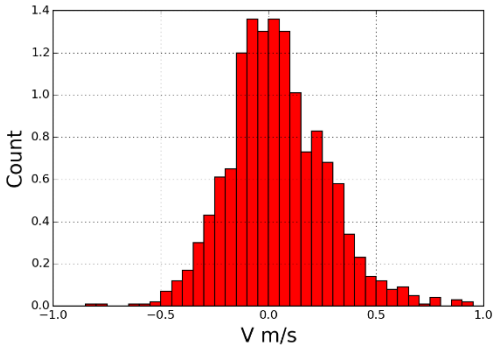


Figure C. 1780: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

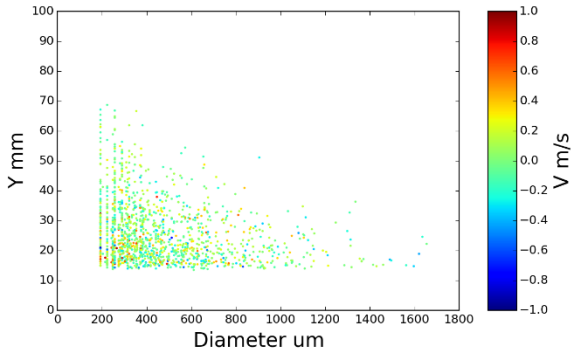


Figure C. 1778: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	9.1	9.02	193.4	1920	489.5	270.1	182.3	1668	496.4	272.1
20-40mm	11.93	11.96	182.3	1678	431.1	237.5	170.5	1642	432.2	234.8
40-60mm	2.14	2.23	193.4	1223	330.5	161.7	182.3	1216	333.4	162.1
60-80mm	0.24	0.21	193.4	644.5	294.9	137.1	193.4	590.7	302.8	135.3
80-100mm	0.0	0.01	-	-	-	-	257.8	257.8	257.8	0.0
All	23.41	23.43	182.3	1920	443.2	248.9	170.5	1668	446.3	248.6
			Height A (mm)				Height B (mm)			
Highest Particle			73.4563				82.2814			
Lowest Particle			12.6553				12.5858			

Table C. 194: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	7.35	193.4	1560	496.4	257.5	193.4	1668	505.3	265.7	-0.780	0.670	-0.090	0.100	-0.550	0.950	0.070	0.250
20-40mm	9.91	193.4	1532	436.1	214.1	193.4	1642	437.0	222.2	-0.860	0.570	-0.100	0.100	-0.790	0.910	0.080	0.230
40-60mm	1.79	193.4	1223	350.9	167.8	193.4	1216	357.5	170.0	-0.400	0.080	-0.100	0.080	-0.840	0.570	0.030	0.190
60-80mm	0.19	193.4	644.5	321.6	142.5	193.4	590.7	319.4	139.2	-0.300	-0.020	-0.110	0.070	-0.240	0.290	0.020	0.130
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	19.24	193.4	1560	450.1	231.8	193.4	1668	454.0	239.3	-0.860	0.670	-0.100	0.100	-0.840	0.950	0.070	0.230

Table C. 195: Matched Droplet Info

C.5.3.2 All Droplets for .LA Image

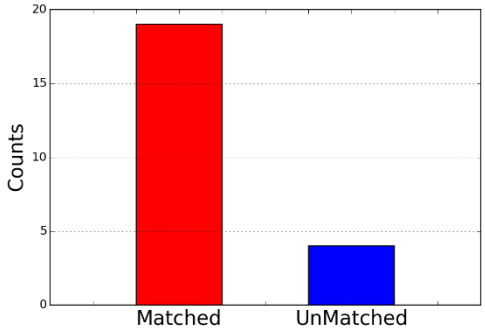


Figure C. 1781: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

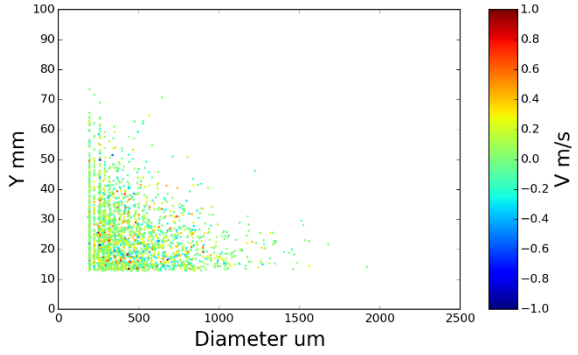


Figure C. 1784: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

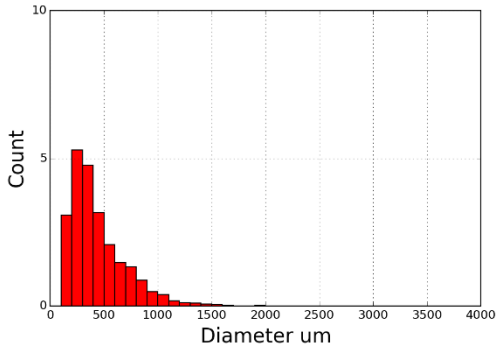


Figure C. 1782: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

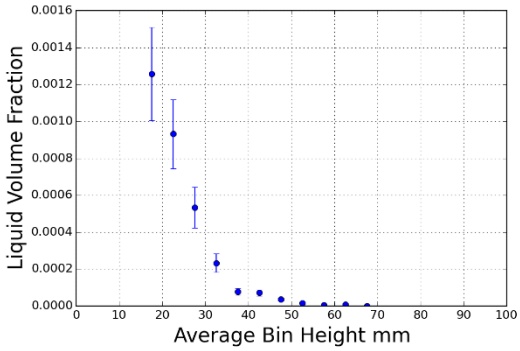


Figure C. 1785: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

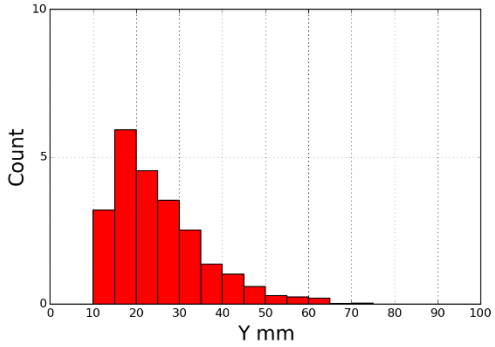


Figure C. 1783: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 All Droplets for .LB Image

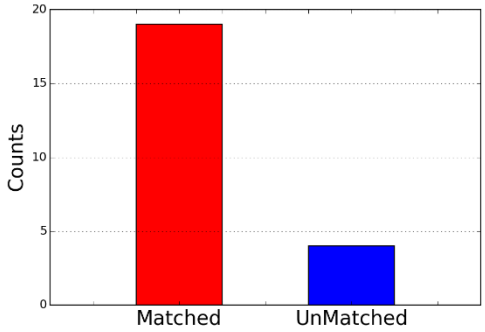


Figure C. 1786: CHC Count Comparison R-134a 55F 5000Btu 15000Lb Rot Tri

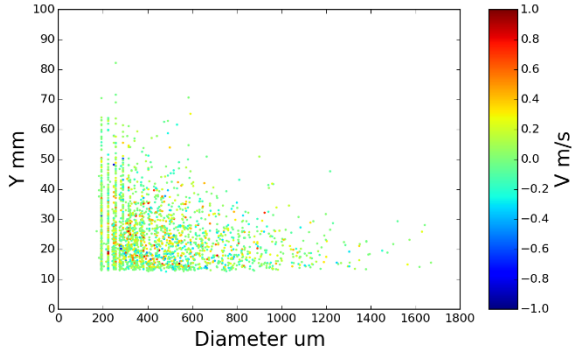


Figure C. 1789: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

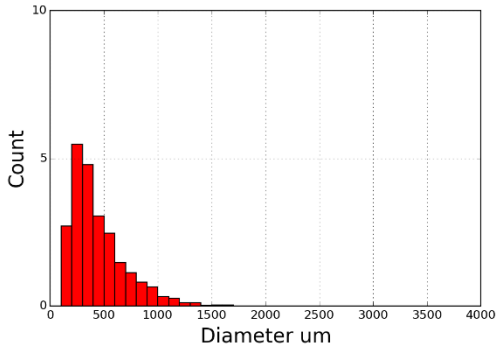


Figure C. 1787: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

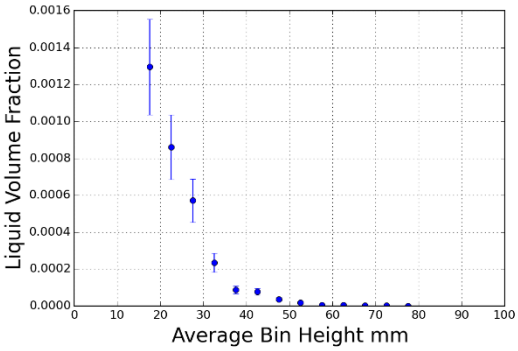


Figure C. 1790: Void Fraction R-134a 55F 5000Btu 15000Lb Rot Tri

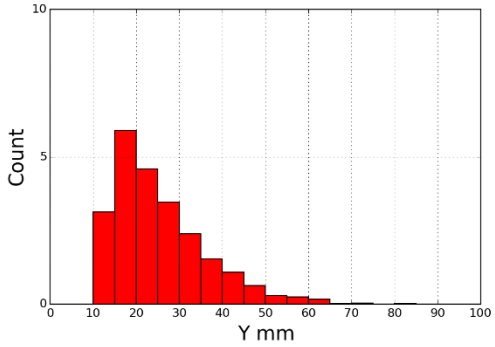


Figure C. 1788: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LA Image

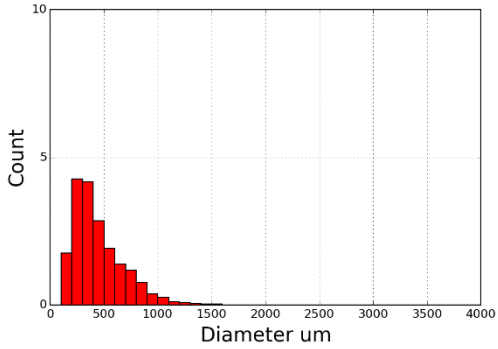


Figure C. 1791: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

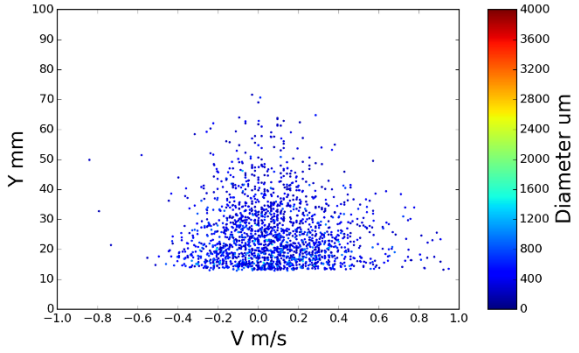


Figure C. 1794: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

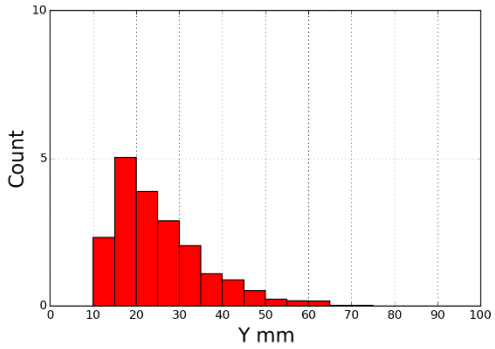


Figure C. 1792: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

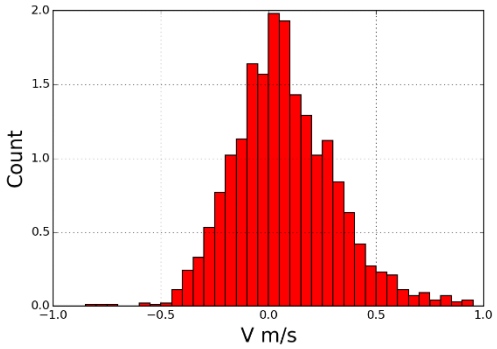


Figure C. 1795: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

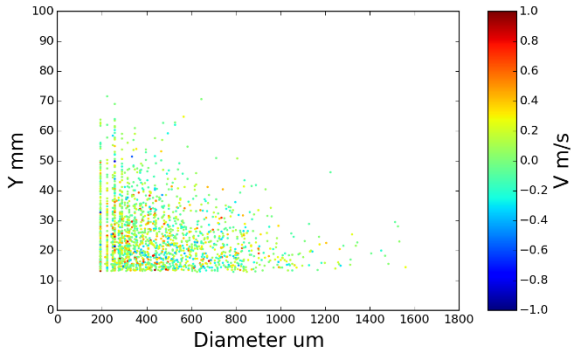


Figure C. 1793: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.5.3.2 Matched Only Droplets for .LB Image

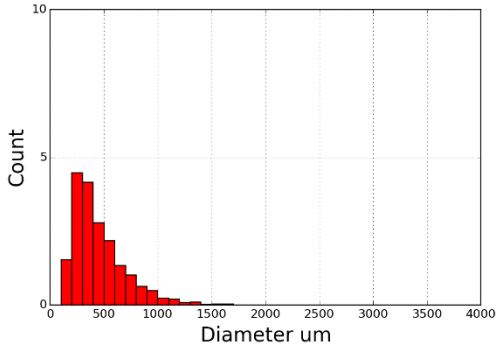


Figure C. 1796: Droplet Diameter Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

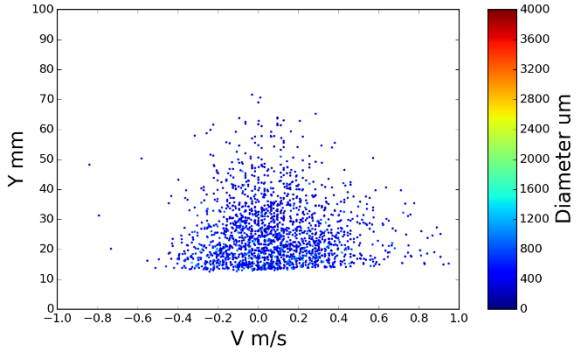


Figure C. 1799: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 15000Lb Rot Tri

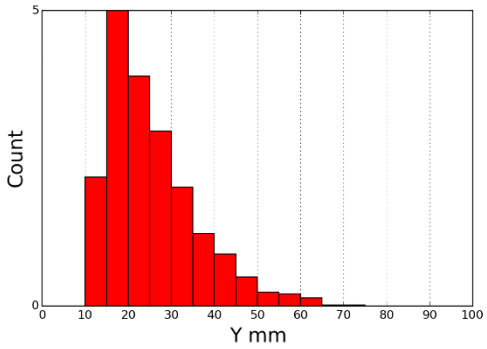


Figure C. 1797: Droplet Height Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

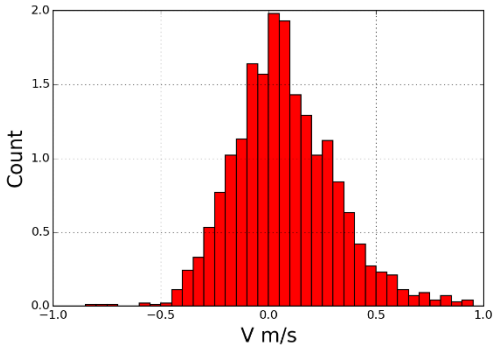


Figure C. 1800: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 15000Lb Rot Tri

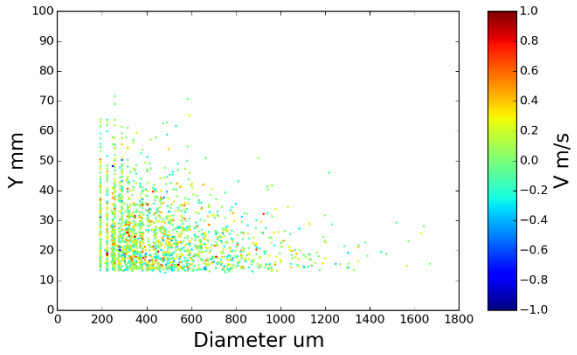


Figure C. 1798: Droplet Height vs Diameter R-134a 55F 5000Btu 15000Lb Rot Tri

C.6 - 1556 R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27458 / 3.460
Ref Mass Flow (lb/hr) / (kg/s)	1527 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14865 / 20.160
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	6872 / 21.68
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.9 / 12.74
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.2 / 12.86
Total Bundle Q (Btu/hr) / (kW)	141429 / 41.45
Total Bundle & Preboiler Q (Btu/hr) / (kW)	141429 / 41.45
Top Two Rows HTC Ratio	1.063
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 196: Thermal Conditions

C.6.1.1 Lens 100mm Mag 0_29x

C.6.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.26	23.51	76.0	3986	498.4	575.7	76.0	4014	503.8	580.3
40-60mm	85.39	84.72	76.0	3863	509.0	566.5	76.0	3996	513.7	569.6
60-80mm	72.38	72.12	76.0	4008	448.0	484.5	76.0	3996	453.7	487.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	182.22	181.41	76.0	4008	483.2	537.3	76.0	4014	488.4	540.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.7603				79.7486			
Lowest Particle			31.7871				31.7871			

Table C. 197: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.07	81.2	3439	622.9	570.6	76.0	4014	614.8	587.2	-0.950	0.940	-0.040	0.270	-0.950	0.880	-0.130	0.350
40-60mm	56.19	81.2	3795	571.4	557.1	81.2	3916	567.6	559.5	-0.950	0.900	-0.040	0.180	-0.940	0.950	-0.050	0.300
60-80mm	55.2	81.2	3985	495.1	487.6	81.2	3996	490.5	482.1	-0.940	0.920	-0.040	0.150	-0.950	0.950	0.010	0.270
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	121.46	81.2	3985	541.0	529.7	76.0	4014	536.5	530.1	-0.950	0.940	-0.040	0.170	-0.950	0.950	-0.030	0.290

Table C. 198: Matched Droplet Info

C.6.1.1 All Droplets for .LA Image

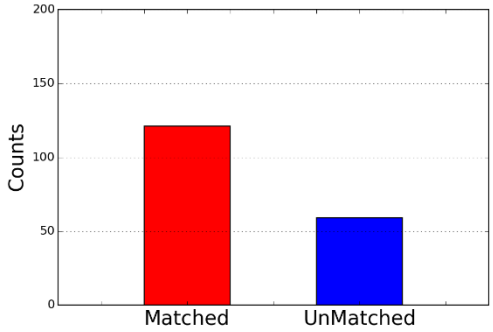


Figure C. 1801: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

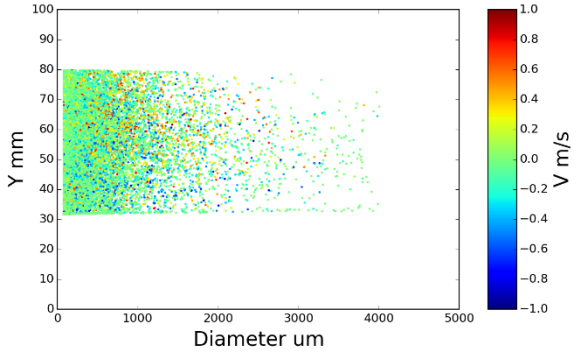


Figure C. 1804: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

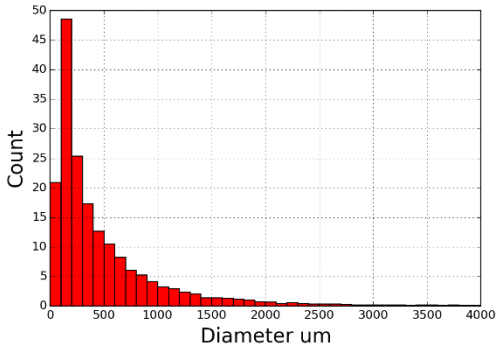


Figure C. 1802: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

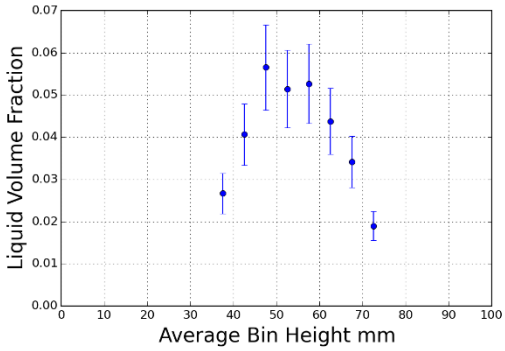


Figure C. 1805: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

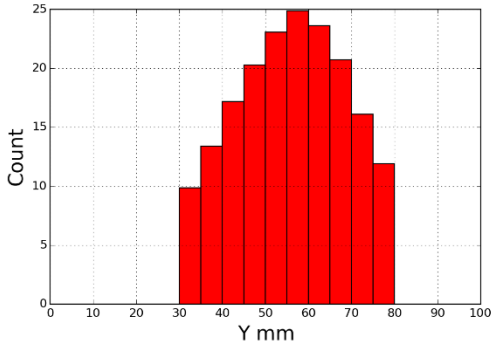


Figure C. 1803: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 All Droplets for .LB Image

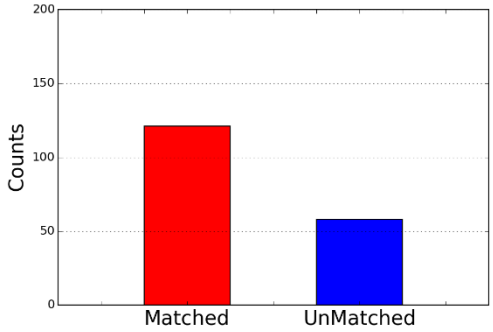


Figure C. 1806: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

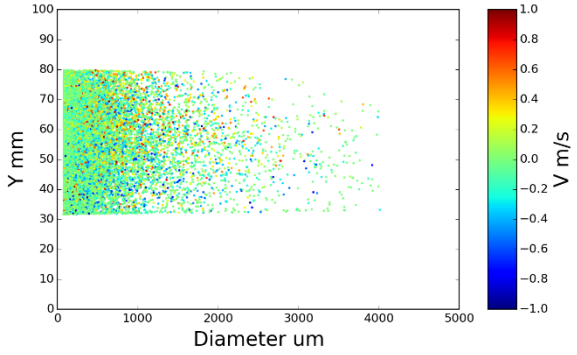


Figure C. 1809: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

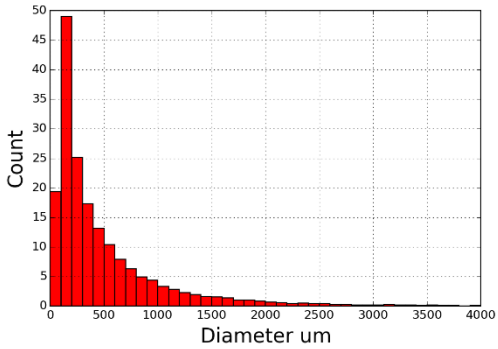


Figure C. 1807: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

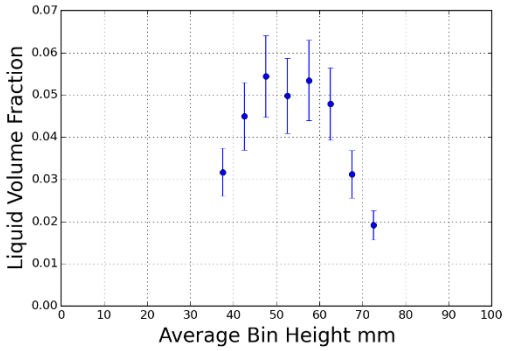


Figure C. 1810: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

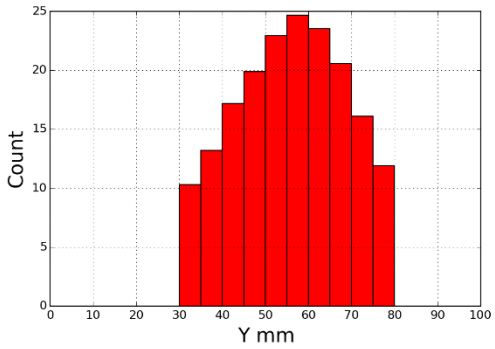


Figure C. 1808: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LA Image

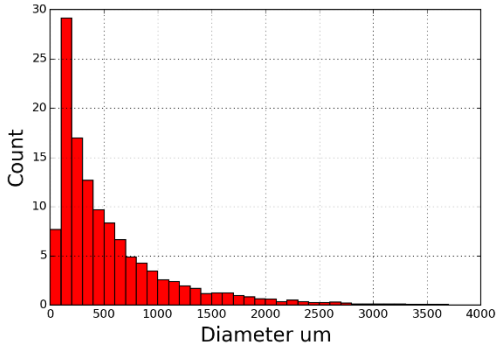


Figure C. 1811: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

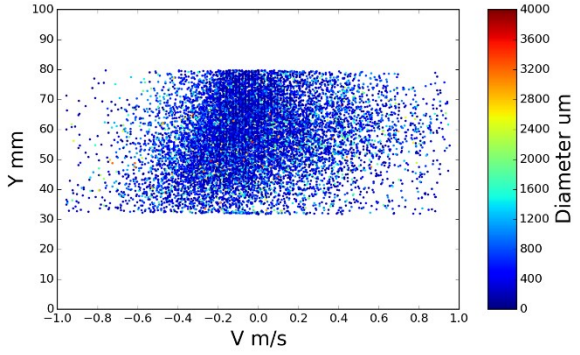


Figure C. 1814: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

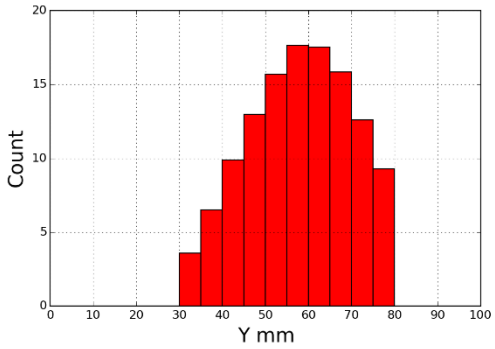


Figure C. 1812: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

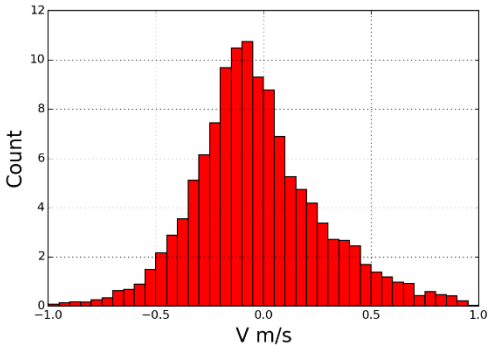


Figure C. 1815: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

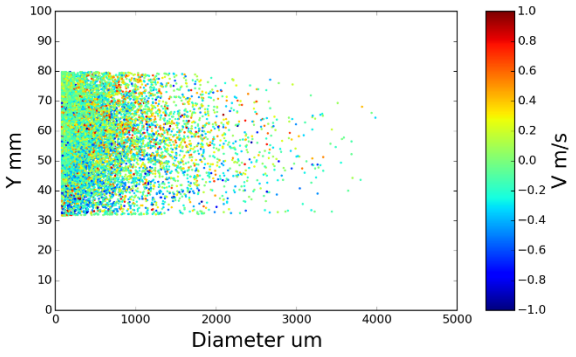


Figure C. 1813: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LB Image

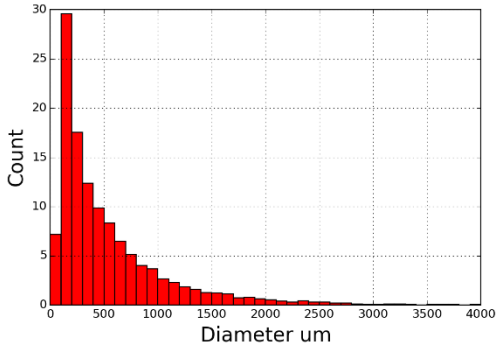


Figure C. 1816: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

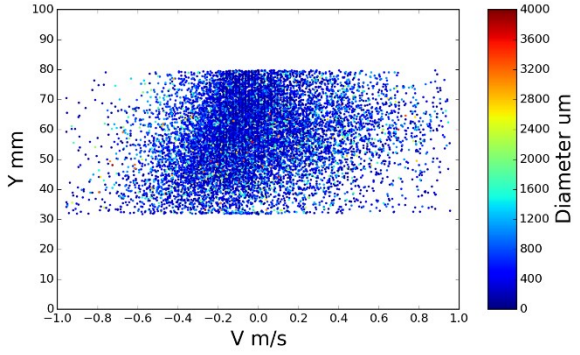


Figure C. 1819: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

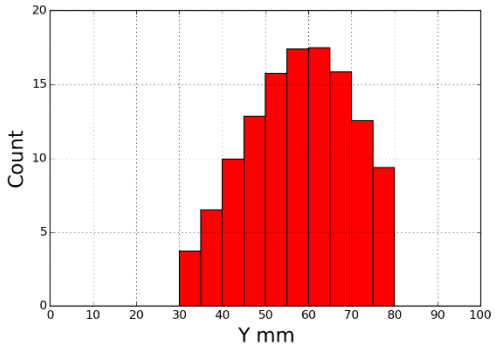


Figure C. 1817: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

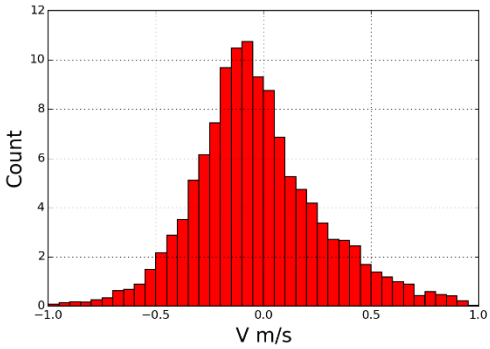


Figure C. 1820: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

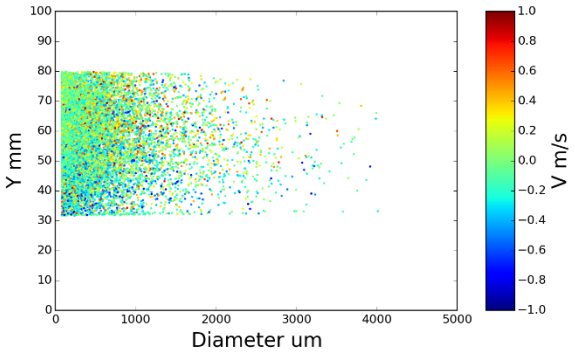


Figure C. 1818: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	24.41	24.21	76.0	3884	499.0	543.5	76.0	3998	501.8	548.6
40-60mm	94.07	92.32	76.0	4018	514.9	555.0	76.0	3882	522.1	555.0
60-80mm	74.42	72.48	76.0	3962	469.6	493.4	76.0	3997	476.4	500.7
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	193.67	189.64	76.0	4018	495.4	531.0	76.0	3998	502.0	534.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.7484				79.7490			
Lowest Particle			31.7871				31.7871			

Table C. 199: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	9.85	81.2	3884	636.5	580.9	76.0	3998	627.4	592.4	-0.930	0.950	-0.060	0.280	-0.950	0.950	-0.050	0.360
40-60mm	59.55	81.2	3765	579.2	545.4	81.2	3878	575.4	550.0	-0.950	0.940	-0.050	0.190	-0.950	0.950	-0.000	0.340
60-80mm	56.17	81.2	3962	523.9	494.7	81.2	3997	517.5	492.7	-0.940	0.950	-0.050	0.150	-0.950	0.950	0.000	0.280
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	125.57	81.2	3962	559.0	527.5	76.0	3998	553.6	529.9	-0.950	0.950	-0.050	0.180	-0.950	0.950	-0.000	0.320

Table C. 200: Matched Droplet Info

C.6.1.1 All Droplets for .LA Image

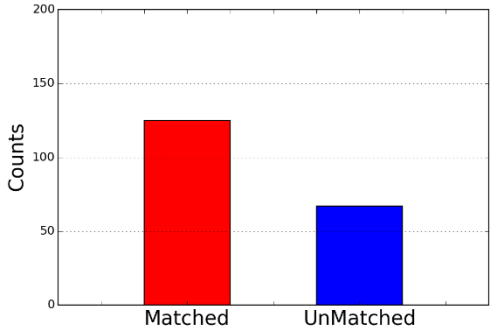


Figure C. 1821: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

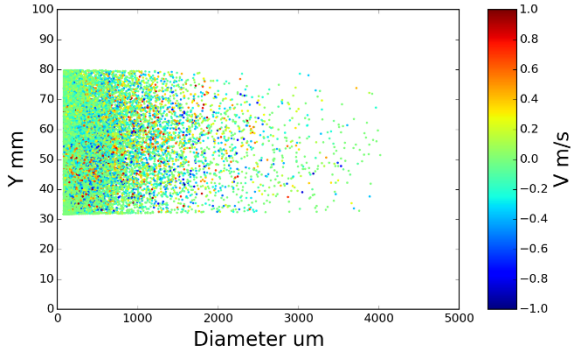


Figure C. 1824: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

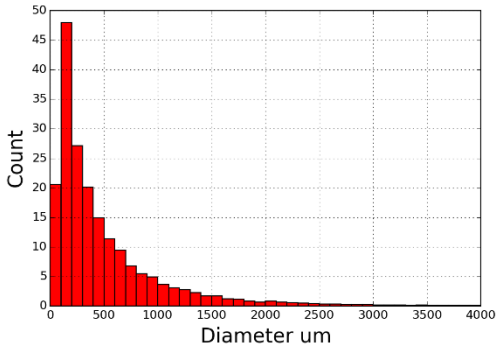


Figure C. 1822: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

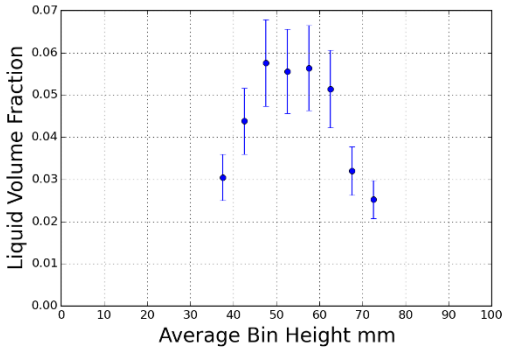


Figure C. 1825: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

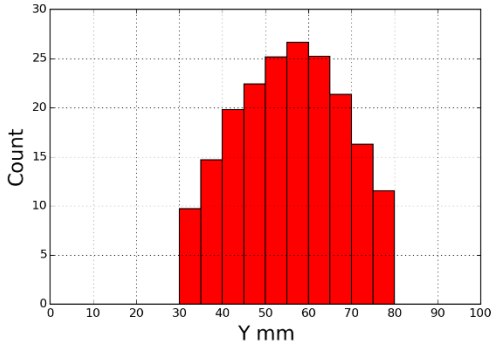


Figure C. 1823: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 All Droplets for .LB Image

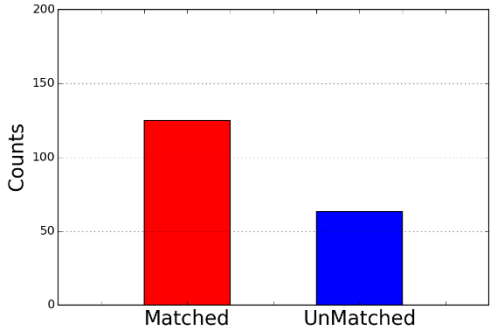


Figure C. 1826: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

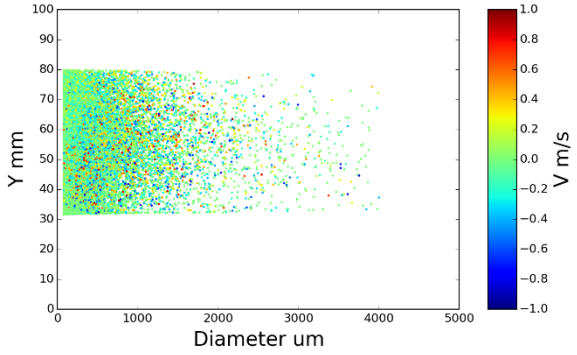


Figure C. 1829: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

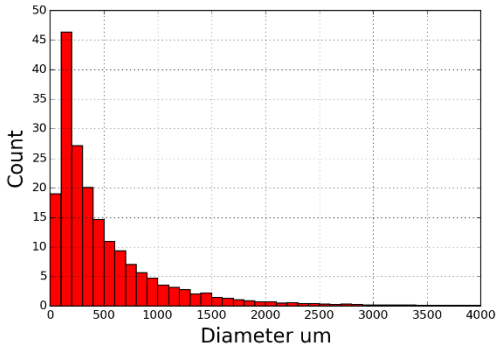


Figure C. 1827: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

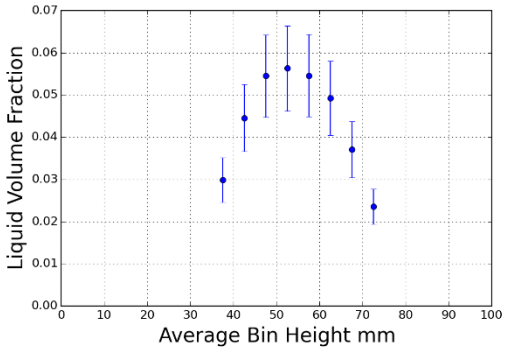


Figure C. 1830: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

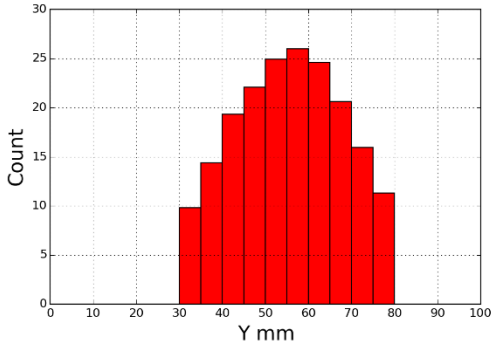


Figure C. 1828: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LA Image

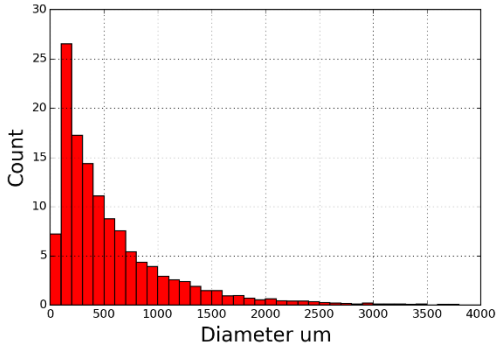


Figure C. 1831: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

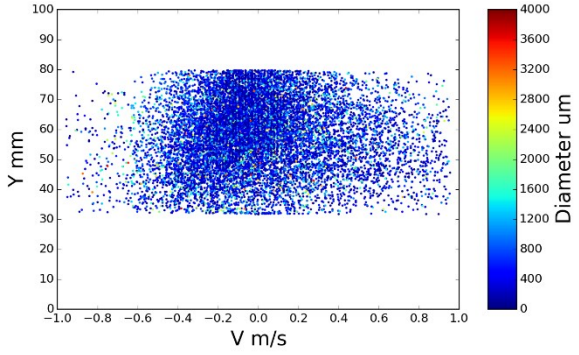


Figure C. 1834: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

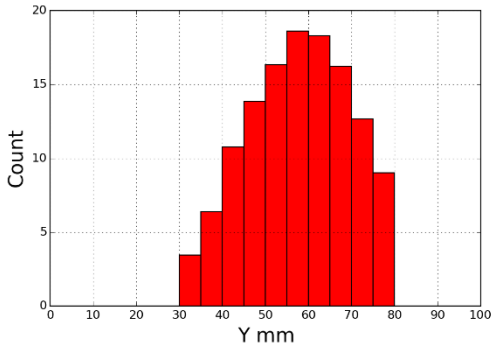


Figure C. 1832: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

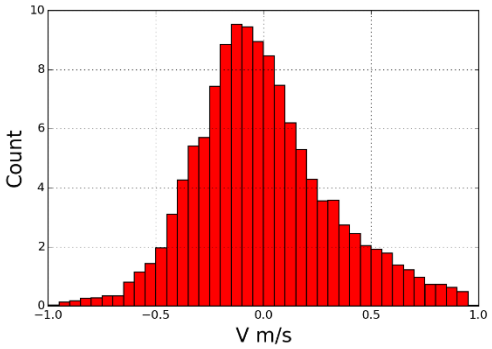


Figure C. 1835: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

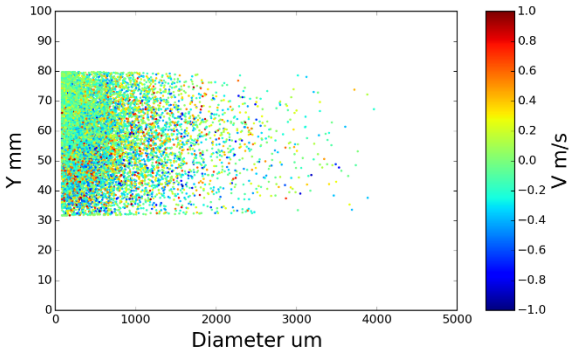


Figure C. 1833: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LB Image

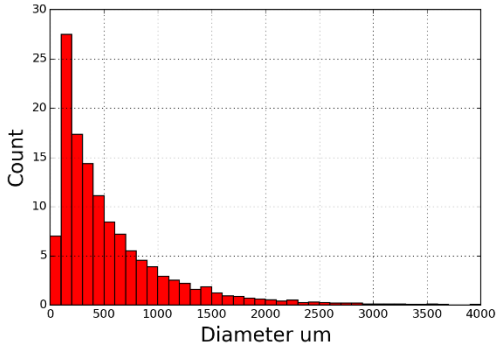


Figure C. 1836: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

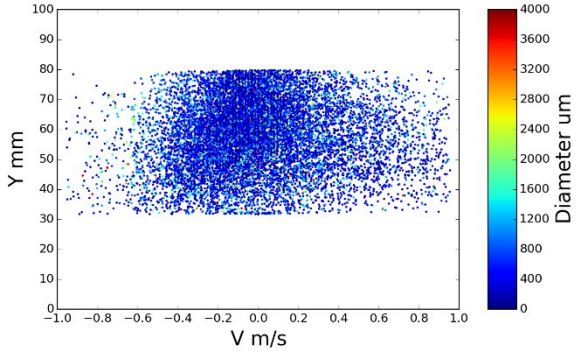


Figure C. 1839: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

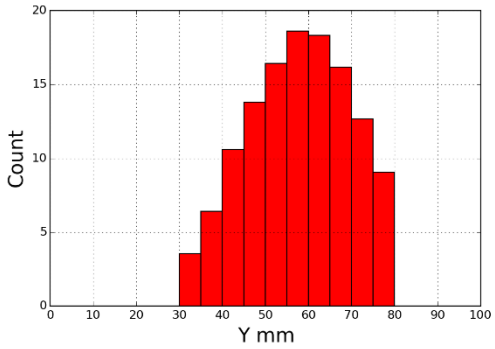


Figure C. 1837: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

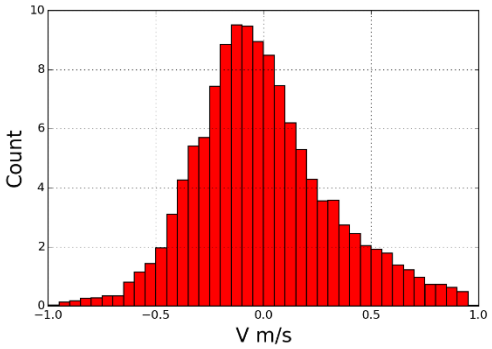


Figure C. 1840: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

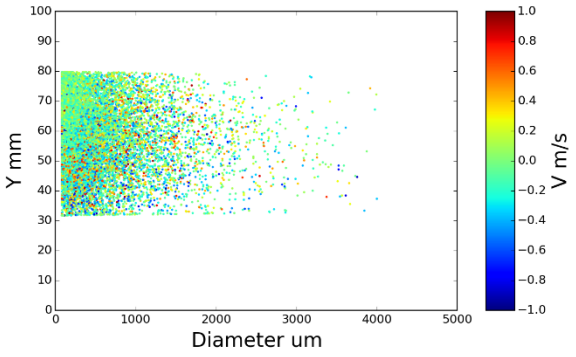


Figure C. 1838: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	22.26	22.12	76.0	3927	520.0	572.0	76.0	3875	498.9	543.2
40-60mm	86.22	85.64	76.0	4007	516.0	553.7	76.0	3999	510.6	545.7
60-80mm	70.9	70.71	76.0	3992	485.9	515.5	76.0	3976	492.3	524.3
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	179.96	179.08	76.0	4007	504.6	541.5	76.0	3999	501.9	537.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.7490				79.7494			
Lowest Particle			31.7871				31.7871			

Table C. 201: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	8.48	86.2	3505	614.5	560.5	81.2	3627	596.4	555.3	-0.940	0.950	-0.040	0.280	-0.910	0.950	0.000	0.380
40-60mm	54.43	81.2	3880	573.0	548.5	81.2	3999	568.2	552.6	-0.930	0.940	-0.060	0.180	-0.950	0.950	-0.010	0.340
60-80mm	53.77	81.2	3777	536.9	511.1	81.2	3793	538.6	516.2	-0.950	0.940	-0.060	0.150	-0.940	0.950	0.010	0.280
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	116.68	81.2	3880	559.4	533.0	81.2	3999	556.6	536.6	-0.950	0.950	-0.060	0.180	-0.950	0.950	0.000	0.320

Table C. 202: Matched Droplet Info

C.6.1.1 All Droplets for .LA Image

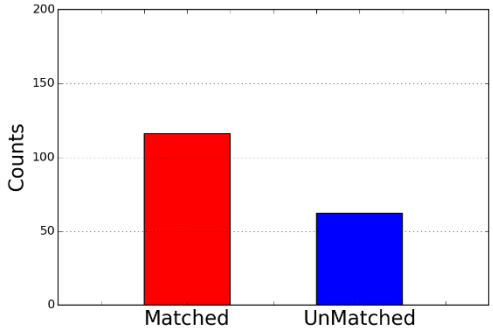


Figure C. 1841: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

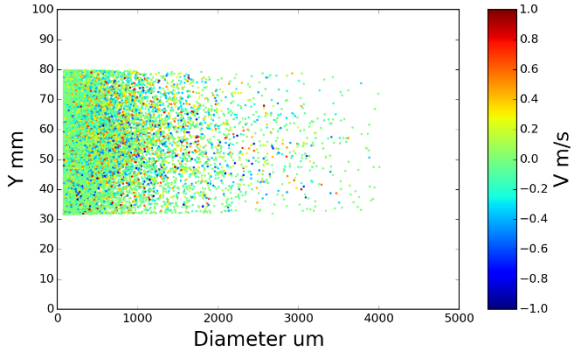


Figure C. 1844: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

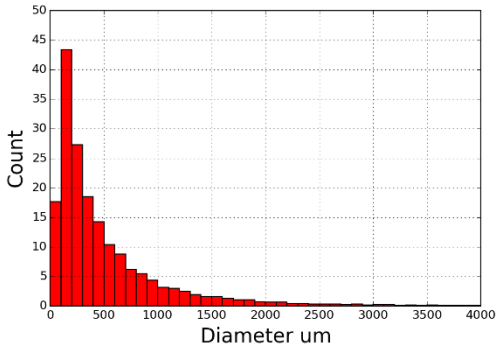


Figure C. 1842: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

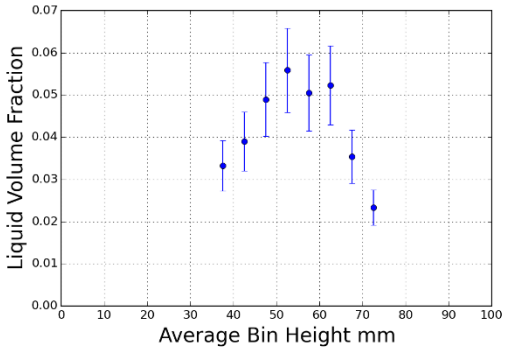


Figure C. 1845: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

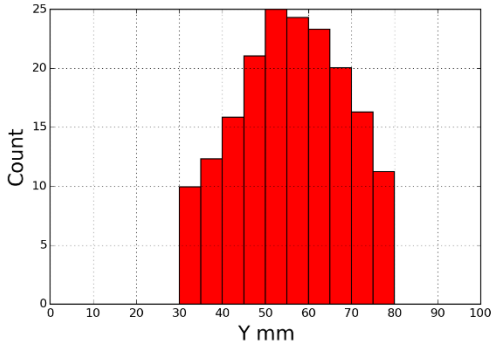


Figure C. 1843: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 All Droplets for .LB Image

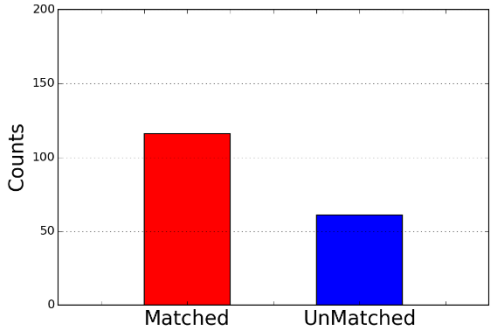


Figure C. 1846: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

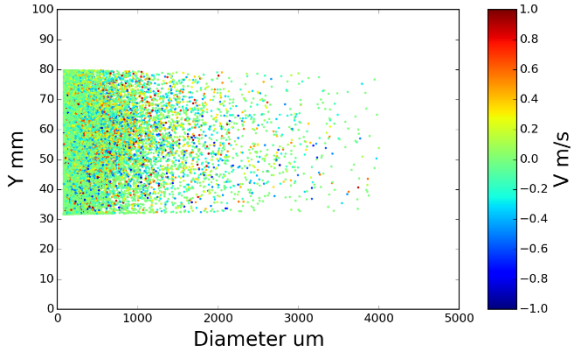


Figure C. 1849: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

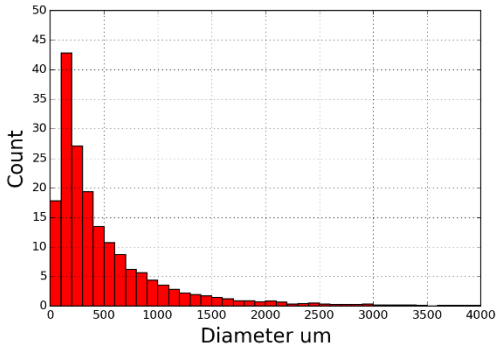


Figure C. 1847: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

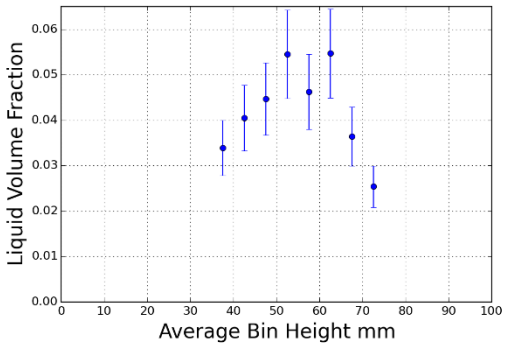


Figure C. 1850: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

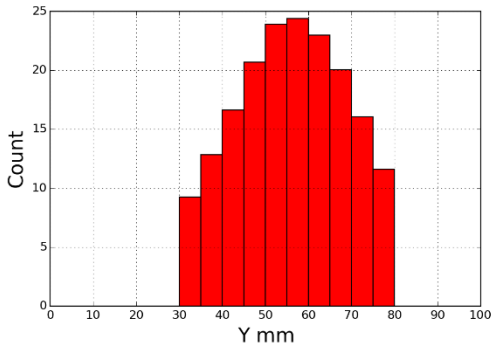


Figure C. 1848: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LA Image

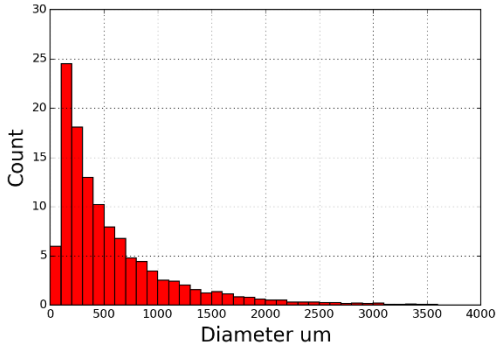


Figure C. 1851: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

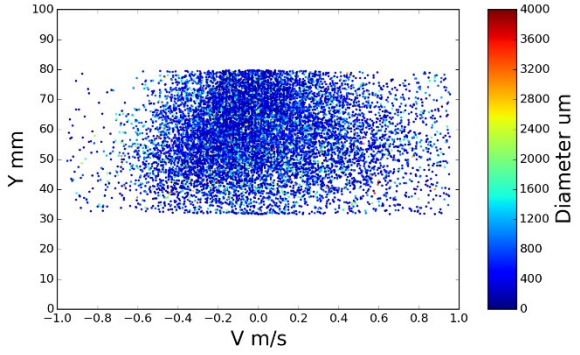


Figure C. 1854: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

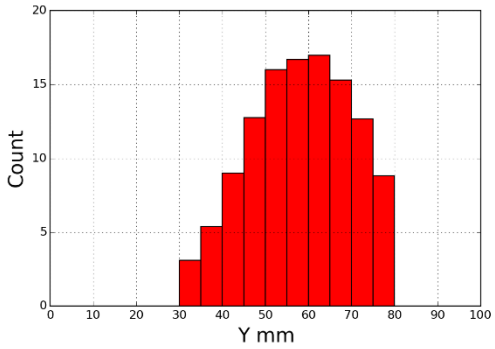


Figure C. 1852: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

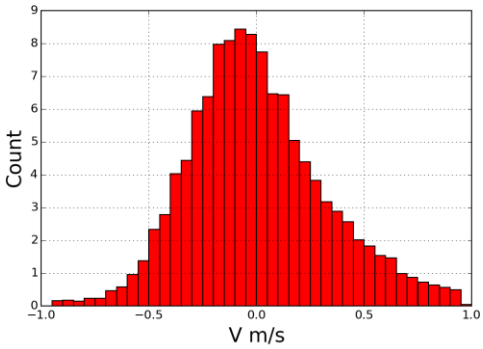


Figure C. 1855: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

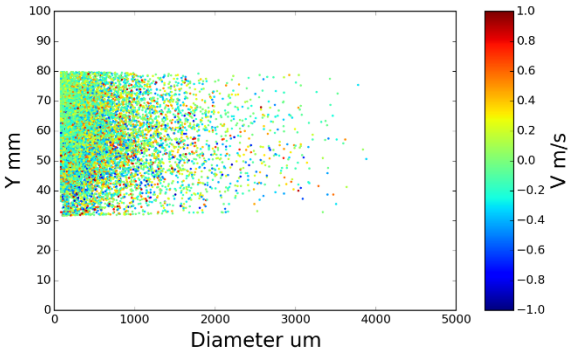


Figure C. 1853: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.1 Matched Only Droplets for .LB Image

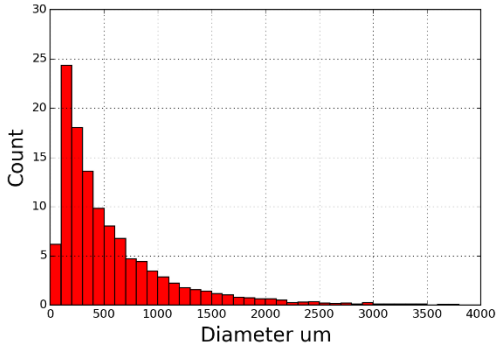


Figure C. 1856: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

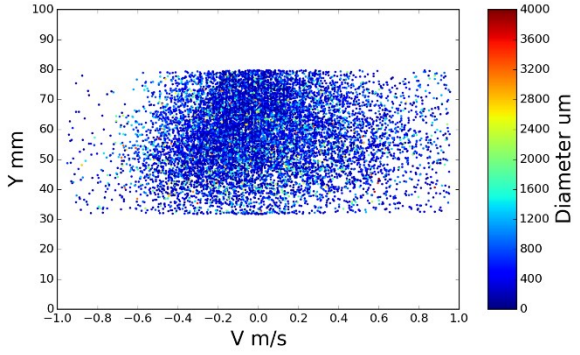


Figure C. 1859: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

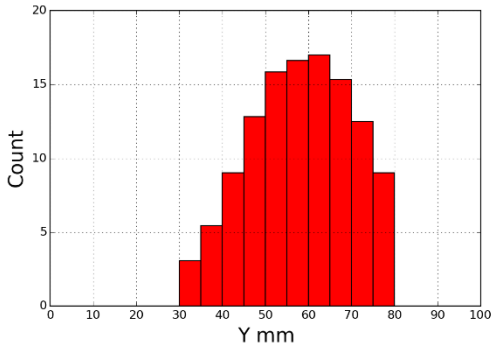


Figure C. 1857: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

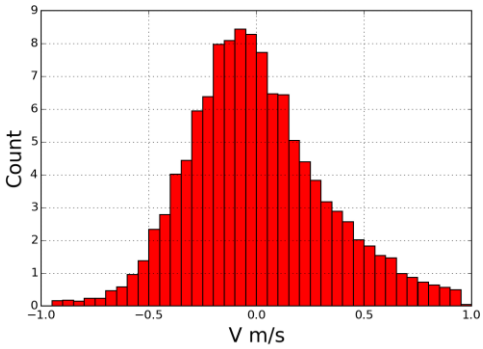


Figure C. 1860: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

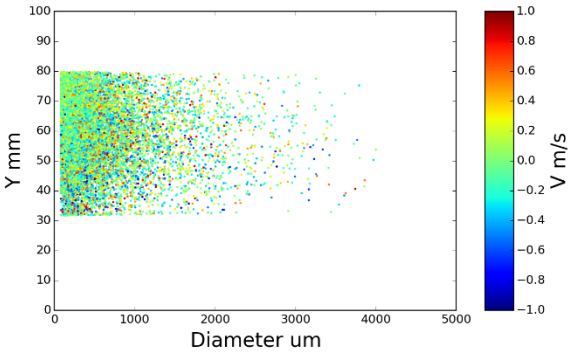


Figure C. 1858: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Lens 50mm Mag 0_13x

C.6.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	15.38	14.69	170.4	3970	690.0	605.6	170.4	3965	733.0	636.1
40-60mm	58.67	58.22	170.4	3991	724.2	595.1	170.4	3860	732.0	600.5
60-80mm	43.86	43.49	182.2	3931	663.6	513.1	182.2	3808	668.2	502.9
80-100mm	12.68	12.83	182.2	3754	602.2	404.2	182.2	3685	596.0	397.9
All	130.6	129.24	170.4	3991	688.0	555.0	170.4	3965	697.1	557.9
			Height A (mm)				Height B (mm)			
Highest Particle			100.0217				99.9931			
Lowest Particle			30.0864				30.1150			

Table C. 203: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.05	193.3	3951	789.6	602.2	182.2	3965	776.0	618.8	-0.940	0.940	-0.050	0.340	-0.940	0.940	-0.070	0.420
40-60mm	35.19	182.2	3556	779.4	569.1	170.4	3804	767.1	573.4	-0.950	0.950	-0.050	0.250	-0.950	0.950	-0.080	0.360
60-80mm	31.64	182.2	3572	710.3	499.2	182.2	3808	703.5	491.6	-0.950	0.930	-0.050	0.190	-0.930	0.950	-0.020	0.320
80-100mm	10.4	193.3	3046	640.2	402.5	193.3	3685	633.0	399.7	-0.950	0.760	-0.060	0.130	-0.920	0.860	-0.010	0.260
All	82.28	182.2	3951	735.8	528.6	170.4	3965	726.3	528.6	-0.950	0.950	-0.050	0.220	-0.950	0.950	-0.050	0.340

Table C. 204: Matched Droplet Info

C.6.1.2 All Droplets for .LA Image

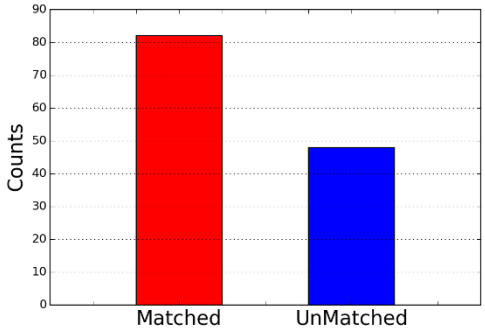


Figure C. 1861: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

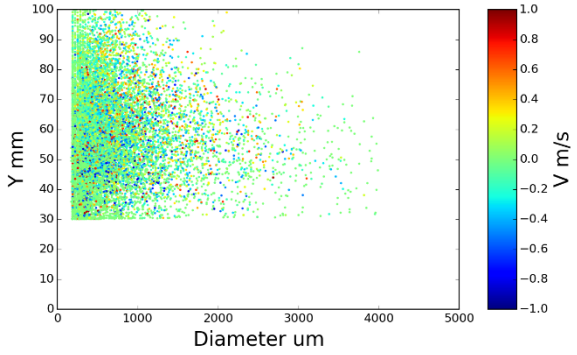


Figure C. 1864: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

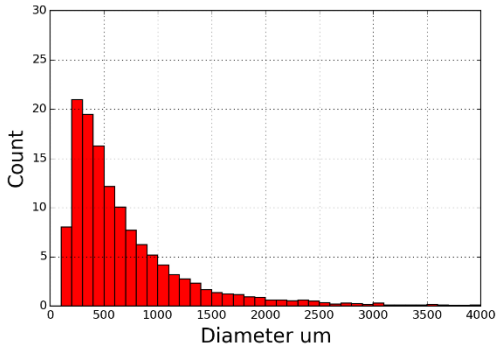


Figure C. 1862: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

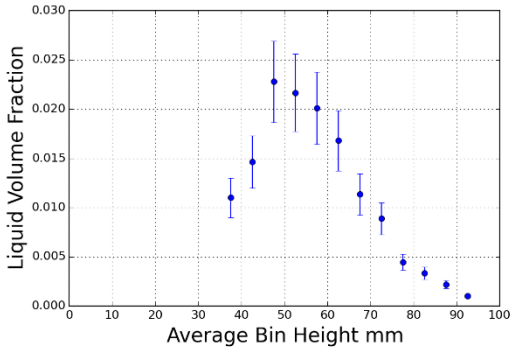


Figure C. 1865: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

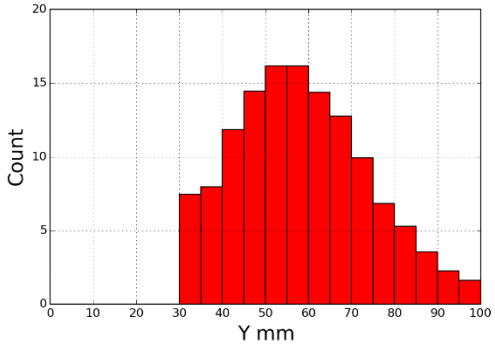


Figure C. 1863: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 All Droplets for .LB Image

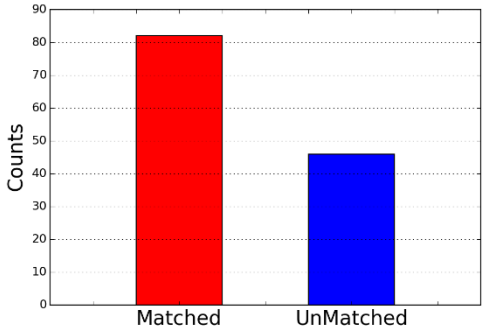


Figure C. 1866: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

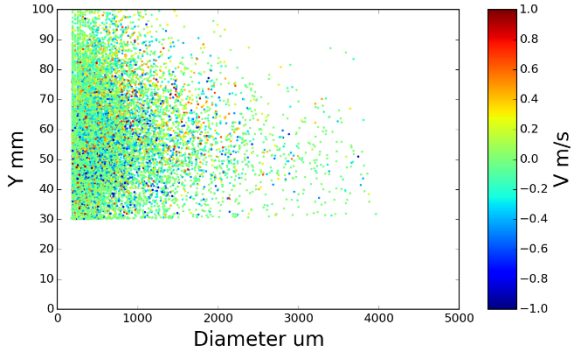


Figure C. 1869: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

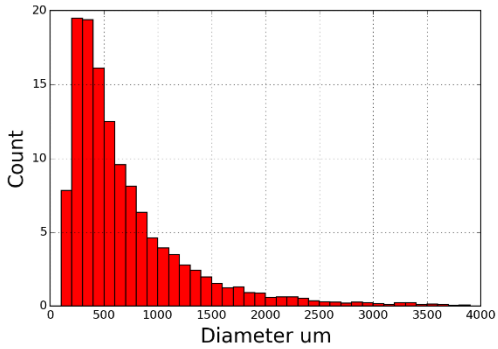


Figure C. 1867: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

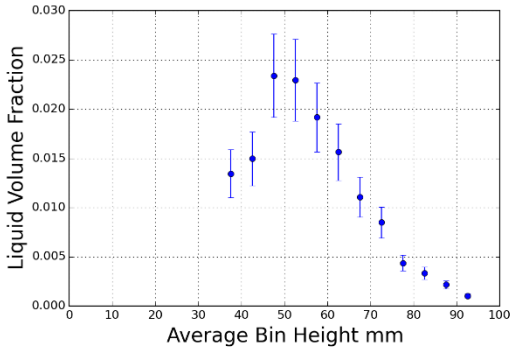


Figure C. 1870: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

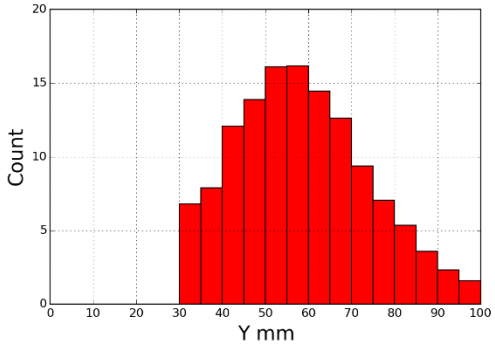


Figure C. 1868: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LA Image

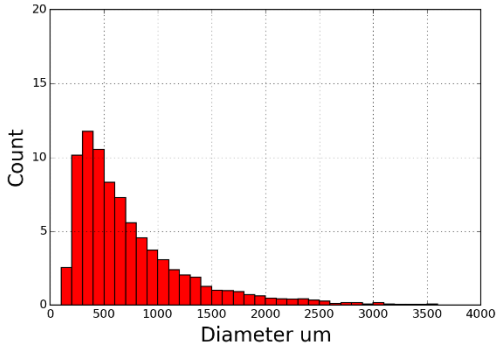


Figure C. 1871: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

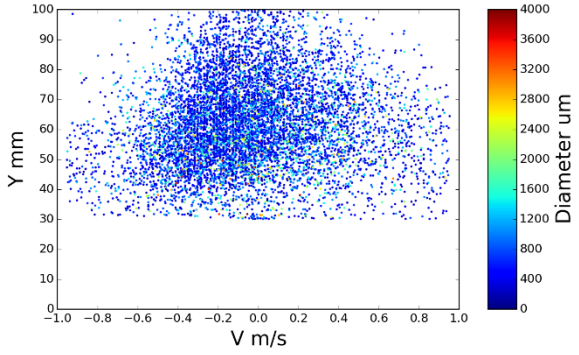


Figure C. 1874: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

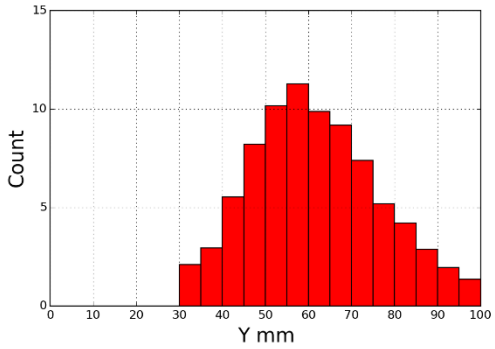


Figure C. 1872: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

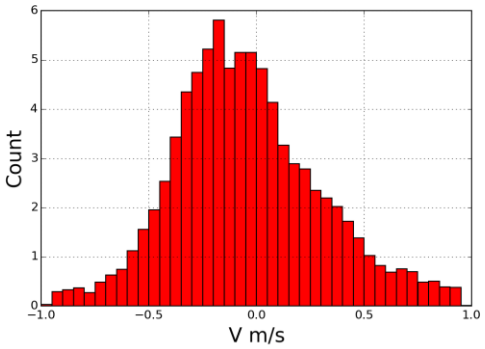


Figure C. 1875: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

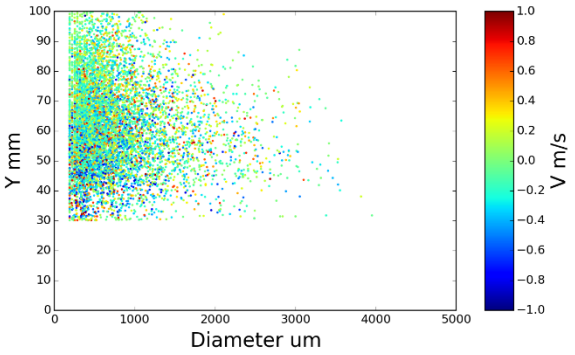


Figure C. 1873: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LB Image

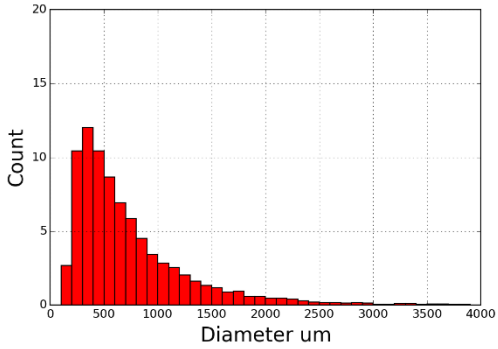


Figure C. 1876: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

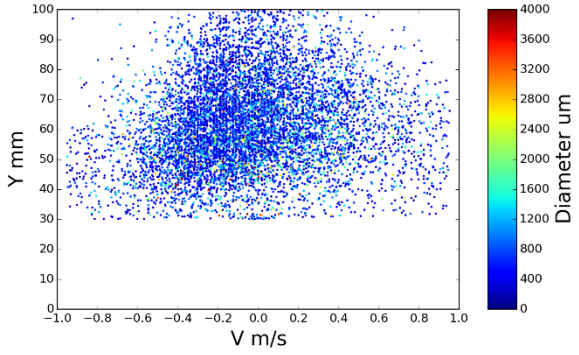


Figure C. 1879: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

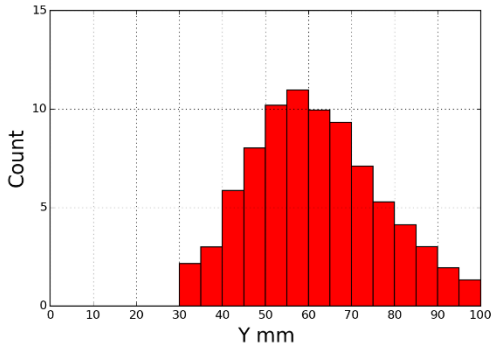


Figure C. 1877: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

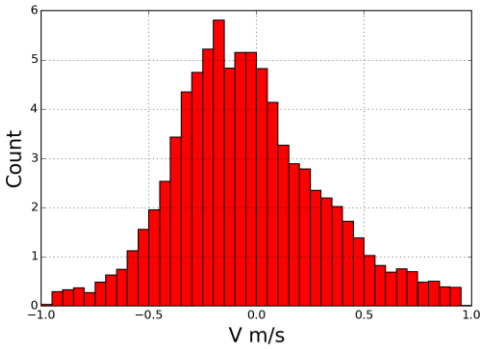


Figure C. 1880: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

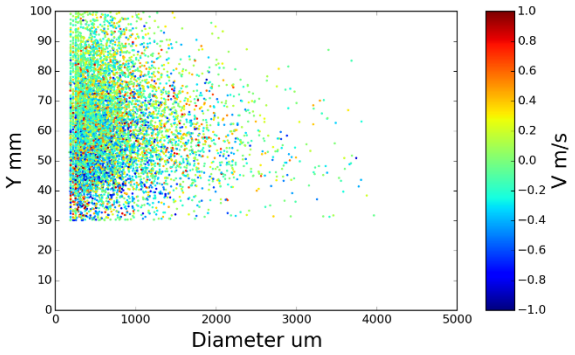


Figure C. 1878: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	15.97	15.68	170.4	3960	734.2	663.1	182.2	3961	740.6	651.5
40-60mm	62.37	62.85	170.4	3978	727.9	597.0	170.4	3936	719.6	579.2
60-80mm	48.39	47.78	170.4	3978	668.3	498.2	170.4	3918	664.2	493.2
80-100mm	10.37	10.16	193.3	3383	611.9	392.4	182.2	3356	609.5	387.0
All	137.1	136.47	170.4	3978	698.9	560.4	170.4	3961	694.4	548.6
			Height A (mm)				Height B (mm)			
Highest Particle			99.9698				99.9963			
Lowest Particle			30.0864				30.0864			

Table C. 205: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.32	182.2	3671	847.2	639.7	182.2	3952	839.9	671.5	-0.940	0.950	-0.080	0.390	-0.950	0.940	-0.040	0.440
40-60mm	35.98	182.2	3827	784.0	562.3	182.2	3936	765.5	556.5	-0.950	0.950	-0.060	0.270	-0.950	0.950	-0.010	0.380
60-80mm	35.12	182.2	3766	719.0	496.9	182.2	3900	711.3	499.3	-0.940	0.930	-0.060	0.200	-0.950	0.950	0.010	0.330
80-100mm	8.55	193.3	3020	644.7	390.3	182.2	3075	640.2	381.4	-0.920	0.760	-0.060	0.140	-0.850	0.870	-0.010	0.270
All	84.97	182.2	3827	747.1	528.6	182.2	3952	735.2	528.5	-0.950	0.950	-0.060	0.240	-0.950	0.950	-0.000	0.360

Table C. 206: Matched Droplet Info

C.6.1.2 All Droplets for .LA Image

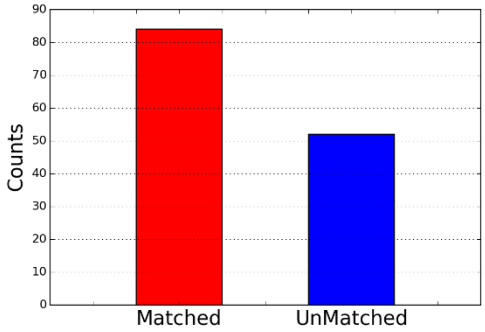


Figure C. 1881: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

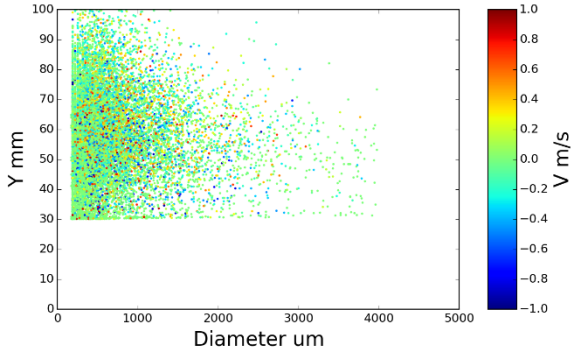


Figure C. 1884: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

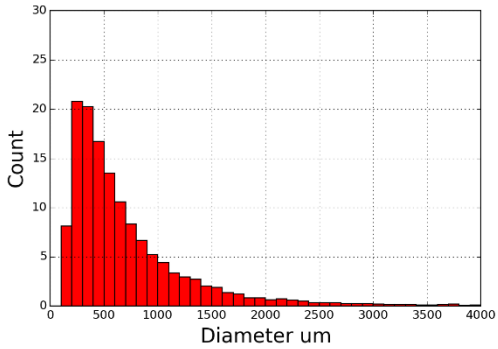


Figure C. 1882: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

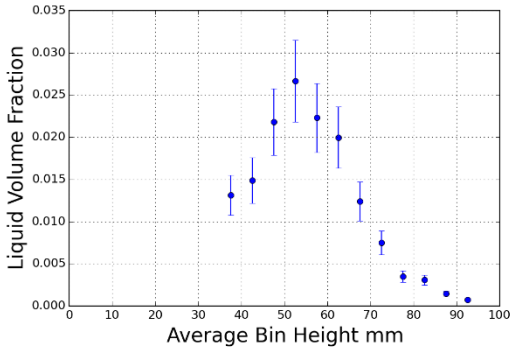


Figure C. 1885: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

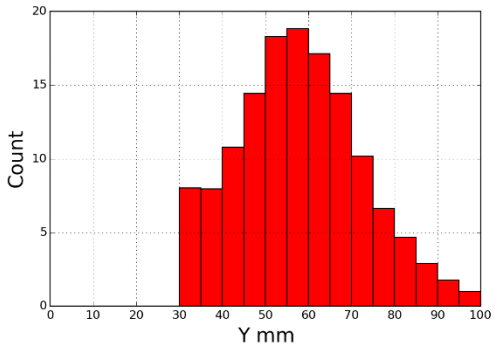


Figure C. 1883: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 All Droplets for .LB Image

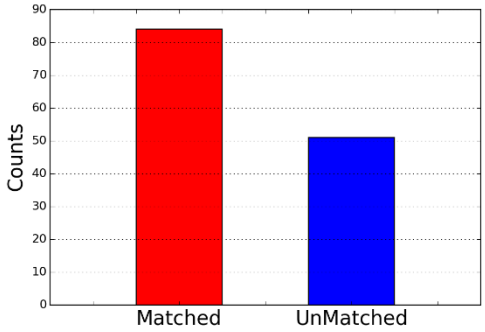


Figure C. 1886: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

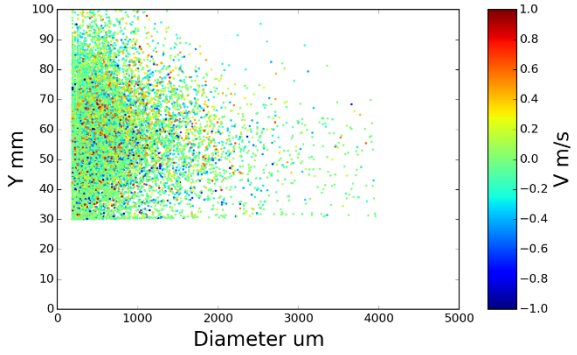


Figure C. 1889: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

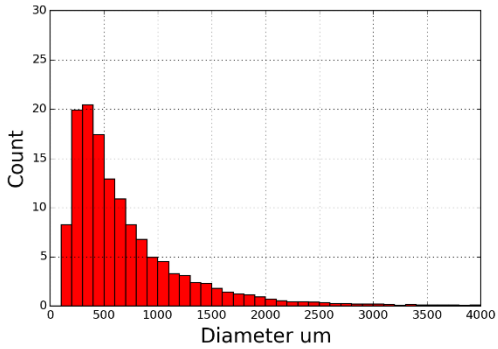


Figure C. 1887: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

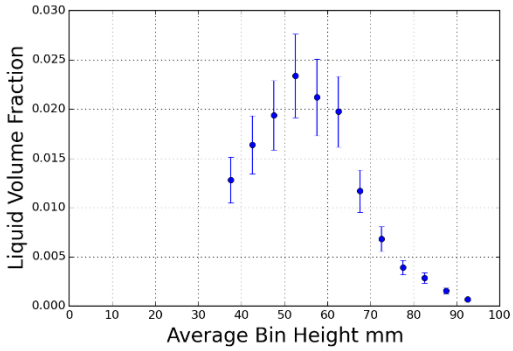


Figure C. 1890: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

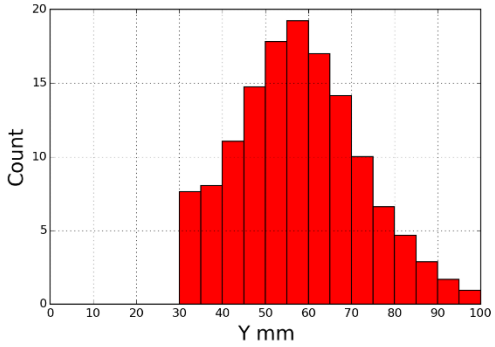


Figure C. 1888: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LA Image

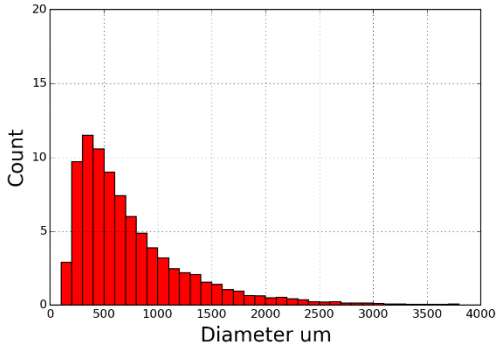


Figure C. 1891: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

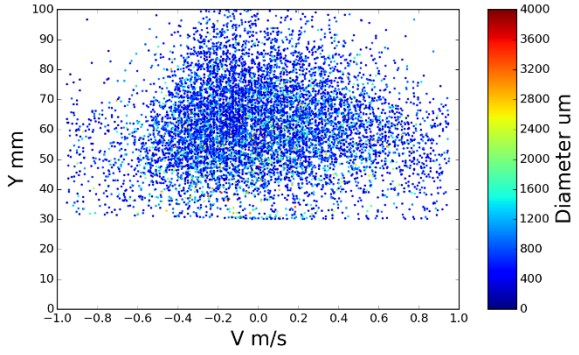


Figure C. 1894: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

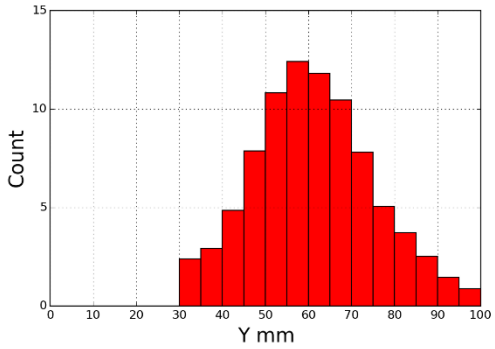


Figure C. 1892: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

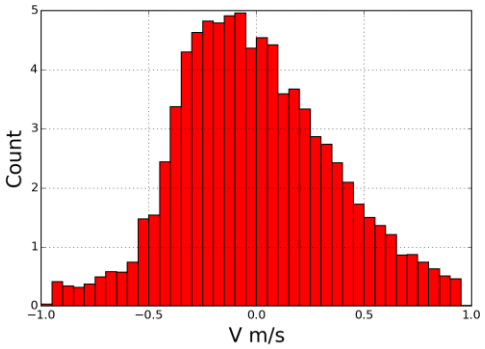


Figure C. 1895: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

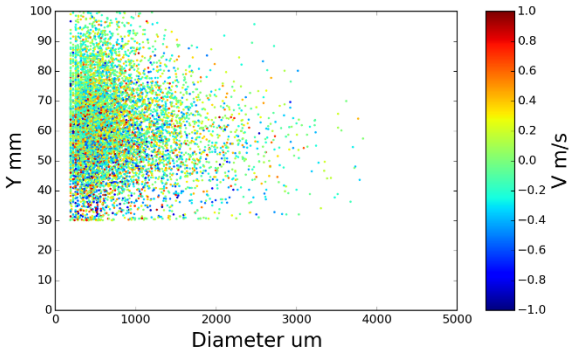


Figure C. 1893: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LB Image

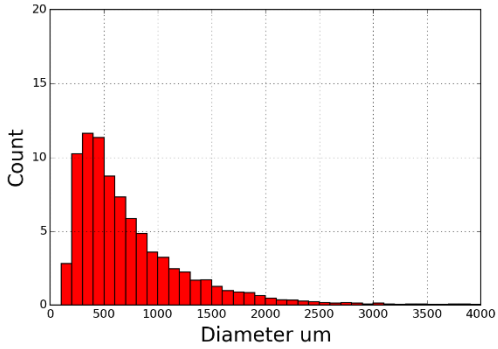


Figure C. 1896: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

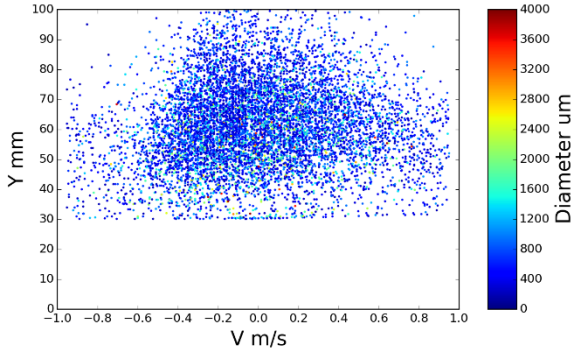


Figure C. 1899: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

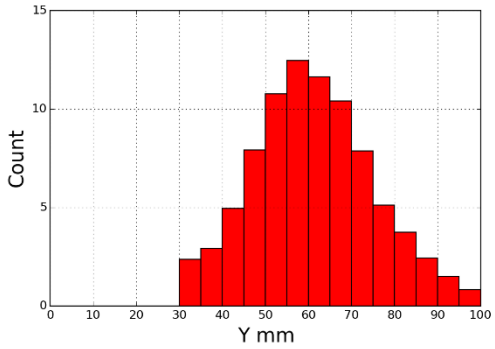


Figure C. 1897: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

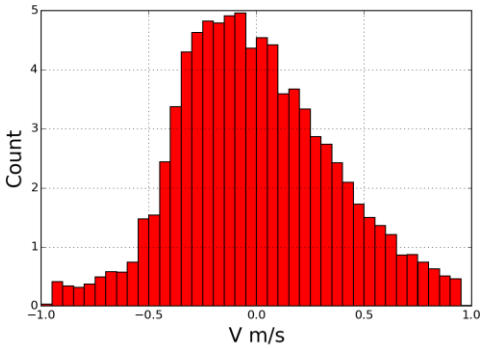


Figure C. 1900: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

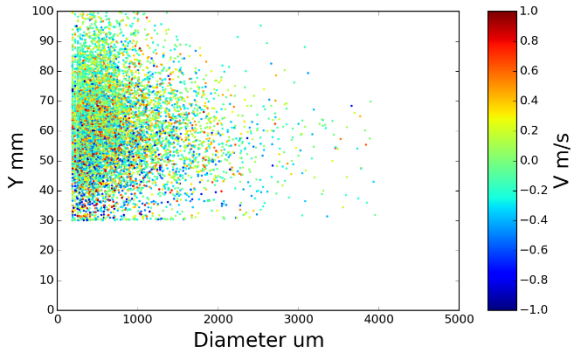


Figure C. 1898: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	18.92	17.78	170.4	3957	731.4	633.0	170.4	3958	739.1	615.3
40-60mm	57.52	56.99	182.2	3974	729.7	593.5	182.2	3970	732.3	600.8
60-80mm	42.33	42.07	170.4	3944	684.5	525.1	170.4	3963	689.6	525.1
80-100mm	11.09	11.16	170.4	2801	639.1	408.1	182.2	3596	635.1	405.2
All	129.86	128.0	170.4	3974	707.5	565.1	170.4	3970	710.7	565.0
			Height A (mm)				Height B (mm)			
Highest Particle			99.9706				99.9931			
Lowest Particle			30.1118				30.0864			

Table C. 207: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.66	182.2	3659	783.6	592.1	182.2	3755	760.6	602.3	-0.940	0.950	-0.050	0.380	-0.950	0.930	-0.050	0.430
40-60mm	32.81	182.2	3589	792.5	569.5	182.2	3842	775.2	571.2	-0.950	0.950	-0.060	0.270	-0.950	0.950	-0.010	0.400
60-80mm	30.46	182.2	3618	733.6	510.9	182.2	3963	726.4	514.8	-0.950	0.950	-0.060	0.210	-0.950	0.950	-0.010	0.340
80-100mm	8.99	193.3	2801	686.5	407.4	182.2	2676	681.7	407.5	-0.870	0.730	-0.060	0.150	-0.930	0.930	-0.010	0.280
All	78.92	182.2	3659	756.9	534.3	182.2	3963	744.4	537.1	-0.950	0.950	-0.060	0.250	-0.950	0.950	-0.010	0.370

Table C. 208: Matched Droplet Info

C.6.1.2 All Droplets for .LA Image

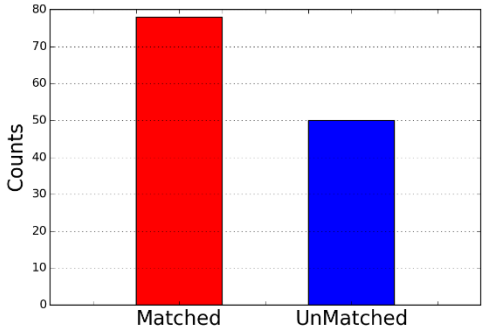


Figure C. 1901: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

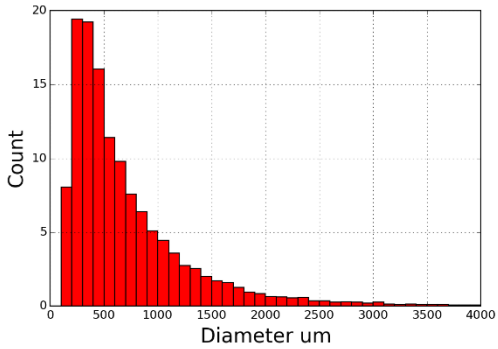


Figure C. 1902: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

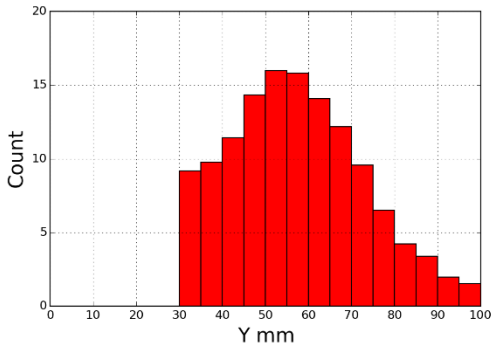


Figure C. 1903: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

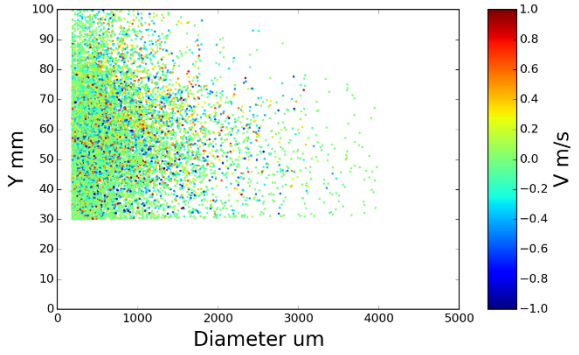


Figure C. 1904: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

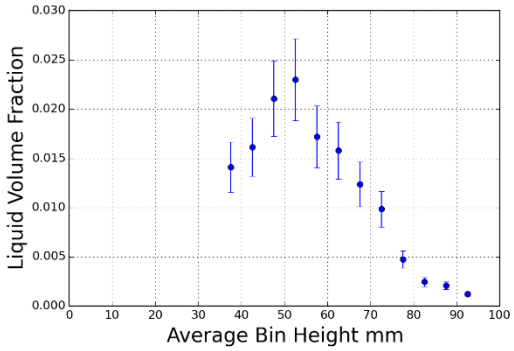


Figure C. 1905: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 All Droplets for .LB Image

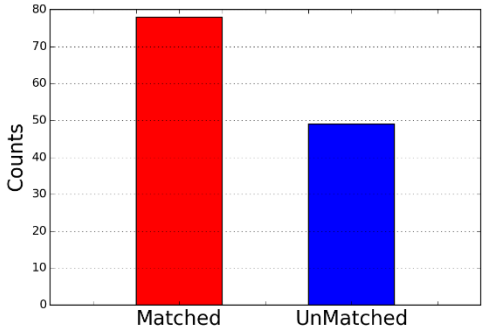


Figure C. 1906: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

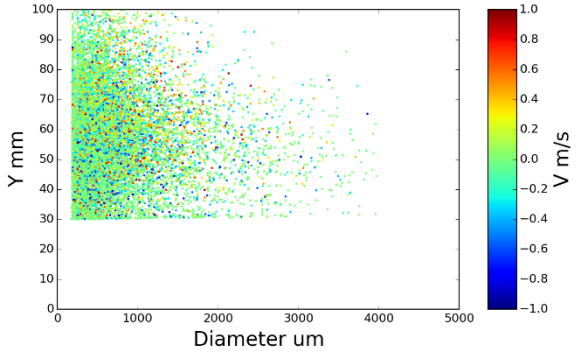


Figure C. 1909: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

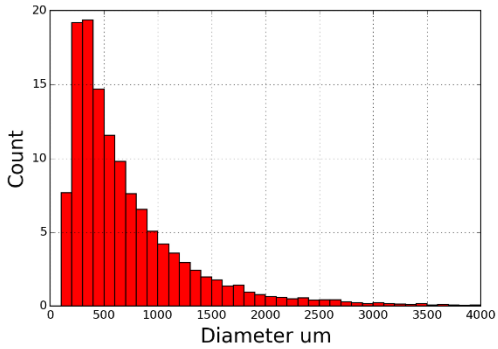


Figure C. 1907: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

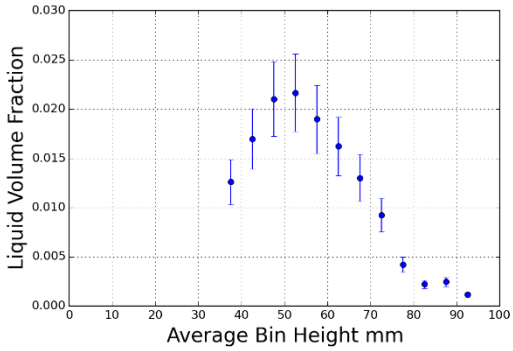


Figure C. 1910: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

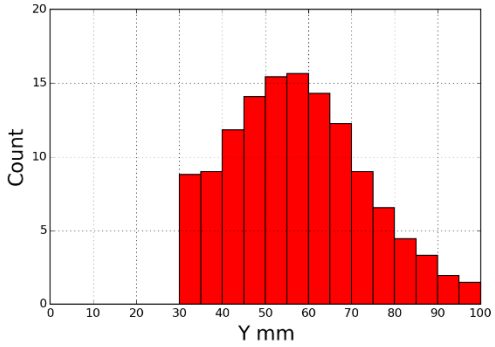


Figure C. 1908: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LA Image

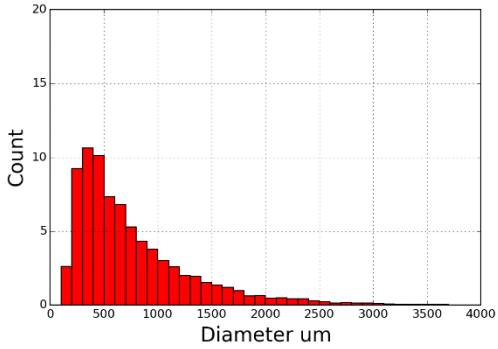


Figure C. 1911: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

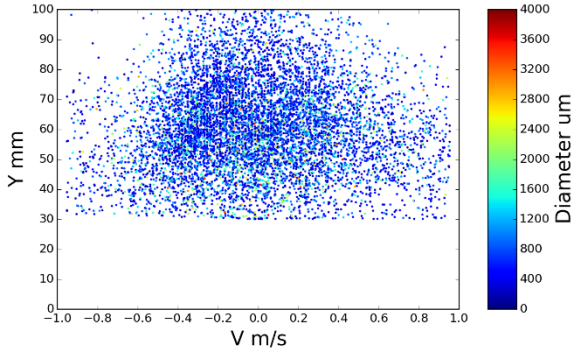


Figure C. 1914: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

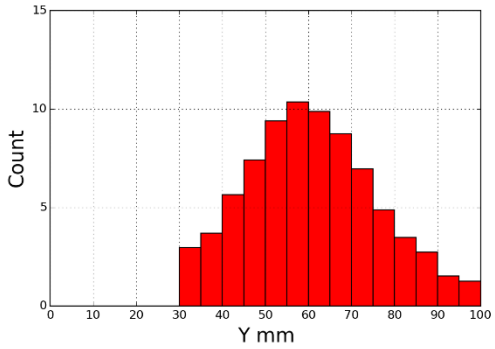


Figure C. 1912: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

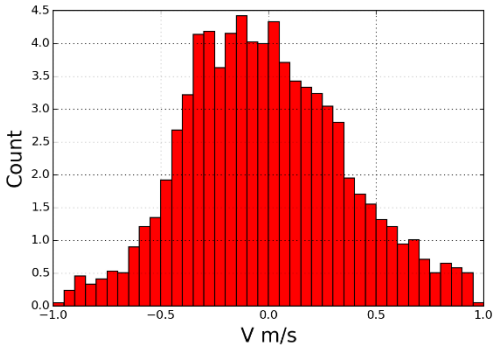


Figure C. 1915: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

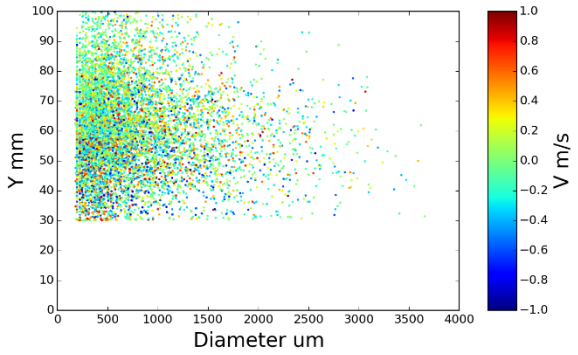


Figure C. 1913: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.1.2 Matched Only Droplets for .LB Image

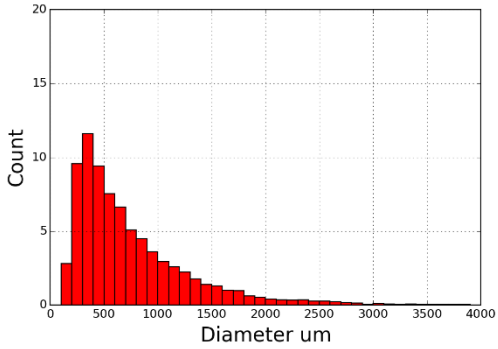


Figure C. 1916: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

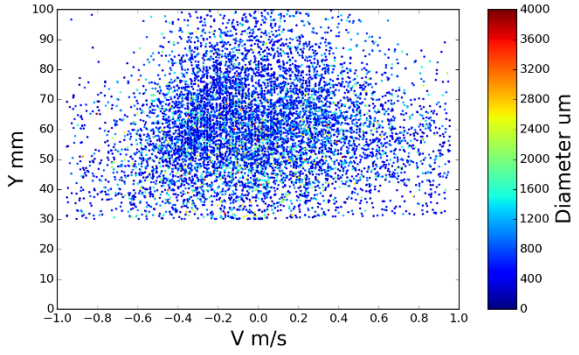


Figure C. 1919: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

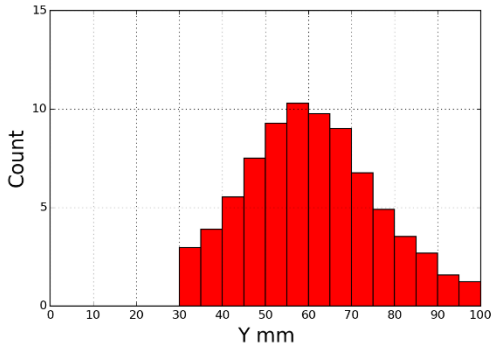


Figure C. 1917: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

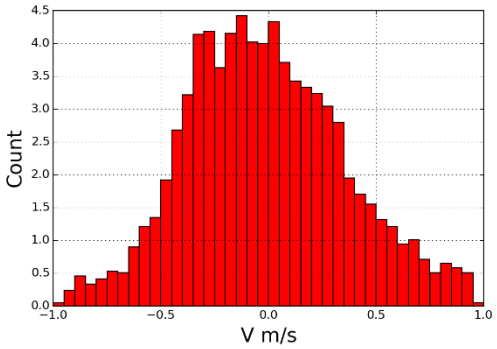


Figure C. 1920: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

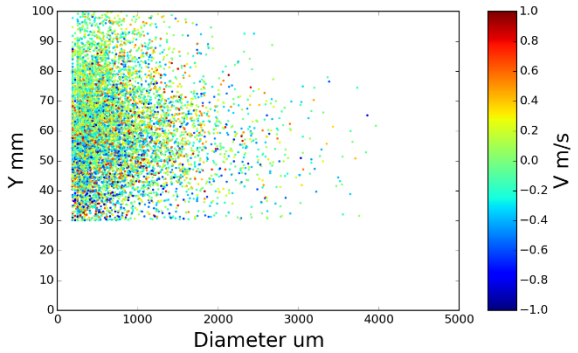


Figure C. 1918: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27461 / 3.460
Ref Mass Flow (lb/hr) / (kg/s)	1526 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14849 / 20.139
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	6624 / 20.90
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	55.0 / 12.78
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.2 / 12.89
Total Bundle Q (Btu/hr) / (kW)	141316 / 41.42
Total Bundle & Preboiler Q (Btu/hr) / (kW)	141316 / 41.42
Top Two Rows HTC Ratio	0.965
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 209: Thermal Conditions

C.6.2.1 Lens 100mm Mag 0_29x

C.6.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	53.24	53.08	76.0	3937	504.1	549.0	76.0	3942	501.5	546.1
40-60mm	140.64	139.23	76.0	4017	438.7	471.7	76.0	3922	439.6	469.5
60-80mm	77.69	75.89	76.0	3881	332.4	344.1	76.0	3434	333.1	335.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	271.89	268.43	76.0	4017	421.1	460.4	76.0	3942	421.7	457.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.7476				79.7476			
Lowest Particle			31.7871				31.7871			

Table C. 210: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	32.02	81.2	3876	555.4	530.2	76.0	3890	549.4	534.0	-0.940	0.900	-0.050	0.190	-0.950	0.950	-0.080	0.290
40-60mm	97.97	76.0	3636	481.2	462.2	76.0	3906	479.5	465.5	-0.950	0.950	-0.060	0.170	-0.950	0.950	-0.030	0.270
60-80mm	58.62	81.2	3316	367.0	348.5	81.2	3434	364.4	345.4	-0.950	0.950	-0.070	0.140	-0.950	0.950	-0.000	0.220
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	188.61	76.0	3876	458.3	448.2	76.0	3906	455.6	450.0	-0.950	0.950	-0.060	0.160	-0.950	0.950	-0.030	0.260

Table C. 211: Matched Droplet Info

C.6.2.1 All Droplets for .LA Image

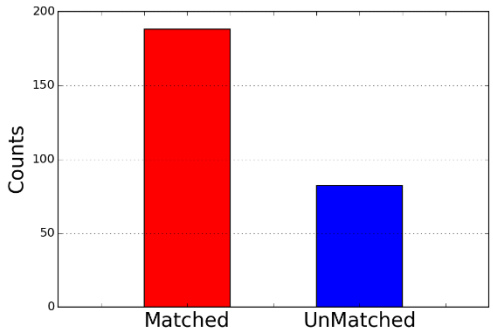


Figure C. 1921: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

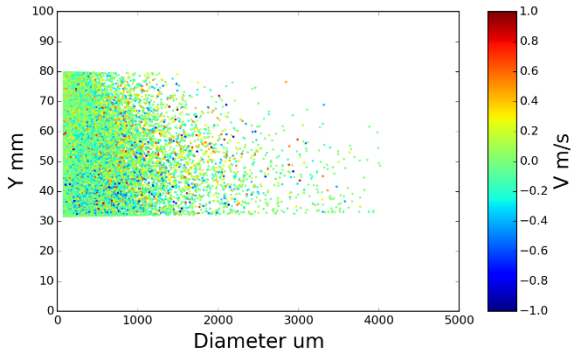


Figure C. 1924: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

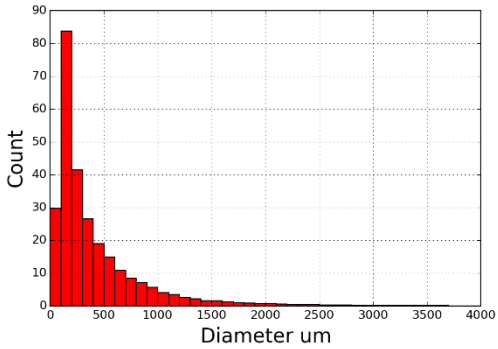


Figure C. 1922: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

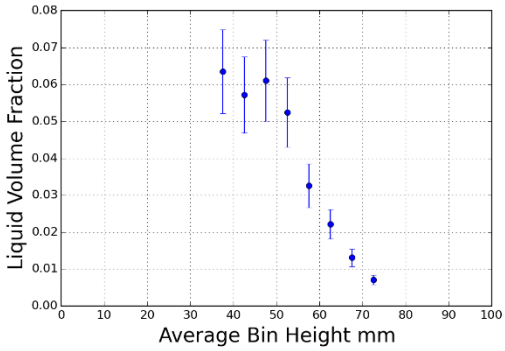


Figure C. 1925: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

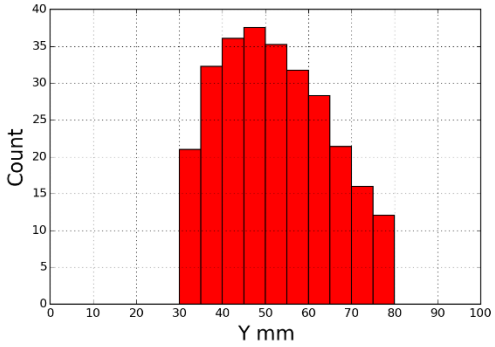


Figure C. 1923: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 All Droplets for .LB Image

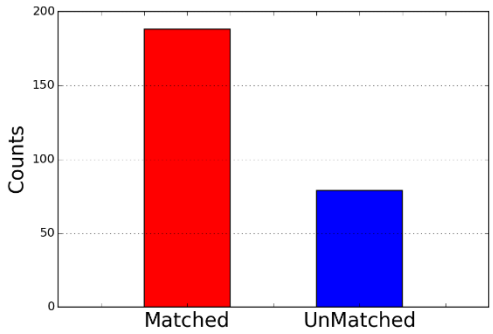


Figure C. 1926: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

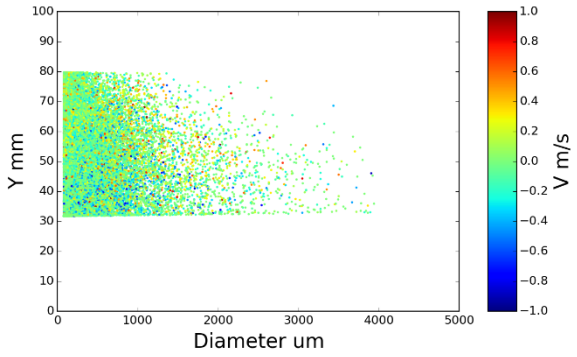


Figure C. 1929: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

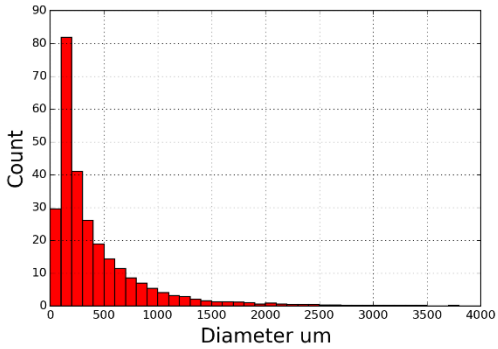


Figure C. 1927: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

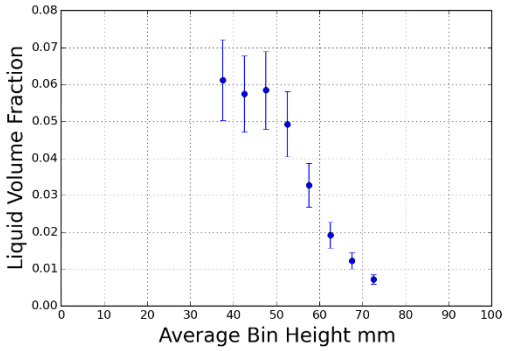


Figure C. 1930: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

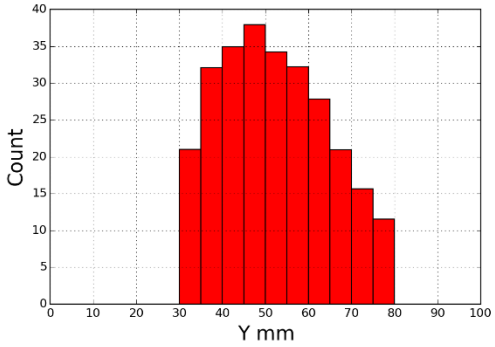


Figure C. 1928: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LA Image

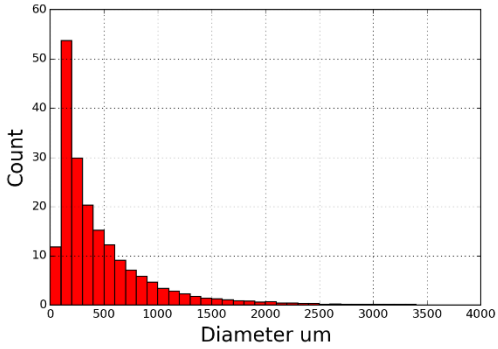


Figure C. 1931: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

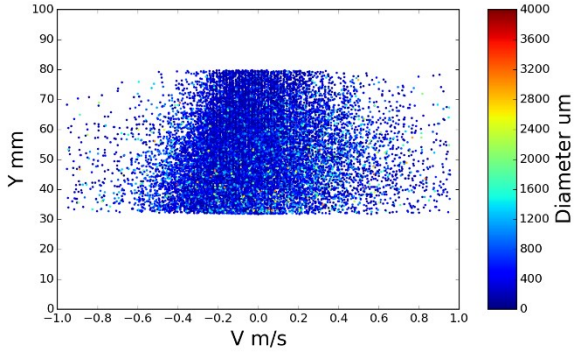


Figure C. 1934: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

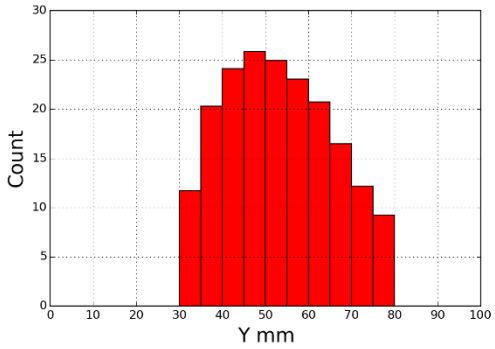


Figure C. 1932: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

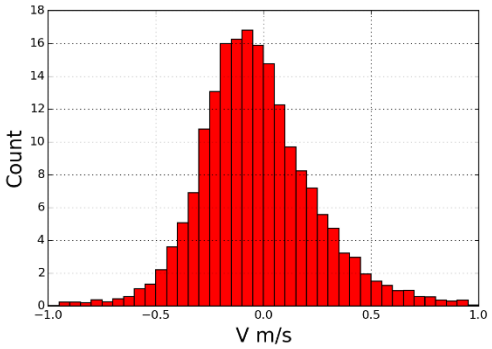


Figure C. 1935: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

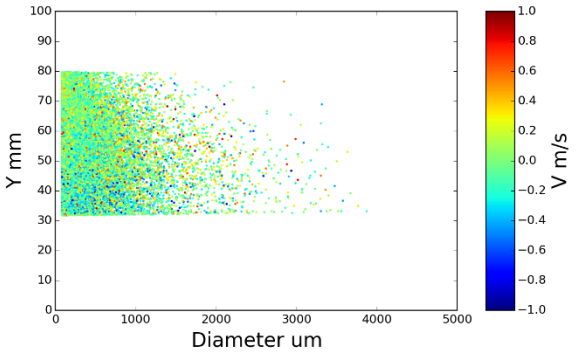


Figure C. 1933: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LB Image

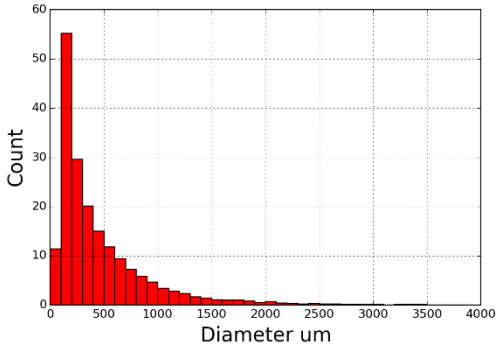


Figure C. 1936: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

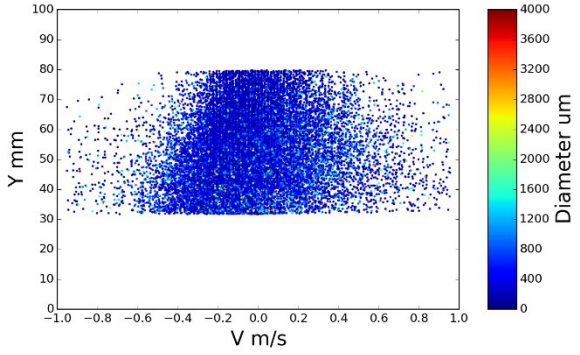


Figure C. 1939: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

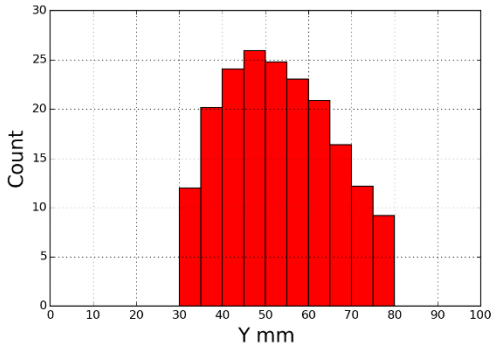


Figure C. 1937: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

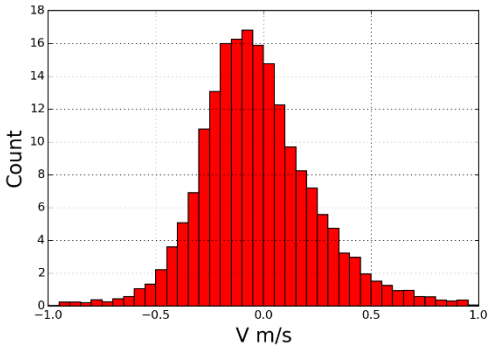


Figure C. 1940: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

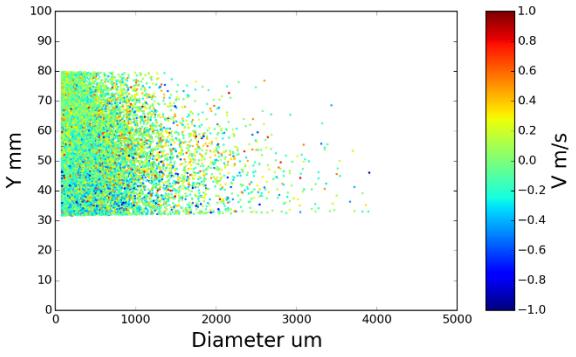


Figure C. 1938: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	65.76	64.89	76.0	3994	508.6	523.7	76.0	4018	501.8	512.8
40-60mm	171.3	170.7	76.0	3986	450.7	463.0	76.0	3964	452.6	468.7
60-80mm	97.89	97.42	76.0	3276	332.0	322.8	76.0	3212	334.3	322.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	335.02	333.18	76.0	3994	427.4	445.1	76.0	4018	427.6	445.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.7482				79.7476			
Lowest Particle			31.7871				31.7871			

Table C. 212: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	39.77	81.2	3634	555.1	504.4	76.0	3857	549.9	510.4	-0.950	0.940	-0.060	0.200	-0.940	0.950	0.010	0.320
40-60mm	121.64	81.2	3842	491.1	457.5	81.2	3956	488.8	459.4	-0.950	0.950	-0.050	0.170	-0.950	0.950	0.040	0.290
60-80mm	75.8	81.2	3276	366.7	335.3	81.2	3212	364.2	332.2	-0.950	0.930	-0.060	0.140	-0.950	0.950	0.070	0.260
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	237.21	81.2	3842	462.1	436.7	76.0	3956	459.1	438.0	-0.950	0.950	-0.060	0.170	-0.950	0.950	0.040	0.290

Table C. 213: Matched Droplet Info

C.6.2.1 All Droplets for .LA Image

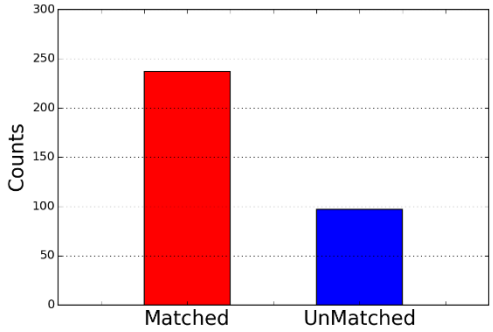


Figure C. 1941: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

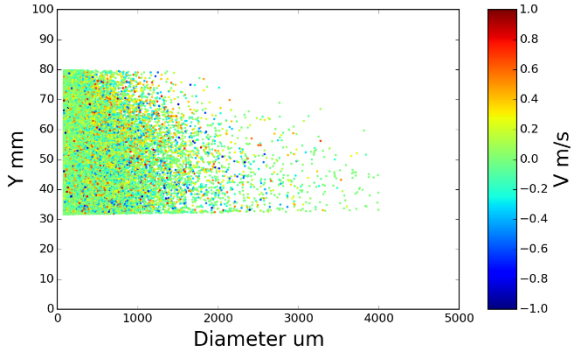


Figure C. 1944: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

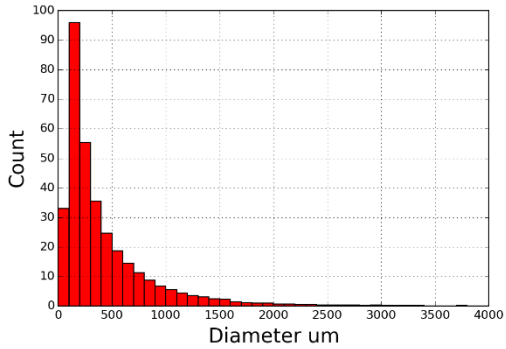


Figure C. 1942: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

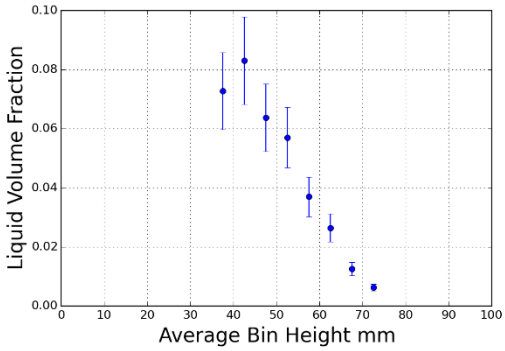


Figure C. 1945: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

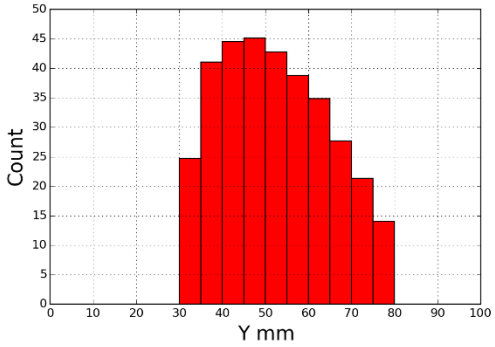


Figure C. 1943: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 All Droplets for .LB Image

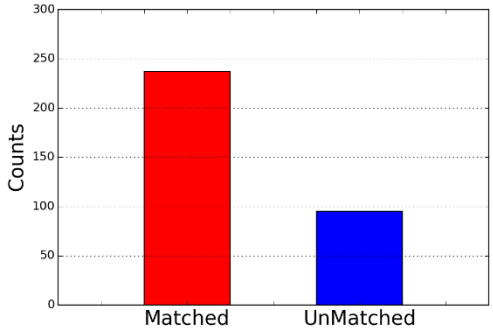


Figure C. 1946: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

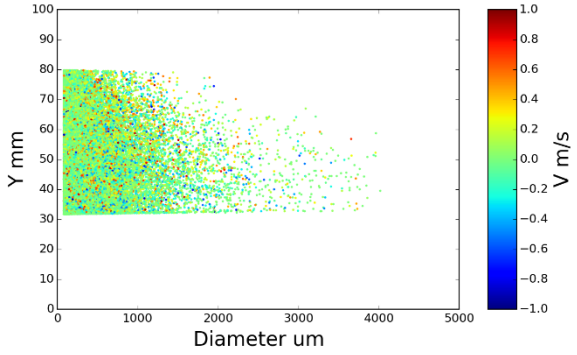


Figure C. 1949: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

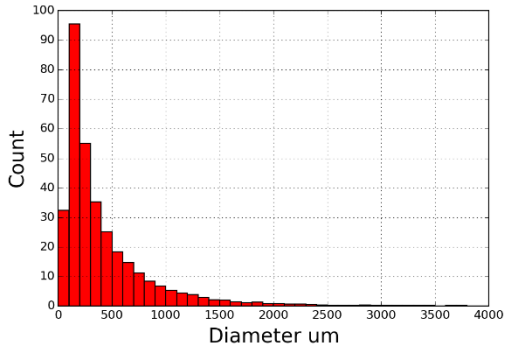


Figure C. 1947: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

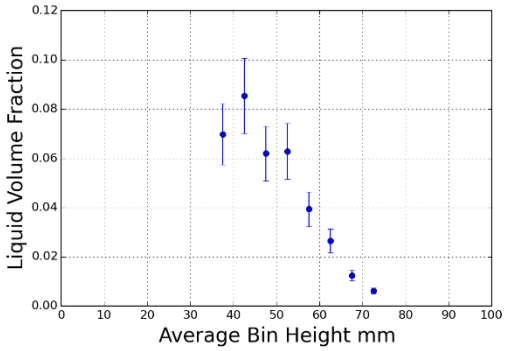


Figure C. 1950: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

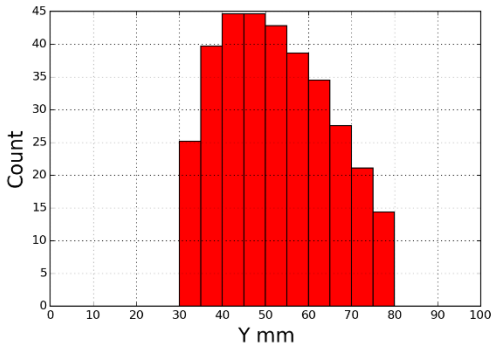


Figure C. 1948: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LA Image

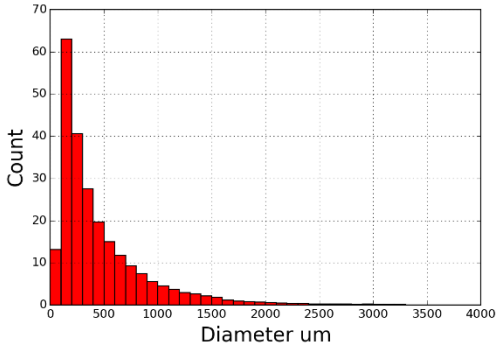


Figure C. 1951: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

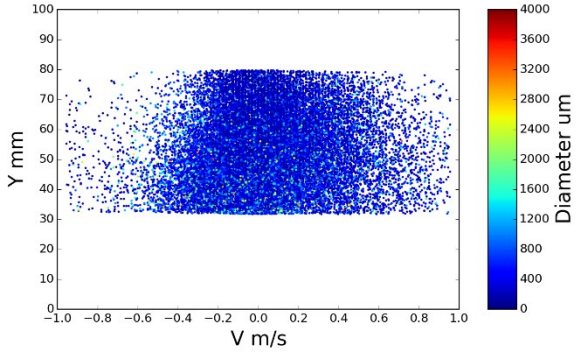


Figure C. 1954: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

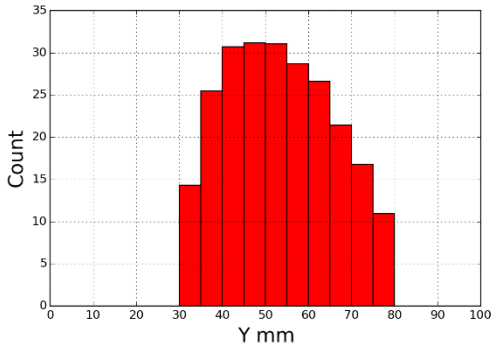


Figure C. 1952: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

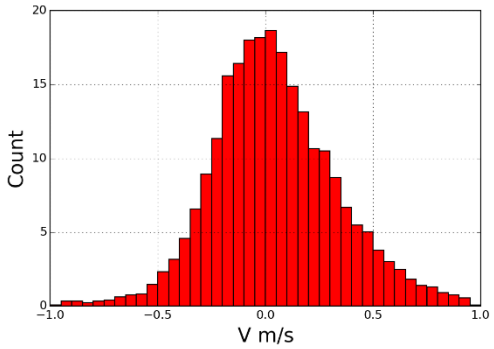


Figure C. 1955: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

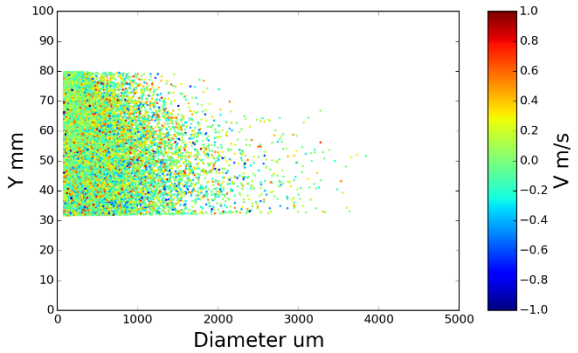


Figure C. 1953: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LB Image

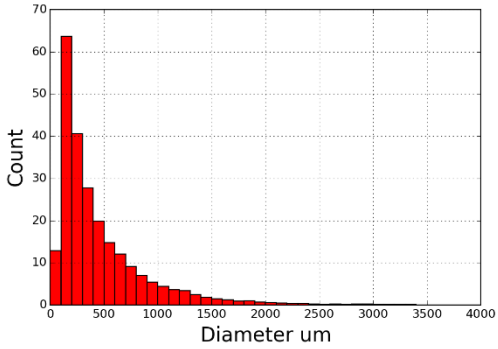


Figure C. 1956: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

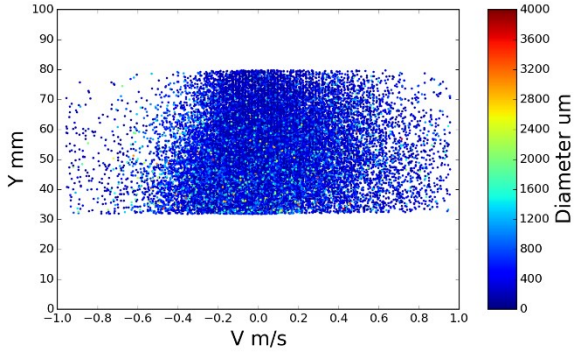


Figure C. 1959: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

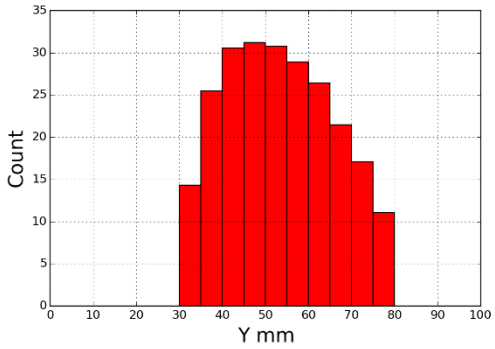


Figure C. 1957: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

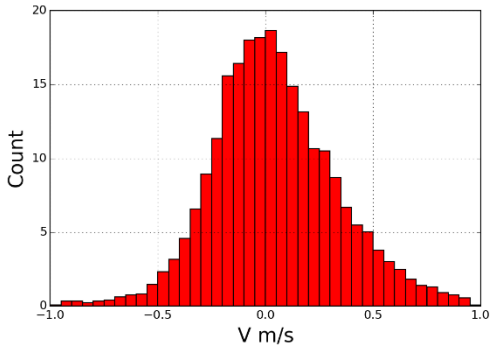


Figure C. 1960: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

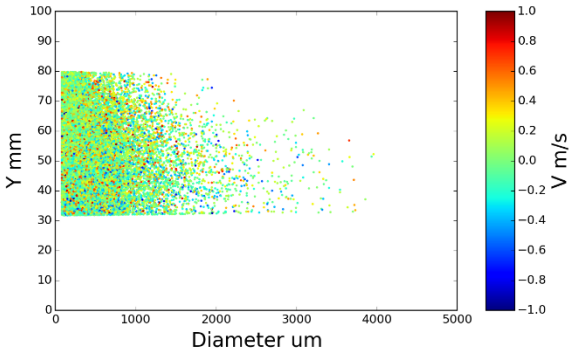


Figure C. 1958: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	71.8	72.57	76.0	3999	502.5	523.5	76.0	4009	498.5	523.9
40-60mm	176.38	174.0	76.0	3974	426.1	442.3	76.0	3922	433.3	446.7
60-80mm	90.83	90.37	76.0	3485	323.8	323.2	76.0	3497	325.9	323.1
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	339.12	337.13	76.0	3999	414.9	437.9	76.0	4009	418.5	440.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.7487				79.7603			
Lowest Particle			31.7871				31.7871			

Table C. 214: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	43.22	81.2	3795	552.6	512.1	81.2	3869	546.5	515.1	-0.950	0.950	-0.050	0.210	-0.950	0.950	0.060	0.330
40-60mm	122.38	81.2	3874	469.6	439.2	81.2	3922	467.2	441.7	-0.950	0.950	-0.050	0.180	-0.950	0.950	0.070	0.300
60-80mm	70.56	81.2	3325	354.7	331.5	76.0	3497	352.3	330.3	-0.950	0.950	-0.060	0.140	-0.950	0.950	0.050	0.240
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	236.16	81.2	3874	450.5	430.9	76.0	3922	447.2	432.2	-0.950	0.950	-0.050	0.170	-0.950	0.950	0.060	0.290

Table C. 215: Matched Droplet Info

C.6.2.1 All Droplets for .LA Image

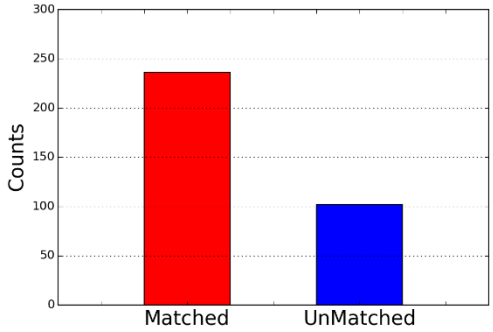


Figure C. 1961: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

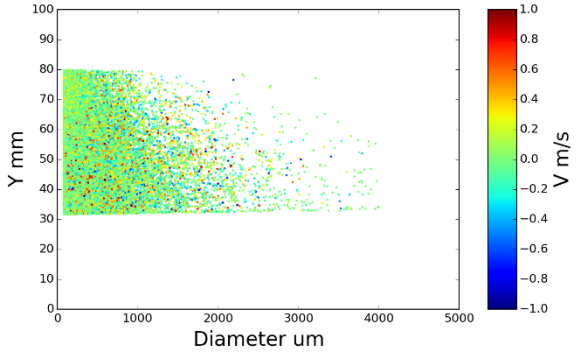


Figure C. 1964: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

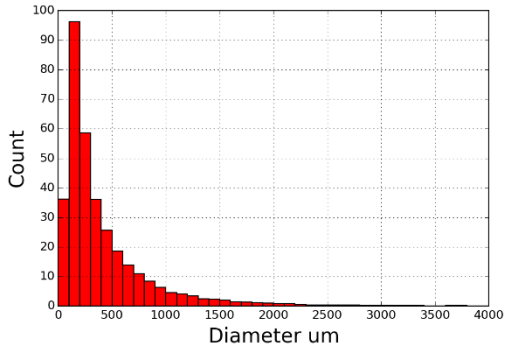


Figure C. 1962: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

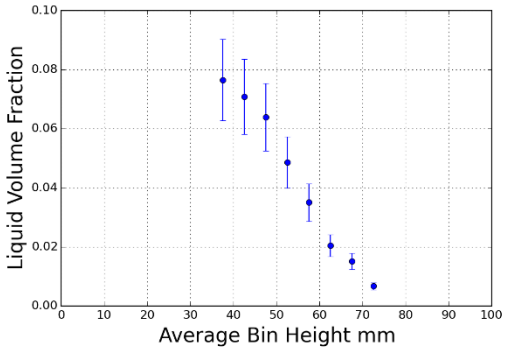


Figure C. 1965: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

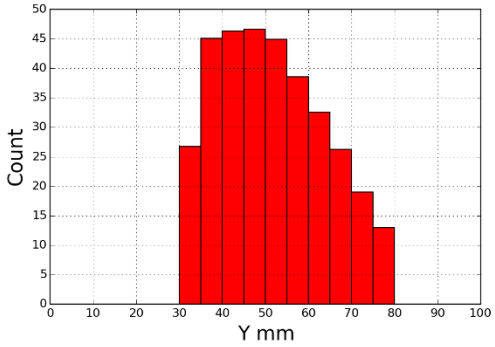


Figure C. 1963: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 All Droplets for .LB Image

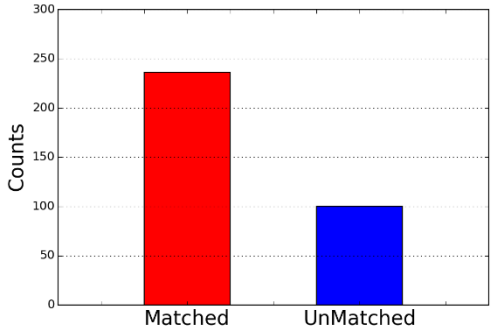


Figure C. 1966: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

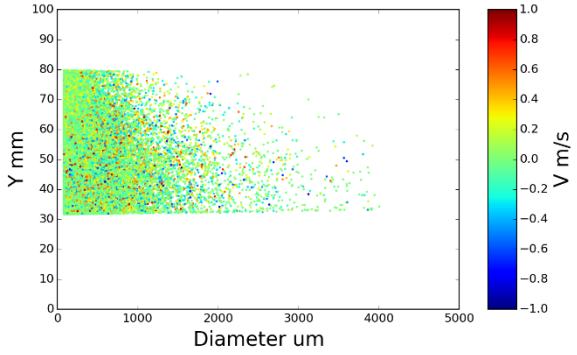


Figure C. 1969: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

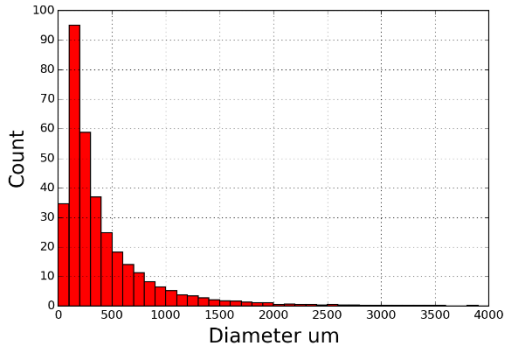


Figure C. 1967: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

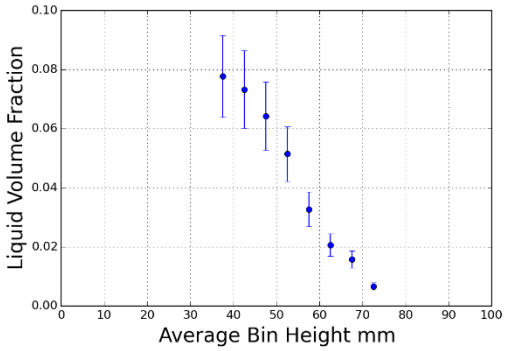


Figure C. 1970: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

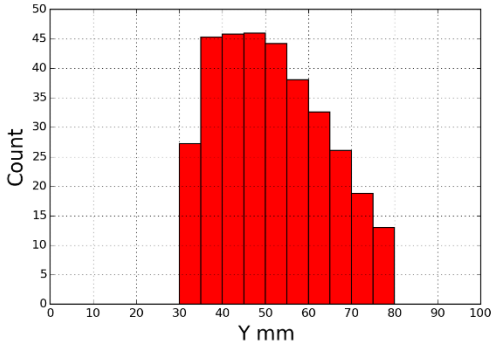


Figure C. 1968: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LA Image

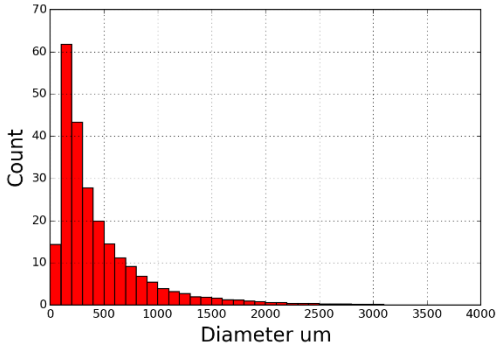


Figure C. 1971: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

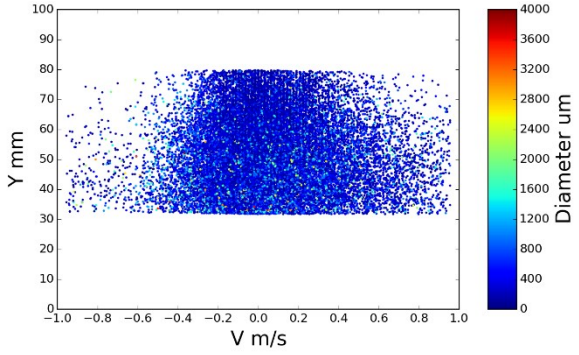


Figure C. 1974: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

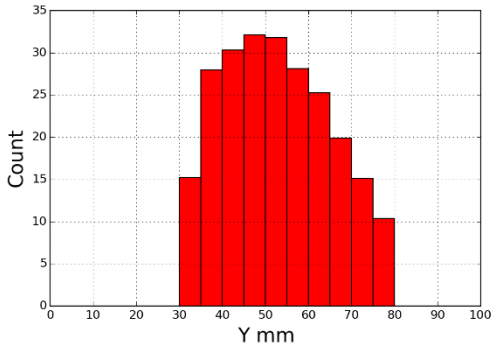


Figure C. 1972: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

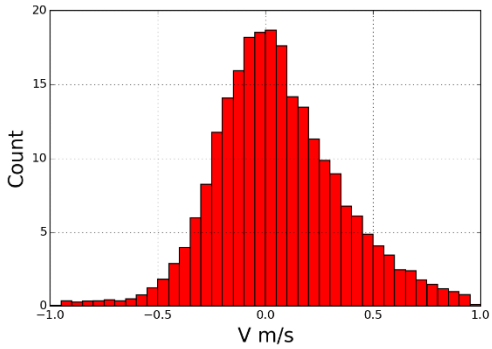


Figure C. 1975: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

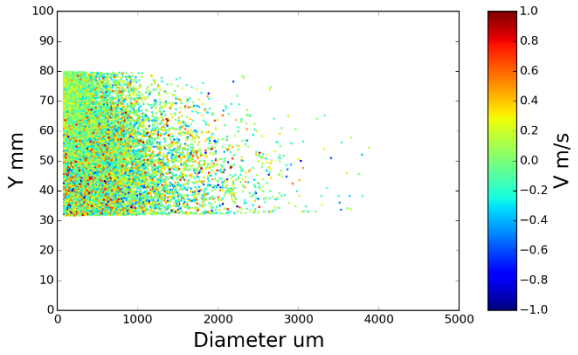


Figure C. 1973: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.1 Matched Only Droplets for .LB Image

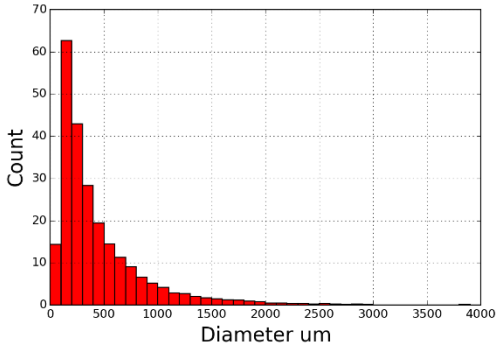


Figure C. 1976: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

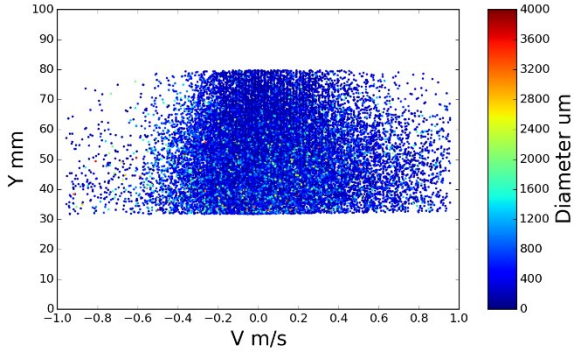


Figure C. 1979: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

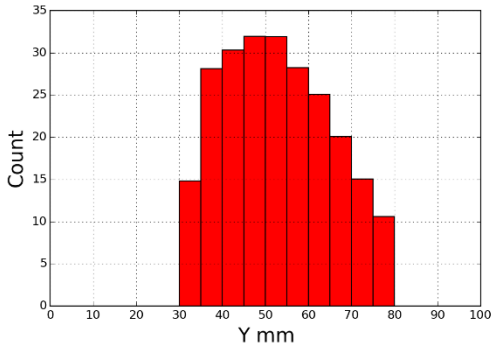


Figure C. 1977: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

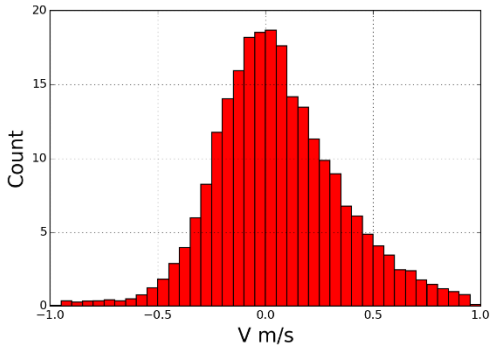


Figure C. 1980: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

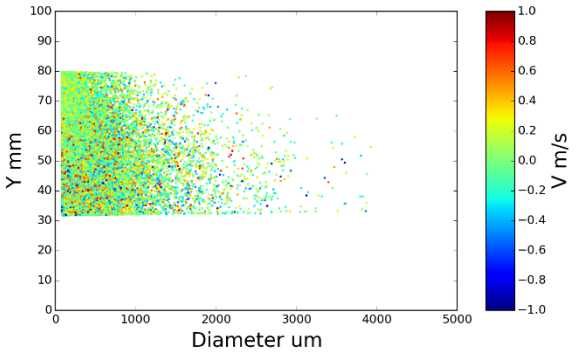


Figure C. 1978: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Lens 50mm Mag 0_13x

C.6.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	57.74	56.78	170.4	3960	743.6	622.4	170.4	3965	742.7	617.1
40-60mm	76.07	75.86	170.4	3996	677.0	546.2	170.4	3992	678.3	542.0
60-80mm	32.71	32.77	170.4	3927	583.9	414.5	182.2	3502	587.1	412.6
80-100mm	6.49	6.42	182.2	1837	462.1	267.0	170.4	1938	467.9	282.4
All	173.56	172.45	170.4	3996	672.9	547.6	170.4	3992	673.6	543.1
			Height A (mm)				Height B (mm)			
Highest Particle			108.7564				108.4367			
Lowest Particle			20.0957				20.1176			

Table C. 216: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	27.96	182.2	3644	804.8	589.7	182.2	3965	785.0	597.0	-0.950	0.950	-0.050	0.310	-0.950	0.950	-0.080	0.380
40-60mm	48.33	182.2	3582	706.8	504.1	182.2	3992	702.0	513.8	-0.950	0.950	-0.070	0.250	-0.950	0.950	-0.050	0.350
60-80mm	24.39	193.3	3261	627.3	412.6	193.3	3502	628.2	418.9	-0.940	0.940	-0.070	0.180	-0.950	0.950	-0.040	0.290
80-100mm	5.14	182.2	1837	492.4	273.6	193.3	1938	493.7	278.8	-0.790	0.950	-0.070	0.130	-0.900	0.730	-0.060	0.220
All	106.31	182.2	3644	703.0	506.4	182.2	3992	696.2	513.6	-0.950	0.950	-0.070	0.250	-0.950	0.950	-0.060	0.340

Table C. 217: Matched Droplet Info

C.6.2.2 All Droplets for .LA Image

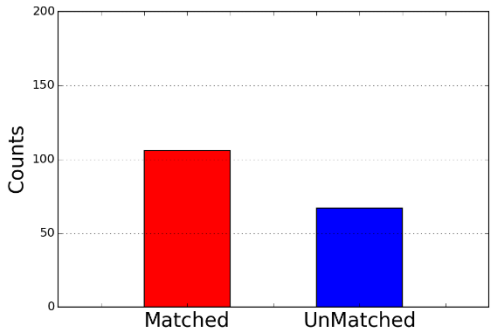


Figure C. 1981: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

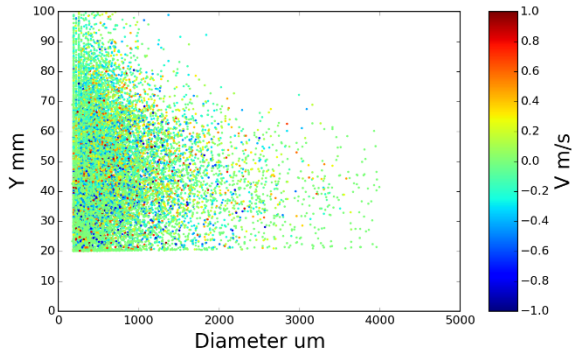


Figure C. 1984: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

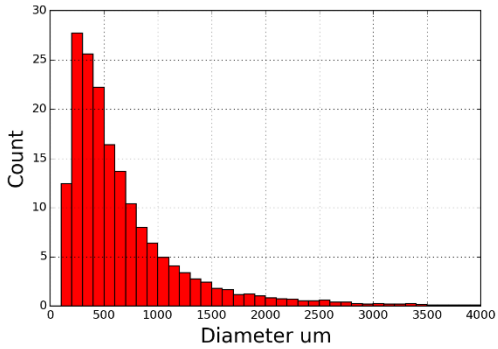


Figure C. 1982: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

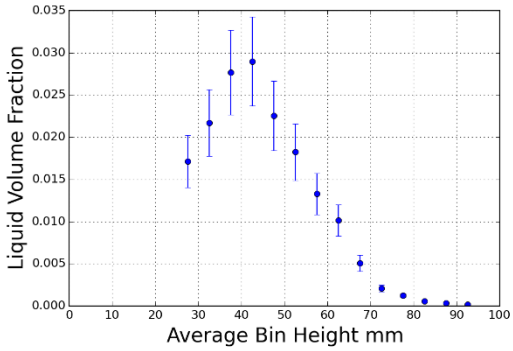


Figure C. 1985: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

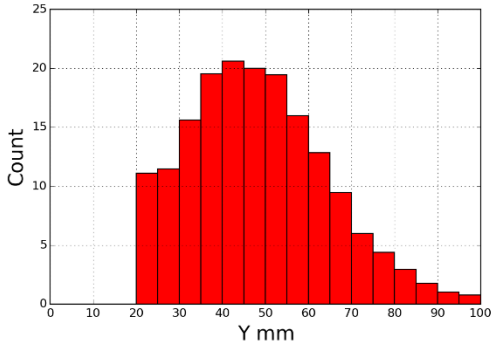


Figure C. 1983: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 All Droplets for .LB Image

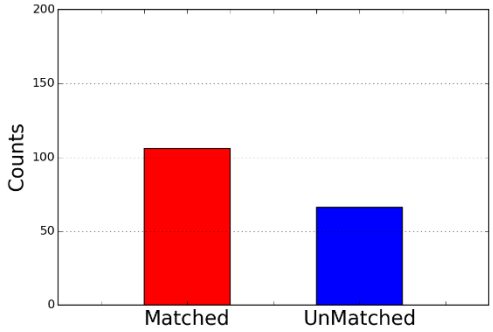


Figure C. 1986: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

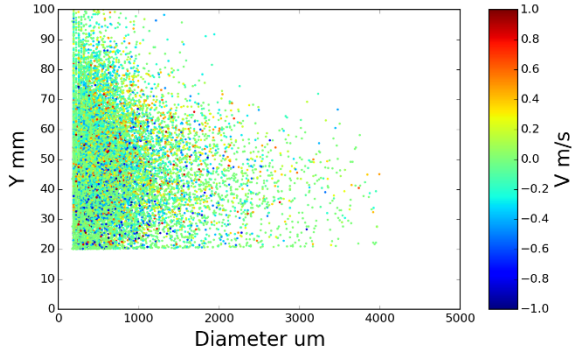


Figure C. 1989: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

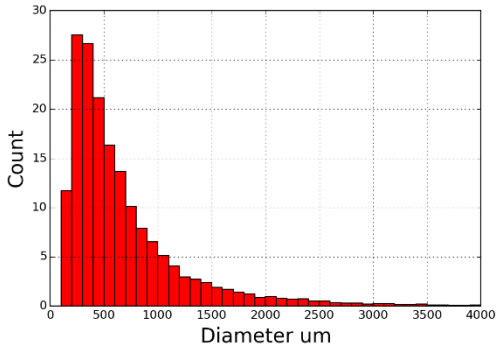


Figure C. 1987: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

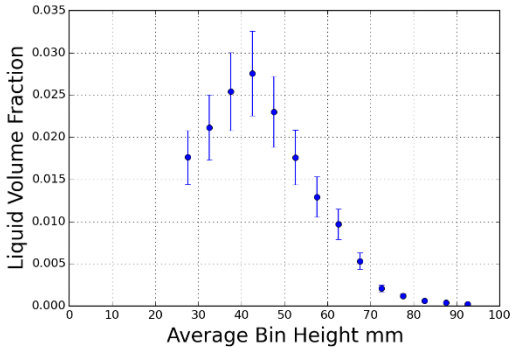


Figure C. 1990: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

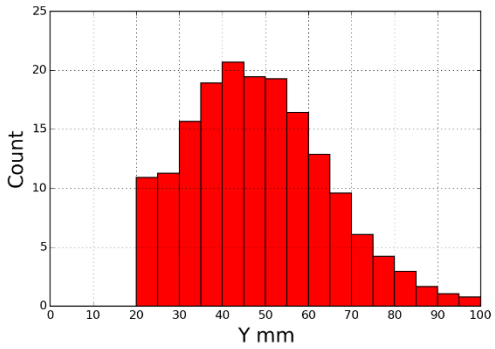


Figure C. 1988: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LA Image

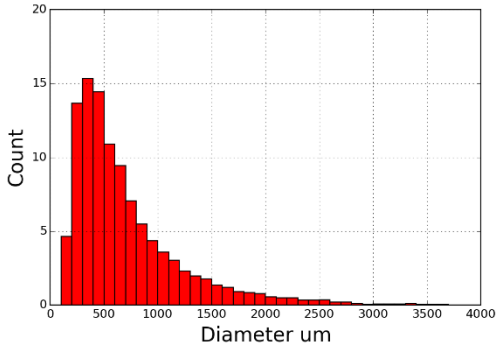


Figure C. 1991: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

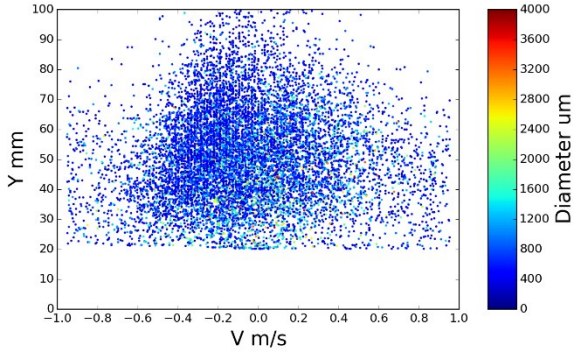


Figure C. 1994: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

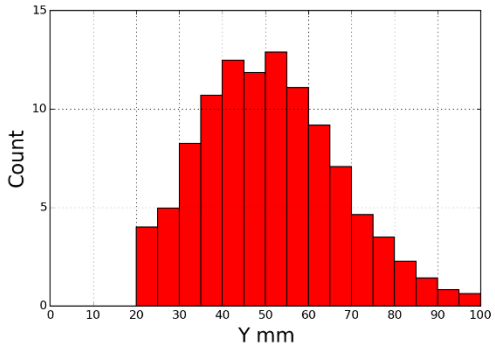


Figure C. 1992: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

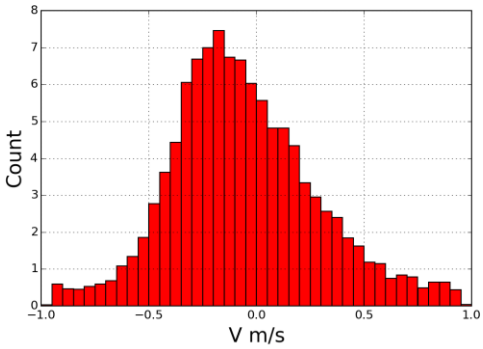


Figure C. 1995: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

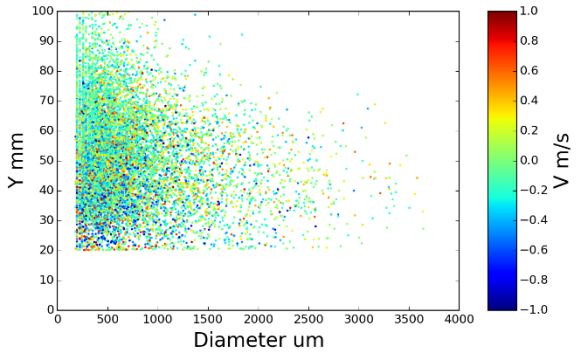


Figure C. 1993: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LB Image

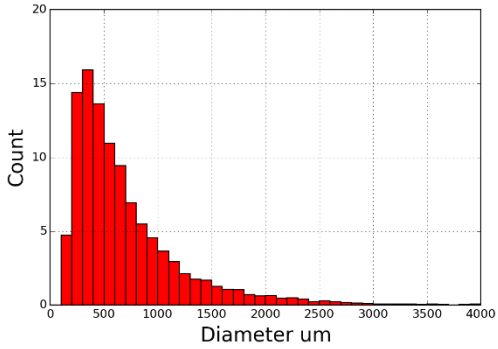


Figure C. 1996: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

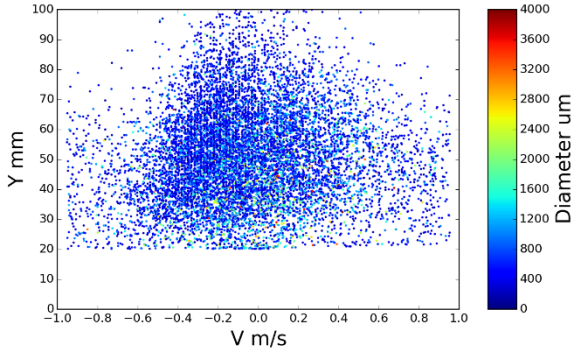


Figure C. 1999: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

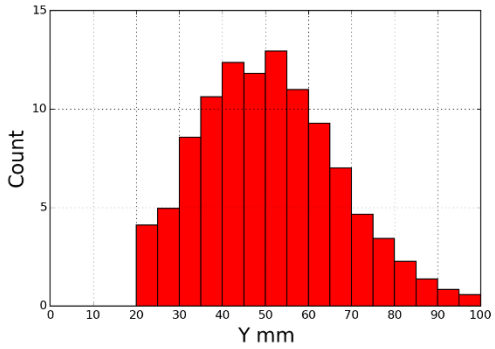


Figure C. 1997: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

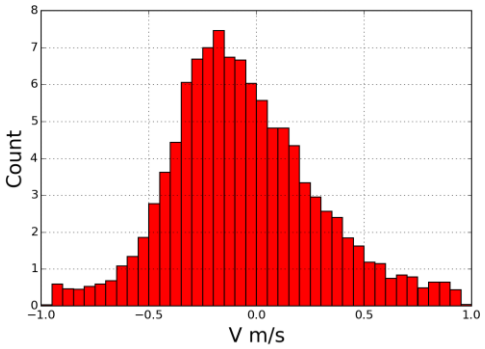


Figure C. 2000: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

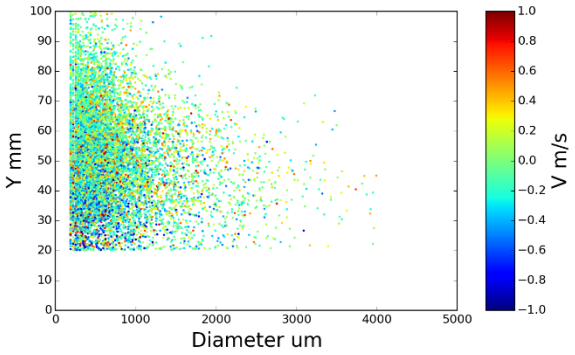


Figure C. 1998: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	68.61	66.88	170.4	3920	716.3	590.0	170.4	3988	717.4	599.8
40-60mm	98.23	98.94	170.4	3981	640.9	497.9	170.4	3982	636.6	496.9
60-80mm	44.99	44.38	170.4	3435	545.9	369.2	182.2	3842	549.5	369.8
80-100mm	8.96	8.94	182.2	3382	491.6	340.5	182.2	3103	488.9	304.8
All	221.69	220.09	170.4	3981	638.2	504.8	170.4	3988	636.9	506.5
			Height A (mm)				Height B (mm)			
Highest Particle			108.0999				108.6708			
Lowest Particle			20.0957				20.0957			

Table C. 218: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	31.98	182.2	3872	771.1	563.2	182.2	3952	751.2	567.9	-0.950	0.950	-0.060	0.330	-0.950	0.950	-0.050	0.400
40-60mm	61.6	182.2	3981	690.6	494.3	182.2	3955	678.4	488.4	-0.950	0.950	-0.050	0.270	-0.950	0.950	-0.030	0.360
60-80mm	32.4	182.2	3287	593.5	377.2	182.2	3383	587.0	372.3	-0.950	0.950	-0.060	0.200	-0.950	0.950	-0.030	0.300
80-100mm	7.2	182.2	2307	509.2	286.9	193.3	2131	517.4	292.6	-0.890	0.950	-0.080	0.160	-0.890	0.950	-0.020	0.240
All	133.88	182.2	3981	675.6	482.7	182.2	3955	664.3	479.9	-0.950	0.950	-0.060	0.270	-0.950	0.950	-0.030	0.350

Table C. 219: Matched Droplet Info

C.6.2.2 All Droplets for .LA Image

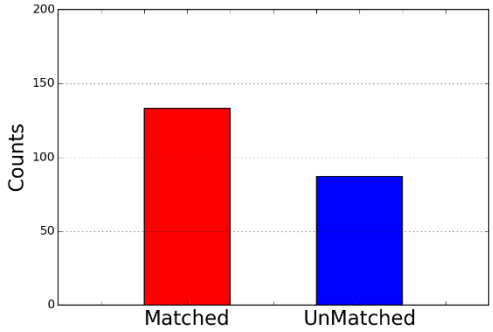


Figure C. 2001: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

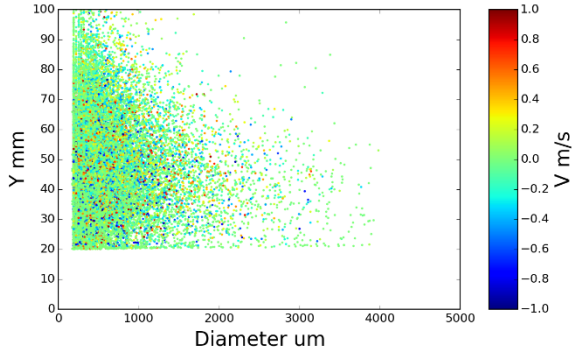


Figure C. 2004: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

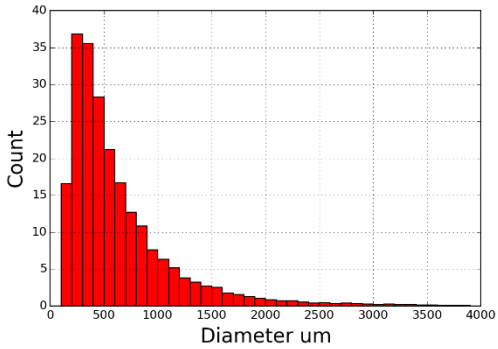


Figure C. 2002: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

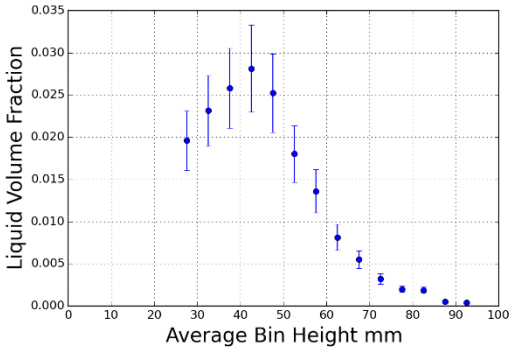


Figure C. 2005: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

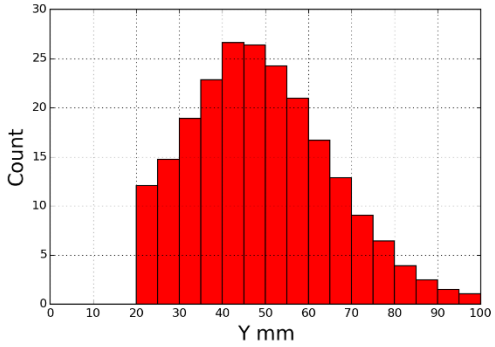


Figure C. 2003: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 All Droplets for .LB Image

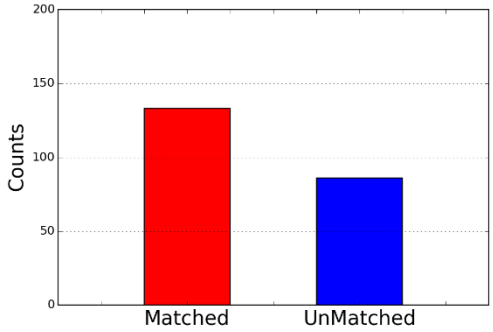


Figure C. 2006: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

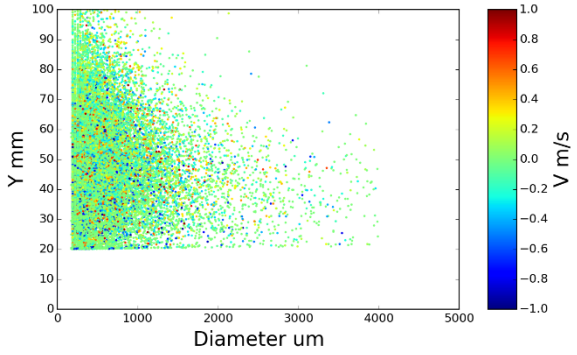


Figure C. 2009: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

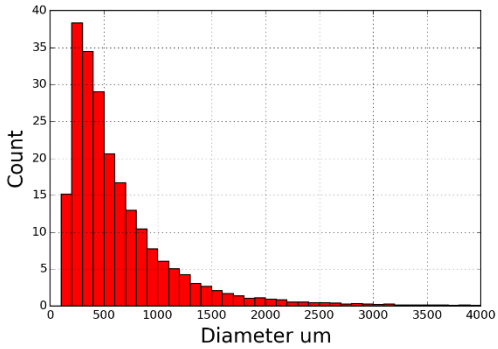


Figure C. 2007: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

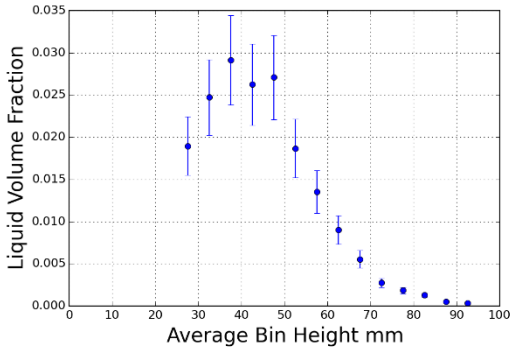


Figure C. 2010: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

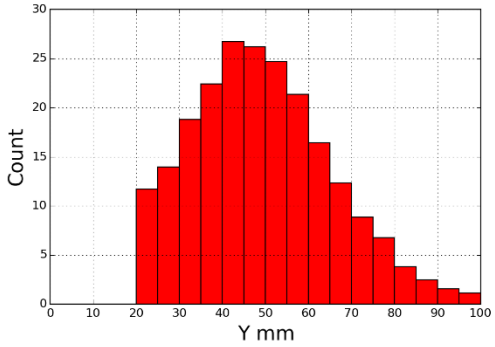


Figure C. 2008: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LA Image

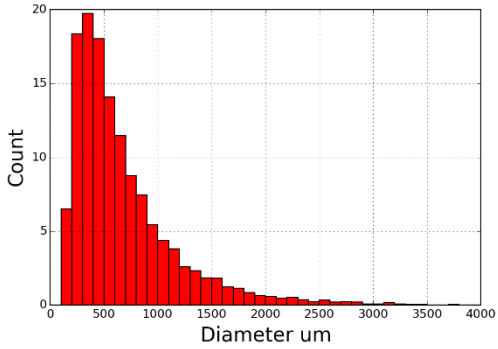


Figure C. 2011: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

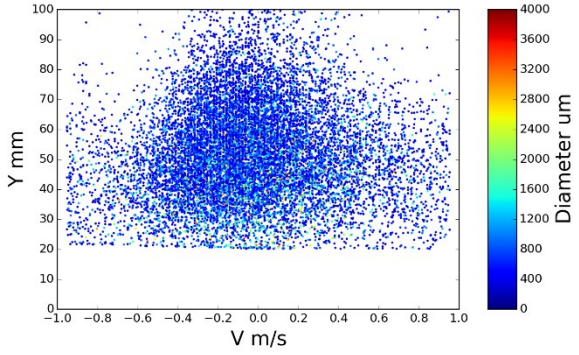


Figure C. 2014: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

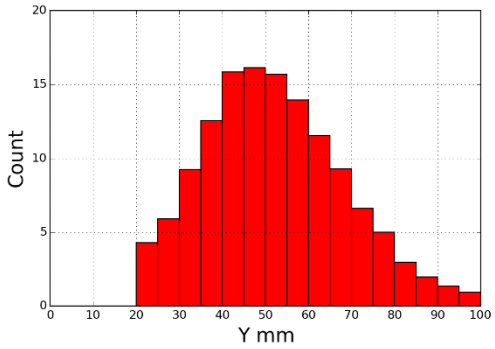


Figure C. 2012: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

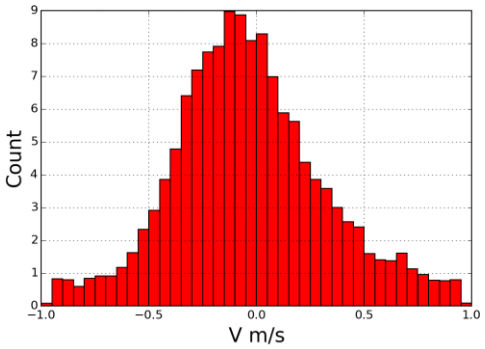


Figure C. 2015: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

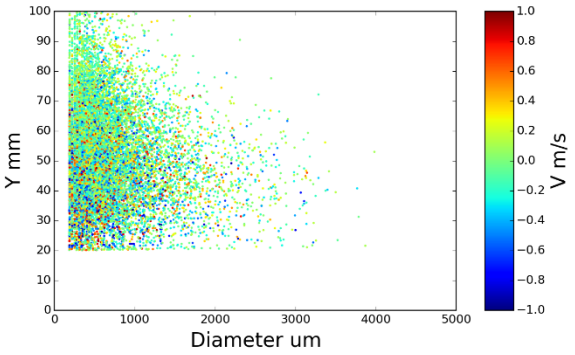


Figure C. 2013: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LB Image

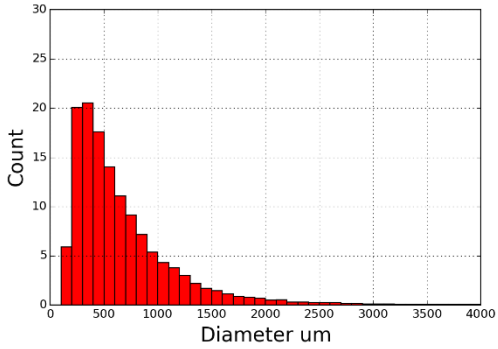


Figure C. 2016: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

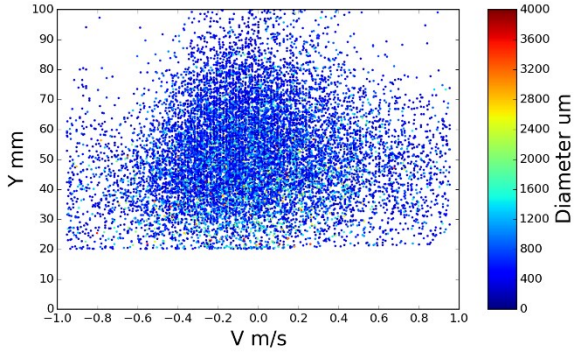


Figure C. 2019: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

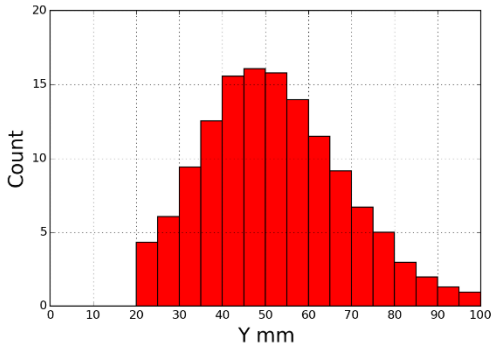


Figure C. 2017: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

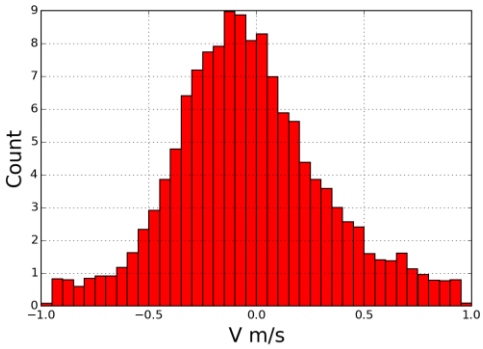


Figure C. 2020: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

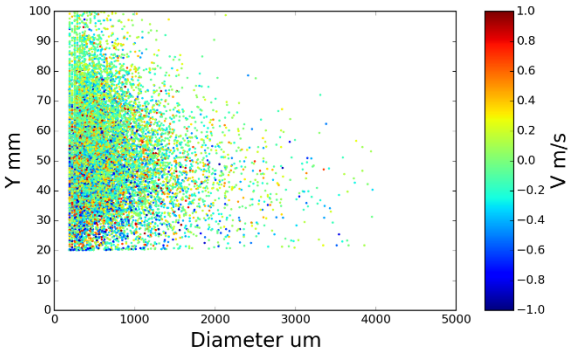


Figure C. 2018: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	77.62	79.83	170.4	3950	695.7	572.1	170.4	3920	696.2	574.3
40-60mm	116.14	115.78	170.4	3964	624.9	490.9	170.4	3922	630.0	498.1
60-80mm	58.11	58.04	170.4	3898	550.6	391.4	170.4	3885	551.4	393.8
80-100mm	12.59	12.39	182.2	2151	482.7	292.4	182.2	2214	490.3	300.5
All	265.71	267.31	170.4	3964	621.8	492.6	170.4	3922	625.3	497.8
			Height A (mm)				Height B (mm)			
Highest Particle			109.5843				109.6128			
Lowest Particle			20.1185				20.0957			

Table C. 220: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	36.38	182.2	3574	758.5	553.6	170.4	3882	737.6	553.2	-0.950	0.950	-0.070	0.370	-0.950	0.950	-0.010	0.430
40-60mm	71.81	182.2	3697	682.0	490.4	182.2	3879	670.4	487.6	-0.950	0.950	-0.070	0.290	-0.950	0.950	0.000	0.380
60-80mm	40.3	182.2	3588	598.1	395.9	182.2	3885	594.4	398.8	-0.950	0.950	-0.080	0.220	-0.950	0.950	0.020	0.320
80-100mm	9.15	193.3	2151	531.0	297.0	193.3	2214	530.1	302.1	-0.860	0.900	-0.080	0.150	-0.950	0.940	0.010	0.260
All	158.61	182.2	3697	668.3	478.6	170.4	3885	657.3	477.1	-0.950	0.950	-0.070	0.290	-0.950	0.950	0.010	0.370

Table C. 221: Matched Droplet Info

C.6.2.2 All Droplets for .LA Image

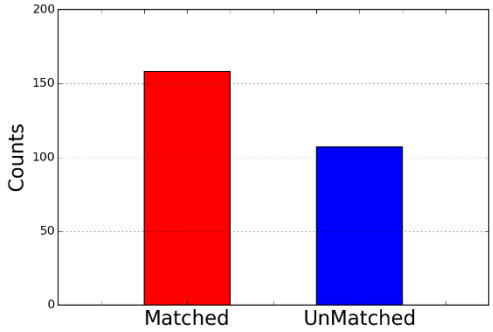


Figure C. 2021: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

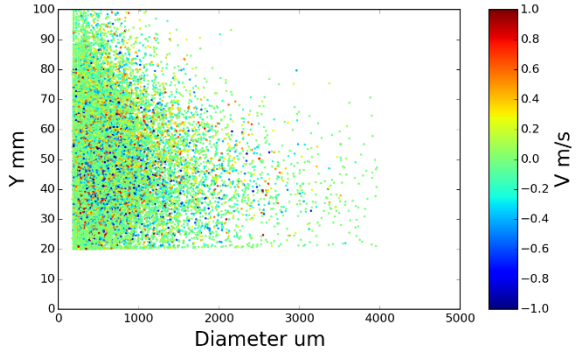


Figure C. 2024: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

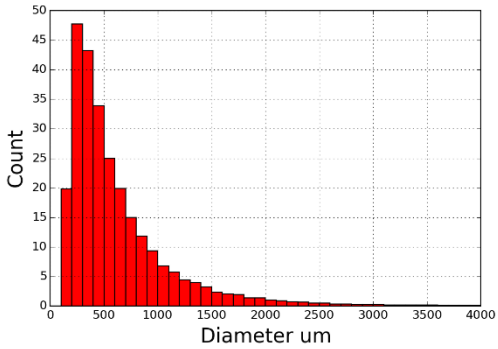


Figure C. 2022: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

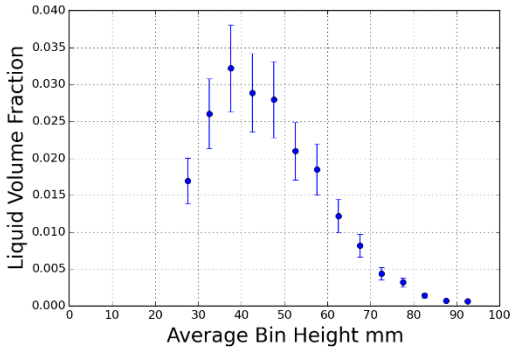


Figure C. 2025: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

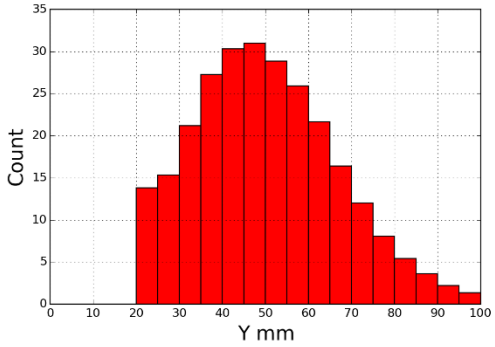


Figure C. 2023: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 All Droplets for .LB Image

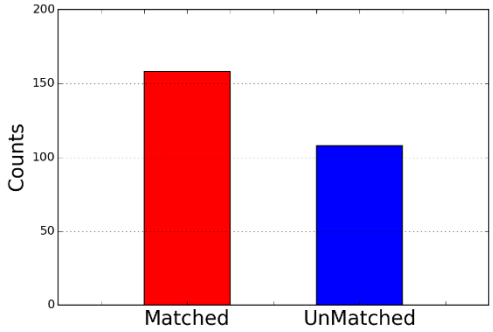


Figure C. 2026: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

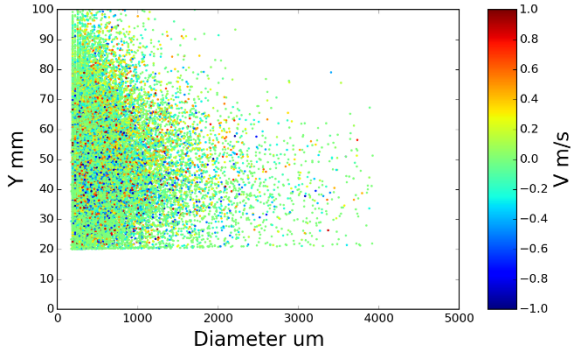


Figure C. 2029: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

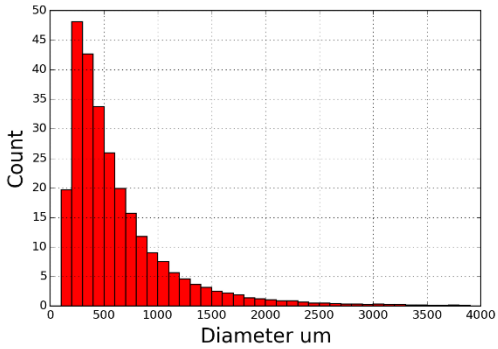


Figure C. 2027: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

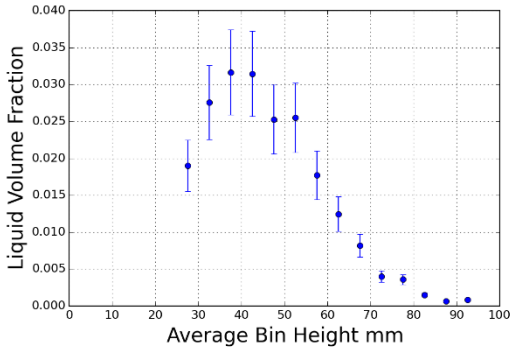


Figure C. 2030: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

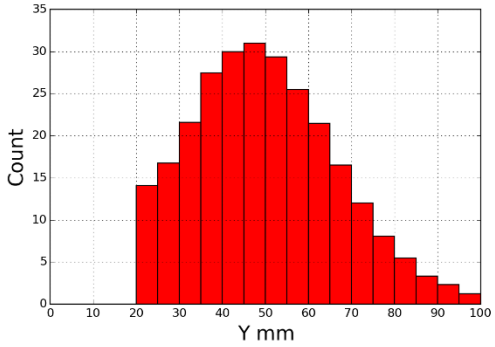


Figure C. 2028: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LA Image

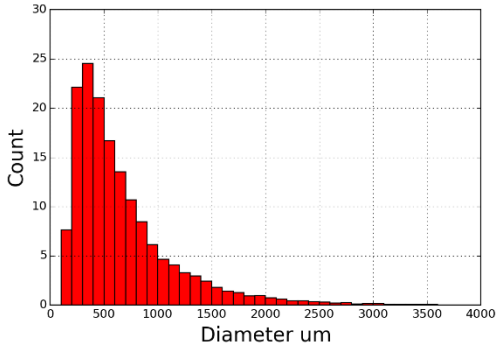


Figure C. 2031: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

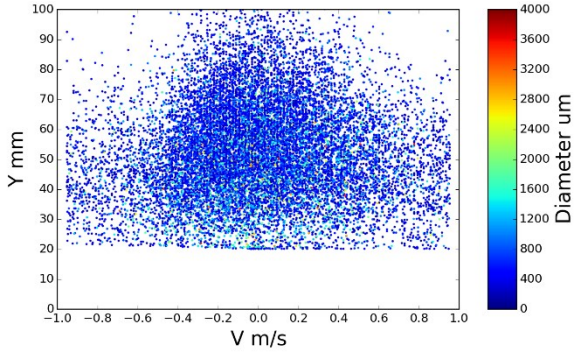


Figure C. 2034: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

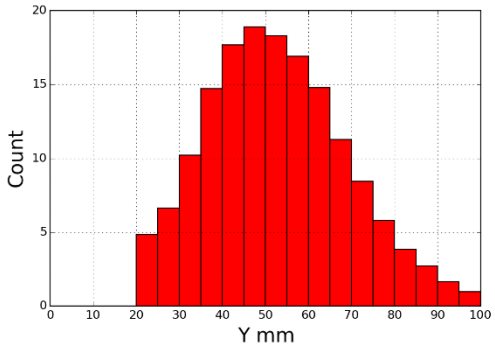


Figure C. 2032: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

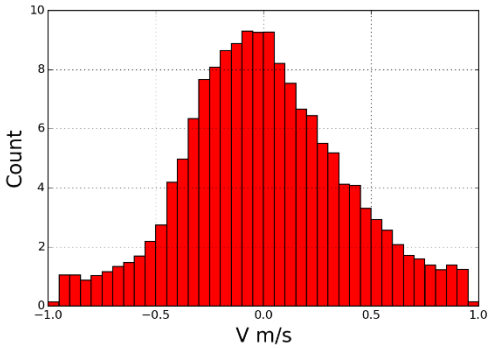


Figure C. 2035: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

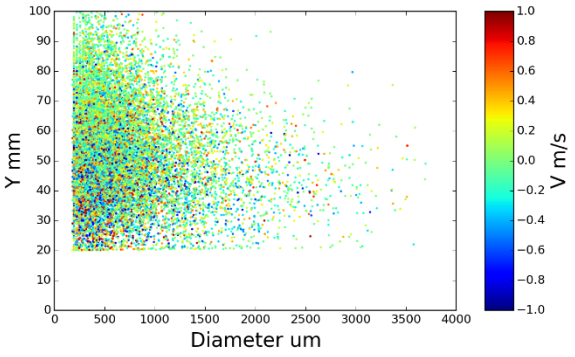


Figure C. 2033: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.2.2 Matched Only Droplets for .LB Image

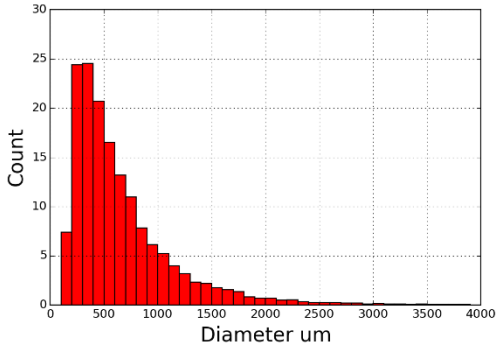


Figure C. 2036: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

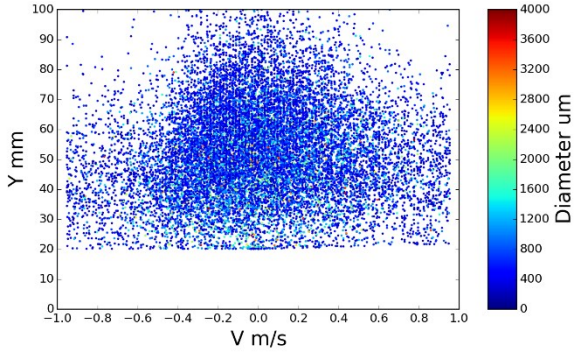


Figure C. 2039: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

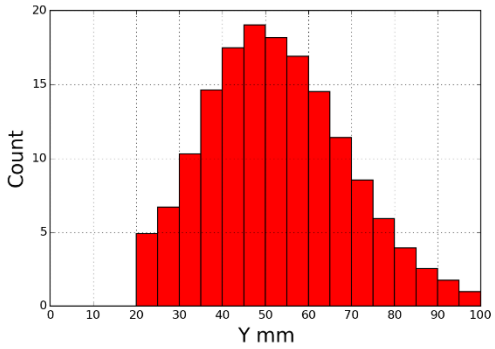


Figure C. 2037: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

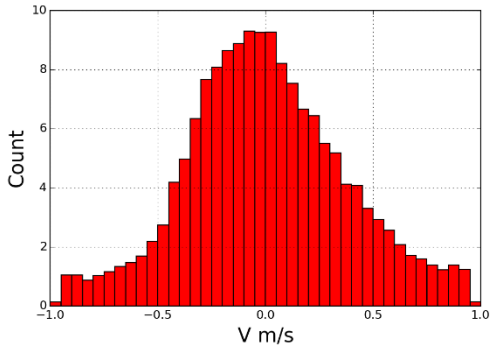


Figure C. 2040: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

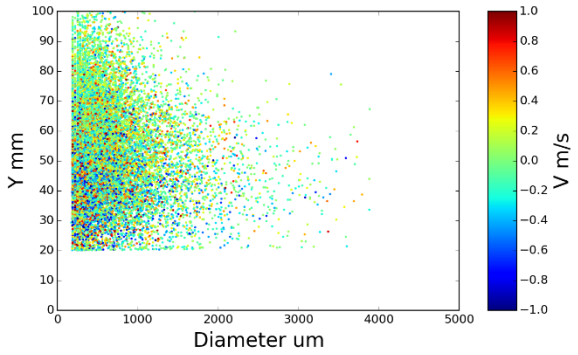


Figure C. 2038: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	27481 / 3.463
Ref Mass Flow (lb/hr) / (kg/s)	1527 / 0.192
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	14862 / 20.157
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4196 / 13.24
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.9 / 12.75
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.1 / 12.85
Total Bundle Q (Btu/hr) / (kW)	141561 / 41.49
Total Bundle & Preboiler Q (Btu/hr) / (kW)	141561 / 41.49
Top Two Rows HTC Ratio	0.586
Bundle Inlet Quality	-0.16
Bundle Exit Quality	0.99

Table C. 222: Thermal Conditions

C.6.3.1 Lens 100mm Mag 0_29x

C.6.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	5.65	5.72	81.2	1762	202.9	180.5	86.2	1862	200.8	179.4
40-60mm	9.46	9.29	86.2	1022	151.7	90.7	81.2	1040	153.2	93.4
60-80mm	5.34	5.2	81.2	651.1	121.3	40.4	86.2	633.7	122.5	39.3
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	20.45	20.21	81.2	1762	157.9	119.0	81.2	1862	158.8	119.9
			Height A (mm)				Height B (mm)			
Highest Particle			79.6967				79.6967			
Lowest Particle			31.7998				31.8214			

Table C. 223: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	4.33	86.2	1762	207.1	171.9	86.2	1862	209.3	179.6	-0.770	0.890	-0.090	0.130	-0.900	0.890	-0.080	0.210
40-60mm	7.22	86.2	978.1	158.8	89.0	81.2	1000	158.6	89.8	-0.900	0.810	-0.110	0.120	-0.460	0.900	-0.080	0.180
60-80mm	4.02	81.2	651.1	127.4	42.2	86.2	633.7	127.4	41.2	-0.670	0.650	-0.110	0.120	-0.760	0.360	-0.080	0.140
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	15.57	81.2	1762	164.1	115.0	81.2	1862	164.7	118.8	-0.900	0.890	-0.100	0.120	-0.900	0.900	-0.080	0.180

Table C. 224: Matched Droplet Info

C.6.3.1 All Droplets for .LA Image

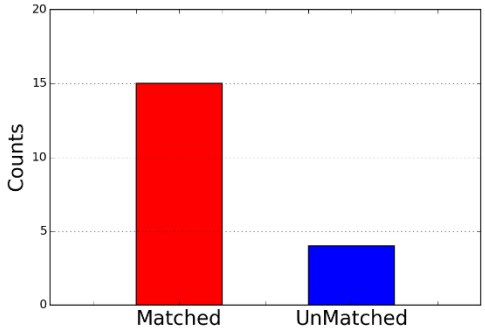


Figure C. 2041: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

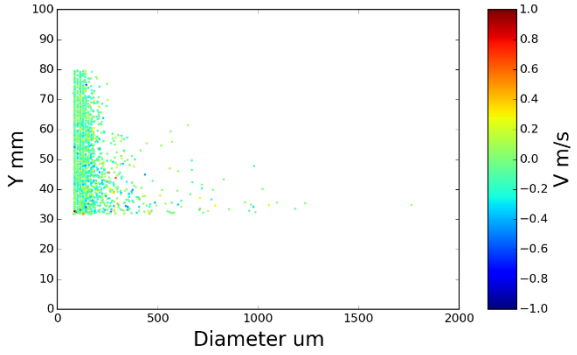


Figure C. 2044: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

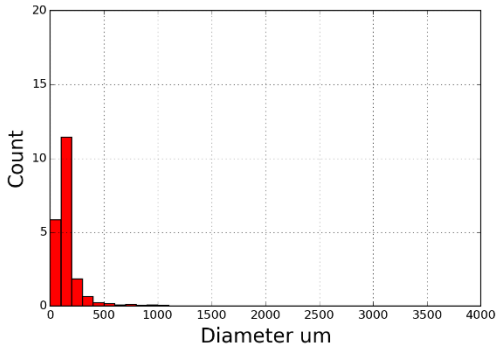


Figure C. 2042: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

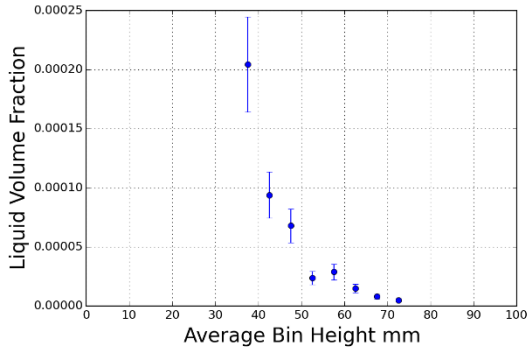


Figure C. 2045: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

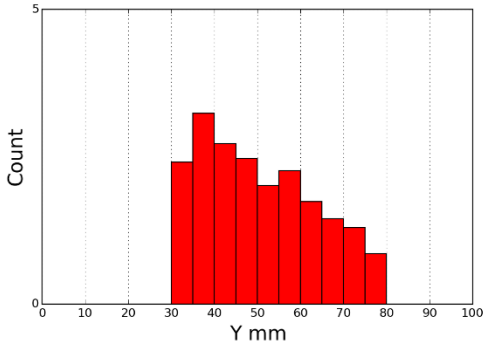


Figure C. 2043: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 All Droplets for .LB Image

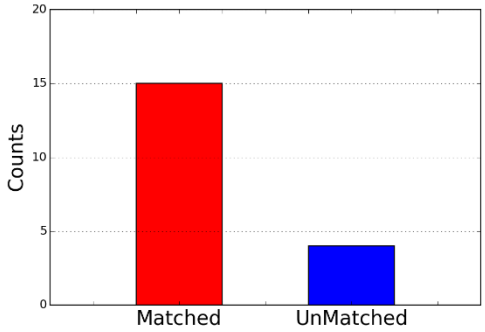


Figure C. 2046: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

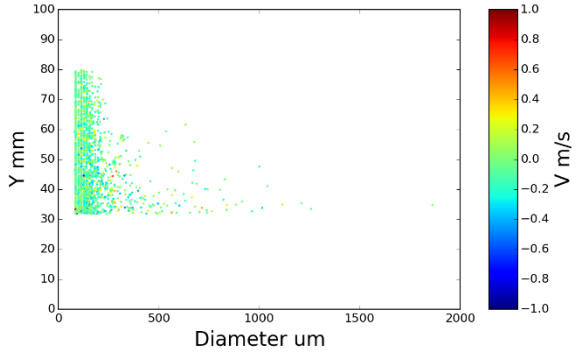


Figure C. 2049: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

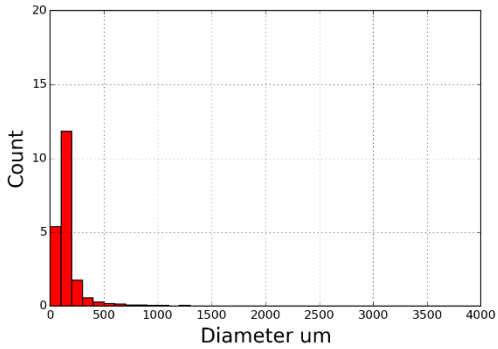


Figure C. 2047: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

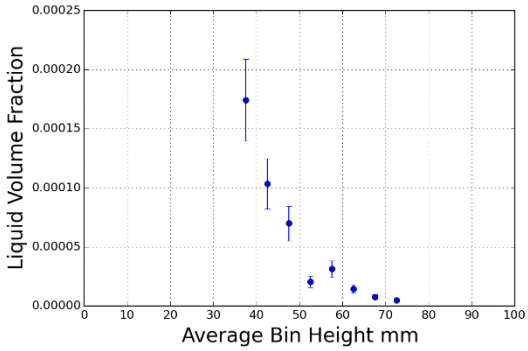


Figure C. 2050: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

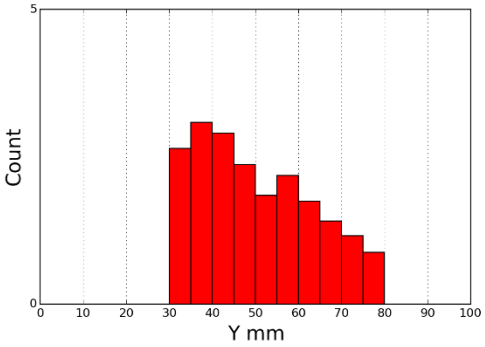


Figure C. 2048: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LA Image

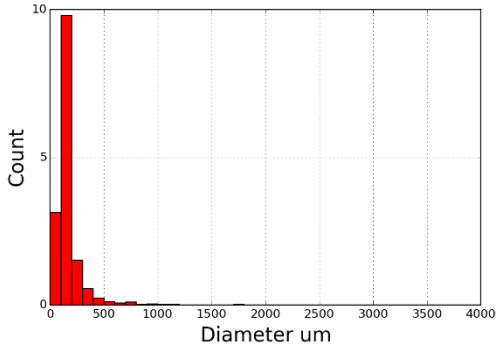


Figure C. 2051: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

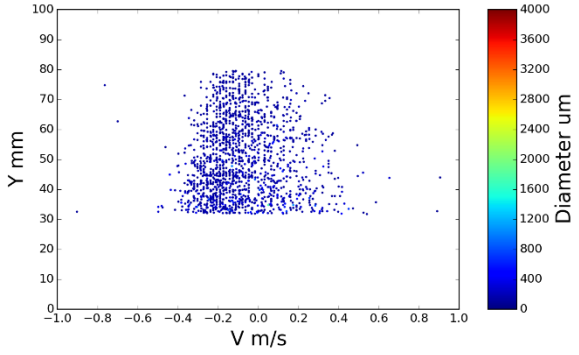


Figure C. 2054: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

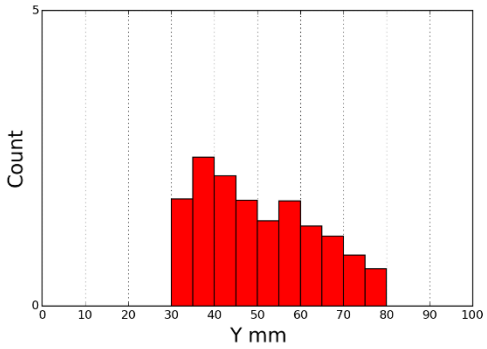


Figure C. 2052: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

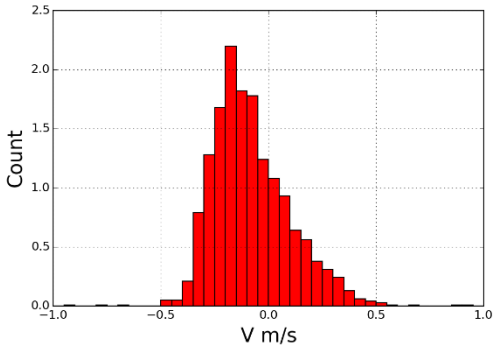


Figure C. 2055: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

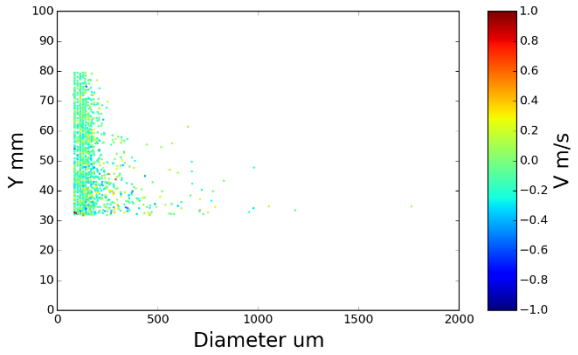


Figure C. 2053: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LB Image

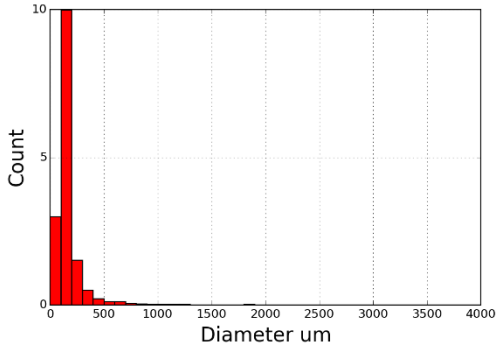


Figure C. 2056: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

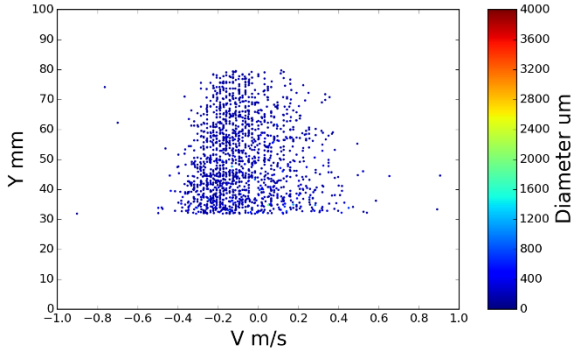


Figure C. 2059: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

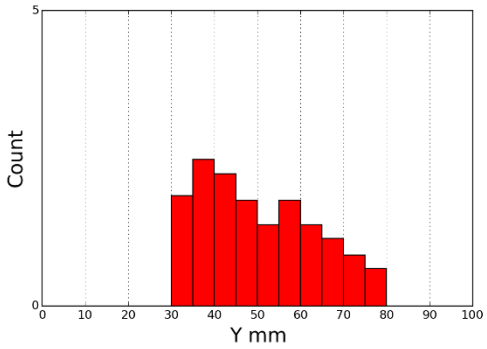


Figure C. 2057: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

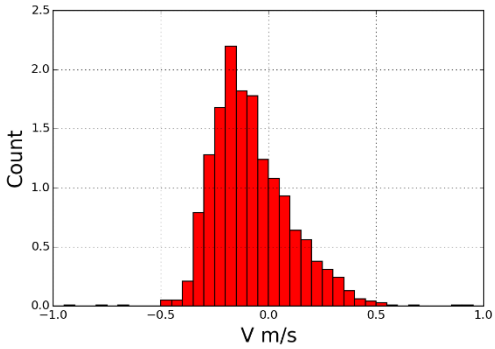


Figure C. 2060: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

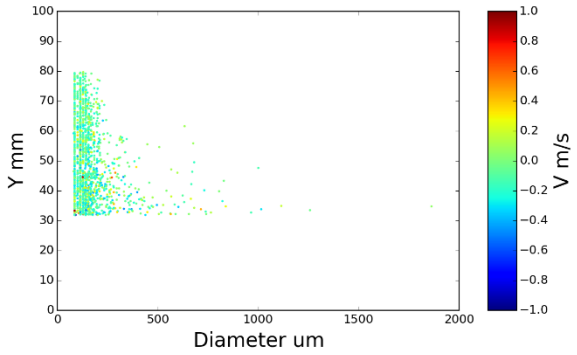


Figure C. 2058: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	7.49	7.43	81.2	1801	218.5	186.8	86.2	1463	225.5	194.6
40-60mm	10.68	11.21	81.2	1143	165.9	109.9	76.0	1095	162.4	108.2
60-80mm	5.2	4.94	81.2	650.4	120.9	44.5	86.2	599.0	121.8	41.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	23.37	23.58	81.2	1801	172.7	135.7	76.0	1463	173.8	139.0
			Height A (mm)				Height B (mm)			
Highest Particle			79.6330				79.5058			
Lowest Particle			31.7988				31.7990			

Table C. 225: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	5.6	86.2	1141	217.3	152.4	86.2	1174	222.6	161.6	-0.890	0.570	-0.070	0.130	-0.600	0.930	0.050	0.260
40-60mm	8.67	81.2	1041	172.0	104.7	81.2	1044	172.7	106.4	-0.600	0.270	-0.070	0.100	-0.530	0.860	0.010	0.210
60-80mm	3.73	86.2	650.4	129.7	47.0	86.2	599.0	128.3	43.7	-0.450	0.160	-0.090	0.100	-0.600	0.890	-0.060	0.170
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	18.0	81.2	1141	177.3	118.1	81.2	1174	179.0	122.9	-0.890	0.570	-0.070	0.110	-0.600	0.930	0.010	0.220

Table C. 226: Matched Droplet Info

C.6.3.1 All Droplets for .LA Image

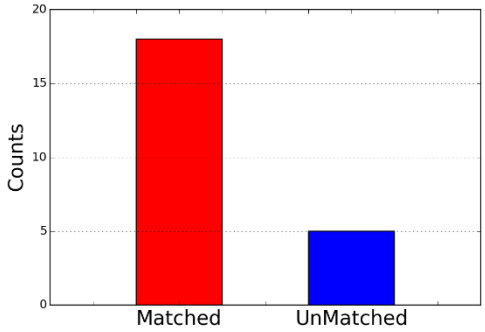


Figure C. 2061: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

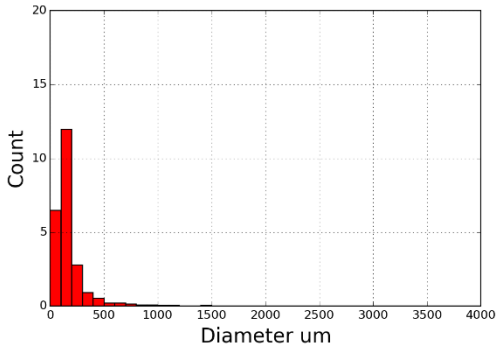


Figure C. 2062: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

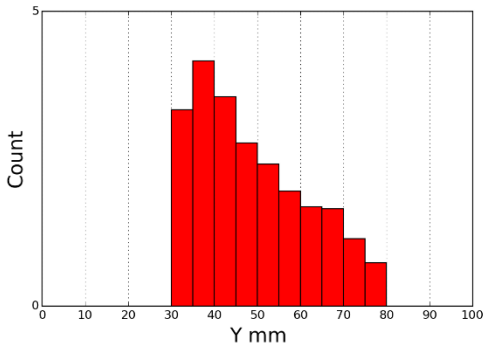


Figure C. 2063: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

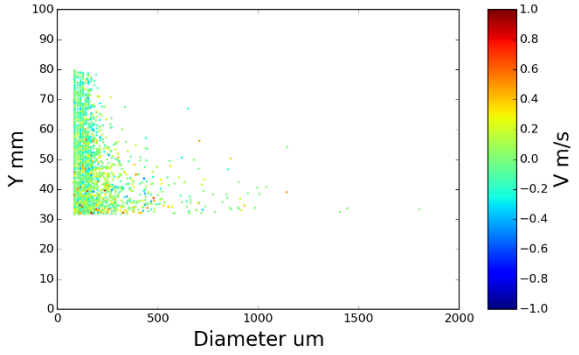


Figure C. 2064: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

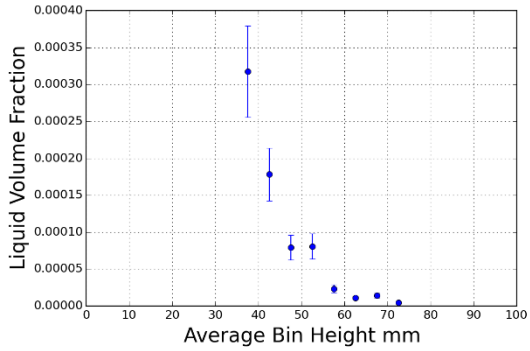


Figure C. 2065: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 All Droplets for .LB Image

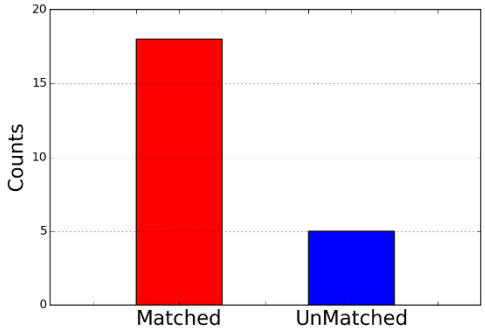


Figure C. 2066: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

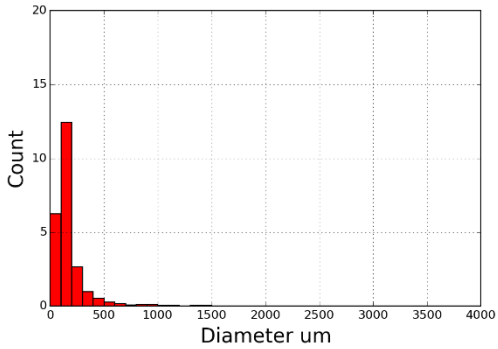


Figure C. 2067: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

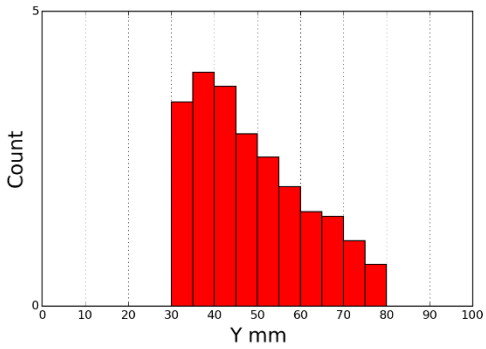


Figure C. 2068: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

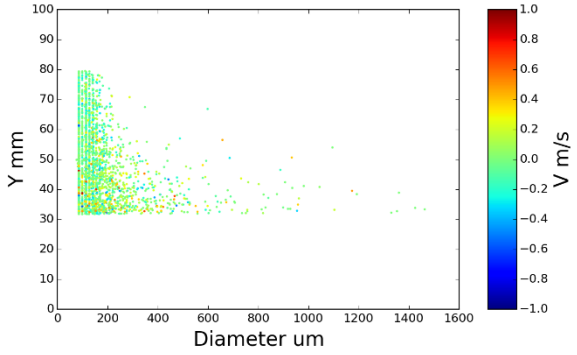


Figure C. 2069: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

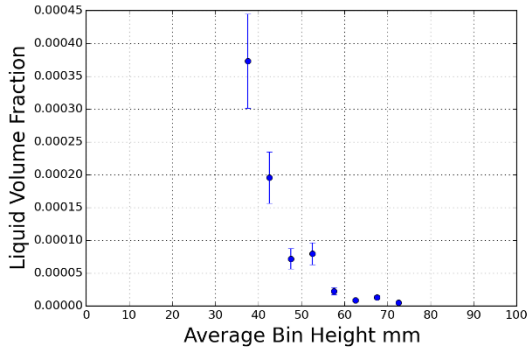


Figure C. 2070: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LA Image

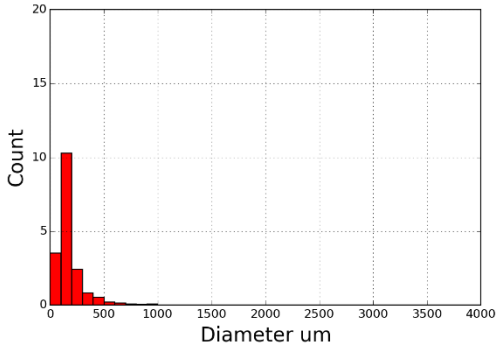


Figure C. 2071: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

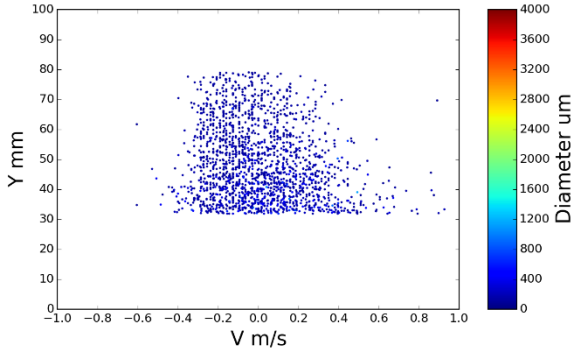


Figure C. 2074: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

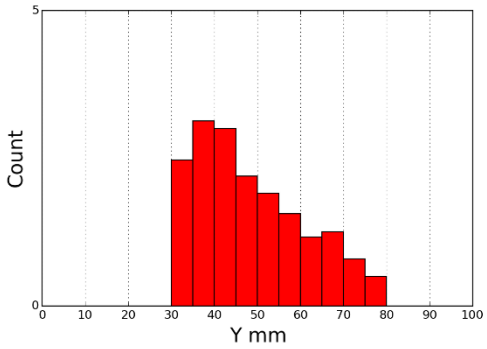


Figure C. 2072: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

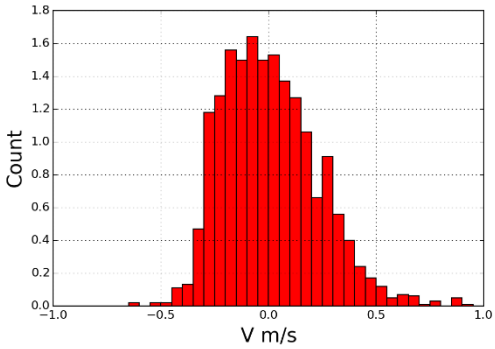


Figure C. 2075: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

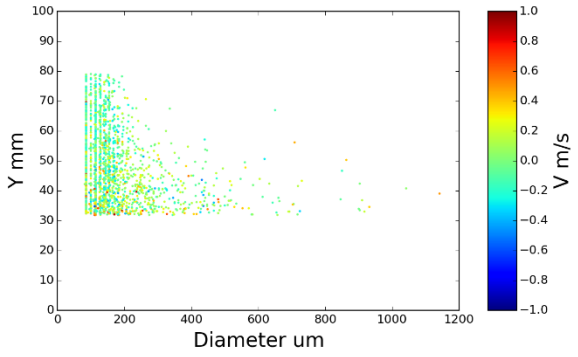


Figure C. 2073: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LB Image

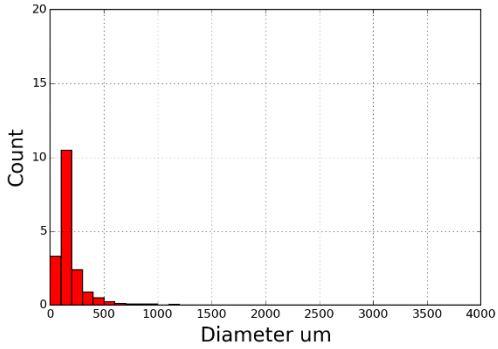


Figure C. 2076: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

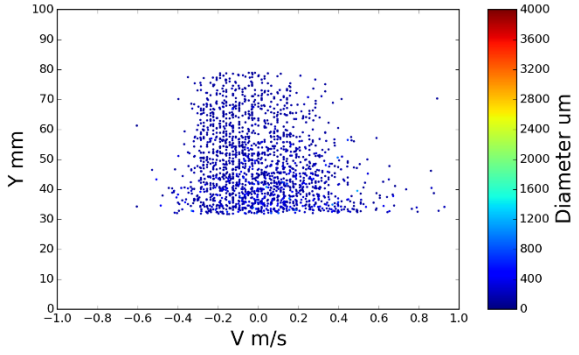


Figure C. 2079: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

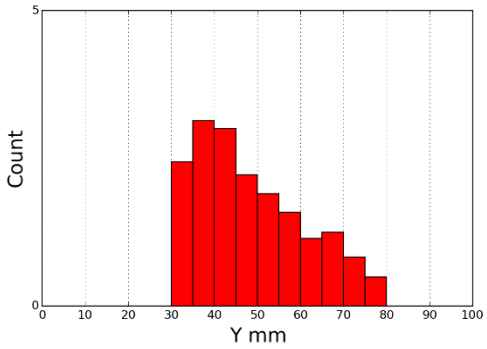


Figure C. 2077: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

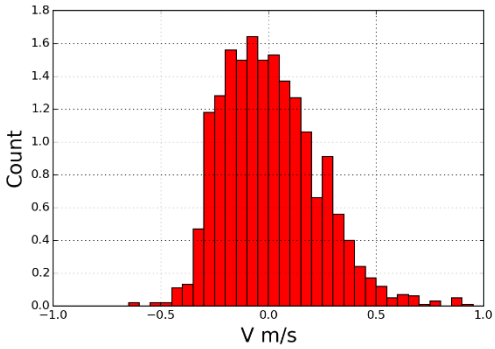


Figure C. 2080: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

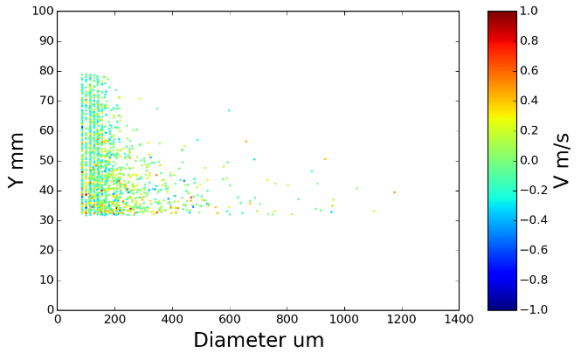


Figure C. 2078: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	9.39	9.48	81.2	1707	243.0	199.6	81.2	2007	242.7	214.5
40-60mm	10.77	10.44	81.2	1122	166.0	122.2	81.2	1311	167.6	123.6
60-80mm	5.79	5.4	86.2	433.6	118.8	34.0	81.2	408.1	119.7	34.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	25.95	25.32	81.2	1707	183.3	152.3	81.2	2007	185.5	161.4
			Height A (mm)				Height B (mm)			
Highest Particle			79.6585				79.7196			
Lowest Particle			31.7998				31.7998			

Table C. 227: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	7.46	86.2	1707	248.8	197.3	81.2	1760	253.4	208.1	-0.800	0.460	-0.070	0.110	-0.880	0.770	0.110	0.240
40-60mm	8.26	81.2	1122	177.0	124.5	86.2	1311	176.9	126.1	-0.910	0.840	-0.060	0.110	-0.640	0.710	0.030	0.200
60-80mm	4.14	86.2	433.6	125.4	35.6	81.2	408.1	124.7	34.8	-0.680	0.190	-0.080	0.110	-0.910	0.450	-0.050	0.150
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	19.86	81.2	1707	193.2	153.5	81.2	1760	194.4	159.5	-0.910	0.840	-0.070	0.110	-0.910	0.770	0.040	0.220

Table C. 228: Matched Droplet Info

C.6.3.1 All Droplets for .LA Image

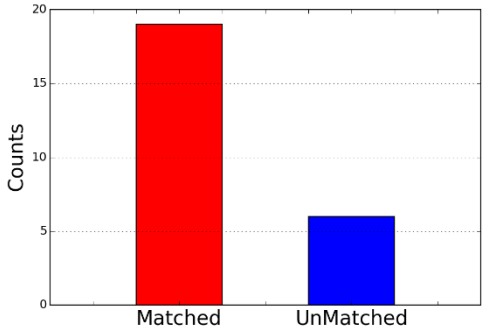


Figure C. 2081: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

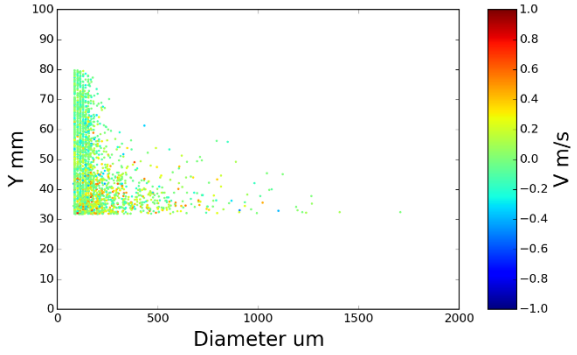


Figure C. 2084: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

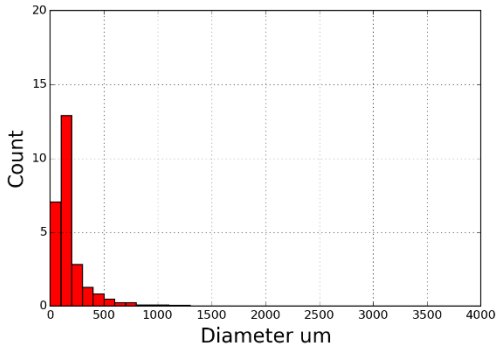


Figure C. 2082: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

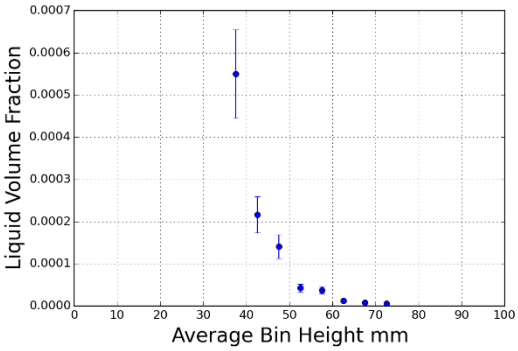


Figure C. 2085: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

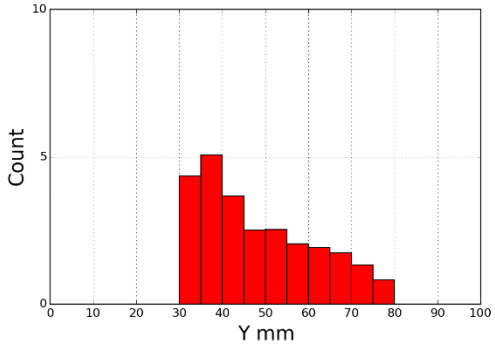


Figure C. 2083: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 All Droplets for .LB Image

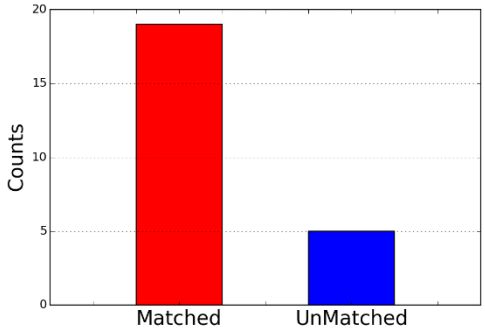


Figure C. 2086: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

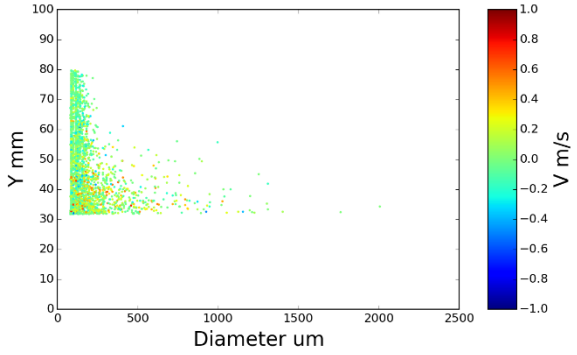


Figure C. 2089: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

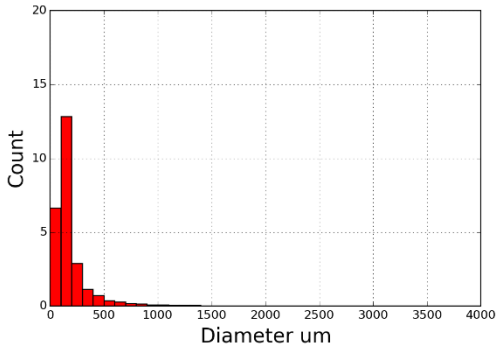


Figure C. 2087: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

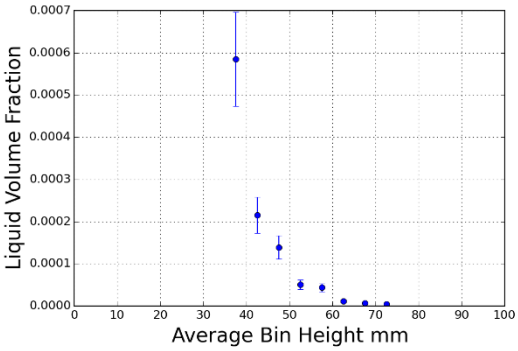


Figure C. 2090: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

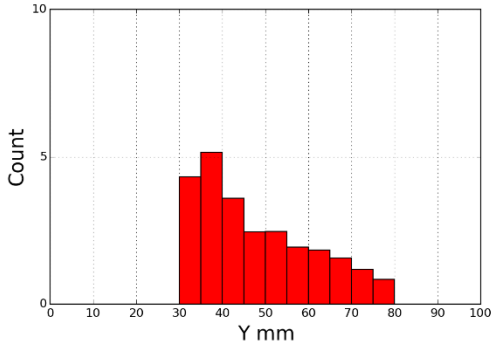


Figure C. 2088: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LA Image

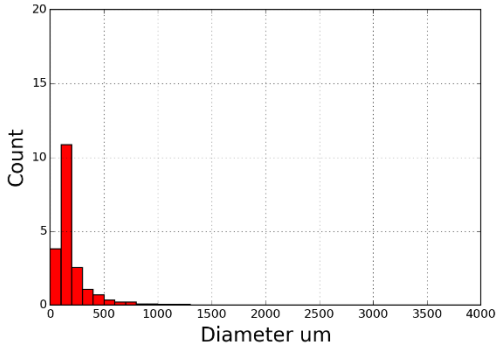


Figure C. 2091: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

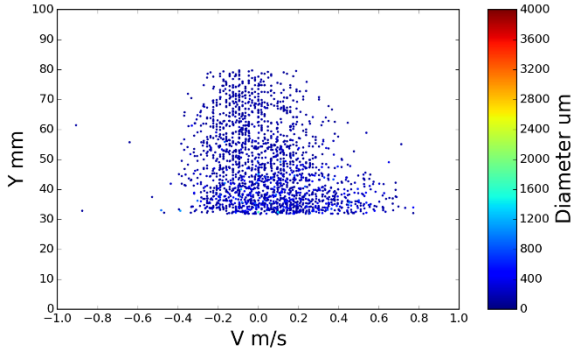


Figure C. 2094: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

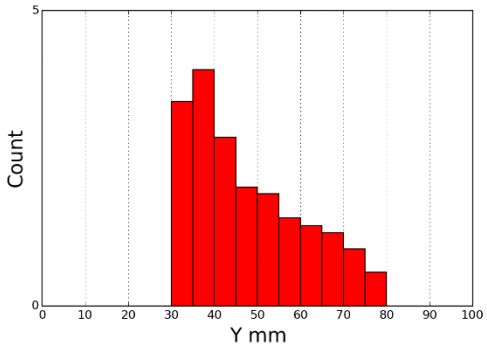


Figure C. 2092: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

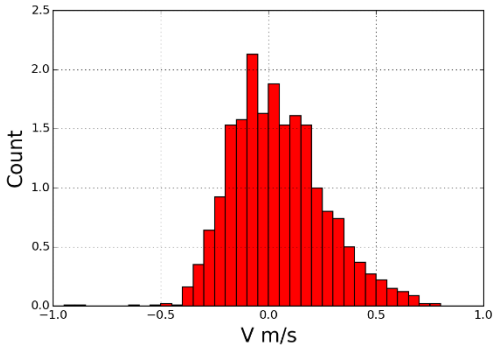


Figure C. 2095: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

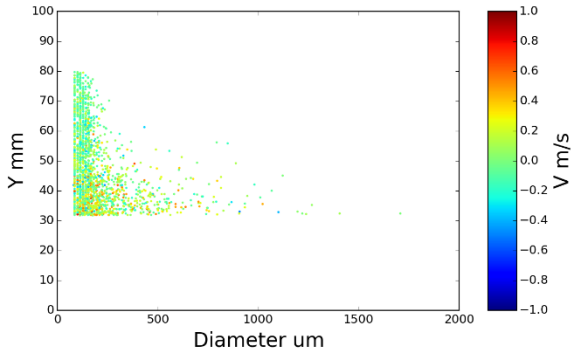


Figure C. 2093: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.1 Matched Only Droplets for .LB Image

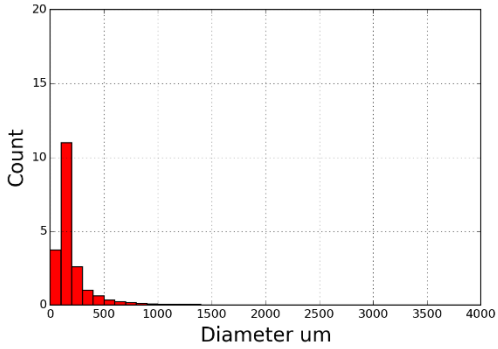


Figure C. 2096: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

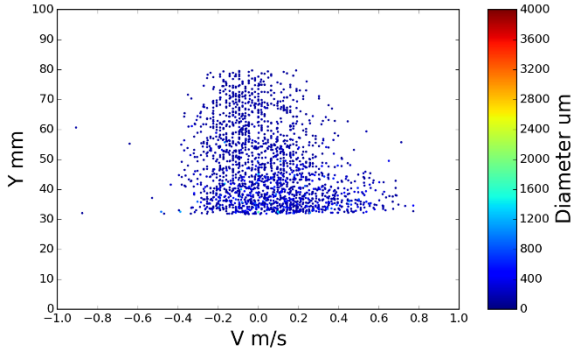


Figure C. 2099: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

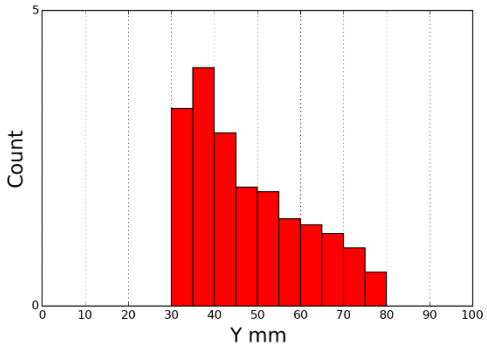


Figure C. 2097: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

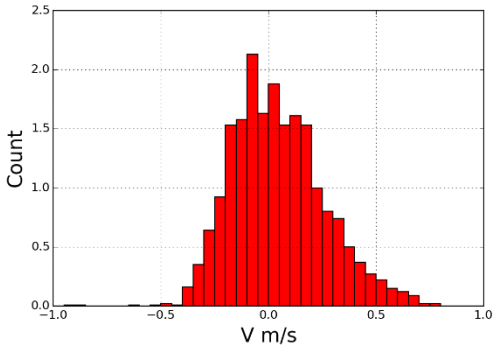


Figure C. 2100: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

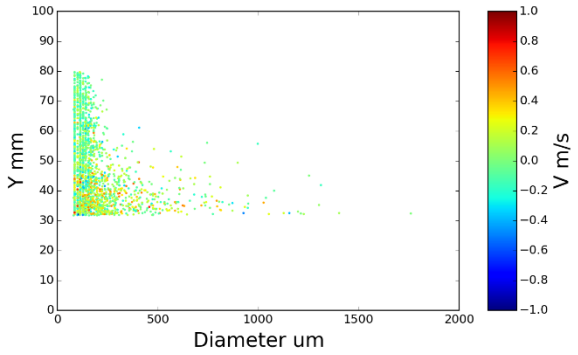


Figure C. 2098: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Lens 50mm Mag 0_13x

C.6.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	7.37	7.21	170.4	3176	649.5	383.4	182.2	2835	659.8	380.8
20-40mm	8.77	8.75	170.4	1921	531.2	319.1	182.2	2242	526.3	315.2
40-60mm	0.85	0.9	193.3	1160	364.6	207.1	182.2	1031	353.6	192.9
60-80mm	0.04	0.05	193.3	315.6	247.4	45.5	193.3	288.1	231.1	37.1
80-100mm	0.01	0.0	193.3	193.3	193.3	0.0	-	-	-	-
All	17.04	16.91	170.4	3176	573.2	352.2	182.2	2835	573.1	349.9
			Height A (mm)				Height B (mm)			
Highest Particle			82.3238				76.1581			
Lowest Particle			14.3425				14.3218			

Table C. 229: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	5.02	193.3	2190	655.6	340.5	193.3	2577	670.7	370.2	-0.930	0.810	-0.080	0.130	-0.860	0.920	0.110	0.270
20-40mm	6.31	182.2	1841	525.6	290.0	182.2	2242	531.6	305.9	-0.880	0.780	-0.080	0.130	-0.930	0.840	0.030	0.260
40-60mm	0.68	193.3	953.3	379.2	190.0	193.3	1031	386.4	192.7	-0.360	0.210	-0.070	0.110	-0.440	0.360	-0.040	0.180
60-80mm	0.04	193.3	315.6	247.4	45.5	193.3	288.1	233.1	41.2	-0.320	-0.030	-0.120	0.120	-0.320	-0.000	-0.150	0.110
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	12.05	182.2	2190	570.6	317.6	182.2	2577	578.5	338.7	-0.930	0.810	-0.080	0.130	-0.930	0.920	0.060	0.270

Table C. 230: Matched Droplet Info

C.6.3.2 All Droplets for .LA Image

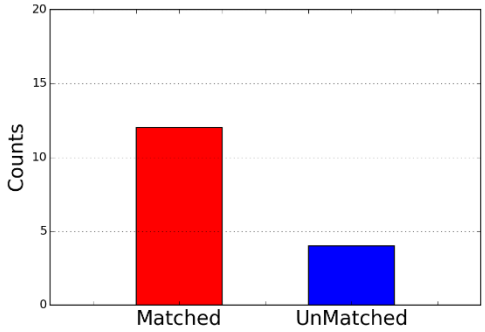


Figure C. 2101: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

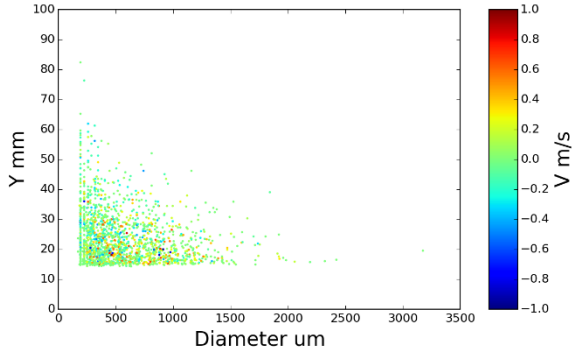


Figure C. 2104: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

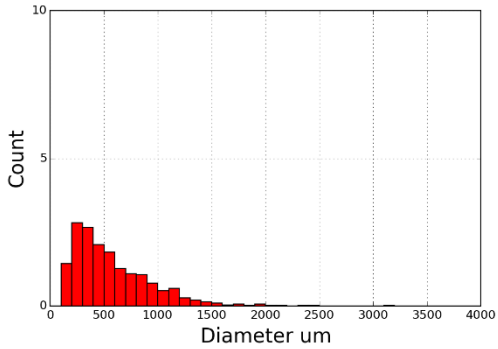


Figure C. 2102: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

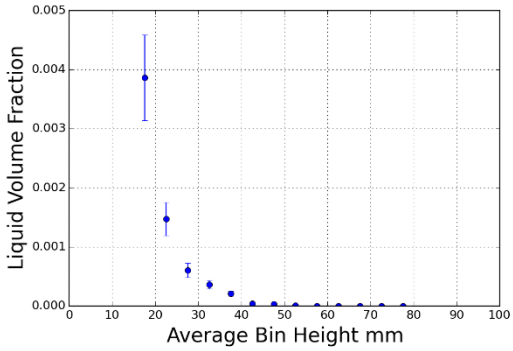


Figure C. 2105: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

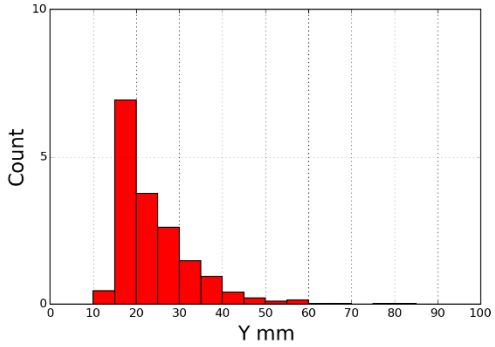


Figure C. 2103: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 All Droplets for .LB Image

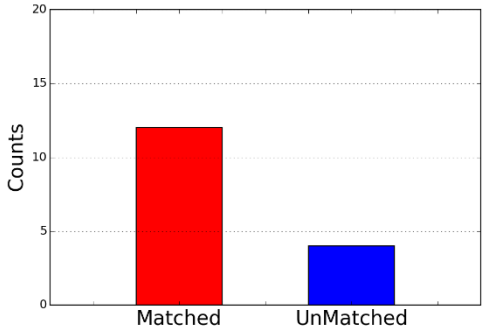


Figure C. 2106: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

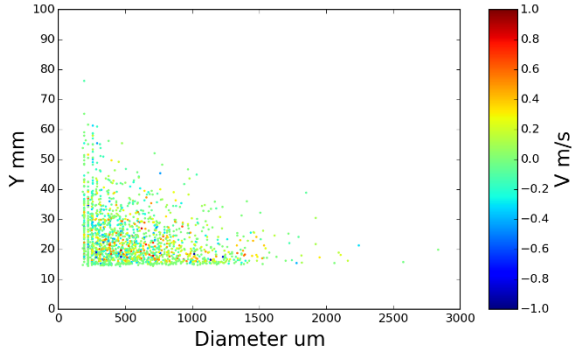


Figure C. 2109: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

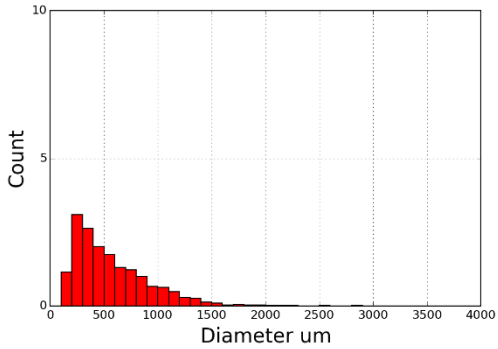


Figure C. 2107: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

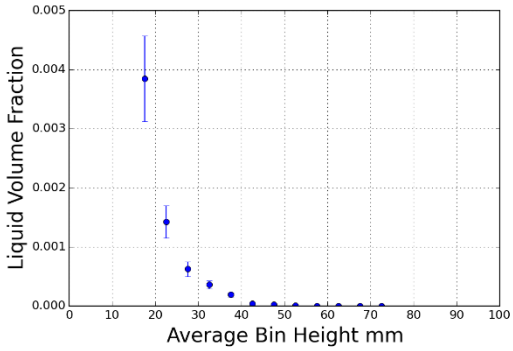


Figure C. 2110: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

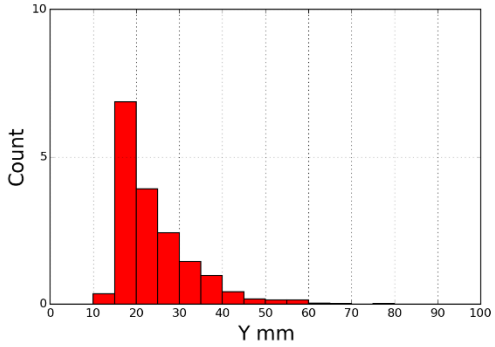


Figure C. 2108: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LA Image

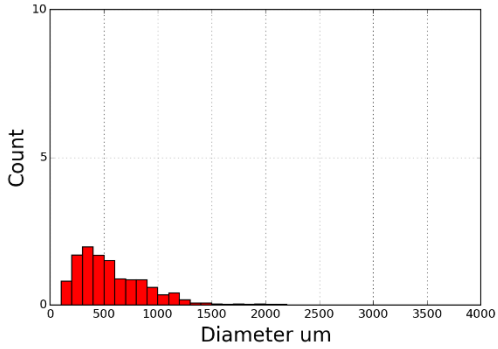


Figure C. 2111: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

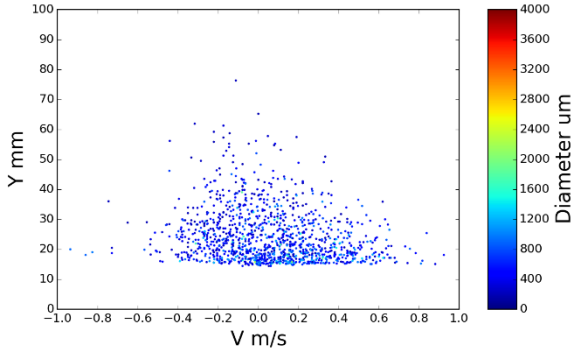


Figure C. 2114: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

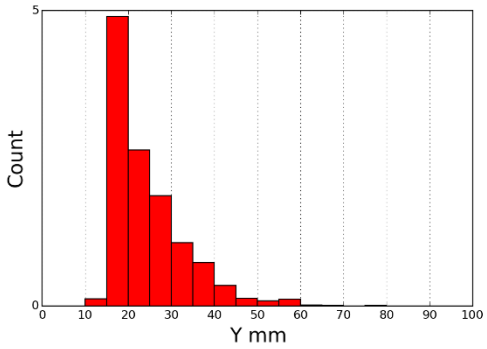


Figure C. 2112: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

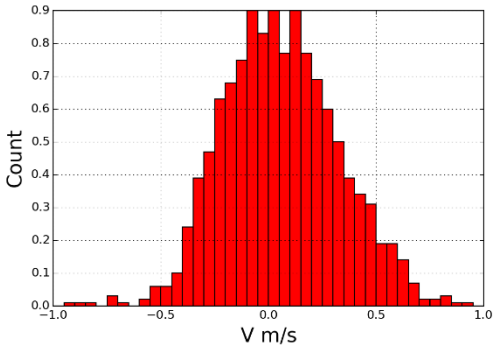


Figure C. 2115: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

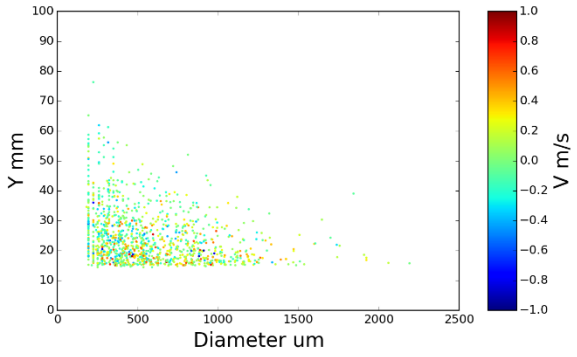


Figure C. 2113: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LB Image

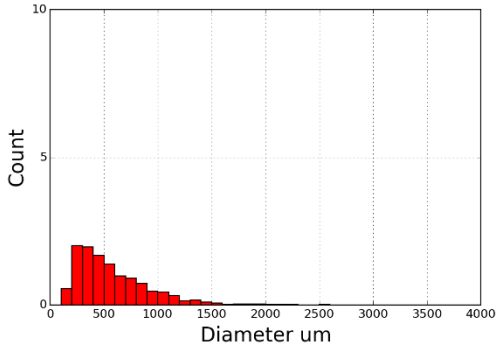


Figure C. 2116: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

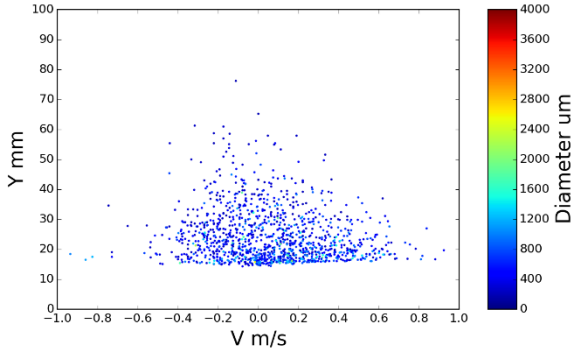


Figure C. 2119: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

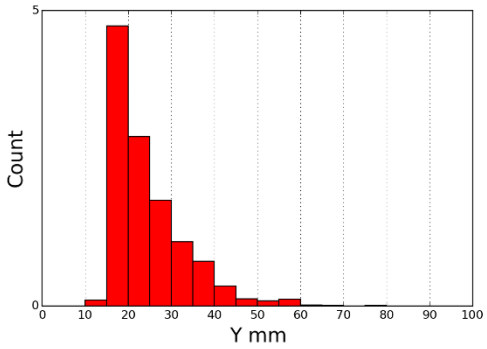


Figure C. 2117: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

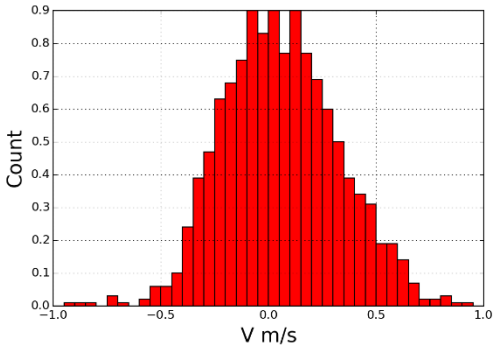


Figure C. 2120: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

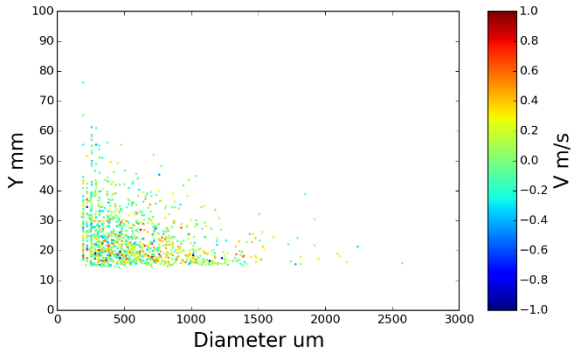


Figure C. 2118: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	11.31	11.31	182.2	2516	560.6	327.6	182.2	2495	561.5	321.3
20-40mm	12.76	13.07	182.2	1894	493.2	282.3	193.3	1909	486.0	282.8
40-60mm	1.68	1.68	193.3	979.1	364.0	172.4	193.3	1035	362.1	179.6
60-80mm	0.12	0.11	193.3	460.0	270.6	89.6	193.3	460.0	282.4	88.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	25.87	26.17	182.2	2516	513.2	301.8	182.2	2495	509.8	299.5
			Height A (mm)				Height B (mm)			
Highest Particle			71.3625				71.3910			
Lowest Particle			13.2511				13.4162			

Table C. 231: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	8.46	182.2	2055	556.5	288.0	182.2	2122	557.3	296.2	-0.840	0.760	-0.090	0.130	-0.750	0.920	0.120	0.260
20-40mm	10.01	182.2	1599	504.9	269.3	193.3	1909	504.7	275.1	-0.930	0.920	-0.080	0.130	-0.920	0.890	0.080	0.260
40-60mm	1.35	193.3	979.1	391.2	177.3	193.3	1035	393.6	185.4	-0.890	0.190	-0.090	0.110	-0.450	0.950	0.060	0.240
60-80mm	0.08	193.3	460.0	301.3	94.0	223.2	460.0	321.2	87.6	-0.240	0.050	-0.080	0.090	-0.210	0.160	0.000	0.110
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	19.9	182.2	2055	518.3	275.5	182.2	2122	518.3	282.1	-0.930	0.920	-0.080	0.130	-0.920	0.950	0.090	0.260

Table C. 232: Matched Droplet Info

C.6.3.2 All Droplets for .LA Image

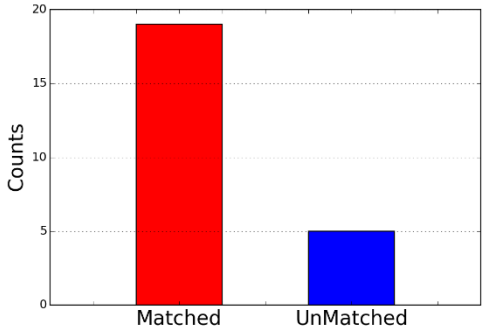


Figure C. 2121: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

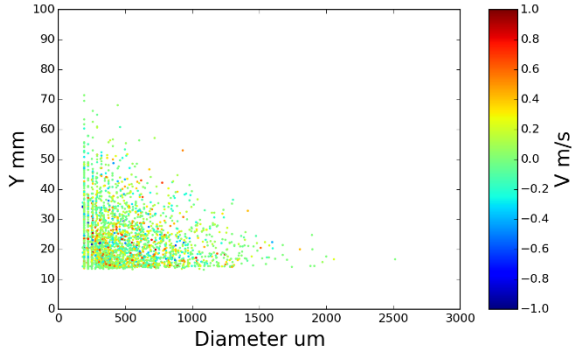


Figure C. 2124: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

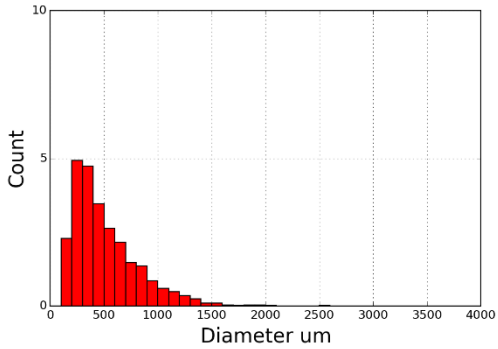


Figure C. 2122: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

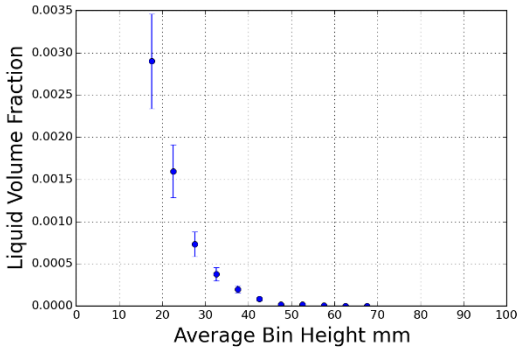


Figure C. 2125: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

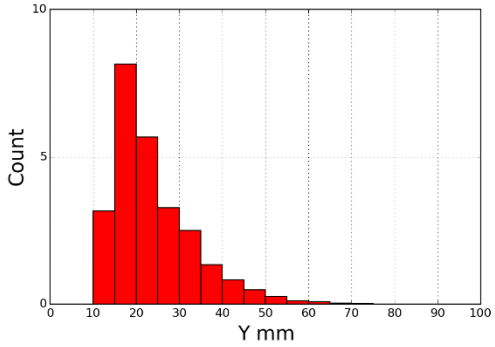


Figure C. 2123: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 All Droplets for .LB Image

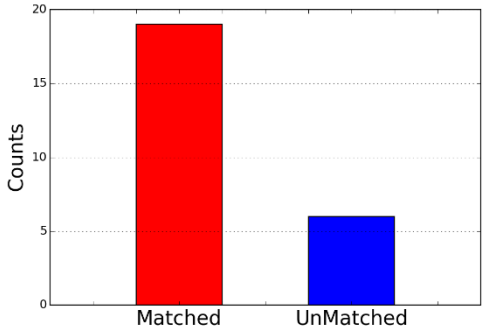


Figure C. 2126: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

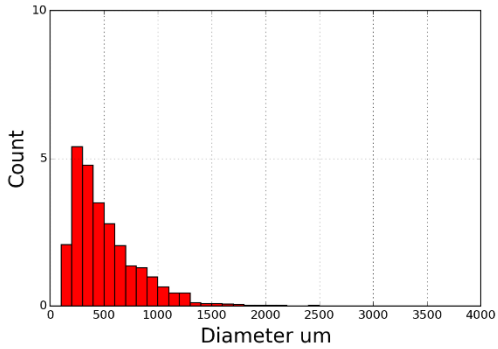


Figure C. 2127: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

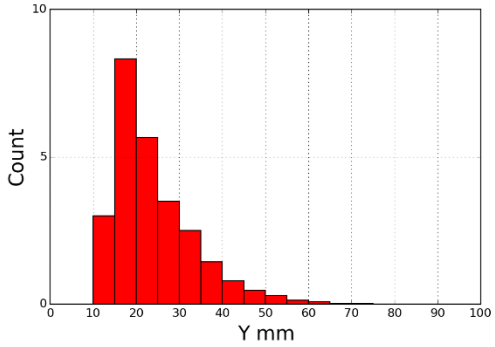


Figure C. 2128: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

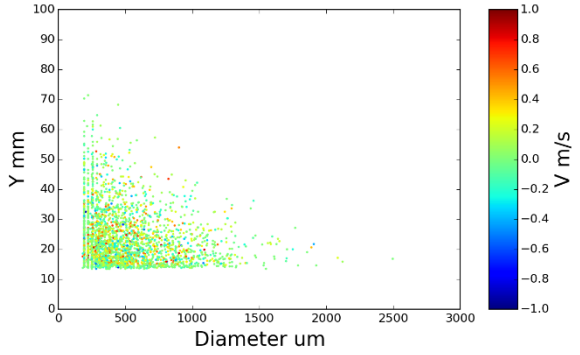


Figure C. 2129: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

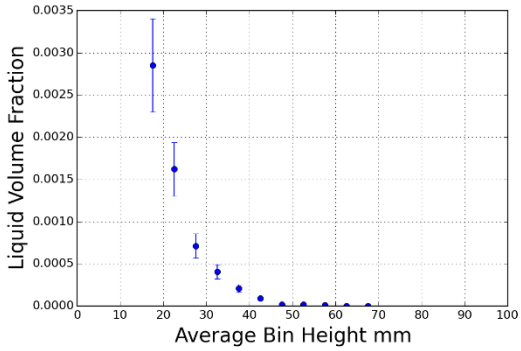


Figure C. 2130: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LA Image

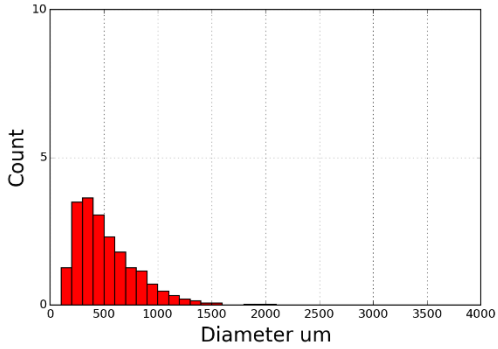


Figure C. 2131: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

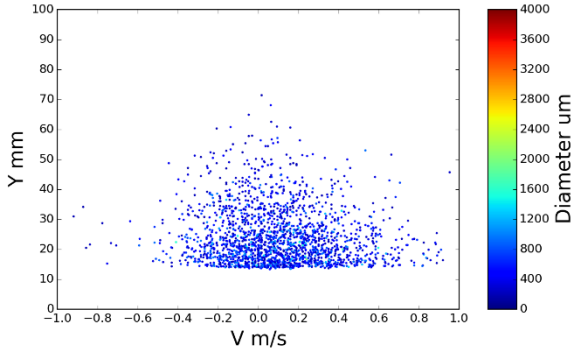


Figure C. 2134: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

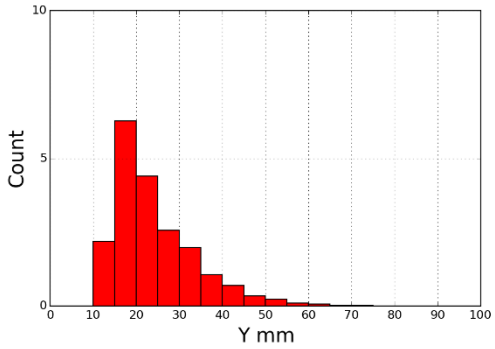


Figure C. 2132: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

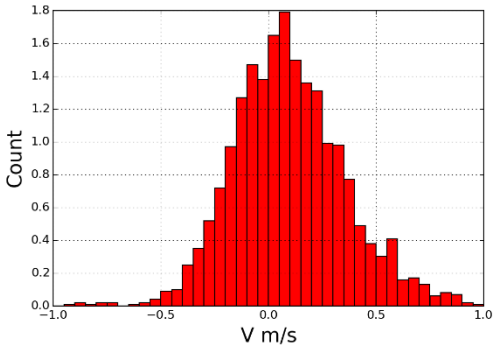


Figure C. 2135: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

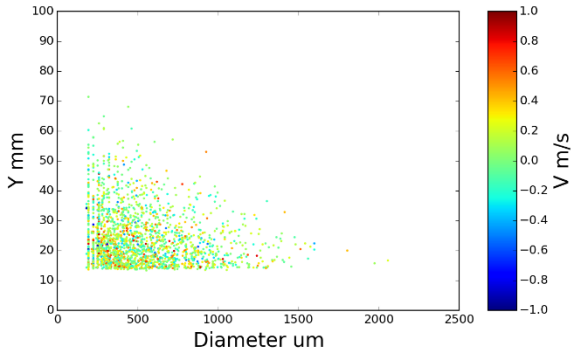


Figure C. 2133: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LB Image

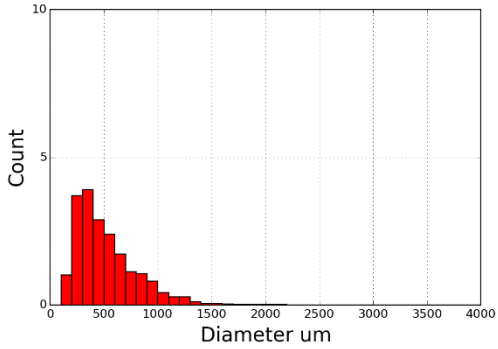


Figure C. 2136: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

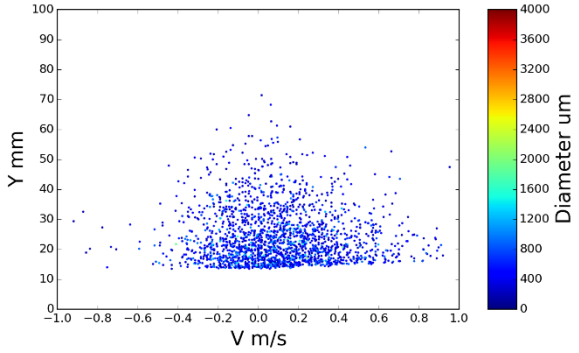


Figure C. 2139: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

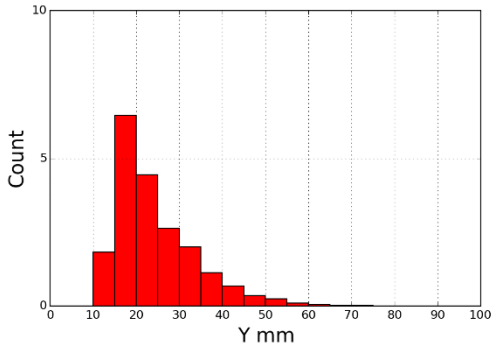


Figure C. 2137: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

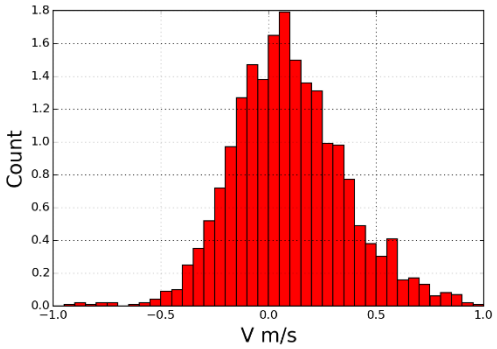


Figure C. 2140: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

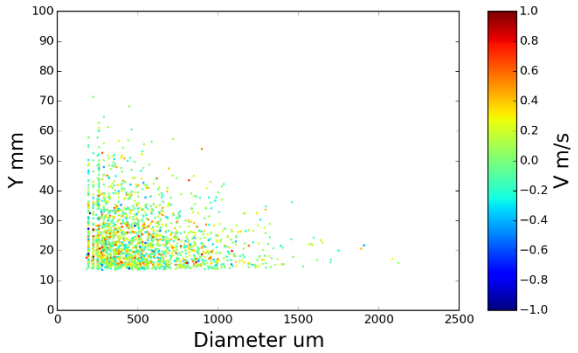


Figure C. 2138: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	14.19	14.41	182.2	2370	525.3	317.6	182.2	2155	525.8	313.6
20-40mm	14.35	14.21	182.2	1796	445.6	246.0	182.2	1690	444.6	244.6
40-60mm	1.86	1.8	182.2	1121	346.4	175.6	170.4	1025	354.1	165.6
60-80mm	0.09	0.1	193.3	561.6	268.6	114.6	193.3	699.8	289.8	167.5
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	30.49	30.52	182.2	2370	476.1	283.0	170.4	2155	477.1	280.4
			Height A (mm)				Height B (mm)			
Highest Particle			78.1803				78.5152			
Lowest Particle			12.3555				12.2040			

Table C. 233: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	10.94	193.3	1949	517.3	277.8	193.3	1941	519.3	287.0	-0.870	0.950	-0.090	0.150	-0.920	0.920	0.110	0.260
20-40mm	11.55	182.2	1436	460.2	232.6	182.2	1690	459.0	235.8	-0.820	0.930	-0.080	0.110	-0.820	0.940	0.090	0.240
40-60mm	1.47	193.3	1043	370.8	172.1	193.3	1025	377.1	169.6	-0.300	0.160	-0.080	0.090	-0.390	0.810	0.040	0.210
60-80mm	0.02	193.3	561.6	377.4	184.2	257.7	699.8	493.6	181.7	-0.110	-0.090	-0.100	0.010	0.190	0.360	0.280	0.090
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	23.98	182.2	1949	480.7	254.3	182.2	1941	481.0	259.8	-0.870	0.950	-0.080	0.130	-0.920	0.940	0.090	0.250

Table C. 234: Matched Droplet Info

C.6.3.2 All Droplets for .LA Image

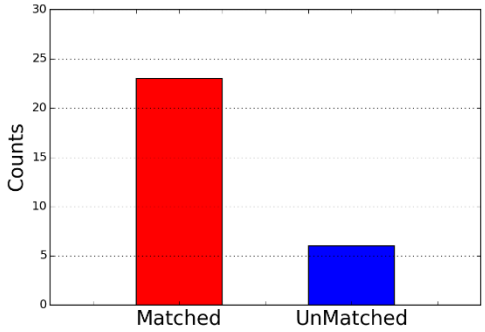


Figure C. 2141: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

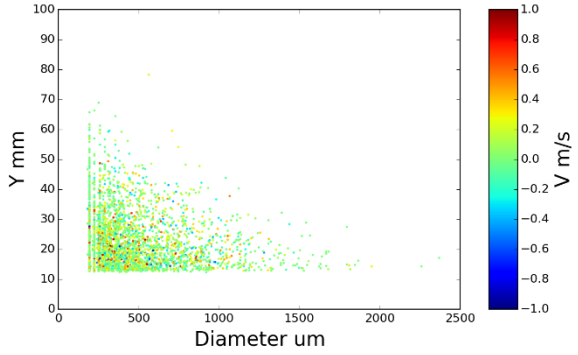


Figure C. 2144: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

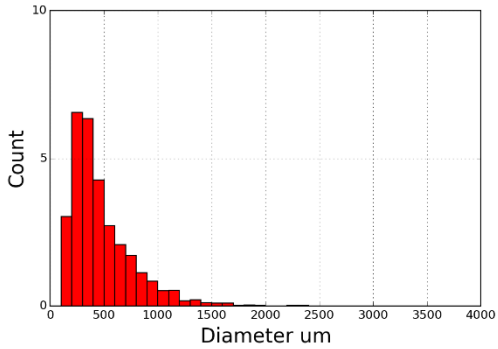


Figure C. 2142: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

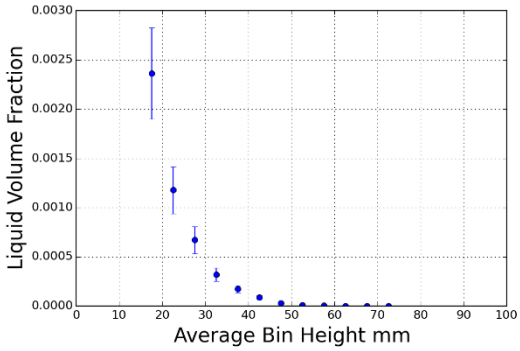


Figure C. 2145: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

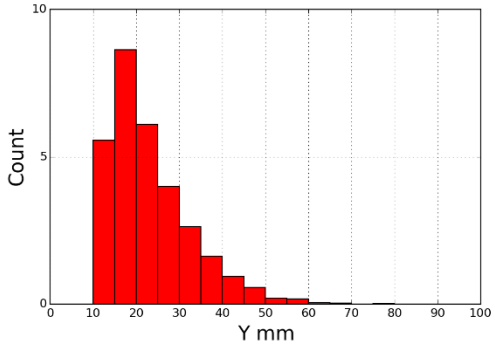


Figure C. 2143: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 All Droplets for .LB Image

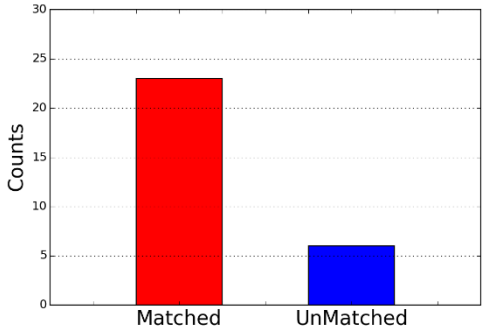


Figure C. 2146: CHC Count Comparison R-134a 55F 6800Btu 15000Lb Rot Tri

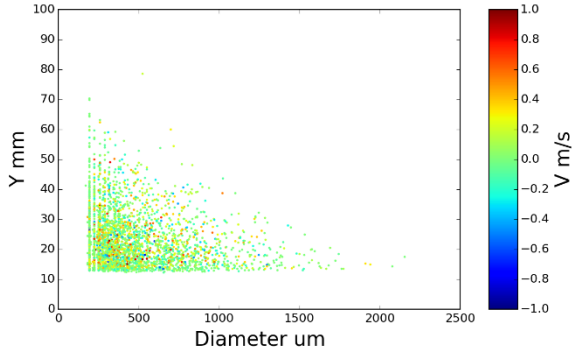


Figure C. 2149: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

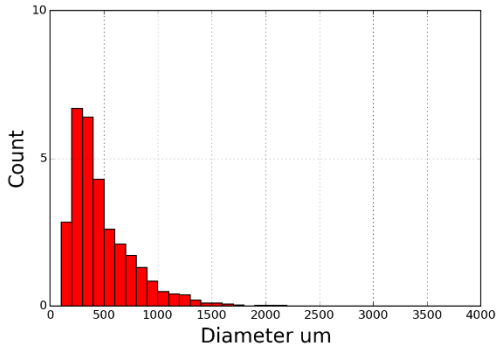


Figure C. 2147: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

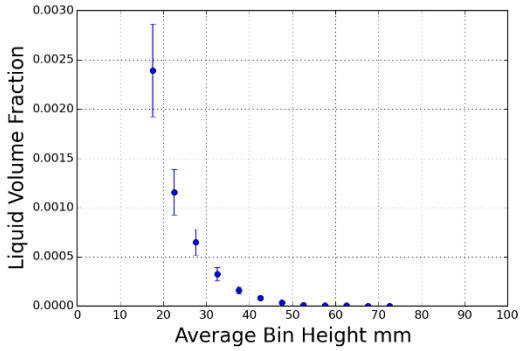


Figure C. 2150: Void Fraction R-134a 55F 6800Btu 15000Lb Rot Tri

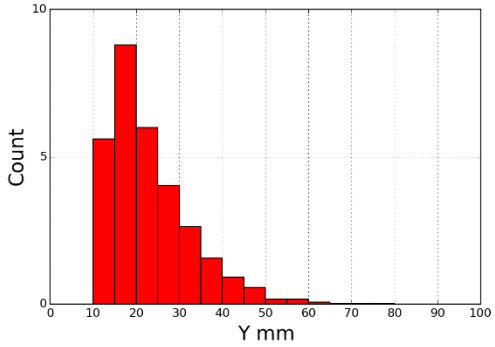


Figure C. 2148: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LA Image

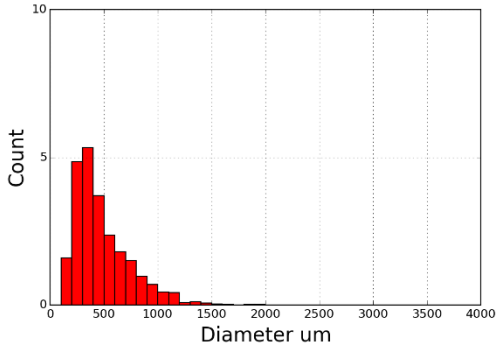


Figure C. 2151: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

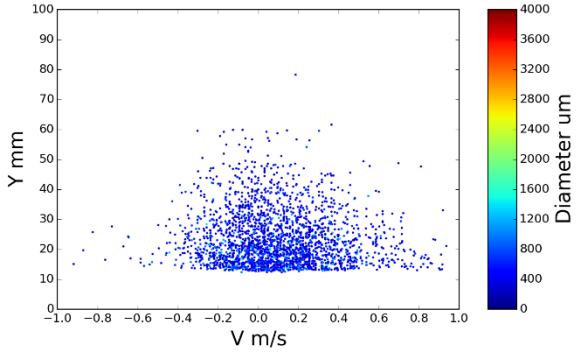


Figure C. 2154: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

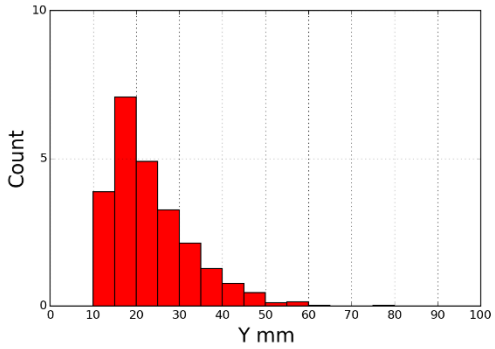


Figure C. 2152: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

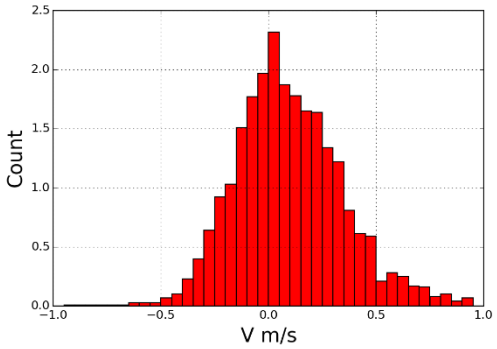


Figure C. 2155: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

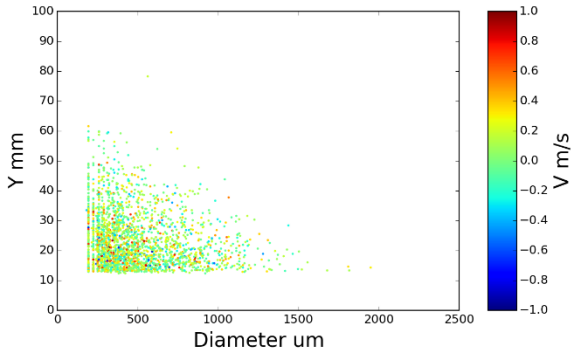


Figure C. 2153: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.6.3.2 Matched Only Droplets for .LB Image

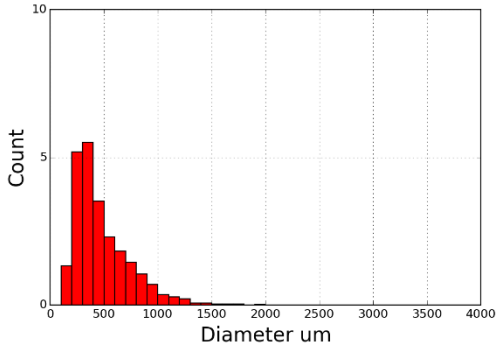


Figure C. 2156: Droplet Diameter Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

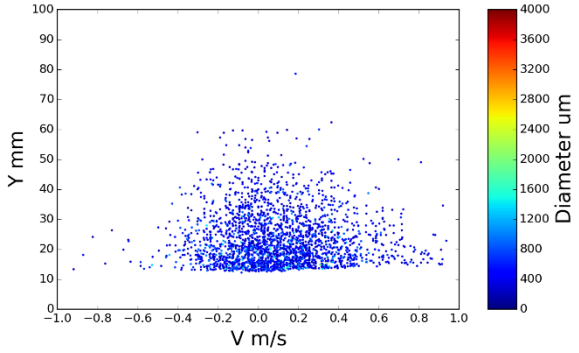


Figure C. 2159: Droplet Height vs Vertical Velocity R-134a 55F 6800Btu 15000Lb Rot Tri

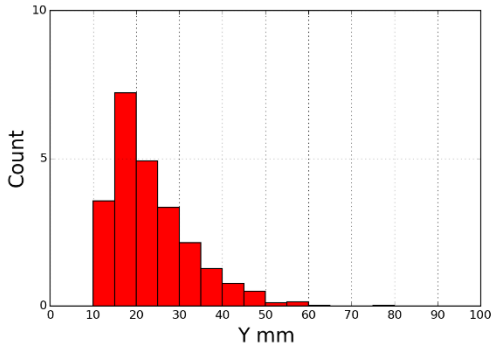


Figure C. 2157: Droplet Height Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

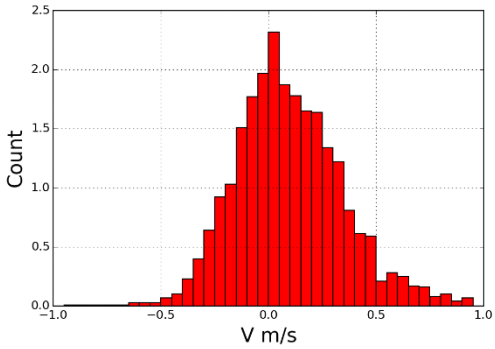


Figure C. 2160: Droplet Vertical Velocity Histogram R-134a 55F 6800Btu 15000Lb Rot Tri

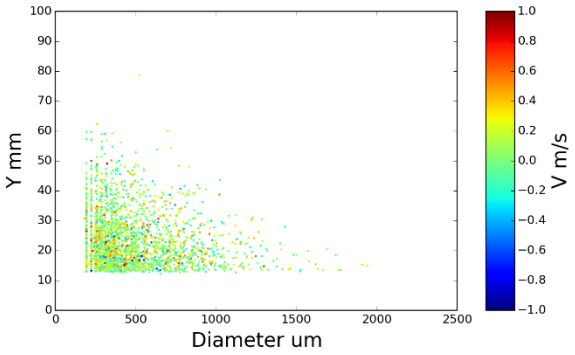


Figure C. 2158: Droplet Height vs Diameter R-134a 55F 6800Btu 15000Lb Rot Tri

C.7 - 1556 R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11620 / 1.464
Ref Mass Flow (lb/hr) / (kg/s)	3086 / 0.389
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	30037 / 40.737
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	4961 / 15.65
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.8 / 12.69
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.0 / 12.79
Total Bundle Q (Btu/hr) / (kW)	171392 / 50.23
Total Bundle & Preboiler Q (Btu/hr) / (kW)	282640 / 82.83
Top Two Rows HTC Ratio	1.049
Bundle Inlet Quality	0.31
Bundle Exit Quality	1.00

Table C. 235: Thermal Conditions

C.7.1.1 Lens 100mm Mag 0_29x

C.7.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	62.25	63.11	75.9	3990	484.4	559.7	75.9	3983	470.8	540.1
40-60mm	166.78	173.14	75.9	4013	456.0	498.9	75.9	3989	454.3	500.0
60-80mm	210.44	214.14	75.9	4004	417.7	436.7	75.9	3965	417.1	432.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	443.03	453.28	75.9	4013	441.7	480.4	75.9	3989	438.9	475.8
			Height A (mm)				Height B (mm)			
Highest Particle			79.5196				79.5196			
Lowest Particle			31.5332				31.5332			

Table C. 236: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	29.7	81.2	3751	591.3	571.5	75.9	3983	581.1	572.5	-1.910	1.910	-0.040	0.500	-1.900	1.900	-0.120	0.600
40-60mm	93.92	75.9	3701	533.7	503.9	75.9	3989	524.6	501.1	-1.910	1.900	-0.020	0.420	-1.910	1.910	-0.150	0.520
60-80mm	142.14	81.2	3519	463.0	430.8	75.9	3774	455.8	423.2	-1.910	1.910	-0.040	0.350	-1.910	1.910	-0.130	0.440
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	265.76	75.9	3751	502.3	477.1	75.9	3989	494.3	472.6	-1.910	1.910	-0.030	0.390	-1.910	1.910	-0.130	0.490

Table C. 237: Matched Droplet Info

C.7.1.1 All Droplets for .LA Image

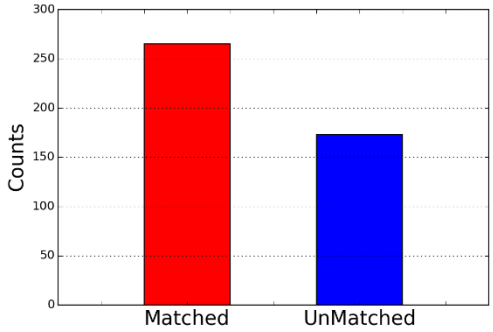


Figure C. 2161: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

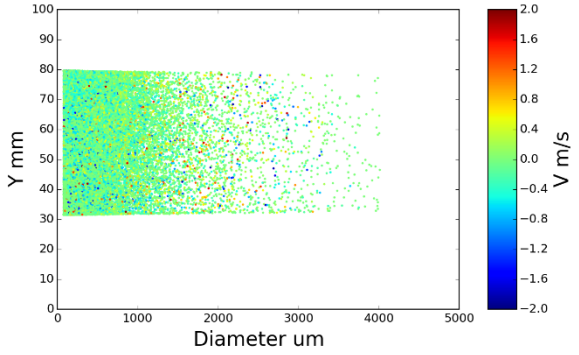


Figure C. 2164: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

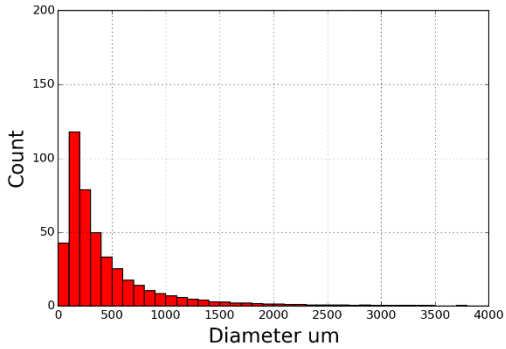


Figure C. 2162: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

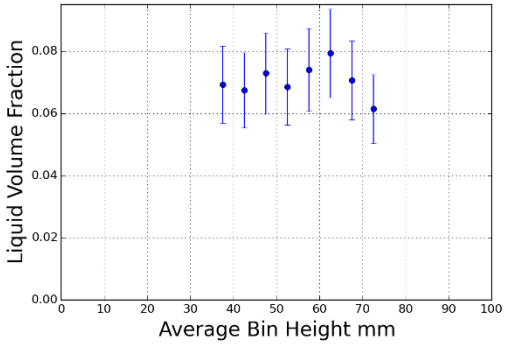


Figure C. 2165: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

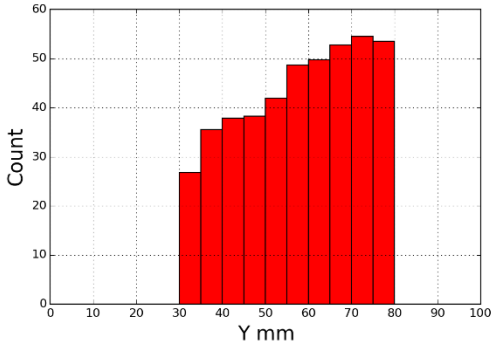


Figure C. 2163: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 All Droplets for .LB Image

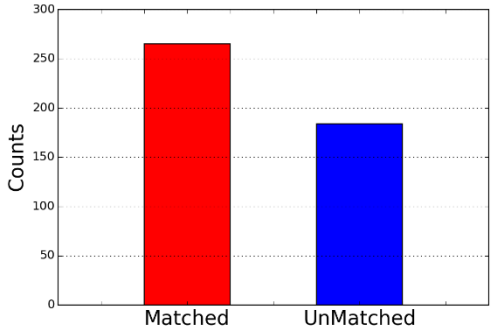


Figure C. 2166: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

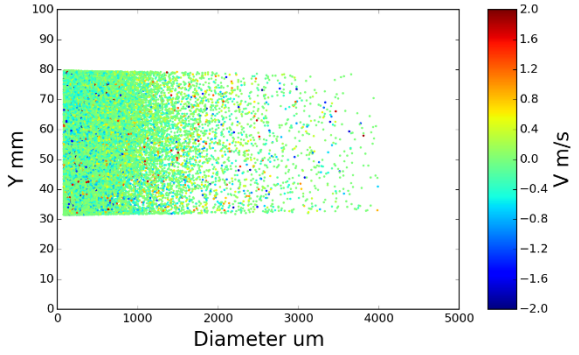


Figure C. 2169: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

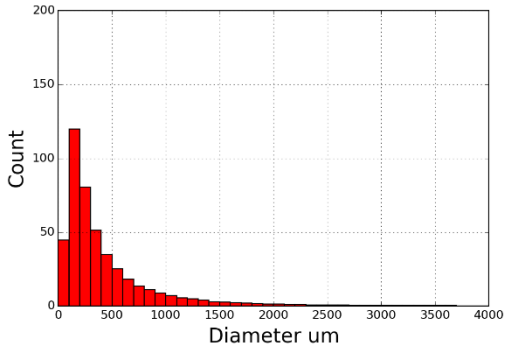


Figure C. 2167: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

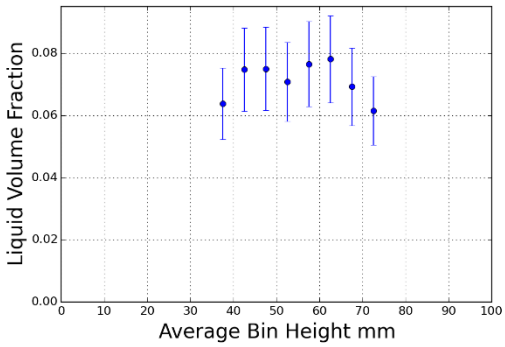


Figure C. 2170: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

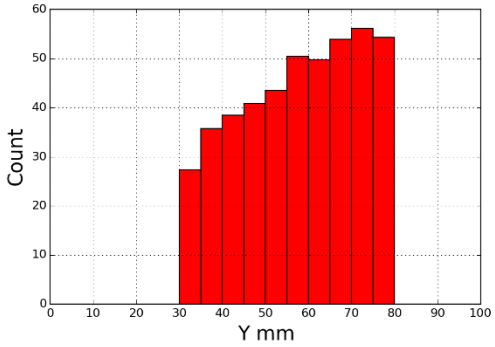


Figure C. 2168: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LA Image

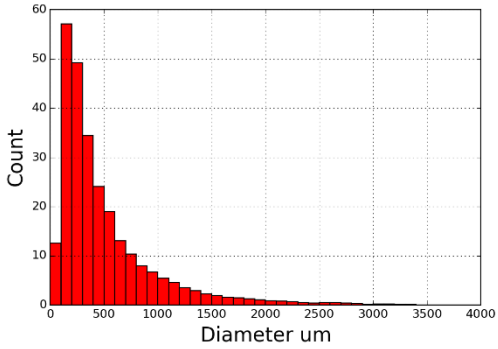


Figure C. 2171: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

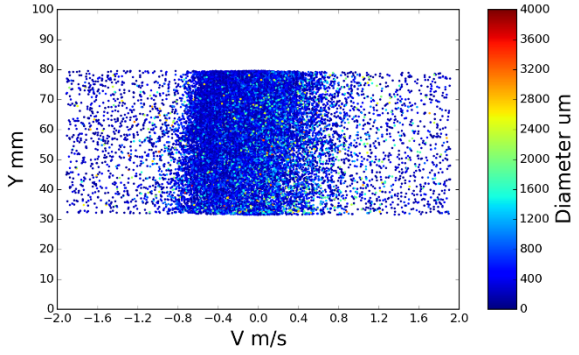


Figure C. 2174: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

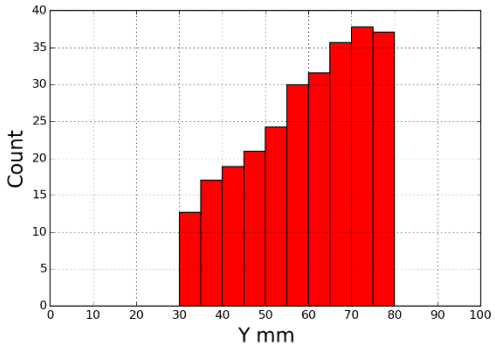


Figure C. 2172: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

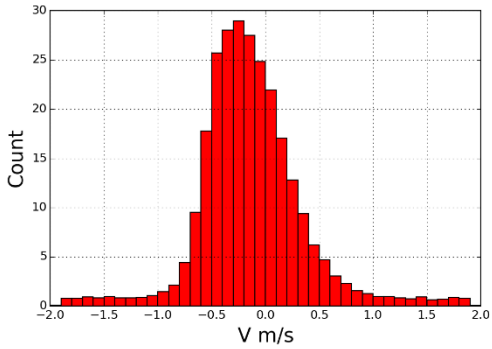


Figure C. 2175: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

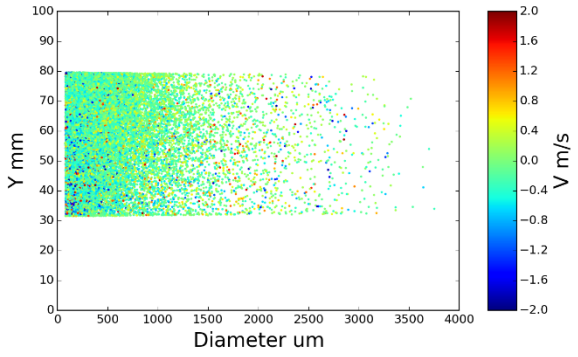


Figure C. 2173: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LB Image

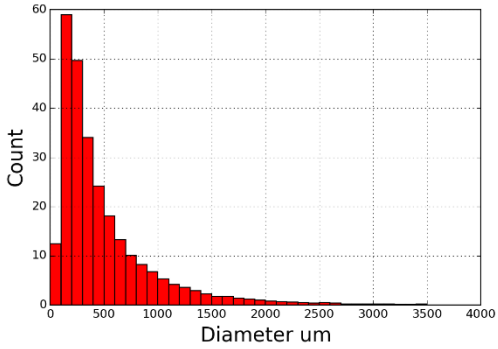


Figure C. 2176: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

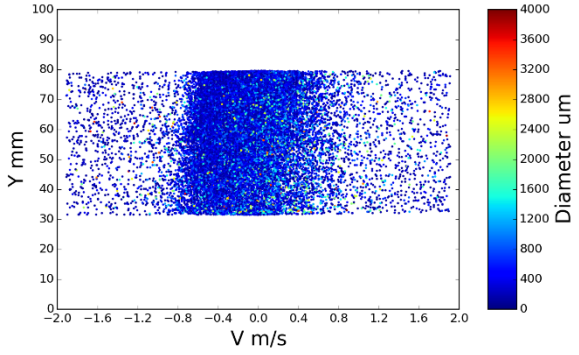


Figure C. 2179: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

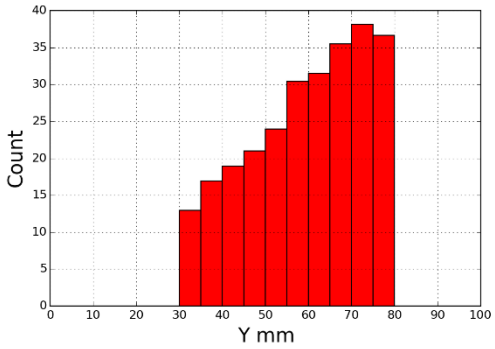


Figure C. 2177: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

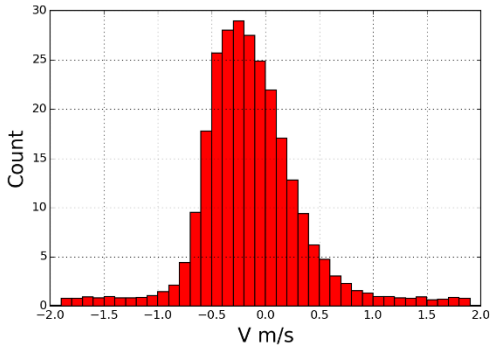


Figure C. 2180: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

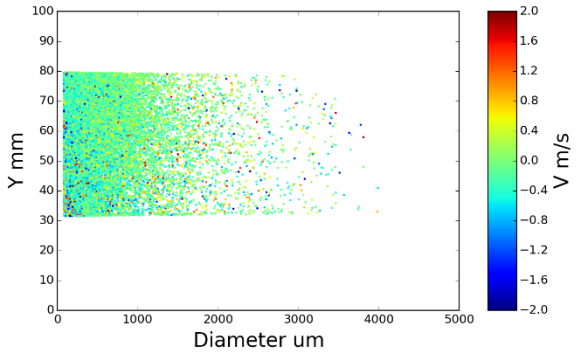


Figure C. 2178: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	56.46	59.09	75.9	4010	512.4	554.3	75.9	3995	509.0	545.4
40-60mm	159.31	160.71	75.9	3981	473.6	514.3	75.9	4000	477.5	522.4
60-80mm	209.05	214.28	75.9	3987	449.8	458.8	75.9	3872	442.1	452.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	427.77	436.88	75.9	4010	467.0	494.0	75.9	4000	464.3	493.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.5196				79.5196			
Lowest Particle			31.5332				31.5332			

Table C. 238: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	26.49	75.9	3860	631.6	562.9	81.2	3921	623.4	563.0	-1.900	1.910	-0.010	0.490	-1.910	1.910	0.070	0.610
40-60mm	87.03	81.2	3880	556.5	529.6	75.9	3992	549.0	533.3	-1.910	1.910	-0.030	0.430	-1.900	1.910	0.020	0.550
60-80mm	141.42	75.9	3820	499.6	453.7	75.9	3872	491.3	450.5	-1.910	1.910	-0.020	0.330	-1.910	1.900	-0.010	0.450
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	254.94	75.9	3880	532.7	494.6	75.9	3992	524.6	494.3	-1.910	1.910	-0.020	0.390	-1.910	1.910	0.010	0.500

Table C. 239: Matched Droplet Info

C.7.1.1 All Droplets for .LA Image

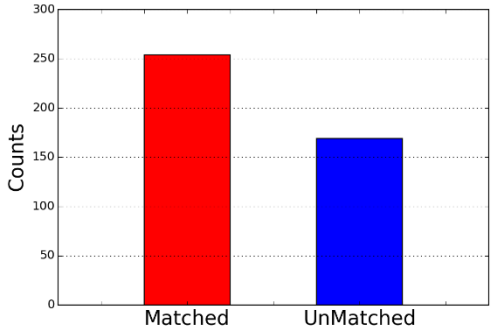


Figure C. 2181: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

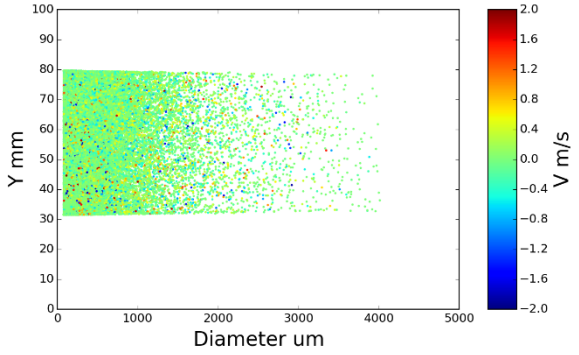


Figure C. 2184: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

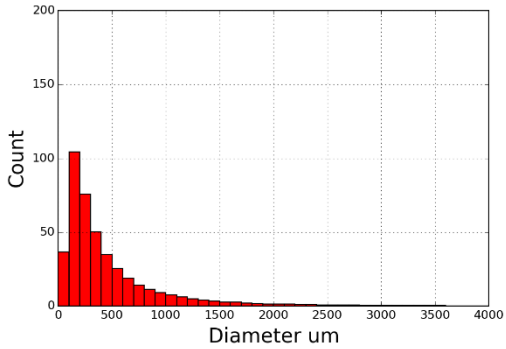


Figure C. 2182: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

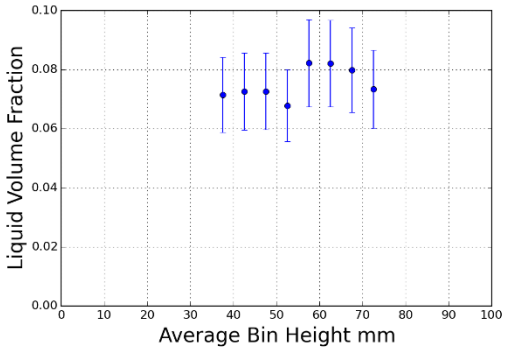


Figure C. 2185: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

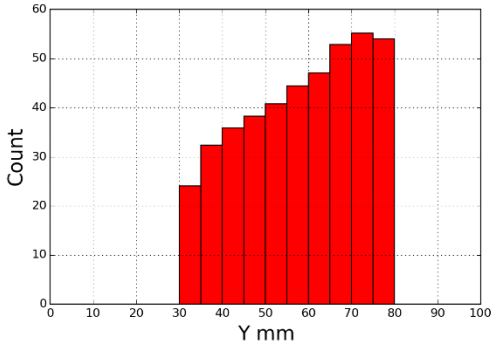


Figure C. 2183: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 All Droplets for .LB Image

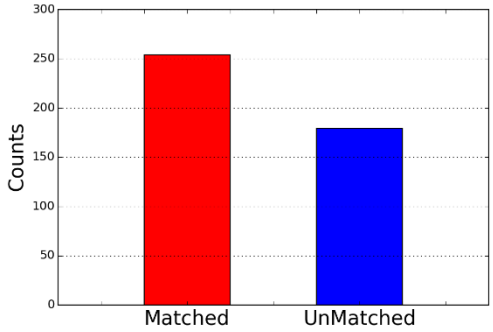


Figure C. 2186: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

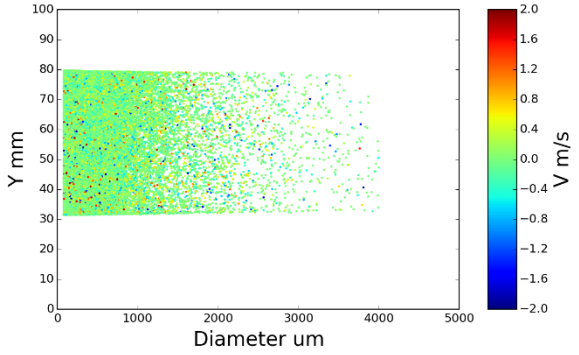


Figure C. 2189: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

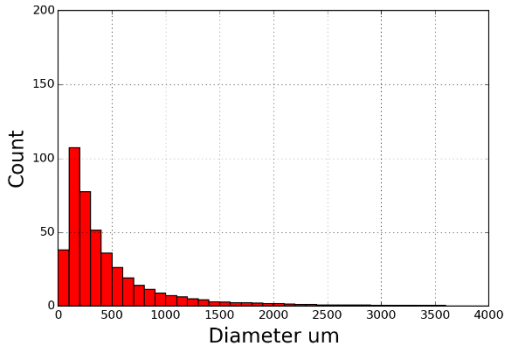


Figure C. 2187: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

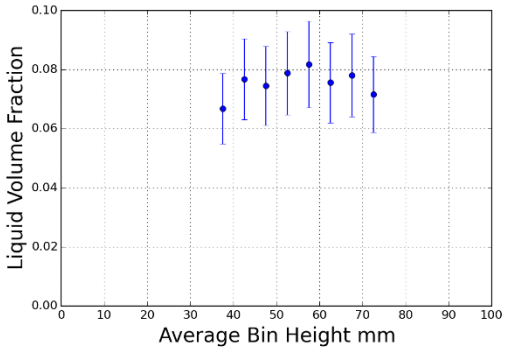


Figure C. 2190: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

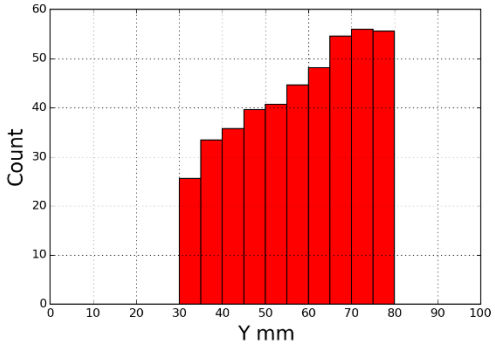


Figure C. 2188: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LA Image

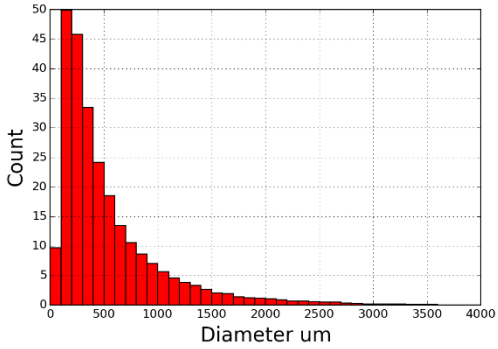


Figure C. 2191: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

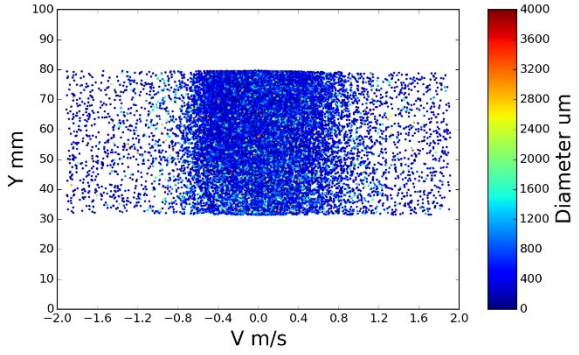


Figure C. 2194: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

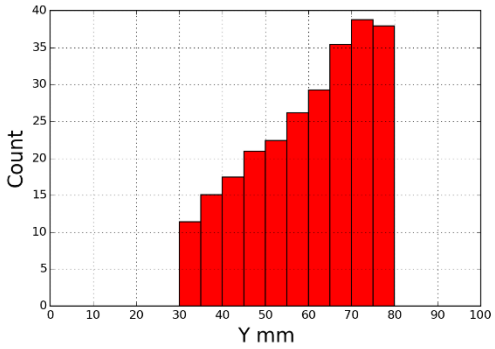


Figure C. 2192: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

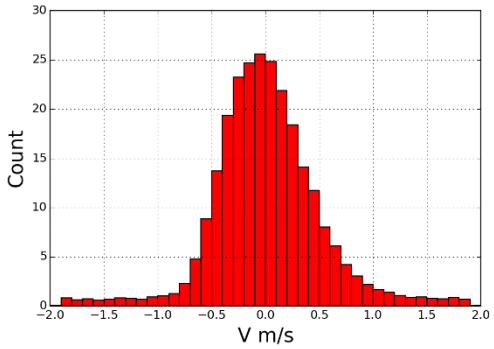


Figure C. 2195: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

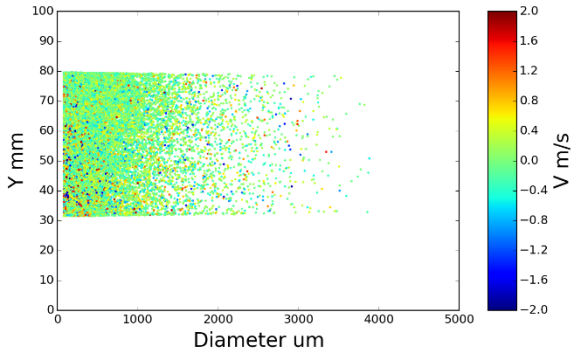


Figure C. 2193: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LB Image

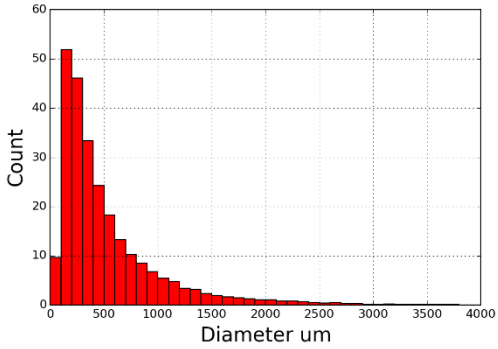


Figure C. 2196: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

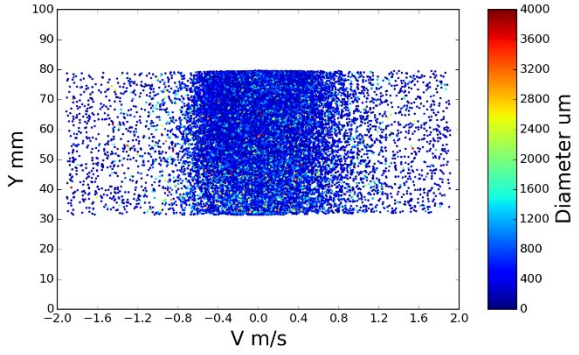


Figure C. 2199: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

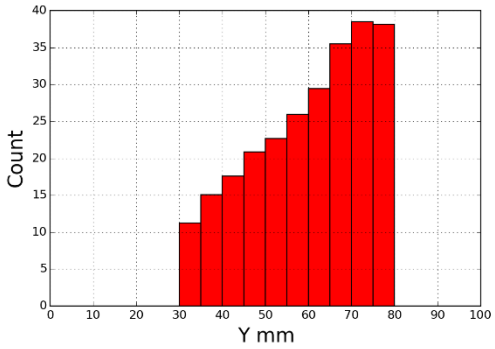


Figure C. 2197: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

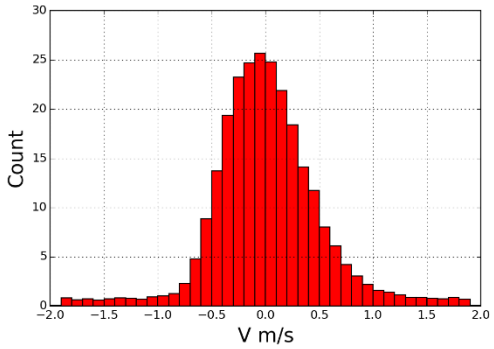


Figure C. 2200: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

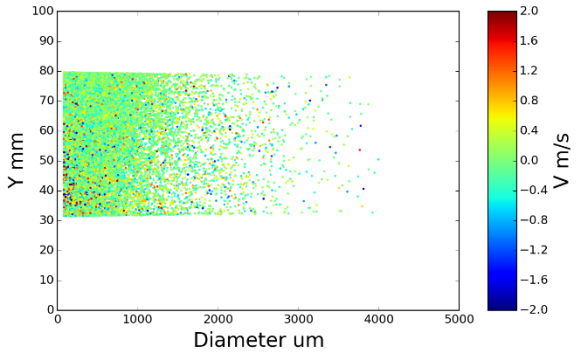


Figure C. 2198: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	49.31	48.35	75.9	4015	535.9	594.9	75.9	3881	519.4	574.3
40-60mm	144.14	145.04	75.9	3999	483.9	529.8	75.9	3977	480.2	522.1
60-80mm	211.42	211.81	75.9	3873	451.6	467.4	75.9	4006	445.8	466.1
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	408.26	407.87	75.9	4015	473.4	507.8	75.9	4006	466.9	501.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.5196				79.5196			
Lowest Particle			31.5332				31.5332			

Table C. 240: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	19.66	81.2	3572	681.6	615.0	81.2	3730	676.7	629.2	-1.910	1.870	-0.020	0.570	-1.890	1.900	0.250	0.660
40-60mm	75.05	81.2	3938	570.2	549.6	81.2	3977	560.8	547.8	-1.910	1.910	-0.030	0.450	-1.910	1.910	0.110	0.570
60-80mm	139.18	81.2	3873	503.2	469.6	75.9	3939	494.3	464.5	-1.910	1.910	-0.030	0.350	-1.910	1.910	0.060	0.450
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	233.89	81.2	3938	539.7	512.6	75.9	3977	530.8	510.5	-1.910	1.910	-0.030	0.410	-1.910	1.910	0.090	0.510

Table C. 241: Matched Droplet Info

C.7.1.1 All Droplets for .LA Image

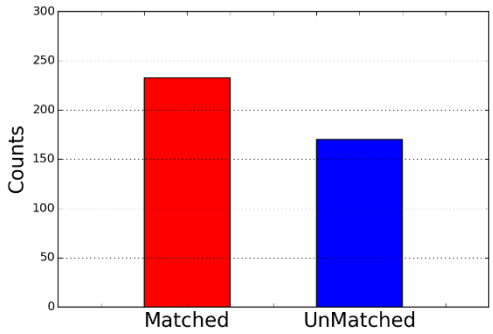


Figure C. 2201: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

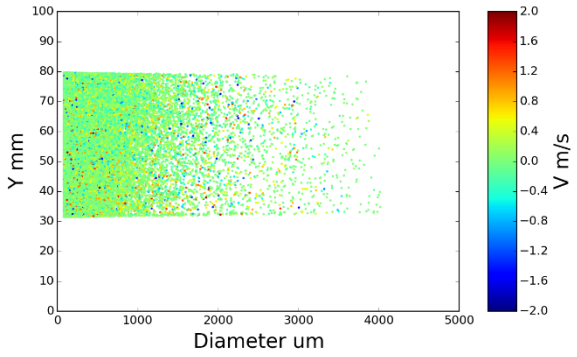


Figure C. 2204: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

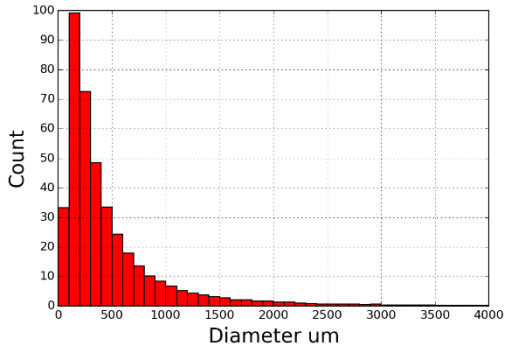


Figure C. 2202: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

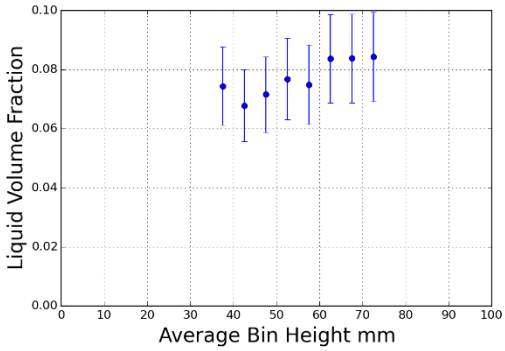


Figure C. 2205: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

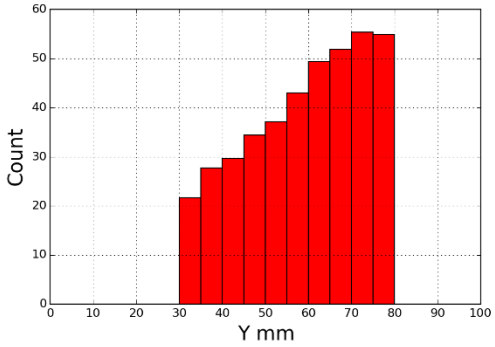


Figure C. 2203: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 All Droplets for .LB Image

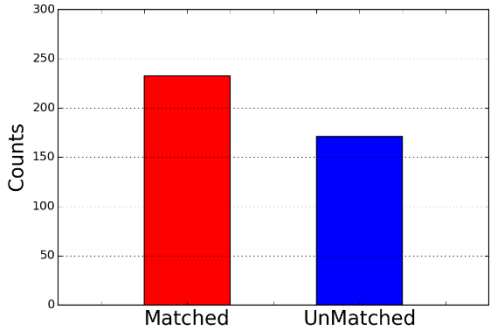


Figure C. 2206: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

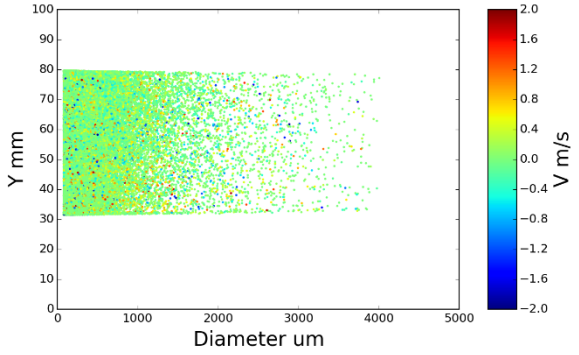


Figure C. 2209: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

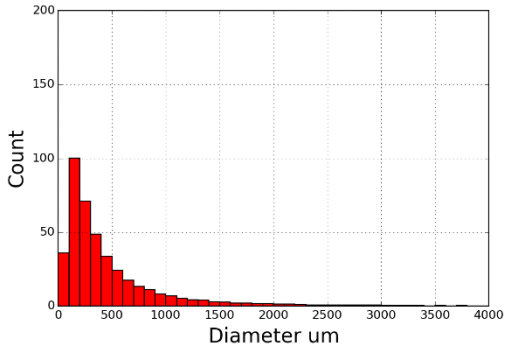


Figure C. 2207: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

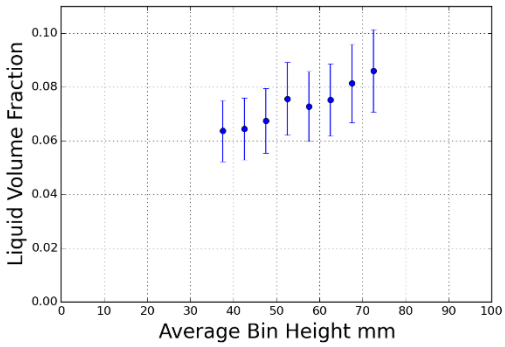


Figure C. 2210: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

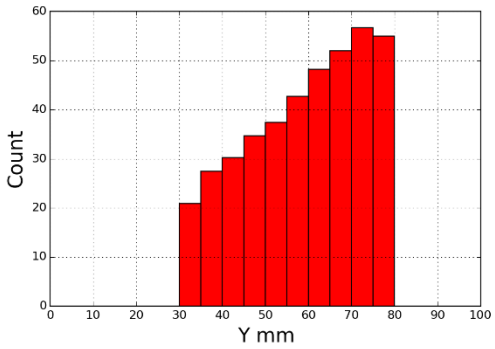


Figure C. 2208: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LA Image

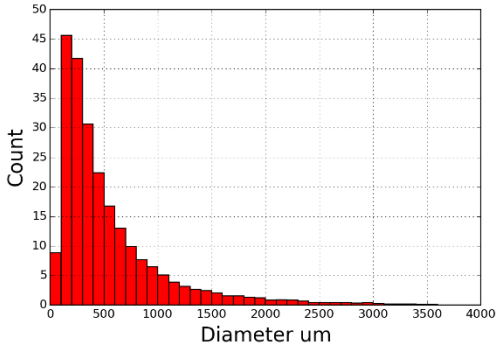


Figure C. 2211: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

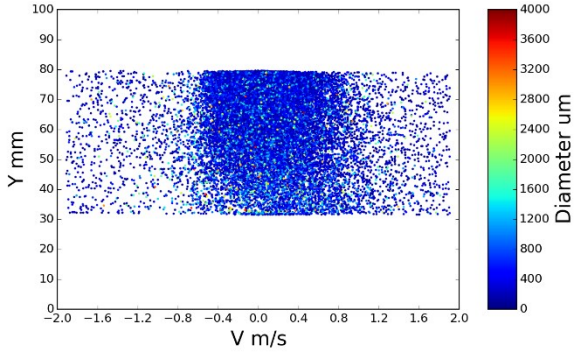


Figure C. 2214: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

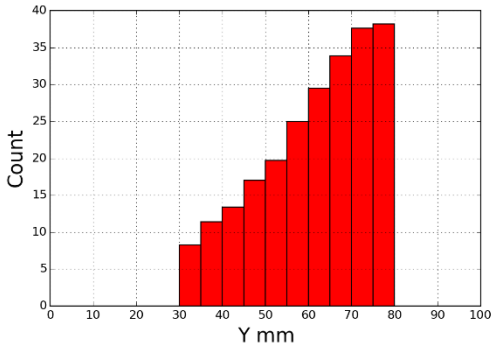


Figure C. 2212: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

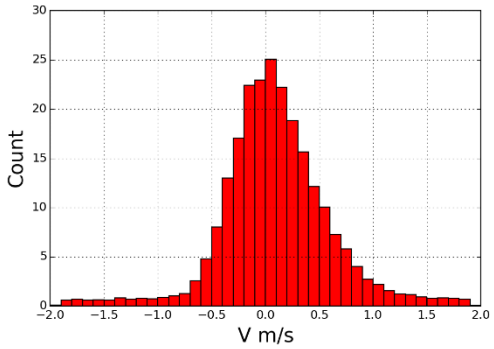


Figure C. 2215: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

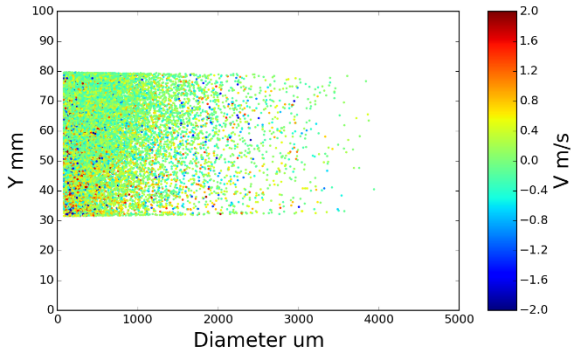


Figure C. 2213: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.1 Matched Only Droplets for .LB Image

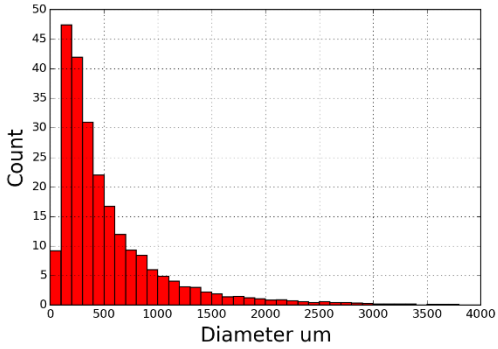


Figure C. 2216: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

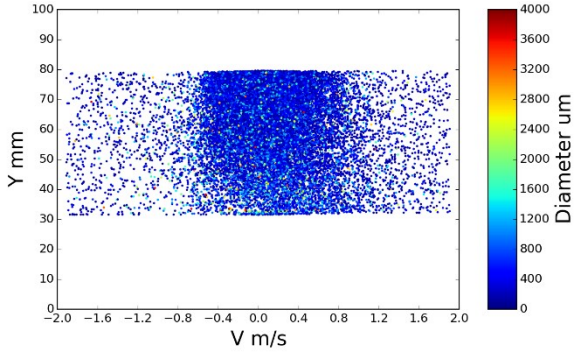


Figure C. 2219: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

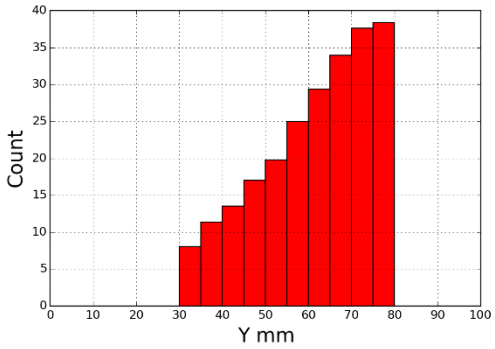


Figure C. 2217: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

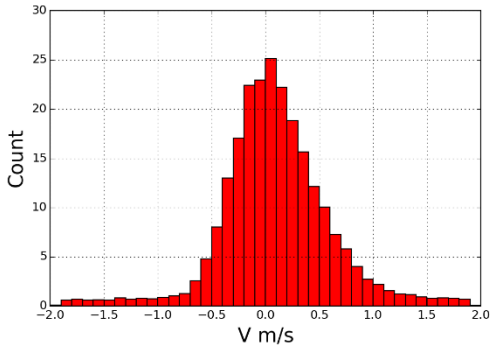


Figure C. 2220: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

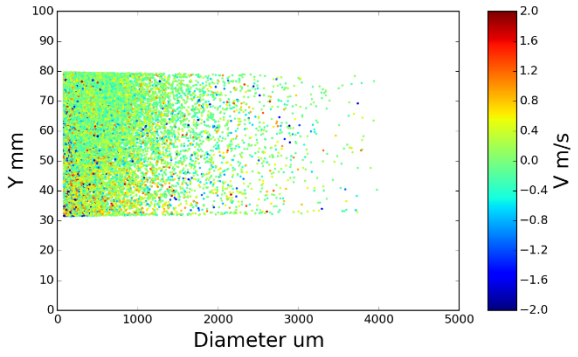


Figure C. 2218: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Lens 50mm Mag 0_13x

C.7.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	41.67	41.43	170.5	3911	745.7	646.4	170.5	3993	771.9	679.1
40-60mm	98.24	97.25	170.5	3961	696.6	597.8	170.5	3993	702.8	615.0
60-80mm	133.27	133.21	182.3	3996	634.8	533.1	170.5	3970	627.5	520.7
80-100mm	140.51	141.38	170.5	3910	502.9	373.4	170.5	3813	499.0	368.8
All	413.77	413.34	170.5	3996	615.9	523.0	170.5	3993	615.7	527.4
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9758			
Lowest Particle			30.0970				30.0970			

Table C. 242: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	17.73	182.3	3748	867.8	663.8	170.5	3945	844.6	670.4	-1.900	1.900	-0.090	0.730	-1.880	1.900	-0.060	0.790
40-60mm	48.55	182.3	3763	760.7	594.6	182.3	3972	745.9	600.0	-1.900	1.900	-0.060	0.700	-1.900	1.900	-0.100	0.740
60-80mm	78.31	182.3	3799	684.2	521.6	170.5	3944	671.5	511.7	-1.900	1.900	-0.070	0.610	-1.900	1.900	-0.110	0.660
80-100mm	86.08	182.3	3362	550.0	390.0	170.5	3579	545.0	384.5	-1.900	1.900	-0.080	0.600	-1.900	1.900	-0.110	0.640
All	230.67	182.3	3799	664.3	517.3	170.5	3972	653.8	513.8	-1.900	1.900	-0.070	0.640	-1.900	1.900	-0.100	0.680

Table C. 243: Matched Droplet Info

C.7.1.2 All Droplets for .LA Image

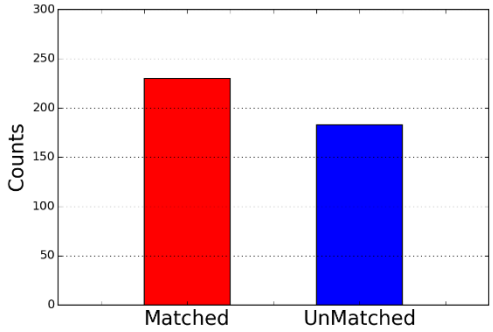


Figure C. 2221: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

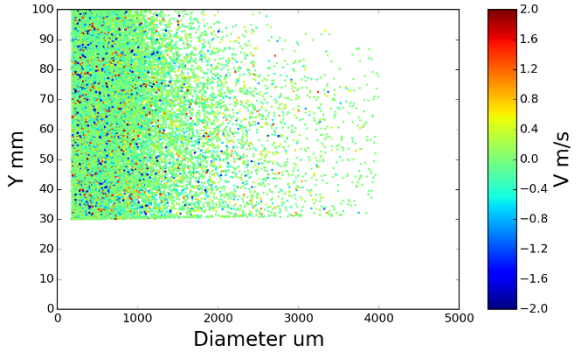


Figure C. 2224: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

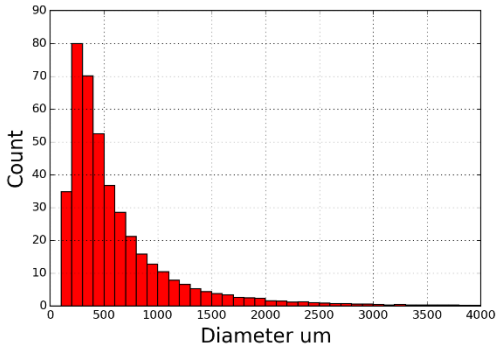


Figure C. 2222: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

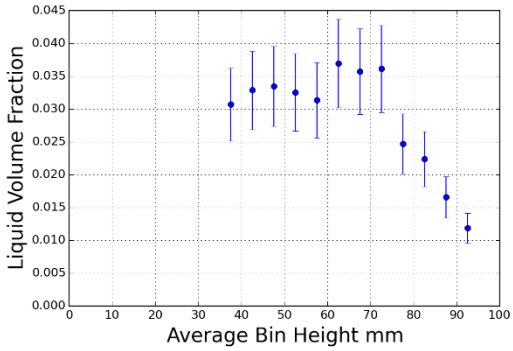


Figure C. 2225: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

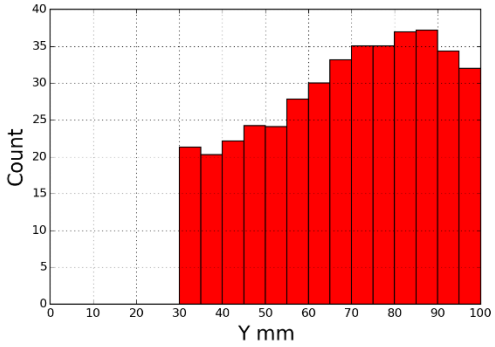


Figure C. 2223: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 All Droplets for .LB Image

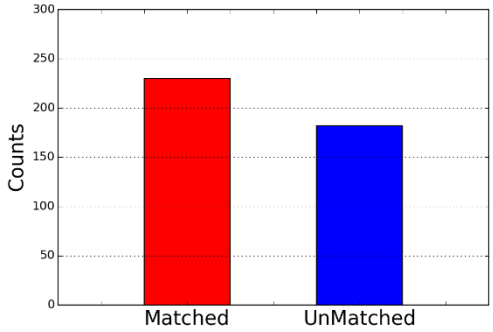


Figure C. 2226: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

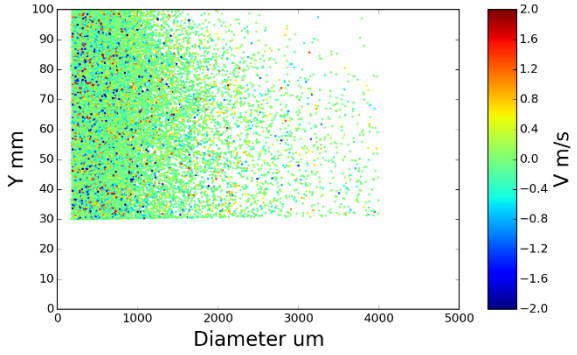


Figure C. 2229: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

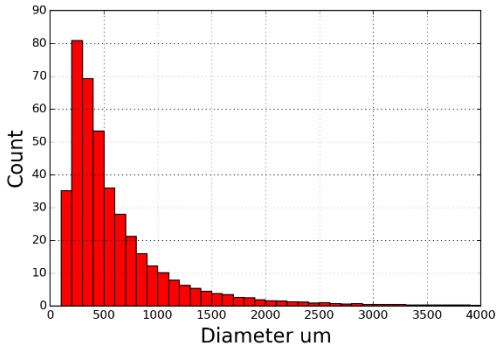


Figure C. 2227: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

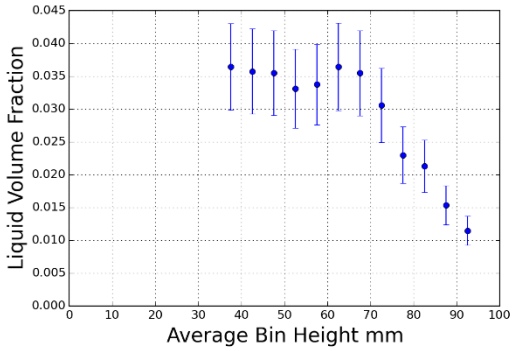


Figure C. 2230: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

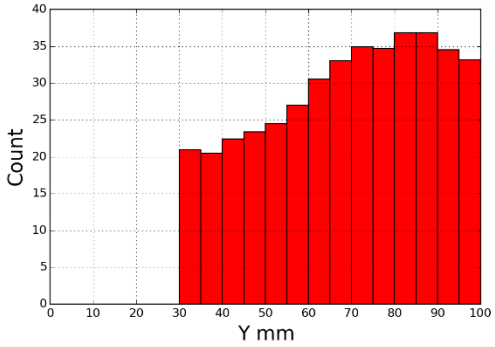


Figure C. 2228: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LA Image

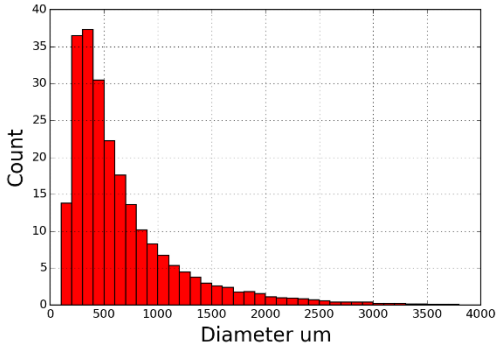


Figure C. 2231: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

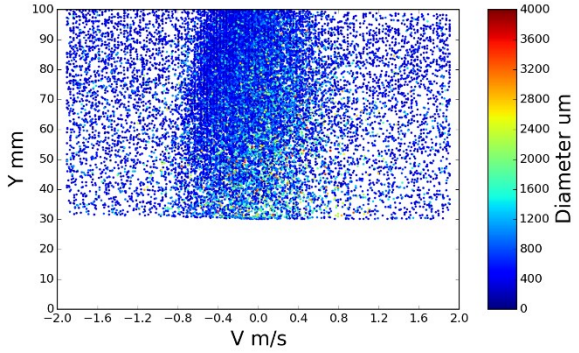


Figure C. 2234: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

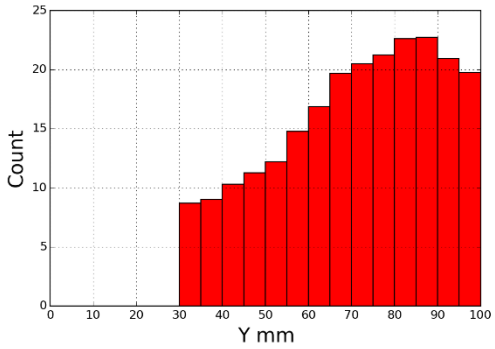


Figure C. 2232: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

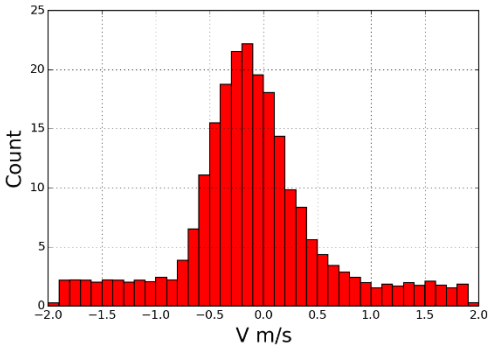


Figure C. 2235: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

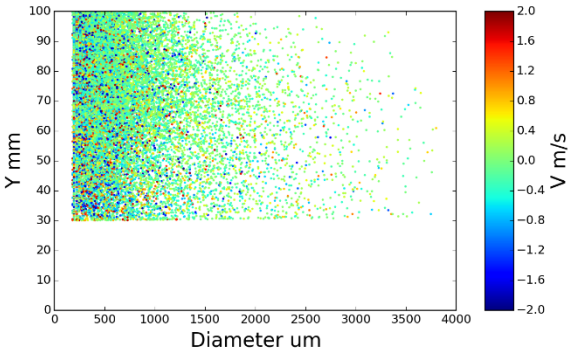


Figure C. 2233: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LB Image

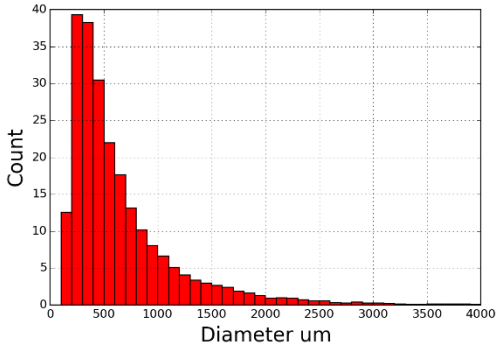


Figure C. 2236: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

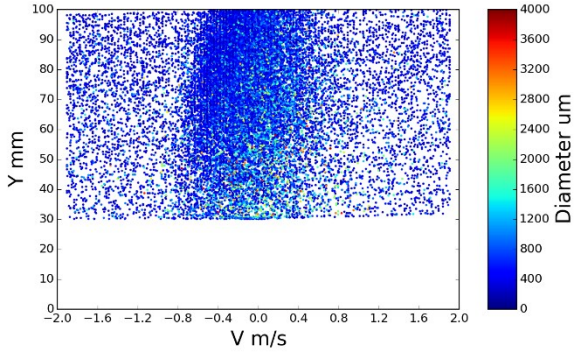


Figure C. 2239: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

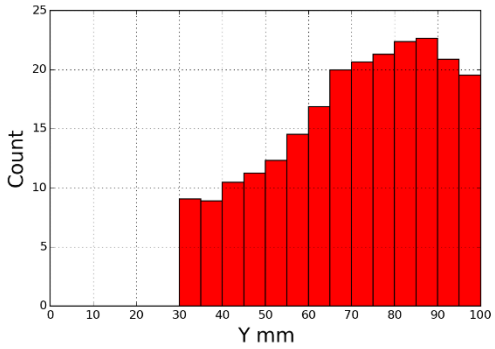


Figure C. 2237: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

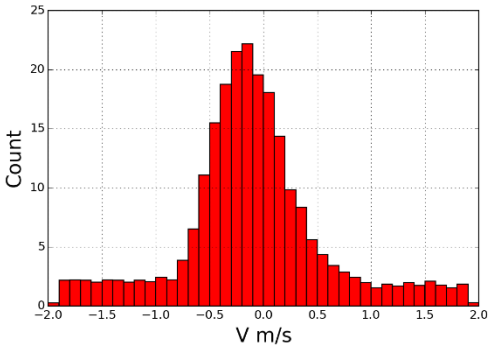


Figure C. 2240: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

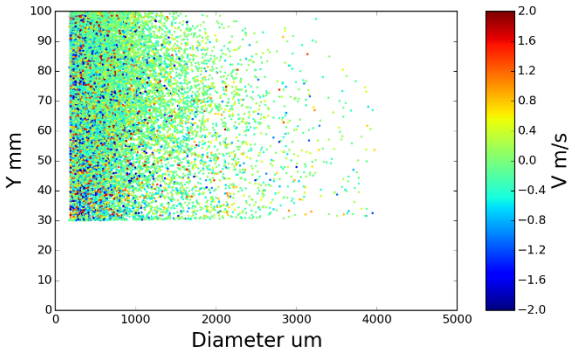


Figure C. 2238: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	39.61	37.87	170.5	3996	745.6	669.2	170.5	3983	735.6	639.7
40-60mm	106.13	106.46	170.5	3995	708.8	610.0	170.5	3982	705.9	596.4
60-80mm	148.64	150.18	170.5	3995	637.4	514.0	170.5	3982	638.5	521.5
80-100mm	157.84	160.04	170.5	3972	503.8	360.9	170.5	3716	500.6	352.4
All	452.33	454.6	170.5	3996	617.0	516.6	170.5	3983	613.8	508.9
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.1208				30.0970			

Table C. 244: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	15.18	182.3	3654	824.2	635.2	182.3	3983	801.9	649.7	-1.880	1.900	-0.100	0.780	-1.900	1.900	0.040	0.810
40-60mm	52.89	182.3	3872	778.0	600.6	170.5	3977	756.5	592.3	-1.900	1.900	-0.070	0.740	-1.900	1.900	-0.010	0.800
60-80mm	86.41	182.3	3909	691.9	519.2	182.3	3981	680.9	515.2	-1.900	1.900	-0.080	0.660	-1.900	1.900	-0.030	0.720
80-100mm	96.04	182.3	3576	551.9	378.3	170.5	3682	543.8	369.1	-1.900	1.900	-0.070	0.650	-1.900	1.900	-0.070	0.700
All	250.52	182.3	3909	664.4	507.8	170.5	3983	651.8	502.1	-1.900	1.900	-0.070	0.680	-1.900	1.900	-0.040	0.730

Table C. 245: Matched Droplet Info

C.7.1.2 All Droplets for .LA Image

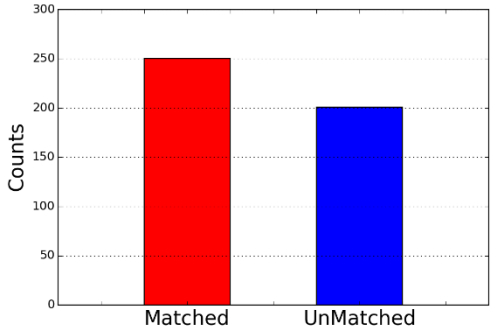


Figure C. 2241: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

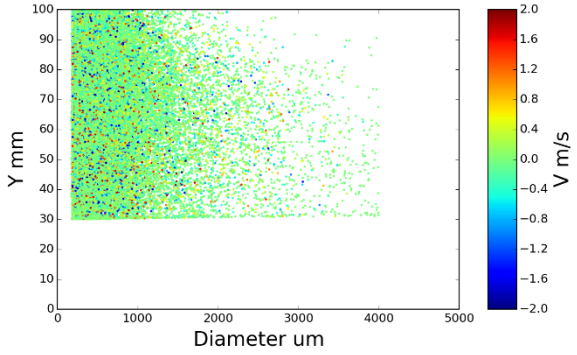


Figure C. 2244: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

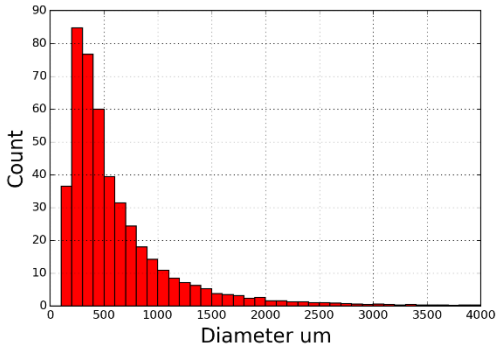


Figure C. 2242: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

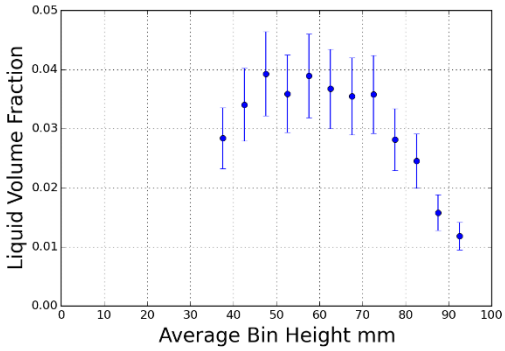


Figure C. 2245: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

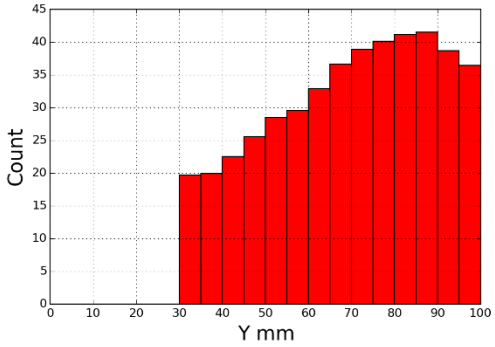


Figure C. 2243: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 All Droplets for .LB Image

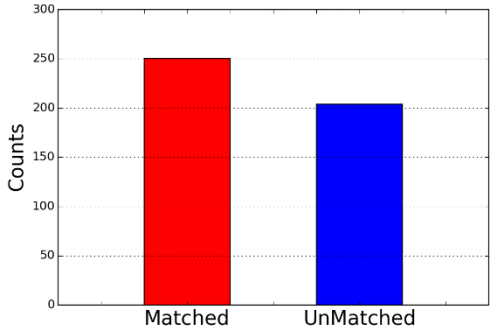


Figure C. 2246: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

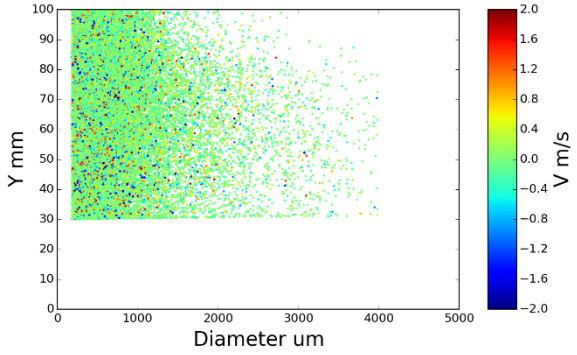


Figure C. 2249: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

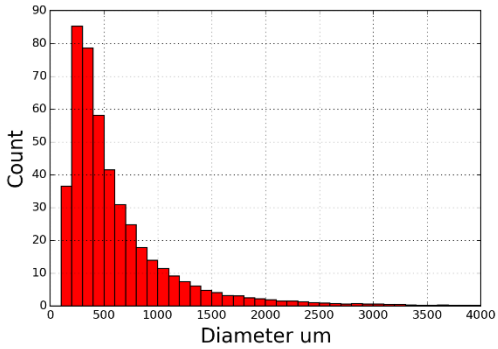


Figure C. 2247: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

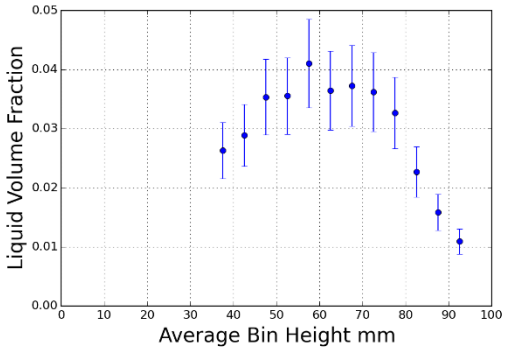


Figure C. 2250: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

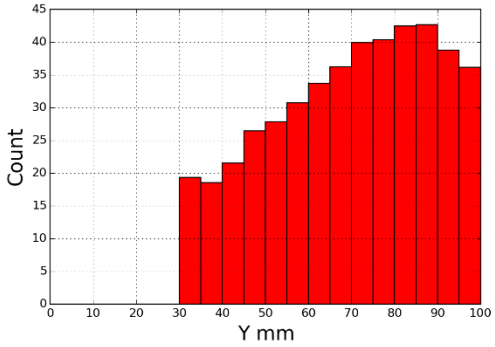


Figure C. 2248: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LA Image

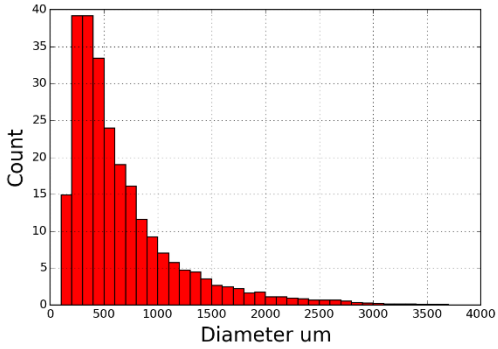


Figure C. 2251: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

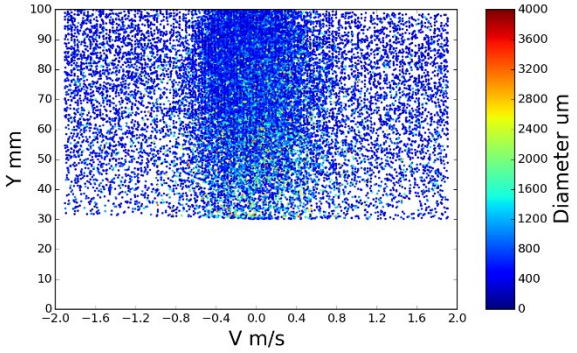


Figure C. 2254: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

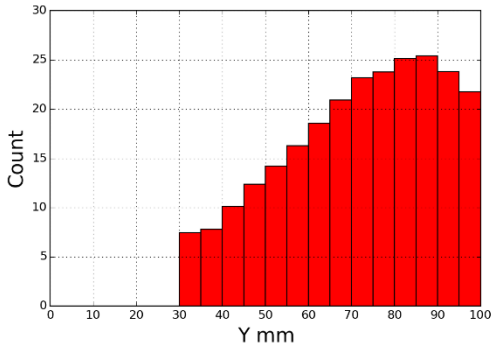


Figure C. 2252: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

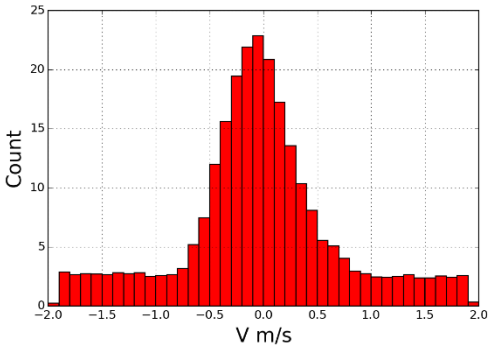


Figure C. 2255: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

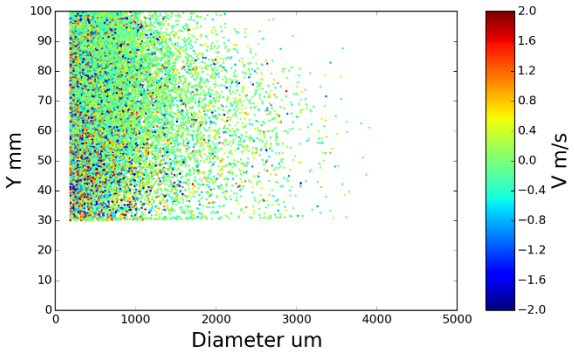


Figure C. 2253: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LB Image

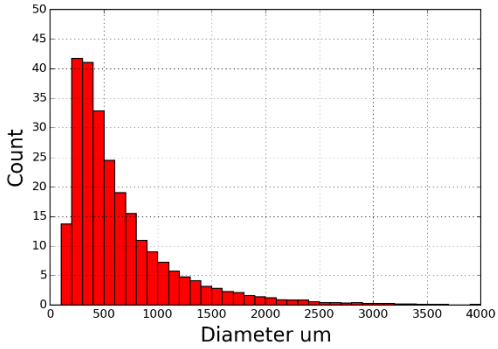


Figure C. 2256: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

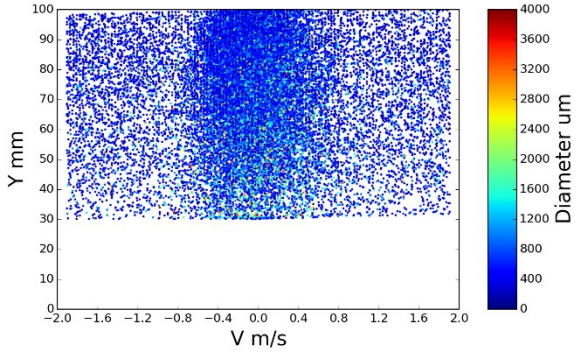


Figure C. 2259: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

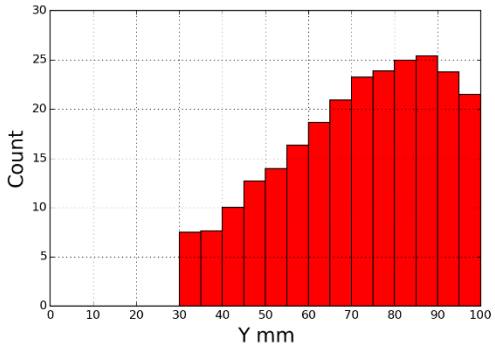


Figure C. 2257: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

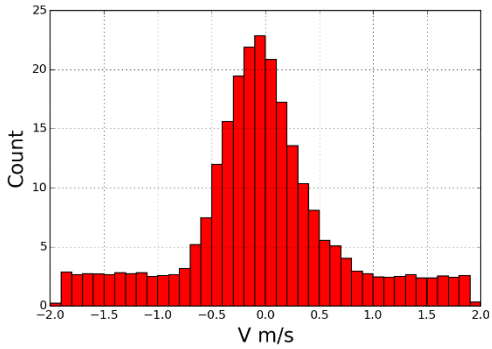


Figure C. 2260: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

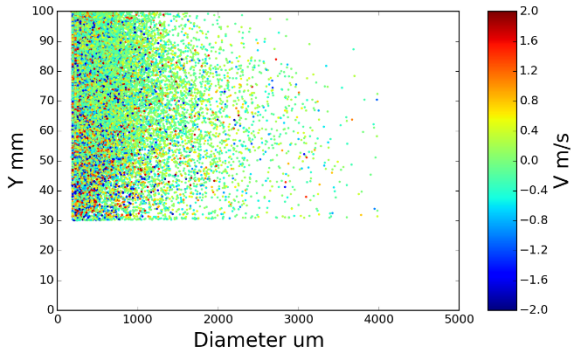


Figure C. 2258: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	36.0	36.59	170.5	3958	732.8	636.9	170.5	3931	727.0	636.6
40-60mm	99.25	98.6	170.5	3986	695.8	592.1	170.5	3976	691.4	594.2
60-80mm	151.88	150.72	170.5	3972	631.9	518.7	170.5	3996	633.5	515.7
80-100mm	164.06	165.17	170.5	3871	527.2	394.3	170.5	3952	525.8	398.9
All	451.38	451.26	170.5	3986	615.9	511.9	170.5	3996	614.3	512.3
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.9996			
Lowest Particle			30.0970				30.0970			

Table C. 246: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	14.81	182.3	3758	810.9	633.6	182.3	3871	792.9	637.4	-1.900	1.900	-0.080	0.800	-1.900	1.900	0.070	0.840
40-60mm	47.23	182.3	3979	758.9	582.5	170.5	3968	737.6	582.6	-1.900	1.900	-0.090	0.760	-1.900	1.900	0.040	0.800
60-80mm	86.12	182.3	3865	691.2	521.7	170.5	3969	677.7	517.3	-1.900	1.900	-0.090	0.710	-1.900	1.900	0.010	0.760
80-100mm	99.51	182.3	3858	579.9	412.6	182.3	3903	572.9	410.2	-1.900	1.900	-0.100	0.640	-1.900	1.900	-0.030	0.680
All	247.67	182.3	3979	666.5	507.8	170.5	3969	653.9	505.0	-1.900	1.900	-0.090	0.700	-1.900	1.900	0.010	0.740

Table C. 247: Matched Droplet Info

C.7.1.2 All Droplets for .LA Image

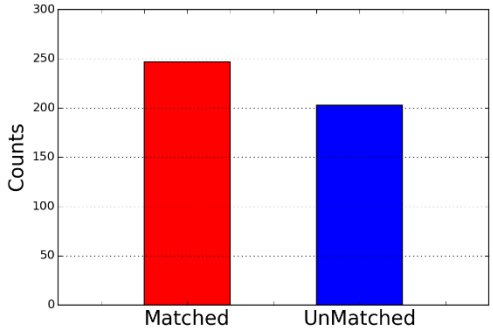


Figure C. 2261: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

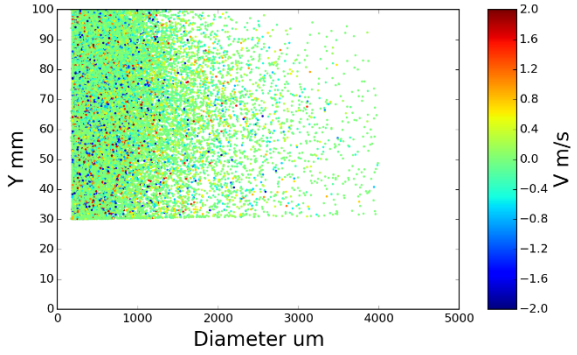


Figure C. 2264: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

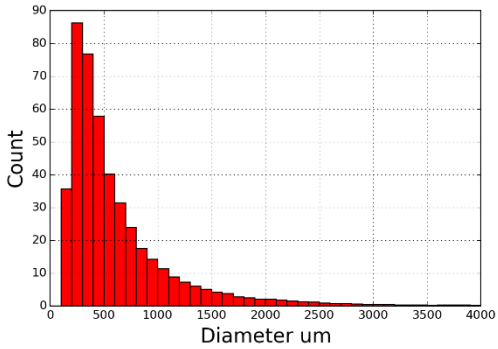


Figure C. 2262: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

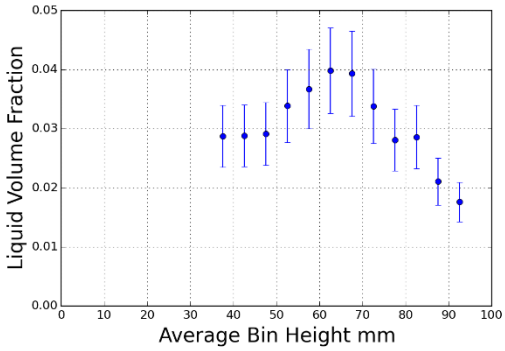


Figure C. 2265: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

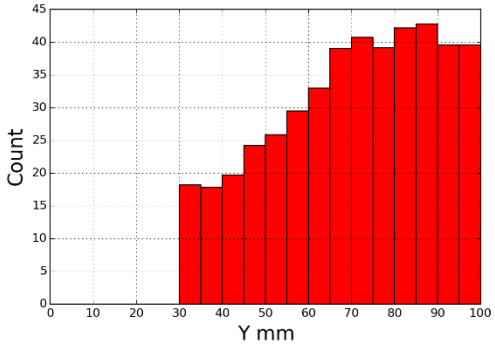


Figure C. 2263: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 All Droplets for .LB Image

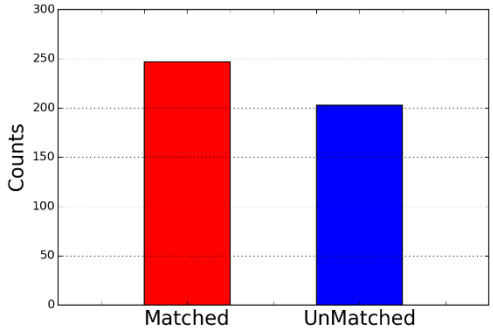


Figure C. 2266: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

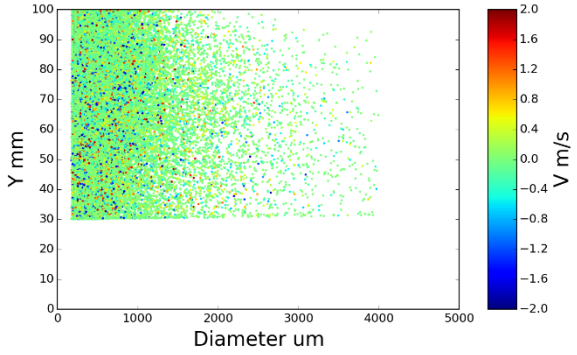


Figure C. 2269: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

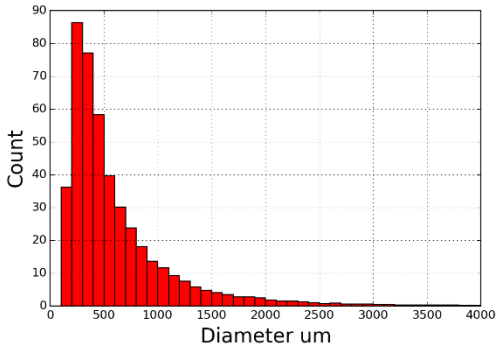


Figure C. 2267: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

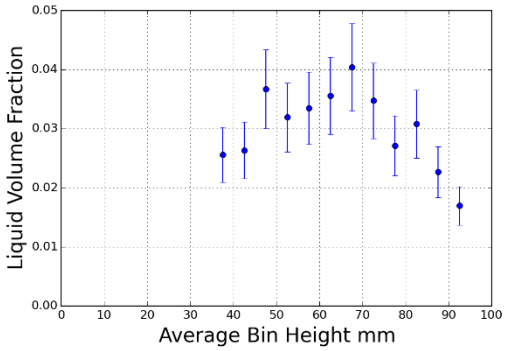


Figure C. 2270: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

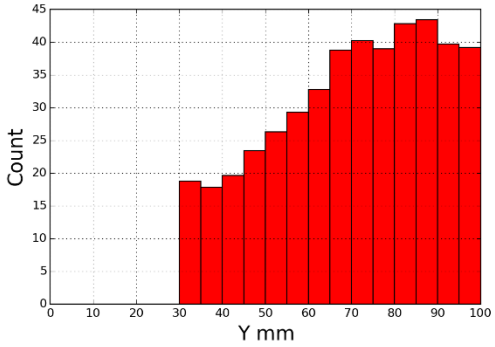


Figure C. 2268: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LA Image

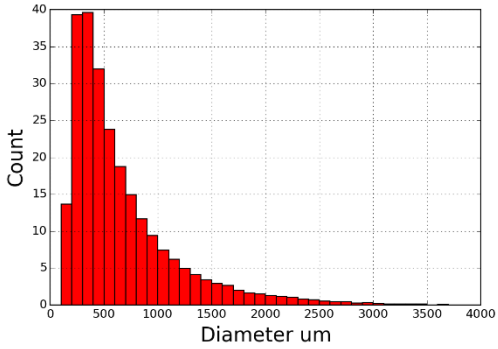


Figure C. 2271: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

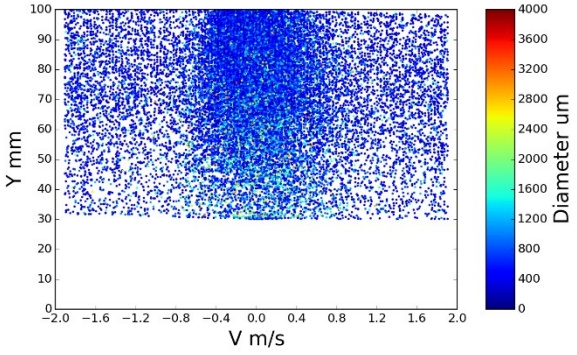


Figure C. 2274: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

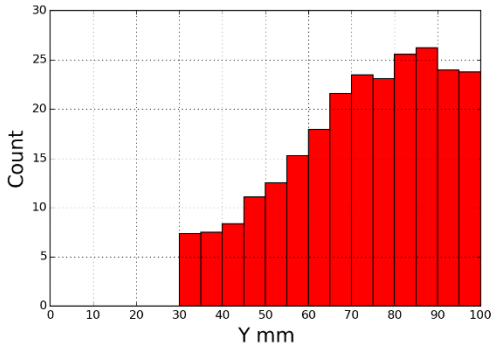


Figure C. 2272: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

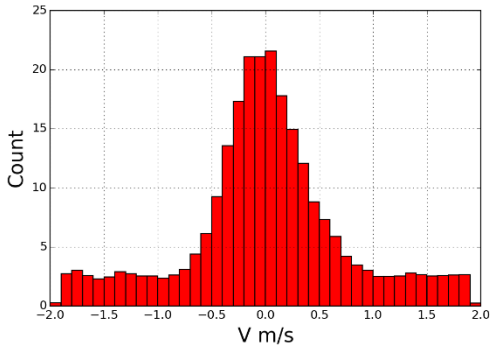


Figure C. 2275: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

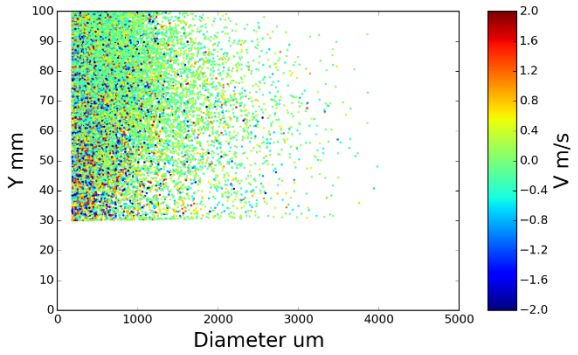


Figure C. 2273: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.1.2 Matched Only Droplets for .LB Image

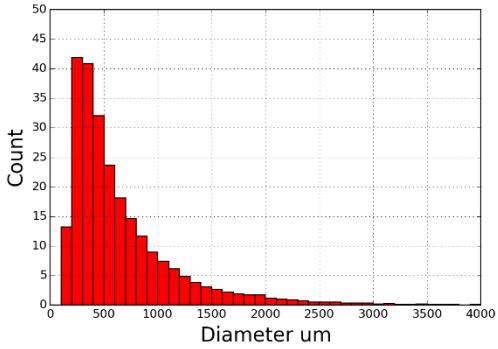


Figure C. 2276: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

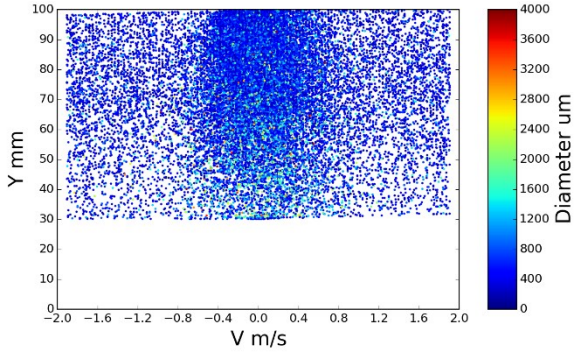


Figure C. 2279: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

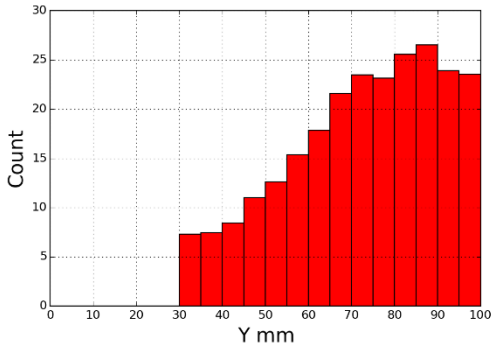


Figure C. 2277: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

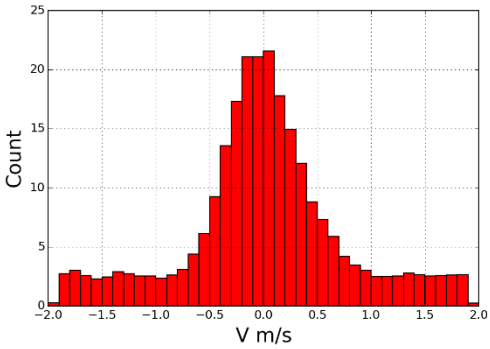


Figure C. 2280: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

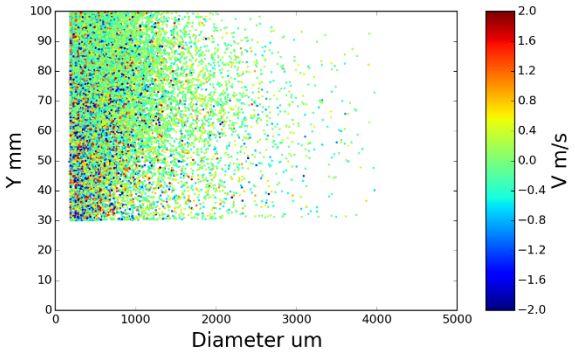


Figure C. 2278: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11761 / 1.482
Ref Mass Flow (lb/hr) / (kg/s)	3083 / 0.388
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	30013 / 40.705
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	3949 / 12.46
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.7 / 12.61
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	54.8 / 12.69
Total Bundle Q (Btu/hr) / (kW)	172363 / 50.51
Total Bundle & Preboiler Q (Btu/hr) / (kW)	281275 / 82.43
Top Two Rows HTC Ratio	0.929
Bundle Inlet Quality	0.31
Bundle Exit Quality	1.00

Table C. 248: Thermal Conditions

C.7.2.1 Lens 50mm Mag 0_13x

C.7.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	102.42	104.83	170.5	3959	819.7	636.9	170.5	3992	814.5	640.1
40-60mm	87.35	88.46	170.5	3905	747.4	577.8	182.3	3996	750.0	582.4
60-80mm	66.46	67.11	182.3	3986	598.6	461.4	170.5	3898	594.4	456.6
80-100mm	48.34	49.36	182.3	3917	408.8	253.4	182.3	2754	410.0	249.8
All	304.57	309.76	170.5	3986	685.5	556.6	170.5	3996	683.9	558.0
			Height A (mm)				Height B (mm)			
Highest Particle			99.9742				99.9768			
Lowest Particle			20.1027				20.1027			

Table C. 249: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	57.7	182.3	3848	912.7	638.8	170.5	3992	892.2	636.5	-1.900	1.900	-0.040	0.580	-1.890	1.900	-0.030	0.670
40-60mm	53.83	182.3	3861	822.6	579.8	182.3	3910	815.5	584.6	-1.900	1.900	-0.030	0.490	-1.900	1.900	-0.110	0.590
60-80mm	45.52	182.3	3729	646.7	467.9	182.3	3898	640.5	467.9	-1.900	1.900	-0.040	0.410	-1.900	1.900	-0.180	0.520
80-100mm	34.34	182.3	2368	436.6	262.5	182.3	2754	437.8	261.7	-1.900	1.900	-0.090	0.420	-1.900	1.840	-0.220	0.460
All	191.39	182.3	3861	738.7	558.1	170.5	3992	730.2	557.1	-1.900	1.900	-0.040	0.490	-1.900	1.900	-0.120	0.590

Table C. 250: Matched Droplet Info

C.7.2.1 All Droplets for .LA Image

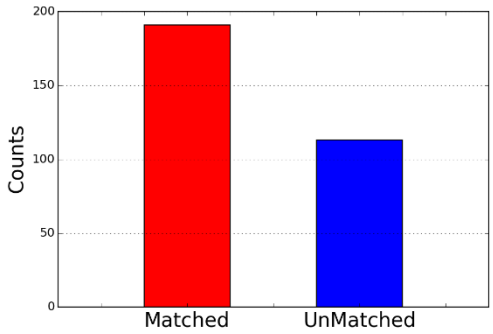


Figure C. 2281: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

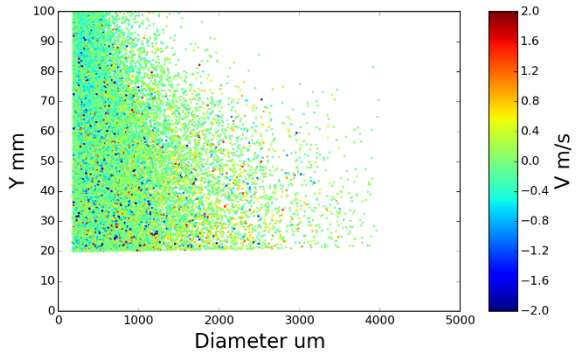


Figure C. 2284: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

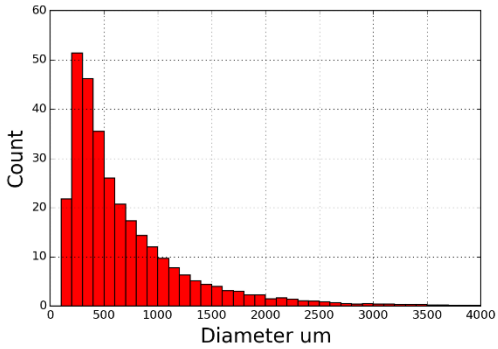


Figure C. 2282: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

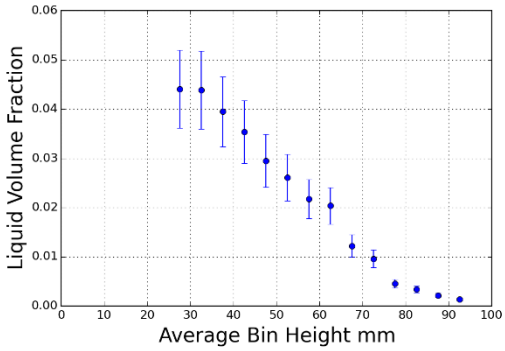


Figure C. 2285: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

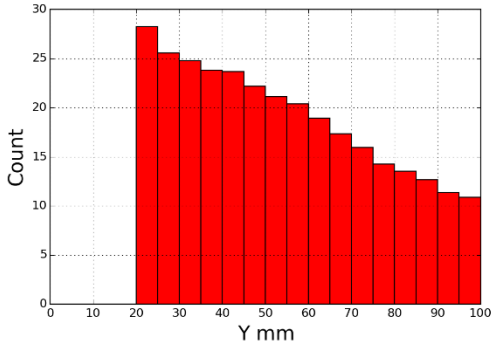


Figure C. 2283: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 All Droplets for .LB Image

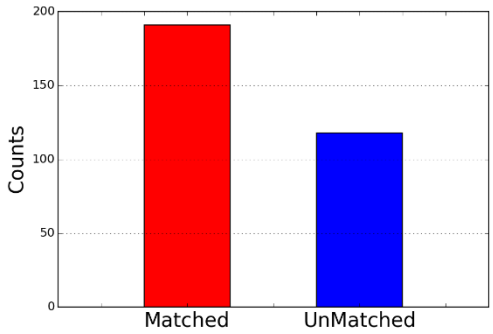


Figure C. 2286: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

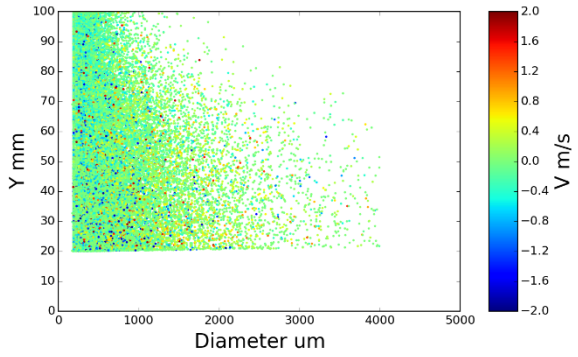


Figure C. 2289: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

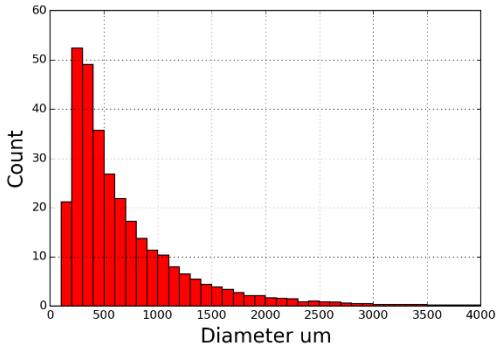


Figure C. 2287: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

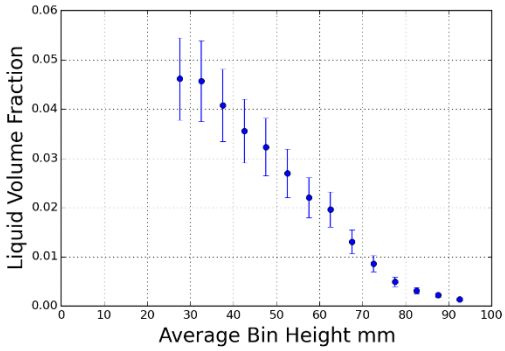


Figure C. 2290: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

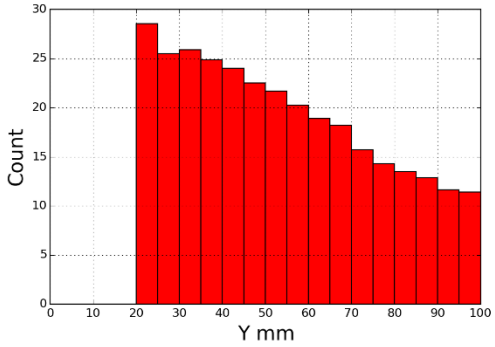


Figure C. 2288: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LA Image

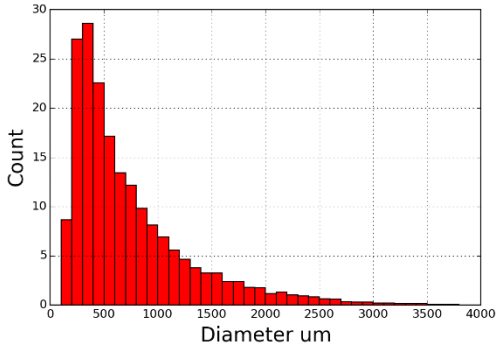


Figure C. 2291: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

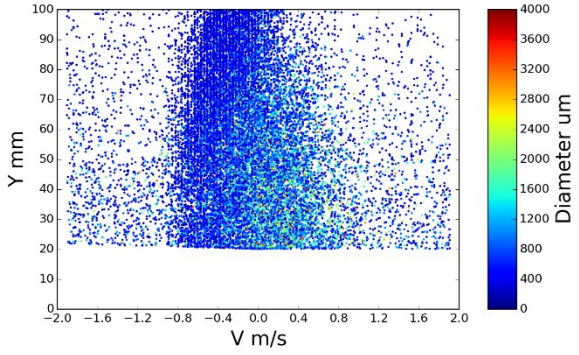


Figure C. 2294: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

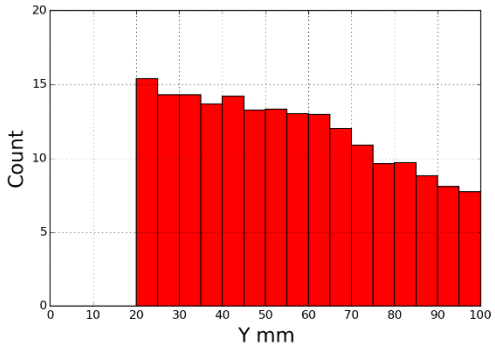


Figure C. 2292: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

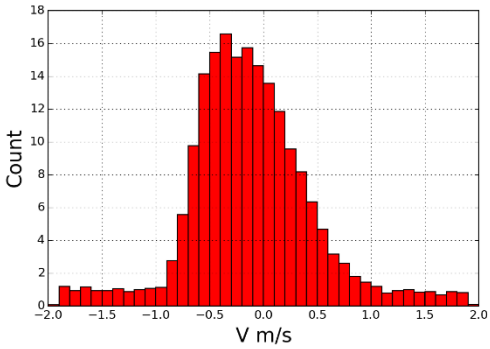


Figure C. 2295: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

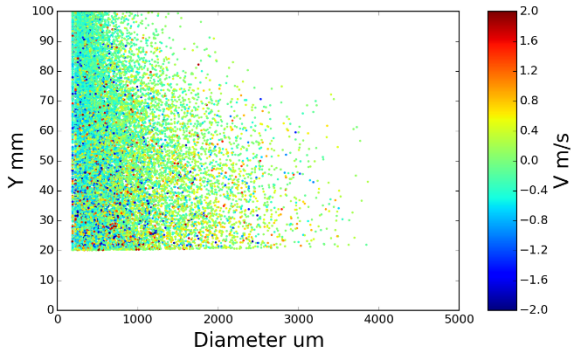


Figure C. 2293: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LB Image

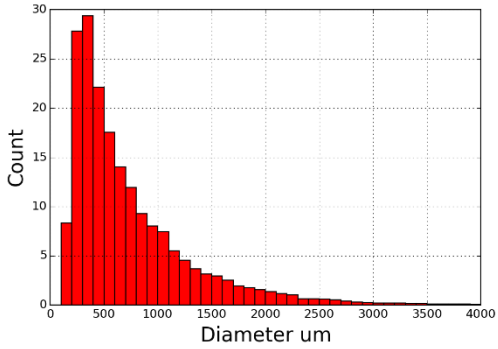


Figure C. 2296: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

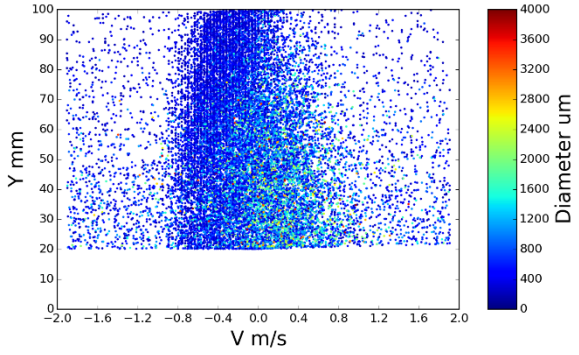


Figure C. 2299: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

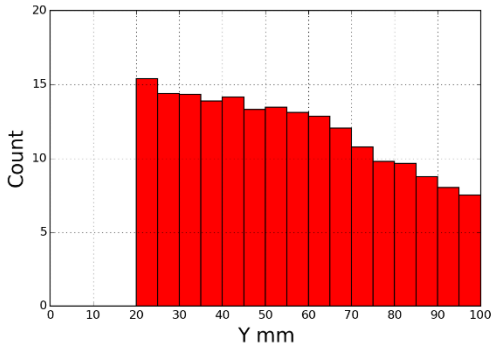


Figure C. 2297: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

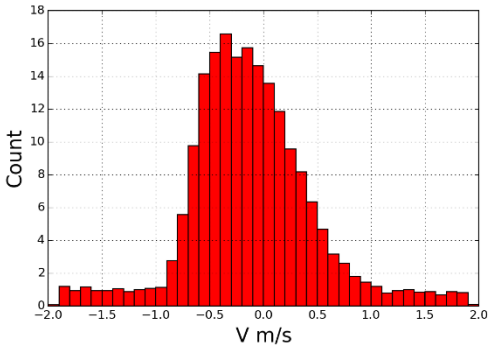


Figure C. 2300: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

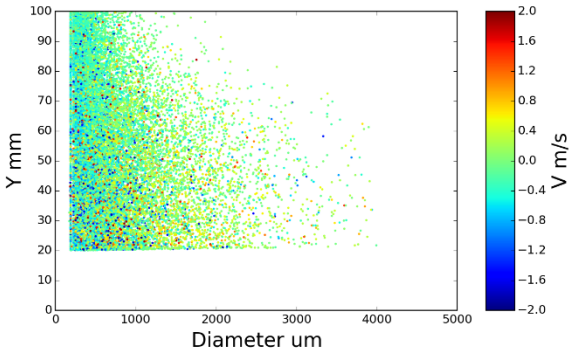


Figure C. 2298: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	135.13	135.06	170.5	3993	779.9	608.8	170.5	3967	776.6	609.2
40-60mm	118.5	119.05	170.5	3969	735.9	563.0	170.5	3972	743.7	574.2
60-80mm	92.13	92.58	170.5	3859	600.9	433.8	170.5	3935	601.3	435.5
80-100mm	64.08	66.19	182.3	2075	423.9	246.4	182.3	2592	424.6	252.3
All	409.84	412.88	170.5	3993	671.3	530.5	170.5	3972	671.4	534.1
			Height A (mm)				Height B (mm)			
Highest Particle			99.9711				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 251: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	75.61	182.3	3891	857.5	607.3	170.5	3967	844.0	615.8	-1.900	1.900	-0.060	0.640	-1.900	1.900	0.090	0.720
40-60mm	72.95	182.3	3814	803.7	564.2	182.3	3958	790.7	562.1	-1.900	1.900	-0.050	0.550	-1.900	1.900	0.000	0.640
60-80mm	61.73	182.3	3442	644.2	433.2	182.3	3935	643.4	438.5	-1.900	1.900	-0.060	0.480	-1.900	1.900	-0.060	0.560
80-100mm	43.77	182.3	2075	458.2	264.2	182.3	2234	459.7	265.4	-1.900	1.900	-0.060	0.430	-1.900	1.900	-0.100	0.500
All	254.06	182.3	3891	721.4	528.8	170.5	3967	713.8	530.5	-1.900	1.900	-0.060	0.550	-1.900	1.900	-0.010	0.630

Table C. 252: Matched Droplet Info

C.7.2.1 All Droplets for .LA Image

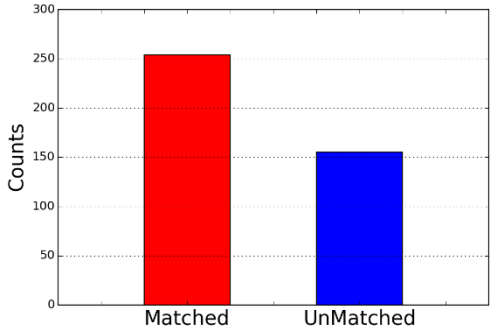


Figure C. 2301: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

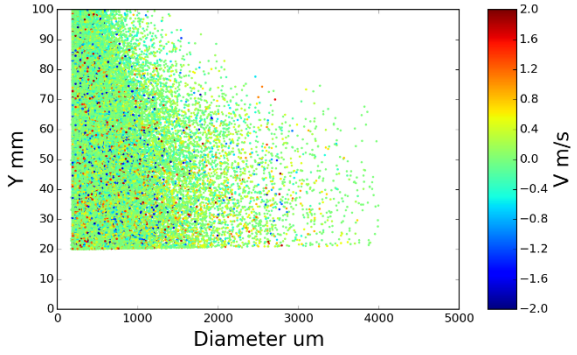


Figure C. 2304: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

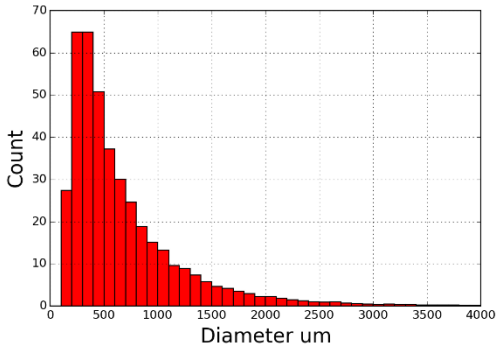


Figure C. 2302: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

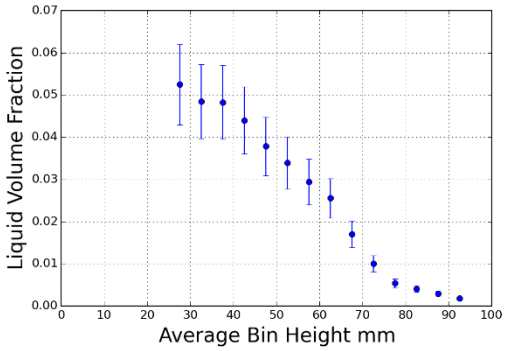


Figure C. 2305: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

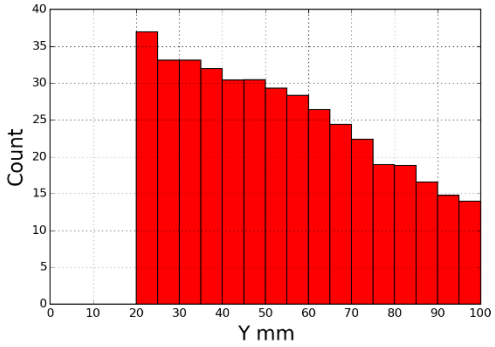


Figure C. 2303: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 All Droplets for .LB Image

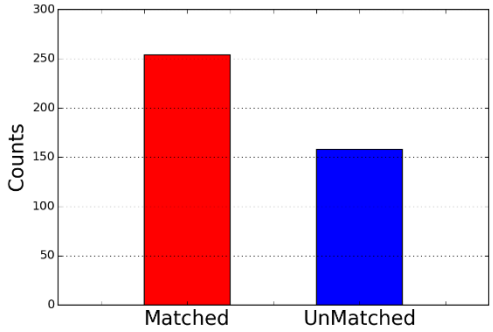


Figure C. 2306: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

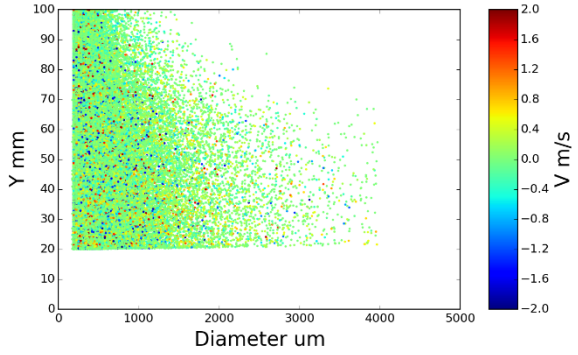


Figure C. 2309: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

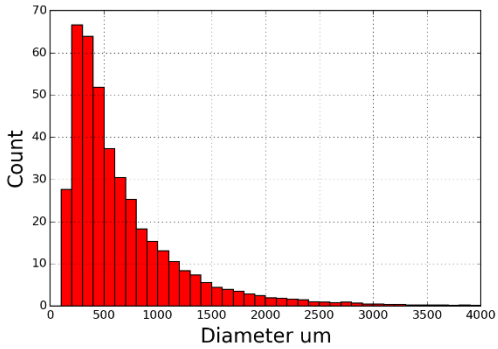


Figure C. 2307: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

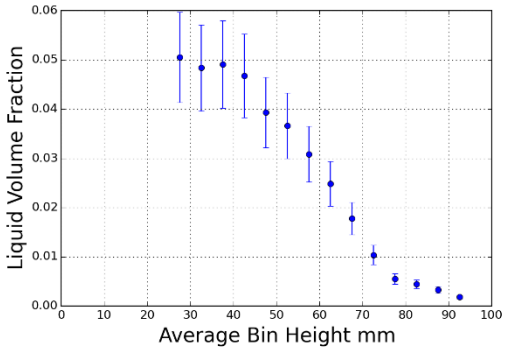


Figure C. 2310: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

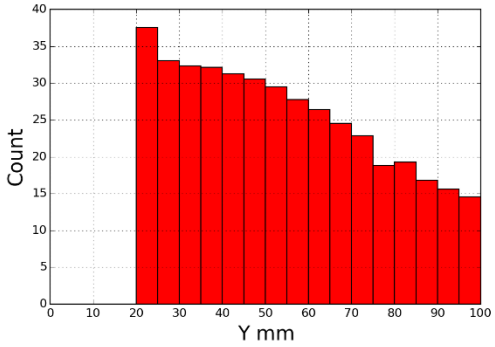


Figure C. 2308: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LA Image

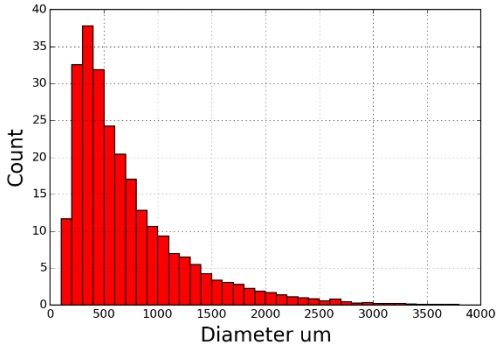


Figure C. 2311: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

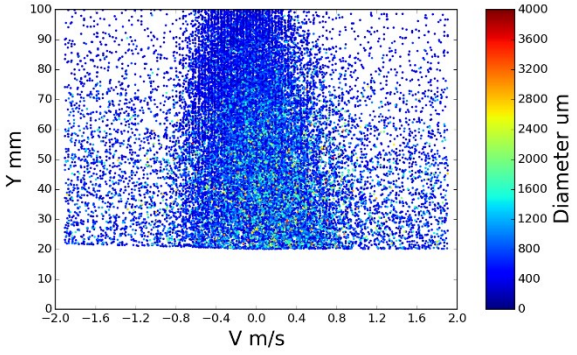


Figure C. 2314: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

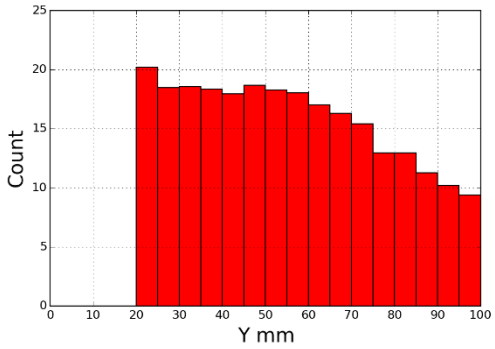


Figure C. 2312: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

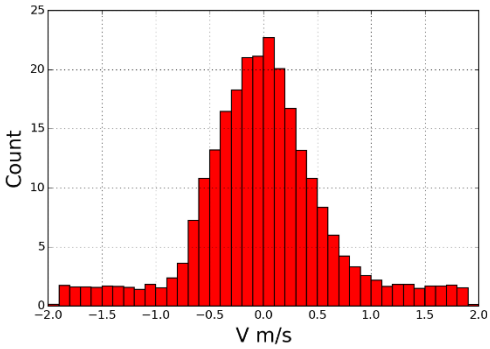


Figure C. 2315: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

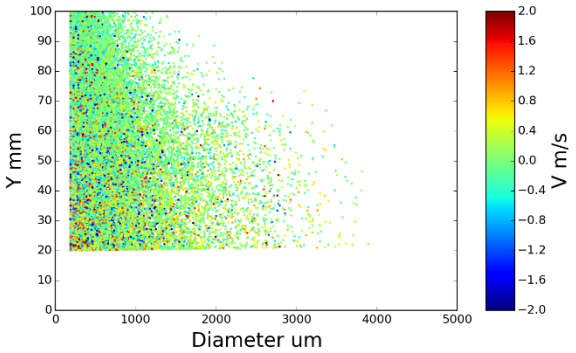


Figure C. 2313: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LB Image

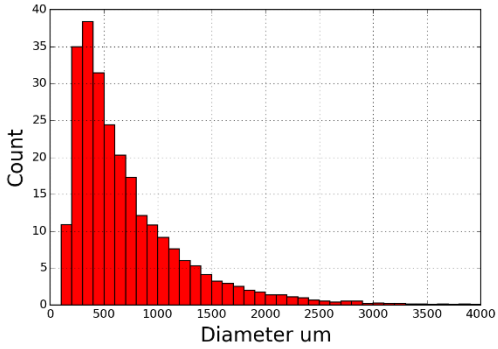


Figure C. 2316: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

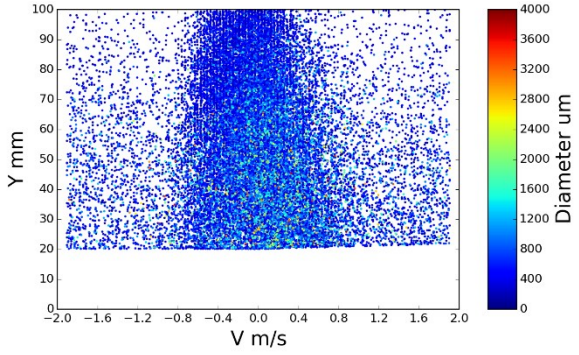


Figure C. 2319: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

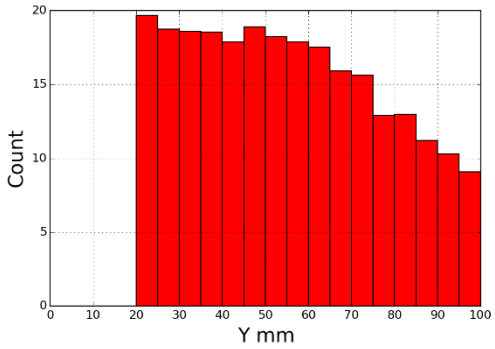


Figure C. 2317: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

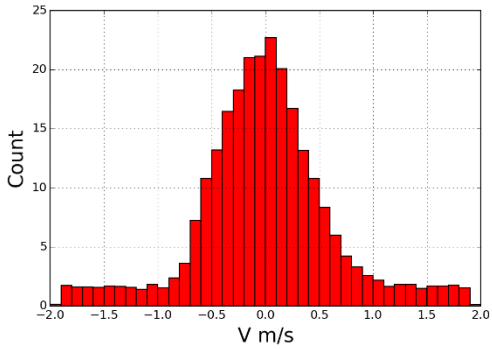


Figure C. 2320: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

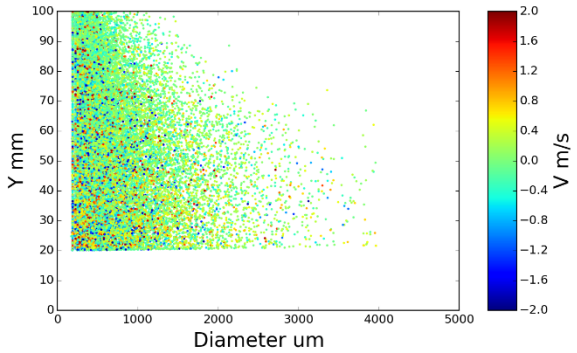


Figure C. 2318: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	158.09	159.97	170.5	3990	753.8	590.0	170.5	3994	756.7	594.2
40-60mm	150.8	151.49	170.5	3977	704.5	541.5	170.5	3993	702.2	534.0
60-80mm	120.84	120.54	170.5	3996	594.4	423.2	170.5	3874	594.5	425.8
80-100mm	80.98	82.04	170.5	3005	435.6	258.4	170.5	2622	436.2	257.4
All	510.71	514.04	170.5	3996	651.1	509.4	170.5	3994	651.5	509.3
			Height A (mm)				Height B (mm)			
Highest Particle			99.9711				99.9996			
Lowest Particle			20.1027				20.1027			

Table C. 253: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	88.28	182.3	3852	827.2	579.0	170.5	3993	812.9	586.4	-1.900	1.900	-0.070	0.690	-1.900	1.900	0.150	0.760
40-60mm	90.96	170.5	3889	764.4	536.0	170.5	3993	752.4	532.4	-1.900	1.900	-0.050	0.620	-1.900	1.900	0.070	0.690
60-80mm	79.43	182.3	3718	642.8	436.5	182.3	3853	633.3	430.4	-1.900	1.900	-0.050	0.540	-1.900	1.900	0.020	0.600
80-100mm	54.82	182.3	2622	472.9	273.0	182.3	2608	471.2	270.7	-1.900	1.900	-0.060	0.470	-1.900	1.900	-0.020	0.530
All	313.49	170.5	3889	700.3	504.6	170.5	3993	690.0	503.3	-1.900	1.900	-0.060	0.600	-1.900	1.900	0.070	0.670

Table C. 254: Matched Droplet Info

C.7.2.1 All Droplets for .LA Image

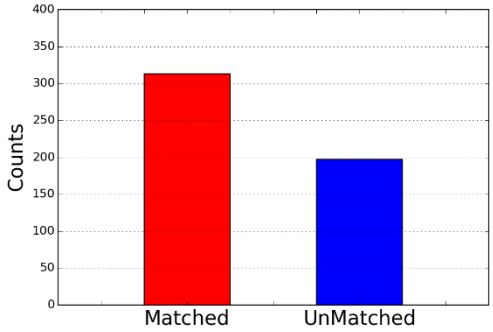


Figure C. 2321: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

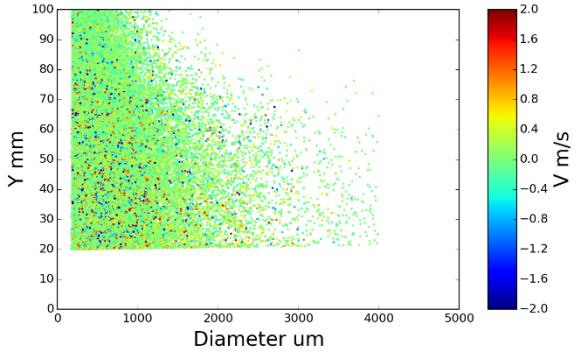


Figure C. 2324: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

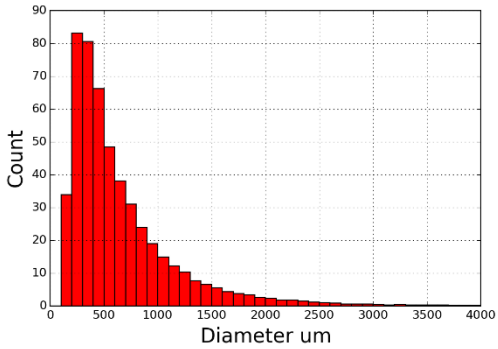


Figure C. 2322: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

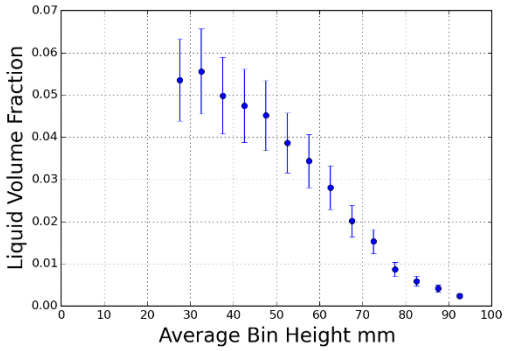


Figure C. 2325: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

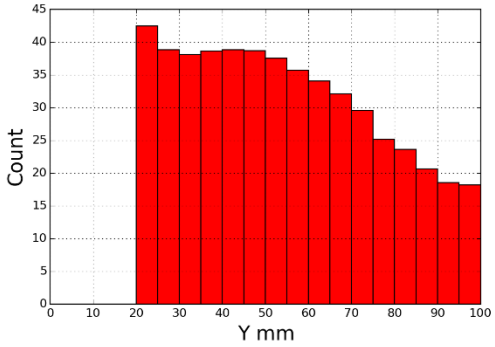


Figure C. 2323: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 All Droplets for .LB Image

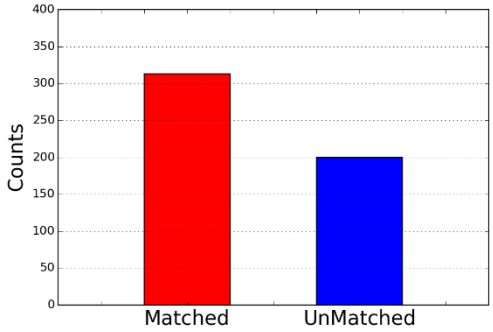


Figure C. 2326: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

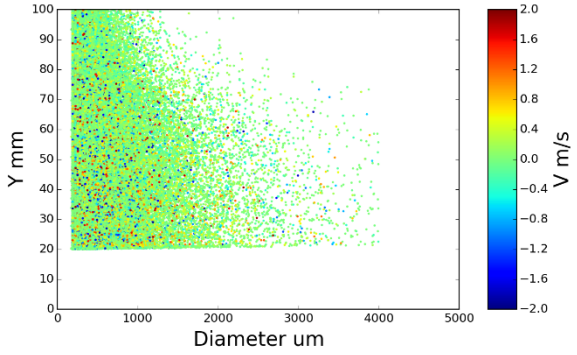


Figure C. 2329: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

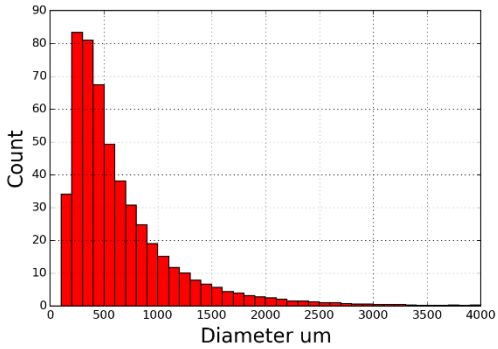


Figure C. 2327: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

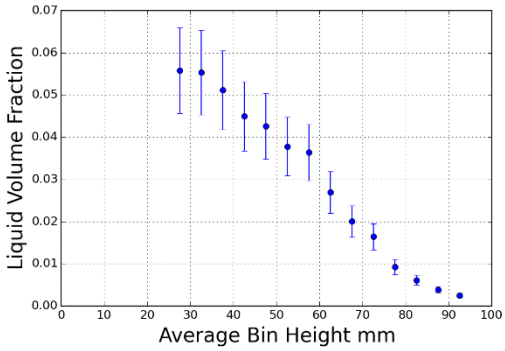


Figure C. 2330: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

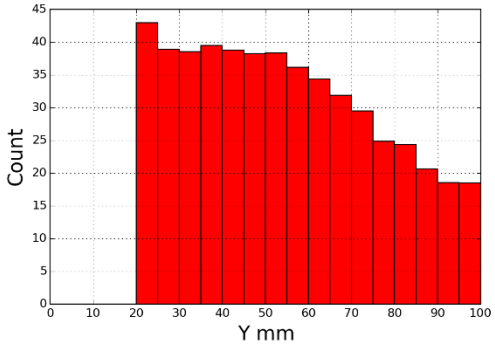


Figure C. 2328: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LA Image

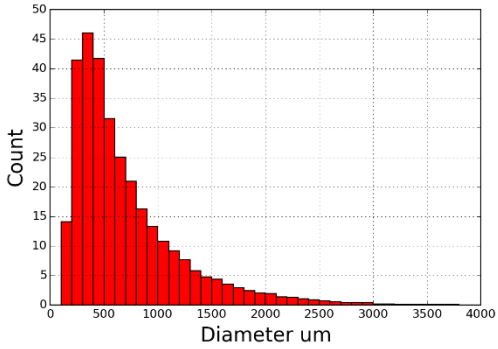


Figure C. 2331: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

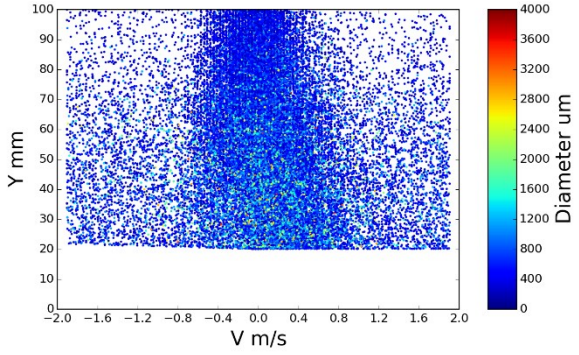


Figure C. 2334: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

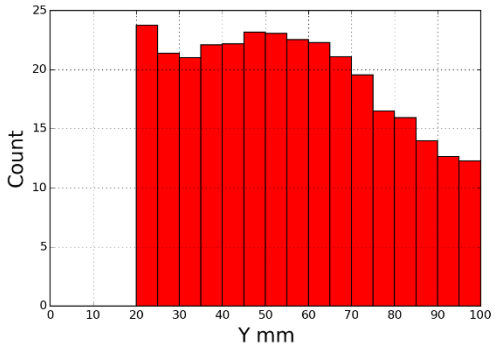


Figure C. 2332: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

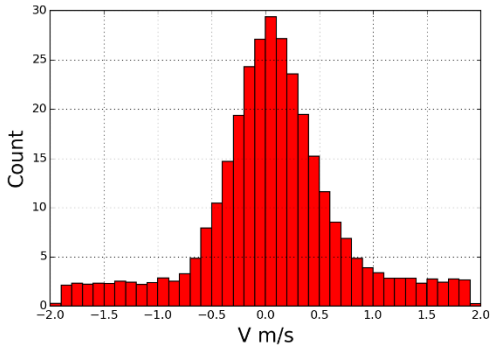


Figure C. 2335: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

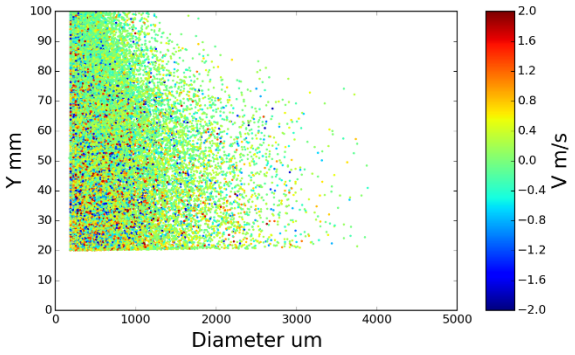


Figure C. 2333: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.2.1 Matched Only Droplets for .LB Image

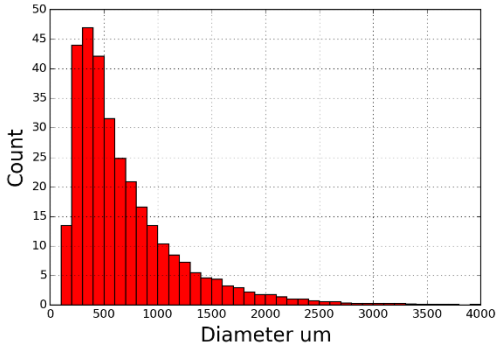


Figure C. 2336: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

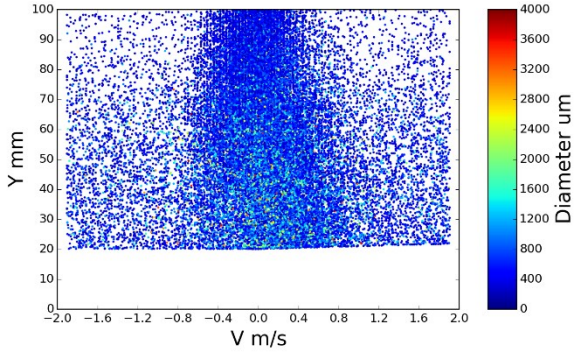


Figure C. 2339: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

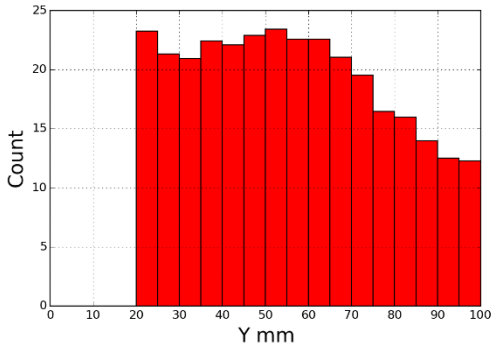


Figure C. 2337: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

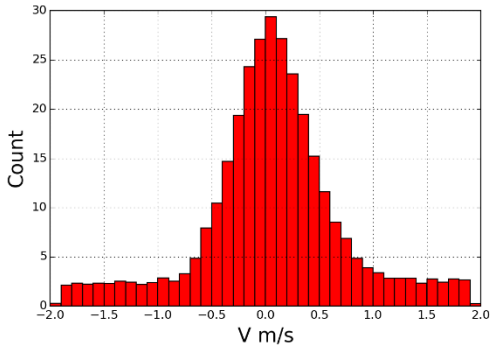


Figure C. 2340: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

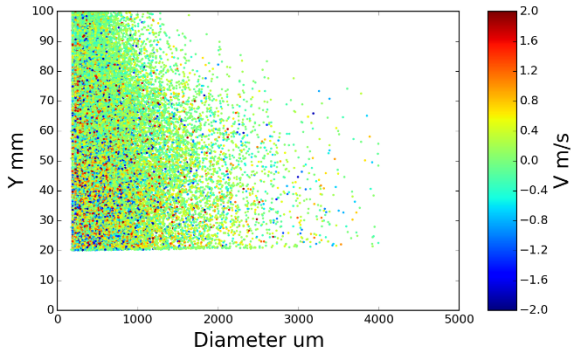


Figure C. 2338: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	11771 / 1.483
Ref Mass Flow (lb/hr) / (kg/s)	3081 / 0.388
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	29988 / 40.670
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	2466 / 7.78
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	55.1 / 12.83
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.2 / 12.90
Total Bundle Q (Btu/hr) / (kW)	172699 / 50.61
Total Bundle & Preboiler Q (Btu/hr) / (kW)	282043 / 82.66
Top Two Rows HTC Ratio	0.522
Bundle Inlet Quality	0.31
Bundle Exit Quality	1.00

Table C. 255: Thermal Conditions

C.7.3.1 Lens 50mm Mag 0_13x

C.7.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	4.57	4.5	193.3	2721	706.1	386.9	182.3	2546	745.2	415.8
20-40mm	12.44	12.5	182.3	2804	637.2	376.2	170.5	2659	631.4	379.0
40-60mm	5.6	5.71	182.3	1843	485.5	303.6	182.3	1893	479.9	287.6
60-80mm	2.88	2.93	193.3	1284	343.4	156.4	182.3	1228	334.9	155.7
80-100mm	0.73	0.8	193.3	762.5	286.8	113.1	193.3	703.0	280.6	107.8
All	26.22	26.44	182.3	2804	574.8	361.5	170.5	2659	574.6	368.3
			Height A (mm)				Height B (mm)			
Highest Particle			99.9996				99.8283			
Lowest Particle			14.2317				14.3194			

Table C. 256: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	2.97	193.3	2450	738.5	364.9	193.3	2546	759.6	405.8	-1.600	1.770	-0.020	0.240	-1.180	1.850	0.110	0.500
20-40mm	8.89	193.3	2154	649.5	346.9	170.5	2235	643.6	358.0	-1.840	1.700	-0.040	0.220	-1.900	1.620	-0.010	0.440
40-60mm	4.54	193.3	1712	485.8	267.7	193.3	1893	490.5	271.7	-1.860	1.170	-0.070	0.230	-1.870	1.780	-0.140	0.380
60-80mm	2.28	193.3	1248	356.8	156.0	182.3	1228	353.7	154.5	-1.210	1.400	-0.090	0.200	-1.270	1.590	-0.140	0.310
80-100mm	0.55	193.3	762.5	312.2	118.6	193.3	703.0	307.6	118.2	-0.600	0.160	-0.140	0.160	-0.440	0.550	-0.100	0.200
All	19.23	193.3	2450	580.3	335.5	170.5	2546	581.6	349.7	-1.860	1.770	-0.050	0.220	-1.900	1.850	-0.040	0.430

Table C. 257: Matched Droplet Info

C.7.3.1 All Droplets for .LA Image

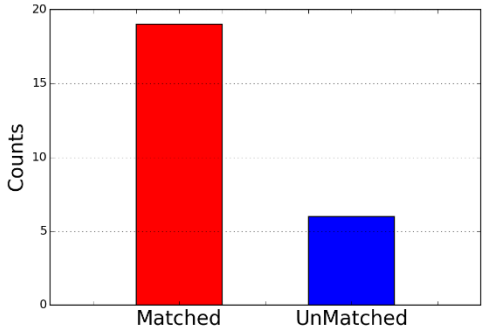


Figure C. 2341: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

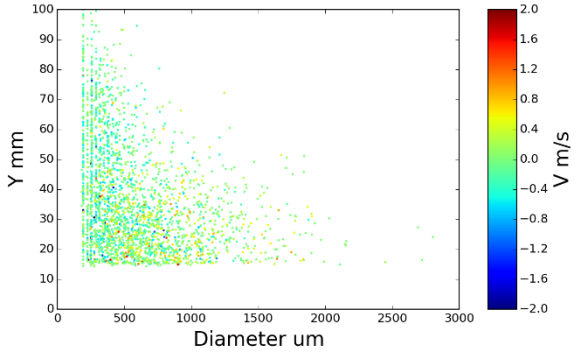


Figure C. 2344: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

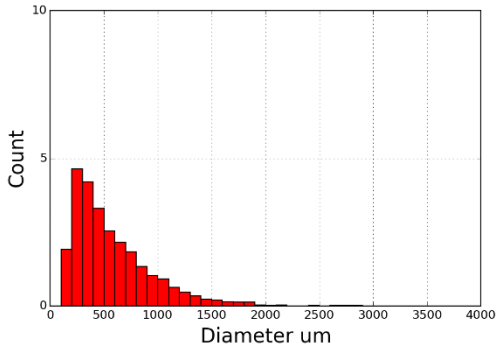


Figure C. 2342: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

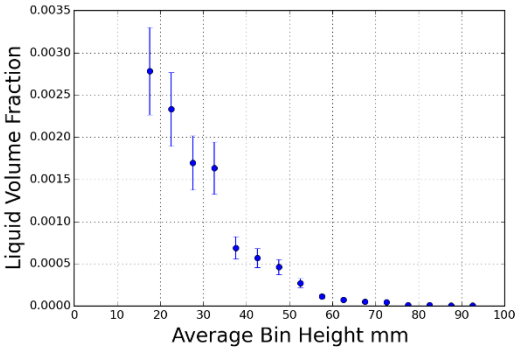


Figure C. 2345: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

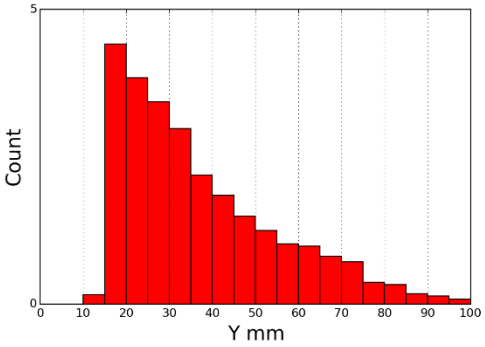


Figure C. 2343: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 All Droplets for .LB Image

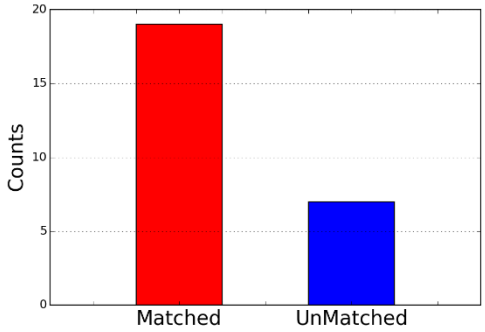


Figure C. 2346: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

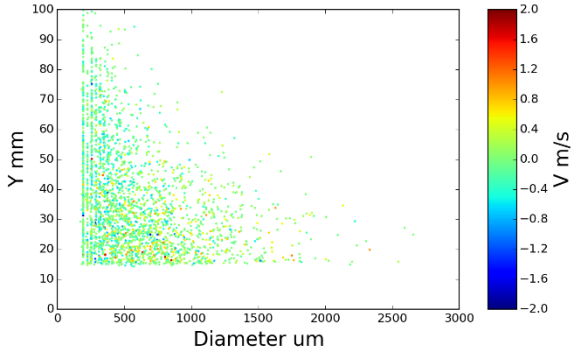


Figure C. 2349: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

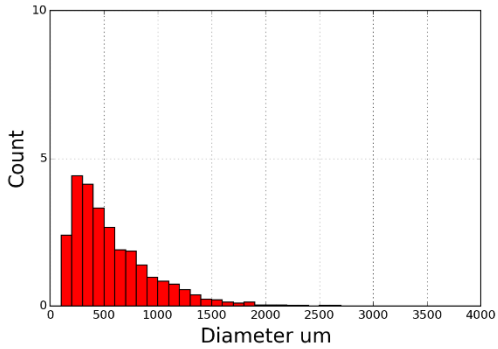


Figure C. 2347: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

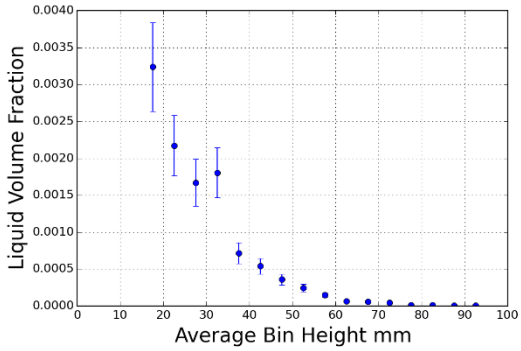


Figure C. 2350: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

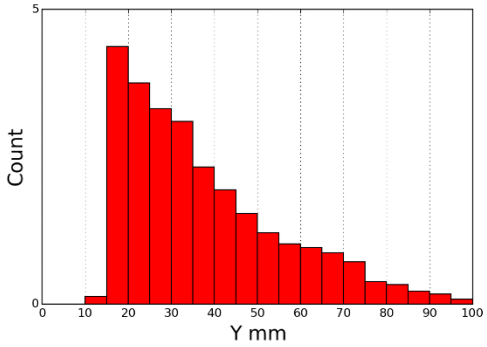


Figure C. 2348: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LA Image

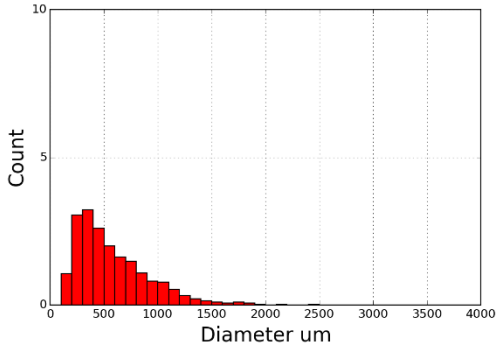


Figure C. 2351: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

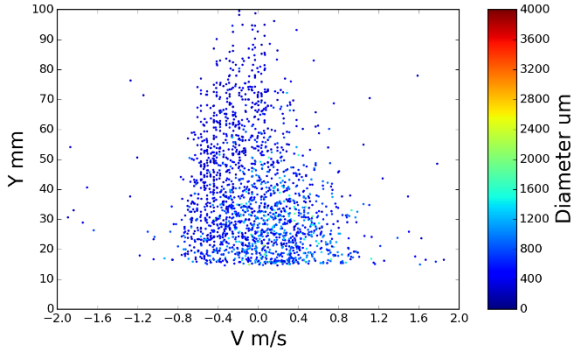


Figure C. 2354: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

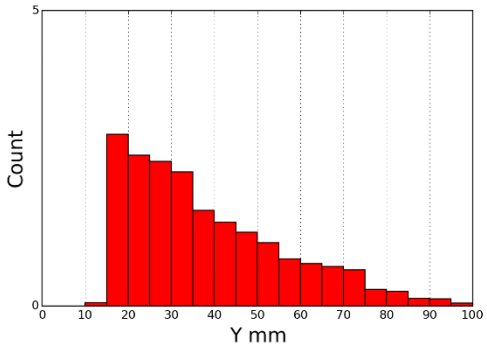


Figure C. 2352: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

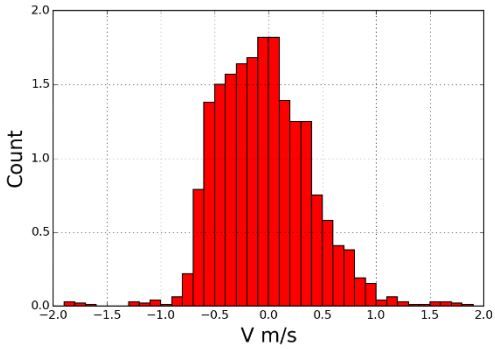


Figure C. 2355: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

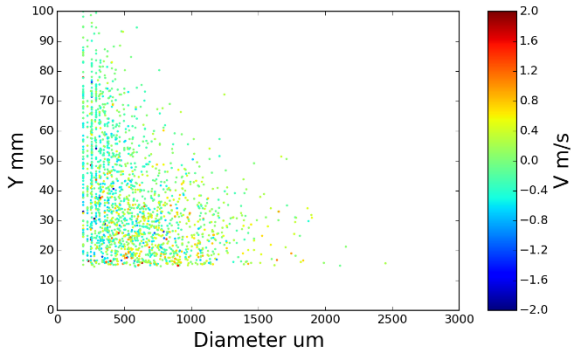


Figure C. 2353: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LB Image

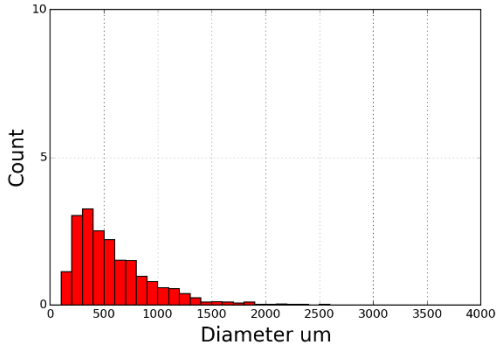


Figure C. 2356: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

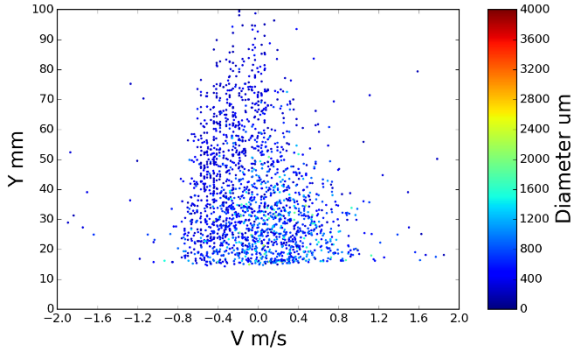


Figure C. 2359: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

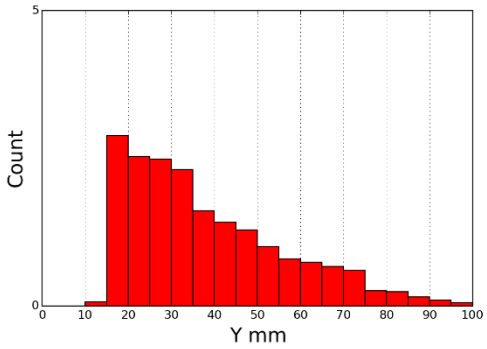


Figure C. 2357: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

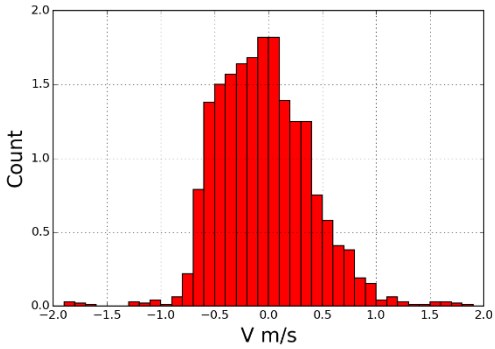


Figure C. 2360: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

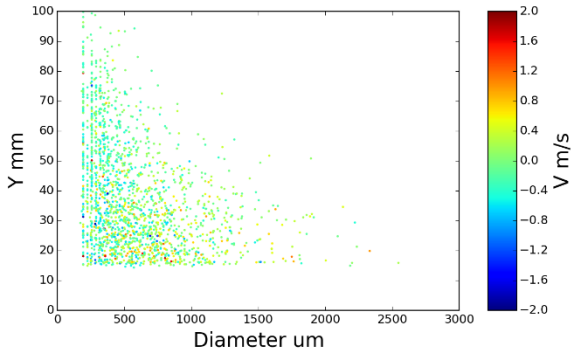


Figure C. 2358: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	9.97	10.3	182.3	2538	635.0	353.1	182.3	2405	637.2	352.7
20-40mm	23.59	23.8	182.3	2896	593.5	337.9	182.3	2865	592.1	337.6
40-60mm	11.03	10.94	170.5	1933	475.6	260.1	182.3	1944	480.6	261.6
60-80mm	3.85	3.87	182.3	1846	389.2	215.5	182.3	1902	389.9	217.8
80-100mm	0.72	0.74	193.3	637.9	294.2	123.0	182.3	644.4	294.4	120.8
All	49.16	49.65	170.5	2896	555.0	325.1	182.3	2865	556.7	325.4
			Height A (mm)				Height B (mm)			
Highest Particle			99.6896				99.4073			
Lowest Particle			13.2299				13.2819			

Table C. 258: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	7.43	182.3	2167	655.0	332.5	193.3	2256	658.6	341.3	-1.810	1.820	-0.020	0.280	-1.860	1.760	0.150	0.450
20-40mm	18.67	182.3	2896	609.8	322.0	182.3	2865	610.2	329.2	-1.710	1.880	-0.020	0.230	-1.900	1.710	0.100	0.410
40-60mm	8.81	182.3	1933	498.2	251.6	182.3	1944	500.4	255.9	-1.750	1.810	-0.000	0.190	-1.860	1.900	0.020	0.370
60-80mm	3.04	193.3	1846	407.1	221.9	182.3	1902	408.0	224.9	-1.110	1.490	-0.010	0.190	-1.460	1.520	-0.050	0.300
80-100mm	0.55	193.3	637.9	314.9	131.1	193.3	644.4	319.4	127.8	-0.250	0.130	-0.050	0.100	-0.510	0.620	-0.030	0.220
All	38.5	182.3	2896	572.8	310.8	182.3	2865	574.0	317.0	-1.810	1.880	-0.020	0.230	-1.900	1.900	0.080	0.400

Table C. 259: Matched Droplet Info

C.7.3.1 All Droplets for .LA Image

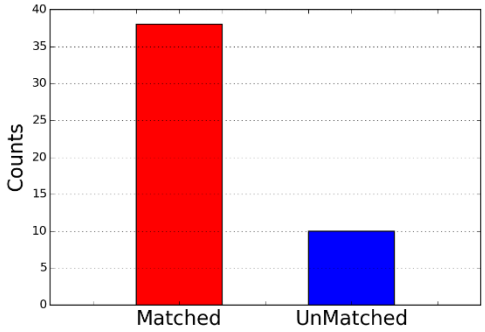


Figure C. 2361: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

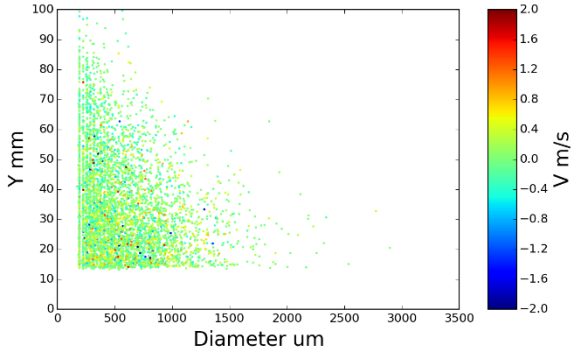


Figure C. 2364: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

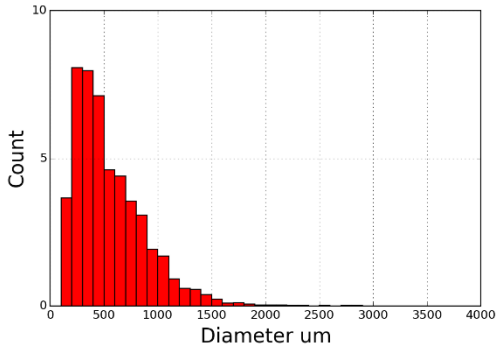


Figure C. 2362: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

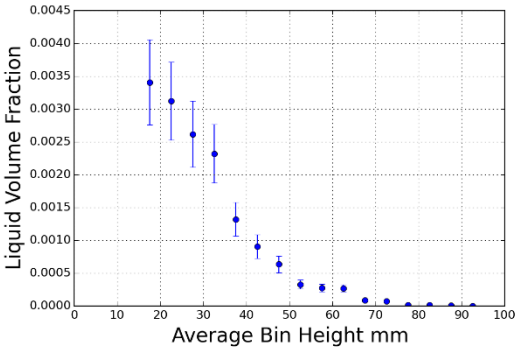


Figure C. 2365: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

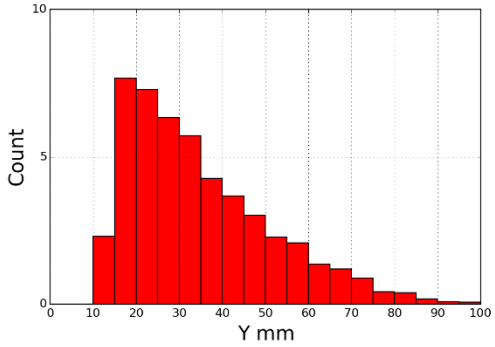


Figure C. 2363: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 All Droplets for .LB Image

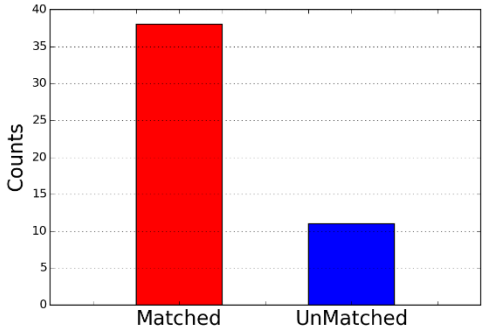


Figure C. 2366: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

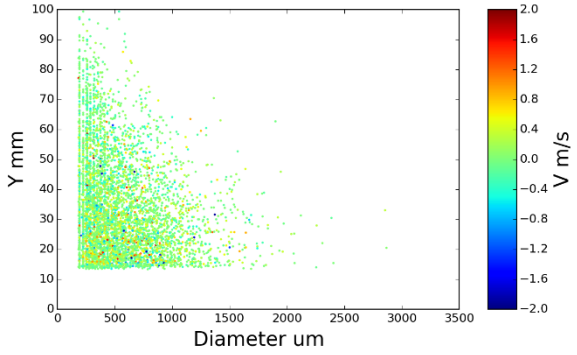


Figure C. 2369: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

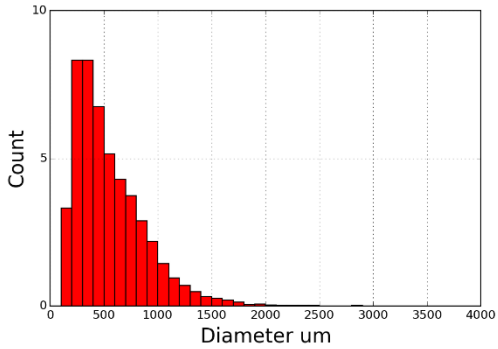


Figure C. 2367: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

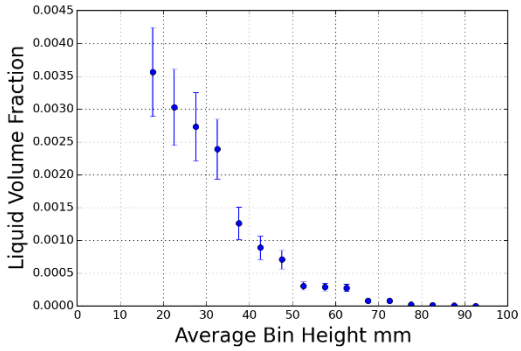


Figure C. 2370: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

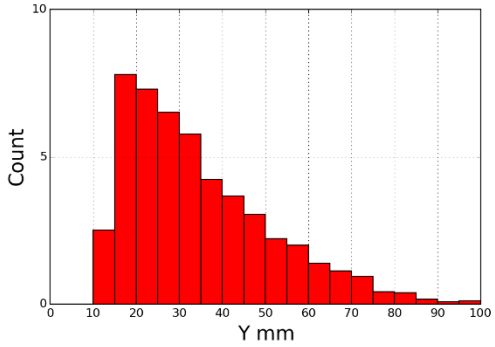


Figure C. 2368: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LA Image

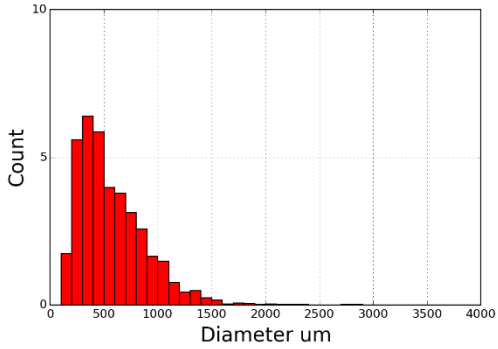


Figure C. 2371: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

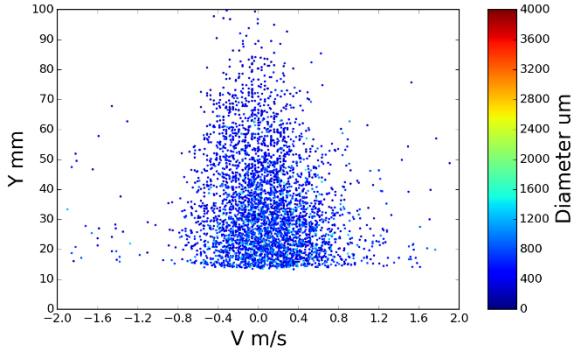


Figure C. 2374: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

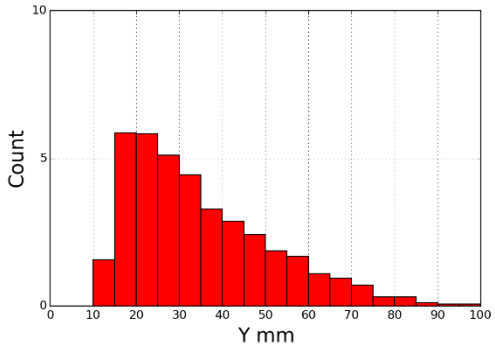


Figure C. 2372: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

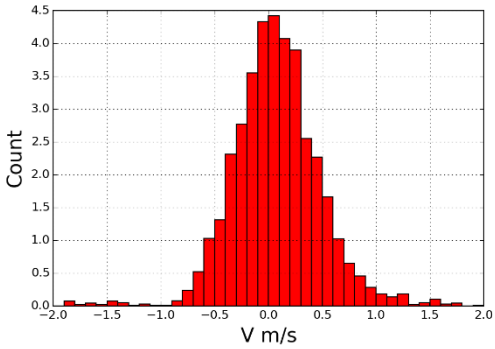


Figure C. 2375: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

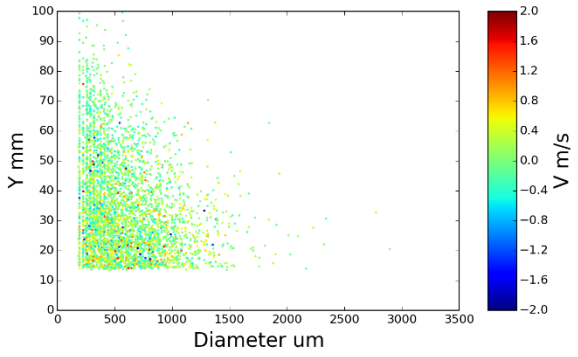


Figure C. 2373: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LB Image

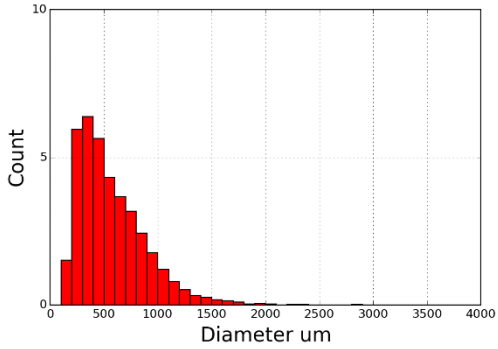


Figure C. 2376: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

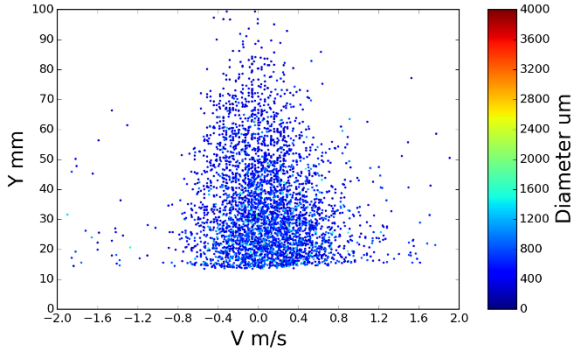


Figure C. 2379: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

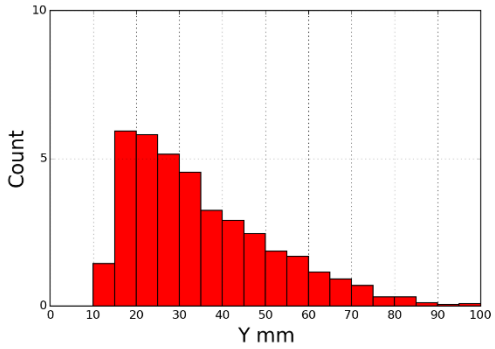


Figure C. 2377: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

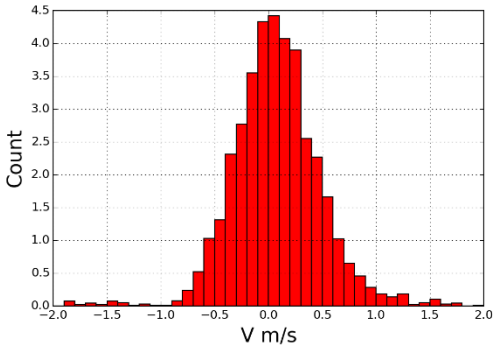


Figure C. 2380: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

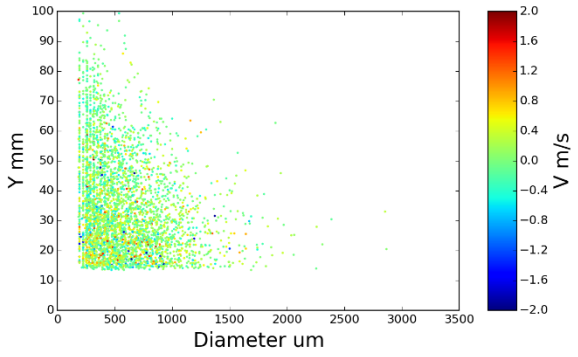


Figure C. 2378: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	12.49	12.6	182.3	2459	596.6	341.0	170.5	2469	598.0	348.4
20-40mm	24.4	24.77	182.3	2634	568.6	336.0	170.5	2376	570.3	332.9
40-60mm	11.29	11.66	170.5	2218	469.0	245.9	193.3	2183	465.2	245.4
60-80mm	3.71	3.82	182.3	1197	383.3	185.3	193.3	1693	382.5	192.8
80-100mm	0.77	0.79	193.3	936.1	336.4	133.2	193.3	883.6	342.4	142.8
All	52.66	53.64	170.5	2634	537.5	316.4	170.5	2469	537.2	317.0
			Height A (mm)				Height B (mm)			
Highest Particle			99.5051				99.6138			
Lowest Particle			12.3854				12.5170			

Table C. 260: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	9.62	182.3	2089	611.1	325.4	182.3	2469	617.2	340.8	-1.810	1.880	-0.010	0.290	-1.790	1.840	0.210	0.450
20-40mm	19.21	182.3	2171	589.8	320.8	182.3	2294	588.3	324.6	-1.810	1.780	-0.010	0.230	-1.900	1.690	0.170	0.400
40-60mm	9.39	193.3	2218	486.0	237.3	193.3	2183	489.2	238.8	-1.900	1.750	0.000	0.190	-1.730	1.830	0.080	0.350
60-80mm	2.97	193.3	1162	399.3	172.9	193.3	1192	398.0	178.4	-1.480	1.590	-0.030	0.190	-0.600	1.150	0.050	0.260
80-100mm	0.63	193.3	936.1	359.1	136.0	193.3	883.6	359.9	146.2	-0.350	0.130	-0.050	0.090	-0.450	0.470	-0.020	0.190
All	41.82	182.3	2218	554.4	302.2	182.3	2469	555.3	308.3	-1.900	1.880	-0.010	0.230	-1.900	1.840	0.150	0.400

Table C. 261: Matched Droplet Info

C.7.3.1 All Droplets for .LA Image

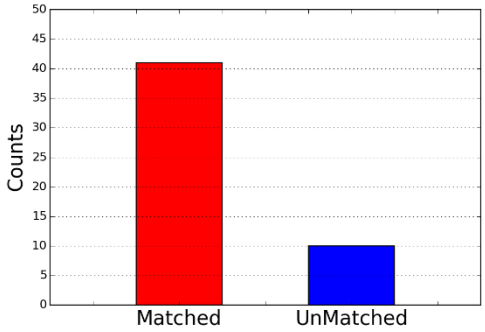


Figure C. 2381: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

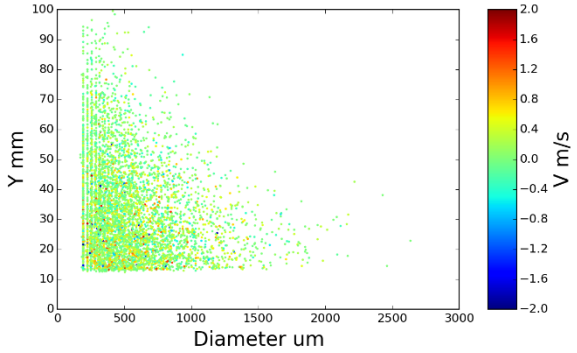


Figure C. 2384: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

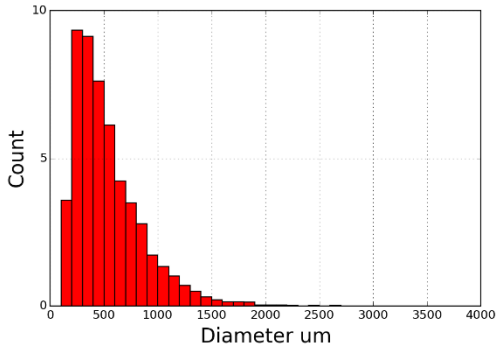


Figure C. 2382: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

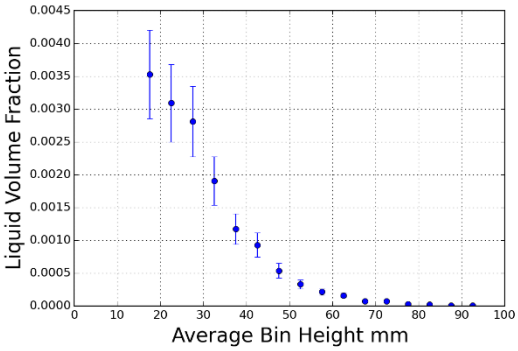


Figure C. 2385: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

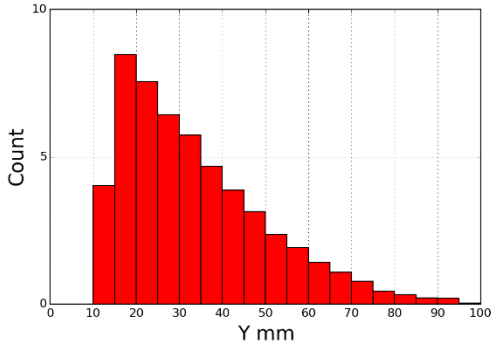


Figure C. 2383: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 All Droplets for .LB Image

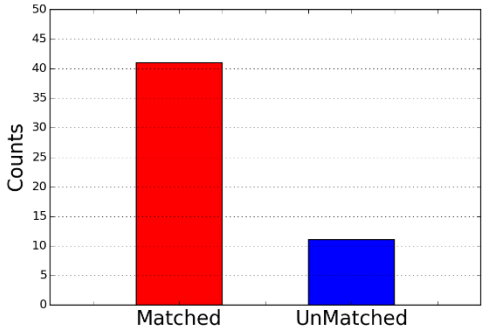


Figure C. 2386: CHC Count Comparison R-134a 55F 5000Btu 30000Lb Rot Tri

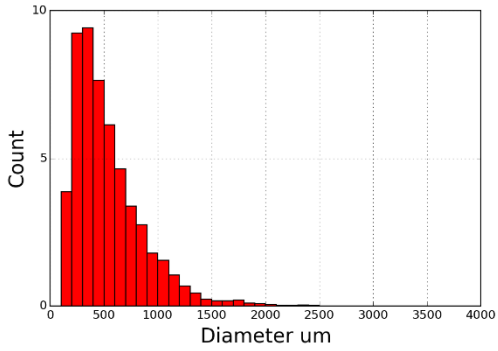


Figure C. 2387: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

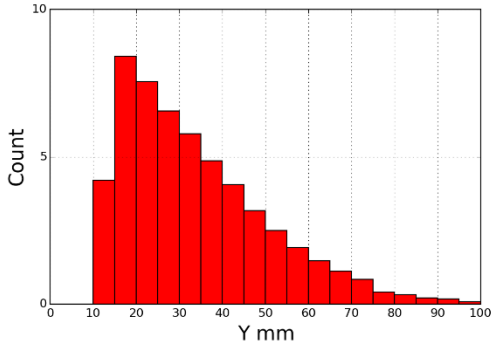


Figure C. 2388: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

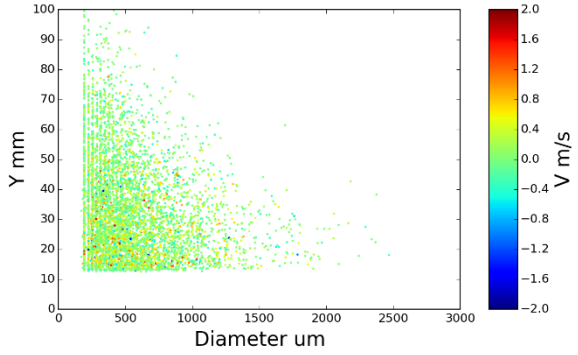


Figure C. 2389: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

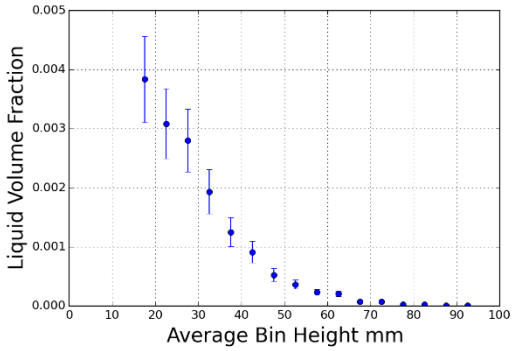


Figure C. 2390: Void Fraction R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LA Image

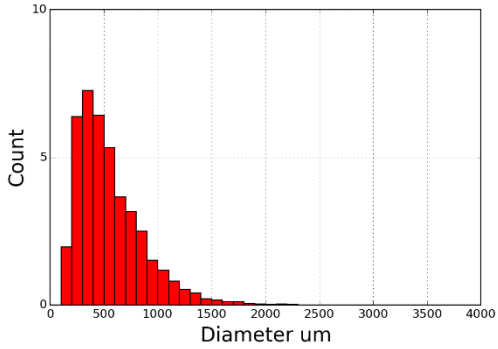


Figure C. 2391: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

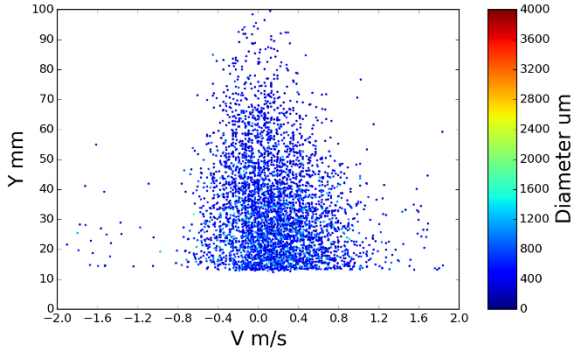


Figure C. 2394: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

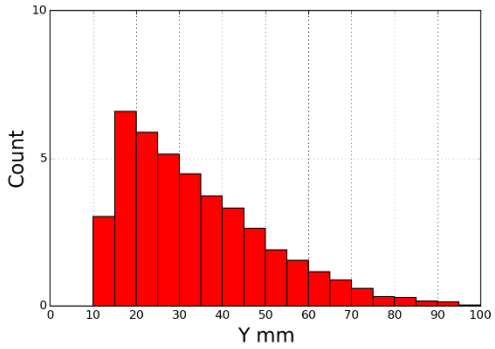


Figure C. 2392: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

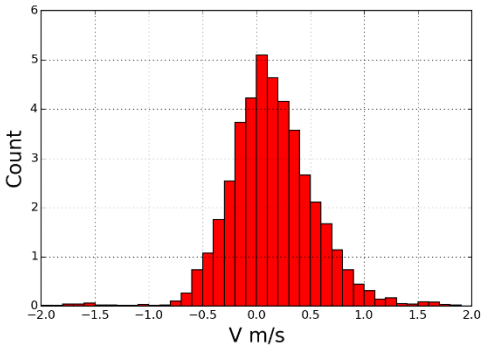


Figure C. 2395: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

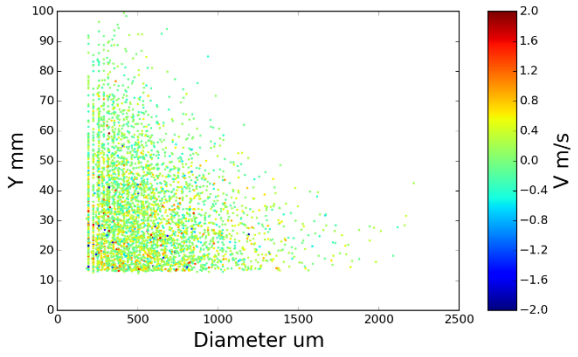


Figure C. 2393: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.7.3.1 Matched Only Droplets for .LB Image

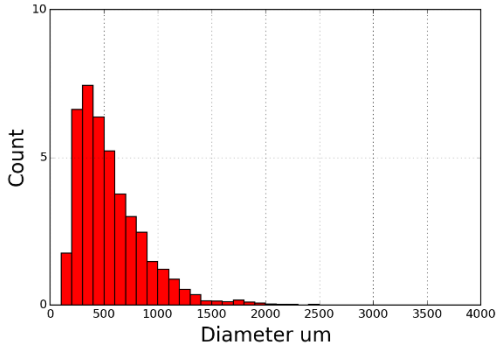


Figure C. 2396: Droplet Diameter Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

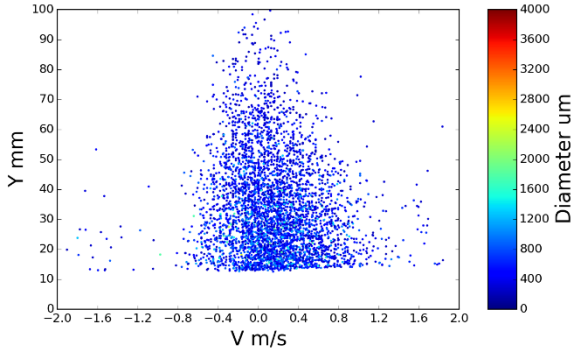


Figure C. 2399: Droplet Height vs Vertical Velocity R-134a 55F 5000Btu 30000Lb Rot Tri

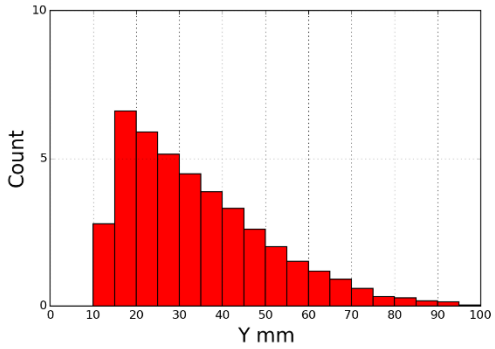


Figure C. 2397: Droplet Height Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

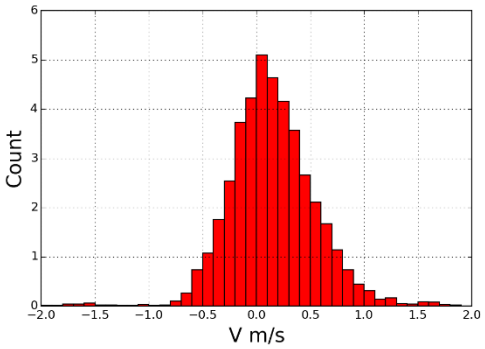


Figure C. 2400: Droplet Vertical Velocity Histogram R-134a 55F 5000Btu 30000Lb Rot Tri

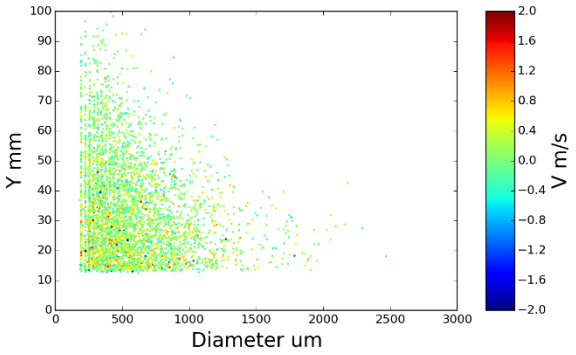


Figure C. 2398: Droplet Height vs Diameter R-134a 55F 5000Btu 30000Lb Rot Tri

C.8 - 1556 R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1 Liquid Level 1

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	19201 / 2.419
Ref Mass Flow (lb/hr) / (kg/s)	3090 / 0.389
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	30074 / 40.788
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	9938 / 31.35
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.7 / 12.64
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.0 / 12.75
Total Bundle Q (Btu/hr) / (kW)	271381 / 79.53
Total Bundle & Preboiler Q (Btu/hr) / (kW)	271381 / 79.53
Top Two Rows HTC Ratio	1.041
Bundle Inlet Quality	-0.09
Bundle Exit Quality	0.99

Table C. 262: Thermal Conditions

C.8.1.1 Lens 100mm Mag 0_29x

C.8.1.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	51.85	51.44	75.9	3938	482.7	546.0	75.9	4003	475.8	544.3
40-60mm	118.39	117.81	75.9	3992	470.3	536.8	75.9	4015	472.0	539.5
60-80mm	151.96	151.82	75.9	4000	447.7	502.2	75.9	3978	447.9	506.9
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	328.23	327.45	75.9	4000	461.6	522.5	75.9	4015	461.2	525.3
			Height A (mm)				Height B (mm)			
Highest Particle			79.4883				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 263: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	19.35	81.1	3877	632.5	588.2	75.9	3978	622.4	595.3	-1.910	1.900	-0.130	0.620	-1.910	1.880	-0.150	0.700
40-60mm	49.61	75.9	3957	612.6	584.0	75.9	4015	598.9	584.6	-1.910	1.910	-0.150	0.570	-1.910	1.910	-0.130	0.670
60-80mm	73.69	75.9	3891	545.0	532.7	75.9	3956	536.4	532.4	-1.910	1.910	-0.140	0.490	-1.910	1.910	-0.110	0.570
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	142.65	75.9	3957	580.4	559.9	75.9	4015	569.8	560.9	-1.910	1.910	-0.140	0.540	-1.910	1.910	-0.120	0.630

Table C. 264: Matched Droplet Info

C.8.1.1 All Droplets for .LA Image

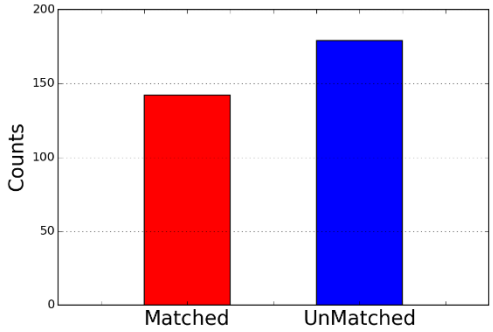


Figure C. 2401: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

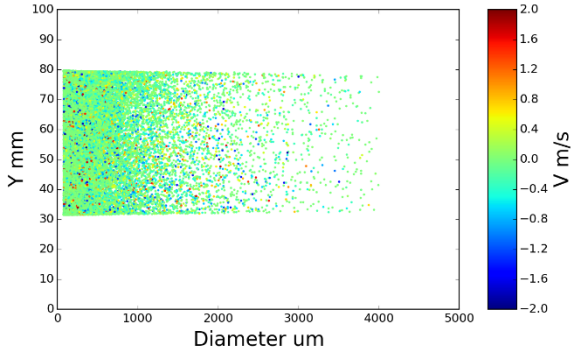


Figure C. 2404: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

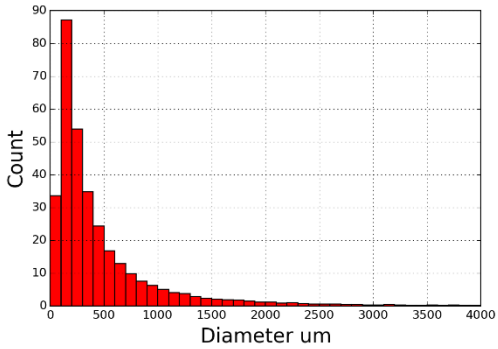


Figure C. 2402: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

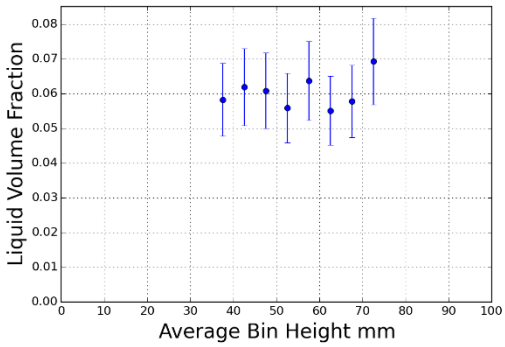


Figure C. 2405: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

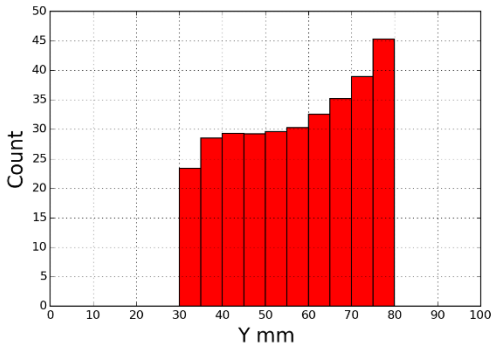


Figure C. 2403: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 All Droplets for .LB Image

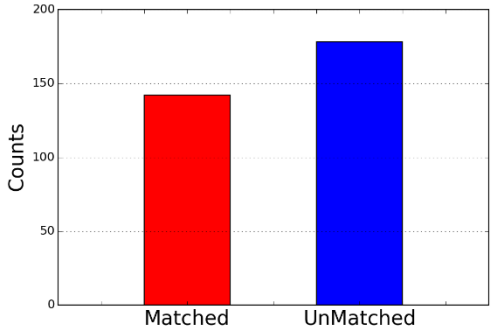


Figure C. 2406: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

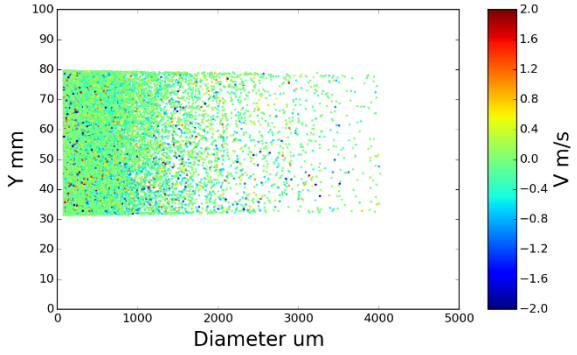


Figure C. 2409: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

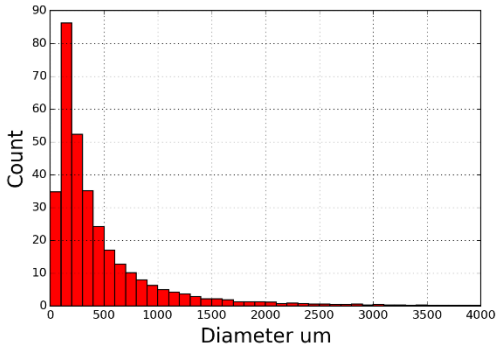


Figure C. 2407: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

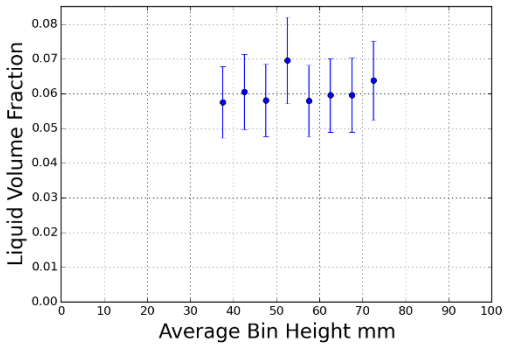


Figure C. 2410: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

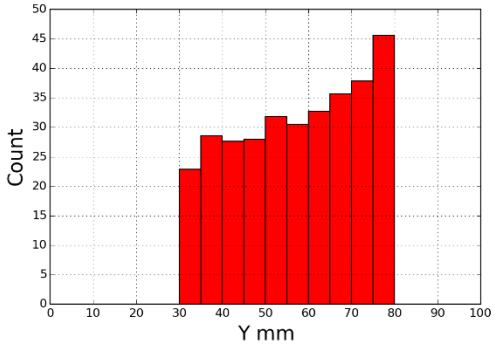


Figure C. 2408: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LA Image

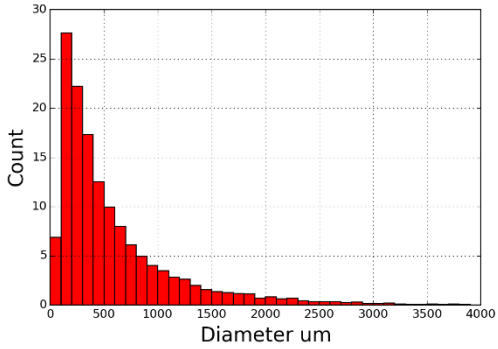


Figure C. 2411: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

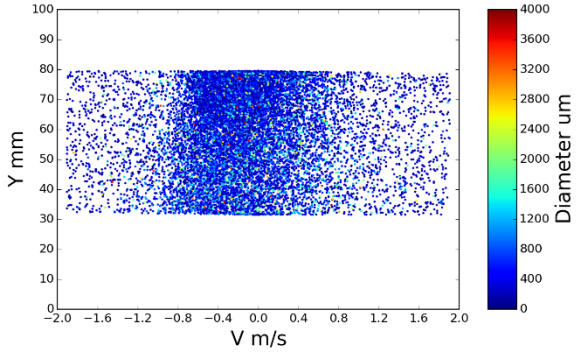


Figure C. 2414: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

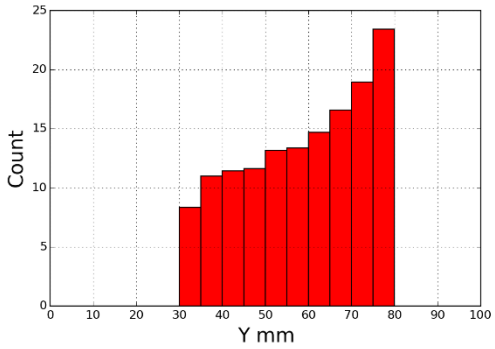


Figure C. 2412: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

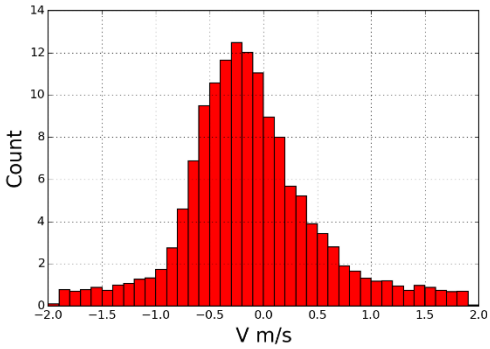


Figure C. 2415: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

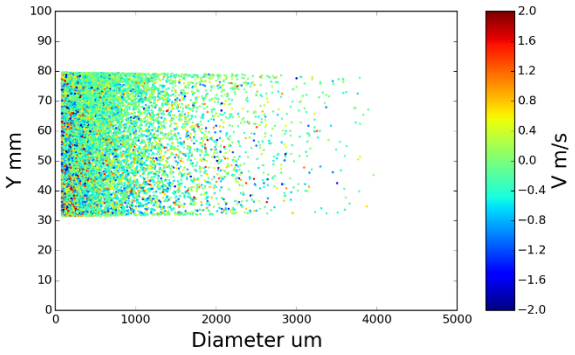


Figure C. 2413: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LB Image

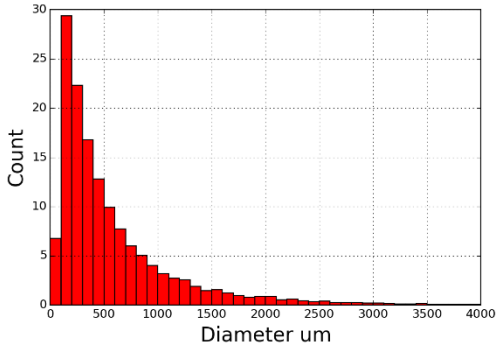


Figure C. 2416: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

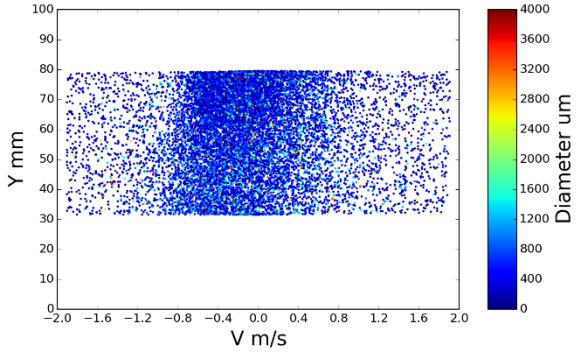


Figure C. 2419: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

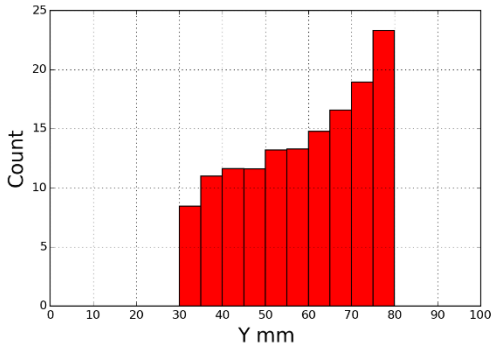


Figure C. 2417: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

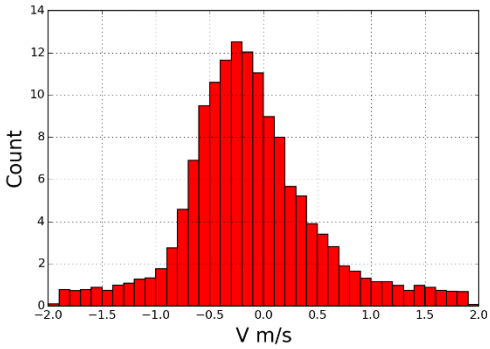


Figure C. 2420: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

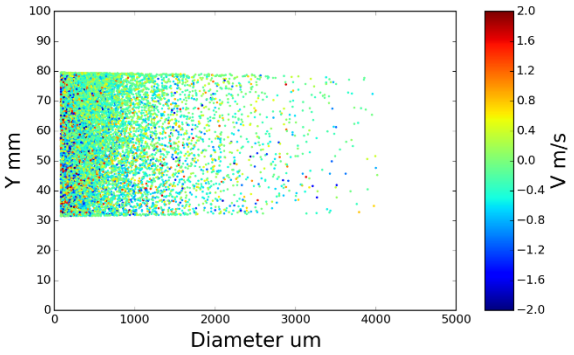


Figure C. 2418: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	32.57	31.25	75.9	4000	594.2	666.7	75.9	3968	584.4	654.8
40-60mm	71.19	73.12	75.9	3984	554.3	618.6	75.9	4011	563.1	632.1
60-80mm	98.14	99.83	75.9	4016	525.9	592.5	75.9	4008	518.1	591.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	207.21	209.76	75.9	4016	546.9	614.7	75.9	4011	544.4	616.6
			Height A (mm)				Height B (mm)			
Highest Particle			79.4883				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 265: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.85	75.9	3678	861.9	743.2	75.9	3864	850.4	745.1	-1.910	1.890	-0.110	0.560	-1.890	1.910	0.080	0.710
40-60mm	26.0	81.1	3789	748.9	670.5	75.9	3858	740.7	675.5	-1.900	1.910	-0.110	0.580	-1.900	1.910	0.040	0.700
60-80mm	44.68	75.9	3938	656.4	617.3	81.1	3964	646.2	619.3	-1.910	1.910	-0.120	0.490	-1.900	1.910	-0.020	0.580
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	81.53	75.9	3938	713.3	656.4	75.9	3964	703.4	659.2	-1.910	1.910	-0.120	0.530	-1.900	1.910	0.010	0.640

Table C. 266: Matched Droplet Info

C.8.1.1 All Droplets for .LA Image

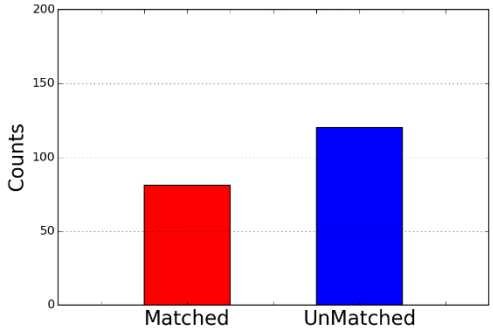


Figure C. 2421: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

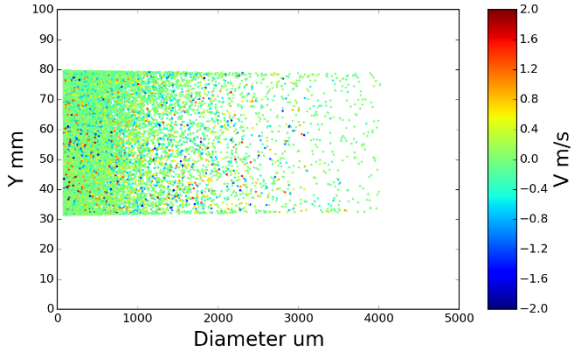


Figure C. 2424: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

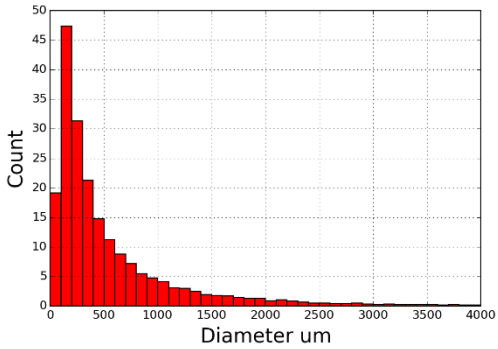


Figure C. 2422: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

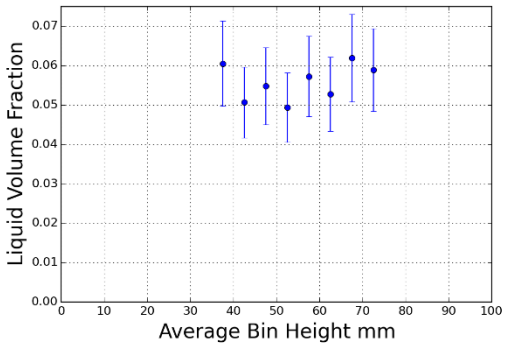


Figure C. 2425: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

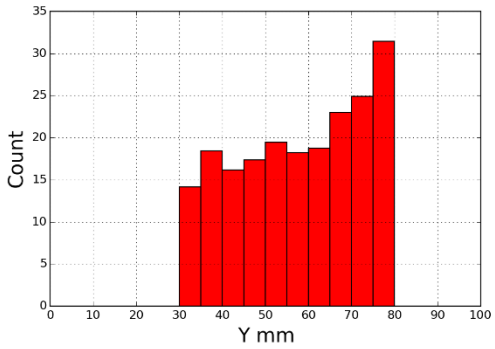


Figure C. 2423: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 All Droplets for .LB Image

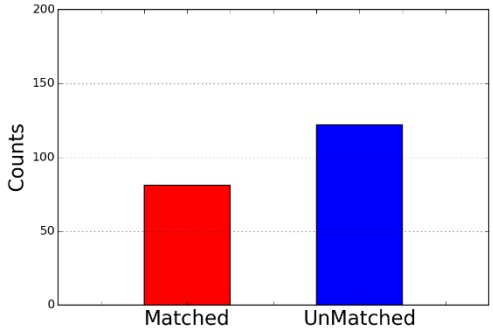


Figure C. 2426: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

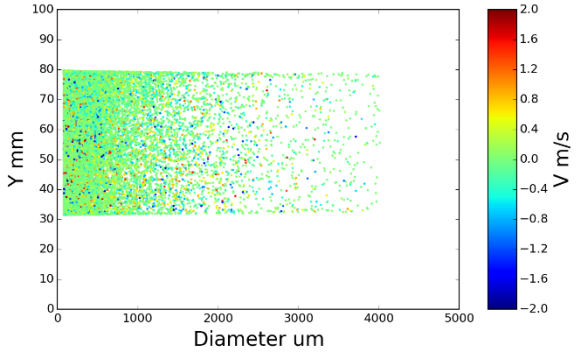


Figure C. 2429: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

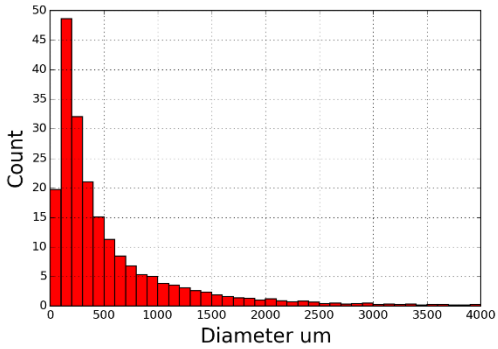


Figure C. 2427: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

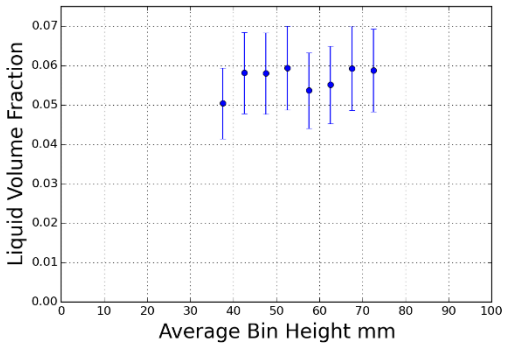


Figure C. 2430: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

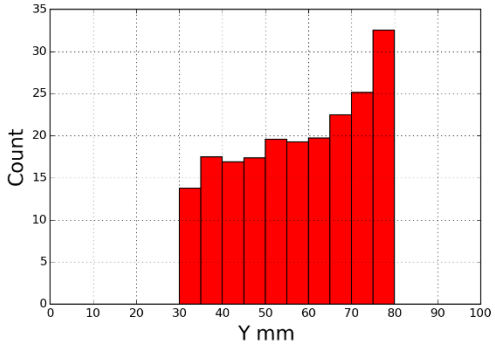


Figure C. 2428: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LA Image

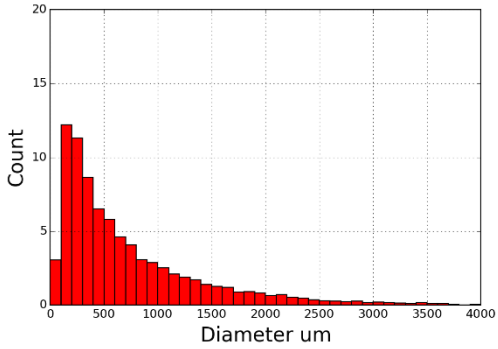


Figure C. 2431: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

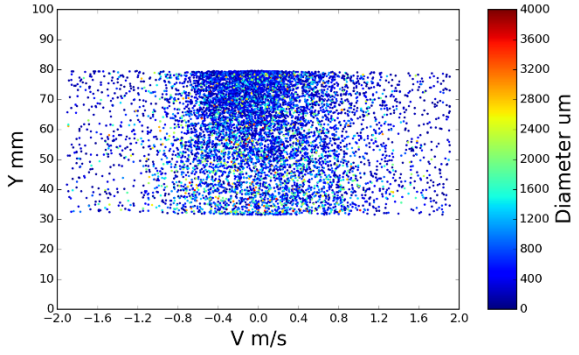


Figure C. 2434: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

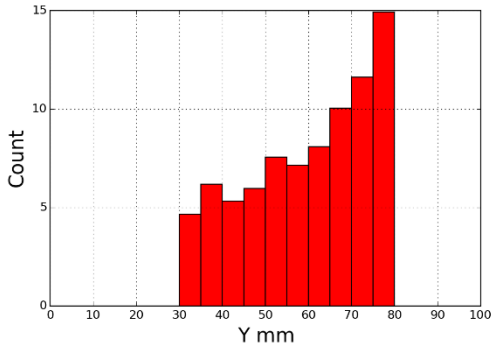


Figure C. 2432: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

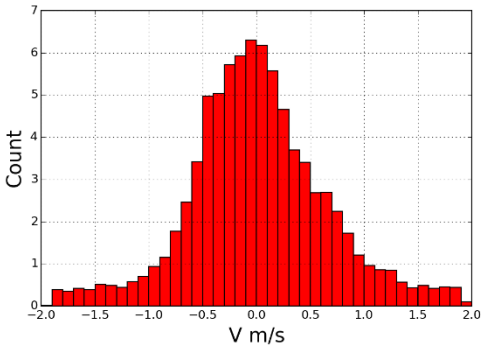


Figure C. 2435: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

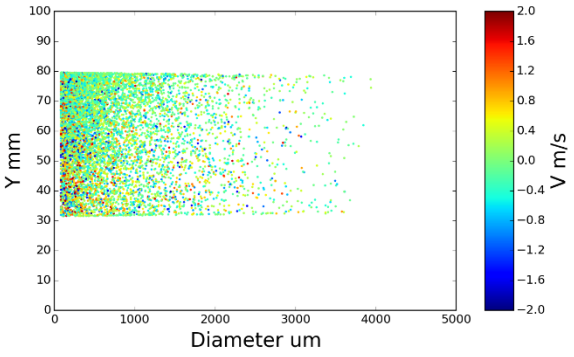


Figure C. 2433: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LB Image

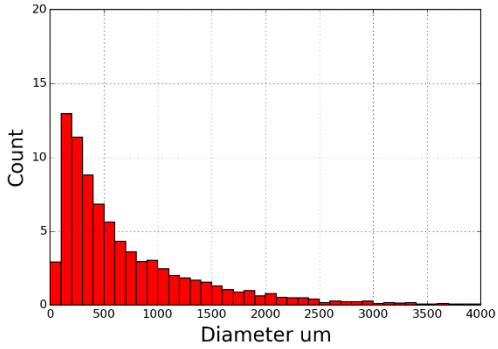


Figure C. 2436: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

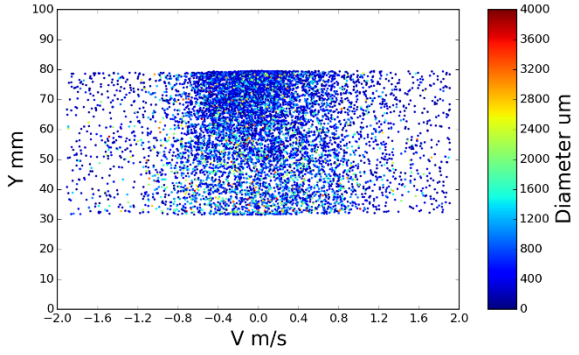


Figure C. 2439: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

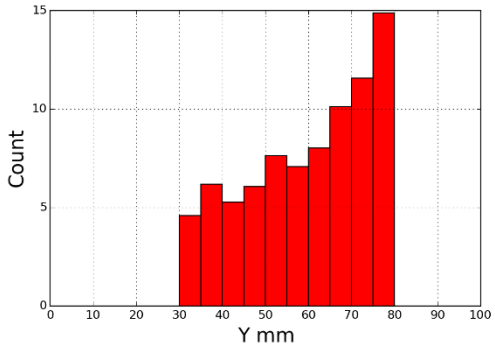


Figure C. 2437: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

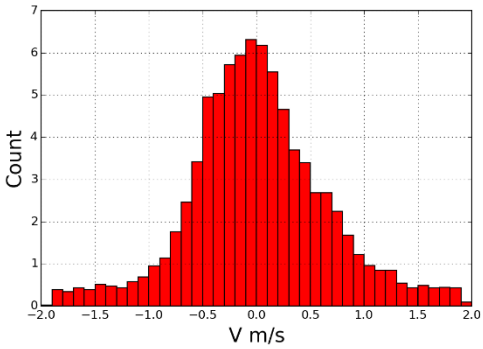


Figure C. 2440: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

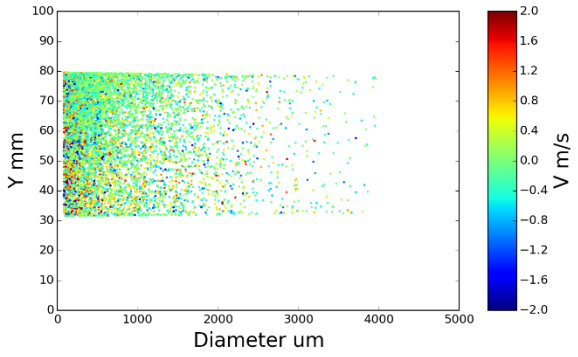


Figure C. 2438: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	27.78	27.01	75.9	4010	606.2	664.2	75.9	3936	609.9	684.7
40-60mm	65.97	66.98	75.9	3995	573.5	642.7	75.9	4011	570.8	644.2
60-80mm	104.4	106.11	75.9	4011	518.8	576.4	75.9	4014	510.4	572.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	203.17	205.53	75.9	4011	549.2	612.8	75.9	4014	544.1	614.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.4883				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 267: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	8.43	75.9	3814	901.2	735.1	81.1	3936	897.5	762.6	-1.860	1.880	-0.040	0.580	-1.870	1.900	0.340	0.710
40-60mm	24.77	75.9	3995	770.5	695.2	75.9	4004	757.9	709.1	-1.910	1.900	-0.070	0.580	-1.910	1.900	0.240	0.700
60-80mm	46.47	81.1	3960	642.3	610.9	75.9	3970	629.6	612.4	-1.910	1.900	-0.110	0.510	-1.900	1.910	0.100	0.620
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	79.67	75.9	3995	709.5	657.9	75.9	4004	697.4	666.6	-1.910	1.900	-0.090	0.540	-1.910	1.910	0.170	0.660

Table C. 268: Matched Droplet Info

C.8.1.1 All Droplets for .LA Image

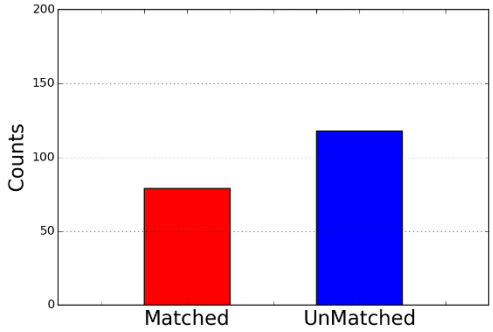


Figure C. 2441: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

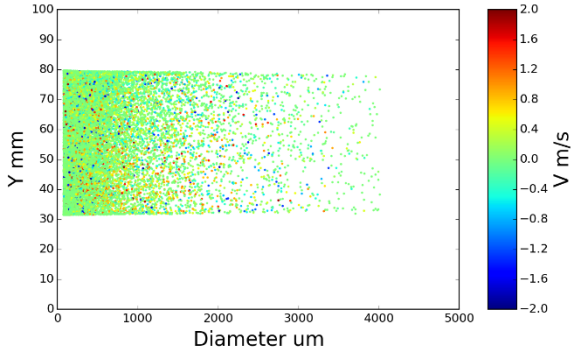


Figure C. 2444: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

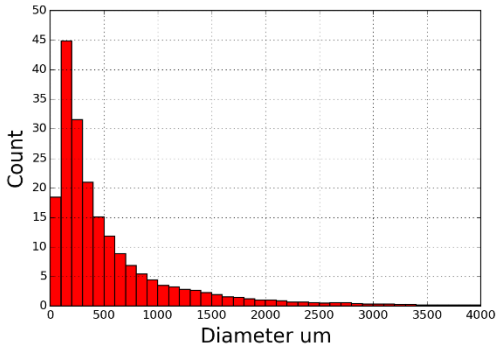


Figure C. 2442: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

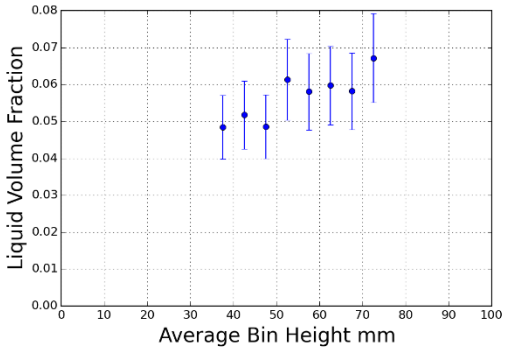


Figure C. 2445: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

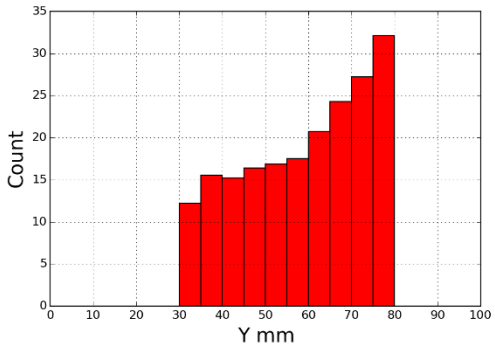


Figure C. 2443: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 All Droplets for .LB Image

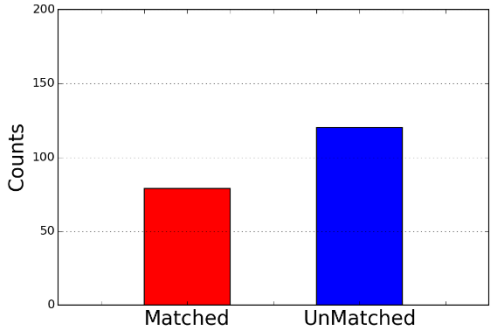


Figure C. 2446: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

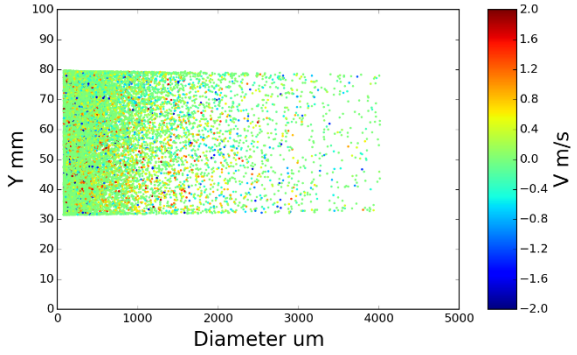


Figure C. 2449: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

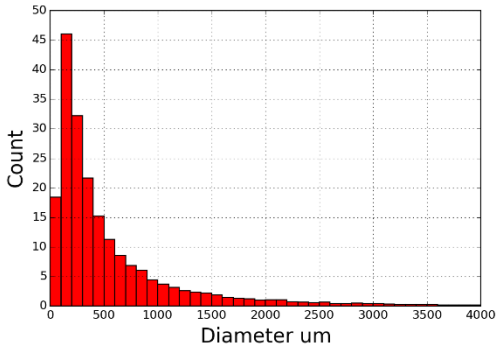


Figure C. 2447: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

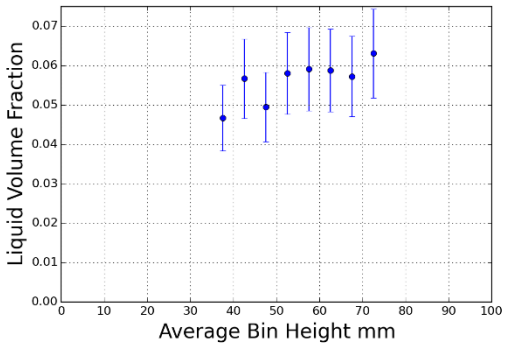


Figure C. 2450: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

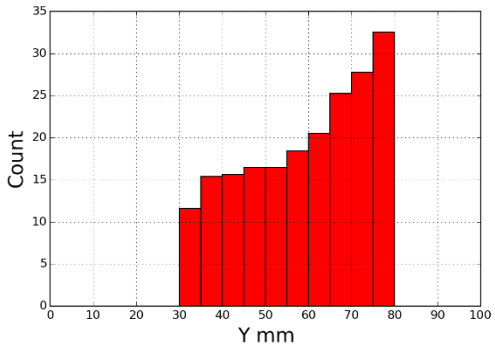


Figure C. 2448: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LA Image

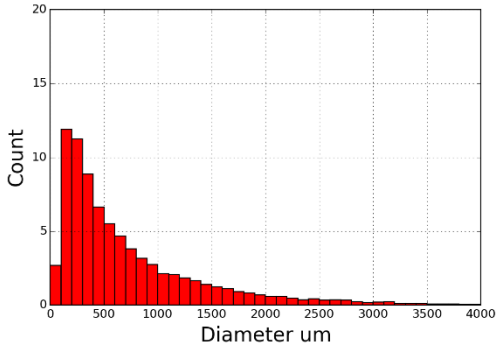


Figure C. 2451: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

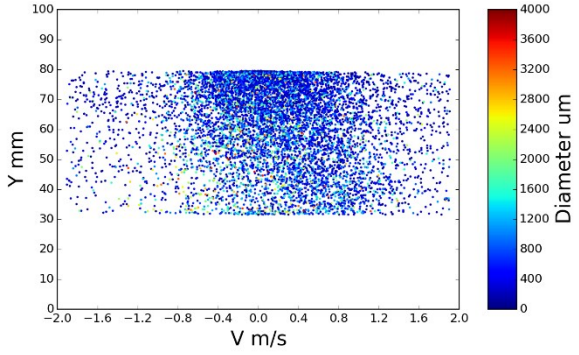


Figure C. 2454: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

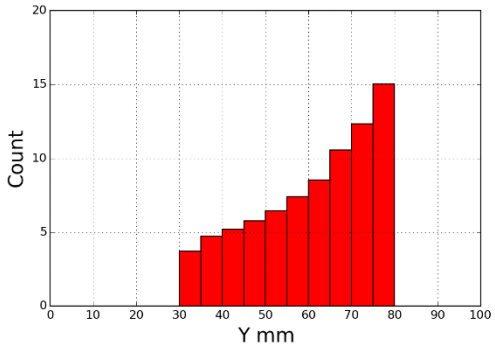


Figure C. 2452: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

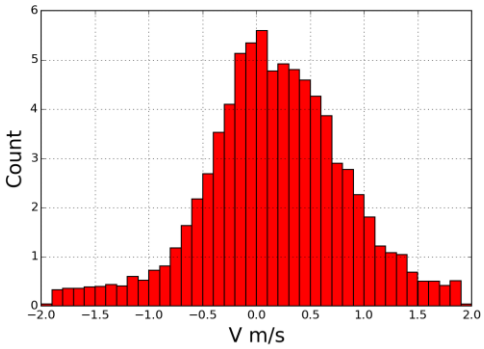


Figure C. 2455: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

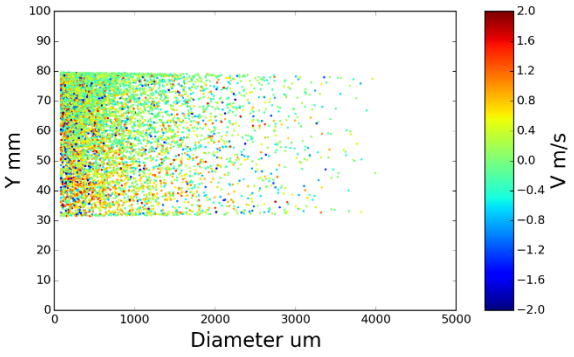


Figure C. 2453: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.1 Matched Only Droplets for .LB Image

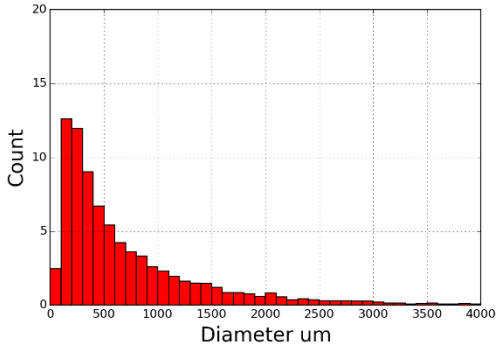


Figure C. 2456: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

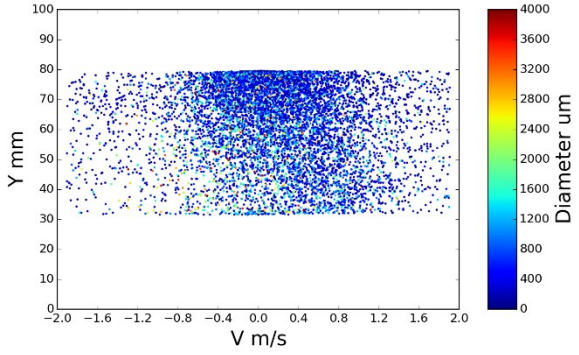


Figure C. 2459: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

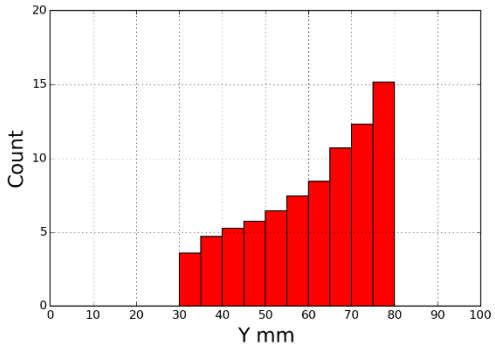


Figure C. 2457: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

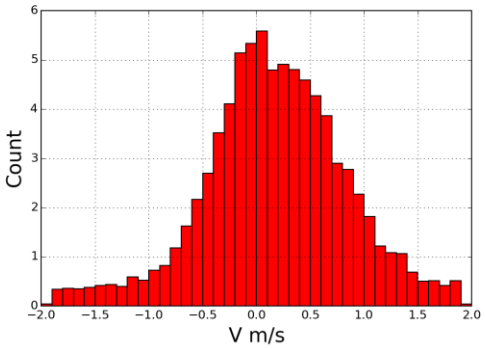


Figure C. 2460: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

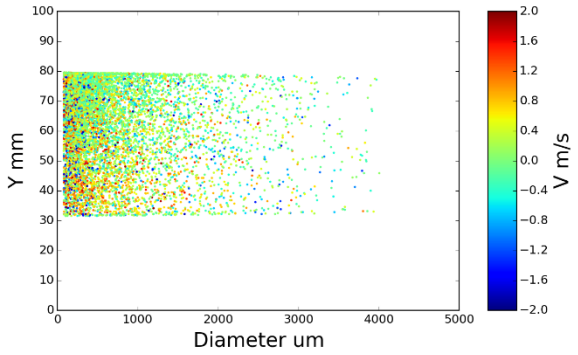


Figure C. 2458: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Lens 50mm Mag 0_13x

C.8.1.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	33.17	33.99	170.4	3979	684.3	624.4	170.4	3983	671.7	607.8
40-60mm	60.15	59.98	170.4	3986	677.9	600.2	170.4	3982	665.2	586.7
60-80mm	68.57	68.99	170.4	3992	644.4	565.9	170.4	3969	644.2	558.0
80-100mm	136.77	137.71	170.4	3968	628.2	517.8	170.4	3973	631.9	519.6
All	300.53	302.7	170.4	3992	646.7	558.7	170.4	3983	644.5	552.5
			Height A (mm)				Height B (mm)			
Highest Particle			100.0612				100.0612			
Lowest Particle			30.1382				30.1382			

Table C. 269: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	12.1	182.2	3874	756.0	626.3	182.2	3981	735.3	621.8	-1.900	1.900	-0.080	0.840	-1.900	1.900	-0.070	0.900
40-60mm	23.95	182.2	3814	748.0	598.1	182.2	3920	725.9	594.0	-1.900	1.900	-0.160	0.830	-1.900	1.900	-0.120	0.910
60-80mm	30.23	182.2	3674	711.9	569.0	170.4	3969	697.9	567.8	-1.900	1.900	-0.120	0.760	-1.900	1.900	-0.130	0.790
80-100mm	76.56	182.2	3763	689.8	520.6	170.4	3812	676.4	516.7	-1.900	1.900	-0.130	0.670	-1.900	1.900	-0.120	0.720
All	143.21	182.2	3874	708.7	554.4	170.4	3981	693.0	551.0	-1.900	1.900	-0.130	0.740	-1.900	1.900	-0.120	0.790

Table C. 270: Matched Droplet Info

C.8.1.2 All Droplets for .LA Image

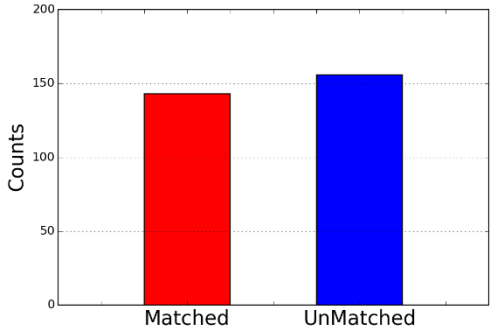


Figure C. 2461: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

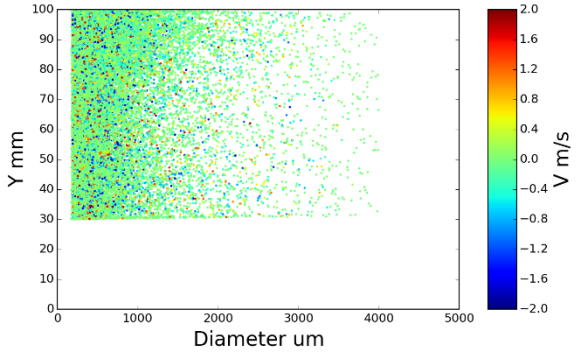


Figure C. 2464: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

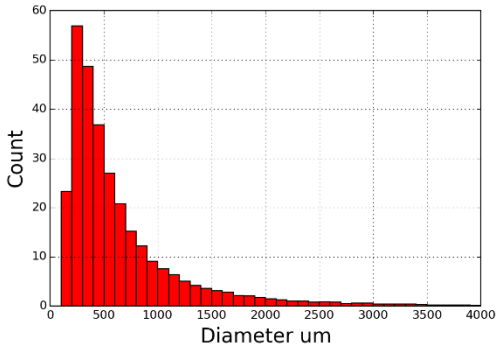


Figure C. 2462: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

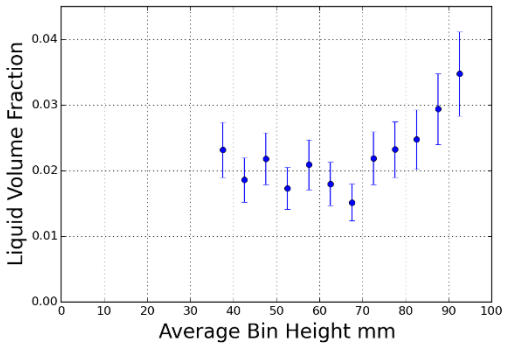


Figure C. 2465: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

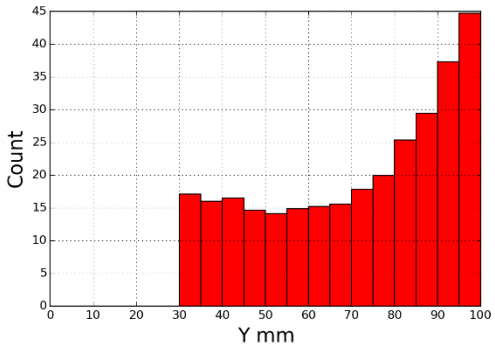


Figure C. 2463: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 All Droplets for .LB Image

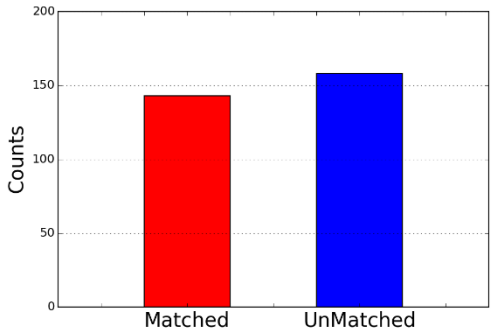


Figure C. 2466: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

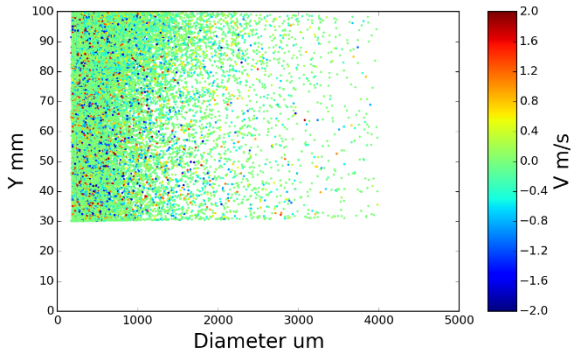


Figure C. 2469: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

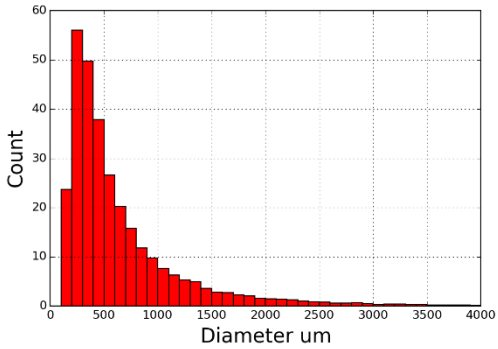


Figure C. 2467: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

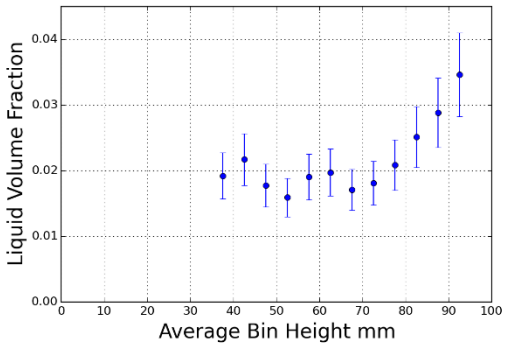


Figure C. 2470: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

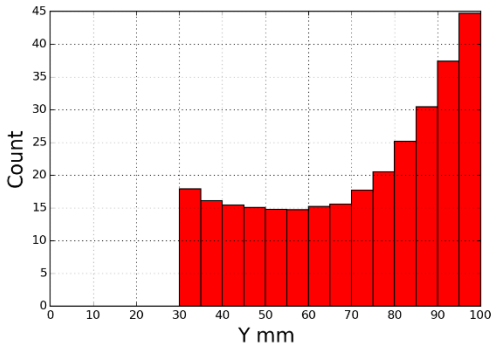


Figure C. 2468: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LA Image

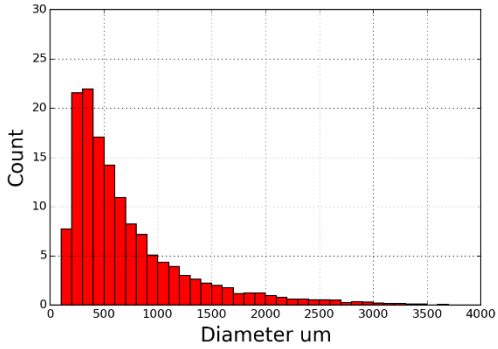


Figure C. 2471: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

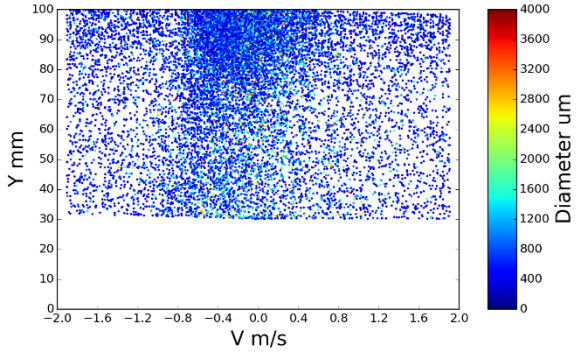


Figure C. 2474: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

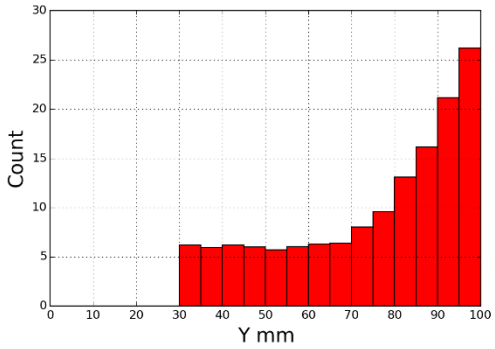


Figure C. 2472: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

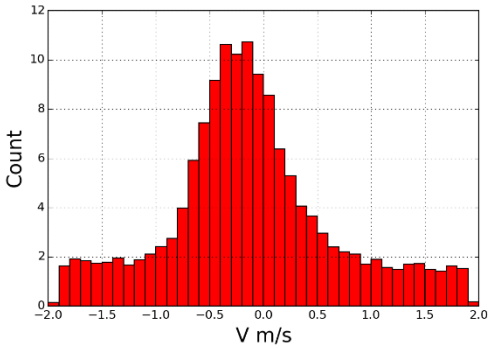


Figure C. 2475: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

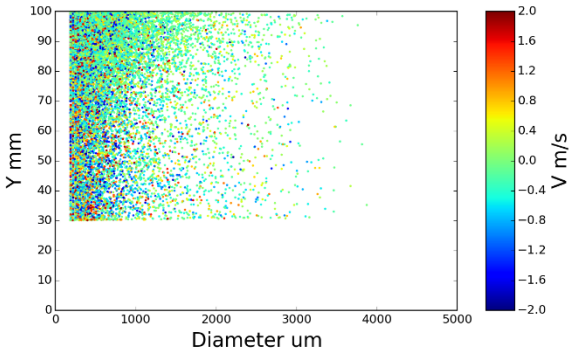


Figure C. 2473: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LB Image

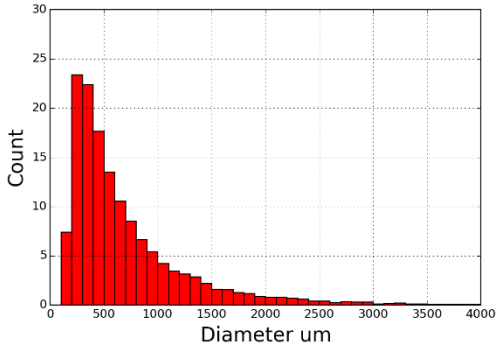


Figure C. 2476: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

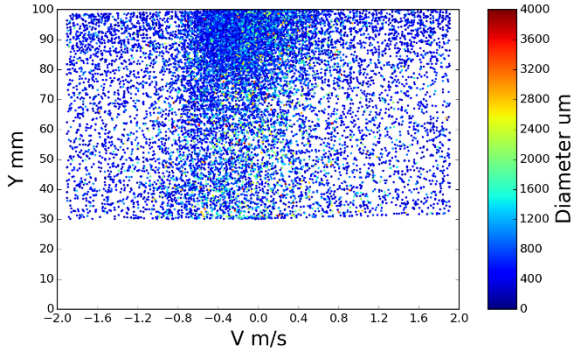


Figure C. 2479: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

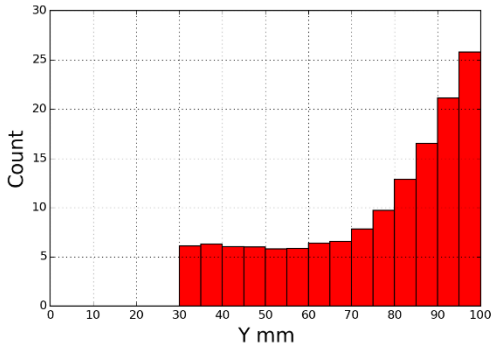


Figure C. 2477: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

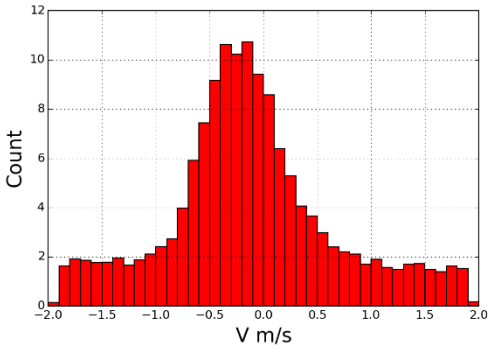


Figure C. 2480: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

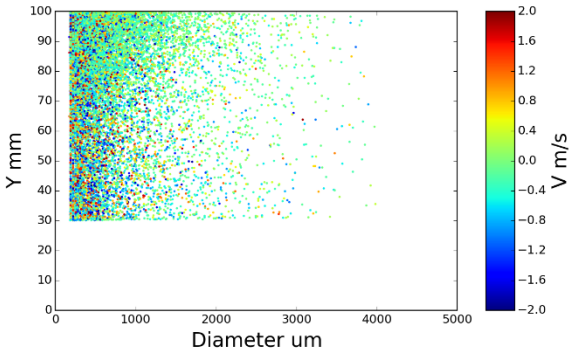


Figure C. 2478: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	29.61	29.44	170.4	3962	753.1	669.4	170.4	3992	733.8	646.3
40-60mm	49.13	50.58	170.4	3980	734.2	661.5	170.4	3974	727.7	640.2
60-80mm	59.39	59.89	170.4	3975	721.8	636.1	170.4	3994	717.0	630.8
80-100mm	117.72	117.11	170.4	3992	677.8	563.5	170.4	3993	675.0	558.7
All	257.88	258.84	170.4	3992	705.7	613.2	170.4	3994	700.2	602.8
			Height A (mm)				Height B (mm)			
Highest Particle			100.0612				100.0612			
Lowest Particle			30.1382				30.1382			

Table C. 271: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	10.63	182.2	3765	876.0	674.4	182.2	3903	845.1	677.5	-1.900	1.900	-0.140	0.830	-1.900	1.900	-0.010	0.870
40-60mm	17.52	182.2	3819	824.6	652.2	182.2	3884	807.0	663.0	-1.900	1.900	-0.130	0.780	-1.900	1.900	-0.090	0.850
60-80mm	25.72	182.2	3964	794.2	621.6	182.2	3983	771.1	621.4	-1.900	1.900	-0.100	0.740	-1.900	1.900	-0.090	0.780
80-100mm	62.82	182.2	3830	739.2	558.3	182.2	3965	727.0	559.5	-1.900	1.900	-0.150	0.670	-1.900	1.900	-0.070	0.710
All	117.03	182.2	3964	775.1	600.1	182.2	3983	758.3	602.3	-1.900	1.900	-0.140	0.720	-1.900	1.900	-0.070	0.760

Table C. 272: Matched Droplet Info

C.8.1.2 All Droplets for .LA Image

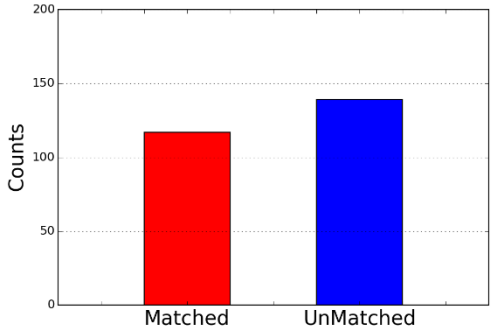


Figure C. 2481: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

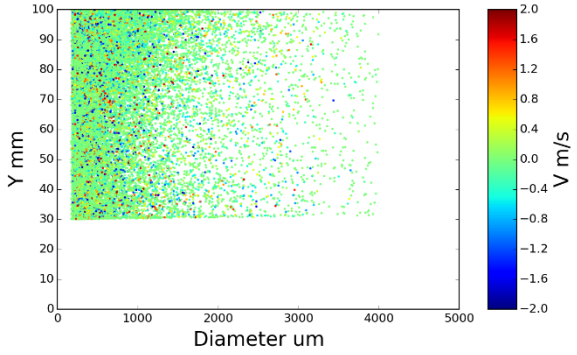


Figure C. 2484: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

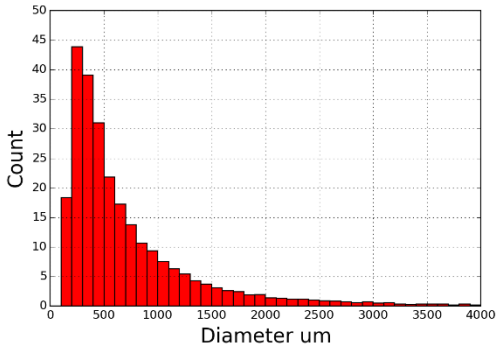


Figure C. 2482: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

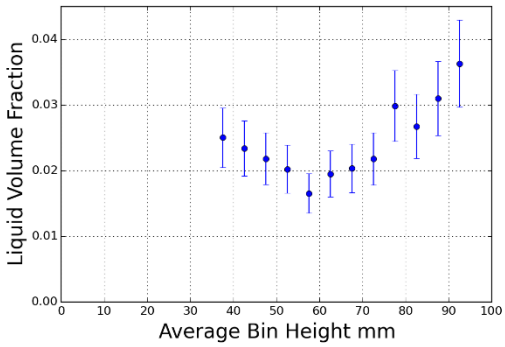


Figure C. 2485: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

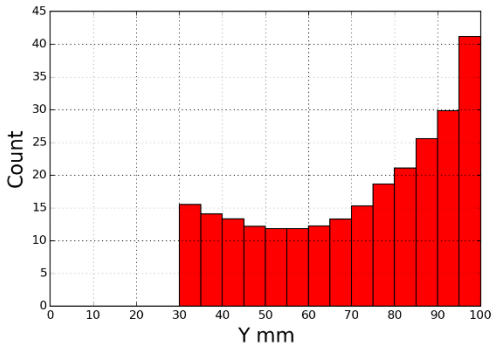


Figure C. 2483: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 All Droplets for .LB Image

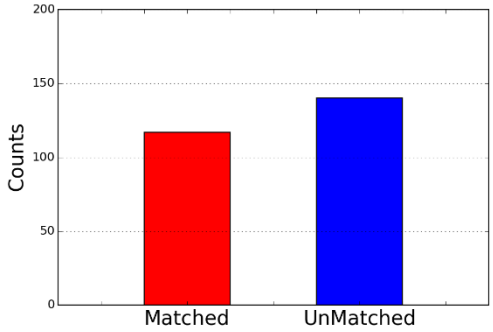


Figure C. 2486: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

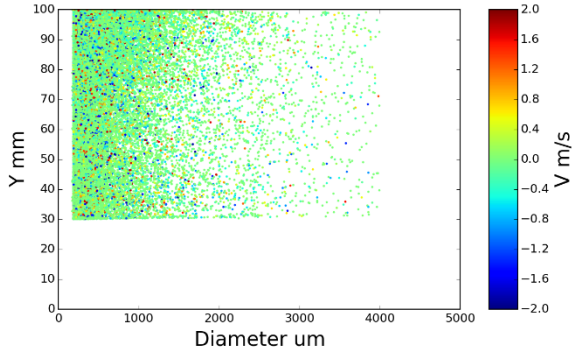


Figure C. 2489: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

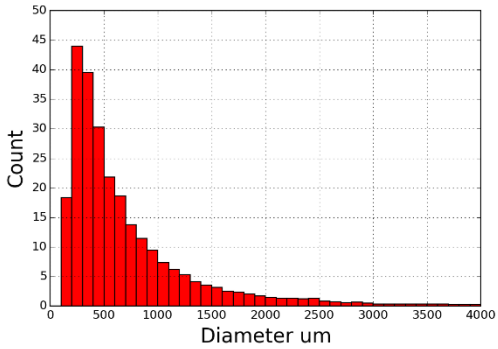


Figure C. 2487: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

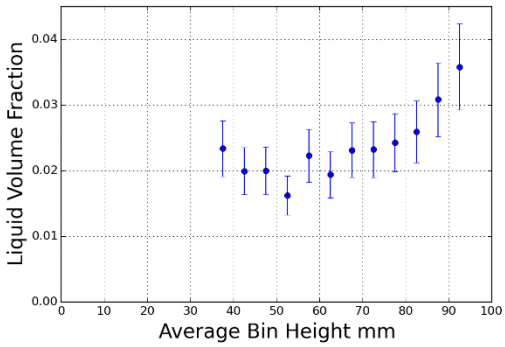


Figure C. 2490: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

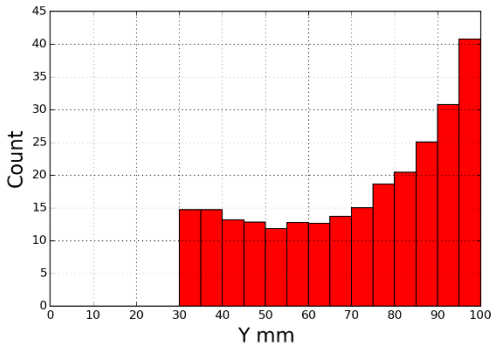


Figure C. 2488: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LA Image

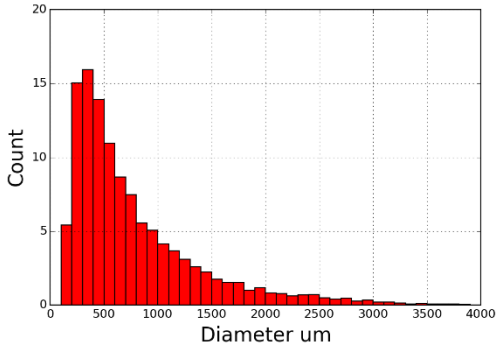


Figure C. 2491: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

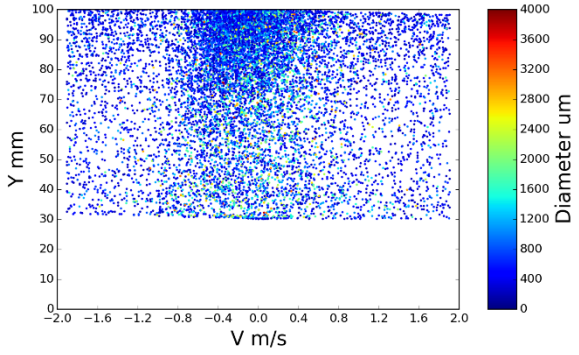


Figure C. 2494: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

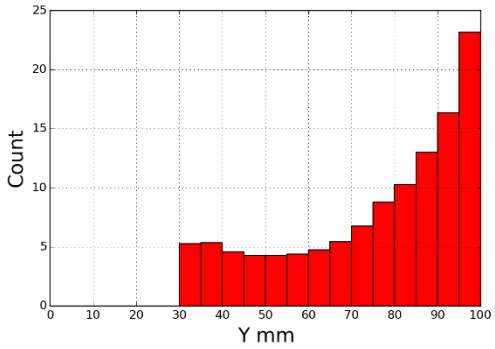


Figure C. 2492: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

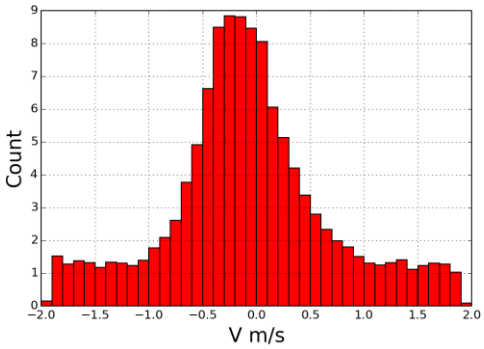


Figure C. 2495: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

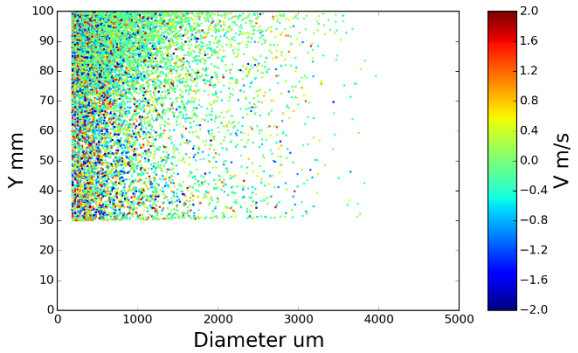


Figure C. 2493: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LB Image

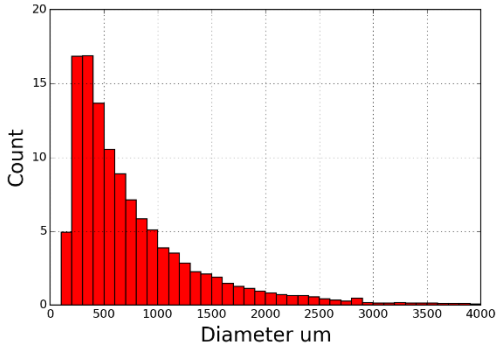


Figure C. 2496: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

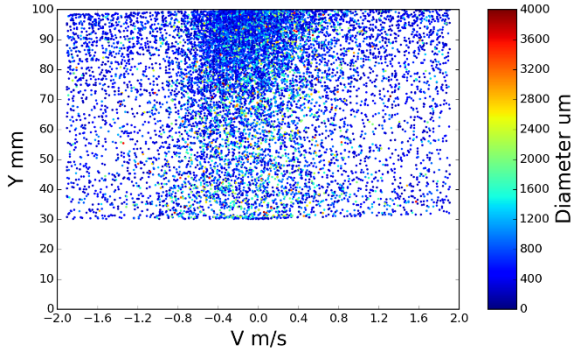


Figure C. 2499: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

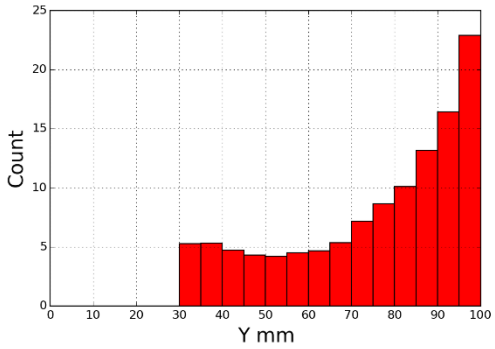


Figure C. 2497: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

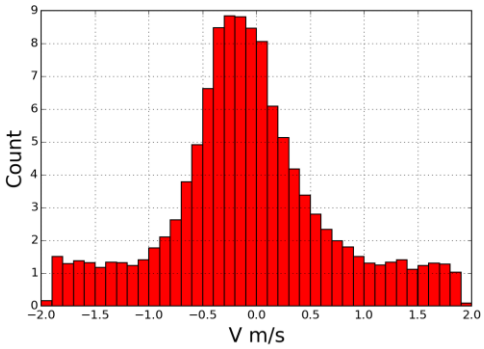


Figure C. 2500: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

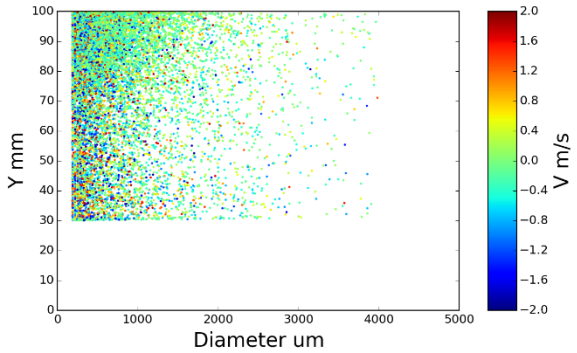


Figure C. 2498: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	21.53	20.24	170.4	3994	831.6	736.9	170.4	3989	829.6	742.3
40-60mm	37.33	37.2	170.4	3975	839.5	722.2	170.4	3959	817.2	718.7
60-80mm	51.26	48.33	170.4	3976	751.2	661.1	170.4	3990	757.1	655.3
80-100mm	106.72	107.39	170.4	3978	704.0	588.7	170.4	3947	704.9	588.5
All	218.49	214.52	170.4	3994	748.7	648.0	170.4	3990	746.1	645.0
			Height A (mm)				Height B (mm)			
Highest Particle			100.0612				100.0612			
Lowest Particle			30.1382				30.1382			

Table C. 273: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.63	182.2	3728	1008	760.3	193.2	3984	991.4	792.0	-1.890	1.900	-0.100	0.750	-1.890	1.900	0.050	0.880
40-60mm	13.67	182.2	3885	949.0	729.6	182.2	3943	918.5	734.7	-1.900	1.870	-0.140	0.770	-1.890	1.900	-0.000	0.850
60-80mm	20.69	182.2	3738	838.5	663.7	170.4	3878	818.1	667.2	-1.900	1.900	-0.130	0.760	-1.890	1.900	0.000	0.800
80-100mm	55.25	182.2	3816	787.0	592.1	170.4	3915	768.4	593.9	-1.900	1.900	-0.140	0.690	-1.900	1.900	-0.060	0.730
All	96.62	182.2	3885	834.1	645.2	170.4	3984	814.0	650.0	-1.900	1.900	-0.130	0.720	-1.900	1.900	-0.040	0.780

Table C. 274: Matched Droplet Info

C.8.1.2 All Droplets for .LA Image

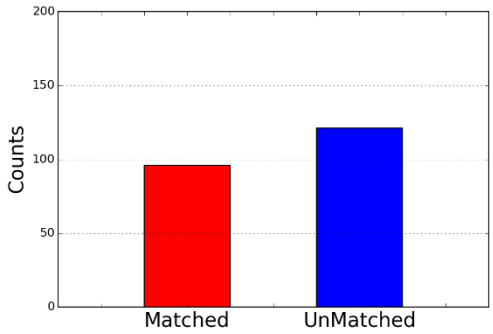


Figure C. 2501: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

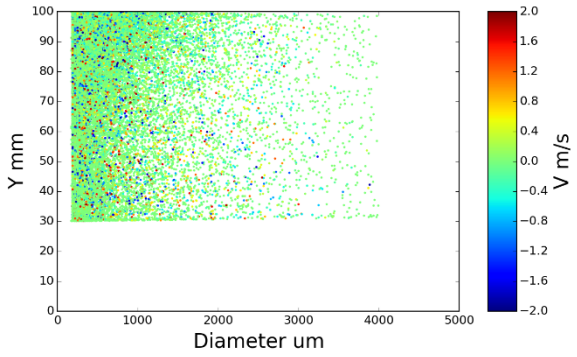


Figure C. 2504: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

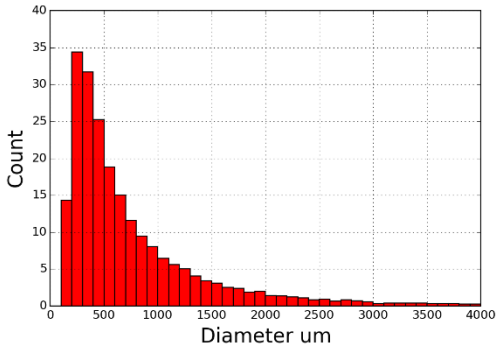


Figure C. 2502: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

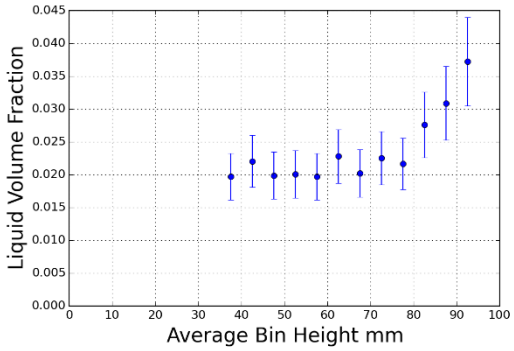


Figure C. 2505: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

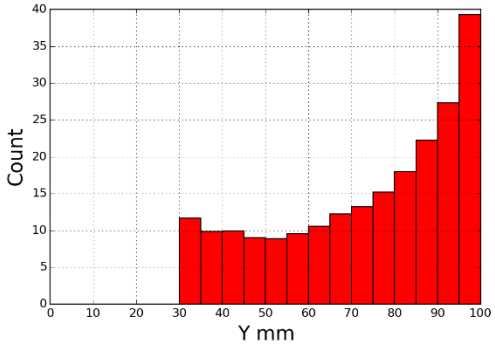


Figure C. 2503: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 All Droplets for .LB Image

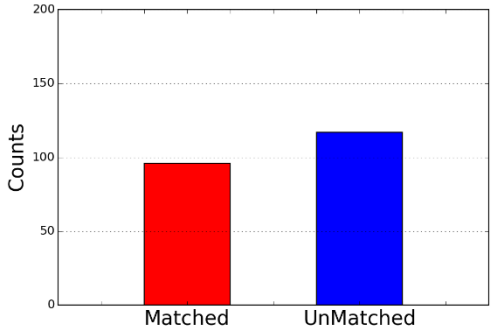


Figure C. 2506: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

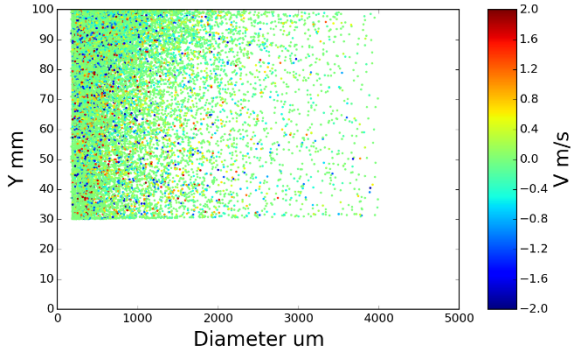


Figure C. 2509: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

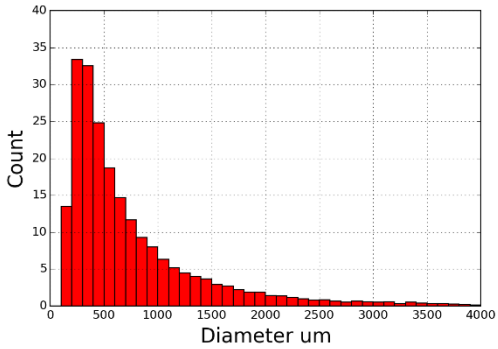


Figure C. 2507: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

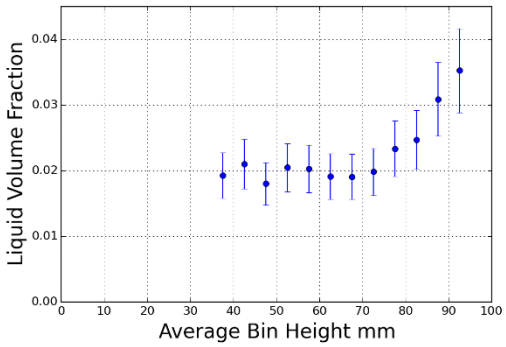


Figure C. 2510: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

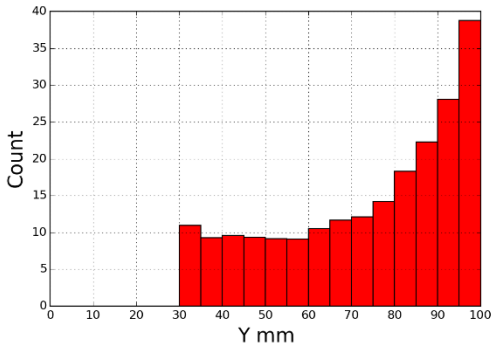


Figure C. 2508: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LA Image

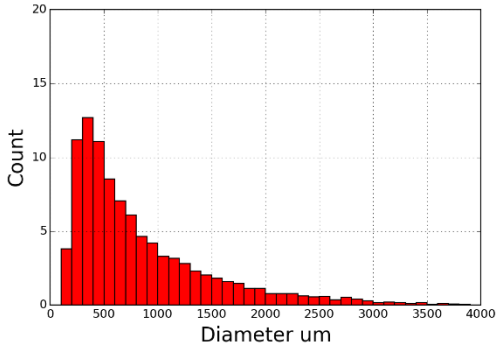


Figure C. 2511: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

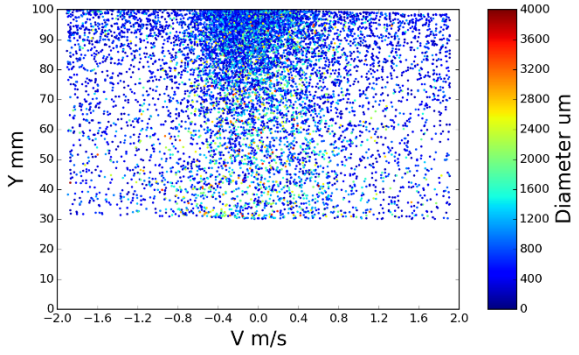


Figure C. 2514: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

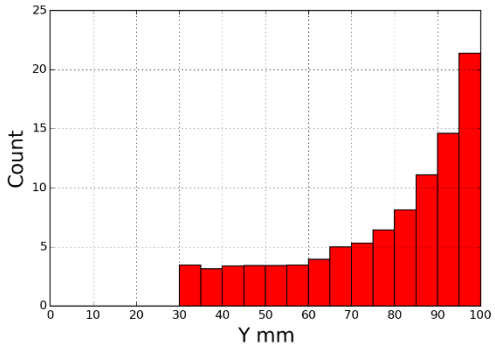


Figure C. 2512: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

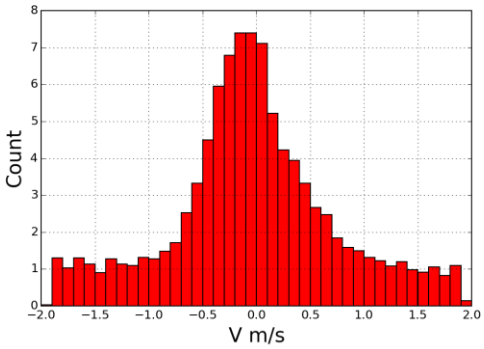


Figure C. 2515: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

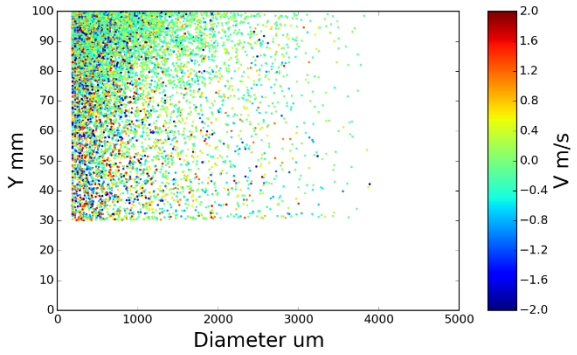


Figure C. 2513: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.1.2 Matched Only Droplets for .LB Image

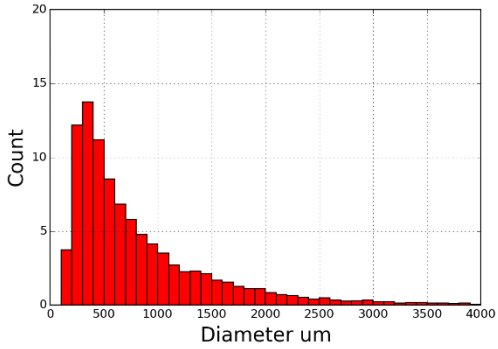


Figure C. 2516: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

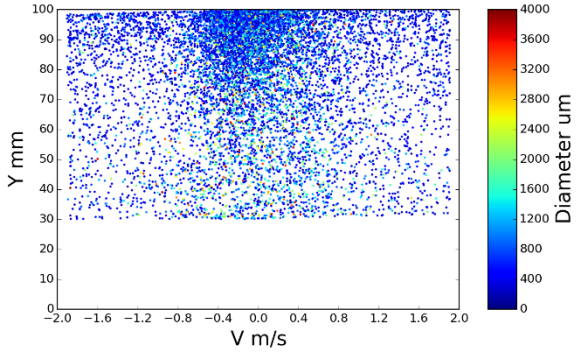


Figure C. 2519: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

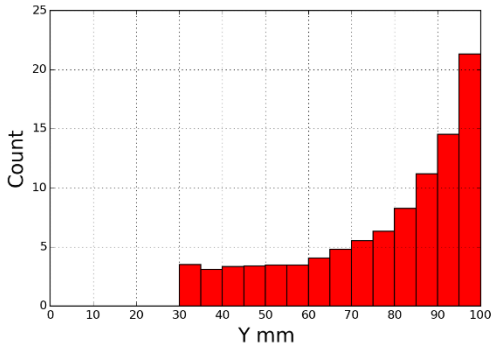


Figure C. 2517: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

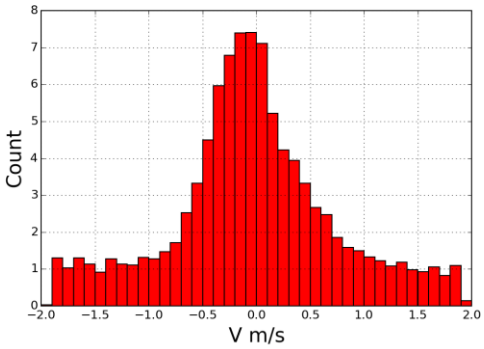


Figure C. 2520: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

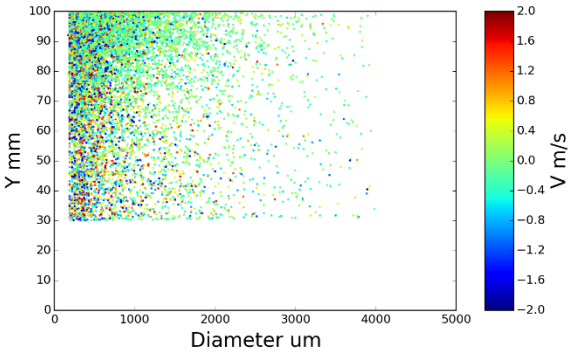


Figure C. 2518: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2 Liquid Level 2

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	19216 / 2.421
Ref Mass Flow (lb/hr) / (kg/s)	3091 / 0.389
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	30091 / 40.810
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	8800 / 27.76
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.8 / 12.68
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	55.0 / 12.79
Total Bundle Q (Btu/hr) / (kW)	272102 / 79.75
Total Bundle & Preboiler Q (Btu/hr) / (kW)	272102 / 79.75
Top Two Rows HTC Ratio	0.948
Bundle Inlet Quality	-0.09
Bundle Exit Quality	1.00

Table C. 275: Thermal Conditions

C.8.2.1 Lens 100mm Mag 0_29x

C.8.2.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	73.09	74.54	75.9	3984	581.5	598.0	75.9	3973	574.1	601.9
40-60mm	164.2	168.39	75.9	3982	556.8	575.6	75.9	3994	547.8	573.4
60-80mm	131.87	135.65	75.9	4014	520.6	544.6	75.9	3982	505.0	535.6
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	369.56	378.98	75.9	4014	548.7	569.8	75.9	3994	537.7	566.6
			Height A (mm)				Height B (mm)			
Highest Particle			79.4799				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 276: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	42.56	81.1	3820	679.6	603.8	75.9	3920	671.1	606.4	-1.860	1.900	-0.160	0.370	-1.900	1.880	-0.200	0.540
40-60mm	100.69	81.1	3938	643.6	569.1	75.9	3991	637.9	569.5	-1.900	1.910	-0.140	0.360	-1.910	1.900	-0.210	0.540
60-80mm	84.24	81.1	3905	596.5	536.8	81.1	3982	590.8	539.1	-1.910	1.910	-0.130	0.350	-1.910	1.910	-0.300	0.500
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	227.49	81.1	3938	632.9	565.0	75.9	3991	626.8	566.6	-1.910	1.910	-0.140	0.350	-1.910	1.910	-0.240	0.530

Table C. 277: Matched Droplet Info

C.8.2.1 All Droplets for .LA Image

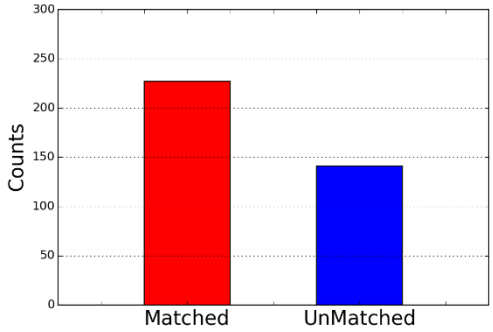


Figure C. 2521: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

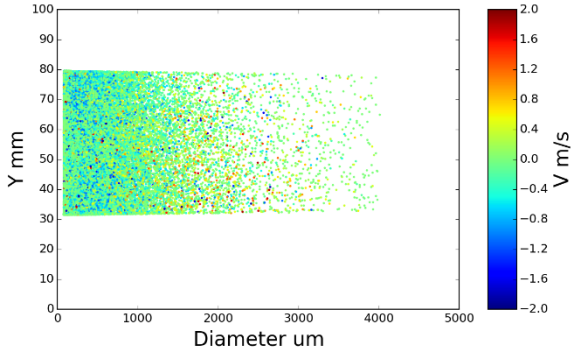


Figure C. 2524: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

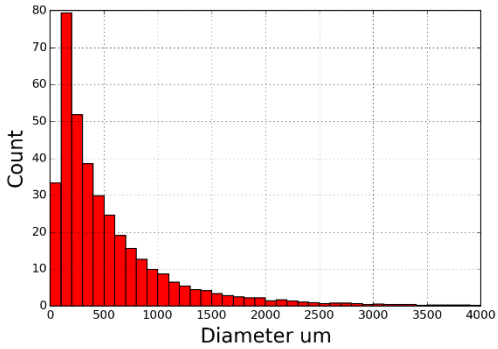


Figure C. 2522: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

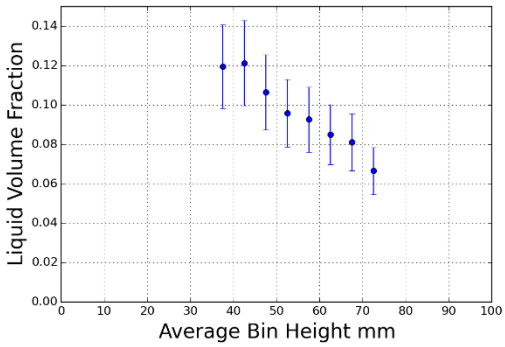


Figure C. 2525: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

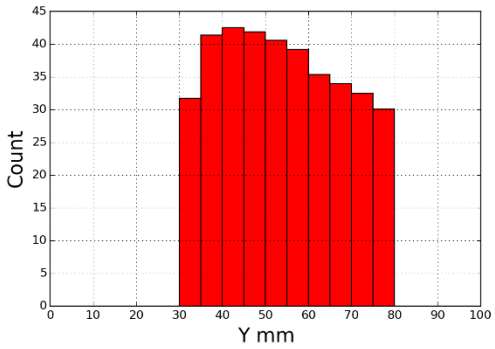


Figure C. 2523: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 All Droplets for .LB Image

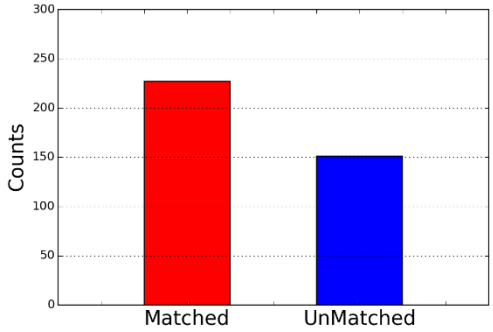


Figure C. 2526: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

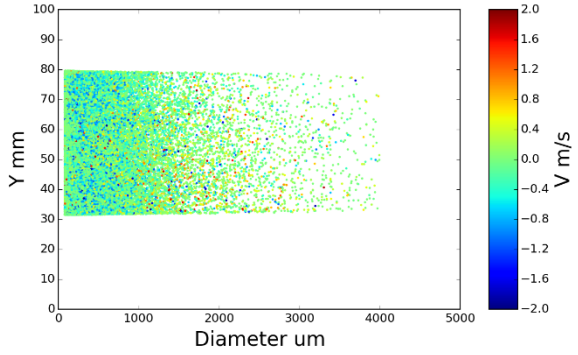


Figure C. 2529: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

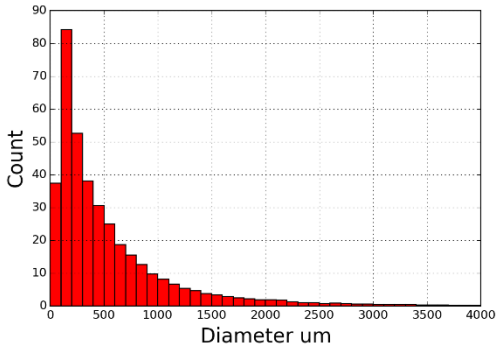


Figure C. 2527: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

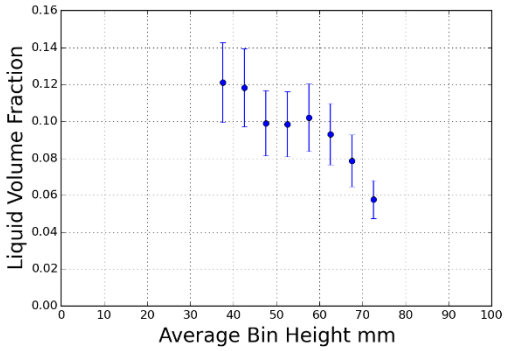


Figure C. 2530: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

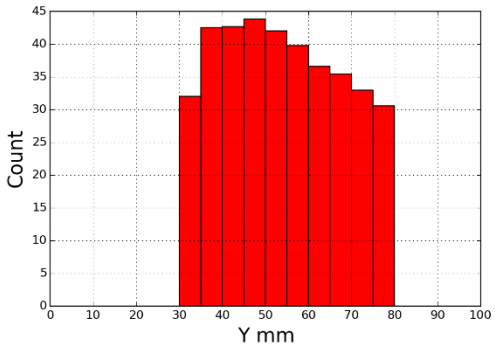


Figure C. 2528: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LA Image

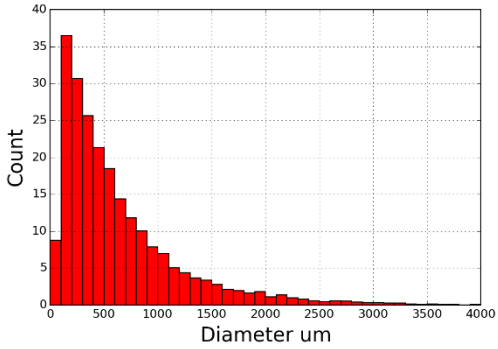


Figure C. 2531: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

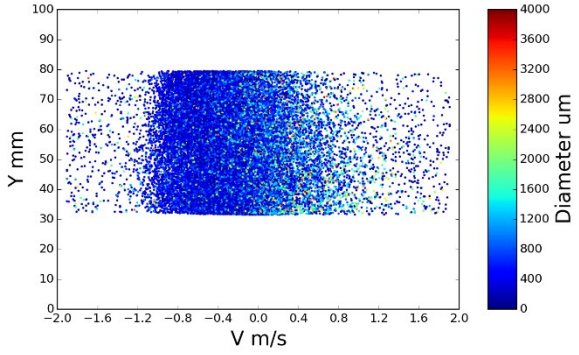


Figure C. 2534: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

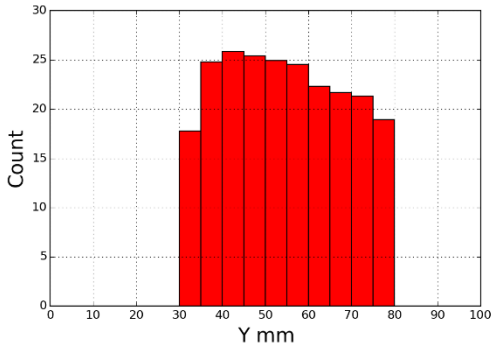


Figure C. 2532: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

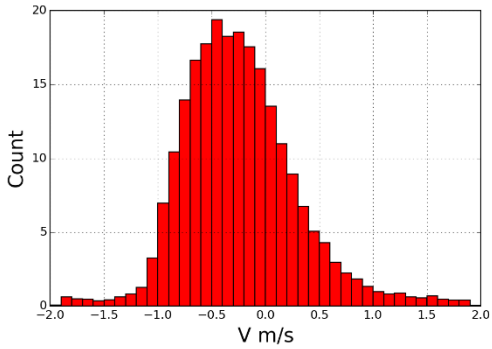


Figure C. 2535: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

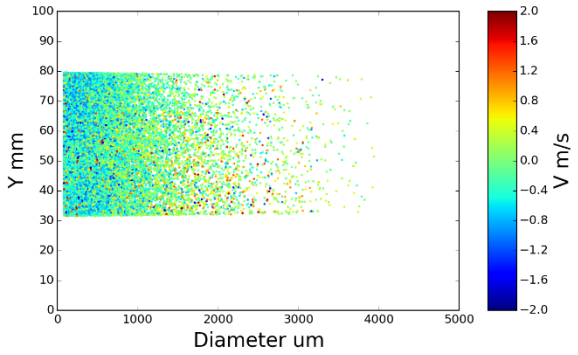


Figure C. 2533: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LB Image

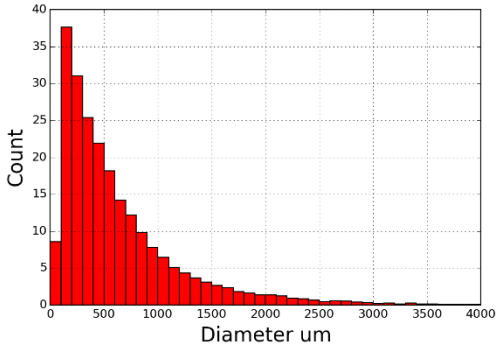


Figure C. 2536: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

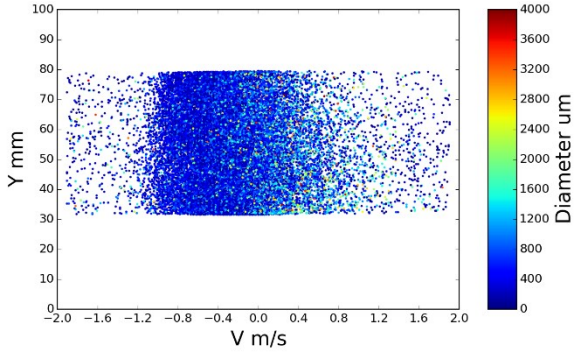


Figure C. 2539: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

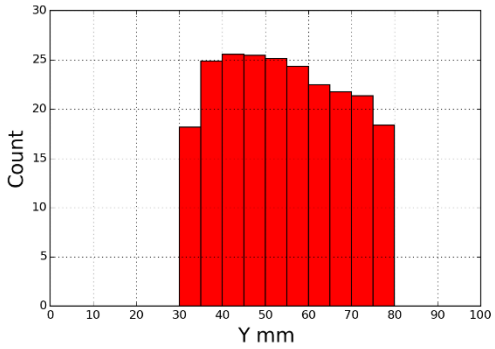


Figure C. 2537: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

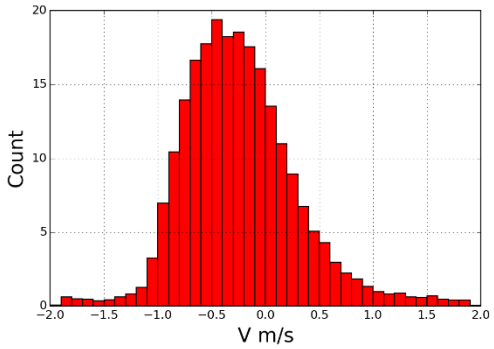


Figure C. 2540: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

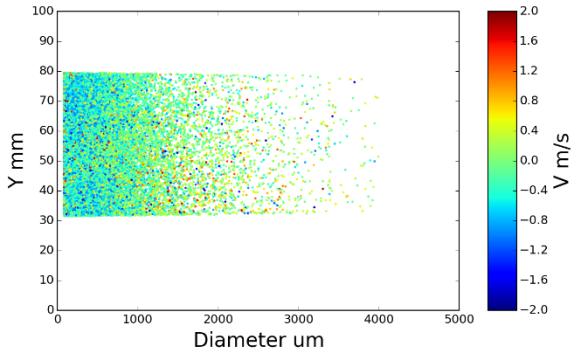


Figure C. 2538: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	96.68	99.11	75.9	4004	576.2	563.0	75.9	3974	565.7	550.9
40-60mm	212.84	214.36	75.9	4015	552.0	551.7	75.9	4008	550.1	547.3
60-80mm	166.89	168.4	75.9	4004	535.2	526.4	75.9	3998	523.5	512.3
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	476.41	481.87	75.9	4015	551.0	545.5	75.9	4008	544.0	536.3
			Height A (mm)				Height B (mm)			
Highest Particle			79.4777				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 278: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	58.9	81.1	3936	669.3	566.1	81.1	3974	662.1	564.7	-1.910	1.910	-0.120	0.400	-1.900	1.910	0.110	0.580
40-60mm	134.65	81.1	3959	629.8	545.2	75.9	4008	624.4	545.4	-1.910	1.910	-0.110	0.370	-1.910	1.910	0.030	0.540
60-80mm	112.93	81.1	3962	601.6	518.1	75.9	3981	593.3	513.2	-1.910	1.910	-0.090	0.320	-1.910	1.890	-0.070	0.480
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	306.48	81.1	3962	627.0	540.1	75.9	4008	620.2	538.2	-1.910	1.910	-0.100	0.360	-1.910	1.910	0.010	0.540

Table C. 279: Matched Droplet Info

C.8.2.1 All Droplets for .LA Image

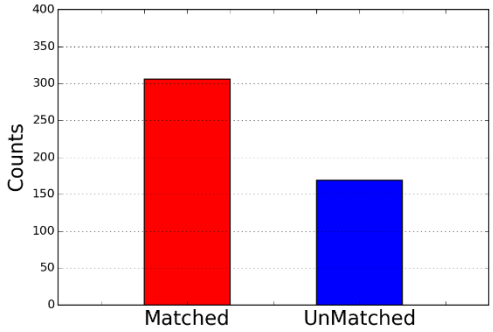


Figure C. 2541: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

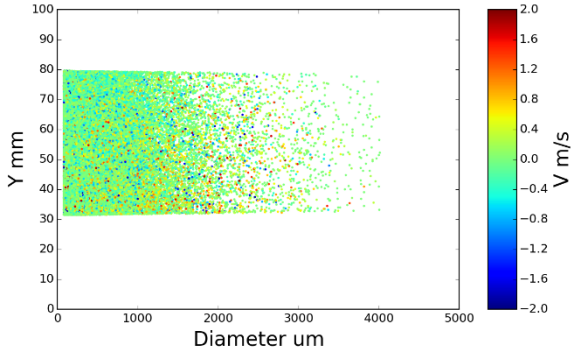


Figure C. 2544: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

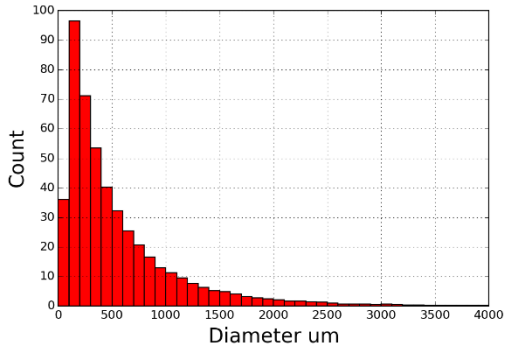


Figure C. 2542: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

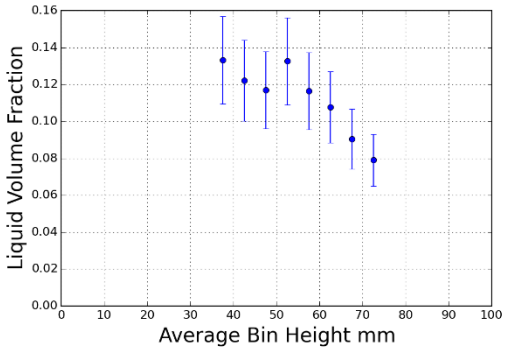


Figure C. 2545: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

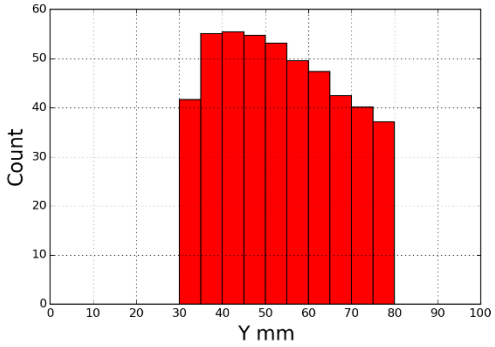


Figure C. 2543: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 All Droplets for .LB Image

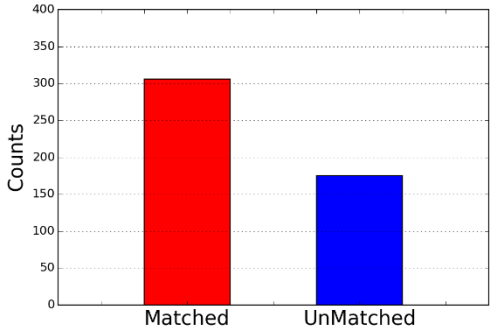


Figure C. 2546: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

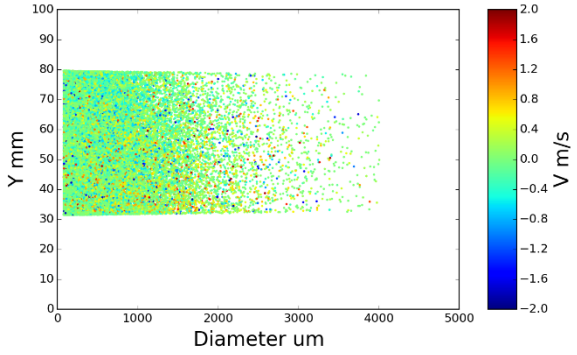


Figure C. 2549: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

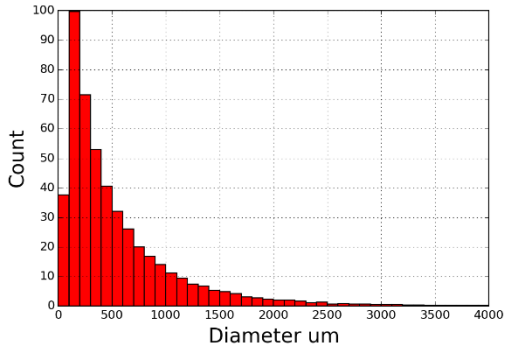


Figure C. 2547: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

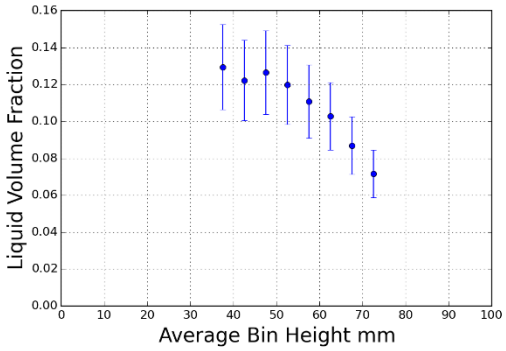


Figure C. 2550: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

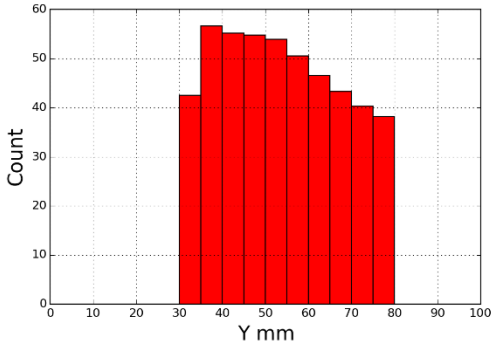


Figure C. 2548: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LA Image

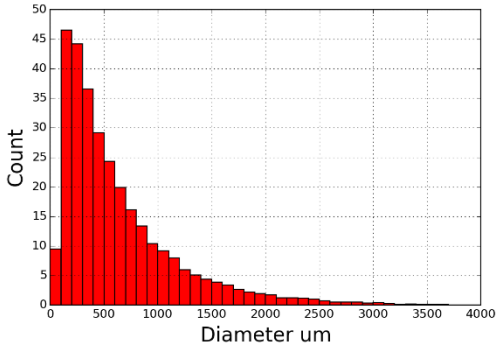


Figure C. 2551: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

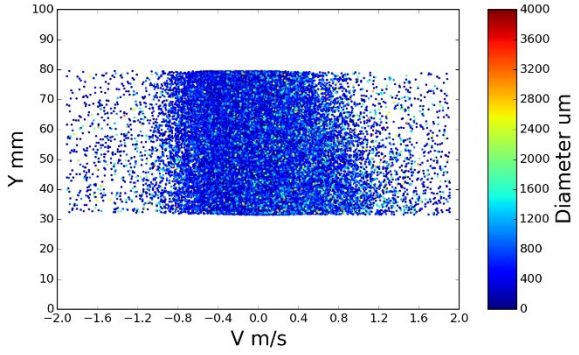


Figure C. 2554: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

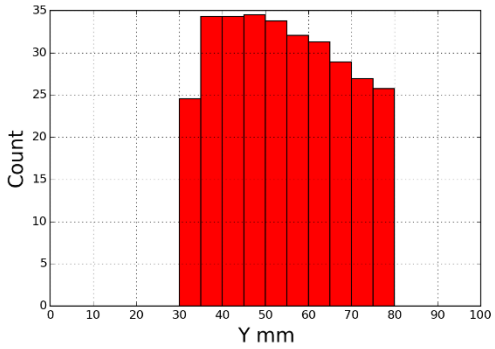


Figure C. 2552: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

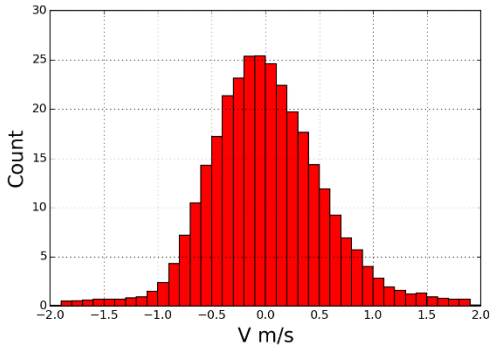


Figure C. 2555: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

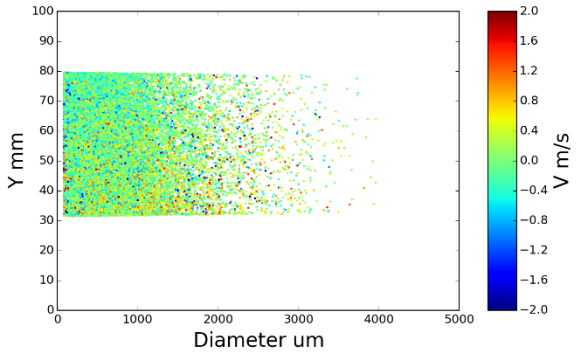


Figure C. 2553: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LB Image

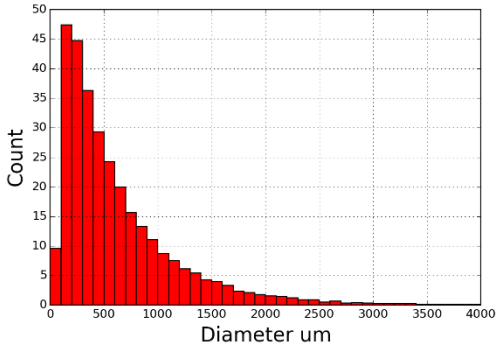


Figure C. 2556: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

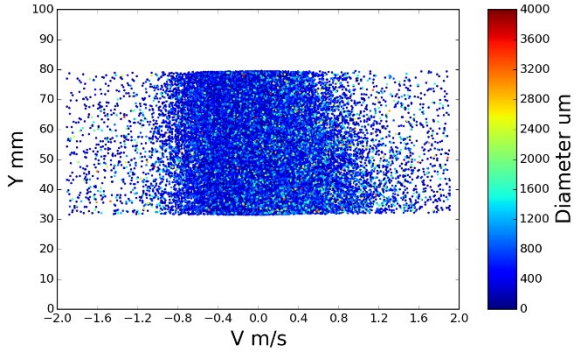


Figure C. 2559: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

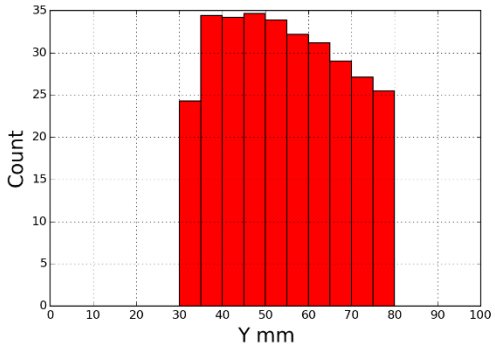


Figure C. 2557: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

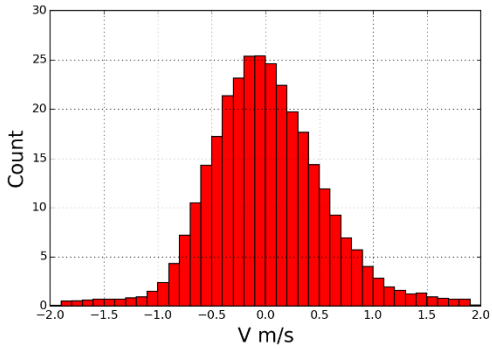


Figure C. 2560: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

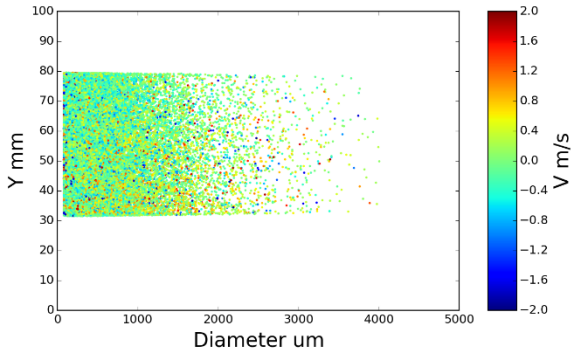


Figure C. 2558: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	115.57	115.45	75.9	3990	534.1	525.4	75.9	3987	533.4	524.4
40-60mm	256.72	255.27	75.9	4010	524.0	516.1	75.9	4005	525.4	517.0
60-80mm	205.27	204.65	75.9	4009	512.3	500.1	75.9	4006	509.3	499.0
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	577.71	575.69	75.9	4010	521.9	512.5	75.9	4006	521.3	512.2
			Height A (mm)				Height B (mm)			
Highest Particle			79.4883				79.4883			
Lowest Particle			31.5208				31.5208			

Table C. 280: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	68.36	81.1	3890	615.0	521.5	81.1	3937	611.0	526.8	-1.910	1.910	-0.080	0.410	-1.910	1.910	0.450	0.610
40-60mm	157.77	81.1	3818	601.0	519.5	81.1	3993	592.7	518.3	-1.910	1.910	-0.090	0.390	-1.910	1.900	0.280	0.580
60-80mm	136.96	81.1	3861	575.7	493.0	81.1	4006	567.1	488.9	-1.910	1.900	-0.090	0.330	-1.910	1.910	0.120	0.500
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	363.09	81.1	3890	594.1	510.3	81.1	4006	586.4	509.3	-1.910	1.910	-0.090	0.370	-1.910	1.910	0.250	0.570

Table C. 281: Matched Droplet Info

C.8.2.1 All Droplets for .LA Image

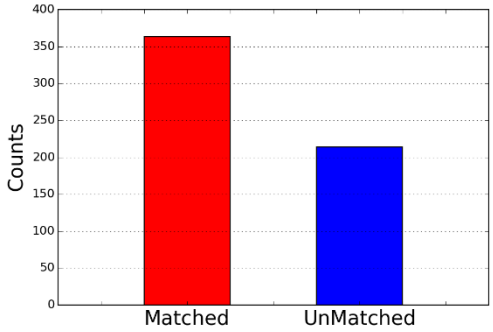


Figure C. 2561: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

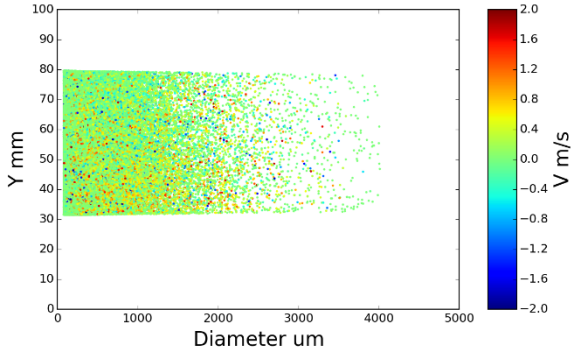


Figure C. 2564: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

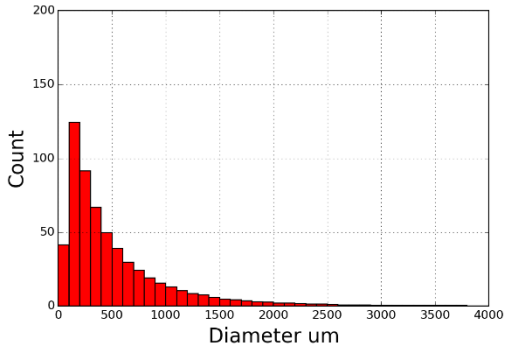


Figure C. 2562: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

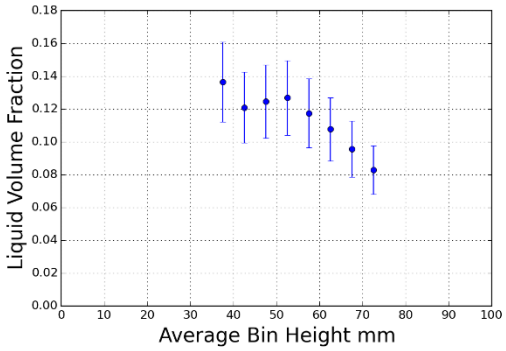


Figure C. 2565: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

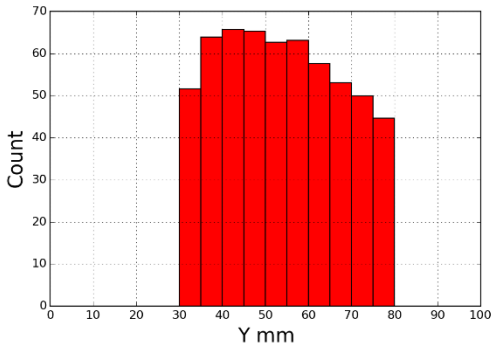


Figure C. 2563: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 All Droplets for .LB Image

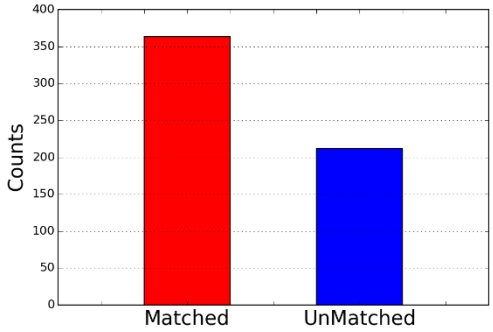


Figure C. 2566: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

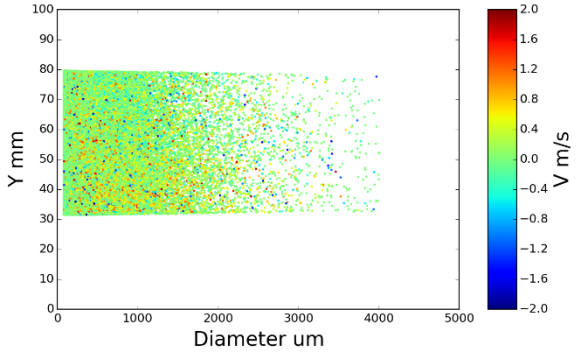


Figure C. 2569: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

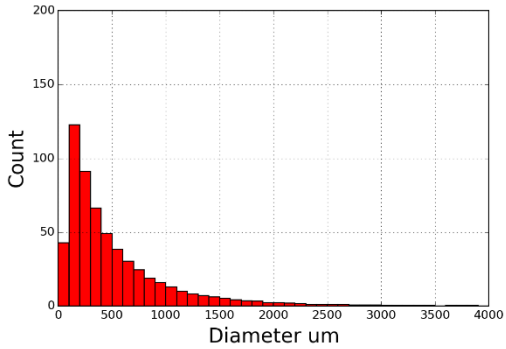


Figure C. 2567: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

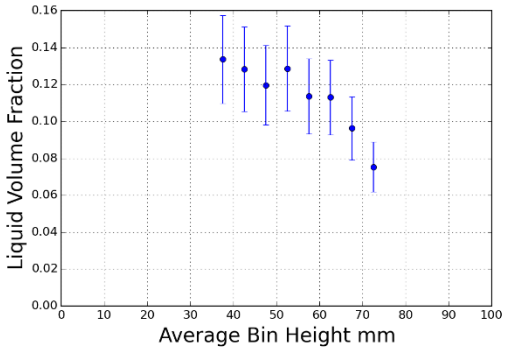


Figure C. 2570: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

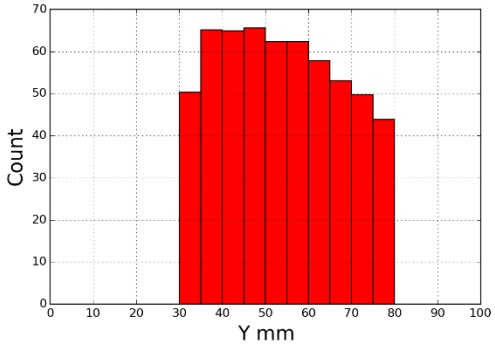


Figure C. 2568: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LA Image

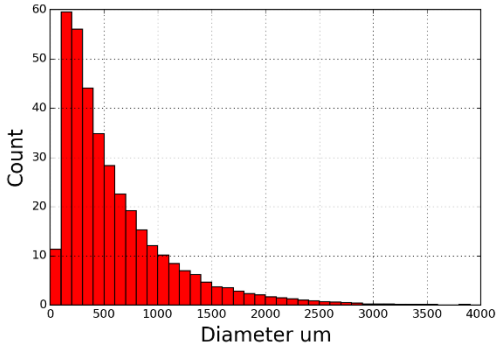


Figure C. 2571: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

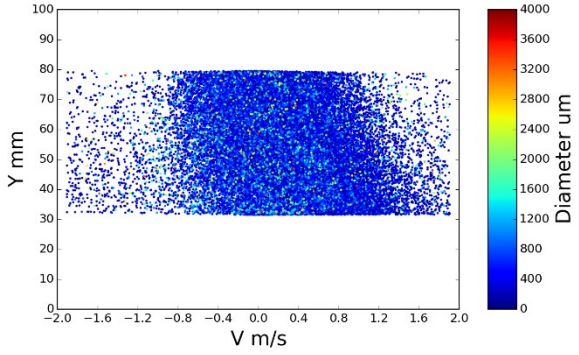


Figure C. 2574: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

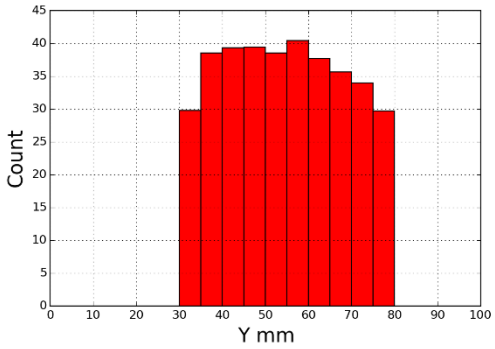


Figure C. 2572: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

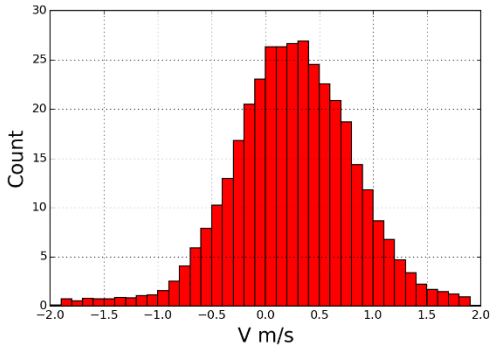


Figure C. 2575: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

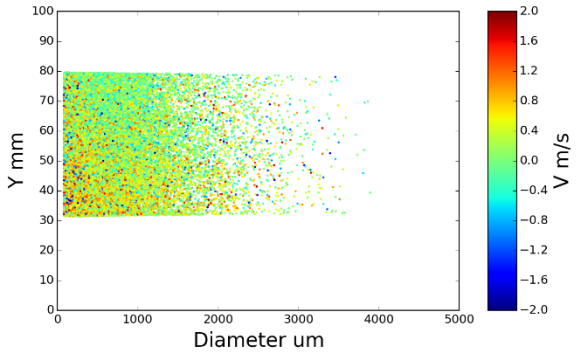


Figure C. 2573: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.1 Matched Only Droplets for .LB Image

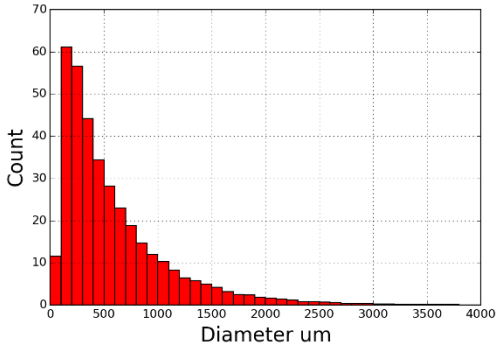


Figure C. 2576: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

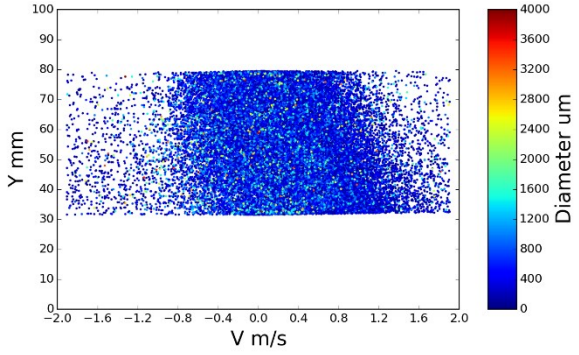


Figure C. 2579: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

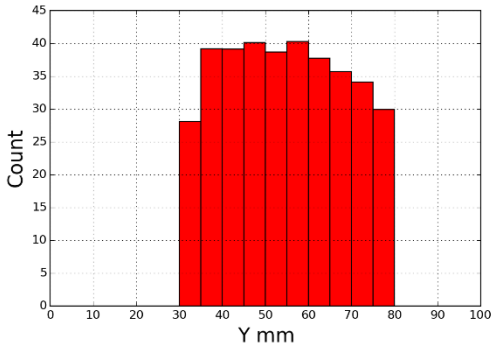


Figure C. 2577: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

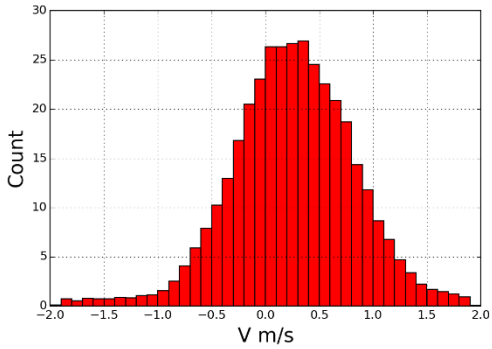


Figure C. 2580: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

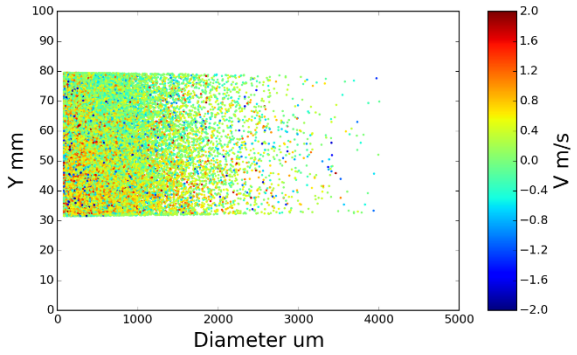


Figure C. 2578: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Lens 50mm Mag 0_13x

C.8.2.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	129.91	129.57	170.4	3993	752.4	595.5	170.4	3994	758.7	605.1
40-60mm	122.01	122.4	170.4	3985	747.7	573.4	170.4	3993	748.7	573.1
60-80mm	107.47	107.43	170.4	3979	712.2	546.3	170.4	3982	717.3	548.0
80-100mm	101.23	101.4	170.4	3916	600.7	441.6	170.4	3987	606.1	445.0
All	460.64	460.83	170.4	3993	708.4	550.5	170.4	3994	712.8	554.3
			Height A (mm)				Height B (mm)			
Highest Particle			100.0042				100.0042			
Lowest Particle			20.0922				20.0922			

Table C. 282: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	69.53	182.2	3703	840.7	598.6	170.4	3941	820.4	600.6	-1.900	1.900	-0.130	0.650	-1.900	1.900	-0.030	0.780
40-60mm	70.76	182.2	3773	826.1	576.4	182.2	3927	810.9	577.1	-1.900	1.900	-0.120	0.610	-1.900	1.900	-0.080	0.730
60-80mm	65.37	182.2	3979	770.2	546.4	182.2	3949	759.6	545.6	-1.900	1.900	-0.130	0.540	-1.900	1.900	-0.130	0.650
80-100mm	67.02	182.2	3468	646.6	443.7	182.2	3751	644.6	443.7	-1.900	1.900	-0.140	0.510	-1.900	1.900	-0.160	0.590
All	272.69	182.2	3979	772.3	550.8	170.4	3949	760.3	550.6	-1.900	1.900	-0.130	0.580	-1.900	1.900	-0.100	0.700

Table C. 283: Matched Droplet Info

C.8.2.2 All Droplets for .LA Image

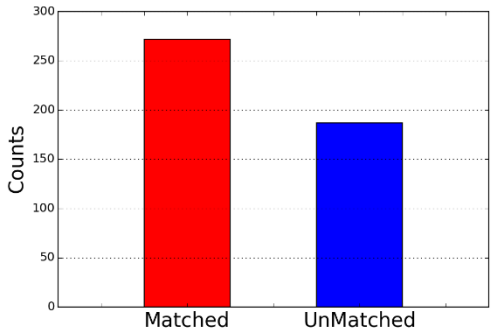


Figure C. 2581: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

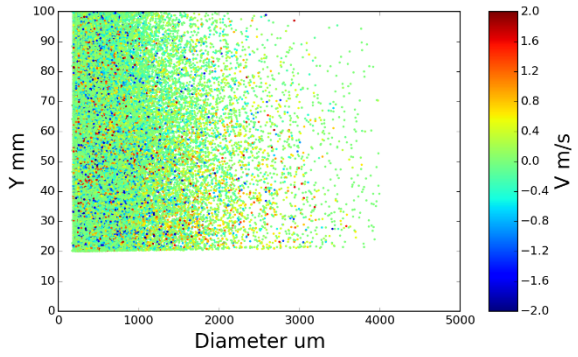


Figure C. 2584: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

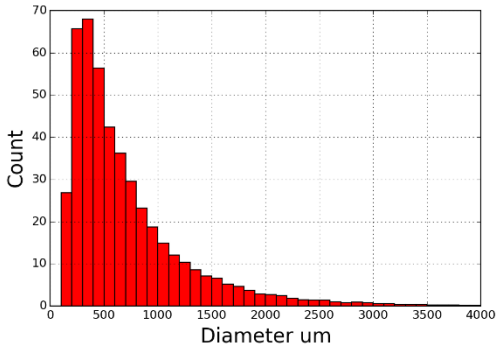


Figure C. 2582: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

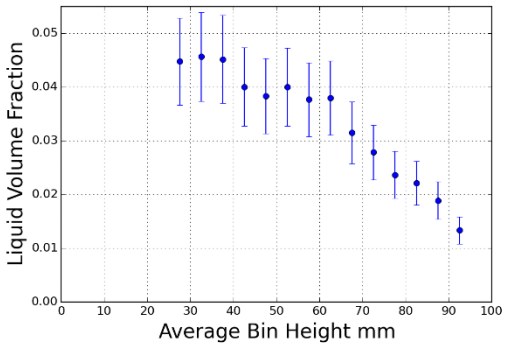


Figure C. 2585: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

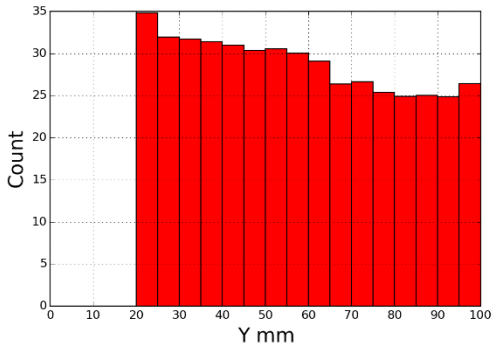


Figure C. 2583: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 All Droplets for .LB Image

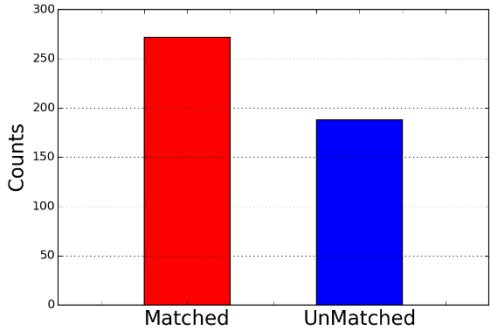


Figure C. 2586: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

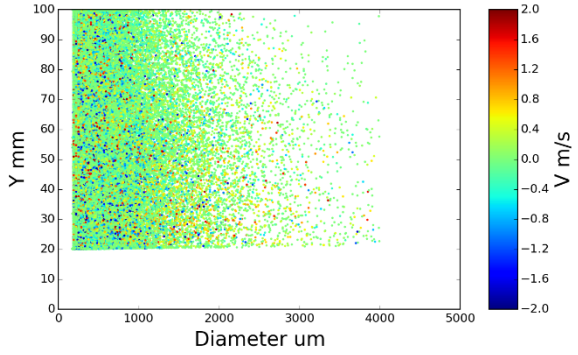


Figure C. 2589: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

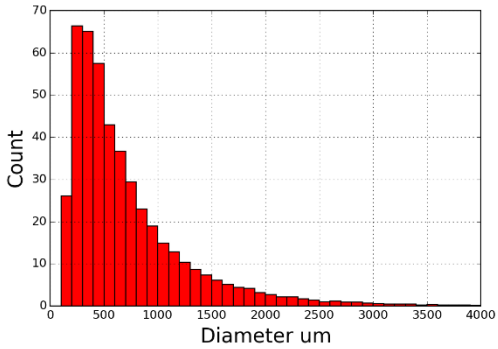


Figure C. 2587: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

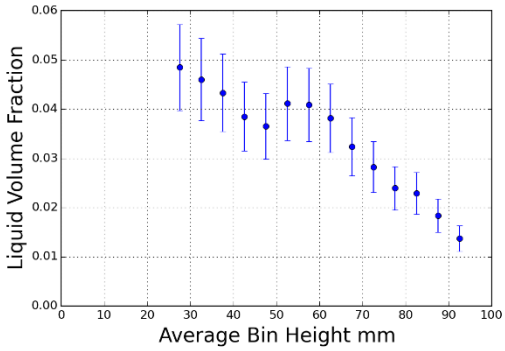


Figure C. 2590: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

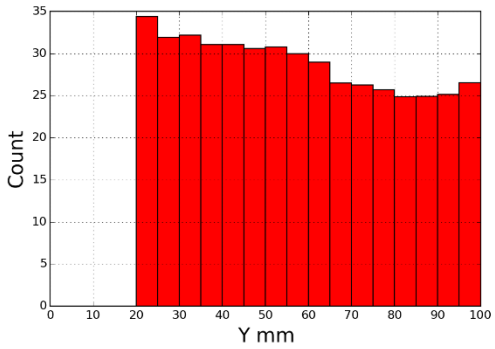


Figure C. 2588: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LA Image

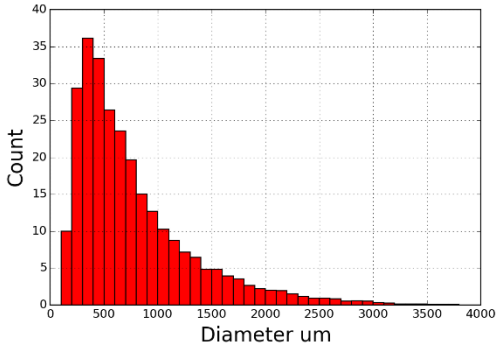


Figure C. 2591: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

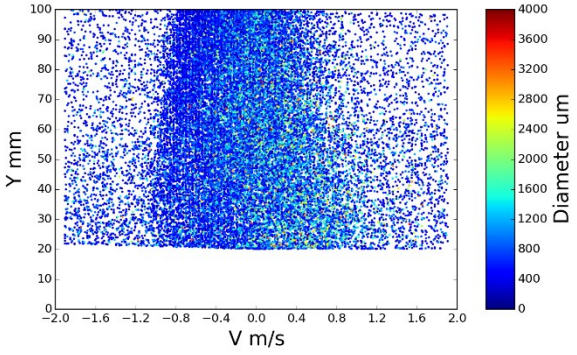


Figure C. 2594: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

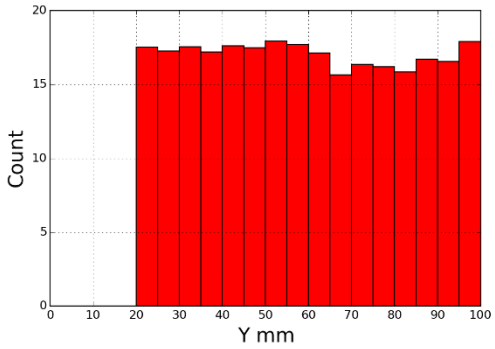


Figure C. 2592: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

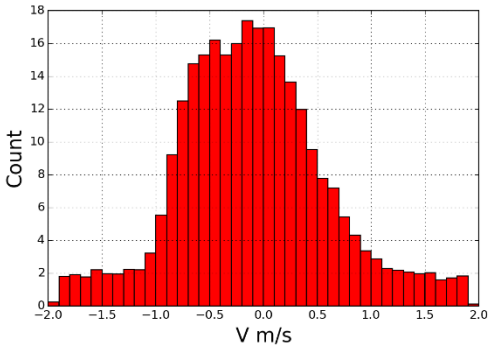


Figure C. 2595: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

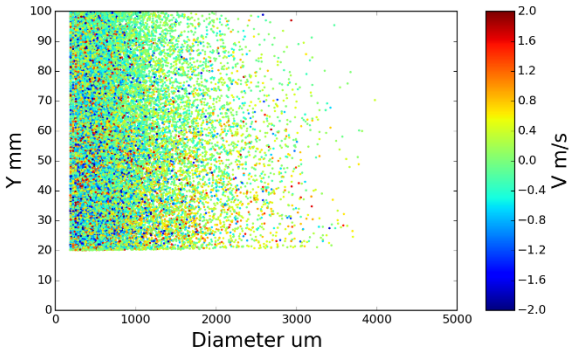


Figure C. 2593: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LB Image

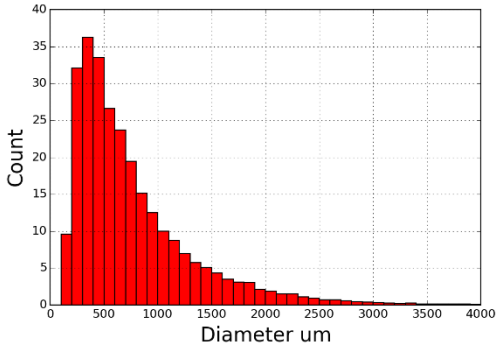


Figure C. 2596: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

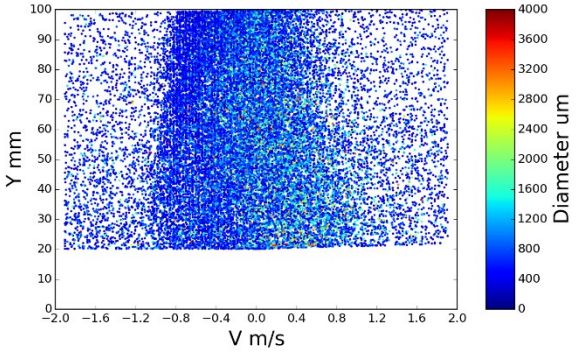


Figure C. 2599: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

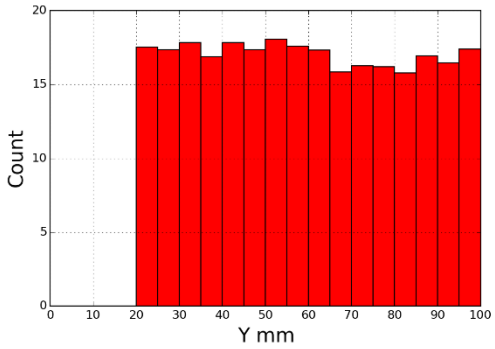


Figure C. 2597: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

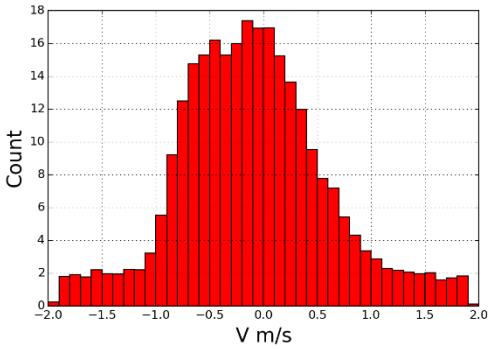


Figure C. 2600: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

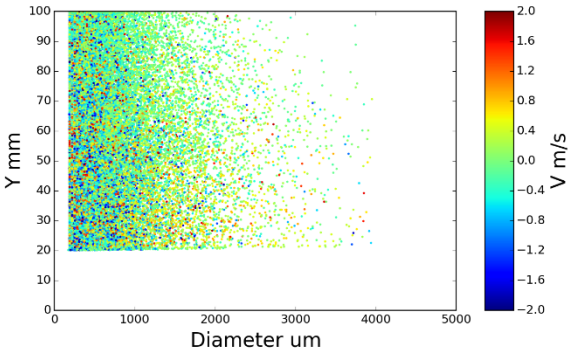


Figure C. 2598: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	155.28	154.23	170.4	3985	744.2	581.5	170.4	3970	748.5	581.5
40-60mm	143.02	143.41	170.4	3946	738.9	568.6	170.4	3937	736.2	560.0
60-80mm	120.66	120.85	170.4	3890	721.7	555.4	170.4	3993	720.1	551.4
80-100mm	117.32	117.82	170.4	3991	628.3	451.4	170.4	3987	632.1	452.3
All	536.29	536.36	170.4	3991	712.4	547.9	170.4	3993	713.2	544.5
			Height A (mm)				Height B (mm)			
Highest Particle			100.0042				100.0042			
Lowest Particle			20.0922				20.0922			

Table C. 284: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	83.67	182.2	3760	824.2	575.1	170.4	3956	806.2	574.0	-1.900	1.900	-0.120	0.700	-1.900	1.900	0.120	0.810
40-60mm	80.78	182.2	3641	807.0	564.1	182.2	3937	789.4	560.3	-1.900	1.900	-0.130	0.650	-1.900	1.900	0.040	0.760
60-80mm	72.65	182.2	3628	779.9	548.9	182.2	3972	765.2	542.0	-1.900	1.900	-0.110	0.560	-1.900	1.900	-0.040	0.660
80-100mm	75.59	182.2	3510	675.2	454.1	182.2	3622	668.4	447.9	-1.900	1.900	-0.130	0.530	-1.900	1.900	-0.120	0.590
All	312.69	182.2	3760	773.5	542.1	170.4	3972	759.1	537.5	-1.900	1.900	-0.120	0.620	-1.900	1.900	0.000	0.720

Table C. 285: Matched Droplet Info

C.8.2.2 All Droplets for .LA Image

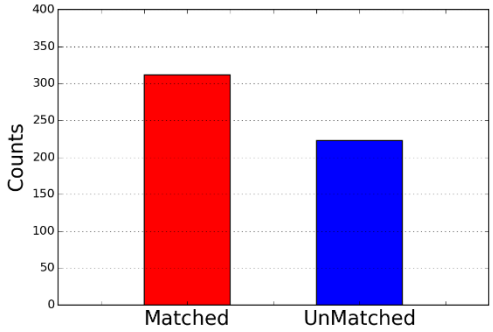


Figure C. 2601: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

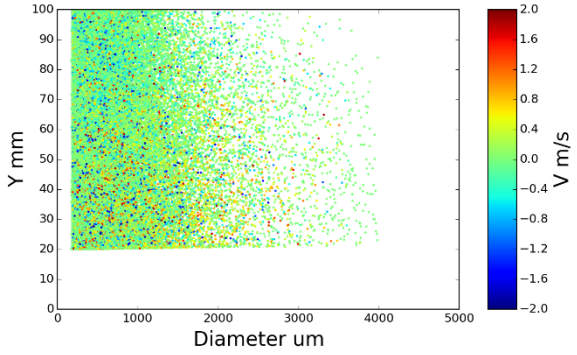


Figure C. 2604: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

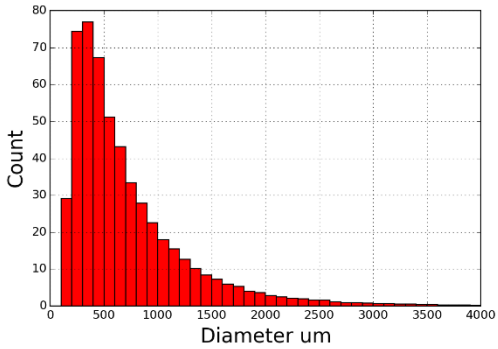


Figure C. 2602: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

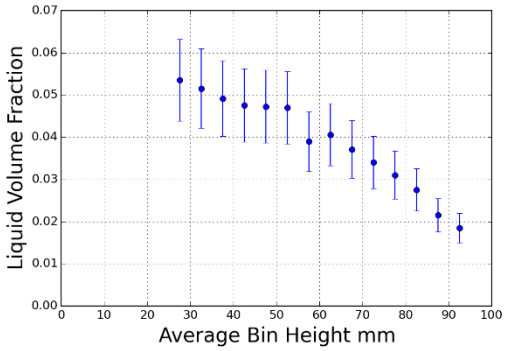


Figure C. 2605: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

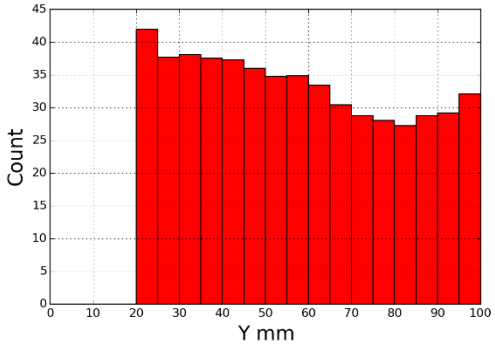


Figure C. 2603: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 All Droplets for .LB Image

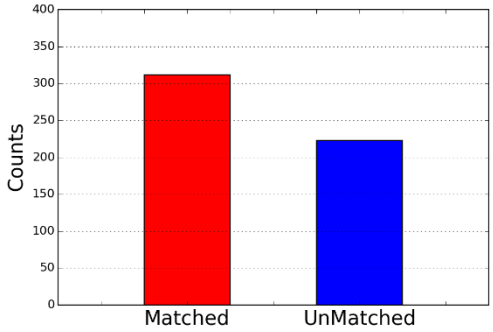


Figure C. 2606: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

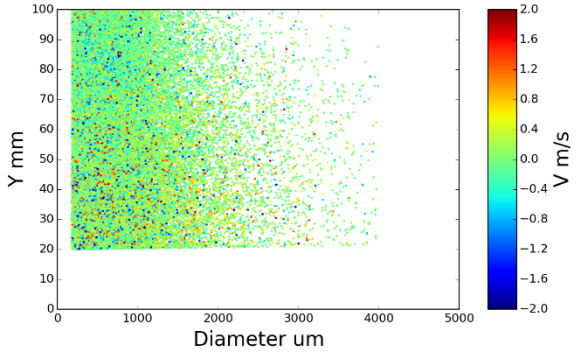


Figure C. 2609: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

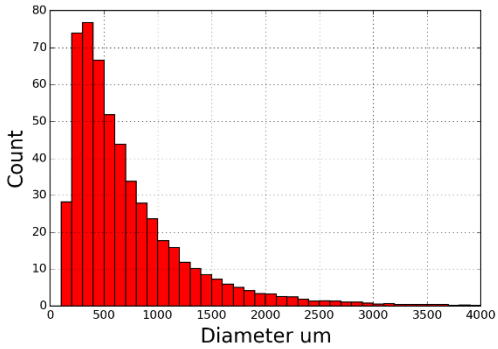


Figure C. 2607: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

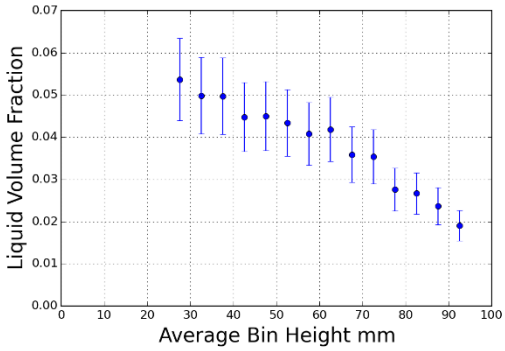


Figure C. 2610: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

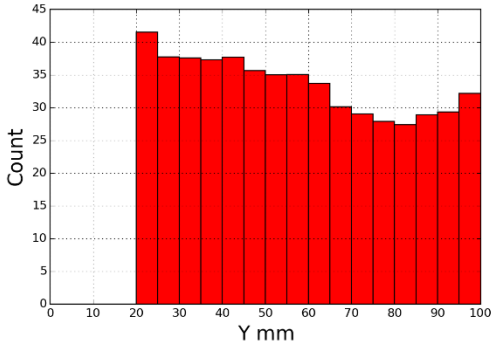


Figure C. 2608: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LA Image

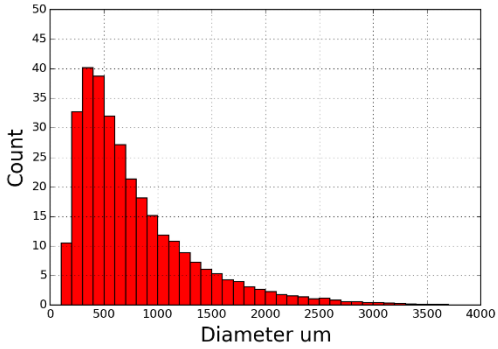


Figure C. 2611: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

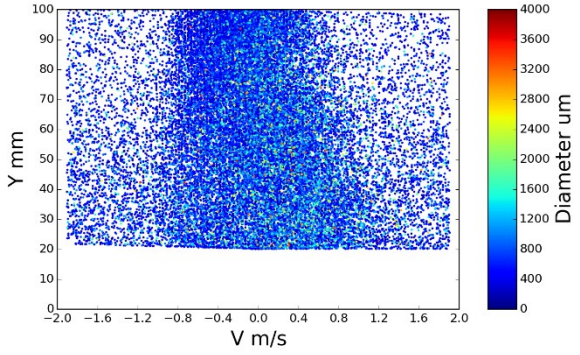


Figure C. 2614: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

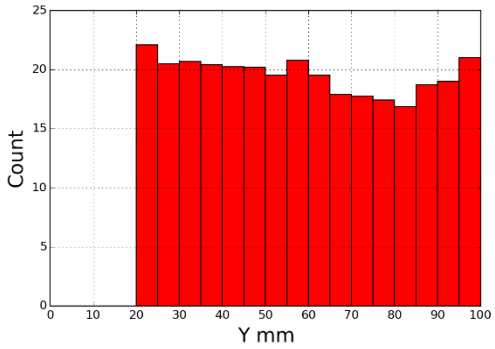


Figure C. 2612: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

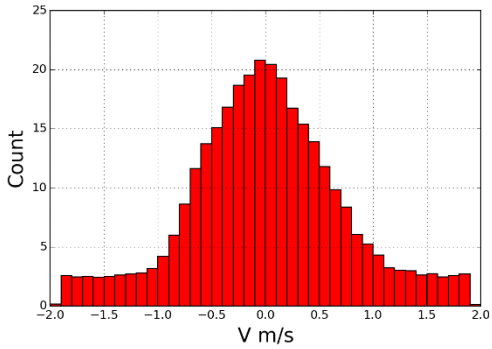


Figure C. 2615: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

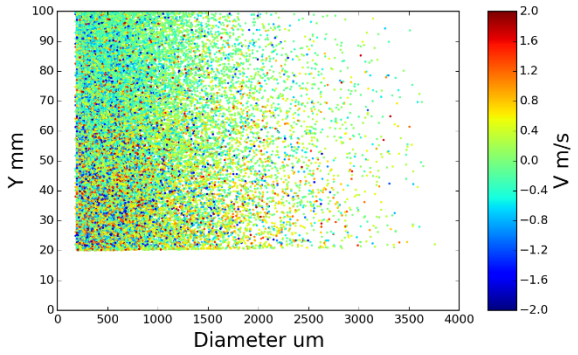


Figure C. 2613: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LB Image

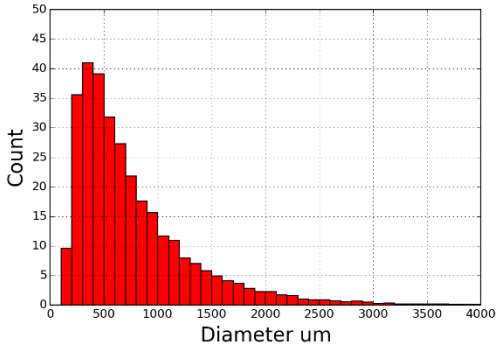


Figure C. 2616: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

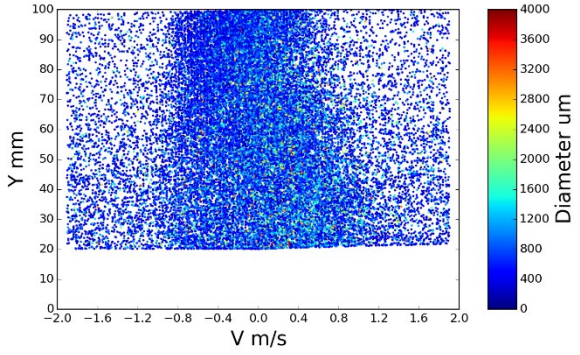


Figure C. 2619: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

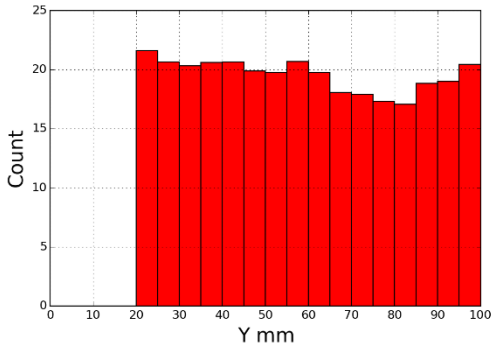


Figure C. 2617: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

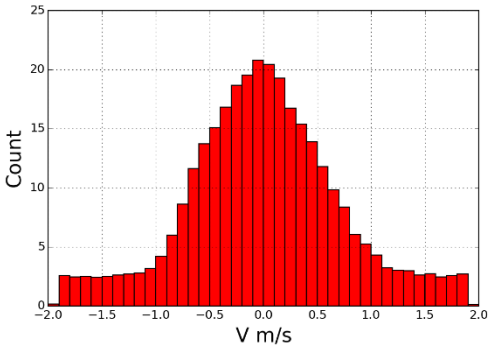


Figure C. 2620: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

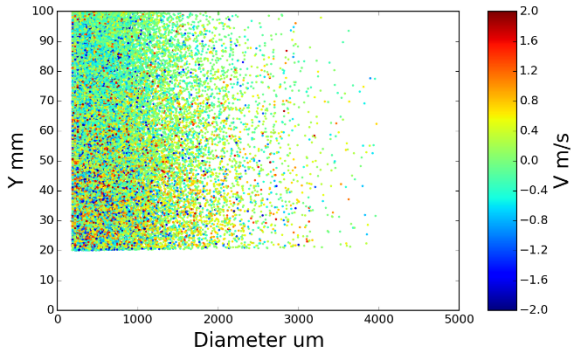


Figure C. 2618: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	173.64	173.79	170.4	3975	731.5	566.3	170.4	3983	735.2	570.4
40-60mm	171.86	169.98	170.4	3968	709.1	552.3	170.4	3975	715.6	558.6
60-80mm	145.56	144.97	170.4	3940	696.8	526.1	170.4	3963	703.7	534.6
80-100mm	126.93	127.01	170.4	3913	636.3	457.3	170.4	3942	640.2	463.6
All	618.03	615.81	170.4	3975	697.5	533.1	170.4	3983	702.7	539.2
			Height A (mm)				Height B (mm)			
Highest Particle			100.0042				100.0042			
Lowest Particle			20.0922				20.0922			

Table C. 286: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	93.54	182.2	3748	803.7	561.9	182.2	3981	787.1	564.1	-1.900	1.900	-0.110	0.760	-1.900	1.900	0.230	0.840
40-60mm	93.72	182.2	3929	772.6	551.5	182.2	3954	759.4	549.0	-1.900	1.900	-0.140	0.720	-1.900	1.900	0.170	0.790
60-80mm	85.9	182.2	3814	756.6	526.9	170.4	3929	741.0	518.9	-1.900	1.900	-0.120	0.620	-1.900	1.900	0.070	0.690
80-100mm	79.93	182.2	3901	691.2	465.1	182.2	3920	683.9	465.5	-1.900	1.900	-0.120	0.550	-1.900	1.900	-0.040	0.620
All	353.09	182.2	3929	758.5	531.5	170.4	3981	745.1	529.3	-1.900	1.900	-0.120	0.670	-1.900	1.900	0.110	0.750

Table C. 287: Matched Droplet Info

C.8.2.2 All Droplets for .LA Image

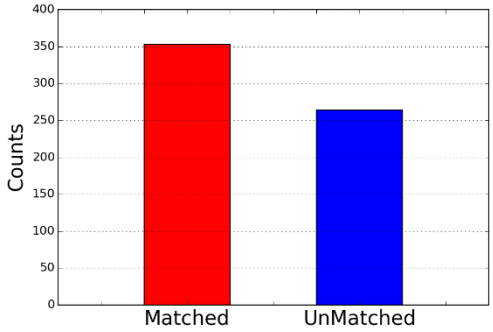


Figure C. 2621: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

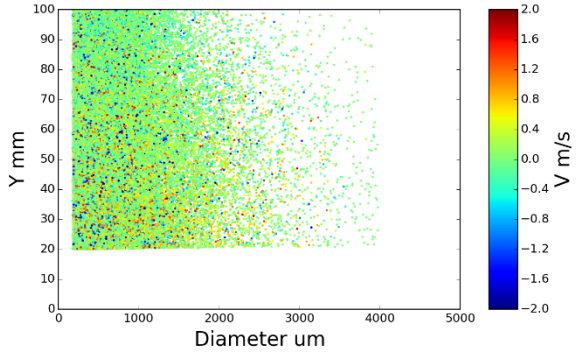


Figure C. 2624: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

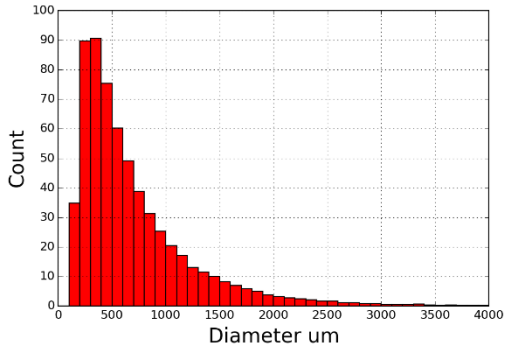


Figure C. 2622: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

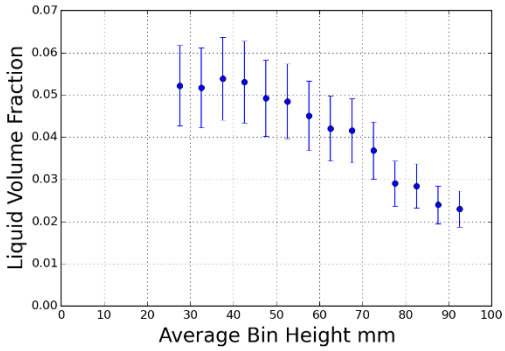


Figure C. 2625: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

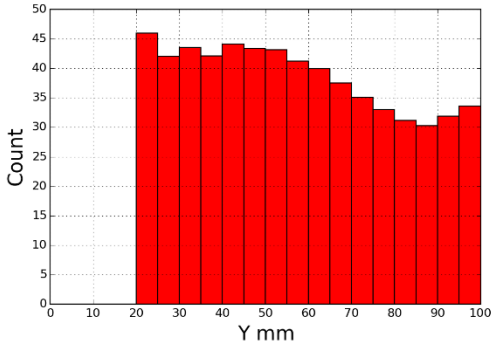


Figure C. 2623: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 All Droplets for .LB Image

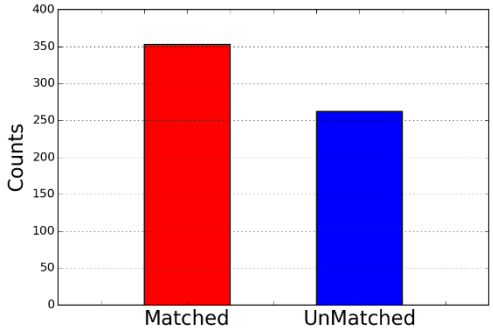


Figure C. 2626: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

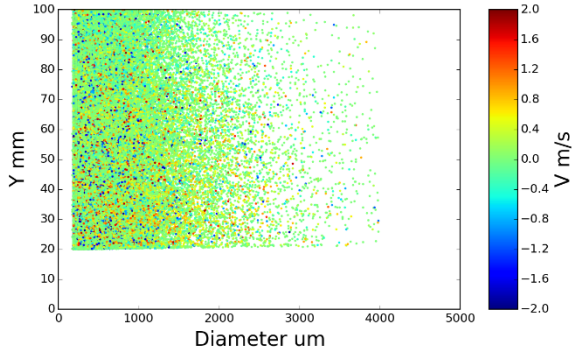


Figure C. 2629: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

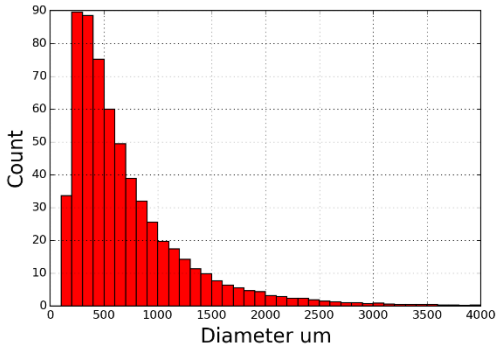


Figure C. 2627: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

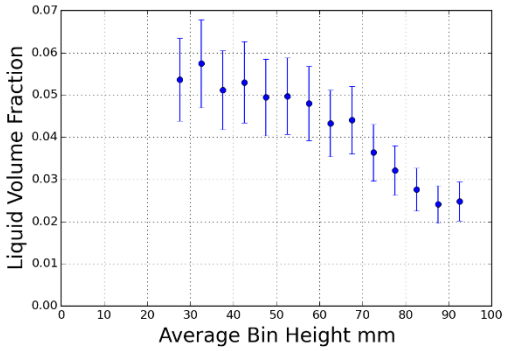


Figure C. 2630: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

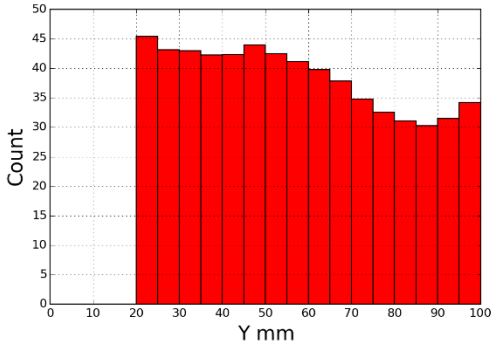


Figure C. 2628: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LA Image

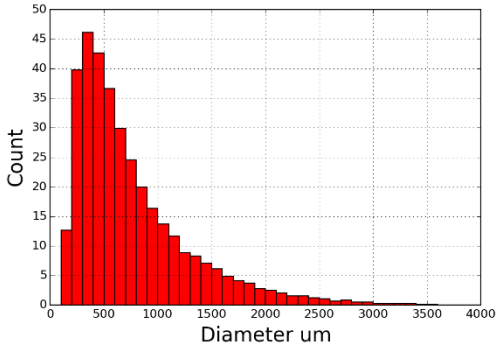


Figure C. 2631: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

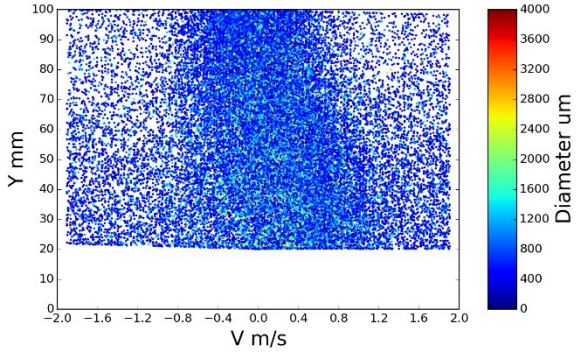


Figure C. 2634: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

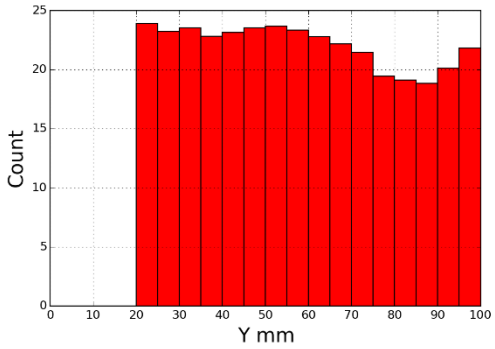


Figure C. 2632: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

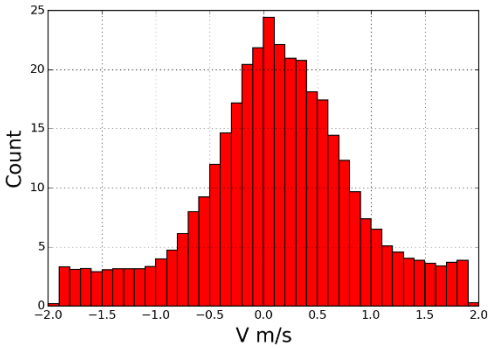


Figure C. 2635: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

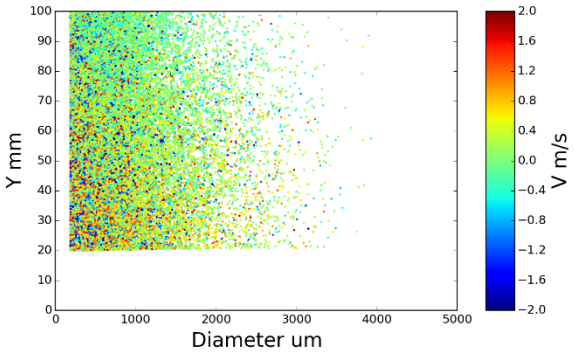


Figure C. 2633: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.2.2 Matched Only Droplets for .LB Image

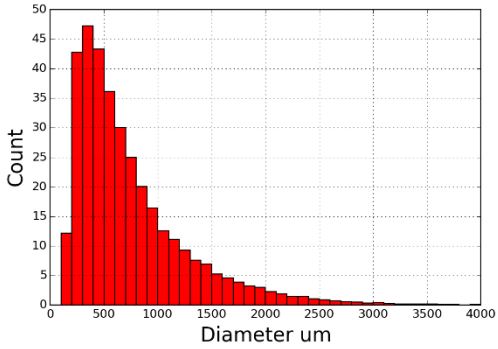


Figure C. 2636: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

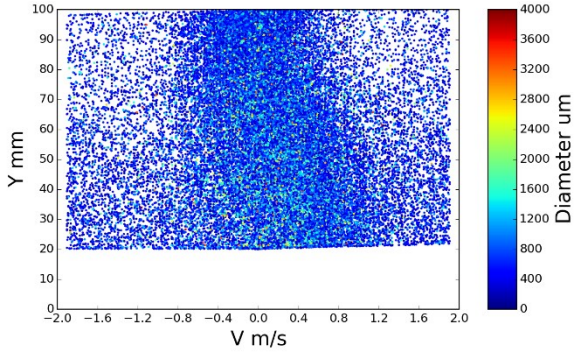


Figure C. 2639: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

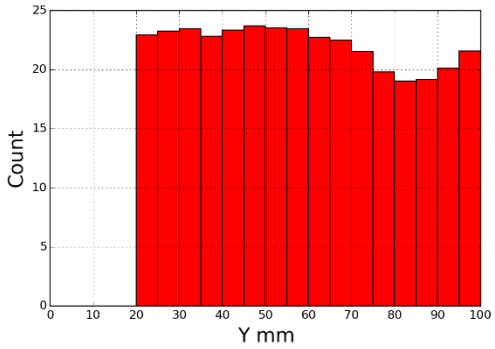


Figure C. 2637: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

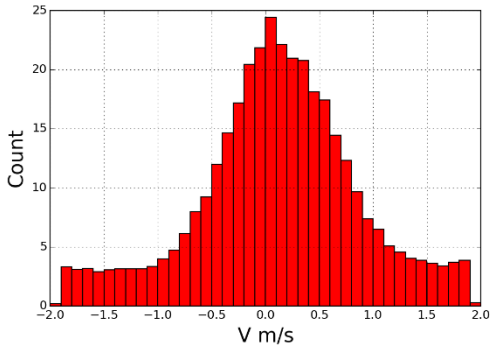


Figure C. 2640: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

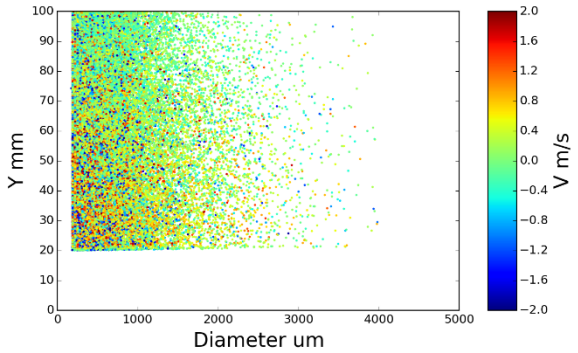


Figure C. 2638: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3 Liquid Level 3

Thermal Conditions	
H20 Flow Rate (lb/hr) / (kg/s)	19282 / 2.430
Ref Mass Flow (lb/hr) / (kg/s)	3097 / 0.390
Ref Mass Flux (lb/hr-ft2) / (kg/s-m2)	30144 / 40.882
Top Two Rows Heat Flux (Btu/hr-ft2) / (kW/m2)	5427 / 17.12
Bundle Exit Saturation Temp (^{0}F) / (^{0}C)	54.6 / 12.56
Bundle Inlet Saturation Temp (^{0}F) / (^{0}C)	54.8 / 12.65
Total Bundle Q (Btu/hr) / (kW)	273529 / 80.16
Total Bundle & Preboiler Q (Btu/hr) / (kW)	273529 / 80.16
Top Two Rows HTC Ratio	0.573
Bundle Inlet Quality	-0.09
Bundle Exit Quality	1.00

Table C. 288: Thermal Conditions

C.8.3.1 Lens 100mm Mag 0_29x

C.8.3.1 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	10.4	10.9	81.1	3221	487.2	474.7	75.9	3416	459.0	466.1
40-60mm	18.93	20.26	81.1	2660	443.6	408.8	81.1	2763	421.8	403.1
60-80mm	18.7	18.86	81.1	2312	347.9	280.8	75.9	2366	339.2	277.4
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	48.03	50.02	81.1	3221	415.8	385.4	75.9	3416	398.8	380.1
			Height A (mm)				Height B (mm)			
Highest Particle			79.4652				79.4768			
Lowest Particle			31.5321				31.5208			

Table C. 289: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	6.6	86.0	3221	538.0	448.5	81.1	3416	540.1	464.1	-1.780	1.670	-0.170	0.290	-1.460	1.870	-0.260	0.490
40-60mm	13.77	81.1	2660	490.1	395.4	81.1	2763	486.4	400.4	-1.840	1.790	-0.170	0.270	-1.810	1.840	-0.310	0.420
60-80mm	14.86	81.1	2312	383.8	284.2	81.1	2366	379.4	281.4	-1.390	1.740	-0.190	0.210	-1.910	0.950	-0.290	0.310
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	35.23	81.1	3221	454.2	369.8	81.1	3416	451.9	375.4	-1.840	1.790	-0.180	0.250	-1.910	1.870	-0.290	0.390

Table C. 290: Matched Droplet Info

C.8.3.1 All Droplets for .LA Image

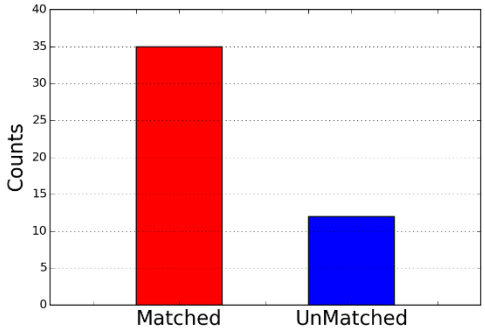


Figure C. 2641: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

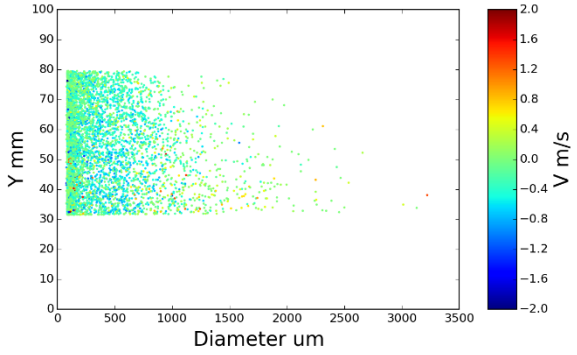


Figure C. 2644: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

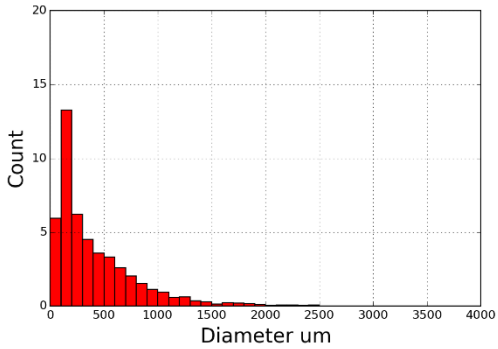


Figure C. 2642: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

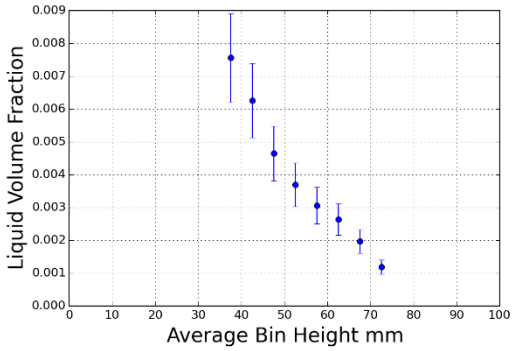


Figure C. 2645: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

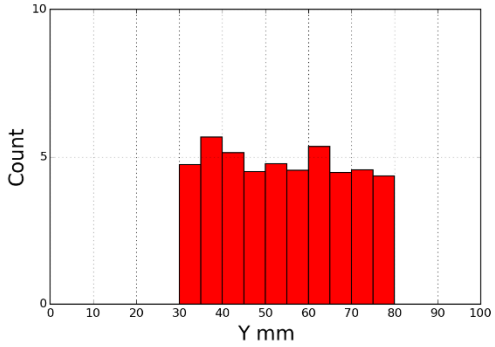


Figure C. 2643: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 All Droplets for .LB Image

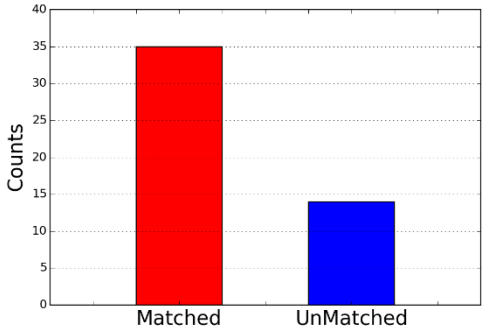


Figure C. 2646: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

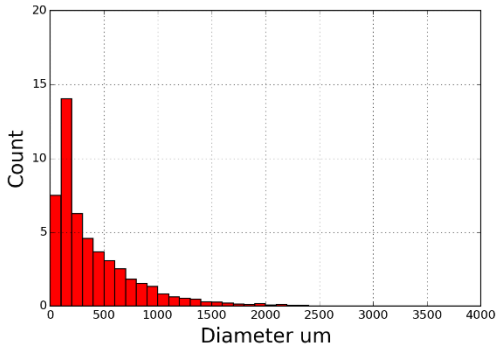


Figure C. 2647: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

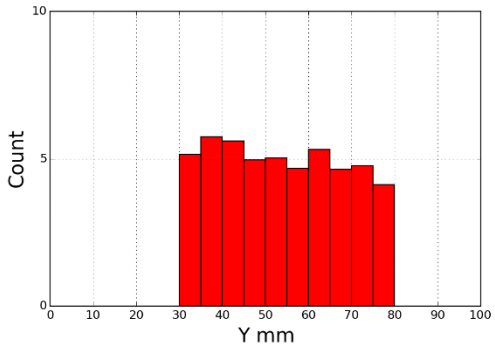


Figure C. 2648: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

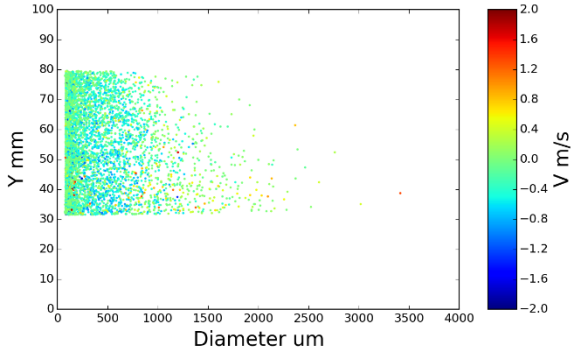


Figure C. 2649: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

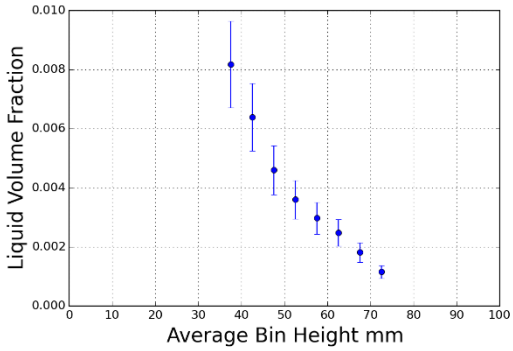


Figure C. 2650: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LA Image

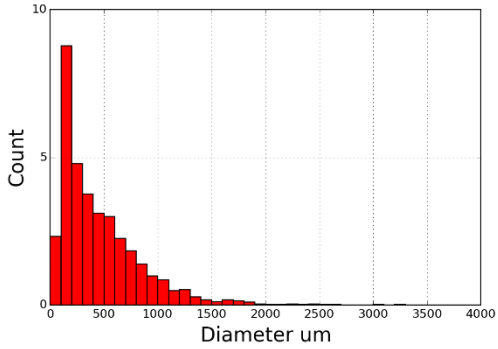


Figure C. 2651: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

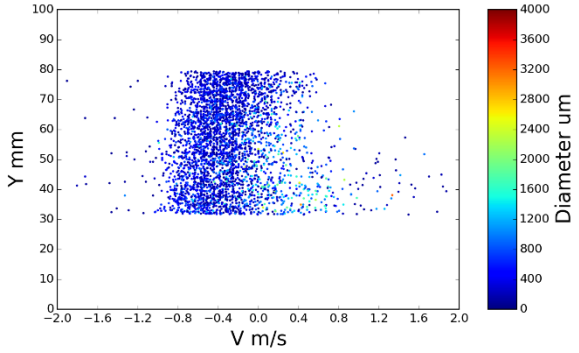


Figure C. 2654: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

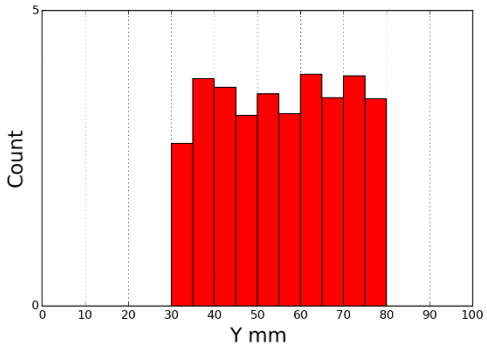


Figure C. 2652: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

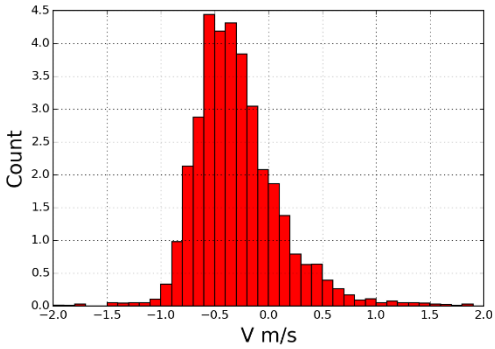


Figure C. 2655: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

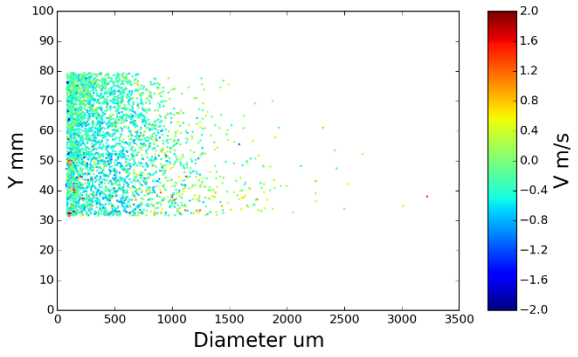


Figure C. 2653: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LB Image

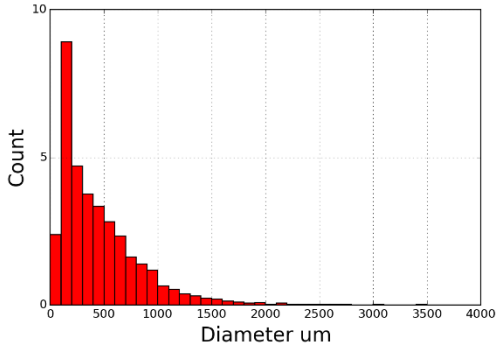


Figure C. 2656: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

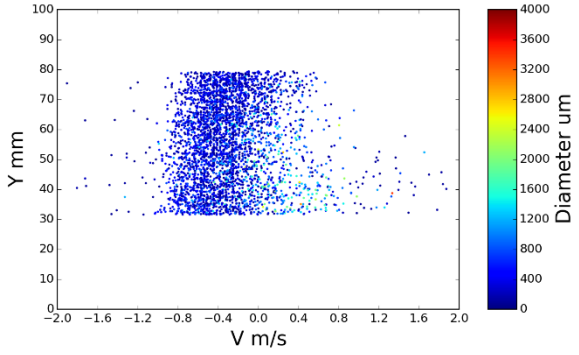


Figure C. 2659: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

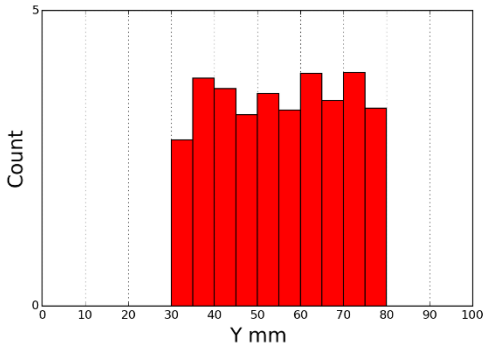


Figure C. 2657: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

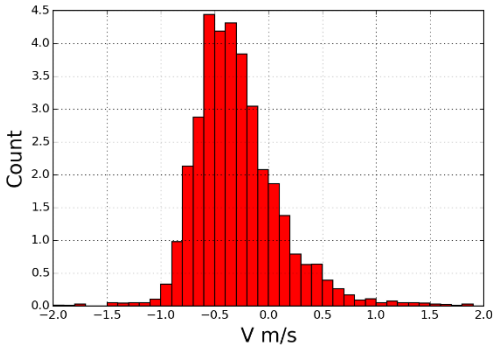


Figure C. 2660: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

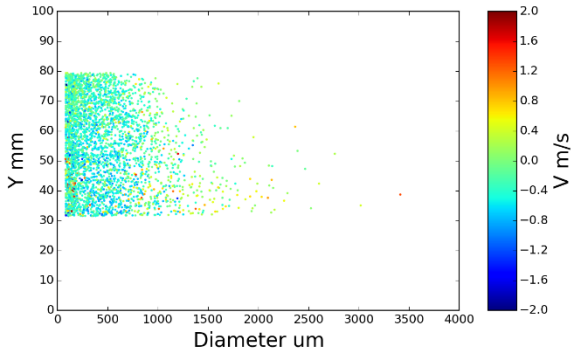


Figure C. 2658: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	23.97	24.73	81.1	3712	515.7	439.6	75.9	3680	512.5	441.4
40-60mm	47.28	48.53	75.9	3058	479.7	398.7	75.9	3231	470.8	403.5
60-80mm	36.15	36.89	75.9	2252	395.7	310.2	75.9	2270	390.4	308.8
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	107.4	110.15	75.9	3712	459.5	384.4	75.9	3680	453.2	386.9
			Height A (mm)				Height B (mm)			
Highest Particle			79.4799				79.4756			
Lowest Particle			31.5208				31.5208			

Table C. 291: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	17.18	81.1	2650	572.9	413.0	75.9	2754	576.8	422.4	-1.550	1.650	-0.090	0.250	-1.830	1.880	0.190	0.530
40-60mm	35.35	81.1	2694	530.3	381.4	81.1	2916	528.4	386.6	-1.850	1.890	-0.110	0.210	-1.890	1.880	0.100	0.470
60-80mm	28.7	81.1	2252	440.0	313.0	81.1	2270	438.1	315.1	-1.820	1.720	-0.120	0.210	-1.890	1.750	0.010	0.380
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	81.23	81.1	2694	507.4	369.8	75.9	2916	506.6	375.1	-1.850	1.890	-0.110	0.220	-1.890	1.880	0.090	0.460

Table C. 292: Matched Droplet Info

C.8.3.1 All Droplets for .LA Image

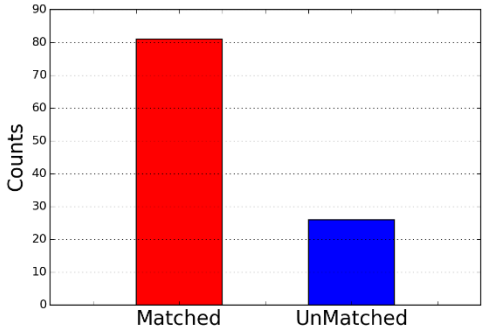


Figure C. 2661: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

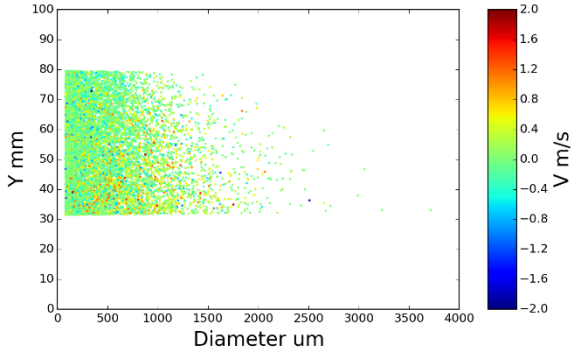


Figure C. 2664: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

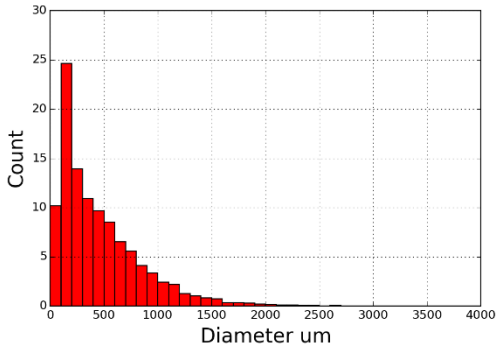


Figure C. 2662: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

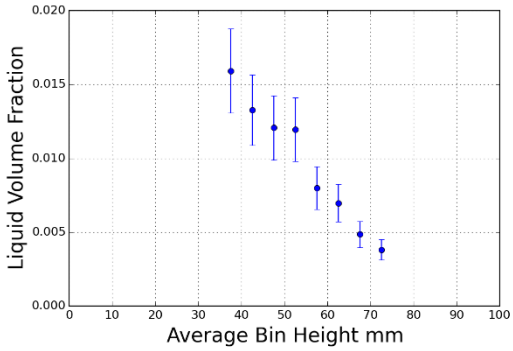


Figure C. 2665: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

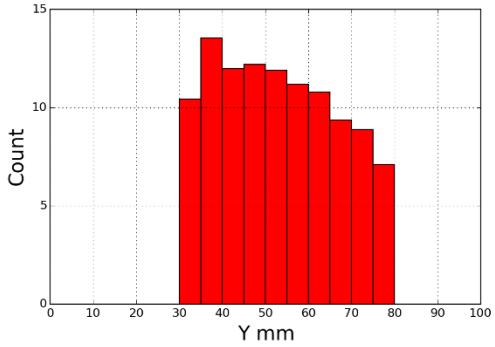


Figure C. 2663: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 All Droplets for .LB Image

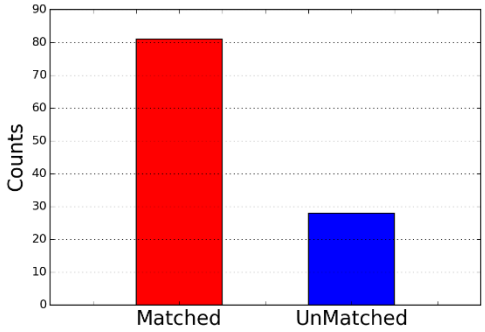


Figure C. 2666: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

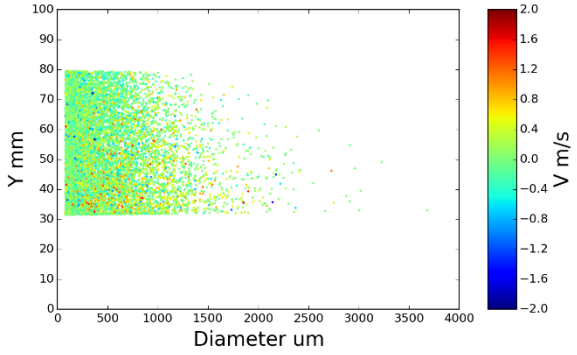


Figure C. 2669: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

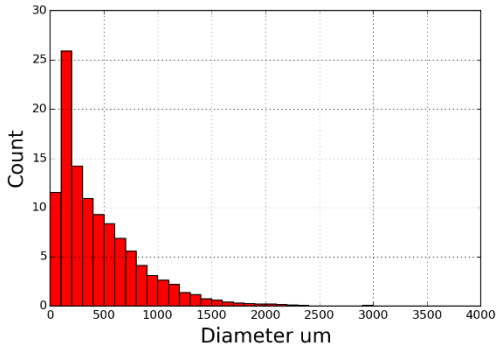


Figure C. 2667: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

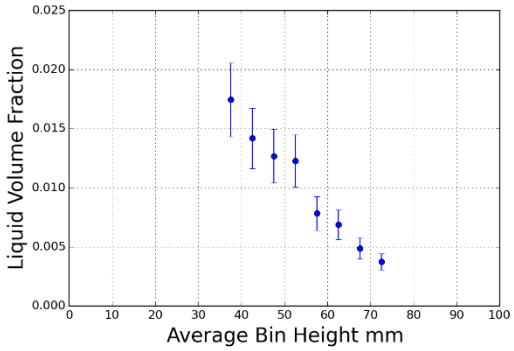


Figure C. 2670: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

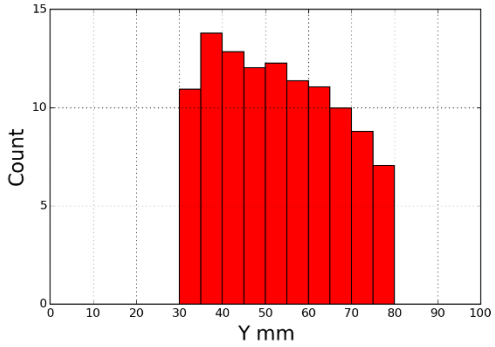


Figure C. 2668: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LA Image

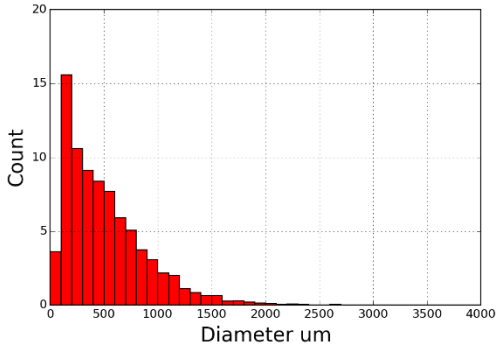


Figure C. 2671: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

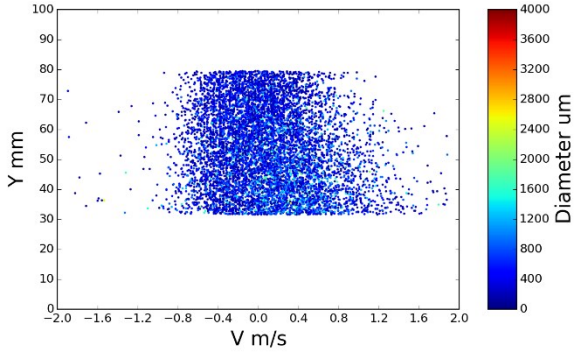


Figure C. 2674: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

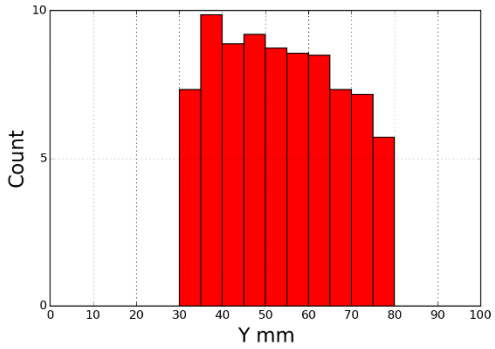


Figure C. 2672: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

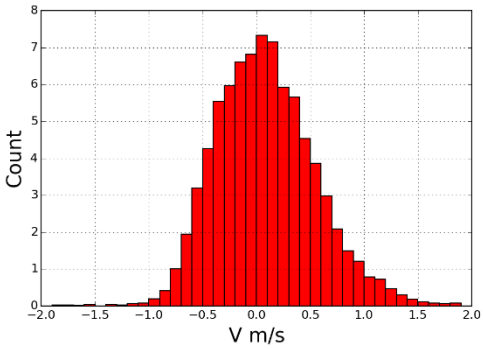


Figure C. 2675: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

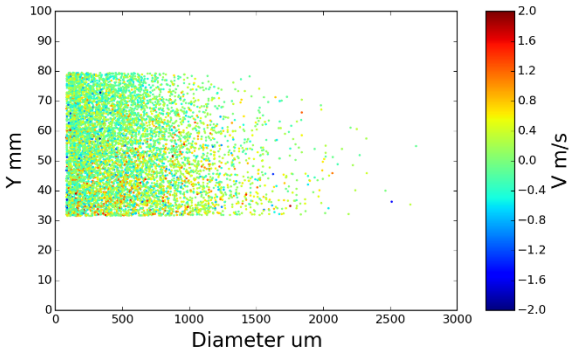


Figure C. 2673: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LB Image

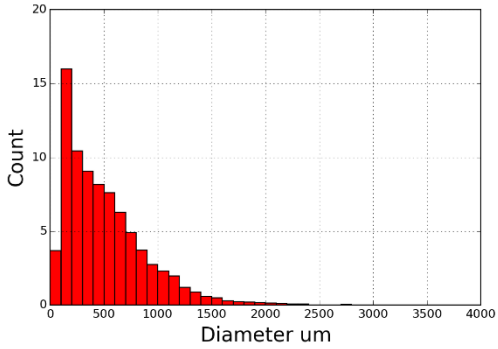


Figure C. 2676: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

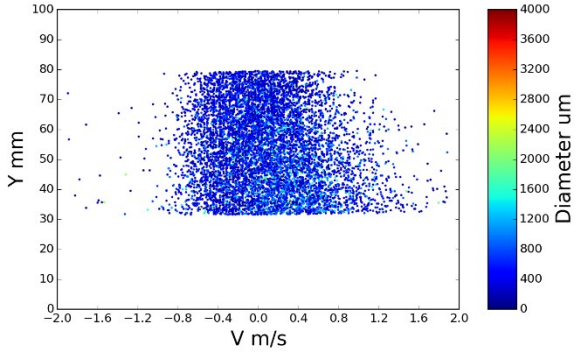


Figure C. 2679: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

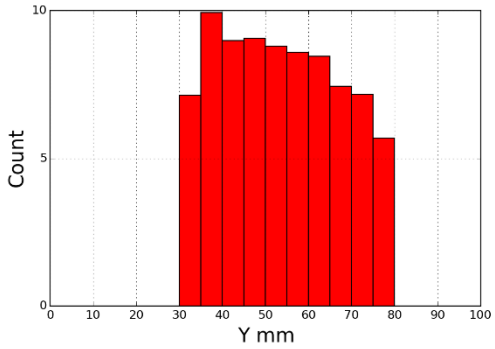


Figure C. 2677: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

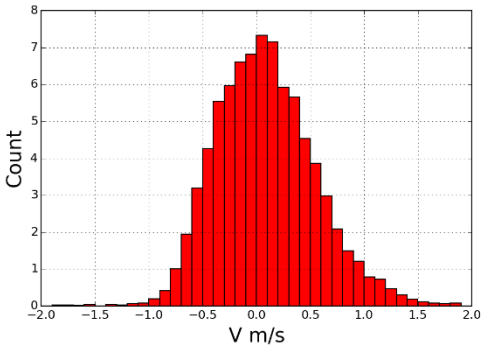


Figure C. 2680: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

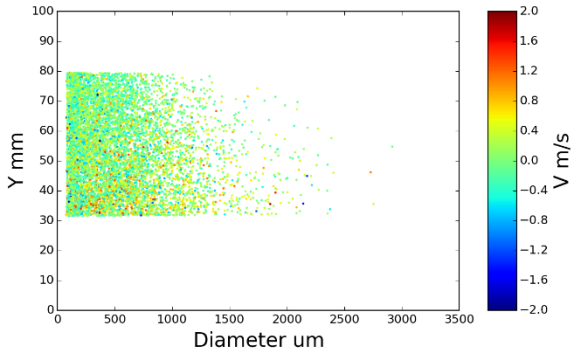


Figure C. 2678: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	0.0	-	-	-	-	-	-	-	-
20-40mm	35.28	36.01	75.9	3071	485.7	399.7	75.9	2995	479.6	402.2
40-60mm	66.98	68.19	75.9	3635	447.4	356.1	75.9	2854	443.4	358.3
60-80mm	48.41	49.4	75.9	2366	400.7	298.3	75.9	2372	392.9	300.2
80-100mm	0.0	0.0	-	-	-	-	-	-	-	-
All	150.67	153.6	75.9	3635	441.4	351.2	75.9	2995	435.7	353.5
			Height A (mm)				Height B (mm)			
Highest Particle			79.4765				79.4756			
Lowest Particle			31.5208				31.5208			

Table C. 293: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-40mm	27.34	81.1	2922	526.6	388.8	81.1	2995	528.8	394.8	-1.730	1.850	-0.050	0.260	-1.840	1.900	0.460	0.500
40-60mm	51.81	81.1	2232	494.5	349.5	75.9	2363	493.6	353.7	-1.870	1.910	-0.070	0.220	-1.490	1.860	0.320	0.450
60-80mm	38.87	81.1	2321	438.7	294.9	81.1	2289	436.3	296.2	-1.840	1.860	-0.080	0.210	-1.750	1.880	0.190	0.400
80-100mm	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All	118.02	81.1	2922	483.6	344.1	75.9	2995	482.6	347.8	-1.870	1.910	-0.070	0.230	-1.840	1.900	0.310	0.460

Table C. 294: Matched Droplet Info

C.8.3.1 All Droplets for .LA Image

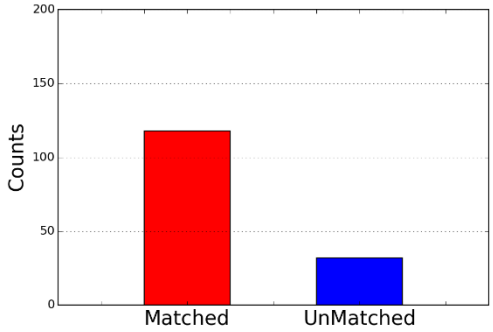


Figure C. 2681: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

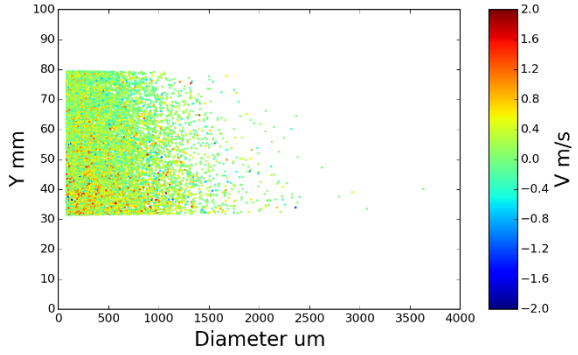


Figure C. 2684: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

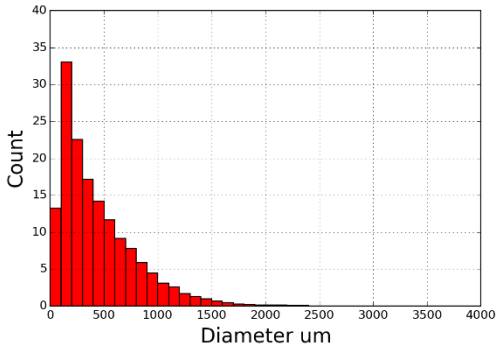


Figure C. 2682: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

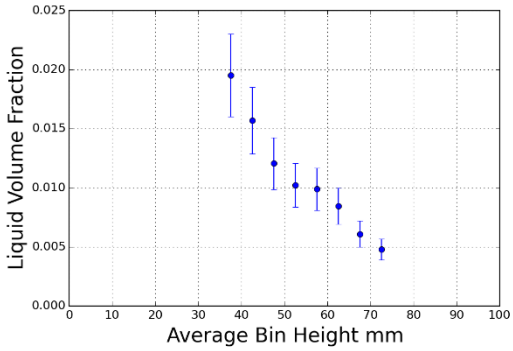


Figure C. 2685: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

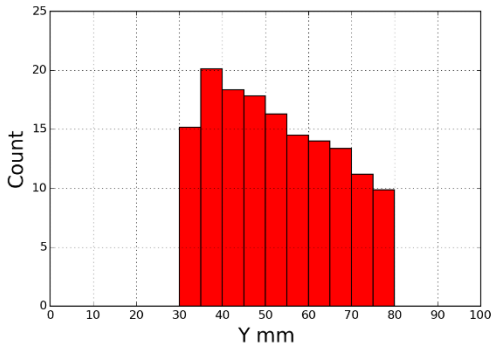


Figure C. 2683: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 All Droplets for .LB Image

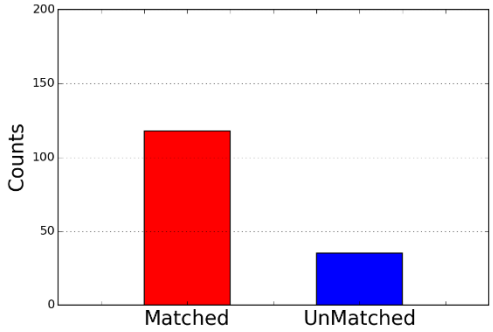


Figure C. 2686: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

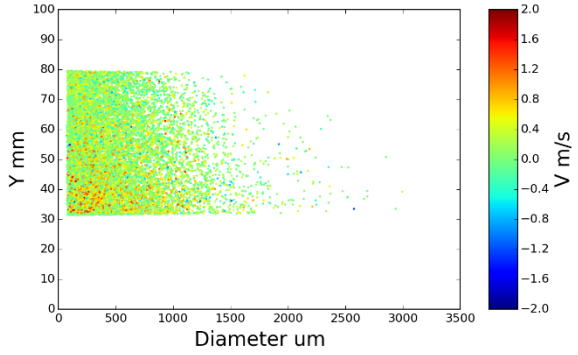


Figure C. 2689: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

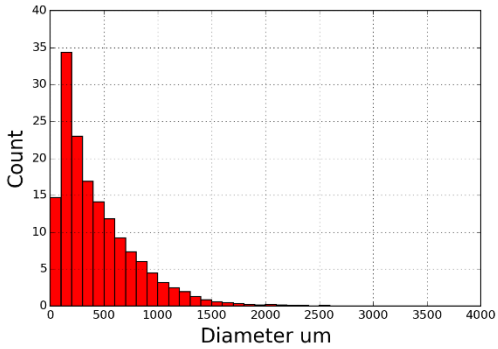


Figure C. 2687: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

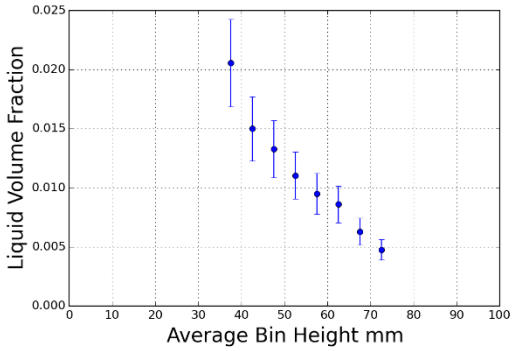


Figure C. 2690: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

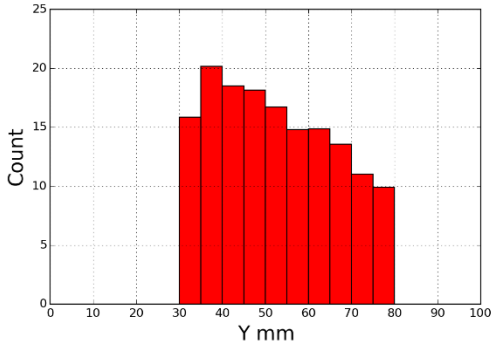


Figure C. 2688: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LA Image

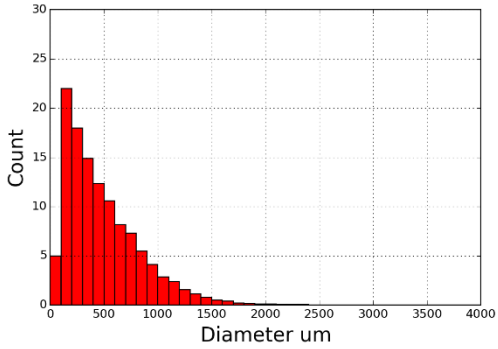


Figure C. 2691: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

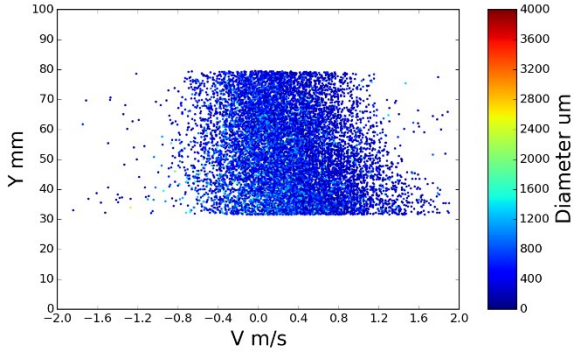


Figure C. 2694: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

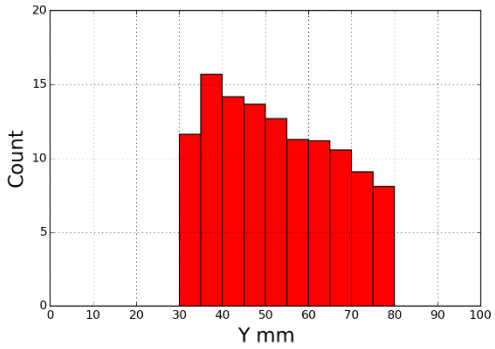


Figure C. 2692: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

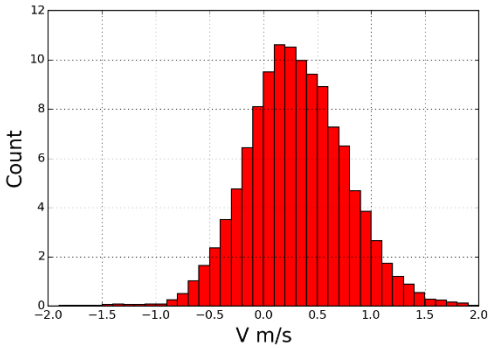


Figure C. 2695: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

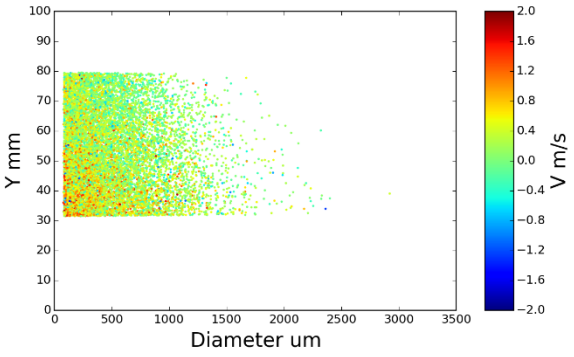


Figure C. 2693: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.1 Matched Only Droplets for .LB Image

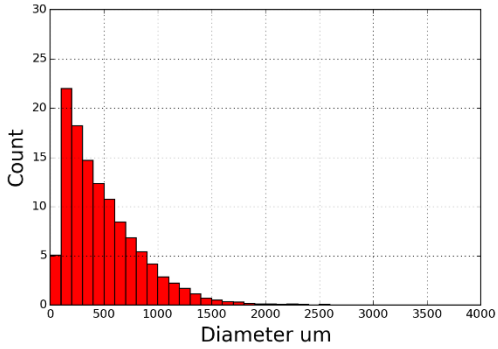


Figure C. 2696: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

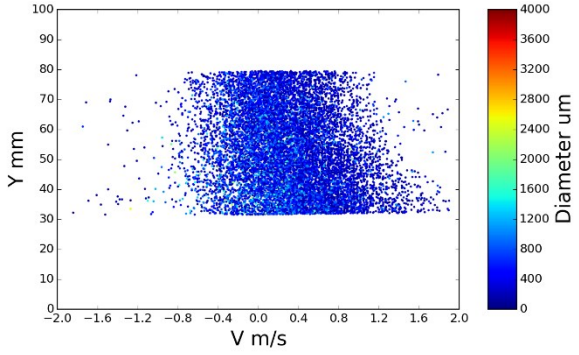


Figure C. 2699: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

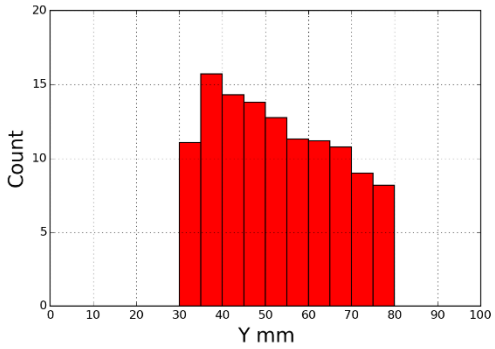


Figure C. 2697: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

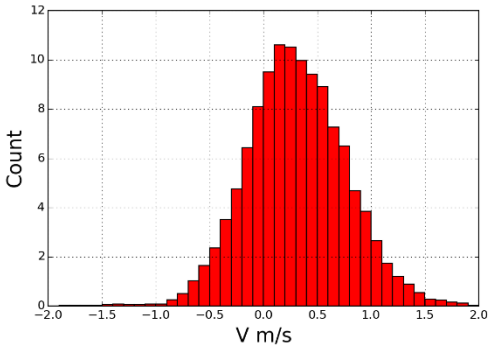


Figure C. 2700: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

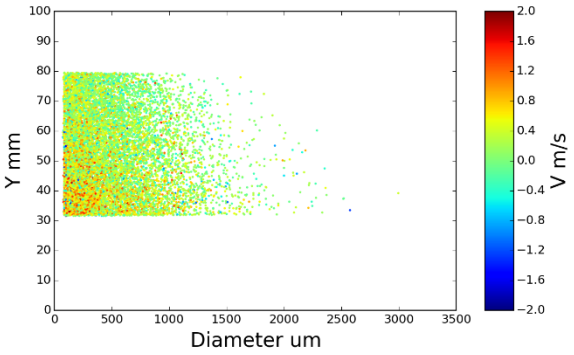


Figure C. 2698: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Lens 50mm Mag 0_13x

C.8.3.2 Depth J

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	10.13	10.46	193.2	3432	737.0	477.4	193.2	3488	729.1	475.8
20-40mm	28.55	29.04	170.4	3244	682.7	441.8	182.2	3168	682.2	446.3
40-60mm	20.07	20.42	170.4	2581	594.2	370.7	182.2	2444	599.2	372.5
60-80mm	14.14	14.59	182.2	2028	502.6	277.2	170.4	2320	507.6	287.7
80-100mm	11.26	11.63	182.2	1680	392.2	188.5	193.2	1714	395.8	188.7
All	84.18	86.23	170.4	3432	598.9	395.0	170.4	3488	599.6	397.1
			Height A (mm)				Height B (mm)			
Highest Particle			100.0061				100.0342			
Lowest Particle			14.3201				14.6125			

Table C. 295: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	6.25	193.2	3129	800.4	469.1	193.2	3411	782.5	487.2	-1.780	1.860	-0.040	0.350	-1.900	1.840	0.170	0.580
20-40mm	18.42	182.2	3122	722.4	426.8	182.2	3168	714.8	440.6	-1.890	1.850	-0.120	0.310	-1.880	1.840	-0.010	0.600
40-60mm	14.77	182.2	2306	613.1	355.0	182.2	2444	611.9	359.5	-1.870	1.500	-0.150	0.250	-1.870	1.890	-0.160	0.510
60-80mm	11.56	182.2	2028	526.9	271.4	193.2	2320	530.9	282.8	-1.110	1.600	-0.170	0.170	-1.730	1.080	-0.280	0.360
80-100mm	9.54	182.2	1680	408.1	191.8	193.2	1714	413.2	192.5	-1.510	1.170	-0.190	0.160	-1.430	1.420	-0.230	0.290
All	60.56	182.2	3129	616.8	379.5	182.2	3411	614.6	387.5	-1.890	1.860	-0.140	0.260	-1.900	1.890	-0.110	0.510

Table C. 296: Matched Droplet Info

C.8.3.2 All Droplets for .LA Image

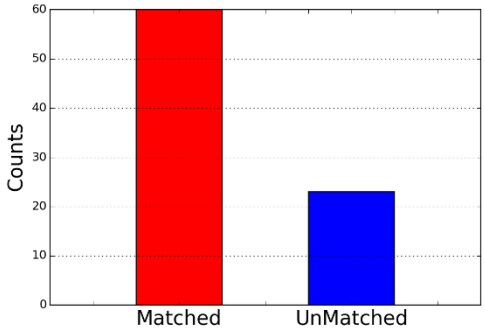


Figure C. 2701: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

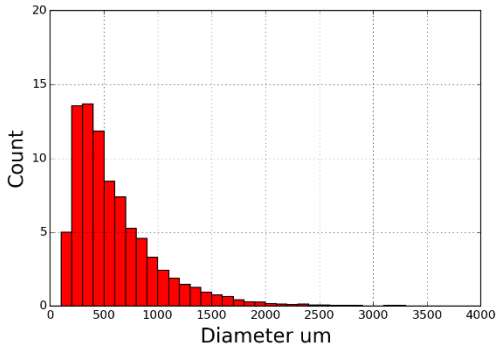


Figure C. 2702: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

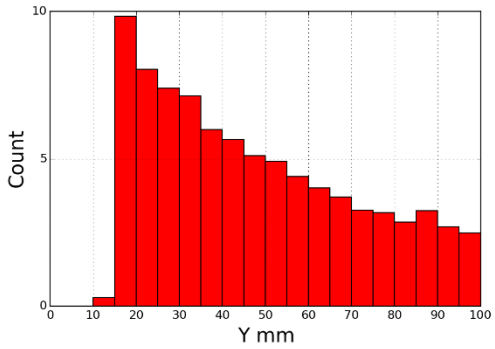


Figure C. 2703: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

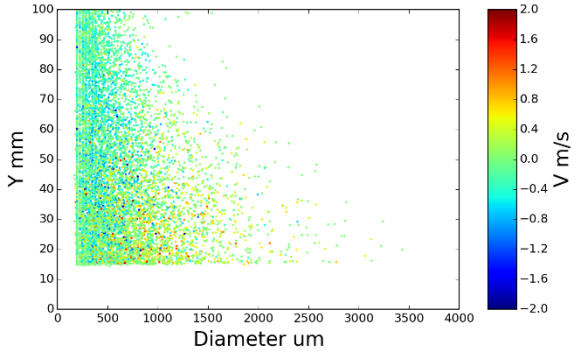


Figure C. 2704: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

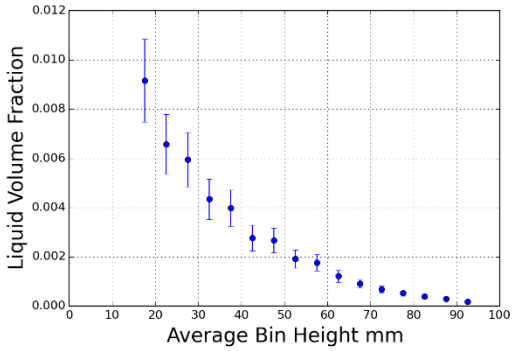


Figure C. 2705: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 All Droplets for .LB Image

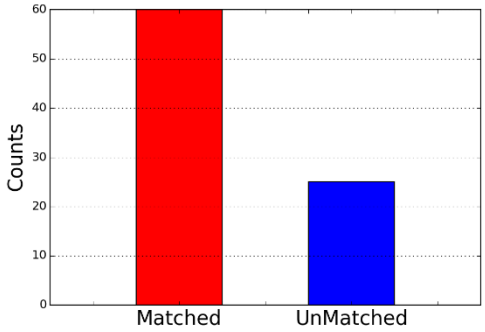


Figure C. 2706: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

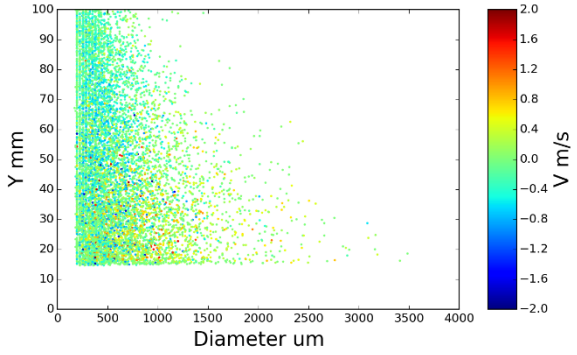


Figure C. 2709: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

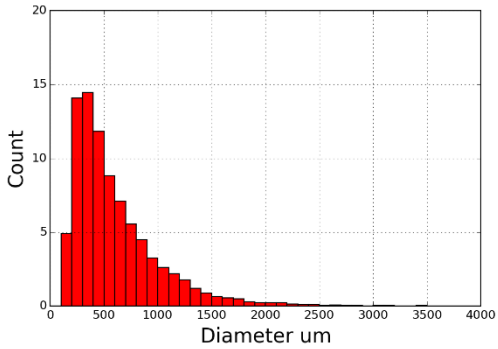


Figure C. 2707: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

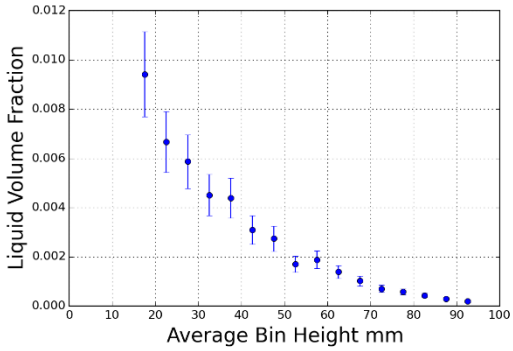


Figure C. 2710: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

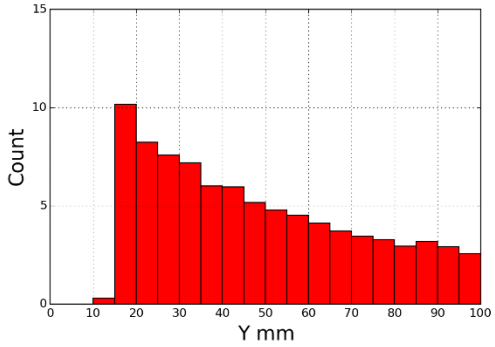


Figure C. 2708: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LA Image

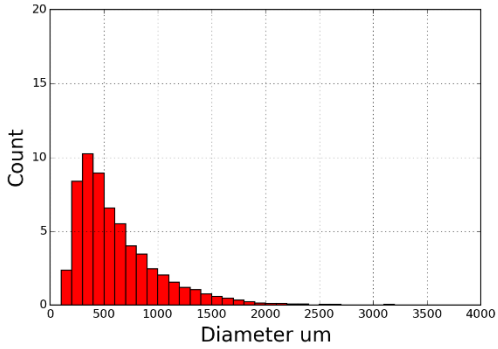


Figure C. 2711: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

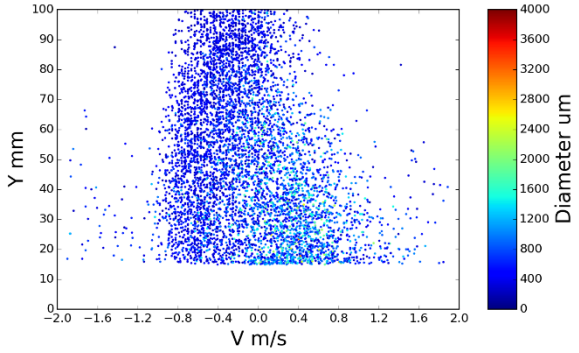


Figure C. 2714: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

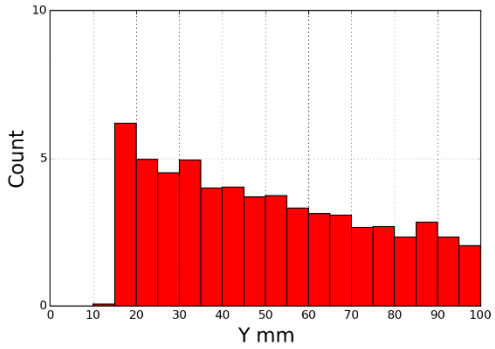


Figure C. 2712: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

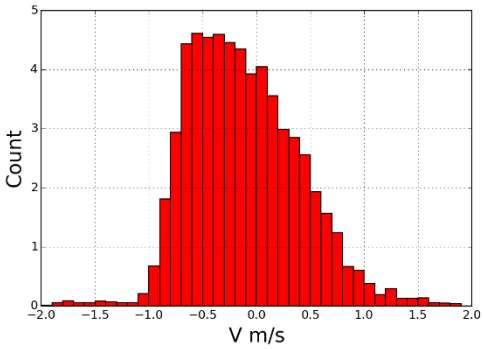


Figure C. 2715: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

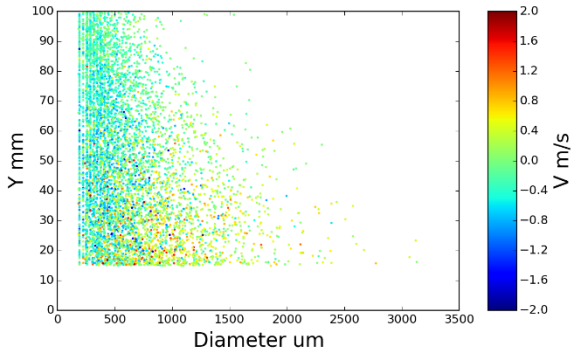


Figure C. 2713: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LB Image

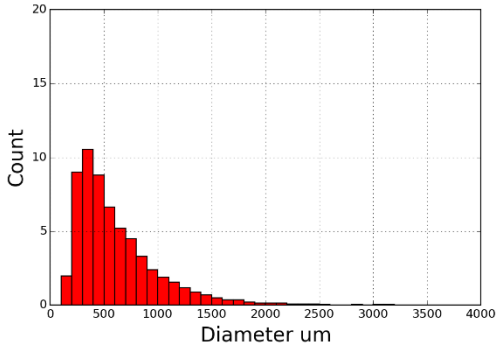


Figure C. 2716: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

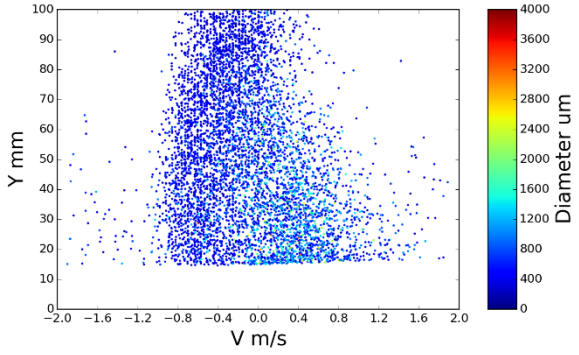


Figure C. 2719: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

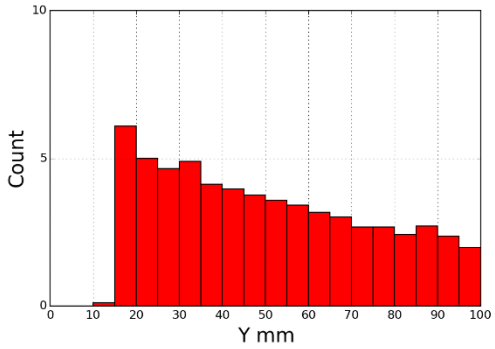


Figure C. 2717: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

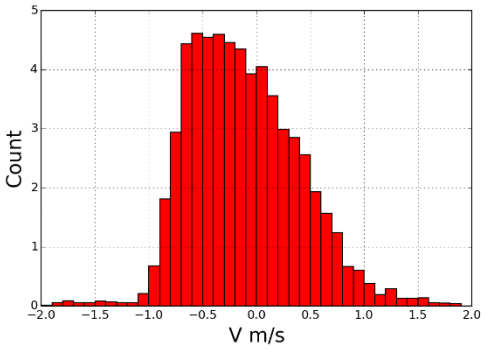


Figure C. 2720: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

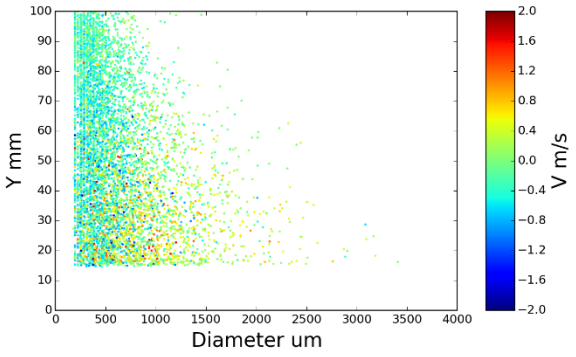


Figure C. 2718: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Depth K

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	19.97	20.0	170.4	3140	678.6	418.8	182.2	3128	692.9	438.7
20-40mm	51.73	52.06	182.2	3962	671.8	424.0	170.4	3806	677.6	427.0
40-60mm	39.23	39.56	170.4	2876	616.5	366.9	182.2	2714	621.1	372.8
60-80mm	31.05	31.91	182.2	2262	531.4	287.0	170.4	2216	532.5	289.2
80-100mm	25.16	25.54	182.2	1626	411.2	200.1	182.2	1568	415.7	203.7
All	167.29	169.16	170.4	3962	594.0	371.6	170.4	3806	599.1	377.4
			Height A (mm)				Height B (mm)			
Highest Particle			100.0612				100.0327			
Lowest Particle			13.4709				13.3567			

Table C. 297: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	13.29	193.2	3031	739.6	420.1	182.2	3094	734.8	429.1	-1.900	1.890	-0.060	0.380	-1.870	1.870	0.260	0.540
20-40mm	35.51	182.2	3558	711.6	415.9	182.2	3806	708.0	423.8	-1.900	1.900	-0.090	0.350	-1.900	1.890	0.230	0.590
40-60mm	28.51	182.2	2398	654.2	363.3	193.2	2600	653.0	367.0	-1.900	1.870	-0.120	0.300	-1.900	1.900	0.090	0.500
60-80mm	24.74	182.2	2147	559.2	287.5	182.2	2216	558.6	287.9	-1.890	1.800	-0.130	0.280	-1.880	1.860	0.030	0.420
80-100mm	19.98	182.2	1626	435.7	204.9	193.2	1568	439.8	209.0	-1.880	1.900	-0.160	0.270	-1.900	1.890	-0.030	0.370
All	122.08	182.2	3558	625.0	366.9	182.2	3806	623.6	371.0	-1.900	1.900	-0.110	0.320	-1.900	1.900	0.120	0.510

Table C. 298: Matched Droplet Info

C.8.3.2 All Droplets for .LA Image

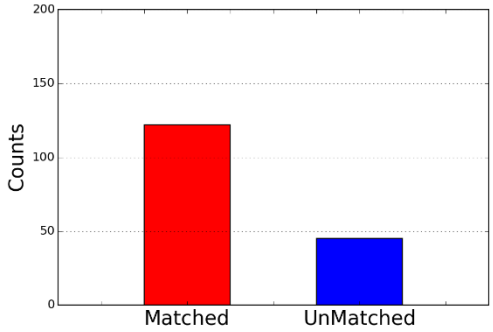


Figure C. 2721: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

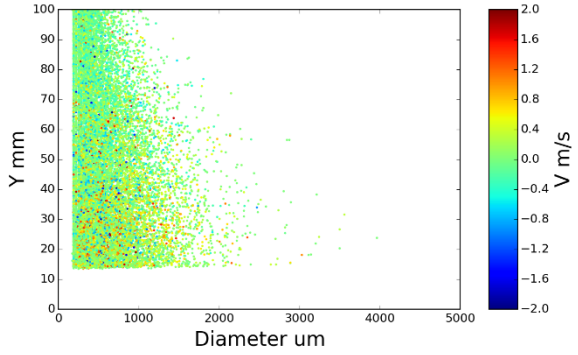


Figure C. 2724: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

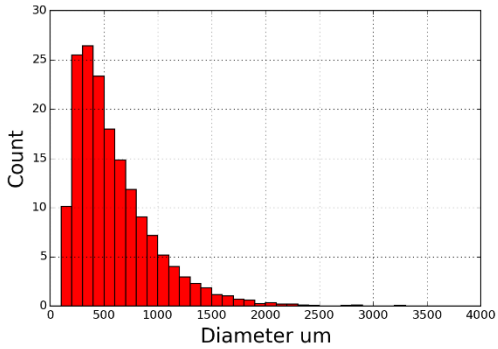


Figure C. 2722: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

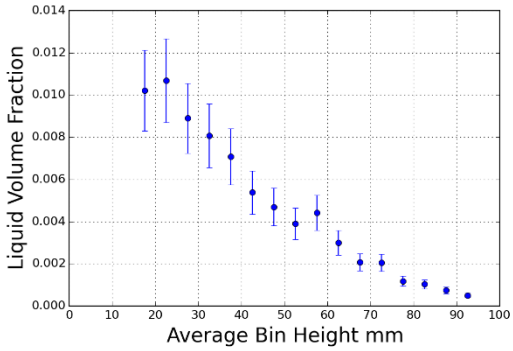


Figure C. 2725: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

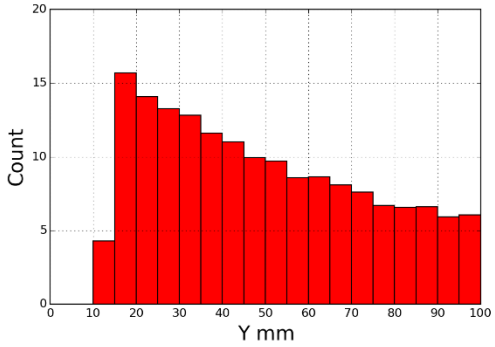


Figure C. 2723: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 All Droplets for .LB Image

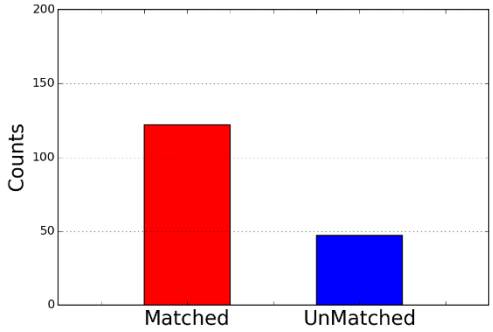


Figure C. 2726: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

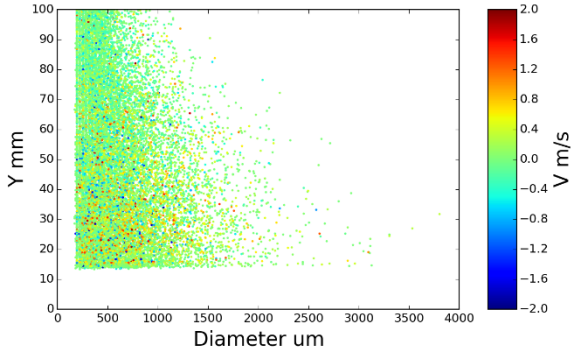


Figure C. 2729: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

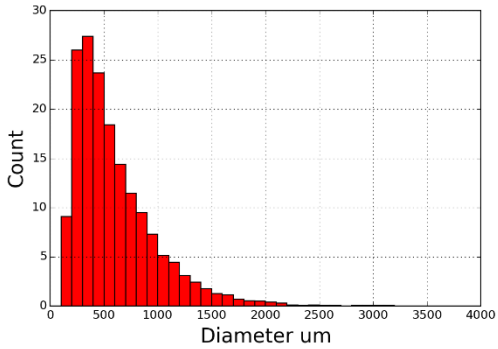


Figure C. 2727: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

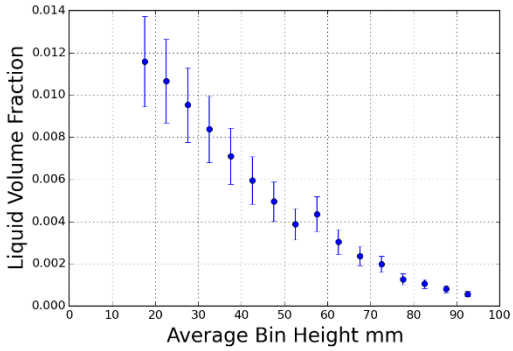


Figure C. 2730: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

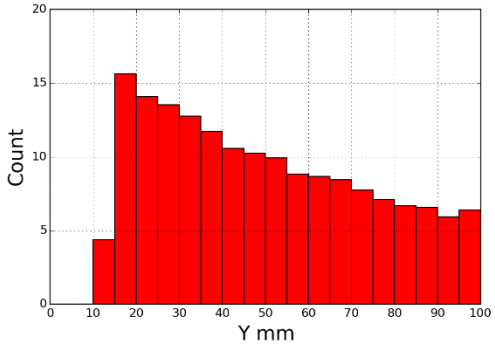


Figure C. 2728: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LA Image

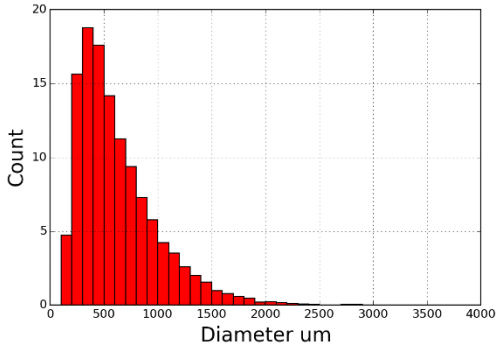


Figure C. 2731: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

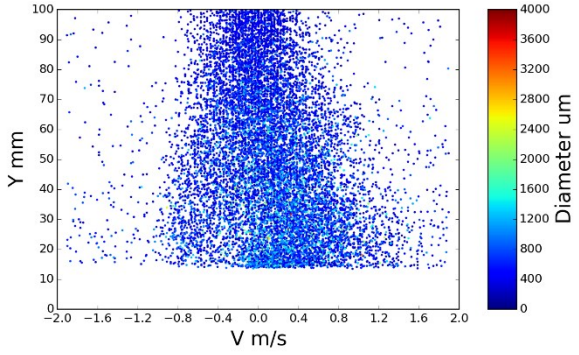


Figure C. 2734: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

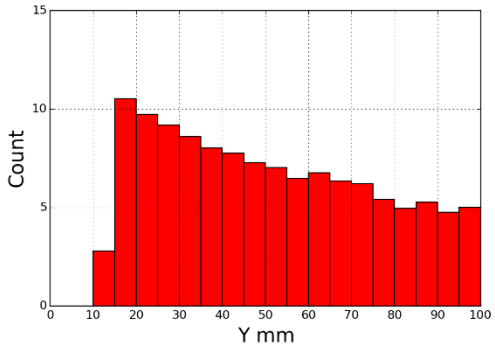


Figure C. 2732: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

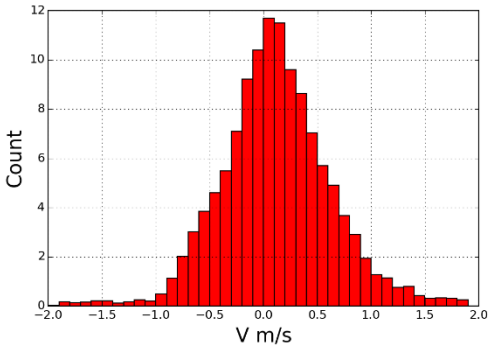


Figure C. 2735: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

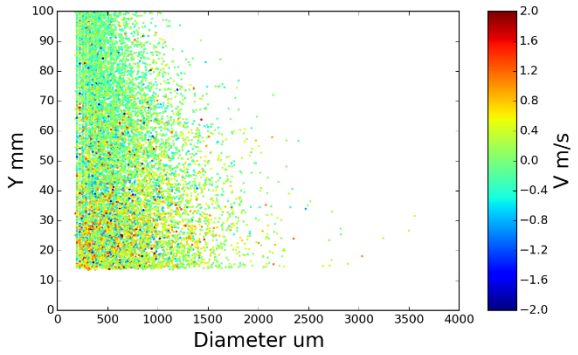


Figure C. 2733: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LB Image

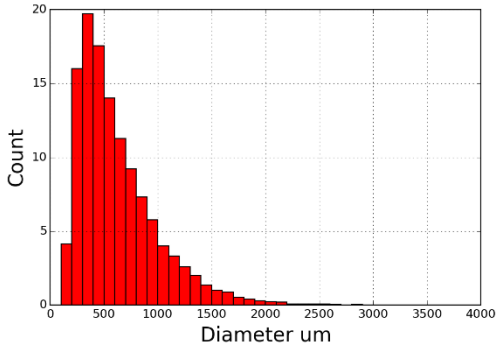


Figure C. 2736: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

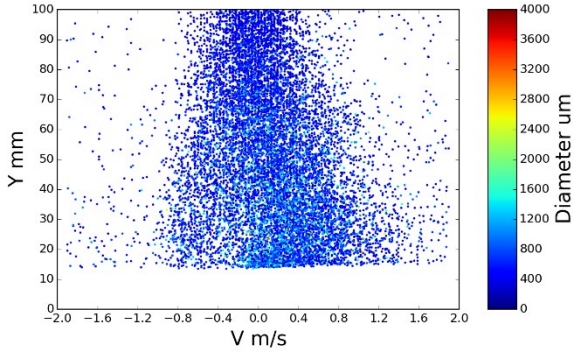


Figure C. 2739: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

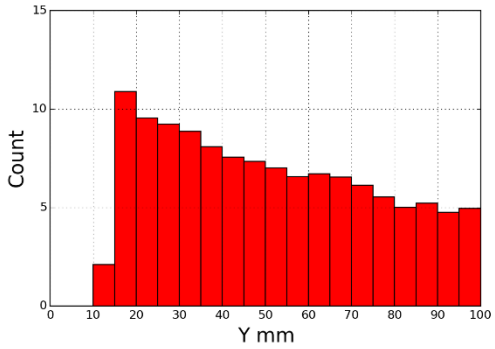


Figure C. 2737: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

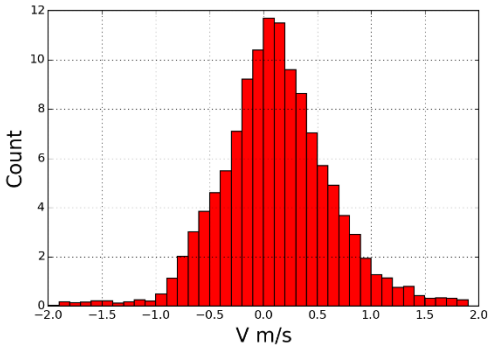


Figure C. 2740: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

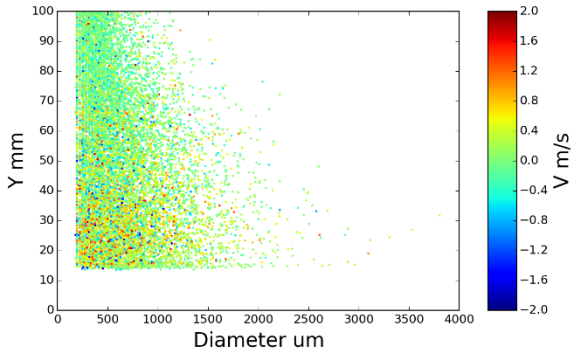


Figure C. 2738: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Depth L

All Droplets										
	Average Droplet Counts per Image		Diameter A (um)				Diameter B (um)			
Height Bin	Image A	Image B	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	30.02	30.5	182.2	3588	629.1	396.9	170.4	3498	630.7	398.5
20-40mm	68.3	68.97	170.4	3321	634.6	384.6	170.4	2944	630.5	384.1
40-60mm	53.03	53.72	182.2	3080	586.2	347.8	170.4	3252	590.4	350.9
60-80mm	40.07	40.65	170.4	2096	530.9	286.7	170.4	2703	531.4	293.1
80-100mm	27.99	29.44	170.4	1890	423.4	201.2	182.2	1483	420.8	201.5
All	219.56	223.39	170.4	3588	576.0	349.0	170.4	3498	575.0	350.4
			Height A (mm)				Height B (mm)			
Highest Particle			100.0327				100.0327			
Lowest Particle			12.4307				12.4149			

Table C. 299: All Droplet Info

Matched Only Droplets																	
	Average Droplet Counts Per Image	Diameter A (um)				Diameter B (um)				X-Velocity (m/s)				Y-Velocity (m/s)			
Height Bin		Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD	Min	Max	Mean	STD
0-20mm	20.89	182.2	3022	668.4	384.8	182.2	3284	669.6	395.3	-1.890	1.900	-0.030	0.420	-1.890	1.900	0.340	0.580
20-40mm	48.7	182.2	2795	670.5	375.1	182.2	2886	663.6	378.3	-1.900	1.900	-0.050	0.360	-1.900	1.900	0.330	0.560
40-60mm	38.5	182.2	2920	623.5	347.4	182.2	3252	621.9	349.0	-1.900	1.870	-0.080	0.320	-1.900	1.900	0.240	0.490
60-80mm	30.97	170.4	2096	556.4	289.9	170.4	2703	557.6	294.0	-1.900	1.880	-0.100	0.290	-1.820	1.900	0.130	0.430
80-100mm	22.16	182.2	1542	446.1	204.3	193.2	1483	448.8	205.0	-1.900	1.840	-0.120	0.280	-1.900	1.800	0.050	0.350
All	161.25	170.4	3022	606.2	343.8	170.4	3284	604.0	346.7	-1.900	1.900	-0.070	0.340	-1.900	1.900	0.230	0.510

Table C. 300: Matched Droplet Info

C.8.3.2 All Droplets for .LA Image

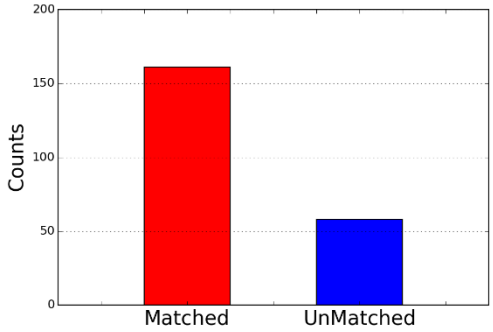


Figure C. 2741: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

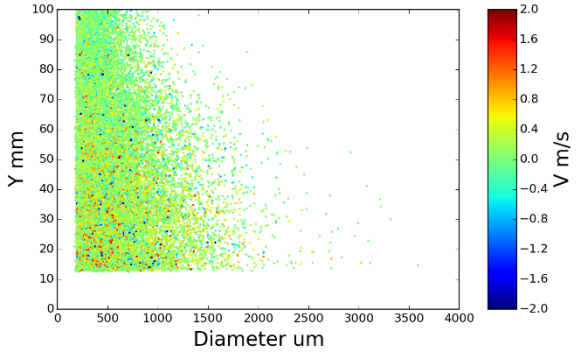


Figure C. 2744: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

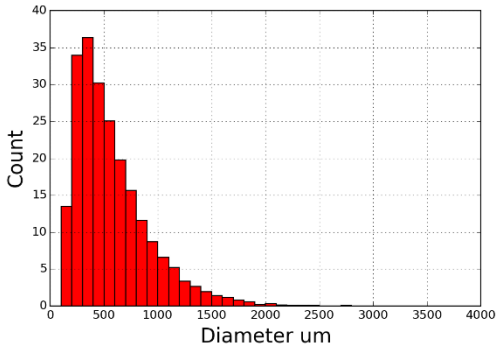


Figure C. 2742: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

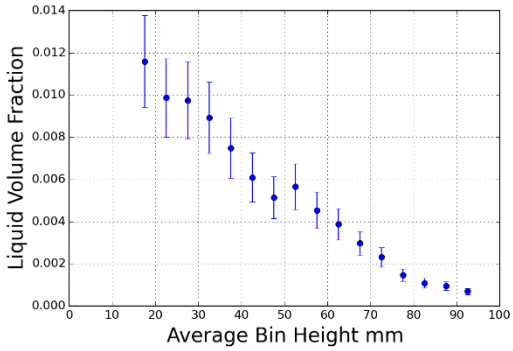


Figure C. 2745: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

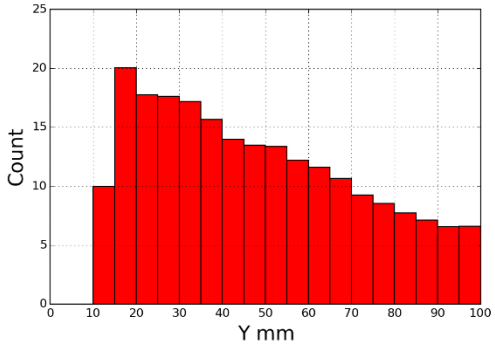


Figure C. 2743: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 All Droplets for .LB Image

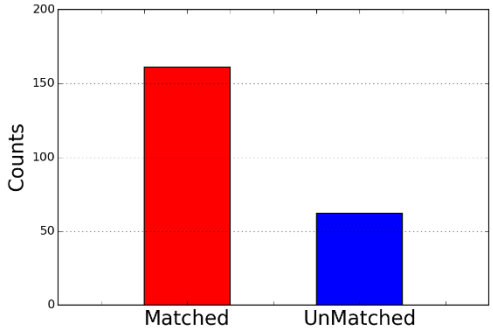


Figure C. 2746: CHC Count Comparison R-134a 55F 10000Btu 30000Lb Rot Tri

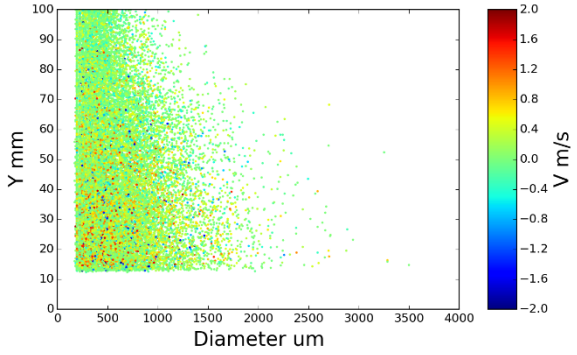


Figure C. 2749: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

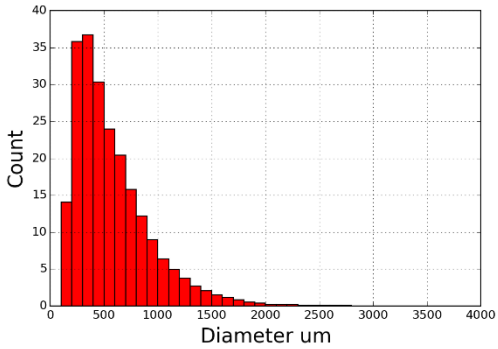


Figure C. 2747: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

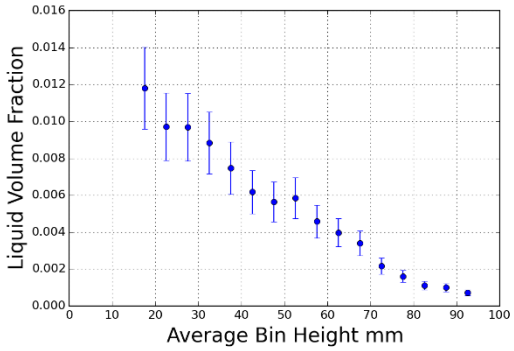


Figure C. 2750: Void Fraction R-134a 55F 10000Btu 30000Lb Rot Tri

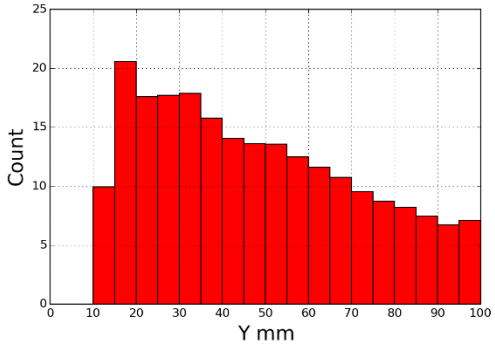


Figure C. 2748: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LA Image

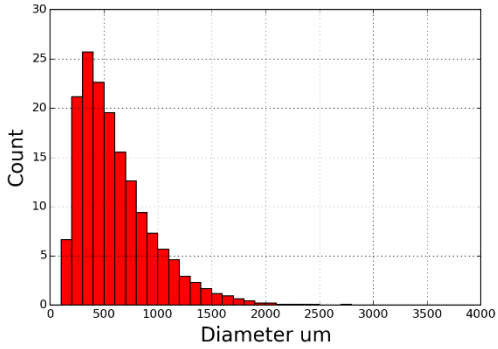


Figure C. 2751: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

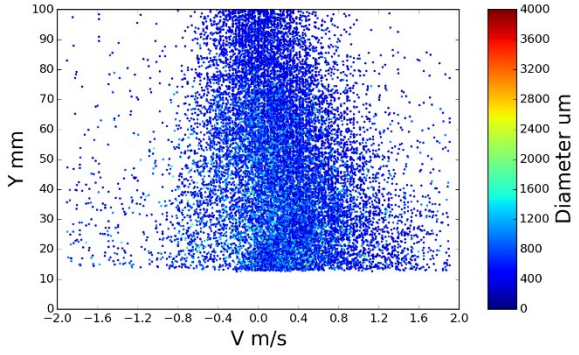


Figure C. 2754: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

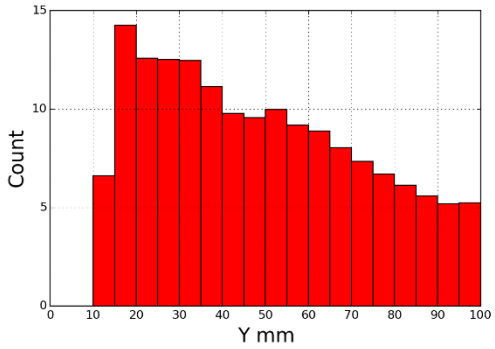


Figure C. 2752: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

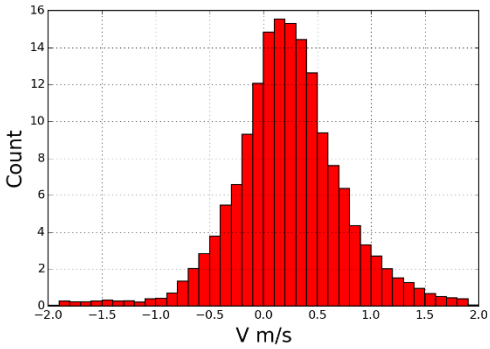


Figure C. 2755: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

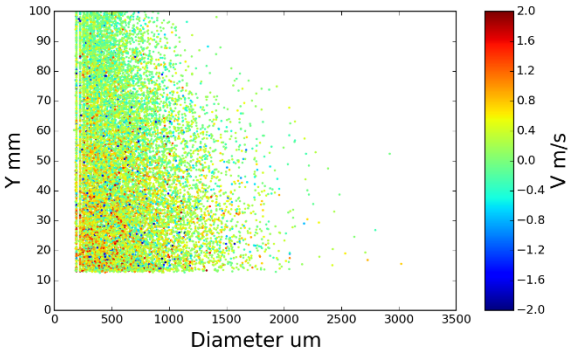


Figure C. 2753: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri

C.8.3.2 Matched Only Droplets for .LB Image

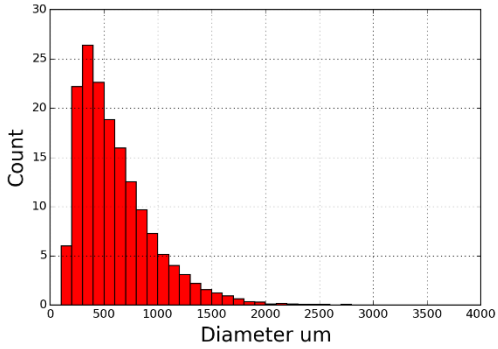


Figure C. 2756: Droplet Diameter Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

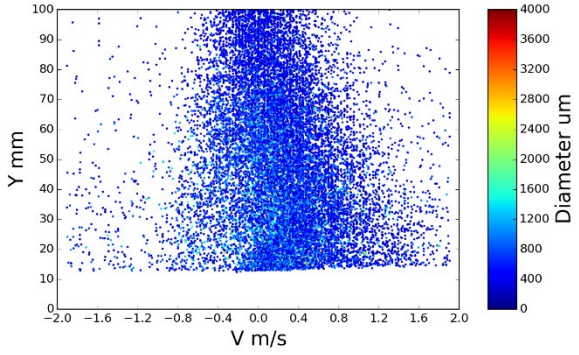


Figure C. 2759: Droplet Height vs Vertical Velocity R-134a 55F 10000Btu 30000Lb Rot Tri

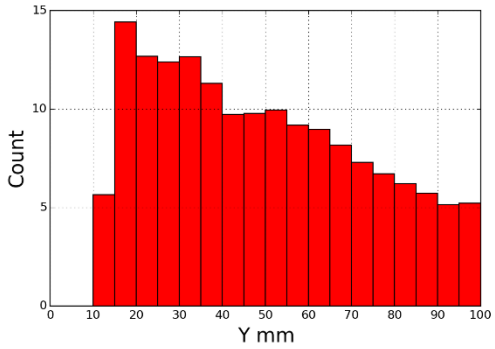


Figure C. 2757: Droplet Height Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

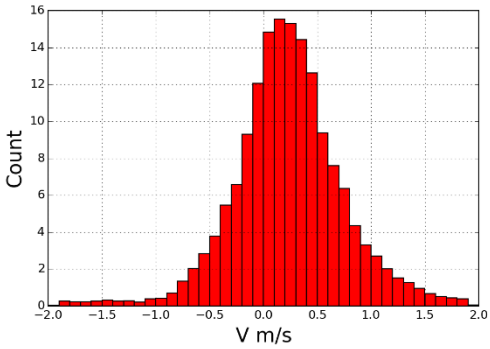


Figure C. 2760: Droplet Vertical Velocity Histogram R-134a 55F 10000Btu 30000Lb Rot Tri

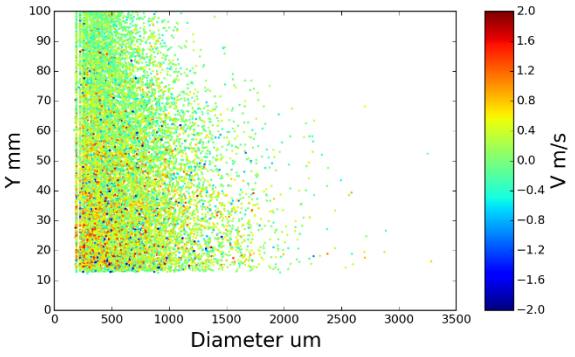


Figure C. 2758: Droplet Height vs Diameter R-134a 55F 10000Btu 30000Lb Rot Tri