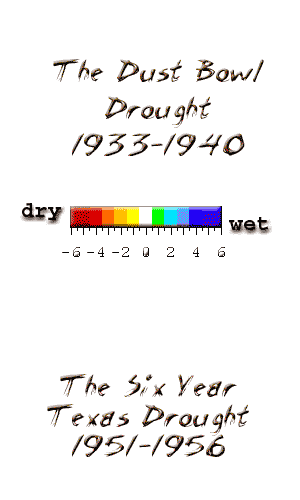
**20th Century Drought**

**The Dust Bowl Drought**

The Dust Bowl drought was a natural disaster that severely affected much of the United States during the 1930s. The drought came in three waves, 1934, 1936, and 1939-40, but some regions of the High Plains experienced drought conditions for as many as eight years. The "dust bowl" effect was caused by sustained drought conditions compounded by years of land management practices that left topsoil susceptible to the forces of the wind. The soil, depleted of moisture, was lifted by the wind into great clouds of dust and sand which were so thick they concealed the sun for several days at a time. They were referred to as" black blizzards".

The agricultural and economic damage devastated residents of the Great Plains. The Dust Bowl drought worsened the already severe economic crises that many Great Plains farmers faced. In the early 1930s, many farmers were trying to recover from economic losses suffered during the Great Depression. To compensate for these losses, they began to increase their crop yields. High production drove prices down, forcing farmers to keep increasing their production to pay for both their equipment and their land. When the drought hit, farmers could no longer produce enough crops to pay off loans or even pay for essential needs. Even with Federal emergency aid, many Great Plains farmers could not withstand the economic crisis of the drought. Many farmers were forced off of their land, with one in ten farms changing possession at the peak of the farm transfers.

In the aftermath of the Dust Bowl, it was clear that many factors contributed to the severe impact of this drought. A better understanding of the interactions between the natural elements (climate, plants, and soil) and human-related elements (agricultural practices, economics, and social conditions)of the Great Plains was needed. Lessons were learned, and because of this drought, farmers adopted new cultivation methods to help control soil erosion in dry land ecosystems. Subsequent droughts in this region have had less impact due to these cultivation practices.

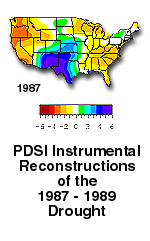
**The 1950s Drought**

Fueled by post-war economic stability and technological advancement, the 1950s represented a time of growth and prosperity for many Americans. While much of the country celebrated a resurgence of well-being, many residents of the Great Plains and southwestern United States were suffering. During the 1950s, the Great Plains and the southwestern U.S. withstood a five-year drought, and in three of these years, drought conditions stretched coast to coast. The drought was first felt in the southwestern U.S. in 1950 and spread to Oklahoma, Kansas and Nebraska by 1953. By 1954, the drought encompassed a ten-state area reaching from the mid-west to the Great Plains, and southward into New Mexico. The area from the Texas panhandle to central and eastern Colorado, western Kansas and central Nebraska experienced severe drought conditions. The drought maintained a stronghold in the Great Plains, reaching a peak in 1956. The drought subsided in most areas with the spring rains of 1957.

The 1950s drought was characterized by both low rainfall amounts and excessively high temperatures. Texas rainfall dropped by 40% between 1949-1951 and by 1953, 75% of Texas recorded below normal rainfall amounts. Excessive temperatures heated up cities like Dallas where temperatures exceeded 100°F on 52 days in the summer of 1953. Kansas experienced severe drought conditions during much of the five-year period, and recorded a negative [Palmer Drought Severity Index](https://www.ncdc.noaa.gov/paleo/drought/drght_pdsi.html) from 1952 until March 1957, reaching a record low in September of 1956.

A drought of this magnitude creates severe social and economic repercussions and this was definitely the case in the southern Great Plains region. The drought devastated the region's agriculture. Crop yields in some areas dropped as much as 50%. Excessive temperatures and low rainfall scorched grasslands typically used for grazing. With grass scarce, hay prices became too costly, forcing some ranchers to feed their cattle a mixture of prickly pear cactus and molasses. By the time the drought subsided in 1957, many counties across the region were declared federal drought disaster areas, including 244 of the 254 counties in Texas.

**The 1987 - 1989 Drought**

The three-year drought of the late 1980s (1987-1989) covered 36% of the United States at its peak. Compared to the Dust Bowl drought, which covered 70% during its worst year, this does not seem significant. However, the 1980s drought was not only the costliest in U.S. history, but also the most expensive natural disaster of any kind to affect the U.S. [(Riebsame et al. 1991)](https://www.ncdc.noaa.gov/paleo/drought/drght_references.html#riebsame). Combining the losses in energy, water, ecosystems and agriculture, the total cost of the three-year drought was estimated at $39 billion. Drought-related losses in western Canada exceeded $1.8  
billion dollars in 1988 alone.

The drought, beginning along the west coast and extending into the northwestern U.S., had its greatest impact in the northern Great Plains. By 1988, the drought intensified over the northern Great Plains and spread across much of the eastern half of the United States. This drought affected much of the nation's primary corn and soybean growing areas, where total precipitation for April through June of 1988 was even lower than during the Dust Bowl. The drought also encompassed the upper Mississippi River Basin where low river levels caused major problems for barge navigation. The summer of 1988 is well known for the extensive forest fires that burned across western North America, including the catastrophic Yellowstone fire. In addition to dry conditions, heat waves during the summer of 1988 broke long-standing temperature records in many midwestern and northeastern metropolitan areas.

The 1987-89 drought was the first widespread persistent drought since the 1950s and undoubtedly took people by surprise. Many had not experienced the 1950s drought and others had forgotten about the harsh realities of drought. The financial costs of this drought were an indication that many parts the country are now more vulnerable to drought than ever before. This increased vulnerability was due in part to farming on marginally arable lands and pumping of ground water to the point of depletion. Although surplus grain and federal assistance programs offset the impacts of the 1987-89 drought, these types of assistance programs would be less feasible during a lengthier drought.

**Another Dust Bowl?**

What is the likelihood of another Dust Bowl-scale drought in the future? No one is yet able to scientifically predict multi-year or decadal droughts, but the paleoclimatic record can tell us how frequently droughts such as the 1930s Dust Bowl occurred in the past or if droughts of this magnitude are indeed a rare event. If such droughts occurred with some regularity in the past, then we should expect them to occur in the future.