

OKLAHOMA WEATHER HISTORY
Monthly Climatology Series
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Monthly Climate of Oklahoma – July
Part 7 of a 12 part Series

NORMAN - July in Oklahoma means summer. By the beginning of the month, the jet stream and its accompanying weather systems have retreated to the near U.S.-Canadian border. The western arm of a broad area of high pressure at the earth's surface, centered in the central Atlantic Ocean, has migrated northward and spread across the state. Winds are persistently from the south, but not as strong as during preceding months. As a result, the seventh month of the year is the Oklahoma's warmest with an average temperature of 82 degrees and is the 4th driest month with a statewide-averaged precipitation of 2.73 inches. Only during the three coldest months of the year (December, January, and February), is the state's precipitation less.

Oklahoma's hottest July, at least since record keeping began in 1892, occurred in 1954. That month produced the highest statewide-averaged temperature (88.6 degrees) of any month during the 110-year period of record. Although the highest average monthly temperature occurred in 1954, the three July daily temperature reports that among the six reports tied for the all-time highest temperature in Oklahoma occurred in other years. The thermometer indicated 120 degrees at Alva July 18, 1936, at Altus July 19, 1936, and at Tishomingo July 26, 1943. The lowest July statewide-averaged monthly temperature on record was 76.4 degrees in 1906. The lowest temperature ever reported in Oklahoma during July is 41 degrees at Goodwell, July 15, 1915.

Temperatures during July are typically highest in south-central and southwestern Oklahoma. Waurika is the hot spot, posting an average monthly temperature of 85.1 degrees. Boise City has the coolest Julys, according to normal temperatures based on observations taken from 1971 through 2000, averaging a mere 77.2 degrees during the month. Illustrative of the way temperatures are distributed around the state, normal July daily maximum temperatures range from 98.6 degrees at Chattanooga (southwest) to 90 degrees at Stilwell (northeast). Normals of daily minimum temperatures vary between 73.1 degrees at Tulsa (northeast) and 61.5 degrees at Boise City (panhandle).

Humidity, vegetation, and elevation contribute to the variations in temperature across the state. The higher elevation and somewhat drier air in the panhandle lead to cooler nights and a greater range in daily temperatures than in other parts of the state. The more humid air in the southeast typically warms less in the daytime, but also retains more heat through the night. Southwestern Oklahoma suffers the most from the heat. Chattanooga and Mangum each average about 28 July days a year with daytime temperatures in the 90s, and each also averages approximately 14 days with temperatures of 100 degrees or

more. Near the state's eastern border, temperatures at Stilwell and Kansas each average around 18 days in the 90s during the month, including only a couple of excursions into triple digits.

July precipitation, all rainfall unless you count an occasional hailstorm, is primarily a result of localized events. While the panhandle enjoys its summer rainy season and rain certainly doesn't disappear from north central Oklahoma, the forested southeast, though drier than it is in other months, still receives more precipitation than other parts of the state. Normal monthly precipitation across the state ranges between 4.50 inches at Carnasaw Fire Tower in McCurtain County and 1.77 inches near the border with the Texas panhandle at Reydon and Hollis. An unlikely grouping of Kenton (panhandle), Stilwell (northeast), and Tuskahoma (southeast) reports measurable precipitation (.01 inch or more) on an average of approximately eight days during July. Leedey and Geary, both in west central Oklahoma, average 3.3 days with measurable precipitation. Newkirk, Kenton, and various sites in McCurtain County average more days than that (about four) with one-half inch or more of precipitation. The wettest July, based on a statewide average of rainfall, was 1950 (9.26 inches). The driest July occurred in 1980 (0.41 inches).

Oklahoma averages only 2.1 tornadoes in July each year. Since 1950, the July record for tornadoes is seven in 1956. Sixteen of those 53 months have been free of confirmed tornadoes. In the absence of well-organized systems, the vast majority of recorded July tornadoes have been of the weaker variety, and multiple occurrences on the same day are extremely rare. Only one fatality has been attributable to a tornado since 1950, that occurring in Murray County in 1955. Lightning, thunderstorm-induced winds, locally heavy rain, and, of course, heat are more likely to provide Oklahoma with its "weather misery" during the month.

Summer is a time for outdoor activities: traditionally, fieldwork or construction activities; more recently, recreation, especially water sports or golf. Since the thunderstorms of summer tend to develop rapidly apart from other warning signs, lightning becomes a significant hazard. Through the period 1959 through 1997 (the latest available summary), 77 people were either killed or injured in July by lightning, the most of any month. Surprisingly, lightning incidents in July resulted in only nine deaths during that period, a total exceeded in five other months.

On the night of July 23, 1995 a squall line literally roared through the Oklahoma City metropolitan area, generating winds measured as great as 97 miles per hour (at Tinker Air Force Base). Straight-line winds damaged a fifth of Oklahoma City's traffic lights, knocked out power to 175,000 homes (some for several days), and overall, did an estimated 6.5 million dollars worth of damage.

During July 1950, Wewoka reported a monthly accumulation of 18.83 inches of rain (the state record for July) and Clayton chimed in with 18.71 inches during that month. Floods were commonplace throughout the month. Five different crests were measured on the North Canadian during that month, four of which were higher than the previous July

record. The greatest daily rainfall report in July is 11.70 inches, reported at Checotah on July 25, 1960 in a deluge lasted 11 hours. Unofficial reports of 10-to-12 inch rains are commonplace in July. Oklahoma's hot-month thunderstorms tend to move slowly, have plenty of moisture available, and often re-develop in areas of upward motion along temperature boundaries produced by the storms themselves. As a result, city street flooding and flash floods along creeks and smaller rivers are common.

High temperatures and drought are closely associated during July. Although cotton, once established, thrives on the hot weather and abundant sunshine, other plants, humans, and domesticated animals tend to do less well. Corn ceased to be a major cash crop in Oklahoma after a series of heat-and-drought induced crop failures in the early 1930s. The combination of heat and humidity, unabated by clouds or rainfall, typical of the hottest Julys, brings outside activity to a standstill, all too often resulting in death, mostly to older people with inadequate air conditioning.

Six different Julys have severely tested the upper limit of Oklahomans' endurance of the heat. In July 1901, temperatures exceeded 100 degrees somewhere in the state every day, reaching 110 degrees on 10 of those days. In 1934, the Weather Bureau office in Oklahoma City calculated a statewide average daily maximum temperature of 102.8 degrees. All summer crops failed during the brutal July of 1936, whose daily temperature records have already been mentioned. Every reporting station in the state recorded triple digit temperatures at some time during July 1954 with 99 of the 129 stations reporting temperatures of 110 degrees or higher. Thirty-seven heat-related fatalities were reported during July 1980 as temperatures reached 100 degrees or higher somewhere in the state every day. Seventy-nine of 174 reporting stations reported no measurable precipitation during that month. In July 1998, a heat wave and developing drought led to 20 fatalities during the month and an economic loss to agriculture and related enterprises estimated by the state Department of Agriculture to exceed 2 billion dollars.

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7th of a 12 part series

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