

# OKLAHOMA MONTHLY CLIMATE SUMMARY

## FEBRUARY 2008



February contained a little bit of everything from the meteorological smorgasbord. Nearly every part of the state got at least a bit wet from rain, snow or various other frozen forms of water. Averaged statewide, that moisture amounted to the 29<sup>th</sup> wettest February for Oklahoma since 1895. Frequent intrusions of cold air kept the state on the cool side as well and the month finished below normal by more than a half of a degree. While there was a little bit of a lot during the month, it amounted to a lot of very little. Very few instances of severe weather cropped up; also absent was a significant snow- or ice-storm. Instead, just a bit of inclement weather here and there. The winter was largely a middle-of-the-pack season, finishing just a tad warmer and drier than normal.

### Precipitation

Most of the state finished above normal for February with the exception of the Panhandle and south central Oklahoma. The deficits for those two regions were miniscule, however. Eastern Oklahoma led the way with some areas catching more than five inches of rainfall. The Panhandle and far western Oklahoma were at the bottom of the pack with less than an inch found in the rain gauges. Clayton led the state with 5.89 inches of precipitation while Erick brought up the rear with 0.05 inches, barely enough to wet the gauge. Most of the state was either a little bit wet or a little bit dry during winter with the exception of south central Oklahoma. On average, the south central region was more than two inches below normal to rank as the 35<sup>th</sup> driest winter on record for that area.

### Temperature

The northern one-third of Oklahoma was cooler than normal during February while the rest of the state was generally near- or above-normal. The north spent more time on the back end of cold fronts and had a bit more snow than points south, which helped northeastern Oklahoma finish at more than two degrees below normal. On the other hand, southeast Oklahoma was above normal by a little less than a degree. Newport recorded the highest temperature of the month at 84 degrees and Alva had the lowest with zero degrees. Winter will go down as right about normal, the 54<sup>th</sup> warmest on record.

### February 2008 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	84°F	Newport	4
Low Temperature	0°F	Alva	1
High Precipitation	5.89 in.	Clayton	
Low Precipitation	0.05 in.	Erick	

### February Daily Highlights

**February 1-2:** Snow cover from the last day in January left the northern half of the state shivering on the first. Low temperatures ranged from zero degrees at snow-packed Alva to 28 degrees in Wister. Southerly winds returned, however, and high temperatures rose into the 50s and 60s. The winds were gusting to 40 mph in the west. The morning was a bit milder on the second with lows mostly in the 20s and 30s. Winds died down after the passage of a weak cold front. Temperatures still managed to rise into the 50s and 60s following the front's passage.

**February 3-5:** A warm front moved north into southern Oklahoma overnight on the third and brought increasing clouds and fog. Lows were in the 20s in the north to near 50 in the south. High temperatures likewise were in the 50s in northern Oklahoma and the 70s in the south. The following morning was quite warm with lows remaining in the 50s and 60s in many places. Morning lows still dropped into the 30s and 40s in the drier air of the north and west, however. With a warm start, record-setting heat occurred at Oklahoma City, Tulsa and McAlester with highs in the upper 70s and lower 80s. A dryline developed in the west and dropped humidities as it moved east. Fire conditions worsened and several grass fires sprung up across western Oklahoma. The fifth saw showers and storms develop across the state along a cold front. Rainfall amounts of more than an inch were concentrated in central Oklahoma through the northeast, but the northwest and far south had very little moisture. Some severe weather occurred with the storms, especially in central Oklahoma where high winds and some hail were noted. As the cold front passed, some of that rain turned to light snow in the northwest as temperatures fell 20 degrees.

**February 6-9:** Typical February weather was in store for the state over the next several days. Some light snow in the north on the sixth and seventh. Highs ranged from the 30s to the 50s after lows in the 20s and 30s. Temperatures warmed a bit on the eighth and ninth with highs reported in the 50s, 60s and 70s.

**February 10-13:** A cold front moved into the northern parts of the state on the 10<sup>th</sup> and brought strong northerly winds and colder weather. Temperatures dropped steadily during the afternoon. Highs reached the 30s in the north but managed to rise into the 70s in the south ahead of the cold front. Light freezing rain greeted the state early on the 11<sup>th</sup> with a few embedded thunderstorms. Accumulations of up to one-half of an inch of ice were reported across the north. Wind chills were in the teens to make for a miserable morning across the state. The cold front retreated to the north on the 11<sup>th</sup> as a warm front, triggering another round of storms. Light rain and freezing rain still fell north of the front, with storms forming along the boundary late on the 11<sup>th</sup> and early on the 12<sup>th</sup>. The heaviest rains were confined to the southeast where one-two inches fell across a broad area. Golfball size hail was reported in Stephens County with a particularly strong storm. The cold front eventually passed through the state for good on the 12<sup>th</sup>. Skies cleared that afternoon and high pressure at the surface allowed winds to diminish. Highs were from the 30s in the northwest to the 50s in the southeast. Another clear day followed on the 13<sup>th</sup>. After a cold start in the teens and 20s, highs rose into the 50s and 60s. Low humidities and increasing winds produced high fire danger conditions once again.

**February 14-17:** A strong cold front on the 14<sup>th</sup> dropped temperatures from the 60s and 70s into the 40s and 50s. Light freezing drizzle formed on the 15<sup>th</sup> in central sections of the state. Showers and storms moved into the southwest that evening. The precipitation began freezing later as temperatures dropped. The heaviest precipitation fell on the 16<sup>th</sup>, most of it as rain although a bit of freezing rain did occur in the northwest. The rain, which was triggered by an upper-level disturbance traveling through Texas, was widespread for most of the day. A few of the storms were severe. Quarter size hail was reported in Jefferson County. The storms continued overnight into the 17<sup>th</sup> as the center of the upper-level low moved to the east. Storm total rainfall amounts were highest in west central and southeastern Oklahoma where more than three inches was reported.

**February 18-19:** A pleasant respite from the cold blustery days. Mostly clear skies led to morning lows in the 20s and 30s, but afternoon highs rose into the 60s and 70s by the 19<sup>th</sup>.

**February 20-22:** Yet another strong cold front visited the state from the north on the 20<sup>th</sup>. Temperatures in the 40s and 50s were soon replaced with 20s and 30s. Winds gusting to over 30 mph combined with the cold air to produce wind chills in the teens. Temperatures still managed to reach into the 50s in southern Oklahoma. The cold air express continued into the 21<sup>st</sup>. Freezing rain and sleet fell in the north and mixed with rain in central Oklahoma. The skies remained gray with scattered reports of freezing drizzle on the 22<sup>nd</sup> as the storm system moved off to the east. Skies cleared later that afternoon but temperatures remained chilly in the 30s and 40s. A few 50s were reported on the 22<sup>nd</sup> where the clouds managed to dissipate early.

**February 23-24:** A quiet period with just a few light rain showers scattered about, lows in the 30s gave way to highs in the 50s and 60s.

**February 25-29:** Two more cold fronts managed to pass through the state before the month with an extra day was finished. A strong front on the 25<sup>th</sup> ruined a day that had temperatures in the 60s and 70s. The winds made for a blustery couple of days following the cold front, gusting to 40 mph. High pressure settled in on the 27<sup>th</sup> which calmed the winds. Highs on the 28<sup>th</sup> reached into the 70s over many parts of the state. A weak cold front on the 29<sup>th</sup> did little to kill the warmth and highs on leap day reached the 60s and 70s statewide.

<b>February 2008 Statewide Statistics</b>			
<b>Temperature</b>			
	<b>Average</b>	<b>Depart.</b>	<b>Rank (1895-2008)</b>
Month (February)	41.1°F	-0.6°F	55th Warmest
Season-to-date (Dec-Feb)	38.9°F	0.1°F	54th Warmest
Year-to-Date (Jan-Feb)	39.5°F	0.7°F	50th Warmest
<b>Precipitation</b>			
	<b>Total</b>	<b>Depart.</b>	<b>Rank (1895-2008)</b>
Month (February)	2.25 in.	0.49 in.	42nd Wettest
Season-to-date (Dec-Feb)	4.90 in.	-0.33 in.	53rd Wettest
Year-to-Date (Jan-Feb)	2.77 in.	-0.44 in.	54th Driest
Depart. = Departure from 30-year normal			

## Record Event Reports

Description	Day	Location	Record	Previous Record	Year
Warmest Maximum Temperature	4	Oklahoma City	78 F	77 F	1962
Warmest Maximum Temperature	4	Tulsa	81 F	77 F	1962
Warmest Maximum Temperature	4	McAlester	79 F	77 F	1962
Daily Maximum Rainfall	16	McAlester	2.07 inches	1.11 inches	2001
Daily Maximum Rainfall	16	Tulsa	1.14 inches	1.03 inches	1938

## February 2008 Severe Weather

### **Significant Tornadoes (EF2 or greater)**

No significant tornadoes were reported in the state.

### **Hail (2 inches in diameter or greater)**

No significant hail events were reported in the state.

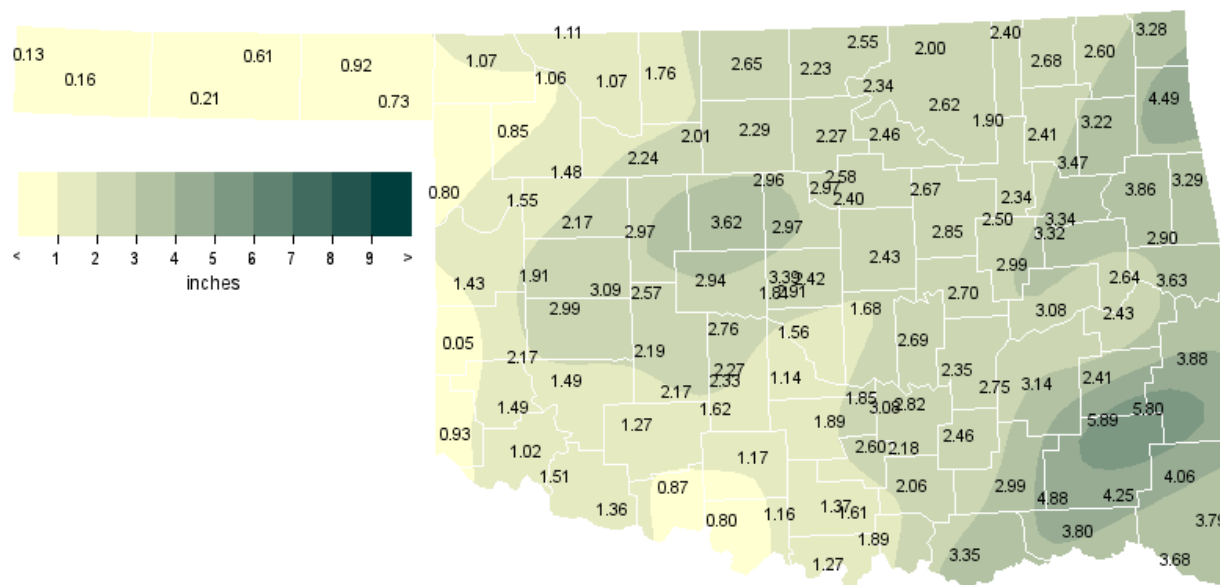
### **Wind Gusts (70 mph or greater)**

No significant wind gusts were reported in the state.

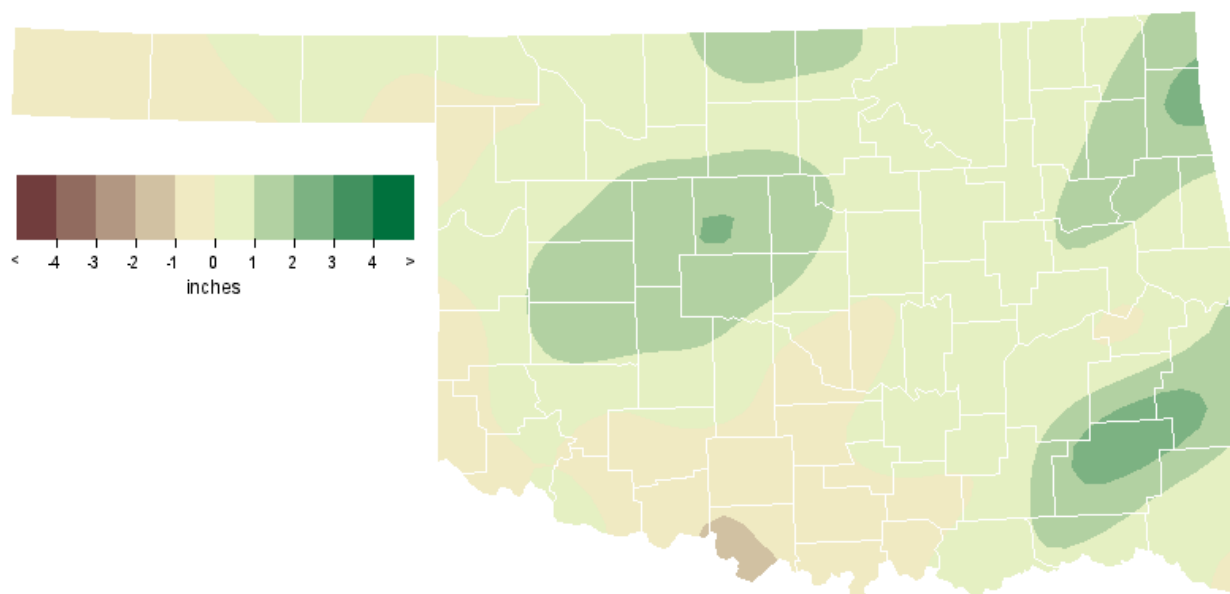
### **Flooding**

Location	County	Day
Clayton	Pushmataha	16

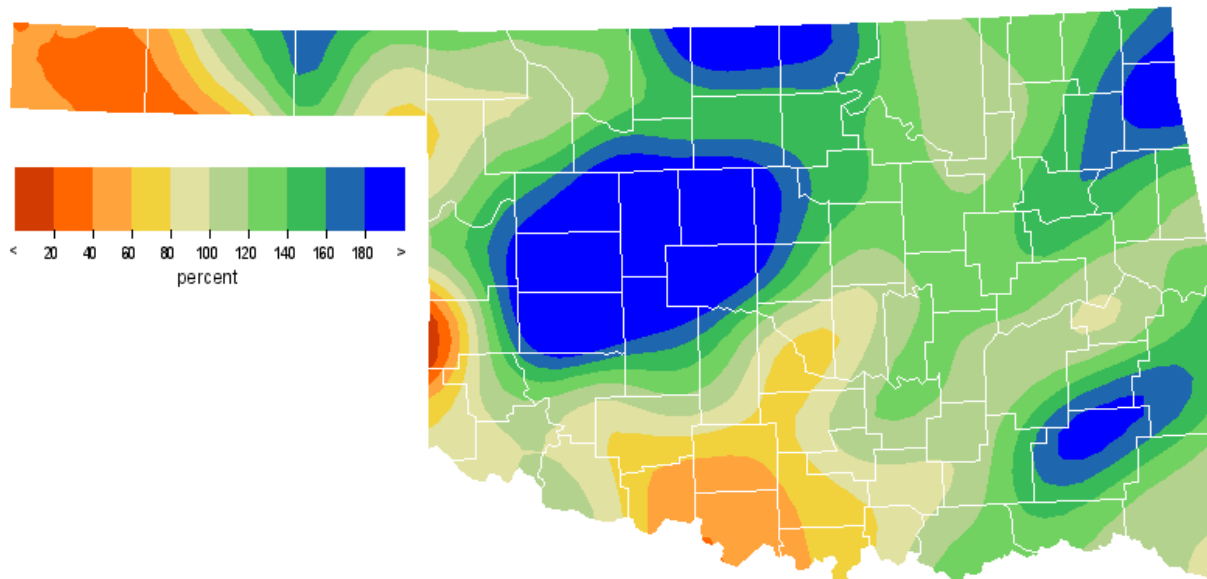
## February 2008 Observed Precipitation



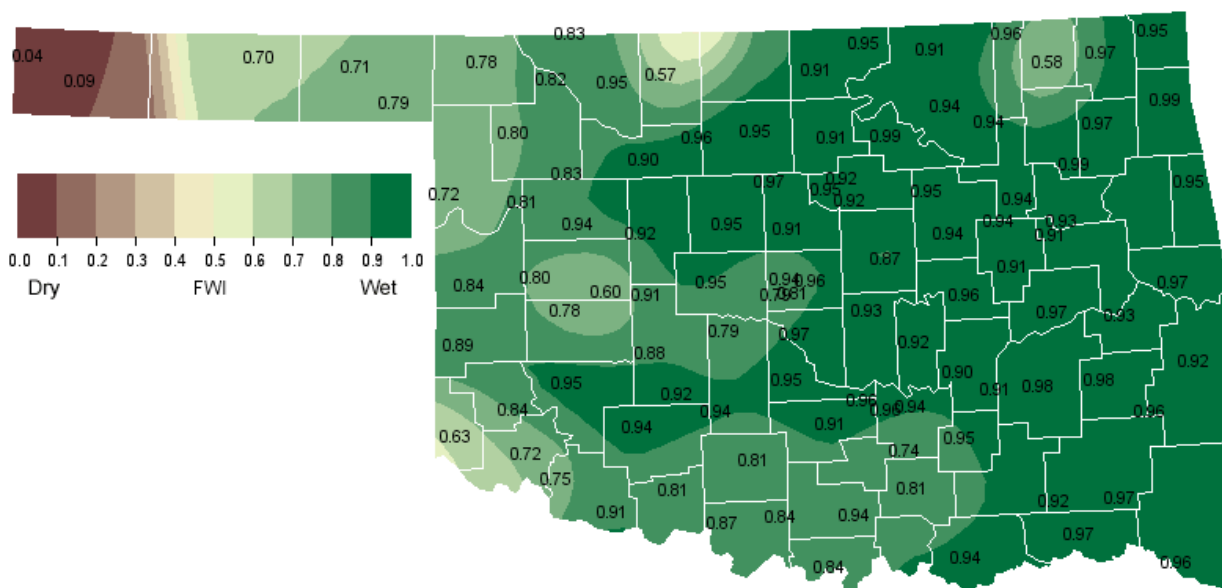
## February 2008 Departure from Normal Precipitation



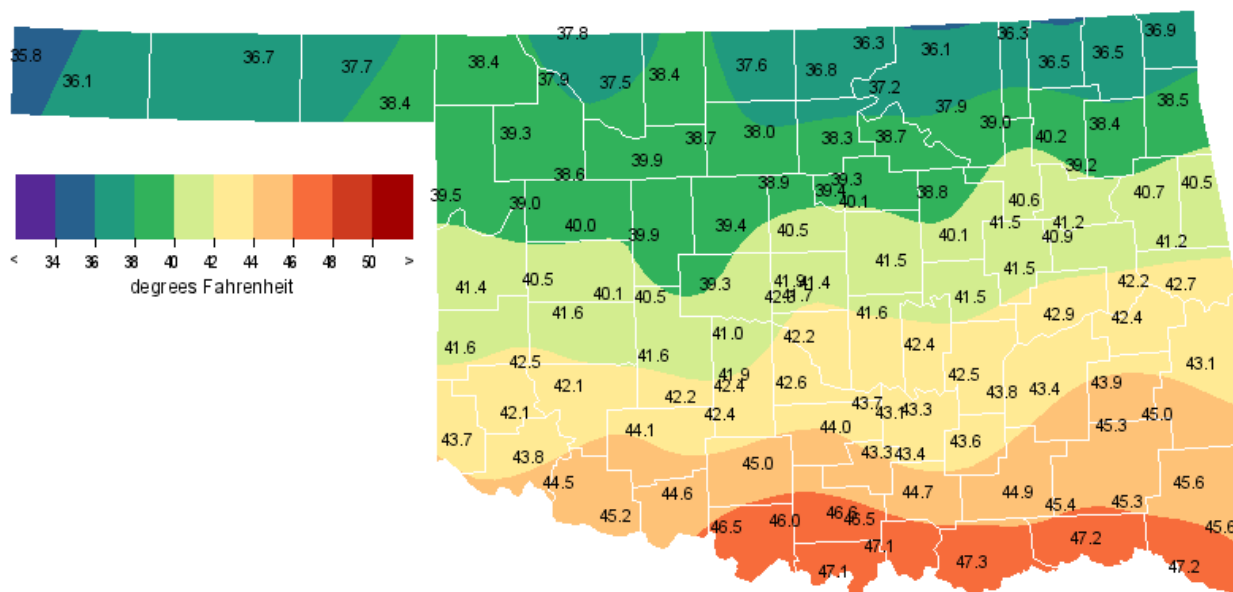
## February 2008 Percent of Normal Precipitation



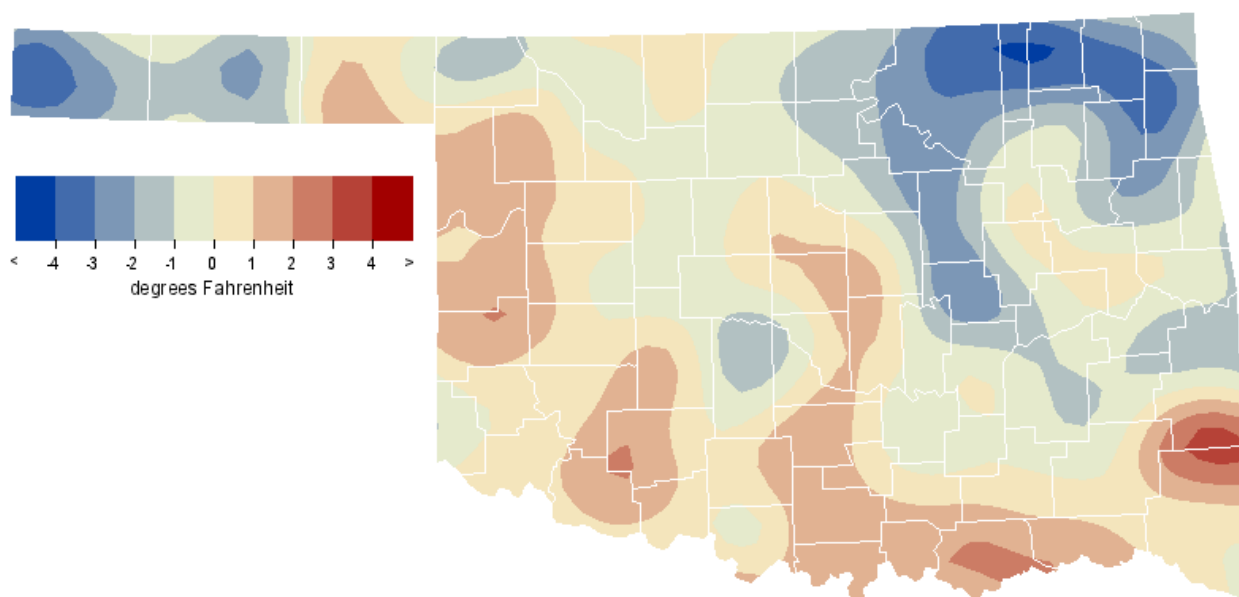
## February 2008 Average Soil Moisture at 25cm



## February 2008 Average Temperature



## February 2008 Departure from Normal Temperature

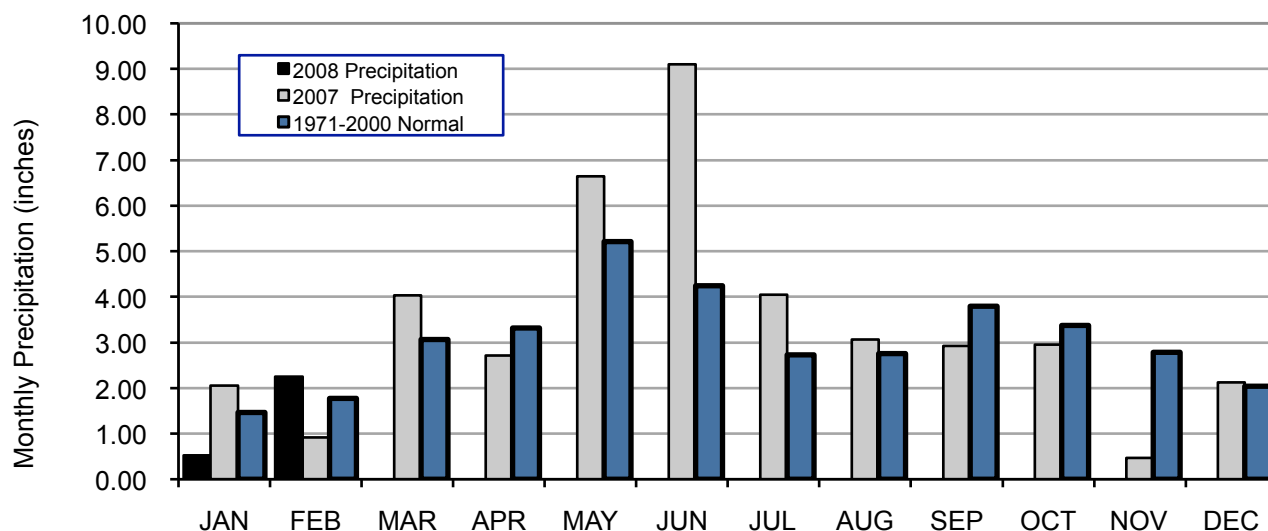




## February 2008 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Feb-07
Panhandle	0.58	-0.06	52nd Wettest	2.94 (1911)	0.00 (1896)	0.33
North Central	1.81	0.59	28th Wettest	4.10 (1911)	0.00 (1904)	0.65
Northeast	2.77	0.79	17th Wettest	5.80 (1985)	0.10 (1963)	1.17
West Central	2.04	0.90	15th Wettest	3.64 (1997)	0.00 (1904)	0.69
Central	2.51	0.65	16th Wettest	5.08 (1938)	0.00 (1904)	0.84
East Central	2.99	0.56	31st Wettest	9.15 (1938)	0.00 (1895)	1.82
Southwest	1.53	0.20	33rd Wettest	3.89 (1997)	0.00 (1902)	0.51
South Central	2.03	-0.18	48th Wettest	7.66 (1938)	0.02 (1902)	0.96
Southeast	4.24	1.10	29th Wettest	10.12 (1945)	0.36 (1895)	1.25
Statewide	2.25	0.49	29th Wettest	4.66 (1938)	0.18 (1996)	0.91

## 2007 and 2008 Statewide Precipitation Monthly Totals vs. Normal

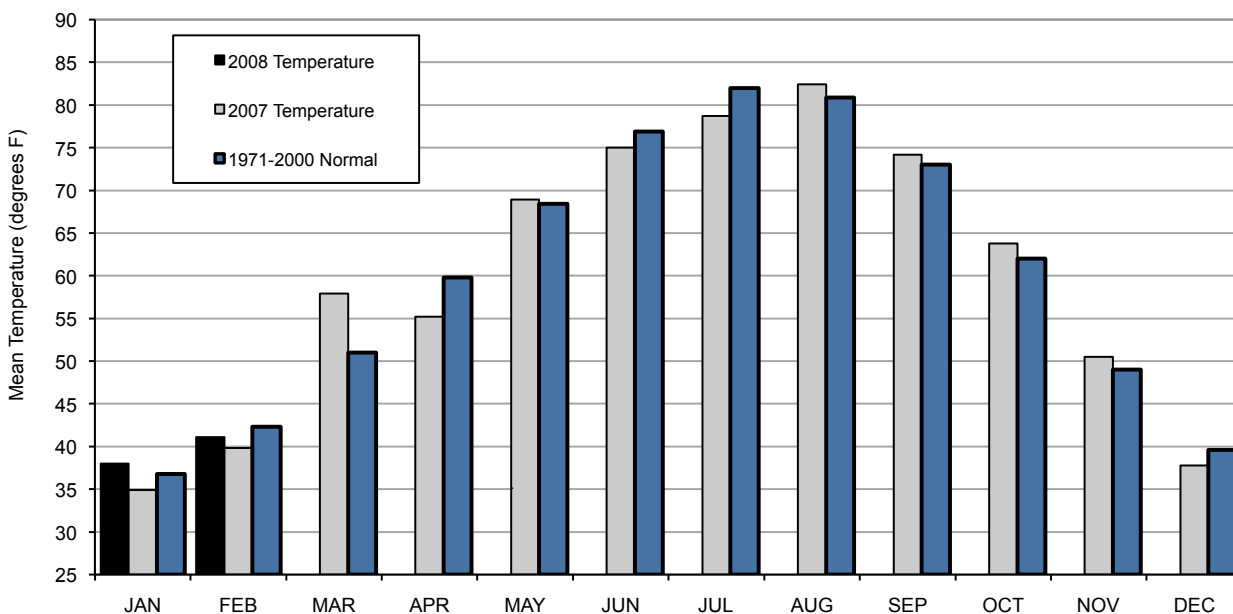




## February 2008 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Feb-07 (F)
Panhandle	37.5	-0.8	57th Coolest	47.5 (1954)	23.1 (1899)	35.2
North Central	38.1	-1.2	50th Coolest	49.6 (1954)	22.4 (1899)	36.9
Northeast	38.2	-2.2	42nd Coolest	49.8 (1976)	25.6 (1899)	38.1
West Central	40.7	0.1	53rd Warmest	51.0 (1954)	23.8 (1905)	38.6
Central	41.0	-0.9	54th Coolest	51.6 (1976)	26.2 (1899)	40.2
East Central	42.0	-0.8	57th Coolest	52.1 (1976)	28.7 (1899)	41.2
Southwest	43.1	0.0	52nd Warmest	52.5 (1954)	26.8 (1905)	41.3
South Central	45.1	0.3	51st Warmest	53.6 (1976)	30.0 (1905)	43.7
Southeast	45.4	0.7	48th Warmest	52.6 (1976)	31.4 (1899)	43.3
Statewide	41.1	-0.6	55th Warmest	50.7 (1954)	26.6 (1899)	39.8

## 2007 and 2008 Statewide Temperature Monthly Averages vs. Normal



## Mesonet Extremes for February 2008

Climate Division	High Temp	Day	Station	Low Temp	Day	Station	High Monthly Rainfall	Station	High Daily Rainfall	Day	Station
	(F)			(F)			(inches)		(inches)		
Panhandle	75	4th	Buffalo	3	6th	Kenton	1.07	Buffalo	0.67	16th	Beaver
North Central	79	4th	Fairview	0	1st	Alva	2.65	Medford	1.08	16th	Breckinridge
Northeast	81	4th	Bixby	2	1st	Burbank	4.49	Jay	1.75	16th	Jay
West Central	78	4th	Retrop	2	1st	Camargo	3.09	Weatherford	2.08	16th	Weatherford
Central	81	4th	Bowlegs	5	1st	Marshall	3.62	Kingfisher	2.11	16th	Minco
East Central	81	4th	Calvin	13	13th	Cookson	3.86	Tahlequah	2.24	16th	Eufaula
Southwest	82	4th	Walters	12	1st	Mangum	2.57	Hinton	1.81	16th	Apache
South Central	84	4th	Newport	8	1st	Sulphur	3.35	Durant	2.14	16th	Durant
Southeast	78	5th	Idabel	16	1st	Antlers	5.89	Clayton	3.37	16th	Talihina
Statewide	84	4th	Newport	0	1st	Alva	5.89	Clayton	3.37	16th	Talihina

## March Climatological Outlook

The retreat of winter and the onset of spring progress across Oklahoma during March, but the change of season is not smooth. Despite the generally moderating climate, winter intrudes from time-to-time, especially in the first half of the month, bringing with it some frigid weather and, occasionally, some frighteningly heavy snowstorms. By the end of the month, spring is typically in full sway, including occasional full participation in the severe thunderstorm season.

As befits a transitional month, March is Oklahoma's 5<sup>th</sup> coolest month. The statewide-average normal monthly temperature of 51.0 degrees is compiled from a collection of station-specific normals that range from 45.1 degrees in the panhandle at Goodwell to 55.7 degrees at Ardmore in south central Oklahoma. Monthly averages of statewide temperatures have included a maximum of 57.9 degrees both 1907 and 1910 and a minimum of 37.6 degrees in 1915. Normal daily maximum temperatures are bounded by southerly Waurika's 68.8 degrees and northerly Arnett's 59.3. Extremes of normal daily minimum temperatures are found in the panhandle at Boise City, 29.8 degrees, and in the south at Ardmore, 43.8 degrees.

### Precipitation

Mean: 3.06 inches  
Wettest March: 1973, 7.46 inches  
Driest March: 1971, 0.38 inches  
Wettest location: Smithville, 5.52 inches  
Driest location: Regnier, 1.05 inches  
Most recorded: 13.37 inches, Kansas, 1973

Normal statewide-averaged precipitation in March is 3.06 inches, ranking March as the state's 6<sup>th</sup> wettest month. The extreme monthly statewide averages of March precipitation are 7.46 inches in 1973 and 0.38 inches in 1971. Southeastern Oklahoma's Smithville carries the title of wettest station in March with a normal precipitation total of 5.52 inches. The least normal March precipitation in the state, 1.05 inches, belongs to Regnier in the northwestern panhandle. The northeastern Oklahoma town of Kansas holds the apparent record for the wettest March in the state with a reported 13.37 inches of rain in 1973.

Snow doesn't come every March, but when it does it comes in bunches. Boise City averages 6.6 inches of snow during the month, the greatest average snowfall among the state's reporting locations. Stations in the state's southern half generally average less than half-an-inch of snow during March. Snowstorms have dropped as much as 20 inches of snow on northern parts of Oklahoma several times. In 1988, Cherokee (29.5 inches),

Laverne (27.5 inches), and Waynoka (25 inches) all reported monthly totals of over 2 feet of snow. Gate recorded 27 inches in March 1969 and Vinita noted 24 inches in March 1970. Both the 1988 and 1970 totals are additionally notable as most of the snow was reported on St. Patrick's Day. Beaver reported substantial snow in March 1912 to complete the state's seasonal snowfall record (winter of 1911/12) of 87.3 inches. A late-season snowstorm struck the panhandle in 1926, as Boise City reported 16 inches of snow on the 30<sup>th</sup>.

### Temperature

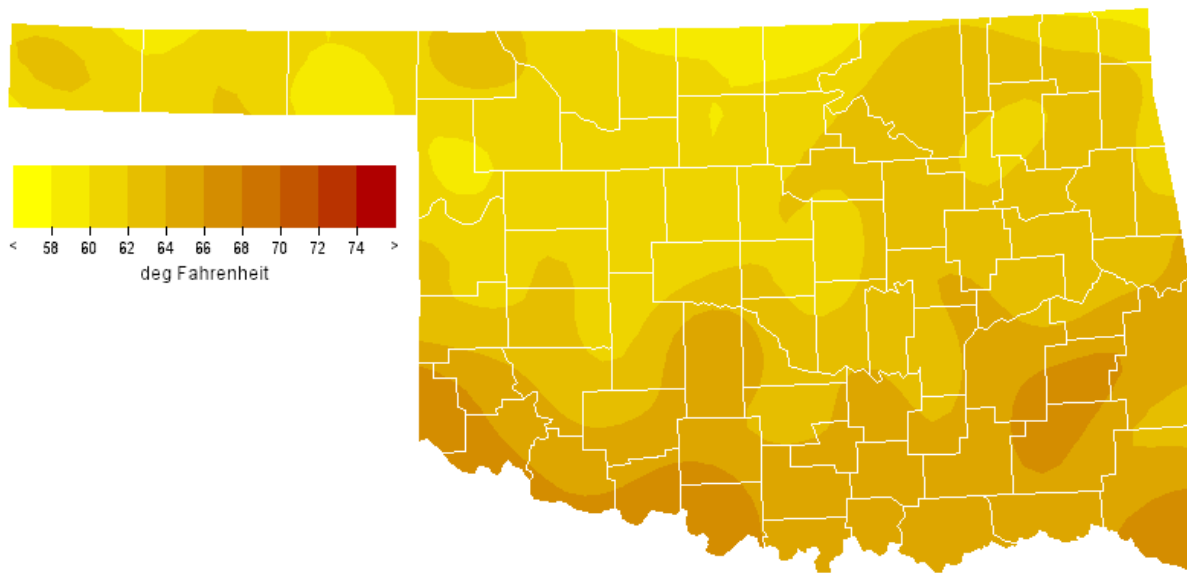
Mean: 51.0 degrees  
Warmest Location: 55.7 degrees, Ardmore  
Coolest Location: 45.1 degrees, Goodwell  
Warmest March: 1907, 59.6 degrees  
Coolest March: 1915, 39.2 degrees  
Hottest recorded: 104 degrees, Frederick, March 27, 1971  
Coldest recorded: -18 degrees, Hooker, March 7, 1920  
Kenton, March 1, 1922 & March 6, 1948

The state has averaged 3.7 tornadoes each March since 1950. The actual number has ranged from none (16 times in 55 years, including 2002) to 17 in 1991. Two deadly March tornadoes, each killing 10, were at Gowen on March 13, 1922 and Lenna on March 25, 1948. Two other notable tornadoes struck the Oklahoma City area, including Will Rogers Airport and Tinker Air Force Base, on March 20<sup>th</sup> and 25<sup>th</sup> in 1948. The first tornado caused over \$10 million in property damage, much of it to military aircraft. Damage from the second was \$6 million. On the 25<sup>th</sup>, Air Force meteorologists recognizing the similarity of conditions to those of the 20<sup>th</sup>, issued what is now accepted to be the first successful and scientific forecast of a tornado.

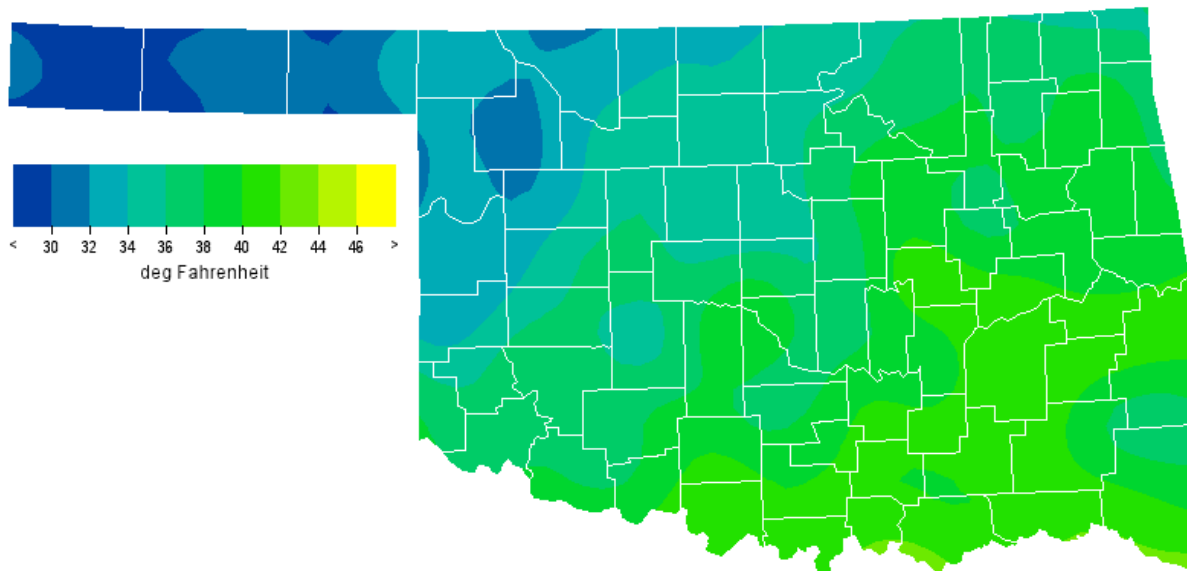
### Tornadoes

Average March Tornadoes: 4  
Most: 17 (1991)

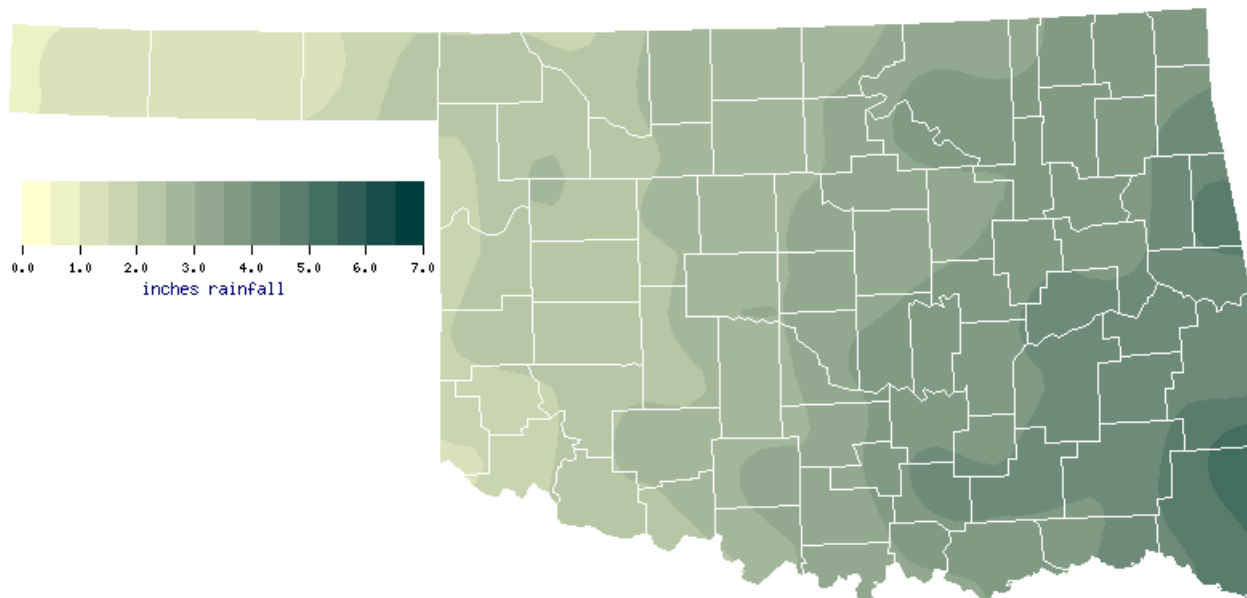
**March Normal Daily Maximum Temperature (1971-2000)**



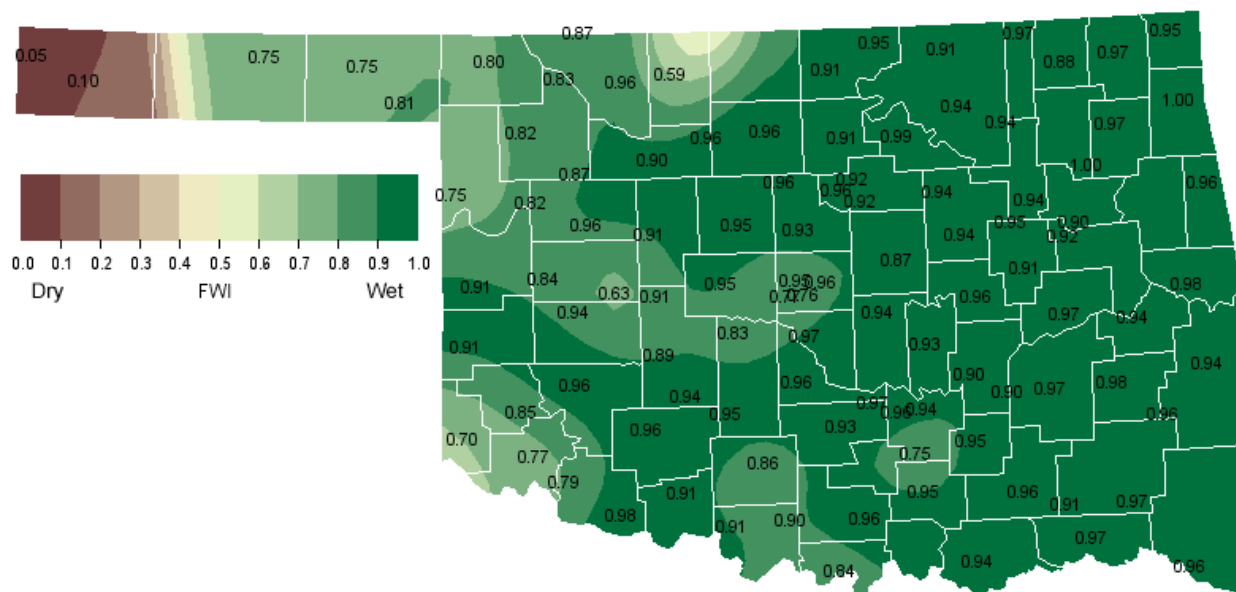
**March Normal Daily Minimum Temperature (1971-2000)**



### March Normal Precipitation (1971-2000)



### March 1, 2007 Soil Moisture Conditions at 25cm



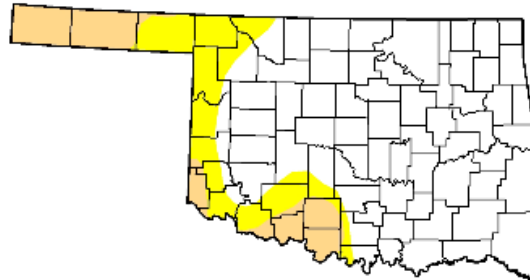
# U.S. Drought Monitor

## Oklahoma

March 4, 2008  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	75.3	24.7	10.6	0.0	0.0	0.0
Last Week (02/26/2008 map)	72.1	27.9	10.6	0.0	0.0	0.0
3 Months Ago (12/11/2007 map)	66.1	33.9	15.7	0.0	0.0	0.0
Start of Calendar Year (01/01/2008 map)	83.4	16.6	7.1	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	95.6	4.4	0.0	0.0	0.0	0.0
One Year Ago (03/06/2007 map)	50.6	49.4	25.6	10.9	0.0	0.0



**Intensity:**

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

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



Released Thursday, March 6, 2008

Author: Brian Fuchs, National Drought Mitigation Center

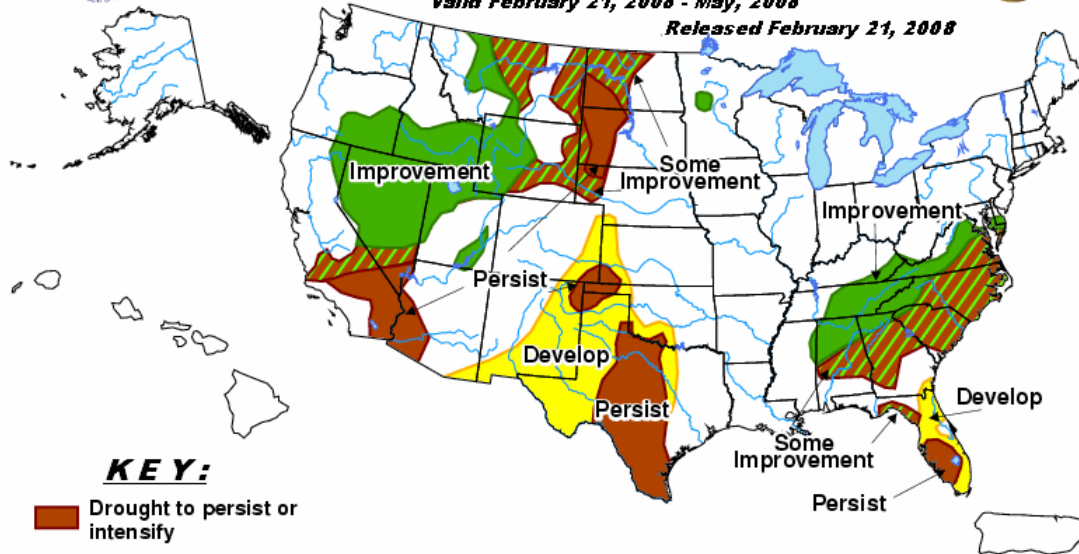
<http://drought.unl.edu/dm>

## U.S. Seasonal Drought Outlook

### Drought Tendency During the Valid Period

Valid February 21, 2008 - May, 2008

Released February 21, 2008

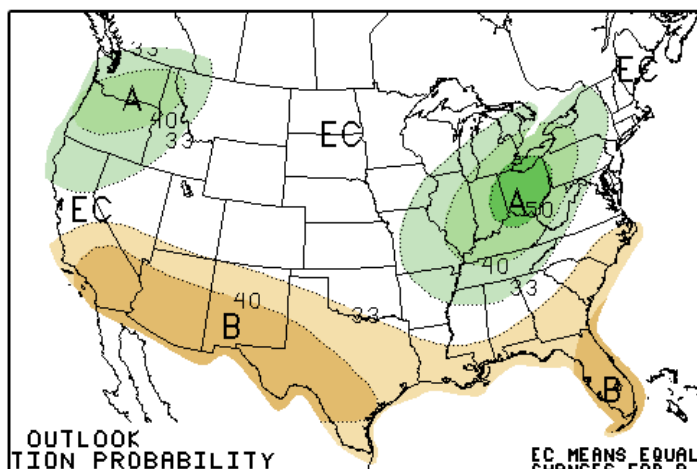


**KEY:**

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

Depicts large-scale trends based on subjectively derived probabilities guided by 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. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. 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.

### March 2008 U.S. Precipitation Forecast

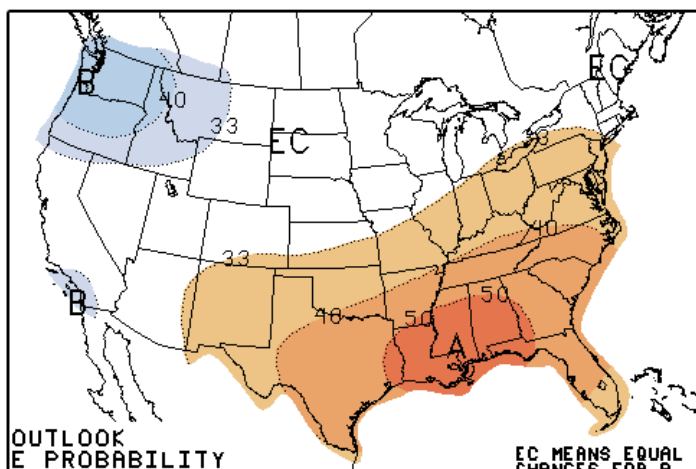


Percent Likelihood of Above or Below Average Precipitation\*

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

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

### March 2008 U.S. Temperature Forecast



Percent Likelihood of Above and Below Average Temperatures\*

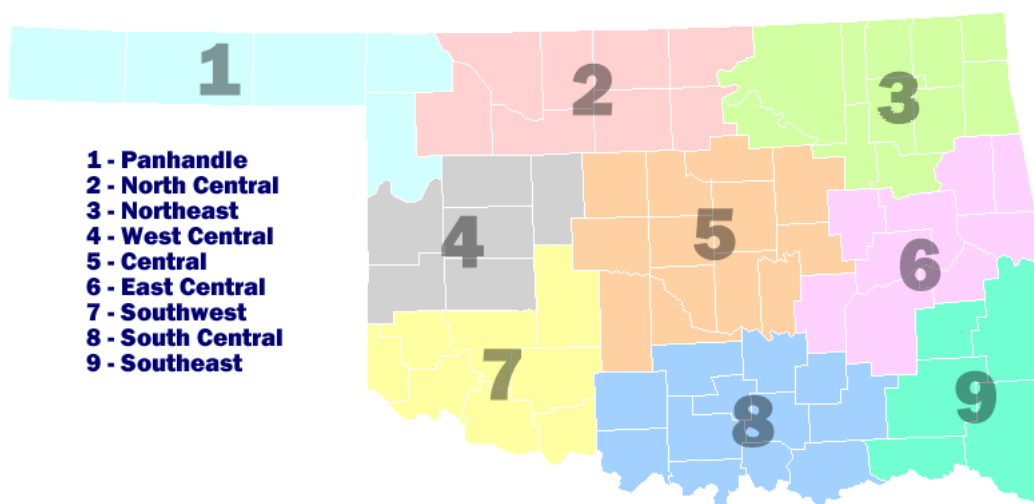
	10% - 20%	A = Above
	5% - 10%	
	0% - 5%	
	0% - 5%	B = Below
	5% - 10%	

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

## March Climate Normals

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	61.5	31.6	46.5	1.58
2	60.4	33.7	47.1	2.67
3	62.5	37.9	50.2	3.61
4	61.7	34.7	48.2	2.29
5	62.6	37.6	50.2	3.15
6	63.3	39.6	51.5	3.99
7	64.5	37.0	50.8	2.29
8	64.9	40.0	52.5	3.50
9	65.5	39.9	52.7	4.45
Statewide	62.9	37.0	50.0	3.16

## 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.mesonet.org> or

<http://climate.ok.gov/>

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



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