
**Oklahoma's Climate: The "Dirty Thirties" and "Filthy Fifties"
— Climatic Analogue, Prologue or Epilogue?¹**

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The vagaries of Oklahoma's climate have elicited cries of dismay and words of approbation from scholars, citizens, and visitors. Even the sharpest critic and the most ardent admirer must admit, however, that Oklahoma's climate is inconstant — unpredictable. Means are misleading, norms are nonsense, and averages go awry.

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Variations from place to place within the state are certainly as significant as oscillations from season to season and through the years. In spite of the many complexities in the climatic pattern it does appear, for the recent past, at least, that there is a certain periodicity in rainfall regimes. This cycle, which appears to approximate 12-year intervals between peaks and troughs, has been recognized by such scholars as Tannehill and Bollinger, among others.

Within the past 30 years Oklahoma has experienced two protracted periods of abnormally low rainfall. The drought years of the 1930's created great havoc, led to forced emigration, and influenced our vocabularies. *Grapes of Wrath* and "Okies" are an inevitable part of the heritage of Oklahomans. And, no matter how much Oklahomans might wish that it were not so, many of the impressions which others have of Oklahomans were created by John Steinbeck.

Yet Oklahoma experienced another severe drought period in the 1950's. No great "Dust Bowl" was apparent in this period, and "The Grapes of Wrath" were not squeezed again. Was this because the drought of the 1950's was less severe, or of shorter duration? Perhaps the people were better prepared for the drought of the 1950's? How, then, do the "Dirty Thirties" compare with the "Filthy Fifties" climatologically? Will such droughts occur again? Some of these questions can be answered definitively, whereas the latter lends itself to speculative treatment only.

Fortunately, scientific spadework done by Major Joseph Castelli provided the essential tools necessary to answer many of the afore-mentioned questions. Appropriate data cards for 89 stations and a 36-year period provided the essential ingredients for the programmer and the IBM 650 computer. Blaine Limer provided important cartographic assistance, but I accept responsibility for interpretation and analysis.

The 1930's and 1950's were years of climatic trial and tribulation for the citizens of Oklahoma, and the specter of a repeat performance hangs heavy over the heads of all Sooners. In the 1930's, 1934 and 1936 were the worst years from the standpoint of moisture deficiency. The year, 1934, was especially trying for the Panhandle and extreme west. Several stations in the Panhandle received less than ten inches of moisture, and the cumulative effects of several dry years were evident in the "black blizzards" that swept across the plains. The 20-inch isohyet approximated the 99th meridian. While the rest of the state had less than normal precipitation in 1934 the deficit was not significant compared to the desperate situation which obtained in the Panhandle and extreme west.

1936 was a desperate year. The 20-inch isohyet extended east of the 96th meridian in the central part of the state, and much of the western half of Oklahoma received less than 20 inches of precipitation. Approximately the western half of the Panhandle received less than ten inches. Since 1935 was not a good year, from a precipitation standpoint, 1936 must be considered the low point in the drought of the 1930's. In 1937 rainfall recovery began and slowly, erratically, but with an unmistakable upward trend the rains came, the dust settled, and the earth began to heal its wounds.

The 1940's provided a decade replete with climatic and economic balm, but disaster struck again with the coming of the 1950's. The disaster years of the '50's decade were 1952, 1954, and 1956. The intervening years, while not climatically excellent, were not so exacting as their counterpart years in the 1930's. In short, the cumulative effects of the unhappy climatic situation were not quite so disastrous as they were in the 1930's. In part this was due to temporary upsurges in moisture and in part it indicated the greater intelligence of man in adapting his land use techniques to a semiarid or subhumid environment.

The worst year, 1956, finds the ten-inch isohyet splitting the Panhandle and the 20-inch isohyet extending diagonally across the state from the 96th meridian at the northern border to the 98th meridian at the southern margin of the state. Of all stations covered in this survey the maximum precipitation was received at Spavinaw (33.50") in the north-eastern portion of the state.

In 1954, the second worst year of the decade of the 50's, all stations had more than ten inches of precipitation, although Goodwell and Kenton received only 10.08 inches and Buffalo, Alva, and Erick received only slightly more than 11 inches. The 20-inch isohyet approximately bisected the state, extending from near Newkirk to Stillwater to Chandler, thence southwest to the Wichita Mountains Wildlife Refuge and then southeast to the Red River. The extreme southeastern corner of the state received more than 40 inches of rainfall.

The year, 1952, which raised specters of the past, had a small island of below ten inches rainfall. Southern Texas County, near Goodwell, received less than ten inches and the 20-inch isohyet was only slightly west of its position in 1954. More of the state had 30 inches of rainfall, or more, but the area with more than 40 inches was somewhat less.

In 1957 the rains came, and Oklahoma was on the way back. The last four years have been generally good, and most Oklahomans have assumed that "God's in his heaven and all's right with the world." Will the droughts come again? Very probably — indeed, almost certainly. For whatever reason the jet stream migrates, and when the jet stream oscillates the cyclonic tracks move. When these tracks lie well to the north of Oklahoma it has experienced and will experience a drought. When will the next drought occur? No one can say definitively, but it appears that the late 1960's and early 1970's are candidates for desiccation.

Selected stations at random intervals across the state show the following cumulative totals for 1930-38 and 1950-58 respectively.

CUMULATIVE PRECIPITATION TOTALS (In Inches)

	1930-38	1950-58
Boise City	121.28	125.93
Alva	230.61	205.31
Erick	182.17	171.56
Altus	196.46	201.70
Ardmore	318.70	301.72
Guthrie	268.33	261.35
Newkirk	248.85	266.95
Vinita	377.78	342.06
Sallisaw	354.01	393.35
Antlers	387.85	413.51
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	2,686.04	2,683.44

The ten stations selected on a random regional basis show a disparity in terms of the driest nine years. As can readily be observed the cumulative total for all stations for the period shows a difference which would not be considered mathematically significant. While not all factors are investigated here, i.e., seasonality of precipitation, precipitation pattern of period prior to droughts, rainfall intensity, temperature patterns, wind, evaporation, and others, the rainfall totals of the period 1930-38 and 1950-58 are very similar. Indeed these totals indicate correspondence, rather than divergence. It is worthwhile to note, however, that the 1950's

showed generally greater oscillations in rainfall amount than did the 1930's, whereas the 1930's showed a greater constancy of precipitation at low levels.

In summary the 1930's and 1950's were decades of disaster. What has happened before may well happen again, but adequate measures of preparation have done much and will do more to ameliorate the disastrous effects of droughts in the future.
