

OKLAHOMA MONTHLY CLIMATE SUMMARY

JULY 2005



July was rather ordinary, climatically speaking, if not a tad on the cool side. The statewide-averaged temperature was nearly two degrees below normal, the 31st coolest July on record. The statewide-averaged precipitation, buoyed by a wet first week, managed to finish barely above the established normal, but ranked an underwhelming 53rd wettest since 1892. The bouts of severe weather during the month were typical July fare – wind storms barreling through the state from the north. The tornado drought continued as no tornadoes were reported for the month. Preliminary totals through the end of July indicate 22 tornado touchdowns for the year thus far, less than half the normal total of 46 for January-July, the 8th lowest such total since record-keeping began in 1950.

Precipitation

South central Oklahoma received some much-needed moisture during July, breaking that area’s battle with droughty conditions. Much of the remainder of the state was close to or above normal for the month, save for the extreme southeast and extreme western Panhandle. The southeast had the largest deficit at over 1.5 inches below normal, the 35th driest July on record for that area. In contrast, south central Oklahoma received nearly five inches of rainfall, well over two inches above normal and enough to rank as the 14th wettest July for that area on record. The lack of precipitation in the southeast continued to exacerbate that area’s drought woes, dropping the year-to-date total to nearly 10 inches below normal, the 8th driest January-July period on record for that corner of the state.

Temperature

Hot weather during the month’s middle was bracketed by deliciously cool weather, complete with lows near 50 degrees during the final week. Most of the state was between one and two degrees below normal for the month as a whole with the exception of the southeastern corner, which finished near normal for the month. The cool July weather dented the year-to-date warmth, dropping the statewide-averaged temperature for the January-July period to just over one degree above normal, the 24th warmest such period on record.

July 2005 Statewide Extremes			
Description	Extreme	Station	Date
High Temperature	106°F	Grandfield, Claremore	July 3rd, July 23rd
Low Temperature	47°F	Mangum	July 28th
High Precipitation	6.97 in.	Durant	
Low Precipitation	0.52 in.	Kenton	

July Daily Highlights

July 1-5: July was greeted with violent weather early as a round of severe storms struck in the northwest on the 1st. Winds of up to 70 mph and quarter-sized hail were reported with the storms. Rainfall totals were generally near one inch, although a few locations received nearly a half-inch more. More storms occurred overnight on the 2nd due to an outflow boundary in the southwest, a remnant of the previous day’s storms. Severe storm winds overturned and sank a boat on Tom Steed Lake in Kiowa County. Conditions quieted down on the 2nd after the storms exited the state, and temperatures warmed into the 80s and 90s. The 3rd ended up as one of the hottest days of the month, with southwestern Oklahoma baking in triple-digit temperatures. Grandfield recorded 106 degrees, tying it with Claremore (on the 23rd) as the hottest reading of the month. More severe storms moved across the state that night and into the early morning hours on the 4th. All areas of the state experienced storms except for the extreme southwest. Winds from 60-80 mph were reported in many areas, peaking with a 102 mph wind gust at Blackwell. Winds of 81 mph were reported at Lahoma. Widespread wind damage was reported with these storms, including downed power lines, tree damage, and damage to structures. A brick storage building and several car ports were destroyed in Braman, and roofs were blown off in Blackwell. The police station’s antenna in Blackwell was another casualty to the storms. Yet another night of storms awaited residents on the 5th. A large storm complex moved south out of Kansas and merged with another large storm complex across southern Oklahoma. Shawnee reported nearly 3.5 inches of rain, while amounts between 2-3 inches were widespread across central and southern sections. Temperatures throughout this period were seasonable, with the exception of the exceedingly hot day on the 3rd.

July 6-9: The widespread storms ended on the 6th with just a few intense storms confined to the southwest. Rainfall amounts were light in that area, generally less than one-half of an inch. The weather for the rest of the period was pleasant and seasonable with plenty of sunshine, highs in the 80s and 90s, and lows in the 60s and 70s.

July 10-15: Tropical moisture from the remnants of Hurricane Dennis crept into eastern Oklahoma on the 10th, providing the fuel for a few showers and storms. More storms on the 11th brought rain to the west, and cooled that area down enough to keep high temperatures in the 80s, while the rest of the state suffered in the upper 90s and 100s. Severe storms were on tap for the 12th as well. A complex of severe storms moved south into north central Oklahoma from Kansas. Strong winds of up to 69 mph and quarter-sized hail were the main severe threats from these storms. The Marshall Mesonet site reported nearly 1.5 inches of rainfall that afternoon. Scattered showers and storms occasionally popped up through the next three days, with daytime highs remaining summer-like; upper-90s and 100s were common across the state.

July 16-18: This three-day period was marked by lots of sunshine and warm weather. Light and variable winds on the 16th gave way to strong southerly winds on the 17th, along with triple-digit temperature readings. A cold front approached from the north on the 18th and acted as a focus for showers and storms late that night. A potent storm moved through Woods and Major counties, dropping tennis ball size hail on Fairview. High winds blew five railroad cars off the tracks three miles northeast of Alva.

July 19-25: A fairly innocuous period, the next seven days were marked by lots of sultry weather. High temperatures soared into the triple digits across the state, and heat indices outpaced even those readings. Oklahoma City reached 100 degrees on the 22nd for the first time since August 28th of the previous year. Winds gusted quite strong out of the south during this period, at times over 30 mph. Rainfall was very sparse under the sinking dome of high pressure camped over the state, although Haskell did receive nearly an inch of rainfall on the 23rd from a wayward storm.

July 26-27: Welcome relief came in the form of a cold front early on the 26th. The cooler weather came complete with showers and storms as winds shifted to the north. Highs only reached the 70s and 80s in the northwest, although temperatures still soared into the 90s in the southeast, ahead of the front. Burneyville recorded over 1.5 inches of rain on the 26th, with a few severe wind reports thrown in from the area. The cold front lingered in the southeast on the 27th, and the storm activity was restricted to south central and southeast Oklahoma. Waurika received over two inches of rainfall with the storms. Lows fell into the mid-50s across the northern one-third of the state, and highs were once again limited to the 70s and 80s.

July 28-31: Remaining dry, the month's final four days saw a gradual warmup as high pressure began to dominate once again. Gage reported a low temperature of 51 degrees on the 29th, while Erick and Arnett fell to 52 degrees. By the month's final day, however, summer was in full bloom again with highs in the 90s and 100s under abundant sunshine.

July 2005 Statewide Statistics			
Temperature			
	Average	Depart.	Rank (1892-2005)
Month (July)	79.9°F	-1.7°F	31st Coolest
Season-to-Date (Jun-Jul)	78.7°F	-0.4°F	50th Coolest
Year-to-Date (Jan-Jul)	60.3°F	1.1°F	24th Warmest

Precipitation			
	Total	Depart.	Rank (1892-2005)
Month (July)	2.85 in.	.11 in.	53rd Wettest
Season-to-Date (Jun-Jul)	6.95 in.	-0.05 in.	52nd Wettest
Year-to-Date (Jan-Jul)	17.24 in.	-4.65 in.	28th Driest

Depart. = Departure from 30-year normal

July 2005 Severe Weather

Significant Tornadoes (F2 or greater)

No significant tornadoes were reported in the state.

Hail (2 inches in diameter or greater)

Size (in.)	Location	County	Day
2.50	Fairview	Major	18

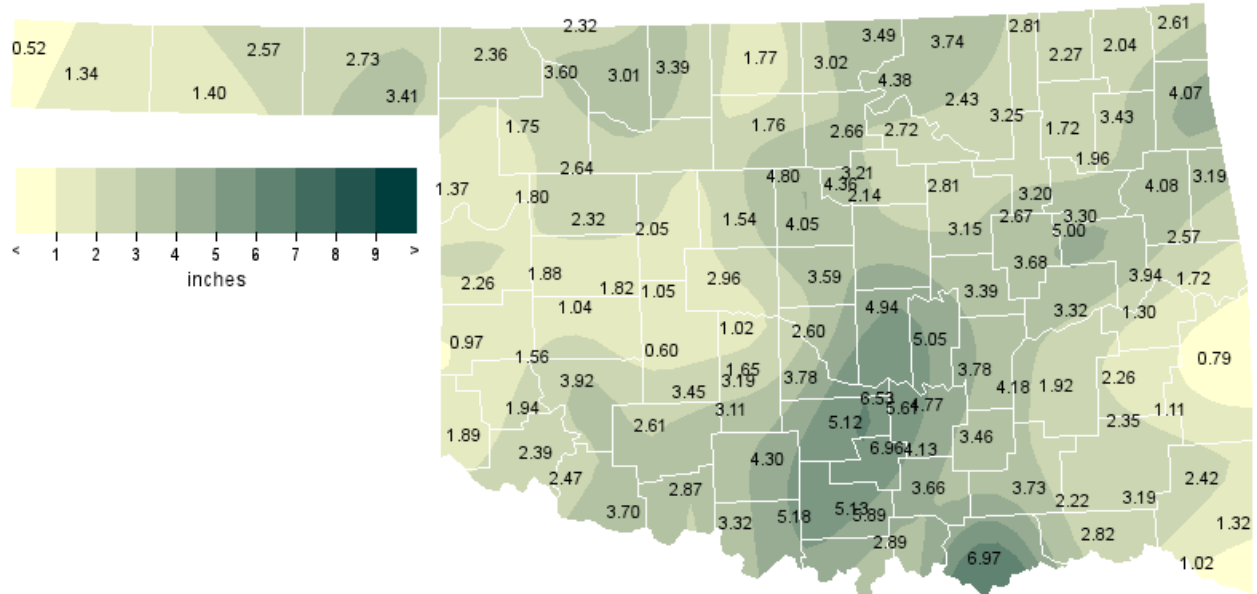
Wind Gusts (70 mph or greater)

Speed (m.p.h)	Location	County	Day
70	Hooker	Texas	1
70	4 WNW Bessie	Washita	1
70	4 SSE Blackwell	Kay	4
70	3 N Milfay	Creek	4
71	Elmwood	Beaver	1
71	6 NW Kaw City	Kay	3
71	Ponca City	Kay	4
71	Ponca City	Kay	4
72	2 SSW Minco	Grady	4
75	3 E Meno	Major	4
75	2 SSW Minco	Grady	4
78	Ponca City	Kay	4
80	Blackwell	Kay	4
81	3 E Meno	Major	4
102	Blackwell	Kay	4

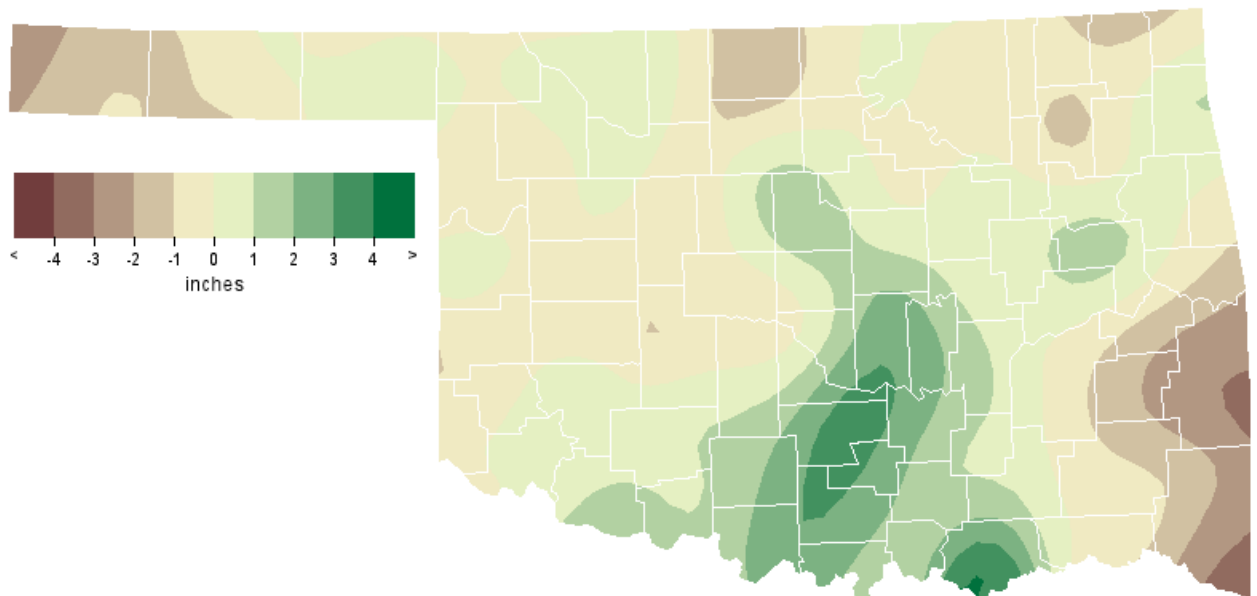
Flooding

Location	County	Day
Atoka	Atoka	5

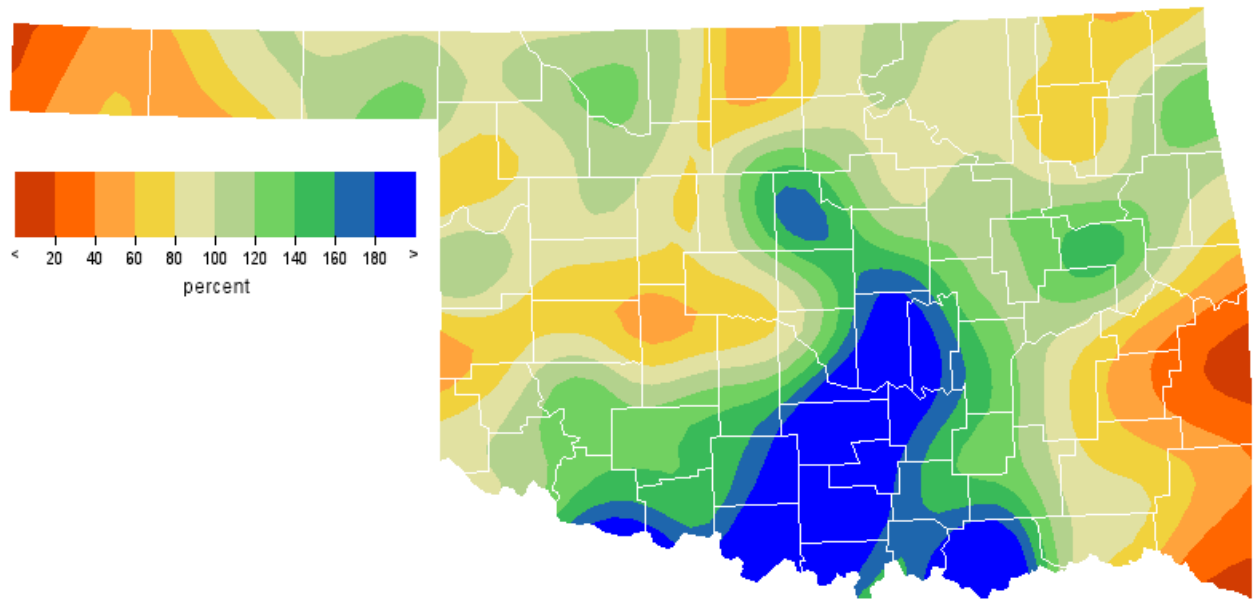
July 2005 Observed Precipitation



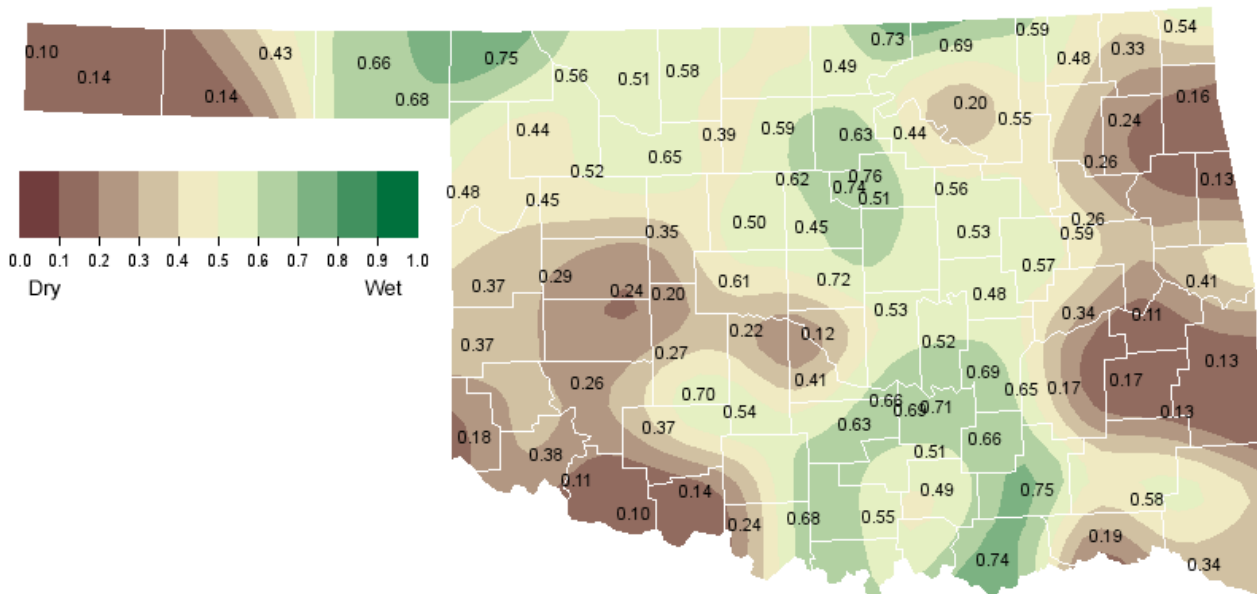
July 2005 Departure from Normal Precipitation



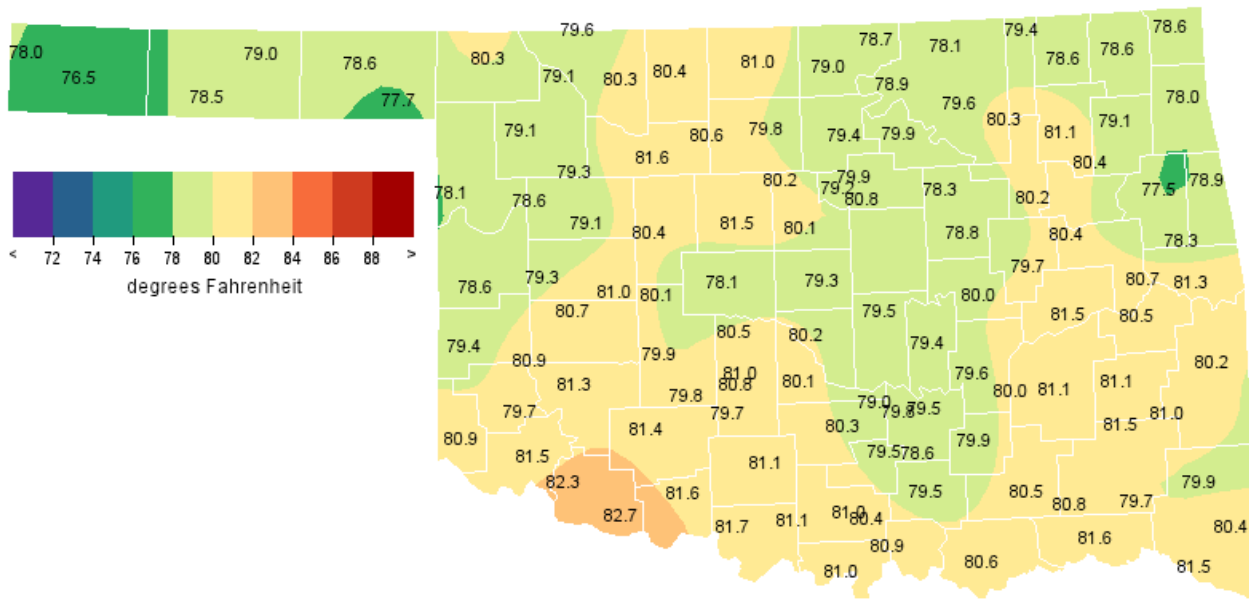
July 2005 Percent of Normal Precipitation



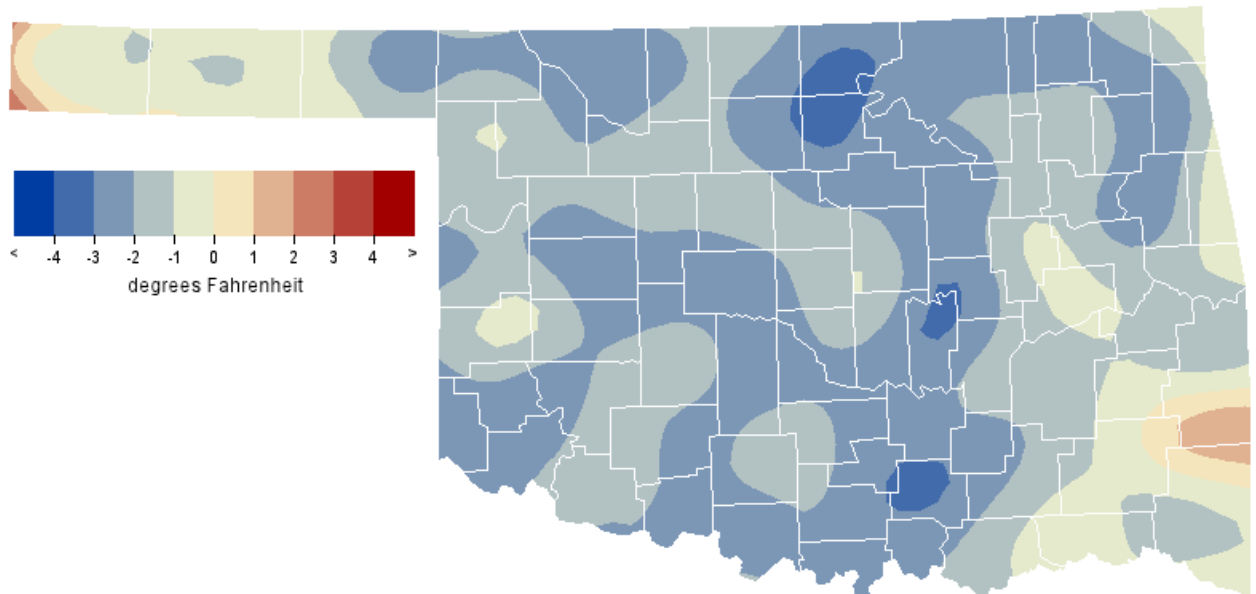
July 2005 Average Soil Moisture at 25cm



July 2005 Average Temperature



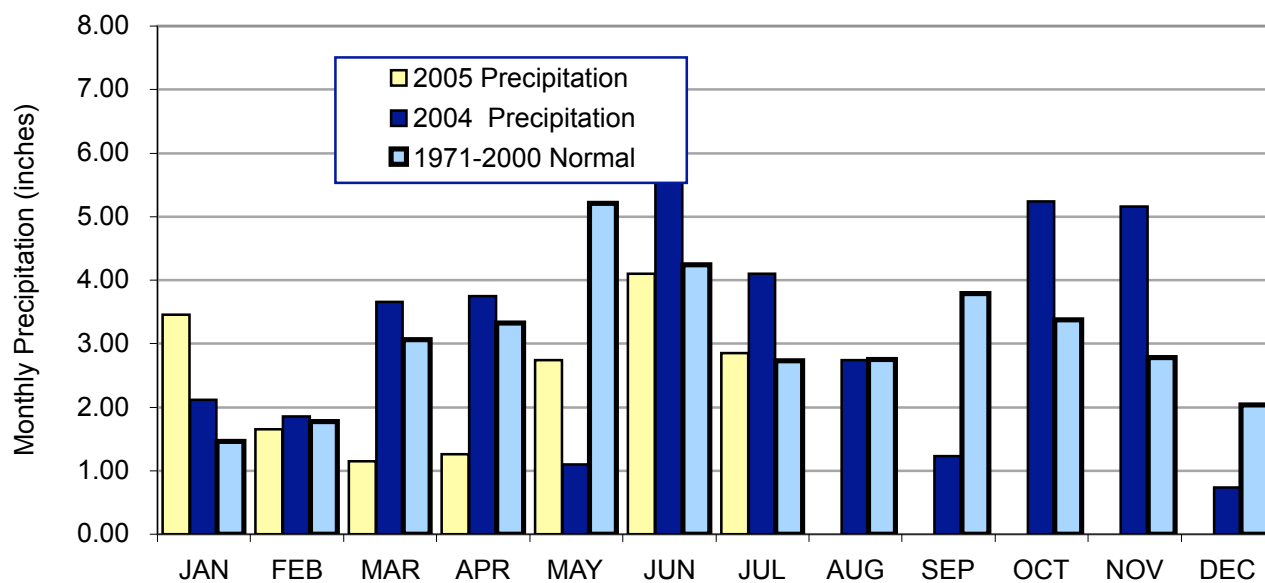
July 2005 Departure from Normal Temperature



July 2005 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Jul-04
Panhandle	1.96	-0.56	39th Driest	9.79 (1950)	0.37 (1935)	3.61
North Central	2.67	-0.31	50th Driest	9.06 (1950)	0.13 (1983)	3.28
Northeast	2.93	-0.23	54th Driest	9.31 (1959)	0.00 (1914)	7.54
West Central	1.74	-0.39	42nd Driest	7.21 (1950)	0.05 (1936)	2.72
Central	3.23	0.66	40th Wettest	10.17 (1950)	0.16 (1980)	4.78
East Central	3.18	0.20	49th Wettest	10.15 (1950)	0.17 (1930)	8.58
Southwest	2.44	0.26	51st Wettest	6.30 (1975)	0.03 (1980)	4.13
South Central	4.85	2.31	14th Wettest	8.45 (1950)	0.08 (1998)	5.69
Southeast	1.95	-1.63	35th Driest	13.02 (1950)	0.00 (1930)	5.38
Statewide	2.85	0.11	53rd Wettest	9.26 (1950)	0.41 (1980)	5.12

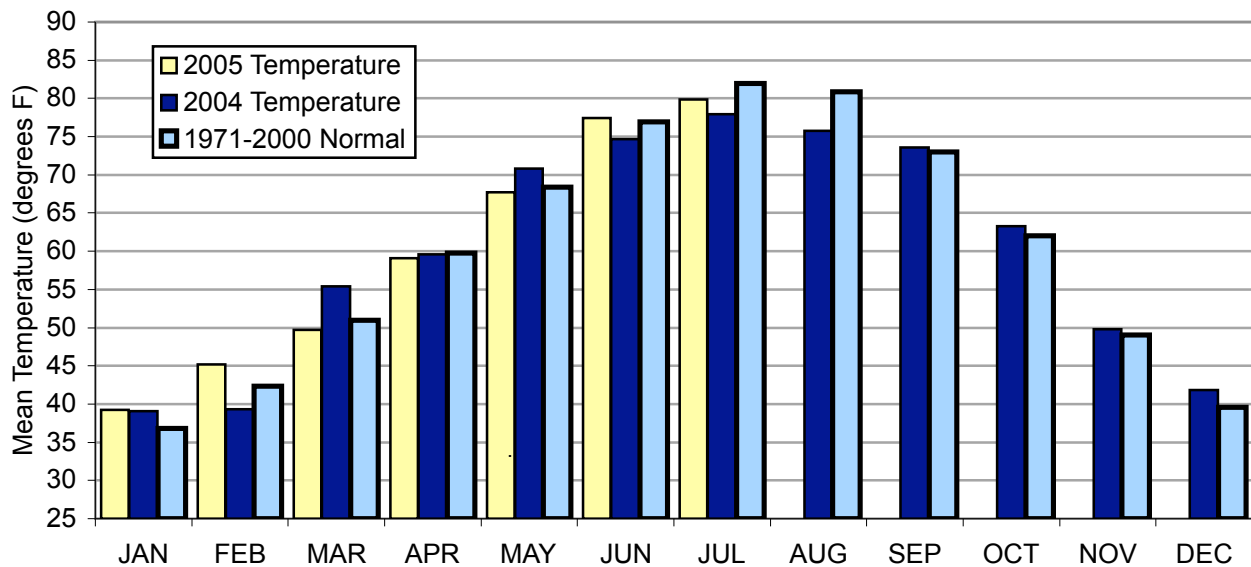
2004 and 2005 Statewide Precipitation Monthly Totals vs. Normal



July 2005 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Jul-04 (F)
Panhandle	78.3	-1.3	46th Coolest	85.4 (1980)	73.2 (1906)	76.2
North Central	79.8	-2.4	19th Coolest	89.6 (1954)	75.8 (1950)	78.0
Northeast	79.3	-1.6	33rd Coolest	89.2 (1954)	75.0 (1906)	77.2
West Central	79.8	-1.9	31st Coolest	88.1 (1954)	75.8 (1906)	78.5
Central	79.9	-2.1	29th Coolest	88.6 (1954)	75.8 (1906)	78.1
East Central	80.0	-1.3	35th Coolest	88.7 (1954)	75.9 (1906)	78.4
Southwest	81.0	-2.2	26th Coolest	89.1 (1980)	77.9 (1906)	79.9
South Central	80.3	-2.4	20th Coolest	89.1 (1998)	77.2 (1906)	78.6
Southeast	80.8	-0.1	48th Coolest	87.5 (1954)	76.4 (2004)	76.4
Statewide	79.9	-1.7	31st Coolest	88.1 (1954)	75.9 (1906)	77.9

2004 and 2005 Statewide Temperature Monthly Averages vs. Normal



Mesonet Extremes for July 2005

Climate Division	High Temp (F)		Low Temp (F)		High Monthly Rainfall (inches)		High Daily Rainfall (inches)				
	Day	Station	Day	Station	Station	Station	Day	Station			
Panhandle	105	24th	Hooker	48	28th	Buffalo	3.41	Slapout	1.53	5th	Hooker
North Central	104	23rd	Lahoma	51	28th	Breckenridge	3.60	Freedom	1.89	3rd	Newkirk
Northeast	106	23rd	Claremore	53	28th	Nowata	4.38	Burbank	1.76	4th	Pawnee
West Central	102	3rd	Retrop	49	28th	Butler	2.32	Putnam	1.55	4th	Watonga
Central	104	22nd	Kingfisher	49	28th	Kingfisher	5.05	Bowlegs	3.43	4th	Shawnee
East Central	104	23rd	Sallisaw	55	28th	Cookson	5.00	Haskell	2.12	27th	Haskell
Southwest	106	3rd	Grandfield	47	28th	Mangum	3.92	Hobart	2.64	5th	Hobart
South Central	103	3rd	Ringling	58	29th	Burneyville	6.97	Durant	3.25	5th	Durant
Southeast	105	22nd	Talihina	56	31st	Talihina	3.19	Cloudy	1.16	12th	Mt Herman
Statewide	106	23rd	Claremore	47	28th	Mangum	6.97	Durant	3.43	4th	Shawnee

August Climatological Outlook

NORMAN - According to published daily normal temperatures, the hottest period of the long Oklahoma summer extends from mid-July through mid-August. The gradually shortening days and the occasional arrival of cooler weather from the North frequently bring the state modest relief from the heat by late August. Overall, August, the third and final month of the climatological summer, is Oklahoma's second hottest, fifth driest, and least windy month. Tornado frequency is at its lowest of the March-through-October warm season. Lightning deaths are more frequent in August than during any other month.

Precipitation

Mean: 2.84 inches
Wettest year: 1906, 6.54 inches
Driest year: 2000, 0.18 inches
Wettest location: Pawnee, 3.76 inches
Driest location: Meeker, 1.93 inches
Most recorded: 15.15 inches, Holdenville, 1906

The normal statewide monthly temperature is 80.9 degrees Fahrenheit. Oklahoma's hottest August, according to National Weather Service records that date from 1892, occurred in 1936 when the state's average monthly temperature was a scorching 87.2 degrees. This is the second highest statewide-averaged monthly temperature (all months) recorded in Oklahoma during the 111 years with comprehensive records. The state's record daily maximum temperature of 120 degrees was equaled at Altus and Poteau on August 12 and 10, 1936, respectively. Relatively cool weather prevailed during August 1915, when the state recorded its lowest August statewide-average monthly temperature, 73.2 degrees. The lowest daily minimum temperature of 39 degrees was recorded at Dacoma on August 26, 1910.

Temperature

Mean: 80.9 degrees
Hottest August: 1936, 87.9 degrees
Coolest August: 1915, 73.9 degrees
Hottest location: Waurika, 84.1 degrees
Coolest location: Boise City, 75.3 degrees
Hottest recorded: 120 degrees, Poteau, August 10, 1936
Altus, August 12, 1936
Coldest recorded: 41 degrees, Goodwell, August 15, 1915

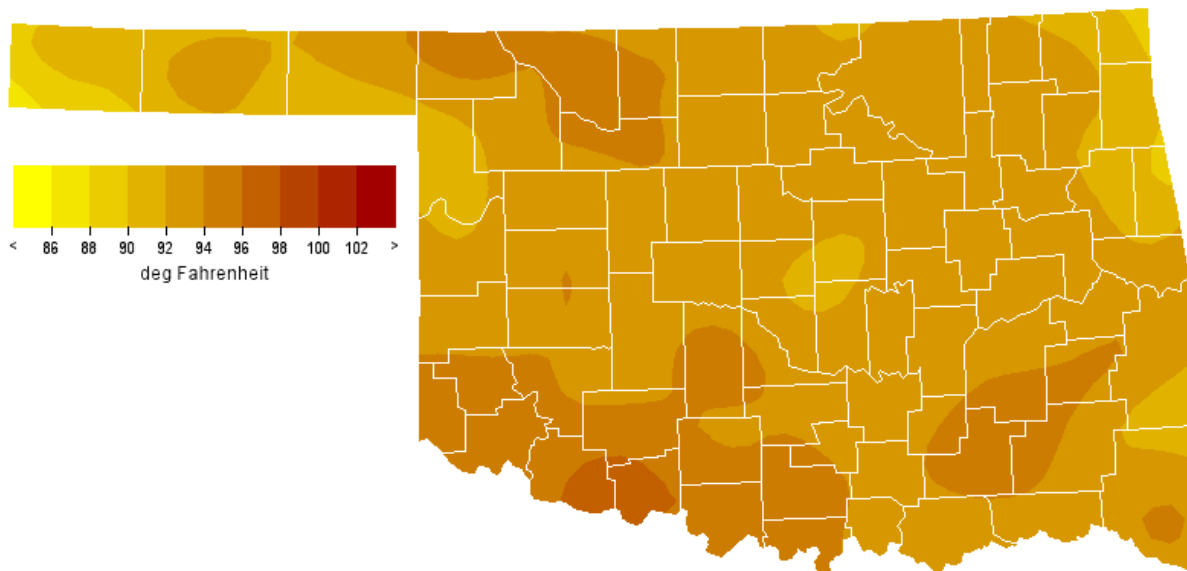
Isolated or widely scattered thunderstorms provide most of the state's August precipitation. As a result, little systematic variation can be seen in the statewide precipitation pattern. At 3.76 inches, Pawnee has the greatest normal precipitation for the month. Meeker, near the center of the state, has the lowest normal monthly accumulation, 1.93 inches. Statewide-averaged monthly precipitation during August has ranged from 6.54 inches in 1906 to a dismal 0.14 inch during the droughty summer of 2000. The greatest August precipitation recorded by any reporting station was 15.15 inches at Holdenville in 1906. A 10.34-inch deluge at Carter Tower in northern McCurtain County on August 28, 1947 is the greatest daily precipitation recorded at a regular observing station during August. Precipitation is observed (.01 inch or more) on an average of as many as 7.8 days at Stilwell and as few as 3.5 days at Bixby. Daily rainfall events of two inches or greater are no more than an every-other-year occurrence everywhere in the state.

Severe weather appears in the state during August, but its effects are more notable anecdotally than they are apparent in statistics. The exception is that August has presented the state with more lightning deaths (21) than any other month since such record-keeping began in 1959. Only July among the months accounts for more total casualties (deaths and injuries) from lightning strikes. The average number of tornado for the month of August is 1.4. Of the 80 August tornadoes reported in the state between 1950 and 2003, no fatalities and only three injuries (1 in 1959 and 2 in 1982) resulted. Oklahoma's August tornado totals include a high of 13 in 1979. No tornadoes were observed during 22 of the 54 years with comprehensive statistics.

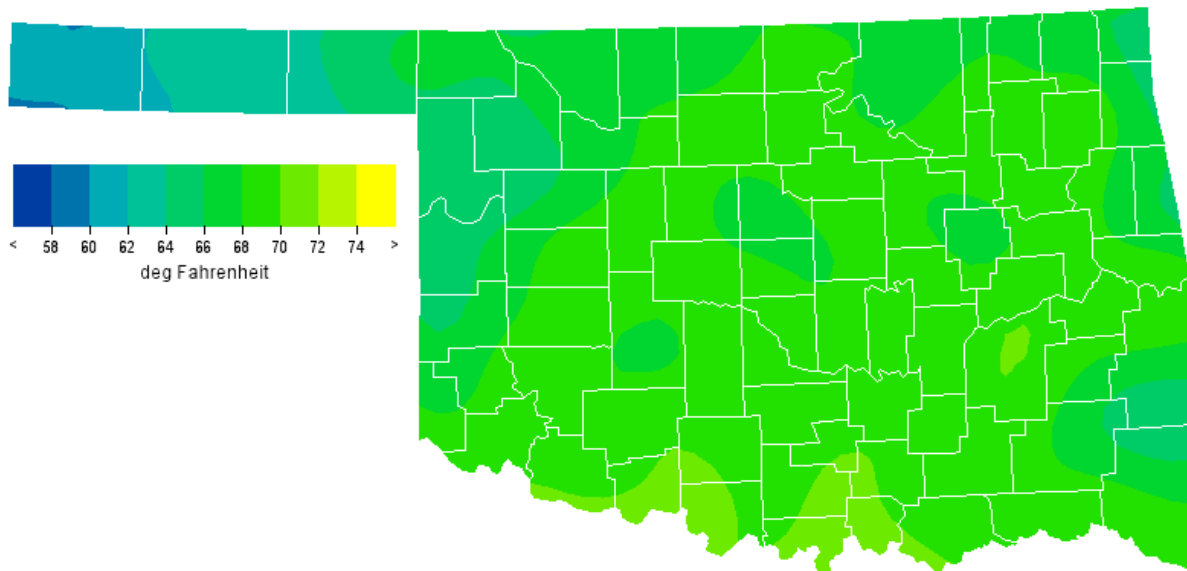
Tornadoes

Average August Tornadoes: 2
Most: 13 (1979)

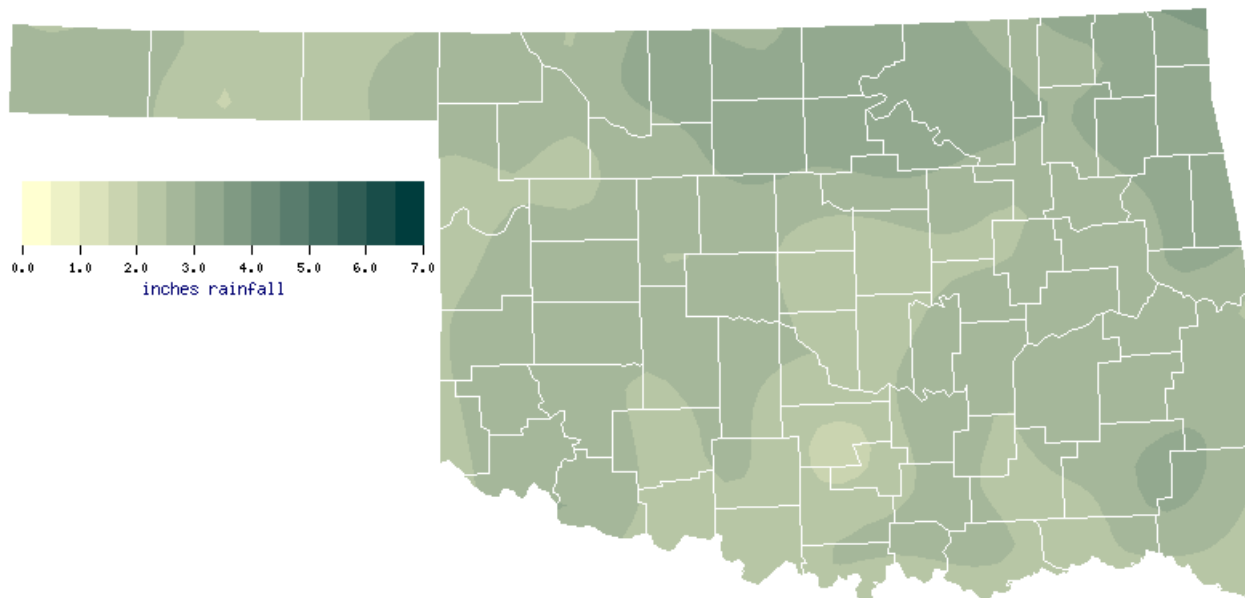
August Normal Monthly Maximum Temperature (1971-2000)



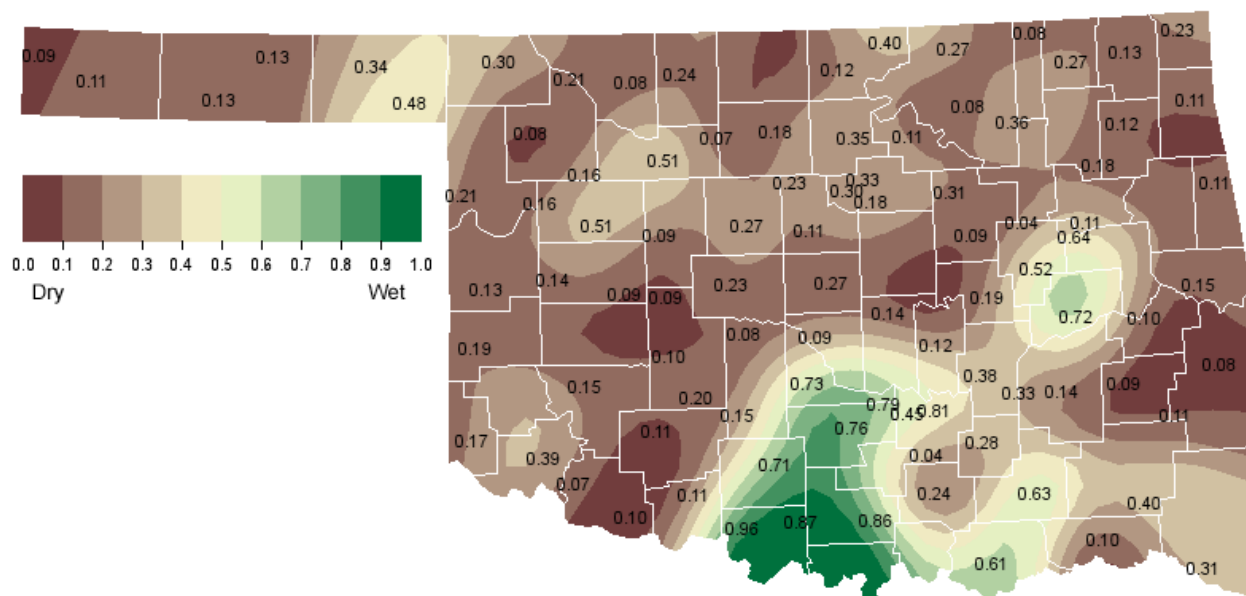
August Normal Monthly Minimum Temperature (1971-2000)



August Normal Precipitation (1971-2000)

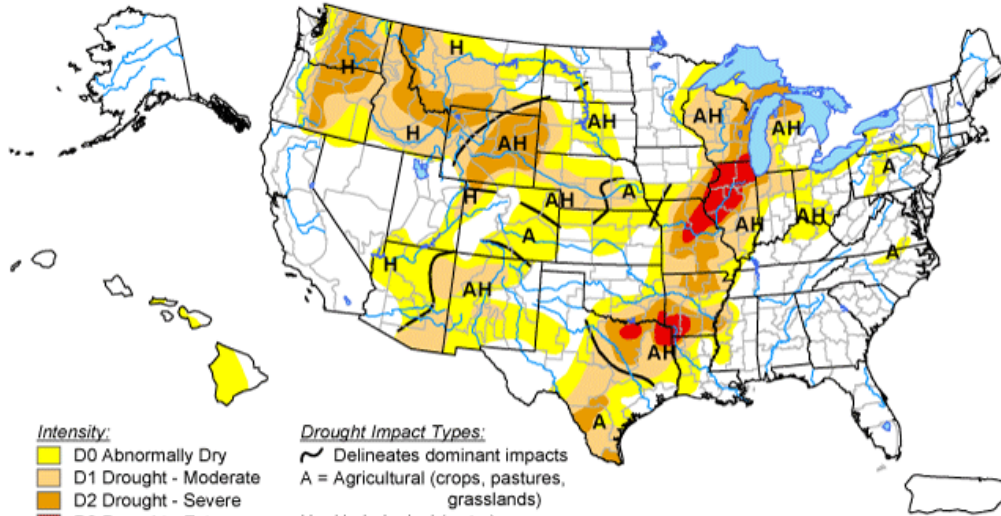


August 1, 2005 Soil Moisture Conditions at 25cm



U.S. Drought Monitor

July 26, 2005
Valid 8 a.m. EDT



Intensity:
 D0 Abnormally Dry
 D1 Drought - Moderate
 D2 Drought - Severe
 D3 Drought - Extreme
 D4 Drought - Exceptional

Drought Impact Types:
 ~ Delineates dominant impacts
 A = Agricultural (crops, pastures, grasslands)
 H = Hydrological (water)
 (No type = Both impacts)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, July 28, 2005

Author: C. Tankersley/J. Enloe, NOAA/NESDIS/NCDC

<http://drought.unl.edu/dm>



U.S. Seasonal Drought Outlook

Through October 2005

Released July 21, 2005

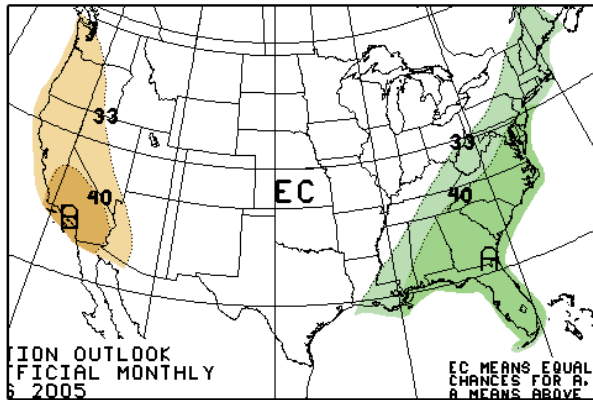


KEY:

- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance, so use caution if using this outlook for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are schematically approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

August 2005 U.S. Precipitation Forecast

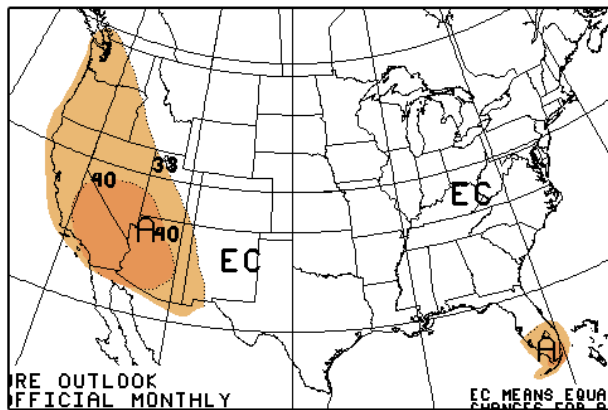


Percent Likelihood of Above or Below Average Precipitation*

	5% - 10%	A = Above
	0% - 5%	
	0% - 5%	B = Below
	5% - 10%	

*EC indicates no forecasted anomalies due to lack of model skill.

August 2005 U.S. Temperature Forecast



Percent Likelihood of Above and Below Average Temperatures*

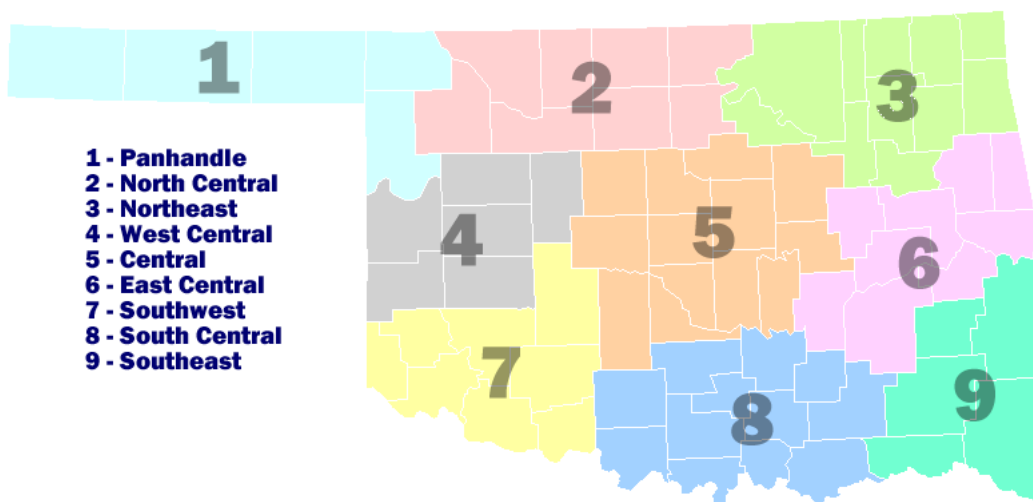
	10% - 20%	A = Above
	5% - 10%	
	0% - 5%	B = Below
	0% - 5%	
	5% - 10%	

*EC indicates no forecasted anomalies due to lack of model skill.

August Climate Normals

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	92.3	64.1	78.2	2.48
2	93.4	67.6	80.6	3.01
3	92.6	68.1	80.4	3.13
4	93	67.7	80.4	2.63
5	93.2	68.8	81	2.61
6	92.6	68.5	80.6	2.77
7	94.7	68.8	81.8	2.6
8	94.1	69.5	81.8	2.49
9	93.5	67.7	80.6	2.72
Statewide	93.3	68	80.7	2.73

Oklahoma Climate Divisions



Interpretation Information

Mean Daily Temperature: Calculated from an average of the daily maximum and minimum temperatures. Daily averages are summed for each day, and then divided by the number of valid data points – typically the number of days in the month. Although this may differ from the “true” daily average, it is consistent with historical methods of observation and comparable to the normals and extremes for stations and regions of the state.

Degree Days: Degree Days are calculated each day of the month for which there is a temperature report and the mean temperature for the day is less than (Heating Degree Days) or greater than (Cooling Degree Days) 65 degrees. Daily values are summed to arrive at a monthly total. HDD/CDD are qualitative measures of how much heating/cooling was required to maintain a comfortable indoor temperature. Missing observations may result in an artificially high or low value.

Severe Weather Reports: Only the most significant events are listed. Tornadoes of F2 or greater strength (on the 0-5 Fujita scale), hail of two inches diameter or greater, and wind speeds of 70 miles per hour or above are listed. National Weather Service defines storms as severe when they produce a tornado, hail of three-quarters inch or greater, or wind speeds above 57 miles per hour (50 knots). For additional reports, contact the Oklahoma Climatological Survey, Storm Prediction Center, or your local National Weather Service forecast office.

Soil Moisture: The soil moisture variable displayed is the Fractional Water Index (FWI), measured at a depth of 25 cm. This unitless value ranges from very dry soil having a value of 0, to saturated soils having a value of 1.

Additional Resources

Sunrise / Sunset tables

U.S. Naval Observatory: <http://aa.usno.navy.mil/data>

Severe Storm Reports

Storm Prediction Center: <http://spc.noaa.gov/climo/>

National Climatic Data Center (more than about 4-5 months old):

<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>

Seasonal Outlooks

Climate Prediction Center:

http://www.cpc.ncep.noaa.gov/products/OUTLOOKS_index.html

Climate Calendars and other local weather and climate information

Oklahoma Climatological Survey: <http://climate.ocs.ou.edu> or

<http://www.ocs.ou.edu/>

E-mail (ocs@ou.edu) or telephone (405/325-2541)



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