

# OKLAHOMA MONTHLY CLIMATE SUMMARY

## MARCH 2005



As a transition month from winter to spring, March can bring a veritable smorgasbord of weather to the state. Such was the case with March 2005, which saw everything from snow to tornadoes. Overall, the state was just a bit cooler than normal, and fairly dry, ranking as the 20<sup>th</sup> driest March on record. The year's first tornadoes struck the state on the 21<sup>st</sup> – the first full day of spring, oddly enough. According to preliminary reports, all four tornadoes which touched down that day were weak, rated in the lowest Fujita Scale ranking of F0. Damage from the tornadoes was light, and no injuries were reported. The tornadoes were the first for the state since six twisters touched down during November of last year. A sudden snowstorm for far western Oklahoma was the other major weather occurrence of note. More than a half of a foot of snow fell in Roger Mills County on the 15<sup>th</sup>. Fortunately, ground temperatures were above 50 degrees prior to the snow, so travel problems were practically non-existent.

The month lived up to its billing of “entering like a lion.” It did not appear to leave like a lamb, however. The winds were strong somewhere in the state on virtually every day during March. Twenty-nine of the month's 31 days saw a wind gust of greater than 30 mph somewhere within the state. In fact, on 18 of those days, the wind gusted to greater than 40 mph, and six of those days had gusts above 50 mph.

### Precipitation

Many parts of the state were significantly dry for the second consecutive month. The only exception appeared to be the southeastern one-third and portions of the Oklahoma Panhandle. Combined, the statewide-averaged precipitation total was nearly two inches below normal. Hardest hit were central and south central Oklahoma, where several stations failed to receive more than one-tenth of an inch of liquid precipitation. South central Oklahoma was nearly three inches below normal for the month, the 9<sup>th</sup> driest March since 1895 for that region. Central and southwestern sections fared almost as poorly, with both finishing with the 14<sup>th</sup> driest such periods on record. The Oklahoma Panhandle came closest to the normal precipitation mark, but still finished close to an inch below normal. Cumulatively, precipitation for the year's first three months managed to finish just a tad below normal for the 41<sup>st</sup> wettest such period on record.

### March 2005 Statewide Extremes

Description	Extreme	Station	Date
High Temperature	90°F	Altus	March 12th
Low Temperature	11°F	Boise City	March 16th
High Precipitation	3.76 in.	Clayton	
Low Precipitation	0.04 in.	Ninnekah	

### Temperature

Oklahoma's statewide-averaged temperature for the month was below normal for the first time since August of last year. Not all areas of the state were below normal, however. The western half of the state, with the exception of the western two-thirds of the Panhandle, was actually above normal for the month. Significantly cool areas in the far western Panhandle and far eastern Oklahoma managed to lower the statewide average to a below normal reading. With the inclusion of the significantly warm January-February period, the year-to-date statewide-averaged temperature remained very much above normal. The three-degree positive temperature anomaly ranks the 2005 January-March period as the 14<sup>th</sup> warmest such period on record.

**March 1-6:** The month's first six days found the state enjoying rather uneventful weather. Temperatures were seasonable, for the most part. Weak cold fronts visited the state on the 2<sup>nd</sup> and 5<sup>th</sup>, although temperatures were not greatly affected. There were a few instances of precipitation, but any organized rainfall stayed on the periphery of the state's borders. The winds picked up on the 6<sup>th</sup> with the approach of an upper-level disturbance from the west. Gusts of over 30 mph were reported in western sections of the state.

**March 7-12:** A cold front entered the state on the 7<sup>th</sup>, generating a thin band of light rain. Rainfall amounts were light, with the Mesonet site at Sallisaw leading the way at a paltry 0.32 inches. Temperatures did not fall far after the frontal passage, but the winds charged in from the north at over 30 mph, with gusts reported in the northern half of the state of 50 mph. Temperatures were below the seasonal average on the 8<sup>th</sup>, with lows falling below freezing, and highs struggling to

exceed 60 degrees. The weather became much more pleasant the proceeding days, culminating in a very pleasant day on the 12<sup>th</sup>. High temperatures on that day were in the 80s for the most part, with the extreme northern section of the state staying in the upper 70s.

**March 13-17:** The main highlight of this period was the surprise snowstorm that buried parts of extreme western Oklahoma under a half of a foot of snow on the 15<sup>th</sup>. An accumulation of seven inches was reported in Durham, and a six inch amount was reported in Reydon. Lesser amounts were reported fanning outward from there. Ground temperatures of up to 50 degrees made quick work of the snow, and light rain was the rule elsewhere. By the 17<sup>th</sup>, temperatures had rebounded back into the 60s for the most part.

**March 18-21:** Spring arrived with a flourish on the 20<sup>th</sup>, as severe thunderstorms plagued the state for the last two days of this period. Following a tranquil couple of days, a vigorous upper-level storm approached from the west, kicking up winds from the south which carried moisture from the Gulf of Mexico up over the state. Showers and thunderstorms struck the western half of the state on the 20<sup>th</sup>, but the main show was reserved for the 21<sup>st</sup>. With the arrival of the upper level low pressure system, thunderstorms once again fired up during the day. Locations in Hughes, Seminole, and Pottawatomie Counties reported rain between one and two inches, and the Oklahoma Meosnet site at Bowlegs recorded nearly three inches of rain. Those same storms spawned two tornadoes, although both were of the “weak” variety. The first tornado touched down near Cromwell, less than a mile from where a school was in session. A metal business structure was reported damaged from the twister, along with several other structures. The second tornado in this area touched down east of Holdenville in Hughes County. Two more weak tornadoes were reported in Alfalfa County near Amorita and Byron, respectively. Again, damage to structures was reported, but nothing widespread. No injuries were reported with any of the tornadoes.

**March 22-27:** The exit of the upper-level low pressure system to the east preceded improving weather conditions. Low clouds, cool temperatures and drizzle on the 22<sup>nd</sup> gave way to highs in the 70s by the 24<sup>th</sup>. Unfortunately, the warmer weather was accompanied by more severe thunderstorms, although nothing to the extent of what occurred on the 21<sup>st</sup>. Large hail was the main severe threat with these storms, with quarter-sized hail reported near Garber in Garfield County. Cooler weather took hold for the next three days, a bit unseasonable with highs in the 50s and 60s.

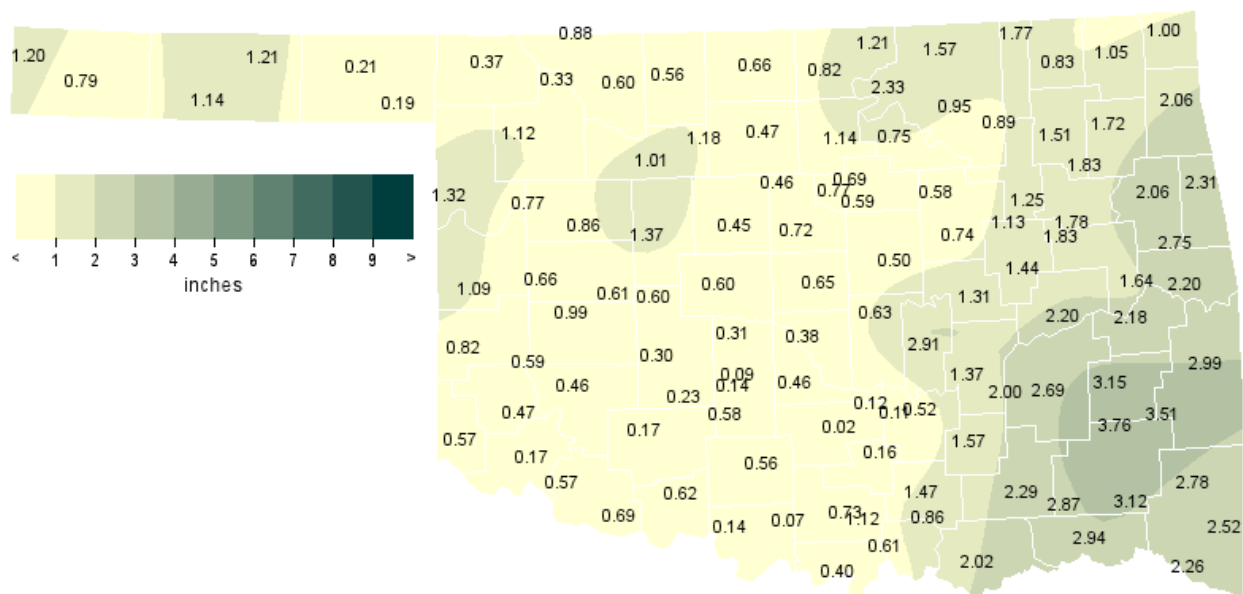
**March 28-31:** The month’s final four days were much more spring-like than the preceding few days. Highs in the 70s and 80s on the 28<sup>th</sup>, along with low humidity and strong southerly winds, prompted fire danger warnings across the state. Winds gusted to over 40 mph on the 29<sup>th</sup> as well. A cold front entered the state on the month’s final day, bringing with it a few scattered thunderstorms and wind gusts over 40 mph in the northwest. The heaviest rainfall was reported from far southeastern Oklahoma; the Oklahoma Mesonet site at Wilburton recorded just under three-quarters of an inch.

<b>March 2005 Statewide Statistics</b>			
<b>Temperature</b>			
	<b>Average</b>	<b>Depart.</b>	<b>Rank (1892-2005)</b>
Month (March)	49.7°F	-0.5°F	47th Warmest
Year-to-Date (Jan-Mar)	45.7°F	3.0°F	14th Warmest
<b>Precipitation</b>			
	<b>Total</b>	<b>Depart.</b>	<b>Rank (1892-2005)</b>
Month (March)	1.15 in.	-1.96 in.	20th Driest
Year-to-Date (Jan-Mar)	6.29 in.	-0.03 in.	41st Wettest
Depart. = Departure from 30-year normal			

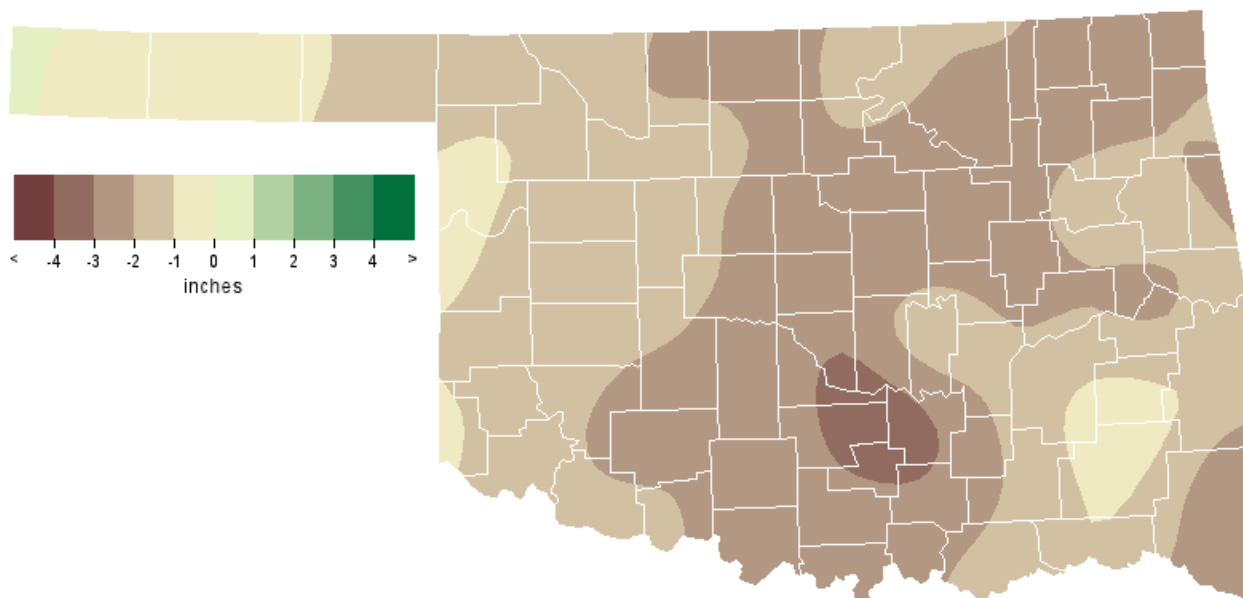
### **March 2005 Severe Weather**

No significant severe weather reported in the state.

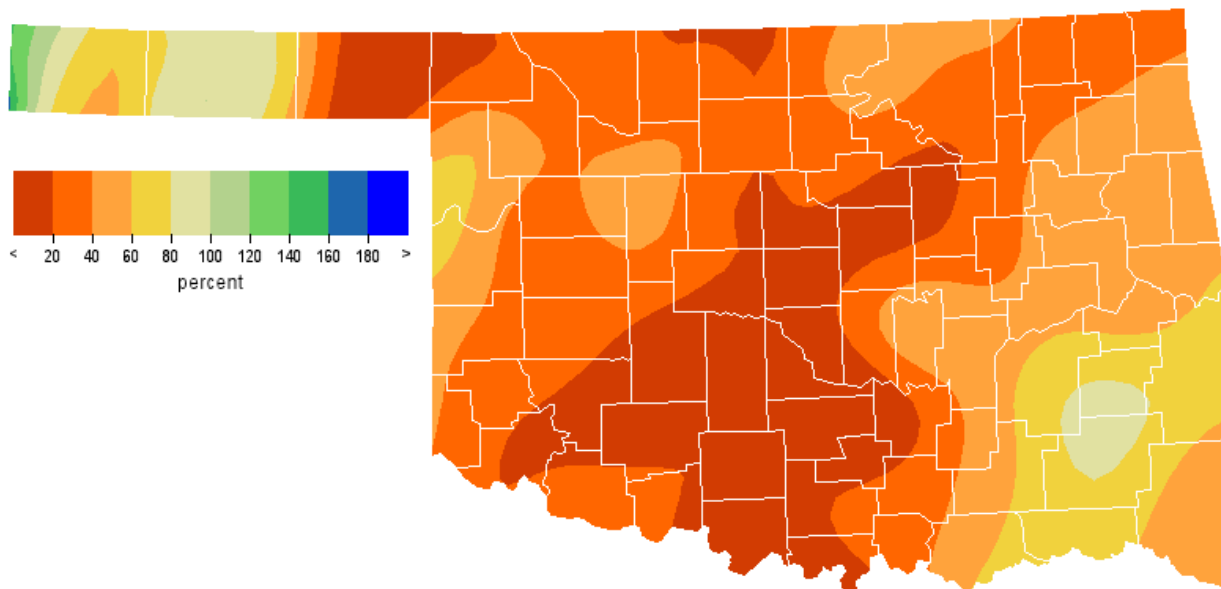
## March 2005 Observed Precipitation



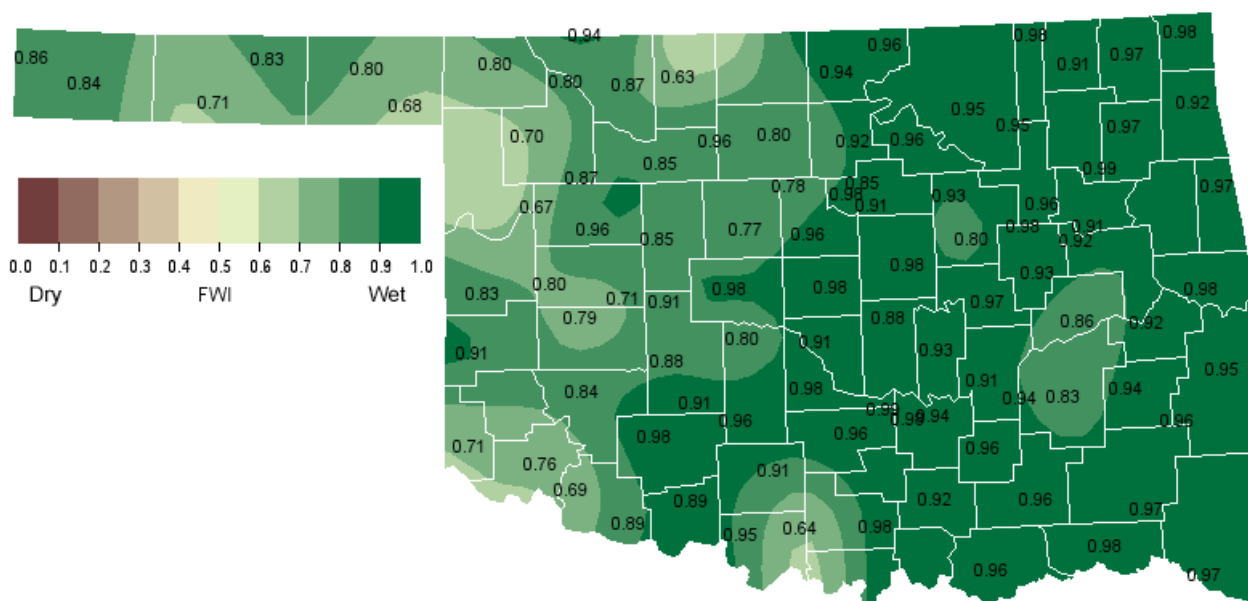
## March 2005 Departure from Normal Precipitation



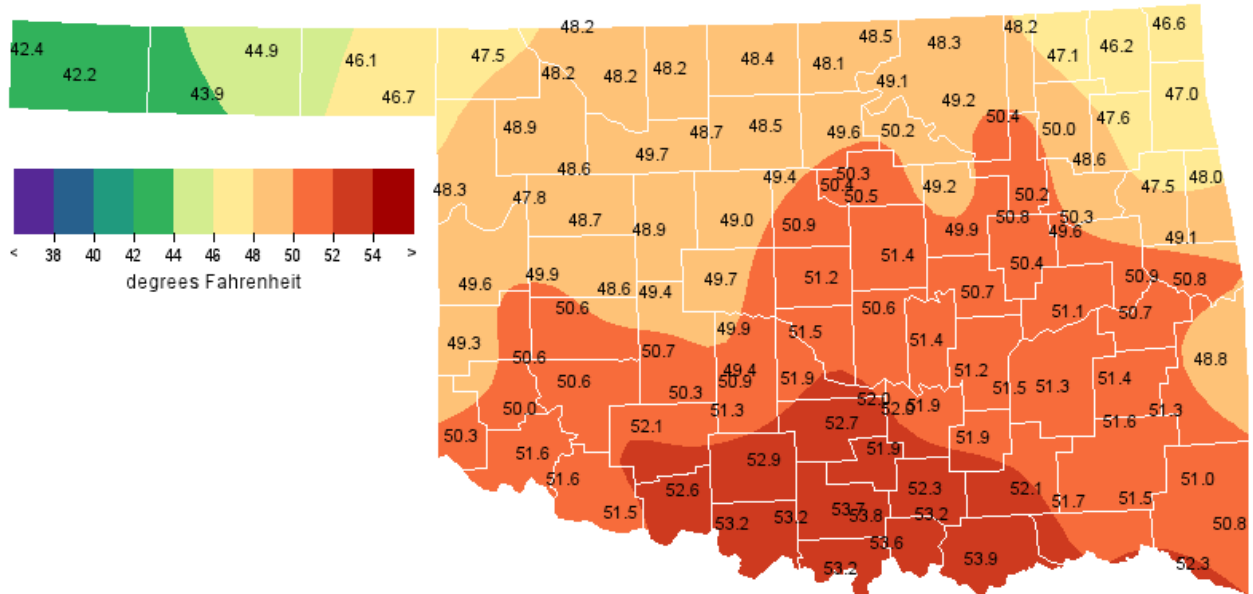
### March 2005 Percent of Normal Precipitation



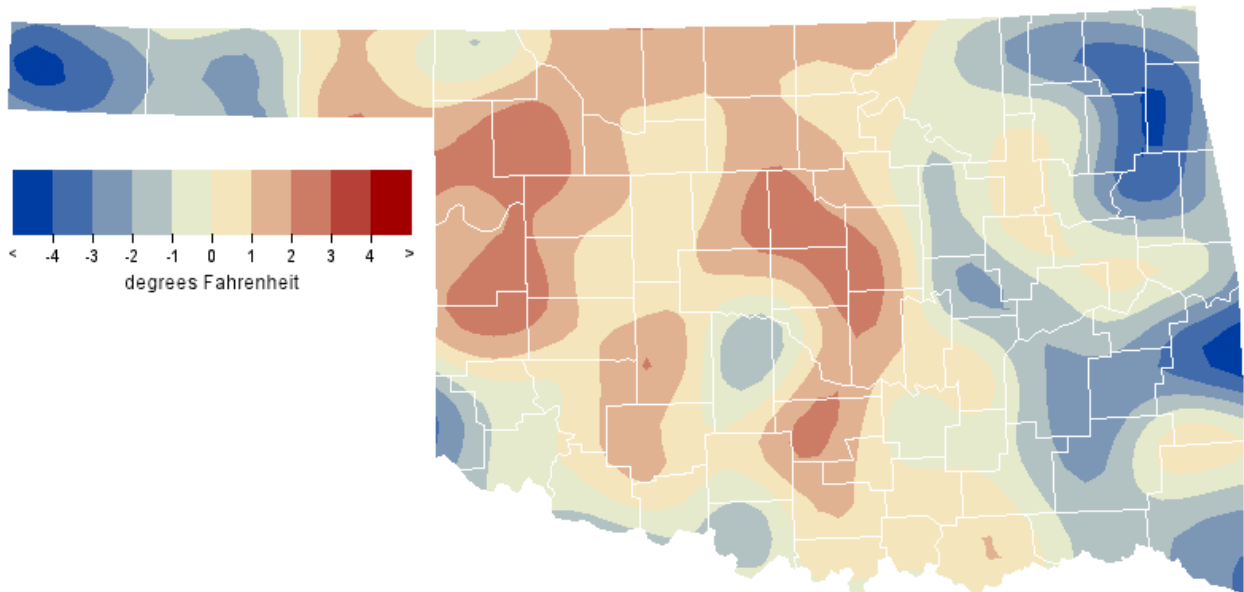
### March 2005 Average Soil Moisture at 25cm



## March 2005 Average Temperature



## March 2005 Departure from Normal Temperature

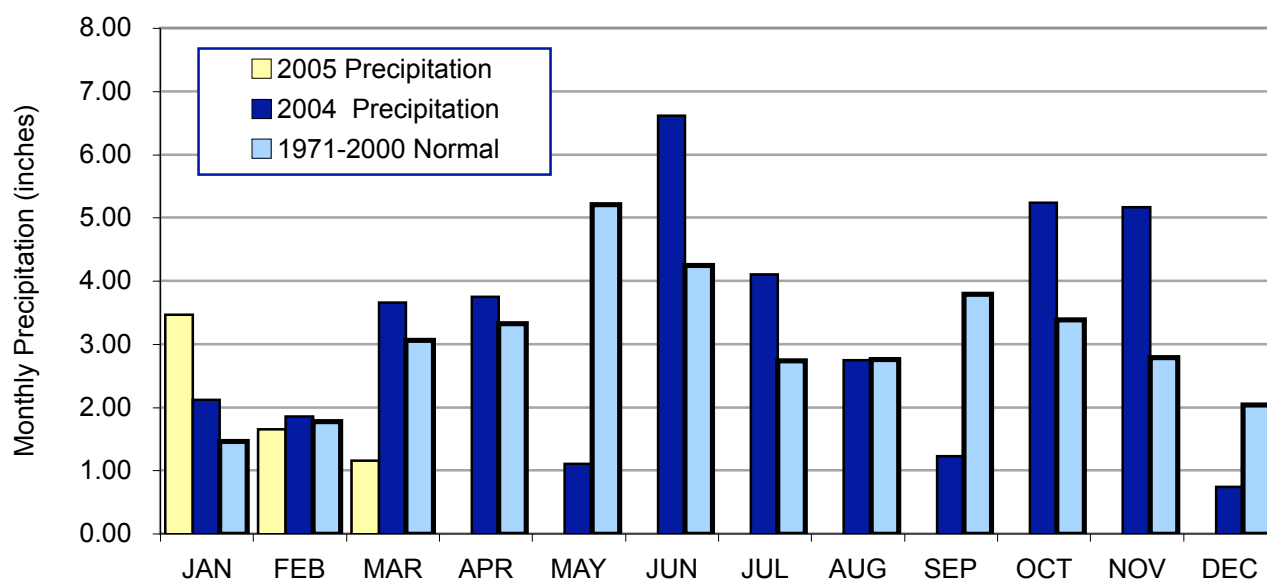




## March 2005 Mesonet Precipitation Comparison

Climate Divison	Precipitation (inches)	Departure from Normal (inches)	Rank Since 1895	Wettest on Record (Year)	Driest on Record (Year)	4-Mar
Panhandle	0.80	-0.83	55th Driest	5.84 (1973)	0.00 (1895)	2.49
North Central	0.83	-1.85	29th Driest	8.18 (1973)	0.00 (1936)	4.75
Northeast	1.45	-2.22	30th Driest	9.79 (1973)	0.00 (1900)	6.81
West Central	0.86	-1.54	35th Driest	7.24 (1973)	0.00 (1895)	5.19
Central	0.68	-2.57	14th Driest	7.88 (1990)	0.00 (1900)	4.79
East Central	1.98	-2.11	27th Driest	10.63 (1945)	0.46 (1911)	3.74
Southwest	0.43	-1.83	14th Driest	5.52 (1973)	0.00 (1940)	3.53
South Central	0.75	-2.80	9th Driest	8.46 (1945)	0.20 (1950)	2.44
Southeast	2.99	-1.49	34th Driest	12.38 (1945)	1.01 (1954)	2.54
Statewide	1.15	-1.96	20th Driest	7.46 (1973)	0.38 (1971)	4.08

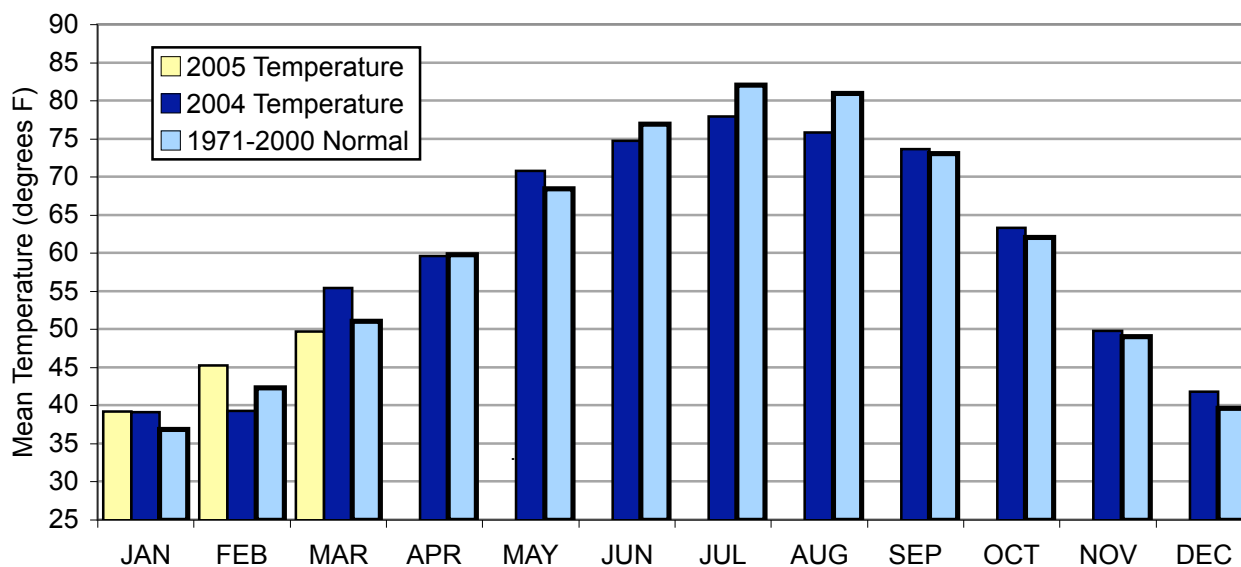
## 2004 and 2005 Statewide Precipitation Monthly Totals vs. Normal



## March 2005 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Mar-04 (F)
Panhandle	45.2	-1.1	52nd Warmest	54.3 (1910)	32.9 (1915)	52.5
North Central	48.6	0.4	42nd Warmest	57.6 (1910)	35.3 (1915)	53.1
Northeast	48.6	-1.0	51st Warmest	57.7 (1910)	37.3 (1960)	53.2
West Central	49.3	0.4	42nd Warmest	56.8 (1910)	35.8 (1915)	54.4
Central	50.5	0.0	42nd Warmest	58.4 (1910)	37.7 (1915)	55.0
East Central	50.2	-1.3	54th Warmest	59.5 (1907)	39.2 (1915)	55.8
Southwest	51.0	-0.5	47th Warmest	58.7 (1907)	38.2 (1915)	56.6
South Central	52.8	-0.2	42nd Warmest	61.1 (1907)	40.4 (1915)	57.6
Southeast	51.2	-1.6	48th Coolest	61.5 (1907)	42.0 (1915)	55.5
Statewide	49.7	-0.5	47th Warmest	57.9 (1907)	37.6 (1915)	54.8

## 2004 and 2005 Statewide Temperature Monthly Averages vs. Normal





## Mesonet Extremes for March 2005

Climate Division	High Temp (F)			Low Temp (F)			High Monthly Rainfall (inches)		High Daily Rainfall (inches)		
	Temp (F)	Day	Station	Temp (F)	Day	Station	Temp (F)	Day	Temp (F)	Day	Station
Panhandle	86	12th	Arnett	11	16th	Boise City	1.32	Arnett	0.59	31st	Arnett
North Central	86	12th	Woodward	19	1st	Blackwell	1.21	Newkirk	0.80	21st	Red Rock
Northeast	86	12th	Copan	17	1st	Foraker	2.33	Burbank	2.07	21st	Burbank
West Central	88	12th	Butler	23	2nd	Butler	1.37	Watonga	0.79	15th	Watonga
Central	86	12th	Acme	18	1st	Oilton	2.91	Bowlegs	2.82	21st	Bowlegs
East Central	86	12th	Calvin	20	1st	Westville	2.75	Cookson	1.60	21st	McAlester
Southwest	90	12th	Altus	22	17th	Mangum	0.69	Grandfield	0.48	15th	Hinton
South Central	87	12th	Bee	22	17th	Sulphur	2.29	Lane	1.24	26th	Durant
Southeast	84	12th	Antlers	22	17th	Antlers	3.76	Clayton	2.02	21st	Clayton
Statewide	90	12th	Altus	11	16th	Boise City	3.76	Clayton	2.82	21st	Bowlegs

# April Climatological Outlook

April is the first full month of spring- the season of newly green trees and grass, redbud trees in bloom, and wildflowers aplenty. Baseball, romance, and pollen permeate the air, creating the dizzying mixture of joy and misery that marks the season. Most of April features exceedingly pleasant weather, much like that on April 22, 1889. According to the weather report submitted by the observer at Fort Reno, the day of the first great land run featured a high temperature of 80 degrees Fahrenheit, sandwiched between overnight lows of 46 and 54 degrees. Winds were northeasterly and light. Clouds were few.

## Precipitation

Mean: 3.32 inches  
Wettest April: 1942, 8.50 inches  
Driest April: 1989, 0.58 inches  
Wettest location: Daisy, 5.19 inches  
Driest location: Regnier, 1.36 inches  
Most recorded: 17.78 inches, Okemah, 1945

April is the state's 5<sup>th</sup> wettest and 7<sup>th</sup> warmest month, establishing it clearly as part of the spring transition season. The statewide-averaged normal precipitation, based on the 30-year record compiled from 1971 through 2000, is 3.32 inches. The average monthly temperature, compiled from observations over the same period, is 59.8 degrees.

Precipitation generally increases from southeast to northwest. Monthly normal precipitation for individual stations ranges from 1.36 inches at Oklahoma's driest observing station, Regnier (in the northwestern panhandle), to 5.19 inches at Daisy, on the western edge of southeastern Oklahoma's Ouachita Mountains. A statewide-averaged precipitation of 8.50 inches rates 1942 as the wettest April in the state's annals. The driest April, statewide, was in 1989 when the state's reporting stations received an average of just 0.58 inch for the month. The greatest April precipitation at any reporting station was 17.78 inches recorded at Okemah in 1945. Snowfall is rare in April, except in the panhandle. Boise City averages 2.5 inches of snow during April. Goodwell reported 17 inches of snow during April 1988, and Fargo received 14 inches during that month in 1973.

Normal monthly temperatures decrease from south to north. Waurika is the state's warmest location during April with a normal temperature of 63.9 degrees. Boise City ranks as the coolest site with a monthly average temperature of 54 degrees. Normal daily maximum temperatures range from 77 degrees at

Waurika to 67.8 degrees at Newkirk. Normal daily minimum temperatures range from Waurika's 50.7 degrees to Boise City's 37.3. Temperatures drop below the freezing mark an average of nearly 8 times during April at Kenton, but freezes are uncommon across most of the main body of the state. Except in the panhandle, any sub-freezing temperatures after mid-April would constitute a late freeze and would be harmful to plants, especially fruit or pecan trees. Southwestern Oklahoma experiences temperatures in the 90s an average of three times each April. Hot and cold do manage to creep in, however. On April 12, 1972, Mangum recorded a high temperature of 106 degrees, the highest of the 15 temperature reports of 102 degrees or more across the state that day. Conversely, Hooker's daily minimum temperature on April 4, 1979 was 7 degrees, thereby establishing the other extreme temperature for the month.

## Temperature

Mean: 59.8 degrees  
Warmest Location: 63.9 degrees, Waurika  
Coolest Location: 54.0 degrees, Boise City  
Warmest April: 1954, 65.4 degrees  
Coolest April: 1983, 54.0 degrees  
Hottest recorded: 106 degrees, Mangum, April 12, 1972  
Coldest recorded: 7 degrees, Hooker, April 4, 1979

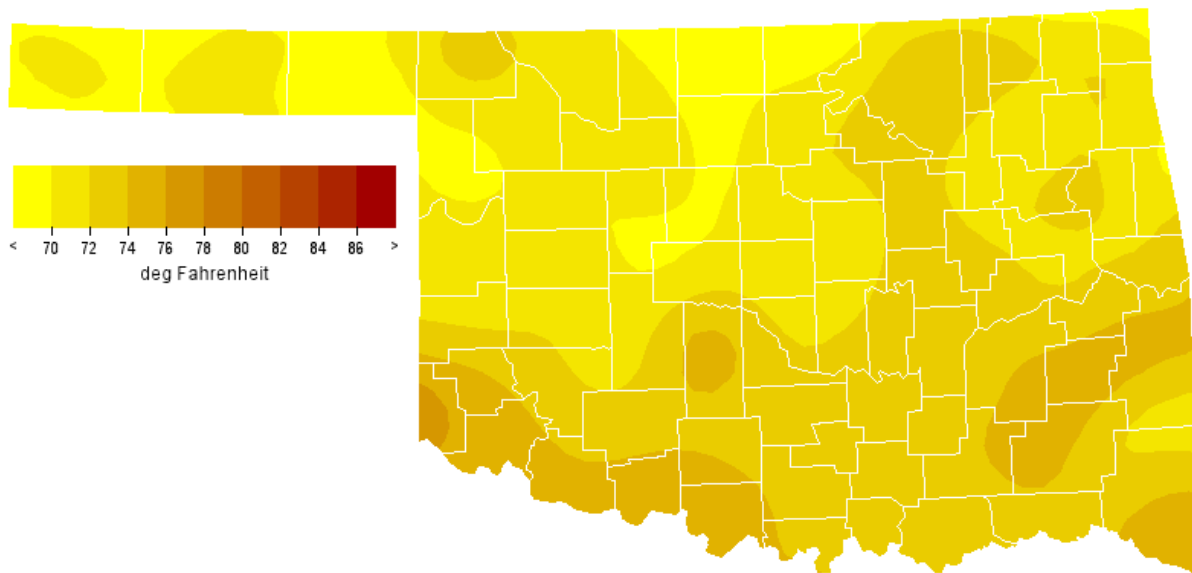
Spring brings with it Oklahoma's noted severe weather season. April is Oklahoma's windiest month and ranks second among the 12 months in the number of tornadoes observed across the state. The state has averaged 10.7 tornadoes each April since 1950, a monthly average exceeded only by May. Eight years of wind observations from the statewide Oklahoma Mesonet have revealed an average April wind speed, statewide, of 10.6 miles per hour, which barely edges March for windiest month honors. South winds prevail in most areas, although passing cold fronts are still capable of turning winds to northerly for a day or so at a time.

Comprehensive records of tornado occurrence are available from 1950 to the present. A total of 579 tornadoes are listed as having struck within Oklahoma during April from 1950 through 2003. Forty of those tornadoes were reported in 1957, easily the most of any April during the period.

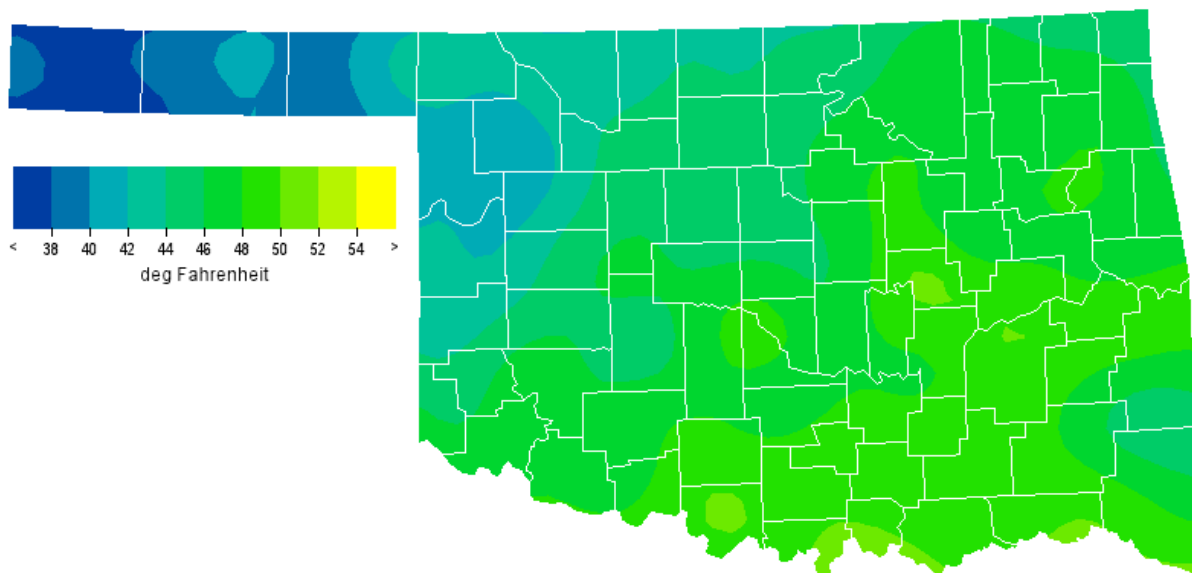
## Tornadoes

Average April Tornadoes: 10.7  
Most: 40 (1957)

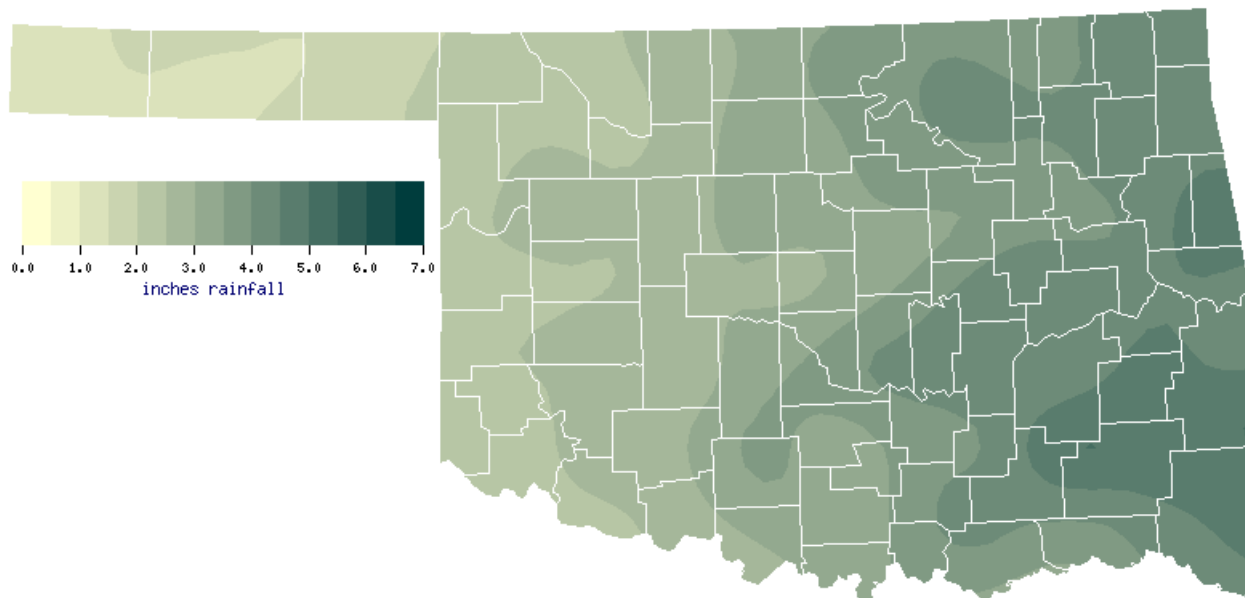
## April Normal Monthly Maximum Temperature (1971-2000)



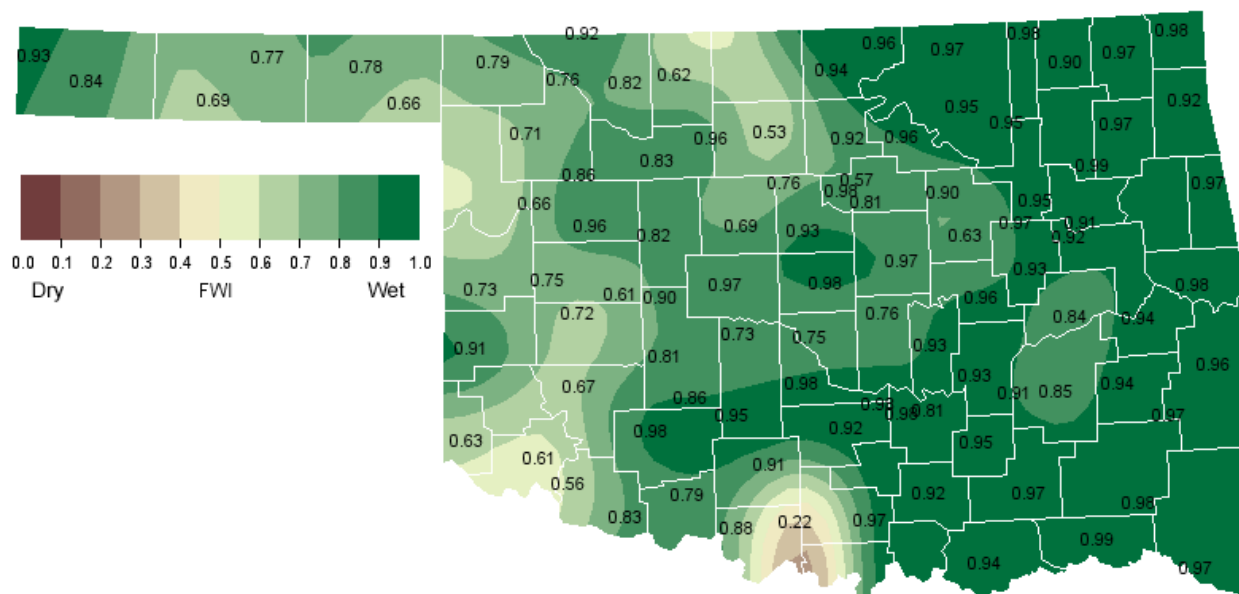
## April Normal Monthly Minimum Temperature (1971-2000)



## April Normal Precipitation (1971-2000)

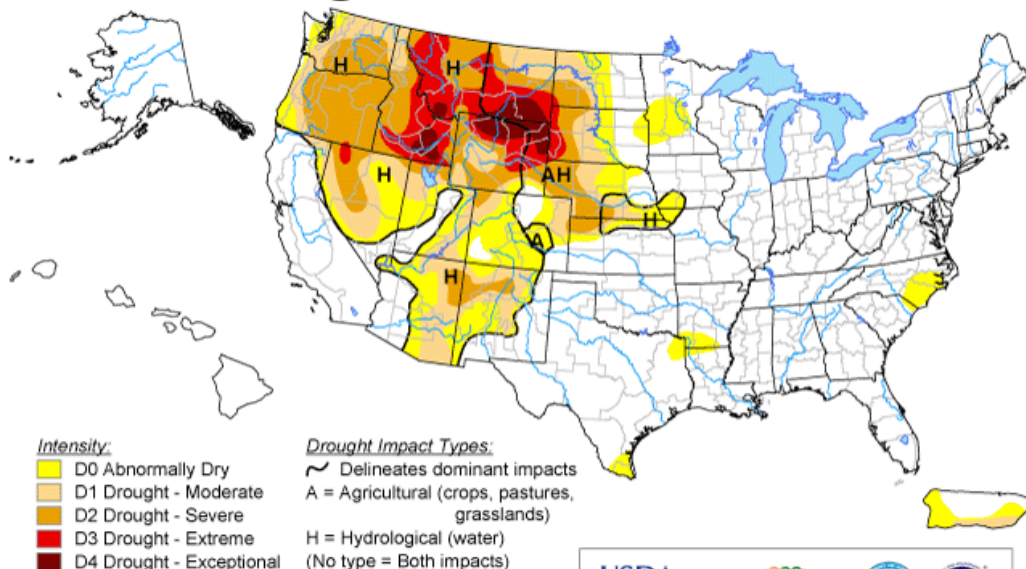


## April 1, 2005 Soil Moisture Conditions at 25cm



# U.S. Drought Monitor

March 29, 2005  
Valid 7 a.m. EST



**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.



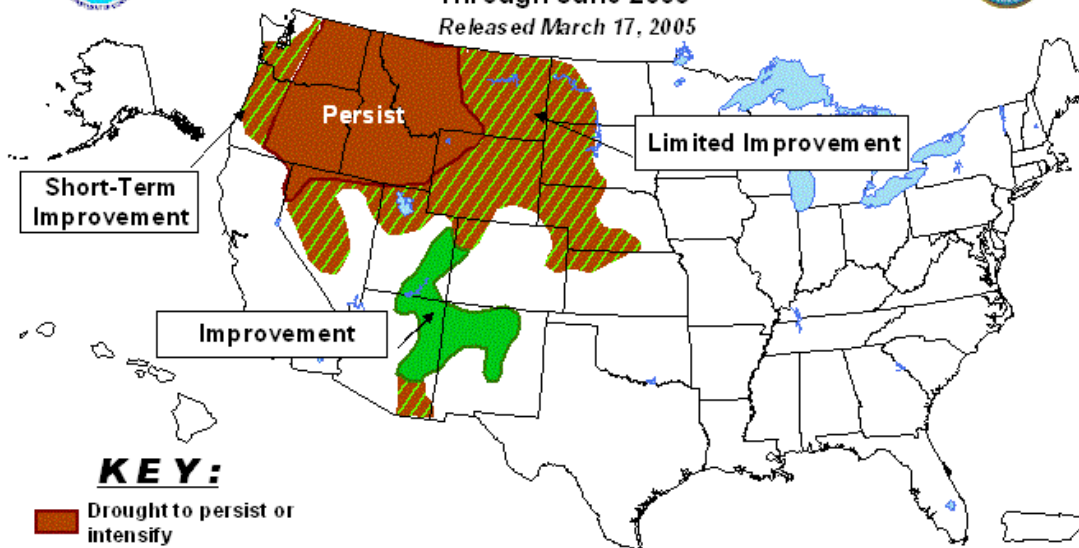
Released Thursday, March 31, 2005  
 Author: Douglas Le Comte, CPC/NOAA

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



## U.S. Seasonal Drought Outlook

Through June 2005  
 Released March 17, 2005

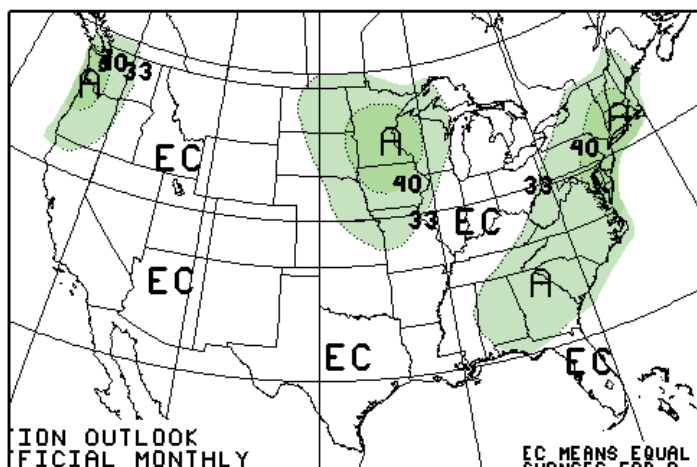


**KEY:**

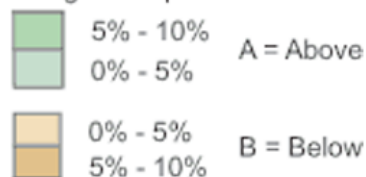
- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

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.

## April 205 U.S. Precipitation Forecast

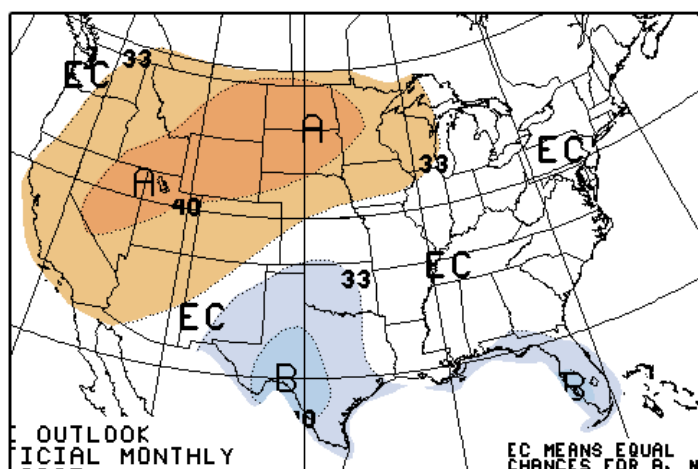


Percent Likelihood  
of Above or Below  
Average Precipitation\*

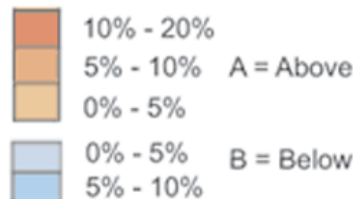


\*EC indicates no forecasted anomalies due to lack of model skill.

## April 2005 U.S. Temperature Forecast



Percent Likelihood  
of Above and Below  
Average Temperatures\*

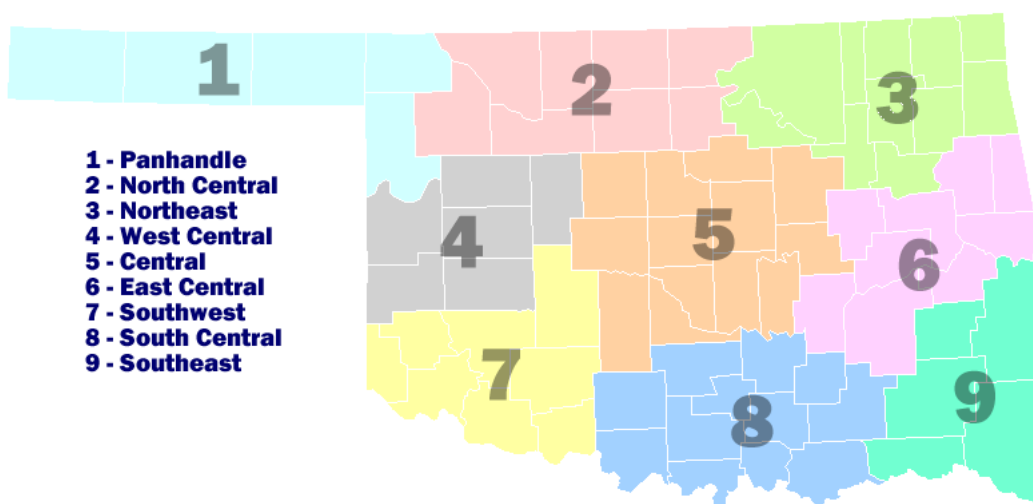


\*EC indicates no forecasted anomalies due to lack of model skill.

## April Climate Normals

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	70.7	40.5	55.6	1.81
2	70.2	43.6	56.9	2.95
3	72.1	47.1	59.6	3.92
4	71.0	44.3	57.7	2.48
5	71.9	47.2	59.6	3.47
6	72.3	48.3	60.3	4.24
7	73.6	46.4	60.0	2.66
8	73.5	48.9	61.2	3.74
9	73.7	47.8	60.8	4.46
Statewide	72.1	46.2	59.2	3.41

## 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](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](mailto:ocs@ou.edu)) or telephone (405/325-2541)



Oklahoma Climatological Survey is the State  
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