Some Climatic Extremes in Oklahoma in the Period 1923-1958

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Oklahoma has long been characterized by climatic extremes—from decade to decade, year to year, day to day, and almost hour to hour. The purpose of this paper is to point out some of the violent oscillations in salient climatic characteristics in the period from 1923-1958.

Climatic data from 89 stations were electronically processed to reveal 'normals' and extremes during the period 1923-1958. Close spacing of stations and length of record provide a good sample to demonstrate amplitude of climatic oscillation during two lengthy periods of drought and two more humid times.

Statements expressed herewith are designed to show maximal variations of wet and dry, high and low temperatures, and Koeppen characteristics without holding the year constant.

For example, minimum rainfall experienced during the period was at Buffalo in 1934 when only 6.59 inches fell. A departure from 'normal' for the 1923-1958 period of 16.85 inches or a negative variation of more than 71 per cent of normal. In 1957 Buffalo received 47.42 inches — a positive variation of more than 100 per cent.

Conversely the wettest place in the state during the study period was Smithville which received 78.04 inches of precipitation in 1945. On the other hand, in its dry year, 1956, Smithville received 23.32 inches. This represents a positive variation of 45 per cent above the normal of 53.90 inches and a negative variation of almost 57 per cent.

These comparisons tend to illustrate, again, that departures from normal precipitation are of greater amplitude in subhumid than in humid or perhumid environments.

Mean annual temperatures have varied from a high of 72.9° at Altus in 1937 to a low of 43.4° recorded in Boise City in 1958. Again, as anticipated, subhumid stations show a greater range in mean temperatures than do the humid and perhumid stations.

If one employs the Koeppen climatic classification it can quickly be seen that variations from the typical Cfa-BSk map are quite pronounced if annual characteristics are considered.

Mean conditions for the 36-year period show only six stations with a BS environment and no station with a BW classification. Some time during the 1923-1958 period, however, 56 stations experienced BS conditions and seven stations at some time were BW. Similarly the D environment does not exist under 'normal' conditions in Oklahoma, but some time during the period 65 stations experienced D conditions.

If second and third order aspects of the Koeppen classification were included in this survey a bewildering hetereogeneity of classifications would result. In short, variations from 'normal' conditions are quite dramatic and represent a salient aspect of Oklahoma's climate.

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