Monthly Climatology Series
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Monthly Climate of Oklahoma-December
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NORMAN - The winter month of December is Oklahoma's second coldest and third driest month. Overnight freezes are the rule, particularly in northern portions of the state, and winter storms often provide the state with snow and ice that create more havoc than the precipitation totals they provide are worth.

The statewide-averaged monthly mean temperature in December is 39.6 degrees. The range of mean temperature from south-to-north is greater than 10 degrees Fahrenheit, ranging from 44.2 degrees at Waurika to 33.5 degrees at Turpin. Since 1892, the historical range of December statewide-averaged mean temperature is from a low of 26.5 degrees in 1983 to a high of 46.5 degrees, achieved in 1933 and, again, in 1965. Normal daily maximum temperatures for the month range from 45.2 degrees at Newkirk to 56.0 degrees at Waurika. Normals of daily minimum temperatures vary from 19.7 degrees at Beaver to 33.9 degrees at Okemah. The state's recorded December temperature extremes are 92 degrees at Ardmore on December 30, 1951 and 19 degrees below zero (-19) at Goodwell on December 12, 1932.

Sub-freezing temperatures are reported on 29.3 days at Beaver during an average December, as compared to only 14.2 days at Hugo or Ardmore. Temperatures dip below 10 degrees an average of 4.2 days during December at Goodwell and Kenton, but only 0.4 of a day at Eufaula. On average of 4.2 days during December, the temperature at Arnett fails to rise any higher than 32 degrees, a condition that occurs at Idabel on an average of only 0.8 of a day.

December precipitation, including rain and melted snow or sleet, when averaged statewide, accumulates only to a depth of 2.04 inches. The historical range of statewide-averaged monthly precipitation is from 0.07 inch in 1980 to 4.98 inches in 1984.The range of normal precipitation, increasing from the northwest to the southeast, is from 0.34 inch at Goodwell to 5.19 inches at Smithville. The extreme southeastern corner of the state received a record-breaking soaking in December 1971, exemplified by the 18.13 inches recorded at Bear Mountain Tower, which established the state record for December precipitation at a given station. The state record for daily precipitation during December (11.34 inches) was established at the same location on December 10, 1971. Stilwell reports measurable precipitation (0.01 inch or more) on an average of 9.4 days during December, while western Oklahoma's Leedey averages only 2.1 such days. Large precipitation amounts are rare in December, as Smithville averages only 2.0 days with as

much as an inch of precipitation while the panhandle stations rarely observe such an event during the twelfth month.

Snow is common in the northwestern portions of the state by late December. Boise City averages 6.1 inches of snow per December. Stations in the far southern portions of the state generally average less than one-half inch of snow during December. Records for snowfall extremes were set at Beaver. That panhandle city, while en route to a state-record seasonal snowfall of 87 inches, received 35 inches of snow in December 1911, including 22 inches reported on the 19th. From 1911 forward, sufficient snow has been on the ground on Christmas morning for large portions of the state to declare a "White Christmas" in seventeen different years. Most snowy Christmases have occurred in the state's northwestern half, but other areas of the state have also been affected from time-to-time. Not all the holiday snowstorms have been enjoyable, either. A winter storm dumped 9 to 11 inches of snow across extreme southern Oklahoma in 1975, leading to the collapse of roofs on an auto repair facility in Madill and a large barn near Hugo. Christmas 1983 was white across most of the state, but by that time, most Oklahomans were ready to cry, "Enough!" Temperatures across the state remained below freezing that month from late on the December 17 through the 30th under a major outbreak of Arctic air that produced some of the highest barometer readings ever recorded in the state. Several re-enforcing intrusions of frigid air helped sustain the persistently low temperatures. A snow cover of an inch or more across most of the state, a combination of both old and new snow, contributed substantially to the cold.

An unfortunate by-product of developing winter storms is the presence of sleet or freezing rain in areas where a layer of air with sub-freezing temperature is overlain by air warm enough to melt snow as it falls. The re-freezing of liquid precipitation, especially when the freezing occurs on contact with frozen ground or other objects whose temperatures are below freezing, creates extremely hazardous travel conditions as roads and vehicles become coated with ice. The accretion of ice on tree limbs, utility lines, and other structures can cause losses of power and communications over wide areas. Major ice storms spread across much of the state, beginning on Christmas Day in 1987 and, again, in 2000. Those two storms left 114,000 and 175,000 customers, respectively, without power for several days. A similar storm in mid-December 1937 left extensive damage to power and telephone lines in central and northern Oklahoma. For many late December travelers, the winter storms that seem inevitable during the week between Christmas and New Year's Day sometimes appear to have become something of an Oklahoma tradition. Other major ice storms struck Oklahoma during the Decembers of 1897, 1916, 1924, 1969, 1972, and 1998.

Winter storms form most of the December highlights. In December 1897, McAlester noted a 2-inch ice cover from the 17th through the 24th. Heavy snowfall, including the December record monthly and daily snowfalls at Beaver, spread across west central and northern Oklahoma in 1911. In late December 1918, some rural northwestern communities were snowbound for a week. Hurley and Goodwell reported 30 and 28 inches of snow, respectively during that month. Drifting from high winds and blowing snow on December 26-28, 1942 closed highways across central and western sections for

two or three days. Several communities were without power for several days. Mangum and Sayre each reported monthly totals of 19 inches. Woodward recorded 31 inches of snow during December 1943, including 17 inches reported on the 10th. Other years with major December snowstorms include 1954, 1960, 1975 (19 inches of snow at Zoe), 1969, and 1997.

Heavy rain is a rarity in December and, hence, so is flooding. McAlester in 1936 and Valliant in 1947 each recorded over 10 inches of rain during December. Considerable flooding was reported in Choctaw, LeFlore, and McCurtain counties following heavy rain on December 9 and 10, 1971. Bear Mountain Tower, Carter Tower, Hee Mountain Tower, and Smithville each recorded more than 15 inches of rain during that particular month. Heavy rains from December 16th through the 19th, 2001 produced considerable flash flooding in eastern Oklahoma along the Illinois and Poteau rivers.

Tornadoes are not a regular December feature. Only 22, occurring in seven different years, are included in the comprehensive database that begins in 1950. Four tornadoes were reported in Oklahoma during each of 1971, 1975, and 1982. There have been other miscellaneous weather events of interest during Decembers past. Heavy sand and dust storms removed topsoil and impaired traffic by reducing visibility in various parts of western Oklahoma during the Decembers of 1933, 1936, and 1939. Straight-line winds reaching as high as 84 miles per hour caused scattered damage in Stillwater on December 22, 1961. In December 1963, grass fires near Boley and between Barnsdall and Tulsa spread with assistance of strong winds.

This December review completes a 12-part series on Oklahoma's climate. Published weather and climate data and summaries obtained from the National Climatic Data Center (NCDC) in Asheville, NC were supplemented by observations from the Oklahoma Mesonet. Facilities of the Oklahoma Climatological Survey (OCS) and the brains of several of OCS's scientists were used to assimilate and verify information contained herein. Tornado information was gathered from "Significant Tornadoes: 1880-1989" by Thomas P. Grazulis, from routine reports published by NCDC and the Storm Prediction Center, and from additional information provided by Doug Speheger of the National Weather Service office in Norman.

Anecdotal reports, particularly from the final 10 years of Oklahoma's predecessor twin territories and the first 50 years of her statehood, were gleaned from the Oklahoma edition of NCDC's monthly publication, "Climatological Data." In those earlier times, responsibility for publication of official reviews of local climate rested with the local weather offices. Special mention is hereby given to two authors of many of those early summaries: J. Pemberton Slaughter and H F. Wahlgren. Each month from 1905 through 1943, those two gentlemen prepared careful and complete summaries of Oklahoma's weather. They described extreme weather events, local crop conditions, and the state of the climate in a straightforward, but still elegant, manner. Mr. Slaughter, the Oklahoma City station chief for the Oklahoma City office of the U. S. Weather Bureau from December 30, 1905 until his death on December 22, 1932, wrote the monthly summaries

throughout his tenure. Mr. Wahlgren's written contributions began with the December 1932 issue and continued through June 1943.

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