OKLAHOMA MONTHLY CLIMATE SUMMARY
NOVEMBER 2003

Oklahoma Climatological Survey

Overview

"Warm and dry" has become a favored phrase describing Oklahoma's climate during 2003. The statewide-averaged temperature finished above normal for the sixth time out of the last eight months – the 33rd warmest November since 1892. More importantly, however, the statewide-averaged precipitation was below normal for the eighth month out of the year's first 11, contributing to the 30th driest autumn and the 20th driest January-November period on record. A drought of another kind – a dearth of tornadoes since a very active May – was very nearly broken on the 17th. The severe weather threat on that day was serious enough to warrant the state's first tornado watch since June 20th. Fortunately, that threat was never realized, although the storms that struck Tulsa that night became severe, and dumped enough hail on that city's streets to warrant snow plows. No tornadoes have occurred in Oklahoma since May 16th, according to statistics kept by the National Weather Service. Approximately 18 tornadoes normally occur from June through November in the state. Despite that shortfall, however, 2003's tally of 79 tornadoes remains above the normal annual total of 54.

Precipitation

The statewide-averaged precipitation fell nearly 1 inch below normal during November, increasing the deficit for the year to more than 8 inches. That does not mean the entire state was desperately below normal for the month, however. The southeastern corner received near or above normal rainfall, while the northwestern portions were nearly devoid of any significant precipitation. West central Oklahoma didn't even manage a half of an inch of rainfall for the month on average, ranking their November as the 27th driest on record. The northwestern and north central sections did not fare much better, each barely exceeding the half-inch mark. Meanwhile, the southeast finished with over 4.5 inches of rainfall for the month, the 37th wettest November on record. That total did not dent that region's January-November deficit very much, however, ranking as the 8th driest such period on record. Southwestern Oklahoma's autumnal precipitation total of just over 2 inches earned it the dubious honor of being the 7th driest since record-keeping began in 1895.

Temperature

Even though the statewide-averaged temperature was over 2 degrees above normal, the seasonal averaged temperature remained just over a half of a degree below normal, not significantly cool or warm compared to the previous 30 years. Exemplifying a climatological oddity, the statewide-averaged January-November temperature was just under a half of a degree below normal, yet that ranked as the 36th warmest such period on record. The southeast was significantly warm during the month at over 4.5 degrees above normal, tied for the 10th warmest November on record.

November 2003 Statewide Extremes

Description	Extreme	Station	Date
High Temperature	87ºF	Wister	November 1st
Low Temperature	7ºF	Kenton	November 24th
High Precipitation	6.90 in.	Cookson	
Low Precipitation	0.17 in.	Erick	

November Daily Highlights

November 1-4: This period was dominated by a warm front on the 2nd, which brought the state warm and humid conditions; quite unseasonable for this time of the year. Highs in southern sections were regularly in the 70s and 80s, while northern sections were at the mercy of the meandering frontal boundary. McAlester achieved a record high temperature of 84 degrees on the 1st, while Oklahoma City experienced its warmest minimum temperature on record for the month of November with 68 degrees on the 3rd. The front was finally pushed southward across the state on the 4th, dropping temperatures below normal into the 30s and 40s. Temperatures fell 15-20 degrees as the front moved through, accompanied by northerly winds gusting up to 35 mph. Showers and thunderstorms formed along the frontal boundary, dumping over an inch of rain in eastern sections.

November 5-10: The cold front that moved across the state on the 4th was followed on the 5th by a reinforcing shot of cold air. Lows that night over much of the state were in the 20s and 30s, with gusty winds and wind chills below freezing over most of the state. The cold weather continued to dominate deeper into the period, with the first freeze at many locations on the 7th. Heavy rains struck eastern Oklahoma on the 5th and 6th, with southern regions receiving beneficial rainfall on the 7th. The cool weather began to subside on the 9th and 10th. Lows were a few degrees warmer each of these two days as the southerly winds increased across the region in response to a strengthening lee trough in the Oklahoma and Texas panhandles. Highs in the Oklahoma panhandle were in the 80s on the 10th, while the northeast struggled to get out of the 50s.

November 11-16: This period began with more warmth from strong southerly winds. Highs on the 11th were 5-15 degrees above normal across the state, ranging from 67 degrees at Miami to 81 degrees at Camargo. A cold front quickly dashed the spring-like weather on the 12th for most of Oklahoma, dropping highs back into the 50s behind the front to go along with strong northerly winds. Areas south of the front were able to reach into the 70s. More cold air the next day on the 13th kept lows in the 30s in the northwest. The temperatures slowly began warming throughout the remainder of the period, culminating with highs in the 60s at 70s on the 16th.

November 17-18: Stormy weather returned to the state on the 17th. Tornado watches were issued for the state as an upper-level storm system moved over the state. The storms did not become tornadic, but they did exceed severe limits, hitting northeastern Oklahoma particularly hard. Hail and strong winds, along with heavy rainfall, rattled Tulsa during the midday hours. The Cookson Mesonet site tallied over 3 inches of rainfall on the 17th. The heavy rains hit again on the 18th; thankfully, devoid of the hail and strong winds. Claremore picked up over 2 inches of rainfall on that day.

November 19-22: The stormy period was replaced with pleasantly tranquil weather for a few days. Sunny skies, light winds, and highs in the mid-70s greeted the state on the 19th. A strengthening low pressure trough in west Texas and eastern Colorado brought the strong winds back on the 20th, and with the winds came near-record warmth. Highs were mostly in the 70s, but the southwest reached into the low 80s. A weak cold front interrupted the nice weather for some on the 21st, mainly the west and northwest, dropping highs back into the 50s. The front stalled on the 22nd, which kept temperatures north of the front in the 50s, but in the 70s south of the boundary.

November 23-30: The remaining 8 days of the month experienced very little in the way of measurable precipitation to go along with a wide range of temperatures due to frontal passages. The first front traversed the state on the 23rd, bringing wind chills in the single digits in the northwest. The 24th saw the first freeze for much of southern Oklahoma. Lows on that day dropped into the lower teens across northern Oklahoma. This two-day stretch brought the coldest weather of the season, and the lowest temperatures the state has experienced since February 25th with a frigid 7 degree temperature at Kenton on the 24th. Another lee trough guaranteed a windy holiday weekend, although the strong southerly winds helped to moderate temperatures, and brought unseasonable warmth on the 26th. The month ended with the same windy conditions of the previous few days, along with seasonable temperatures and sunny skies.

November 2003 Statewide Statistics

Temperature

	Average	Depart.	Rank (1892-2003)
Month (November)	50.4ºF	2.1ºF	33st Warmest
Season-to-Date (Sep-Nov)	60.1ºF	-0.6ºF	55th Coolest
Year-to-Date (Jan-Nov)	61.2ºF	-0.4ºF	36th Warmest

Precipitation

	Total	Depart.	Rank (1892-2003)
Month (November)	1.85 in.	-0.97 in.	54th Wettest
Season-to-Date (Sep-Nov)	6.13 in.	-3.88 in.	30th Driest
Year-to-Date (Jan-Nov)	26.30 in.	-8.37 in.	20th Driest

Depart. = Departure from 30-year normal

November 2003 Severe Weather

Significant Tornadoes (F2 or greater)

No significant tornadoes reported in the state

Hail (2 inches in diameter or greater)

Size (inches)	Location	County	Date
2.75	Tulsa (21st and Harvard)	Tulsa	November 18
2.75	Tulsa (31st and Harvard)	Tulsa	November 18

Wind Gusts (70 mph or greater)

No significant wind gusts reported in the state

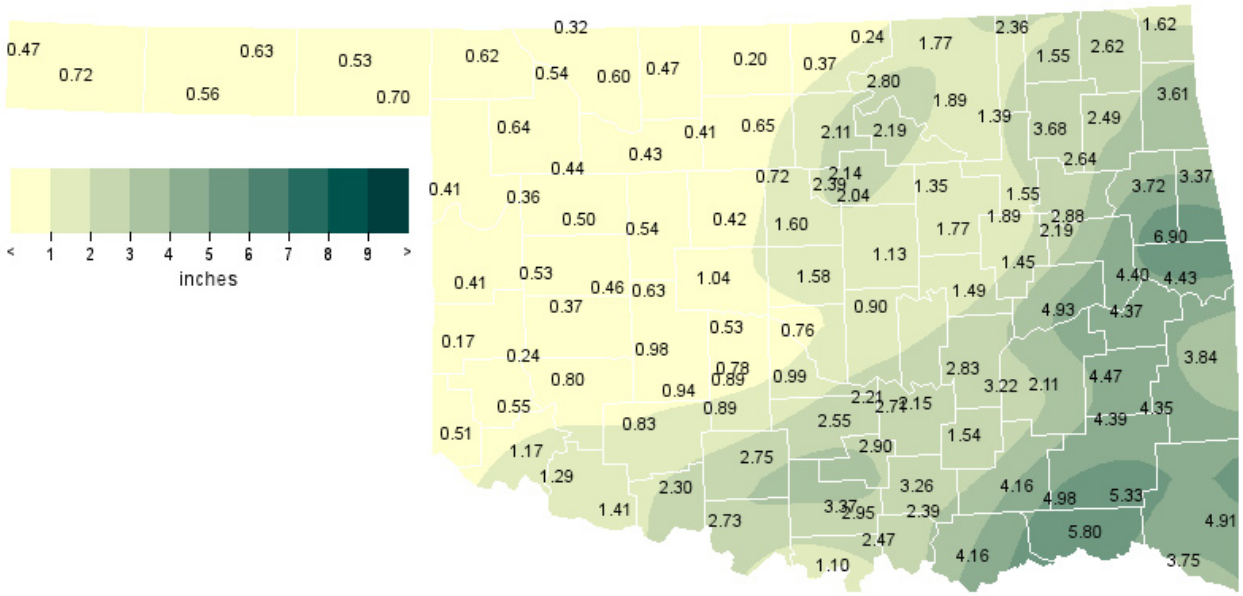
Flooding

No significant flooding reported in the state

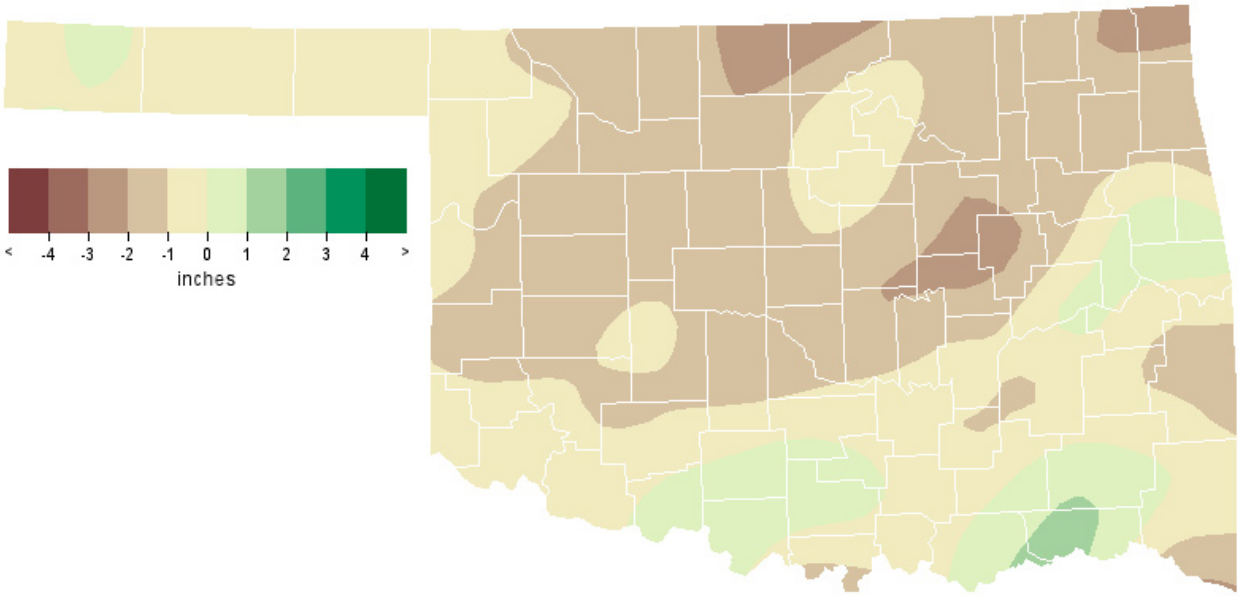
Record Event Reports

Description	Day	Location	Record	Previous Record	Year
High Temperature	1	McAlester	84 degrees	82 degrees	1982
Warmest Minimum Temperature	3	Oklahoma City	68 degrees	63 degrees	1994
Warmest November Minimum Temperature	3	Oklahoma City	68 degrees	66 degrees	1938, 1966

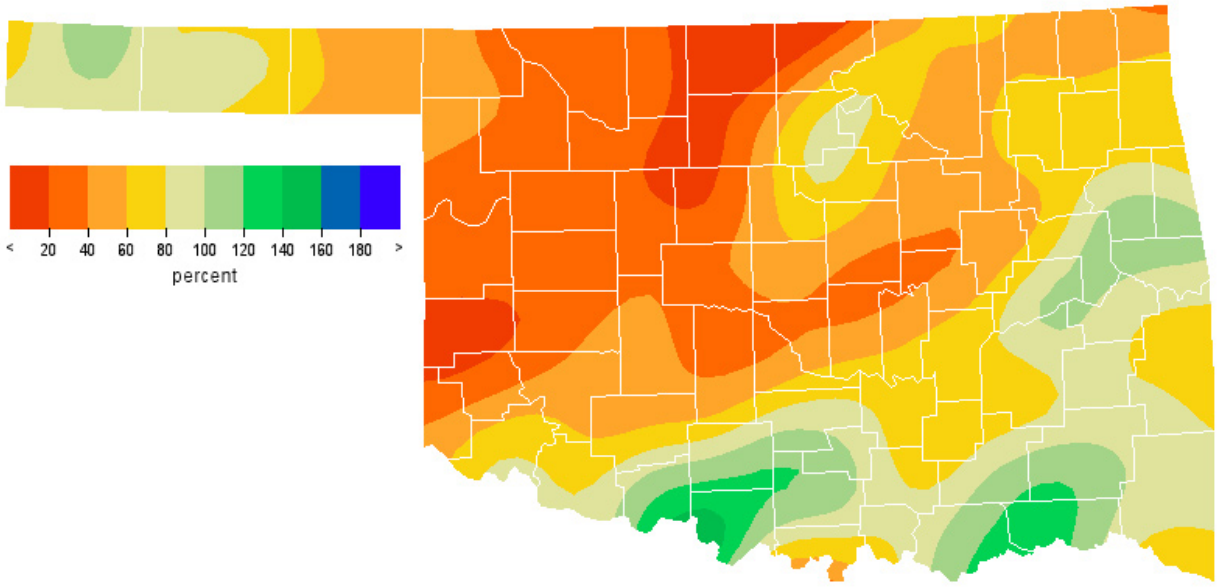
November 2003 Observed Precipitation



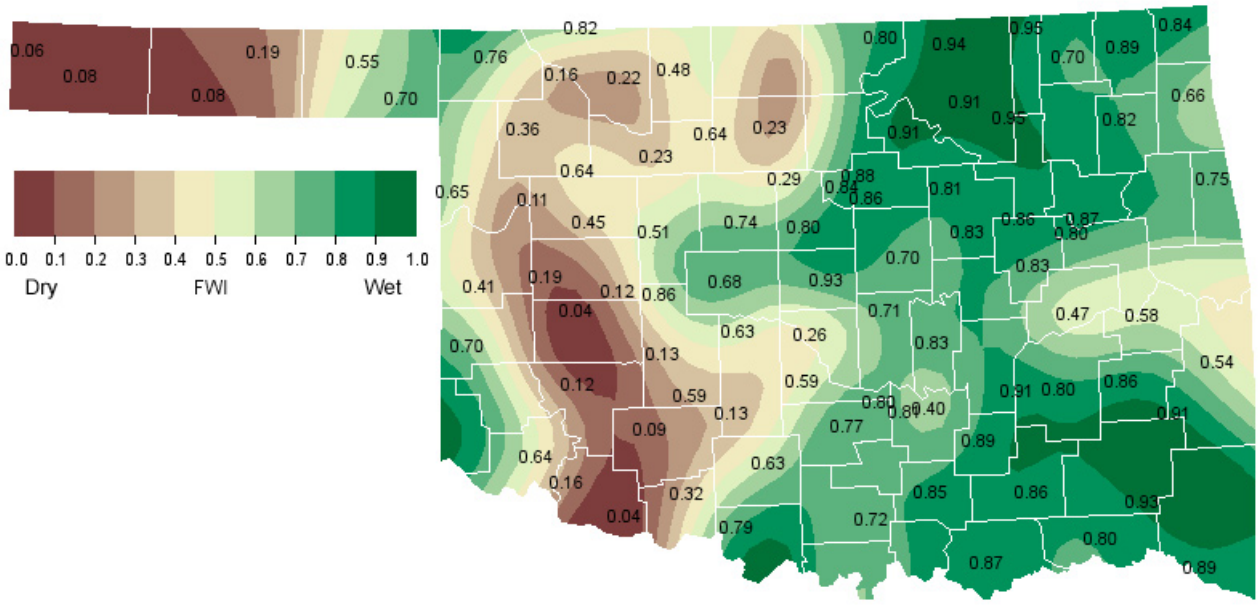
November 2003 Departure from Normal Precipitation



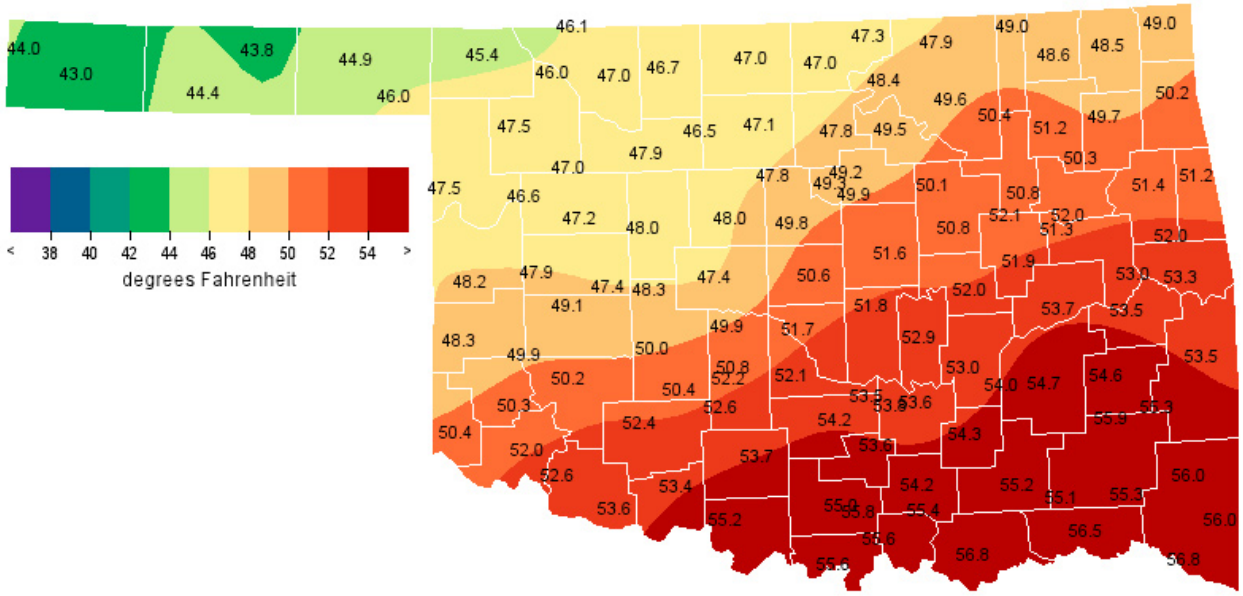
November 2003 Percent of Normal Precipitation



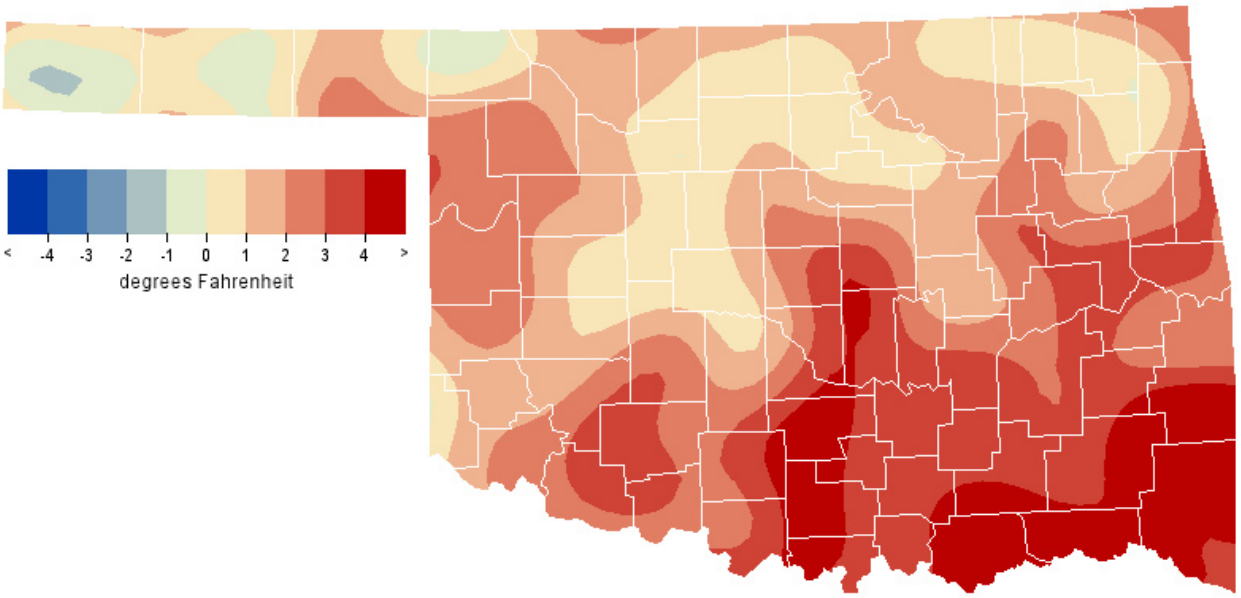
November 2003 Average Soil Moisture at 25cm



November 2003 Average Temperature



November 2003 Departure from Normal Temperature



Mesonet Monthly Summary for November 2003

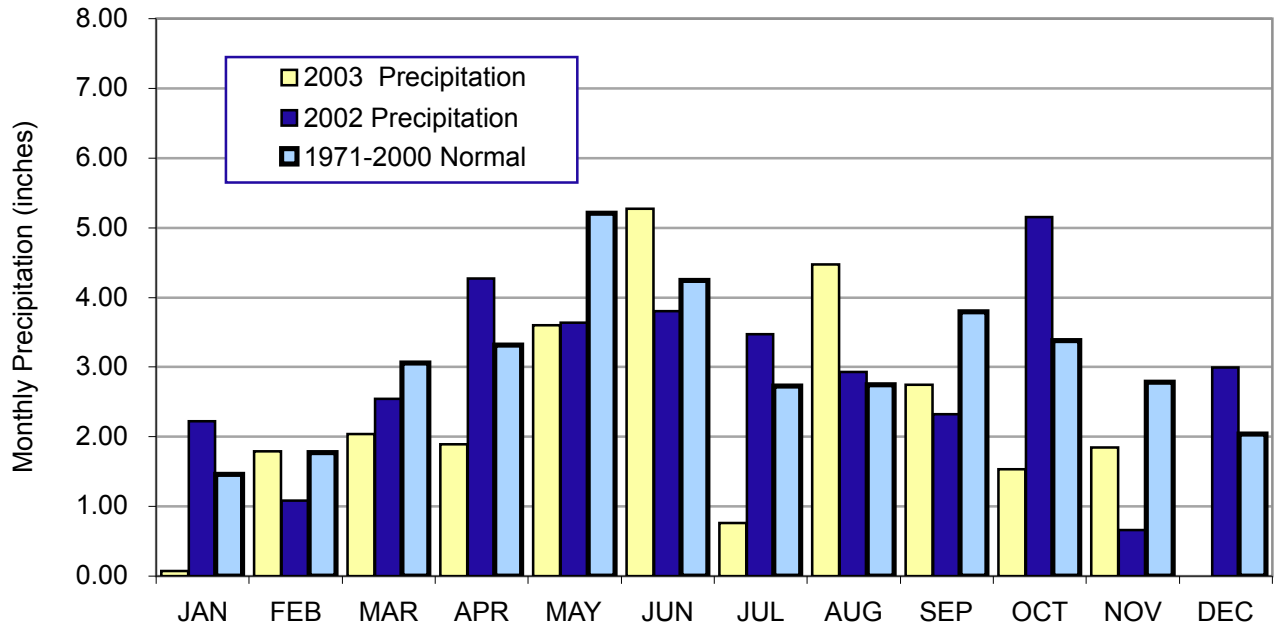
NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	47.5	83	20	13	24	532	8	.41	.38	13
Beaver	44.9	82	2	11	24	604	0	.53	.52	13
Boise City	43.0	79	2	8	24	658	0	.72	.72	13
Buffalo	45.5	81	3	14	24	586	0	.62	.61	13
NORTH CENTRAL										
Blackwell	47.0	79	3	12	24	548	8	.37	.28	17
Breckenridge	47.1	78	2	14	24	543	6	.65	.49	13
Cherokee	46.7	80	2	14	24	556	7	.47	.45	13
Fairview	47.9	81	2	18	24	522	9	.43	.39	13
Freedom	46.0	79	3	12	24	569	1	.54	.52	13
Lahoma	46.5	78	2	15	24	562	6	.41	.38	13
May Ranch	46.1	78	3	15	24	566	0	.32	.28	13
NORTHEAST										
Bixby	50.8	80	3	21	29	****	****	1.55	.45	14
Burbank	48.5	78	3	18	24	505	8	2.80	2.59	17
Copan	49.0	80	3	20	24	488	8	2.36	2.05	17
Foraker	47.8	80	3	15	24	523	8	1.76	1.60	17
Jay	50.2	80	3	20	29	457	12	3.61	1.17	17
Miami	49.0	79	2	19	29	486	7	1.62	.45	17
Nowata	48.6	79	3	19	29	499	8	1.55	.57	17
Pawnee	49.6	82	3	18	24	472	10	2.19	1.53	17
WEST CENTRAL										
Bessie	49.1	79	2	16	24	487	10	.37	.14	14
Butler	47.8	82	2	14	24	526	11	.53	.23	13
Camargo	46.6	81	11	12	24	560	9	.36	.31	13
Cheyenne	48.3	80	20	16	24	510	10	.41	.32	13
Erick	48.3	82	3	13	24	511	9	.17	.06	14
CENTRAL										
Bowlegs	52.9	81	3	21	24	385	21	*****	*****	***
Bristow	50.7	79	3	19	24	****	****	1.76	.43	14
Chandler	51.6	80	3	19	24	419	17	1.13	.46	14
Chickasha	50.9	80	3	19	24	439	17	.78	.25	14
El Reno	47.4	78	3	12	24	539	11	1.04	.63	17
Guthrie	49.7	80	3	17	24	471	13	1.60	1.30	17
Kingfisher	47.9	81	3	15	24	524	10	.42	.16	13
Marena	49.2	79	3	17	24	483	10	2.39	1.52	17
Minco	49.8	79	3	16	24	467	12	.53	.28	14
Oilton	50.2	81	3	17	24	458	13	1.35	.33	13
EAST CENTRAL										
Calvin	53.3	81	4	22	29	****	****	2.83	.75	4
Cookson	52.0	82	1	21	29	408	18	6.90	3.12	17
Eufaula	53.6	81	3	24	24	361	20	4.93	2.29	17
Haskell	51.3	80	2	22	24	420	10	2.19	.56	17
McAlester	54.7	84	1	23	29	341	32	2.11	.52	23
Okmulgee	51.9	80	2	21	29	407	14	1.45	.61	14
Sallisaw	53.4	86	1	21	29	371	22	4.43	1.24	17
SOUTHWEST										
Altus	52.0	84	3	16	24	413	22	1.17	.70	7
Fort Cobb	50.1	78	2	18	24	463	15	.98	.48	17
Hinton	48.2	77	3	15	24	514	12	.63	.32	17
Hobart	50.2	80	2	16	24	459	16	.80	.42	7
Hollis	49.8	85	3	13	24	****	****	.51	.42	7
Mangum	50.3	83	3	11	24	460	21	.55	.41	7
SOUTH CENTRAL										
Ada	53.6	80	1	23	24	364	22	2.15	.44	23
Ardmore	55.8	83	1	23	24	307	31	2.95	1.21	7
Burneyville	55.6	84	4	21	24	319	38	1.10	.46	7
Byars	53.6	80	2	22	24	364	20	2.21	.77	17
Centrahoma	54.3	81	1	23	29	348	28	1.54	.44	7
Durant	56.7	85	1	25	24	287	39	4.16	1.92	5
Ketchum Ranch	53.7	80	4	20	24	358	20	2.43	1.38	7
Lane	55.1	84	1	25	29	326	30	4.16	1.41	17
Madill	55.6	82	1	22	24	312	31	2.47	.69	7
SOUTHEAST										
Antlers	55.1	87	1	19	29	329	33	4.98	1.85	17
Clayton	55.9	86	1	23	29	310	37	4.39	1.52	17
Cloudy	55.3	83	1	22	29	317	26	5.33	1.40	17
Hugo	56.5	84	1	25	24	298	42	5.80	2.41	5
Idabel	56.8	84	4	23	29	277	31	3.75	1.54	5

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	44.4	81	3	11	24	618	0	.56	.56	13
Hooker	43.7	79	2	11	24	638	0	.63	.63	13
Kenton	43.9	79	2	7	24	632	0	.47	.41	13
Slapout	46.0	82	3	14	24	571	0	.70	.61	13
Medford	47.0	79	2	12	24	548	7	.20	.19	13
Newkirk	47.3	77	3	13	24	539	7	.24	.19	17
Red Rock	47.8	81	3	15	24	525	9	2.11	1.42	17
Seiling	47.0	82	2	13	24	553	12	.44	.39	13
Woodward	47.5	81	20	15	24	536	9	.64	.62	13
Alva	46.9	82	2	13	24	550	8	.60	.52	13
Pryor	50.3	81	3	20	24	****	****	2.48	.78	17
Skiatook	50.4	79	3	19	24	447	10	1.39	.45	18
Vinita	48.5	80	2	17	29	502	7	2.62	1.81	18
Wynona	49.6	81	3	19	24	471	9	1.89	1.08	17
Porter	52.0	80	3	24	29	401	12	2.88	.70	17
Inola	50.3	80	2	21	29	453	11	2.64	.78	17
Claremore	51.3	81	3	22	24	426	14	3.68	2.23	18
Putnam	47.2	80	2	13	24	543	9	.50	.37	13
Retrop	49.9	80	3	15	24	466	13	.24	.08	14
Watonga	48.1	76	2	17	24	519	11	.54	.38	13
Weatherford	47.5	77	2	13	24	535	9	.46	.15	14
Okemah	52.1	78	2	21	24	403	15	1.49	.50	17
Perkins	49.9	80	3	19	24	466	13	2.04	.85	18
Shawnee	51.8	79	3	20	24	414	19	.90	.28	14
Spencer	50.6	79	3	16	24	450	18	1.58	.92	17
Stillwater	49.1	81	3	20	24	486	10	2.14	1.41	17
Washington	52.1	80	4	17	24	406	19	.99	.25	14
Ninnekah	52.1	80	3	18	24	406	20	.89	.33	17
Acme	52.6	80	3	18	24	393	20	.89	.33	7
Norman	51.7	79	3	17	24	417	18	.76	.27	14
Marshall	47.9	80	3	15	24	523	9	.72	.34	13
Stigler	53.4	86	1	23	24	371	22	4.37	1.65	5
Stuart	54.0	82	1	22	24	356	26	3.22	1.02	4
Tahlequah	51.4	80	1	21	24	419	10	3.72	1.12	17
Webbers Falls	53.0	83	3	22	29	379	20	4.40	1.17	5
Westville	51.2	80	1	20	24	423	10	3.37	1.14	17
Hectorville	52.1	81	3	21	24	402	14	1.89	.48	18
Medicine Park	52.4	79	2	22	24	395	16	.83	.48	7
Tipton	52.5	83	3	18	24	396	21	1.29	.92	7
Walters	53.3	85	4	20	24	371	21	2.30	1.44	7
Apache	50.4	79	3	17	24	453	14	.94	.37	17
Grandfield	53.6	83	4	19	24	361	20	1.41	.97	7
Pauls Valley	54.2	82	4	21	24	349	25	2.55	1.06	17
Ringling	*****	***	***	***	***	****	****	*****	*****	***
Sulphur	53.6	81	4	21	24	365	22	2.90	1.07	7
Tishomingo	54.2	82	1	21	24	347	22	3.26	1.48	7
Waurika	55.2	86	4	22	24	330	35	2.73	1.66	7
Vanoss	53.8	81	4	21	24	361	26	2.71	.89	17
Bee	55.9	83	1	23	29	****	****	2.32	.80	7
Newport	55.1	82	2	20	24	326	27	3.37	1.20	7
Mt Herman	56.0	81	1	24	29	302	32	*****	*****	***
Talihina	55.5	84	1	20	29	****	****	4.30	1.56	17
Wilburton	54.6	85	1	23	29	344	32	4.47	1.38	17
Wister	53.5	87	1	18	29	371	25	3.84	1.07	5
Broken Bow	55.9	84	4	20	25	293	22	4.91	1.49	5

November 2003 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Nov-02
Panhandle	0.58	-0.46	48th Driest	4.07 (1909)	0.00 (1897)	0.20
North Central	0.57	-1.51	34th Driest	6.48 (1964)	0.00 (1910)	0.23
Northeast	2.34	-1.28	54th Driest	7.37 (1994)	0.00 (1904)	0.53
West Central	0.40	-1.33	27th Driest	6.62 (1964)	0.00 (1897)	0.33
Central	1.23	-1.58	39th Driest	6.88 (1931)	0.00 (1910)	0.58
East Central	3.52	-0.78	43rd Wettest	10.16 (1996)	0.20 (1914)	0.80
Southwest	1.04	-0.69	48th Driest	5.73 (1992)	0.00 (1897)	0.77
South Central	2.71	-0.39	39th Wettest	7.62 (1902)	0.00 (1903)	0.97
Southeast	4.65	-0.42	37th Wettest	13.16 (1946)	0.00 (1903)	1.62
Statewide	1.85	-0.97	54th Wettest	5.72 (1909)	0.14 (1910)	0.65

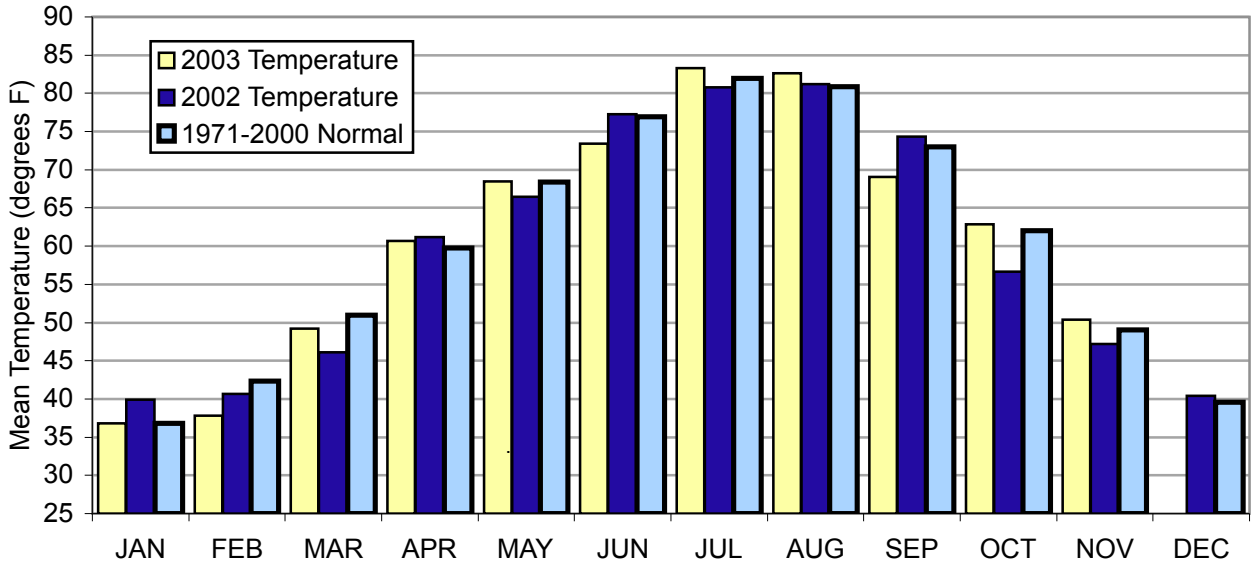
2002 and 2003 Statewide Precipitation Monthly Totals vs. Normal



November 2003 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Nov-02 (F)
Panhandle	44.9	0.9	47th Warmest	51.4 (1999)	36.0 (1929)	44.2
North Central	47.0	0.7	55th Coolest	54.5 (1999)	39.0 (1929)	45.8
Northeast	49.7	1.7	38th Warmest	56.4 (1999)	40.9 (1929)	46.0
West Central	48.1	1.3	47th Warmest	54.7 (1999)	39.7 (1929)	46.6
Central	50.5	1.7	36th Warmest	56.8 (1999)	41.3 (1929)	47.9
East Central	52.7	2.8	20th Warmest	57.8 (1999)	43.4 (1929)	48.1
Southwest	51.2	2.0	36th Warmest	56.3 (1999)	42.1 (1929)	48.2
South Central	54.7	3.7	17th Warmest	58.3 (1927)	44.1 (1929)	49.0
Southeast	55.5	4.8	t-10th Warmest	58.9 (1909)	44.1 (1976)	47.4
Statewide	50.4	2.1	33rd Warmest	56.0 (1999)	41.3 (1929)	47.0

2002 and 2003 Statewide Temperature Monthly Averages vs. Normal



Mesonet Extremes for November 2003

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	83	20th	Arnett	7	24th	Kenton	0.72	Boise City	0.72	13th	Boise City
North Central	82	2nd	Alva	12	24th	Freedom	2.11	Red Rock	1.42	17th	Red Rock
Northeast	82	3rd	Pawnee	15	24th	Foraker	3.68	Claremore	2.59	17th	Burbank
West Central	82	3rd	Erick	12	24th	Camargo	0.54	Watonga	0.38	13th	Watonga
Central	81	3rd	Bowlegs	12	24th	El Reno	2.39	Marena	1.52	17th	Marena
East Central	86	1st	Sallisaw	20	24th	Westville	6.9	Cookson	3.12	17th	Cookson
Southwest	85	3rd	Hollis	11	24th	Mangum	2.3	Walters	1.44	7th	Walters
South Central	86	4th	Waurika	20	24th	Ketchum Ranch	4.16	Durant	1.92	5th	Durant
Southeast	87	1st	Wister	18	29th	Wister	5.8	Hugo	2.41	5th	Hugo
Statewide	87	1st	Wister	7	24th	Kenton	6.9	Cookson	3.12	17th	Cookson

December Climatological Outlook

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.

Temperature
Mean: 39.6 degrees
Warmest December: 1933 and 1965, 46.5 degrees
Coolest December: 1983, 26.5 degrees
Warmest location: Waurika, 44.2 degrees
Coolest location: Turpin, 33.5 degrees
Hottest recorded: 92 degrees, Ardmore, December 30, 1951
Coldest recorded: -19 degrees, Goodwell, December 12, 1932

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.

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.

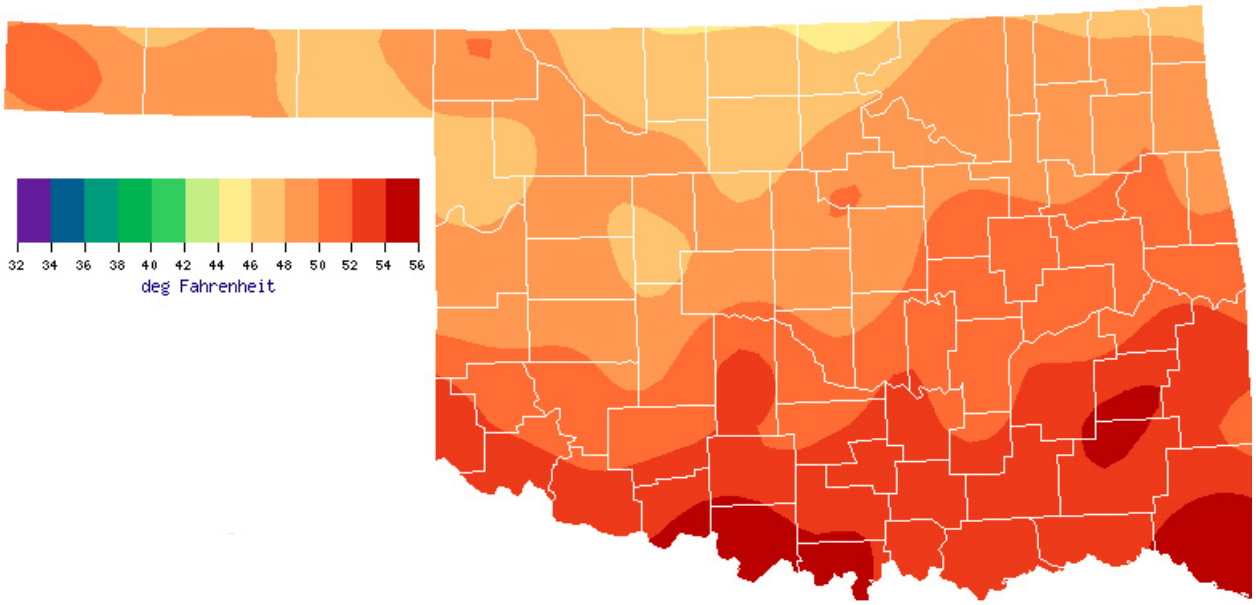
Precipitation
Mean: 2.04 inches
Wettest year: 1984, 4.98 inches
Driest year: 1980, 0.07 inches
Wettest location: Smithville, 5.19 inches
Driest location: Goodwell, 0.34 inches
Most recorded: 18.13 inches, Bear Mountain Tower, 1971

An unfortunate by-product of developing winter storms is the presence of sleet or freezing rain. 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.

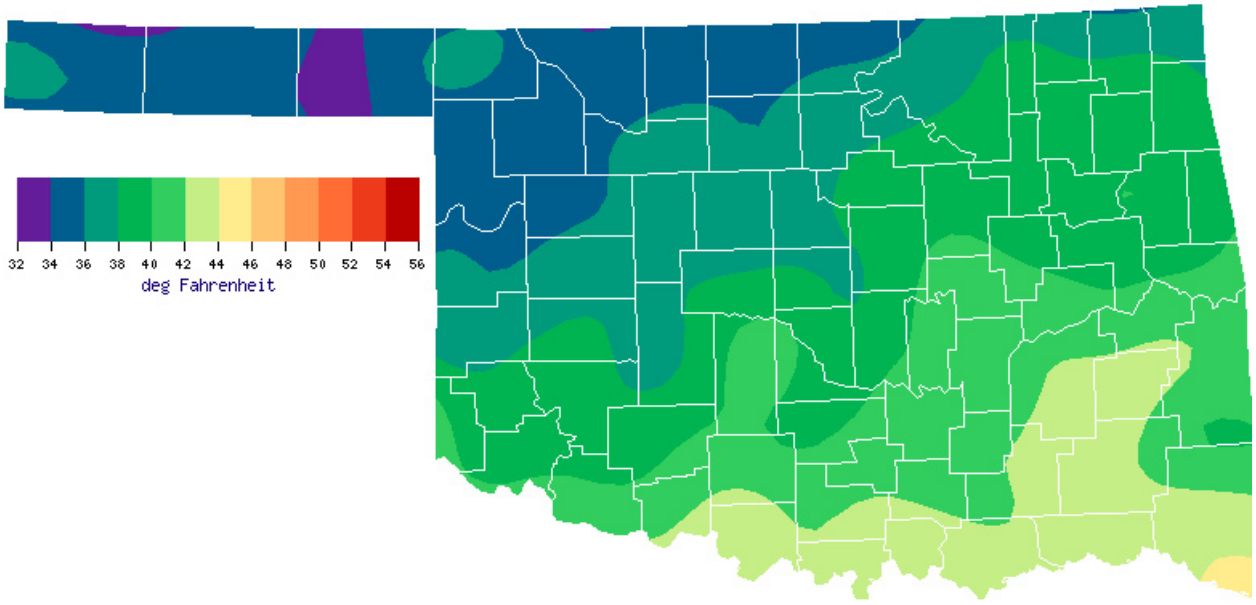
Tornadoes are not a regular December feature. Only 22, occurring in seven different years, are included in the comprehensive database that begins in 1950. Four tornadoes were reported in Oklahoma during each of 1971, 1975, and 1982.

Tornadoes
Average December Tornadoes: 0.4
Most: 4 (1982)

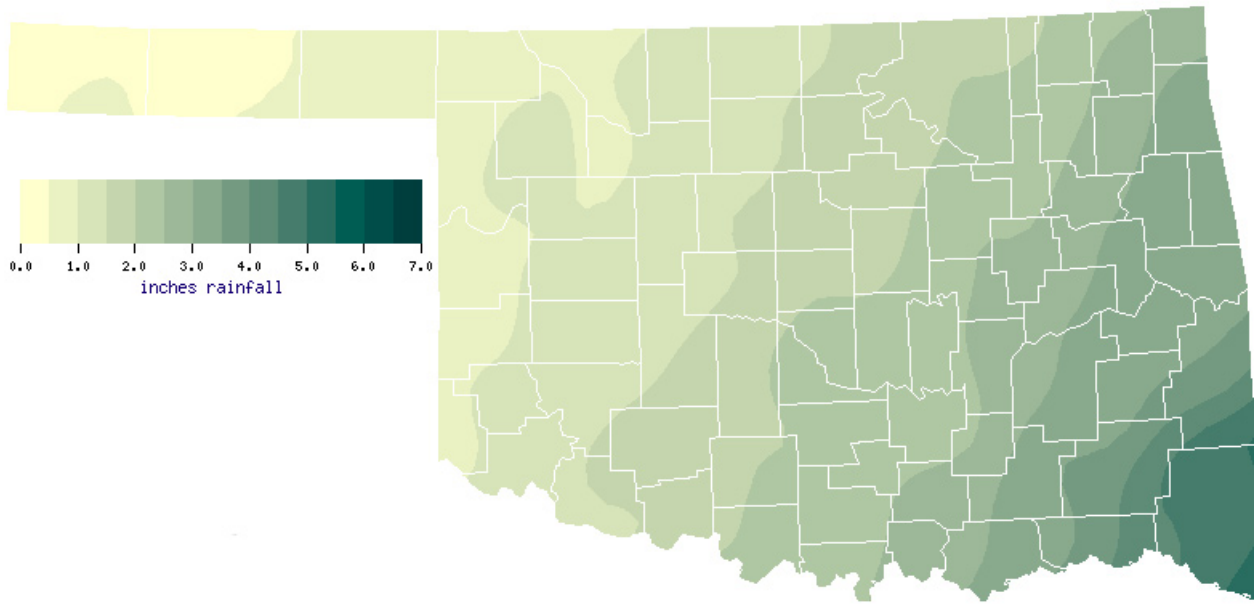
December Normal Monthly Maximum Temperature (1971-2000)



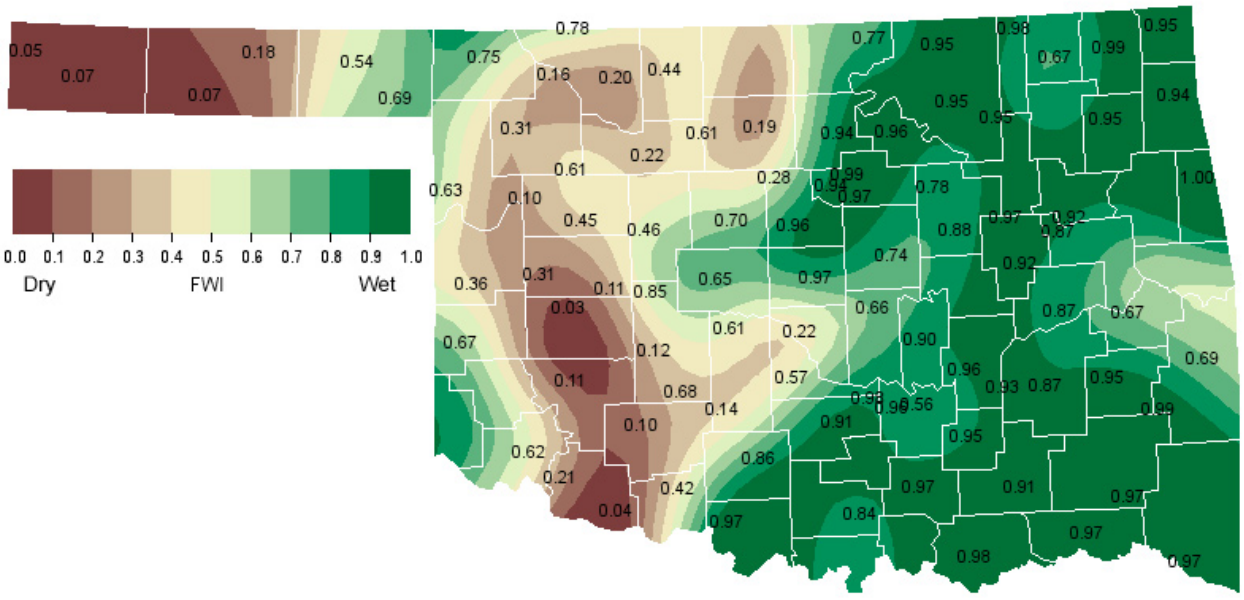
December Normal Monthly Minimum Temperature (1971-2000)



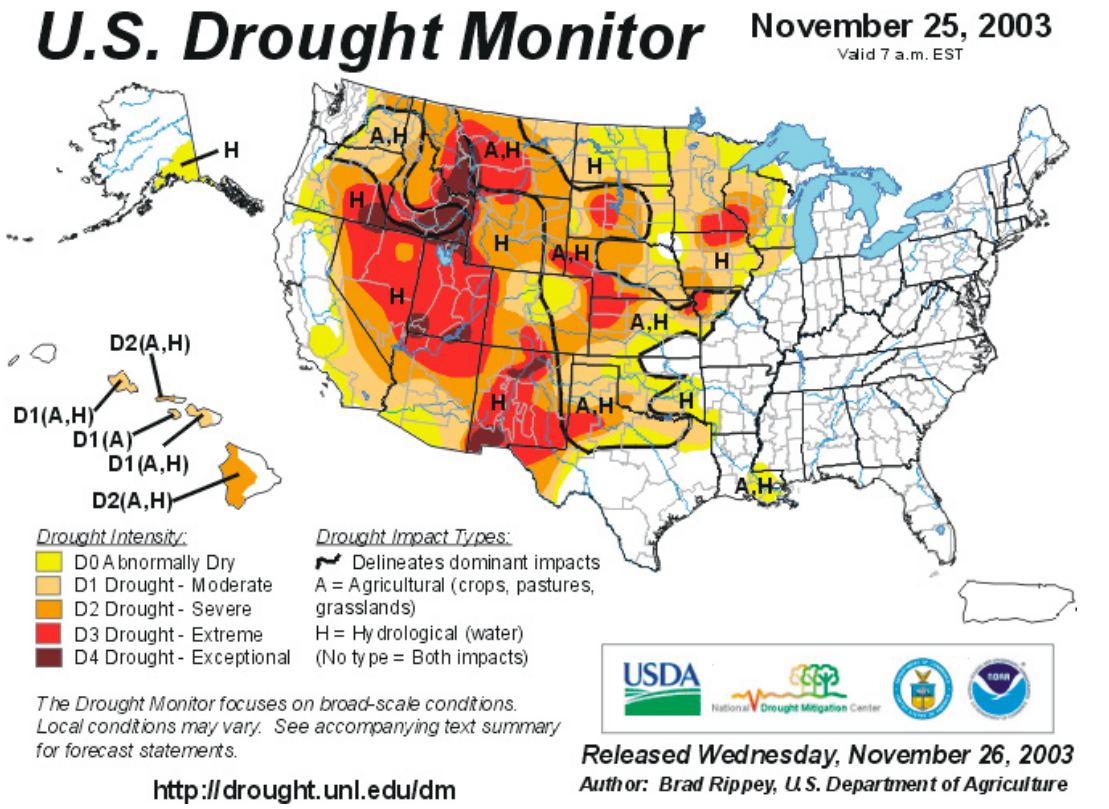
December Normal Precipitation (1971-2000)

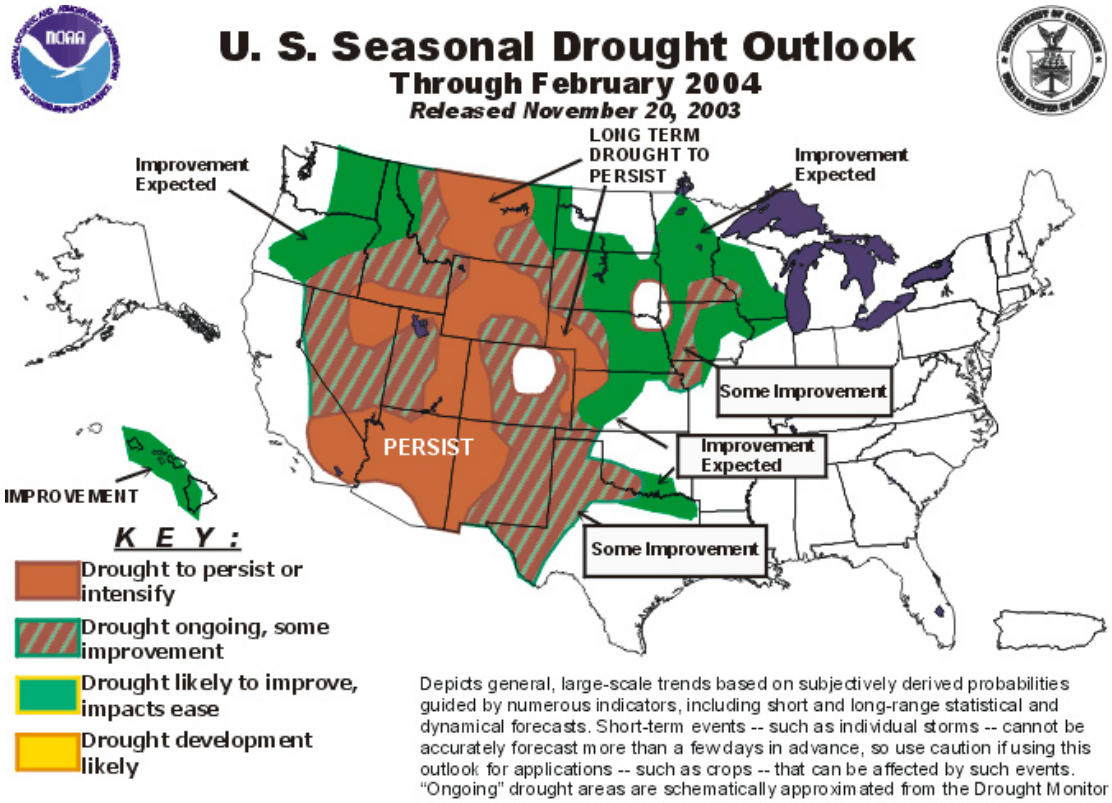


December 1, 2003 Soil Moisture Conditions at 25cm

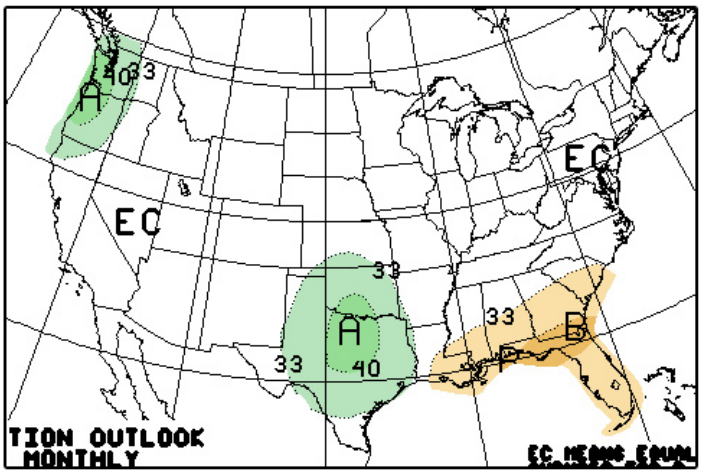


December 2003 Drought Indices





December 2003 U.S. Precipitation Forecast



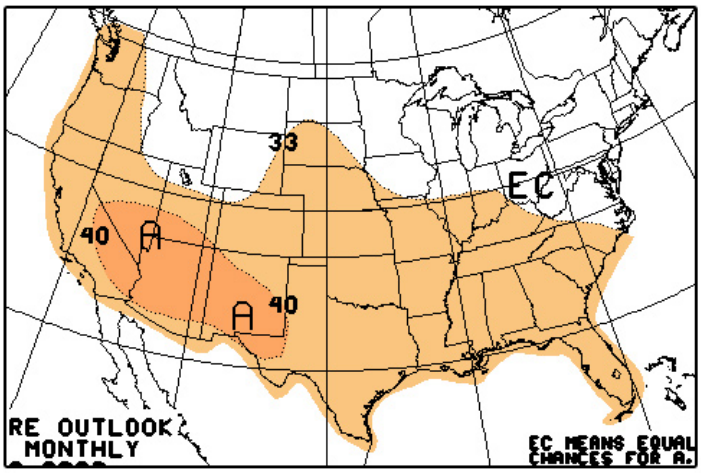
Percent Likelihood
of Above or Below
Average Precipitation*

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

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

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

December 2003 U.S. Temperature Forecast



Percent Likelihood
of Above and Below
Average Temperatures*

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

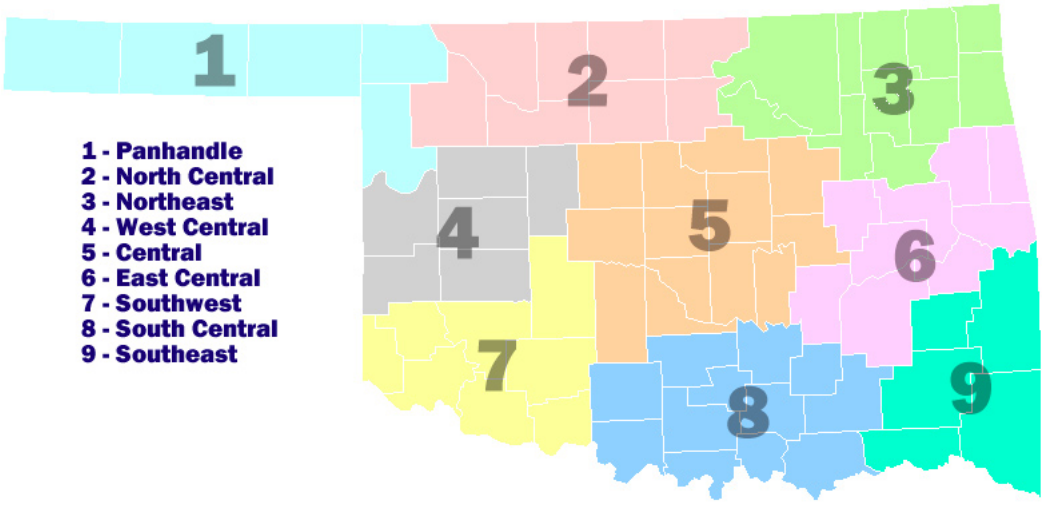
0% - 5%
5% - 10%
B = Below

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

December Climate Normals

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	49.2	21.7	35.5	0.68
2	47.2	23.9	35.6	1.30
3	49.4	27.8	38.6	2.29
4	48.8	25.3	37.1	1.11
5	50.2	28.0	39.1	1.98
6	51.2	30.0	40.6	3.01
7	51.6	27.1	39.4	1.39
8	53.3	30.4	41.9	2.54
9	53.9	30.7	42.3	4.21
Statewide	50.5	27.3	38.9	2.14

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)

Oklahoma Climatological Survey

Oklahoma Climatological Survey is the State Climate Office for Oklahoma

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