

A MODEL FOR THE SIMULATION
OF KANSAS TEMPERATURE DATA

by

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ABSTRACT

Models for weather data were explored using records for Manhattan, Kansas, from 1900 through 1970. Precipitation was found to be independent of antecedent conditions, but a covariance model for minimum and maximum daily temperatures proved satisfactory. Daily extreme temperatures were regressed on the occurrence of precipitation during the preceding day and the day of interest and on the deviations from normal of the preceding two temperatures. Interaction terms were found to be insignificant.

Parameter estimates are listed for nine Kansas stations. Harmonic analysis has been used to smooth the estimates. The Fourier coefficients are tabulated and mapped.

Simulation of Manhattan weather was attempted using randomly generated precipitation. The distribution of wet and dry days was found to be correct, but precipitation amounts were too uniform. This did not degrade the temperature simulation.

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