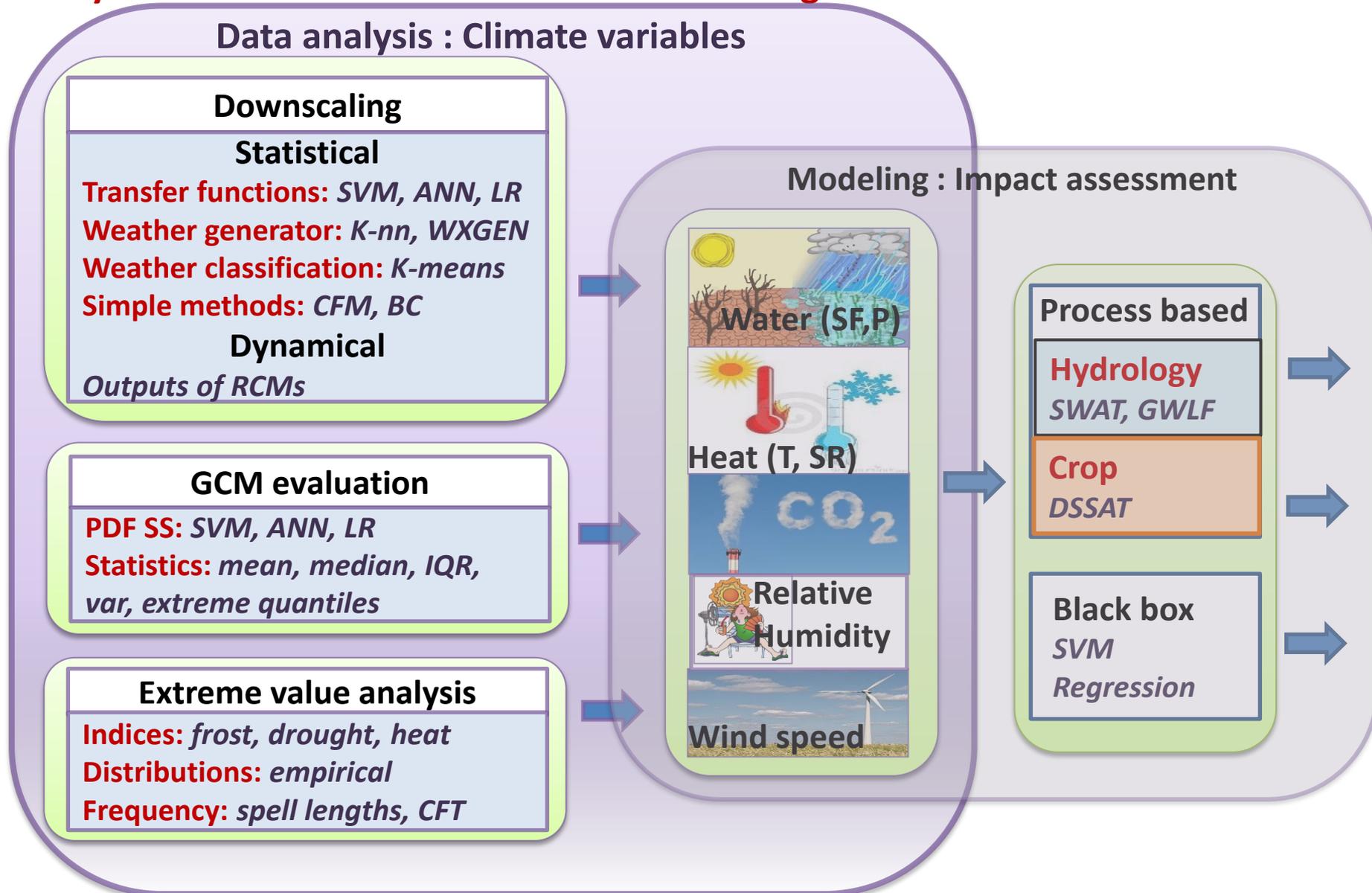


# Aavudai Anandhi S.

- Research Assistant Professor in Agronomy at K-State since Oct' 2011
- **My research interests related to climate change**



# Changes in Kansas climate

Mean

Rain  
fall

Max.  
Temp

Min.  
Temp

Ave.  
Temp

Diur.  
Temp

Extremes

Min.  
Temp

Rain  
fall

Max.  
Temp

Frost  
indices

Drou  
ght

C. fail  
temp

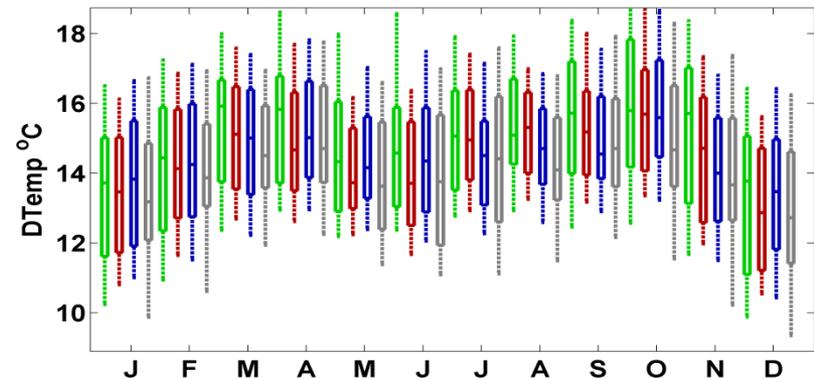
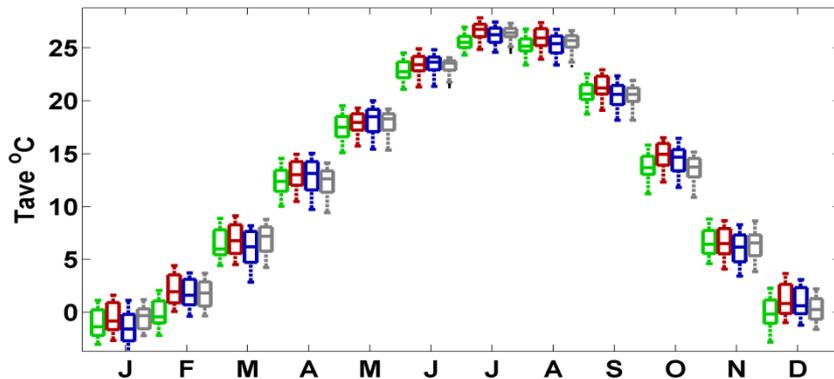
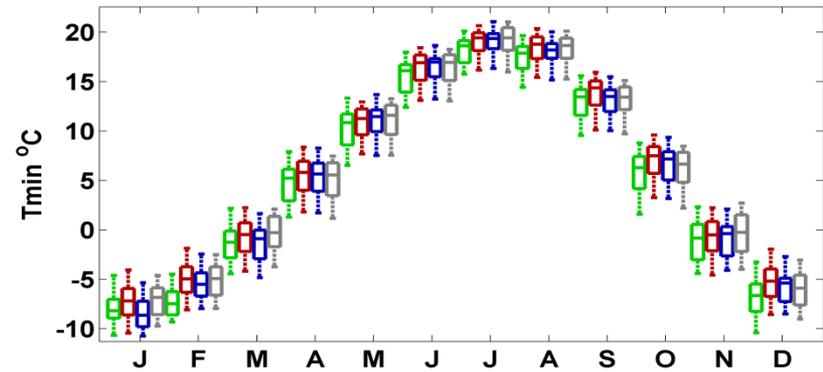
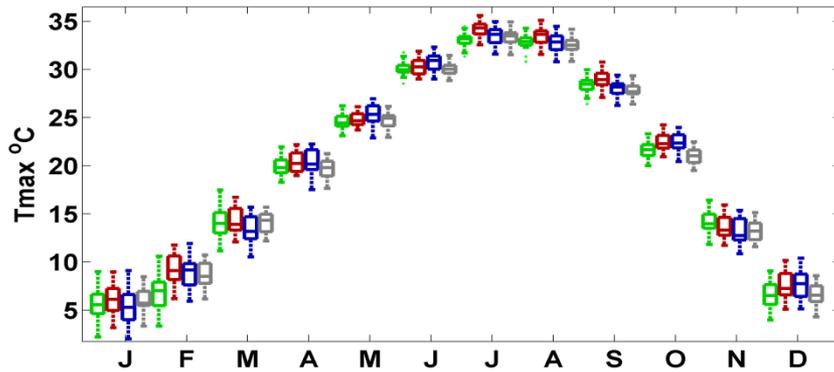
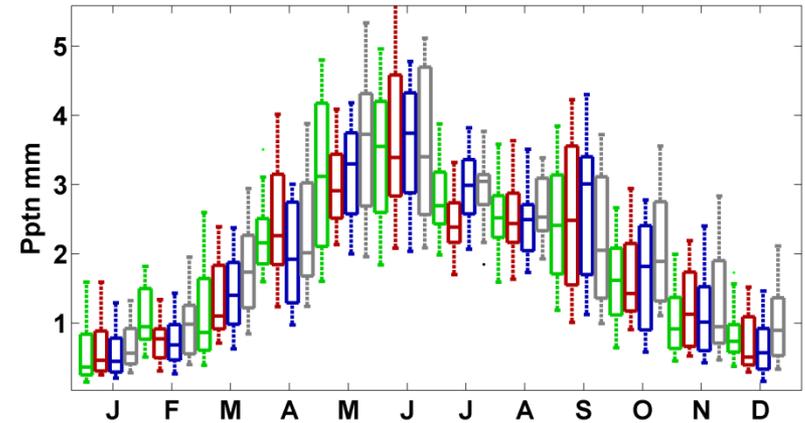
Frost days  
Last spring frost  
First fall frost  
Grow. sea. len

SPI

$\geq 40^{\circ}\text{C}$   
 $\geq 39^{\circ}\text{C}$   
 $\geq 35^{\circ}\text{C}$

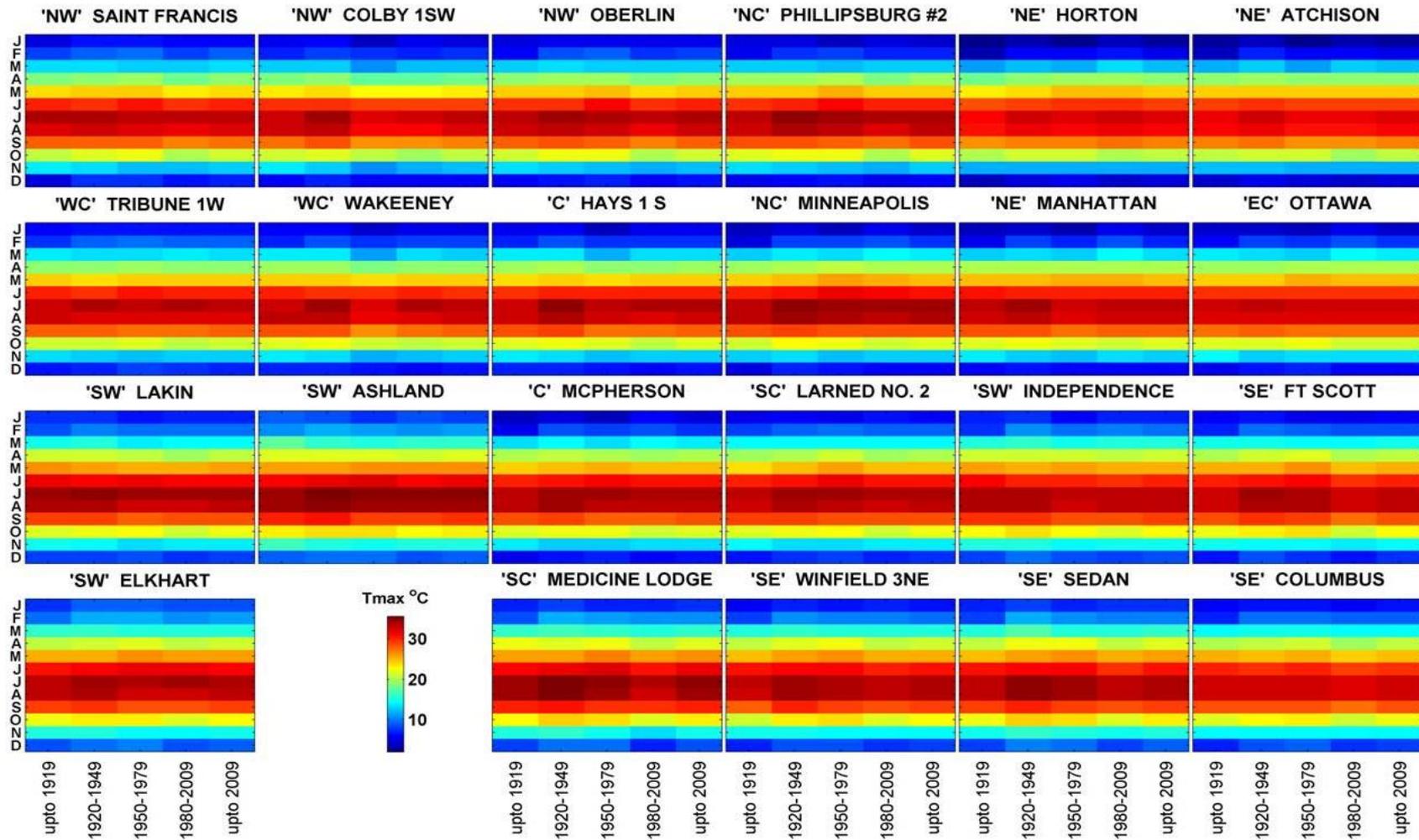
## Changes in mean Kansas climate

Figures. Average monthly rainfall, temperatures across 23 centennial stations in Kansas for the different climate periods: green - up to 1919; red - 1920 to 1949; blue - 1950 to 1979; and grey - 1980 to 2009.



## Changes in mean Kansas climate

For many locations, the highest average monthly temperature during the summer season was from 1920-1949, indicating the dust bowl years can serve as a good proxy for the near future climate conditions.

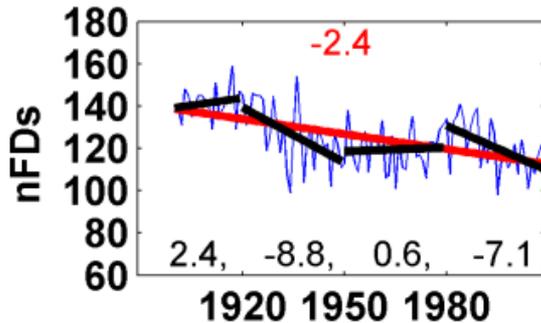


## Changes in frost indices in Kansas

### No. of Frost days

- In general its decreasing long term trend (-0.1 to -2.4 days/decade)
- More variability in short term trends (-0.1 to -8.8 days/decade)

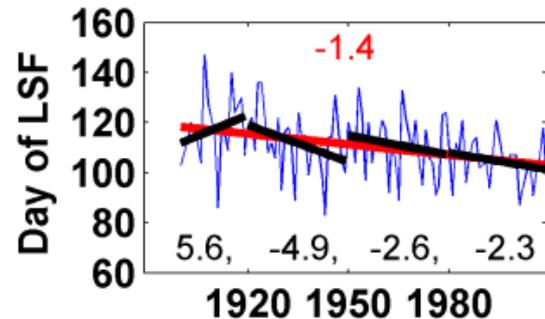
#### ELKHART



### Last spring freeze (LSF)

- In general LSF occurs earlier in the season (-0.1 to -1.9 days/decade)
- More variability in short term trends (-0.1 to -8.8 days/decade)

#### ELKHART



### First fall freeze (FFF)

- In general FFF occurs later in the season (0.1 to 0.8 days/decade)
- Changes in FFF is less consistent than LSF

### Growing season length (GSL)

- In general its increasing long term trend (0.1 to 1.9 days/decade)
- More variability in short term trends (0.1 to 6.5 days/decade)

Change in climate input

Impacts to cropping system

Adaptations in cropping system

Crop model

Impact on Yield Biomass

Change in Tmin



Impacts  
nFD,  
LSF, FFF  
GSL



Adaptation  
Change in planting date

Crop model

