Oklahoma Monthly Climate Summary

APRIL 2013

OKLAHOMA CLIMATOLOGICAL SURVEY

Just how cold was April 2013 in Oklahoma? According to preliminary data from the Oklahoma Mesonet, the statewide average temperature came in at 55 degrees to rank as the seventh coolest April on record, 4.1 degrees below normal. Records of that type began in 1895. That sounds fairly cold, but becomes downright frigid considering the state's recent climate history. It could be measured against last year's April, the eighth warmest on record, which finished with a statewide average temperature of 64.1 degrees. Better yet, it could be measured against last March's record warm mark of 59.6 degrees. And this also comes soon after Oklahoma's record warm year of 2012. Regardless of statistics, the evidence speaks for itself, such as the record late freezes in many locations, or the snow and ice that accumulated on tree branches where buds should have appeared. The frosty weather was a continuation of cooler than normal conditions that began in mid-February and persisted through March. The March-April statewide average temperature was 51.1 degrees, 3.5 degrees below normal to rank the first two months of spring as the 12th coolest on record. April became the third month in a row that saw the state finish with below normal temperatures, a feat not accomplished since the winter months of 2011-12. Prior to this February, 28 of the previous 34 months in Oklahoma were warmer than normal.

April 2013 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	96°F	Beaver	30
Low Temperature	14°F	Boise City	10
High Precipitation	10.58 in.	Chickasha	--
Low Precipitation	0.12 in.	Boise City	--

The drought relief that began in February also gained momentum during April. According to Oklahoma Mesonet rain gauges across the state, the average precipitation total came in at exactly 4 inches for the month, about 0.6 inches above normal. That would rank the month as the 37th wettest April since records began in 1895. Not all areas of the state saw equally beneficial rains, however. The Oklahoma Panhandle saw a half-inch of precipitation on average to rank April as the ninth driest on record for that area. The most significant rains fell from Kiowa County in the southwest through Pottawatomie County in central Oklahoma. Totals along that path ranged from 8 to 11 inches. Chickasha led all Mesonet stations with 10.6 inches. Boise City in the far western Panhandle only recorded a tenth of an inch of moisture for the month. The latest U.S. Drought Monitor report reflected those recent rains with more than 25 percent of the state out of drought, mostly across eastern and central Oklahoma. Areas across western, southern and northern Oklahoma were depicted in more significant intensities of drought, with 54 percent of the state still categorized in at least severe drought.

April was an active severe weather month. Although the count is still preliminary, at least a dozen twisters struck the state during April. The most significant tornado, rated EF2 on the Enhanced Fujita scale, struck Delaware County early on the 18th, destroying a home and damaging others. Two people were injured by a tornado that touched down near Spavinaw earlier that night. The preliminary tornado count for the year rose to 16, close to the average number for January-April. The severe weather came in frozen form, too. An unusually thick layer of ice coated western and northern Oklahoma on April 10 and caused widespread power outages and traffic accidents. That severe winter blast arrived on the heels of temperatures in the 80s the day before. Another wintry blast on April 23 coated power lines in the Panhandle with more than a half-inch of ice to cause power disruptions in that area. The most damaging severe weather during April might have also been its most benign. Each of those cold air outbreaks dropped temperatures below freezing for a significant period of time, long enough to do damage to wheat and other crops already stressed from

April 2013 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2013)
Month (April)	55.0°F	-4.1°F	7th Coolest
Season-to-Date (Mar-Apr)	51.1°F	-3.5°F	12th Coolest
Year-to-Date (Jan-Apr)	45.7°F	-1.1°F	42nd Coolest

Precipitation

	Average	Depart.	Rank (1895-2013)
Month (April)	4.03 in.	0.67 in.	37th Wettest
Season-to-Date (Mar-Apr)	5.28 in.	-1.19 in.	54th Driest
Year-to-Date (Jan-Apr)	10.19 in.	0.51 in.	33rd Wettest

Depart. = departure from 30-year normal

prolonged drought. Parts of southwestern Oklahoma and the Panhandle were thought to be particularly hard hit from the damaging freezes. The final assessment on the scope of the freeze damage might not occur until harvest time in late spring.

APRIL DAILY HIGHLIGHTS

APRIL 1-4: Mother Nature played a joke on Oklahoma by quickly dropping maximum temperatures from the upper 70s to the 40s and 50s on the 1st. However, this was to be expected as a cold front moved into the state from the north. Temperatures became unseasonably cool with highs averaging in the 30s and 40s on the 2nd and 3rd, and the 40s and 50s on the 4th. Oklahoma City had its record daily coldest maximum temperature on the 4th of 41 degrees. Minimum temperatures ranged from the 20s to the 40s on all four days, with the lowest minimum temperature reported at 21 degrees in Kenton and the highest minimum temperature reported at 46 degrees in Ardmore. The passing frontal boundary also produced scattered showers and thunderstorms across the state. Although precipitation was generally less than a tenth of an inch on the 1st, as much as 3.46 inches was measured in Talihina on the 2nd, 2.01 inches in Guthrie on the 3rd, and 1.30 inches again in Talihina on the 4th. Oklahoma City reached a daily record for accumulated precipitation on the 2nd at 1.4 inches. Average wind speeds fluctuated a bit, ranging between 5 – 15mph on the 1st, 5 – 20mph on the 2nd, 5 – 13mph on the 3rd, and 5 – 10mph on the 4th.

APRIL 5-9: Patches of morning fog frequented a number of areas during this period. Southerly winds allowed maximum temperatures to climb, and although moisture could be felt in the air, rainfall remained negligible. High temperatures generally averaged in the 70s and 80s, but temperatures managed to peak as high as 88 in Hollis on the 7th and 91 in Hollis on the 8th. Despite a weak cold front moving through on the 6th, the lowest maximum temperatures only dipped to 68 (Boise City). The warmest minimum temperatures in the state increased from the 40s on the 5th to the 60s by the 9th. Conversely, the lowest minimum temperatures climbed from the 20s to the 40s and then back down to the teens by Tuesday. Average wind speeds were relatively high with the upper end reaching around 15 and 20mph from the 5th to the 8th and around 30mph on the 9th.

APRIL 10-12: A low pressure trough over the region brought cooler than normal temperatures to Oklahoma, as well as scattered showers and thunderstorms on Wednesday. Maximum temperatures ranged from 35 in Breckinridge to 77 in Wister, with Thursday and Friday ranging between the 50s and upper 60s-low 70s. Low temperatures fell between the mid-teens and the upper 30s-low 40s. Oklahoma City reported its daily coldest maximum temperature of 39 degrees on the 10th, followed by its daily coldest minimum temperature of 29 on the 11th. Due to the wide range in temperatures on the 10th, a wintry mix of snow, freezing rain, and sleet fell in the western part of the state. Precipitation amounts from the scattered thunderstorms were as high as 2.16 inches in McAlester and 1.78 inches in Guthrie that day. The daily average wind speed was fairly high on the 10th, measuring just above 20mph in portions of the panhandle. The highest average wind speeds were around 10mph on the 11th and 12th.

APRIL 13-14: Despite the previous days' abnormally cool temperatures, a warming trend ensued. Maximum temperatures ranged from 69 in Webbers Falls, Westville, and Cookson to 83 in Beaver on the 13th, and 71 to 92 degrees in Tipton on the 14th. Lows averaged in the 30s and 40s on Saturday, but moved up to the 50s on Sunday. In conjunction with the warm temperatures and moisture filled air, rainfall and thunderstorms swept through much of the state. While just over a quarter inch of rain fell in portions of north-central Oklahoma on the 13th, small hail and strong winds revisited the area again on the 14th. The highest average daily wind speeds reached around 20mph on both days. Gusts as high as 54mph and 60mph were reported in Beaver and Freedom, respectively.

APRIL 15 – 18: The preceding warm trend didn't last long as temperatures continued to dwindle throughout this period. Maximum temperatures fell from a range of 60 – 88 degrees on the 15th to a range of 39 – 78 degrees on the 18th. The highest minimum temperatures went from the 60s and 70s, to the low 40s by Thursday. The lowest minimum temperatures generally stayed in the 20s. The 17th and 18th were noteworthy as both days experienced severe weather and had record breaking daily events. Oklahoma City broke its daily maximum rainfall record on the 17th (2.42 in.) and its daily coldest maximum temperature on the 18th (47 degrees). McAlester broke its daily highest minimum temperature on the 17th at 73 degrees. With regard to severe weather events, 11 tornadoes were reported in Comanche, Tillman, Tulsa, Rogers, and Mayes County on the 17th and 18th; five counties had hail reports greater than 2 inches; wind speeds between 70 and 80mph were reported in Comanche and Tillman Counties on the 17th; and 19 locations reported flooding (5 on the 17th and 14 on the 18th). Rainfall measurements were as high as 6.57 inches in Medicine Park, 4.52 inches in Apache, and 4.16 inches in Shawnee on the first severe weather day in this period. In general, rainfall amounts wavered greatly between trace amounts to multiple inches. Average wind speeds jumped from maximums near 15mph on the 15th and 16th to maximums of 20 and 25mph on the 17th and 18th.

APRIL 19 – 21: This period started with a few more breaking records: the daily coldest minimum temperature was broken in Oklahoma City at 33 degrees, the daily minimum temperature was broken in Tulsa at 34 degrees, and the daily minimum temperature was broken in McAlester at 32 degrees (all on the 19th). Despite these notable record breakers, however, temperatures gradually climbed from the 19th to the 21st. Maximum temperatures ranged from the mid-50s to 69 on the 19th, 66 to 75 on the 20th, and 67 to 77 on the 21st. Minimum temperatures slowly climbed from the 20s and 30s on Friday

to the upper 20s and upper 40s on Saturday, followed by the upper 20s to mid-50s on Sunday. There were a few light showers in north-central Oklahoma on the 21st, but amounts were negligible. The highest daily average wind speeds on each sequential day were 13.2mph (Newkirk), 22.3mph (Cheyenne), and 17mph (Cheyenne).

APRIL 22 – 25: A strong cold front passed through the state, bringing record cold temperatures, isolated showers, and some severe thunderstorms. Hail as large as 2.5 inches fell in Alfalfa and Ellis County on the 22nd. Rainfall measurements averaged anywhere from a tenth of an inch to .95 inches (Seiling) in most of the northwest. Overnight on the 23rd, the storms continued to move east with central and north-central OK receiving some scattered light drizzle. As skies started to clear on the 24th and 25th, multiple areas had record breaking daily cold temperatures. On the 24th, McAlester had its daily lowest maximum, minimum, and mean temperature of 58, 35, and 47 degrees, respectively. That same day, Oklahoma City (31 degrees) and Tulsa (32 degrees) had their daily lowest temperatures for any April 24th on record. The following day, all three cities hit a new daily lowest temperature again (Oklahoma City 35, Tulsa 34, and McAlester 31). The rest of the state had maximum temperatures as high as 89 on the 22nd, 75 on the 23rd and 25th, and 64 on the 24th. However, some maximum temperatures in the panhandle only reached into the low 30s on the 23rd. Minimum temperatures averaged in the 40s and 50s on the 22nd, 30s on the 23rd, 20s and 30s on the 24th, and the 30s on the 25th. The lowest recorded minimums were 17 and 15 degrees in Boise City on the 23rd and 24th. The highest daily wind speed averages fluctuated a bit, but were fairly high for this entire period at roughly 20mph. The highest speeds were 27.3mph in Minco and 25mph at Medicine Park on the 23rd. Gusts hit 60mph in May Ranch on the 23rd.

APRIL 26 – 30: Thunderstorms developed on the 26th in north and southwest Oklahoma and moved northeast, dissipating on the 27th. On that Friday, an EF-0 tornado was reported in Dewey County, flooding occurred in Grady County, and hail diameters of 2 and 2.5 inches were observed in Washita, Oklahoma, and Caddo Counties. Precipitation measurements were anywhere from a tenth of an inch to nearly 2 inches. As skies started to clear with the passing storms, the central one-third of Oklahoma experienced patchy fog. The last five days were all relatively warm throughout the state. The warmest maximum temperatures were in the 80s and 90s, with the highest temperatures reaching 95 in Slapout on the 29th and 96 in Beaver on the 30th. Lows averaged in the 40s and 50s from the 26th to the 28th and the 50s and 60s on the 29th and 30th. Average wind speeds were generally less than 15mph on Friday, less than 10mph on Saturday and Sunday, and less than 20mph on Monday and Tuesday.

APRIL 2013 SEVERE WEATHER

Hail (2 inches in diameter or greater)

Size (in.)	Location	County	Day
2.75	Cache	Comanche	17
2.50	3 N Rush Springs	Grady	17
2.00	3 E Grandfield	Tillman	17
2.25	2 S Cache	Comanche	17
2	2 SSW Snyder	Kiowa	17
2	2 S Driftwood	Alfalfa	22
2.5	5 WSW Arnett	Ellis	22
2.5	5 SE Lambert	Alfalfa	22
2	3 N Cloud Chief	Washita	26
2.5	Edmond	Oklahoma	26
2	1 S Alfalfa	Caddo	26
2	4 NW The Village	Oklahoma	26

Significant Tornadoes (EF2 or greater)

EF-rating	County	Day
2	Delaware	18

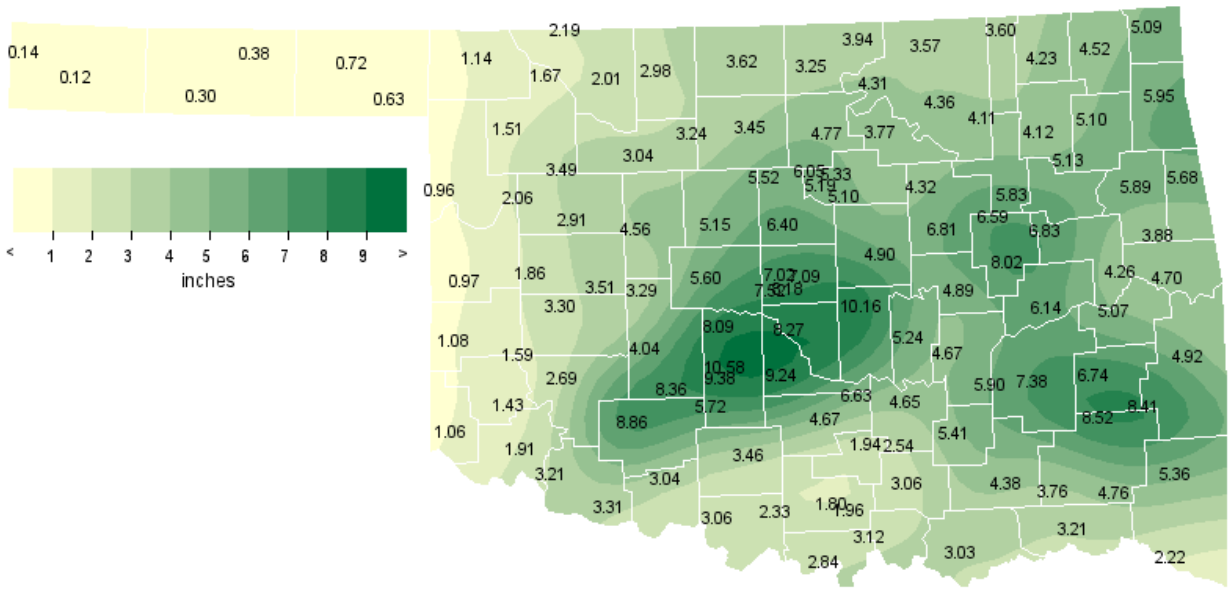
Wind Gusts (70 mph or greater)

Speed (m.p.h)	Location	County	Day
70	2 S Elgin	Comanche	17
73	3 W Grandfield	Tillman	17
79	4 SSW Loveland	Tillman	17

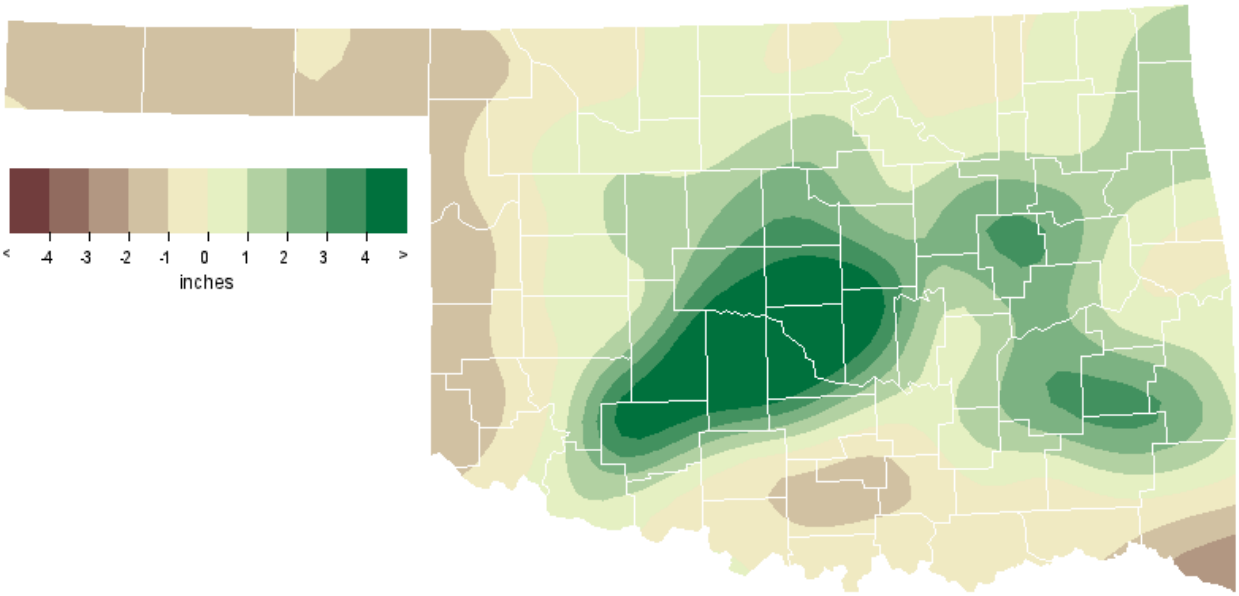
Flooding

Location	County	Day
5 E Medicine Park	Comanche	17
Chickasha	Grady	17
Newcastle	McClain	17
Shawnee	Pottawatomie	17
3 W Grandfield	Tillman	17
Bixby	Tulsa	18
Kansas	Delaware	18
Mazie	Mayes	18
Peggs	Cherokee	18
4 NE Salina	Mayes	18
Langley	Mayes	18
5 E Mazie	Mayes	18
5 N Morris	Okmulgee	18
Beggs	Okmulgee	18
2 W Welty	Okfuskee	18
Haskell	Muskogee	18
7 S Bixby	Okmulgee	18
Wagoner	Wagoner	18
Twin Oaks	Delaware	18
Chickasha	Grady	26

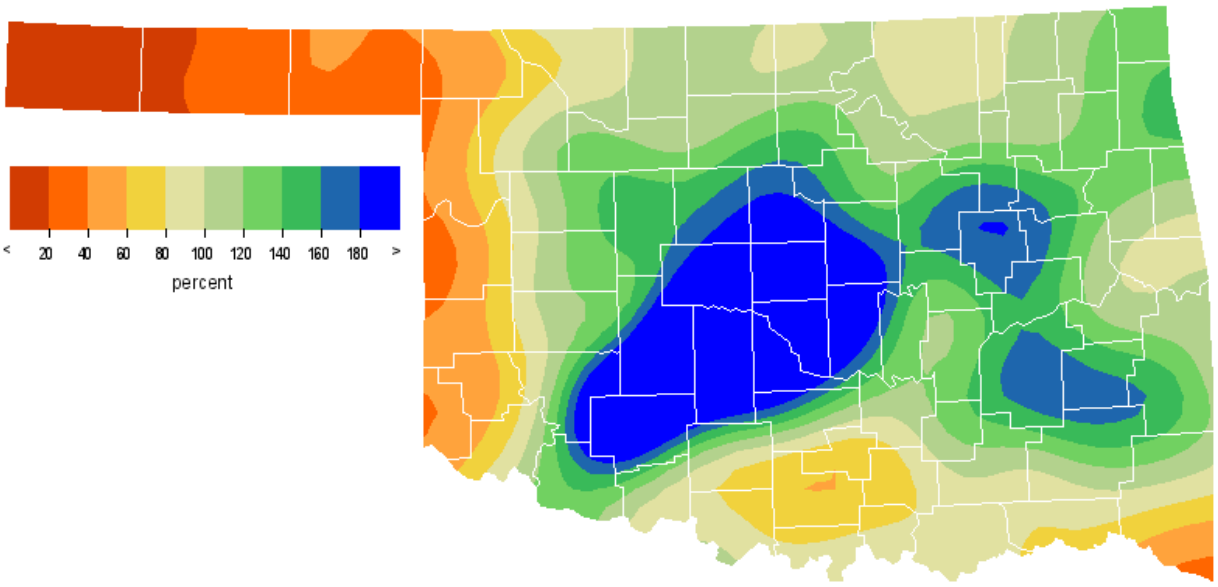
APRIL 2013 OBSERVED PRECIPITATION



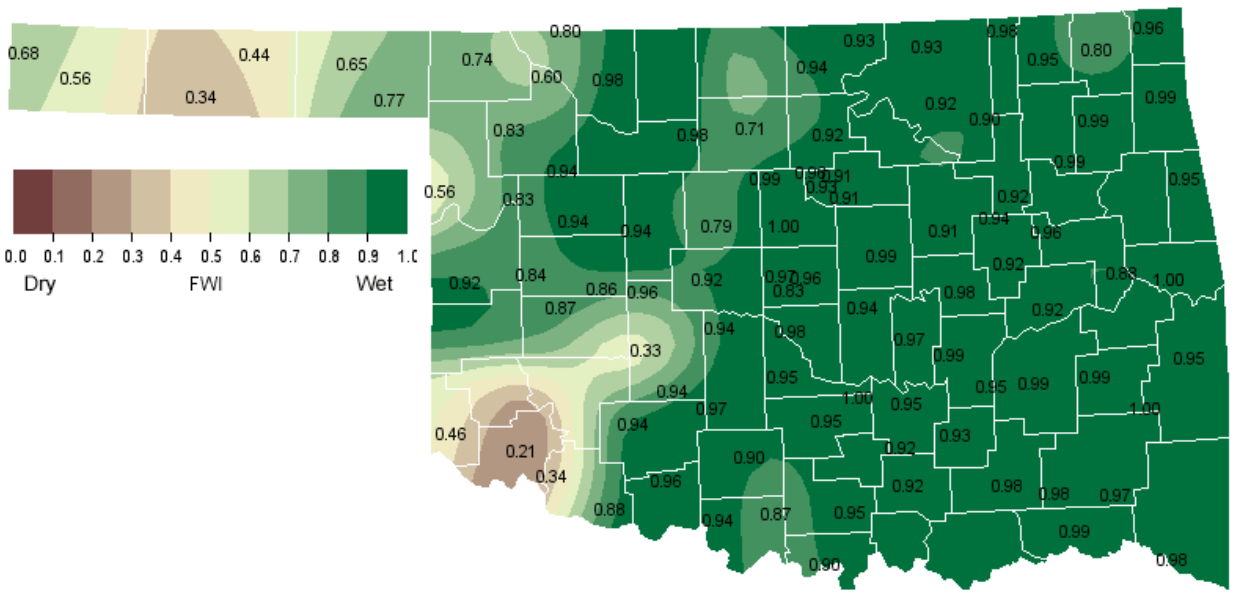
APRIL 2013 DEPARTURE FROM NORMAL PRECIPITATION



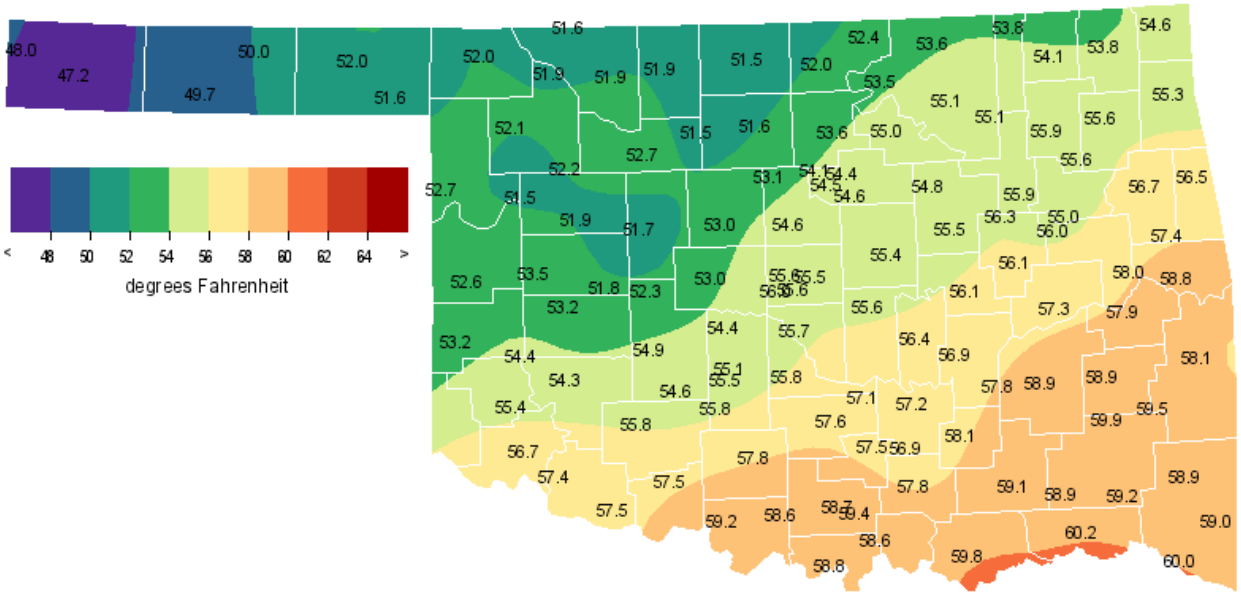
APRIL 2013 PERCENT OF NORMAL PRECIPITATION



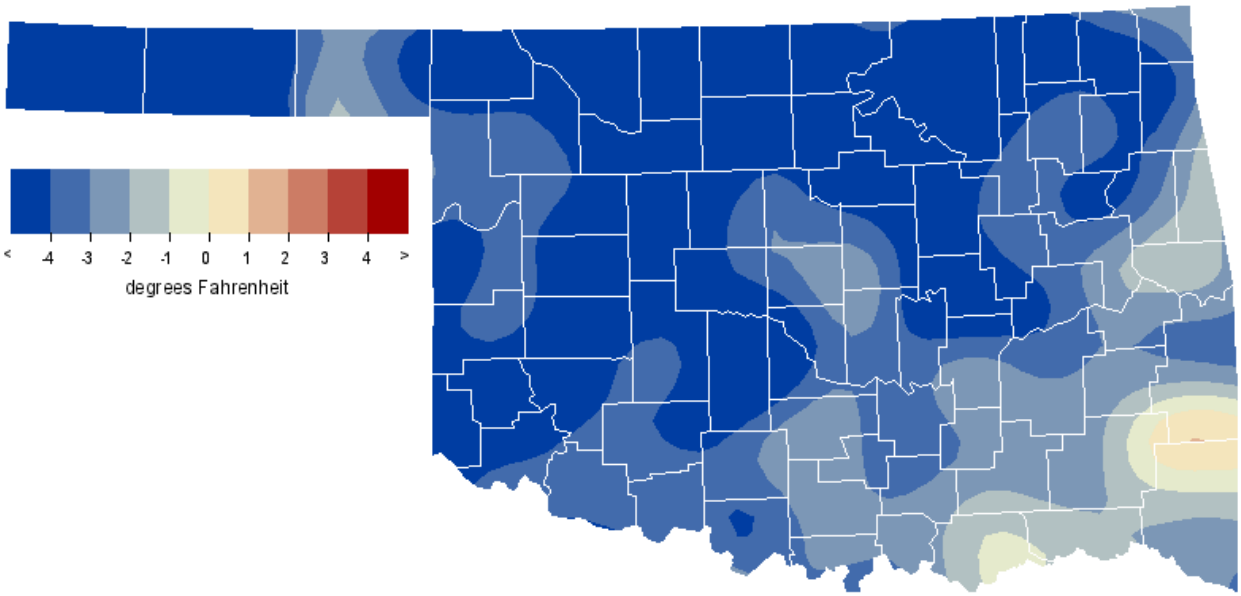
APRIL 2013 AVERAGE SOIL MOISTURE AT 25CM



APRIL 2013 AVERAGE TEMPERATURE



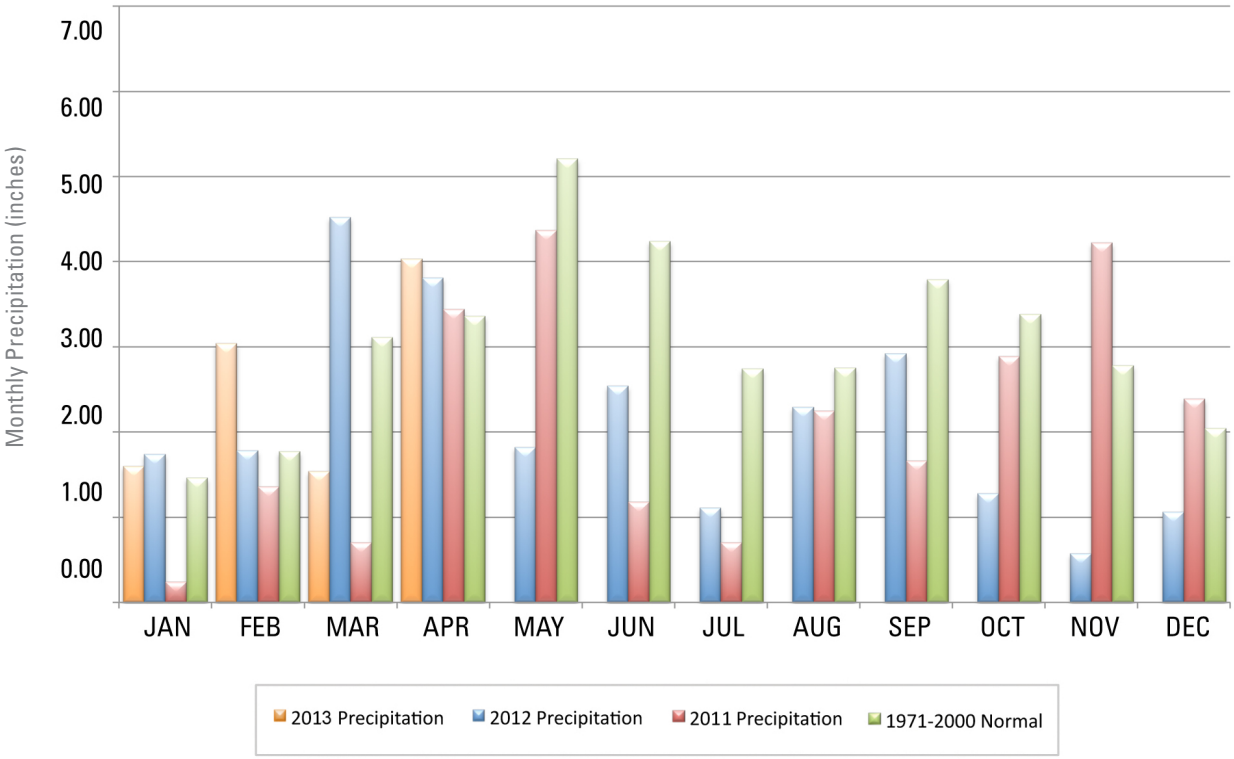
APRIL 2013 DEPARTURE FROM NORMAL TEMPERATURE



MESONET MONTHLY SUMMARY FOR APRIL 2013

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	52.6	92	29	22	10	403	32	.96	.40	26
Beaver	52.0	96	30	18	11	425	35	.72	.52	26
Boise City	47.2	89	30	14	10	537	3	.12	.06	2
Buffalo	52.0	94	29	23	24	423	33	1.14	.35	10
Goodwell	49.7	94	30	17	10	479	20	.30	.12	17
Hooker	50.0	95	30	16	24	470	19	.38	.17	26
Kenton	48.0	87	30	15	10	512	1	.14	.06	2
Slapout	51.7	95	29	18	11	431	31	.63	.35	26
NORTH CENTRAL										
Alva	51.8	90	29	26	24	425	29	2.01	.51	3
Blackwell	52.1	87	29	27	24	409	21	3.25	1.37	10
Breckinridge	51.7	86	29	26	24	422	23	3.45	1.08	10
Cherokee	51.9	87	29	24	11	418	26	2.98	.77	9
Fairview	52.7	88	29	27	24	399	28	3.04	.76	3
Freedom	51.9	90	29	24	11	421	29	1.67	.45	17
Lahoma	51.5	86	29	26	11	424	20	3.24	.81	3
May Ranch	51.6	92	29	25	10	430	29	2.19	.49	22
Medford	51.5	88	29	25	24	426	22	3.62	1.13	10
Newkirk	52.3	89	29	26	24	401	21	3.94	1.40	10
Red Rock	53.6	88	29	26	24	366	26	4.77	1.24	10
Seiling	52.2	89	29	25	10	412	28	3.49	.95	22
Woodward	52.1	91	29	23	10	416	28	1.51	.32	26
NORTHEAST										
Bixby	55.8	85	29	32	25	292	17	5.83	1.93	18
Burbank	53.5	88	29	29	24	369	23	4.31	1.15	10
Claremore	55.9	87	29	32	24	297	24	4.12	1.06	17
Copan	53.8	86	29	31	24	354	18	3.60	1.11	17
Foraker	53.6	89	29	27	24	366	23	3.57	.79	2
Inola	55.5	85	29	31	25	299	14	5.13	2.17	18
Jay	55.3	84	29	31	12	315	23	5.95	2.34	18
Miami	54.6	83	29	32	25	331	19	5.09	1.42	18
Nowata	54.1	86	29	29	24	345	18	4.23	1.22	17
Pawnee	55.0	90	29	28	11	333	32	3.77	.93	3
Porter	56.9	85	29	34	19	****	****	4.44	1.15	26
Pryor	55.5	85	29	31	25	303	19	5.10	1.38	18
Skiatook	55.1	88	29	31	24	321	24	4.11	1.24	17
Vinita	53.8	83	29	30	24	346	11	4.52	.90	17
Wynona	55.0	88	29	31	24	325	26	4.36	1.29	17
WEST CENTRAL										
Bessie	53.2	88	29	26	24	378	25	3.30	.83	3
Butler	53.5	91	29	23	24	377	32	1.86	.40	3
Camargo	51.6	90	29	23	24	428	25	2.06	.67	26
Cheyenne	52.7	90	29	23	10	398	28	.97	.32	3
Erick	53.3	91	29	24	24	377	26	1.08	.40	3
Putnam	51.9	88	29	25	24	418	23	2.91	1.28	26
Retrop	54.4	91	29	25	24	357	38	1.59	.48	9
Watonga	51.8	85	29	26	24	419	22	4.56	1.10	3
Weatherford	51.8	86	29	23	24	416	20	3.51	1.16	3
CENTRAL										
Acme	55.8	85	29	28	11	306	29	5.72	2.00	17
Bowlegs	56.4	85	29	30	25	286	28	5.24	2.27	2
Bristow	55.5	87	29	29	11	315	30	6.81	3.27	17
Lake Carl Blac	54.1	90	29	27	11	365	37	6.05	1.72	3
Chandler	55.5	87	29	29	11	312	27	4.90	1.38	17
Chickasha	55.1	85	29	30	11	318	22	10.58	3.69	17
El Reno	53.0	85	29	25	24	383	23	5.60	1.49	2
Guthrie	54.6	86	29	27	11	345	32	6.40	2.01	3
Kingfisher	53.0	85	29	26	24	383	23	5.15	1.25	3
Marena	54.5	89	29	28	11	348	33	5.19	1.44	3
Minco	54.4	84	29	27	24	339	20	8.09	2.50	2
Marshall	53.1	85	29	27	24	387	29	5.52	1.56	3
Ninnekah	55.5	85	29	26	11	314	28	9.38	2.86	17
Norman	55.7	85	29	29	11	308	29	8.27	2.24	17
Oilton	54.8	86	29	26	11	333	28	4.32	1.19	17
OKC East	55.6	85	29	31	24	310	29	8.18	2.15	17
OKC North	55.6	86	29	30	24	311	30	7.02	1.68	17
OKC West	56.0	87	29	30	11	300	31	7.52	2.11	17
Okemah	56.1	85	29	31	11	291	23	4.89	1.37	18
Perkins	54.5	87	29	28	11	340	26	5.10	1.16	10
Shawnee	55.6	85	29	30	24	306	24	10.16	4.16	17
Spencer	55.4	86	29	29	11	316	29	7.09	1.69	17
Stillwater	54.5	89	29	30	11	347	32	5.33	1.31	3
Washington	55.8	85	29	29	11	302	27	9.24	2.73	2
EAST CENTRAL										
Cookson	57.4	83	29	30	25	271	42	3.88	1.10	10
Eufaula	57.3	83	29	34	11	255	25	6.14	1.68	10
Haskell	55.9	84	29	32	25	290	16	6.83	2.54	18
Hectorville	56.2	86	29	31	11	290	27	6.59	1.80	18
Holdenville	56.9	85	15	32	11	270	27	4.67	2.04	2
McAlester	58.8	86	15	30	25	246	61	7.38	2.94	2
Okmulgee	56.1	85	29	31	25	292	26	8.02	2.86	18
Sallisaw	58.9	86	29	32	25	236	53	4.70	1.88	18
Stigler	57.9	84	15	30	25	250	37	5.07	1.31	2
Stuart	57.7	83	15	33	11	253	34	5.90	1.97	2
Tahlequah	56.6	84	29	29	25	281	30	5.89	2.12	18
Webbers Falls	58.0	86	29	32	25	243	34	4.26	1.16	10
Westville	56.6	82	29	31	25	283	31	5.68	1.63	18
SOUTHWEST										
Altus	56.6	94	29	26	24	300	49	1.91	.56	9
Apache	54.5	86	29	27	24	335	21	8.36	4.52	17
Fort Cobb	54.9	87	29	26	24	327	24	4.04	.86	3
Grandfield	57.4	90	29	29	24	267	41	3.31	1.53	10
Hinton	52.3	86	29	26	11	400	20	3.29	.81	3
Hobart	54.3	90	29	25	24	353	31	2.69	.81	9
Hollis	*****	***	***	***	***	****	****	1.06	.32	9
Mangum	55.4	93	29	24	11	332	43	1.43	.57	9
Medicine Park	55.8	86	29	28	10	303	27	8.86	6.57	17
Tipton	57.4	92	29	29	11	278	49	3.21	1.77	17
Walters	*****	***	***	***	***	****	****	*****	*****	***
SOUTH CENTRAL										
Ada	57.2	86	15	30	25	266	33	4.65	1.92	26
Ardmore	59.4	87	15	33	24	227	58	1.96	.59	10
Burneyville	58.8	87	29	28	25	243	57	2.84	1.26	2
Byars	57.1	86	15	30	11	270	32	6.63	2.76	2
Centrahoma	58.1	85	15	30	25	248	43	5.41	1.21	2
Durant	59.7	84	15	34	25	217	58	3.03	1.07	2
Fittstown	56.9	84	15	30	25	275	33	2.54	.84	2
Ketchum Ranch	57.8	87	29	30	11	256	39	3.46	1.33	10
Lane	59.1	85	15	31	25	230	52	4.38	1.58	2
Madill	58.7	85	15	31	5	239	49	3.12	.96	10
Newport	58.7	87	29	31	24	240	52	1.80	.59	2
Pauls Valley	57.6	88	15	31	11	258	35	4.67	2.30	2
Ringling	58.6	88	29	30	19	240	48	2.33	.85	10
Sulphur	57.5	86	29	29	25	266	40	1.94	.73	2
Tishomingo	57.9	85	15	30	25	254	40	3.06	1.15	2
Vanoss	*****	***	***	***	***	****	****	*****	*****	***
Waurika	59.2	89	29	31	24	226	52	3.06	1.21	10
SOUTHEAST										
Antlers	58.9	86	16	30	25	239	56	3.76	1.01	2
Antlers	*****	***	***	***	***	****	****	*****	*****	***
Broken Bow	59.0	87	16	31	20	225	46	*****	*****	***
Clayton	59.8	86	16	31	25	218	63	8.52	3.45	2
Cloudy	59.2	85	16	34	11	224	50	4.76	1.29	18
Hugo	60.2	86	16	35	11	206	61	3.21	1.27	18
Idabel	60.0	86	16	33	19	206	54	2.22	.87	18
Mt Herman	58.8	83	17	32	19	234	49	5.36	1.19	18
Talihina	59.6	85	16	30	25	231	68	8.41	3.46	2
Wilburton	58.9	84	15	32	25	240	57	6.74	2.05	2
Wister	58.2	86	16	31	25	253	49	4.92	1.63	2

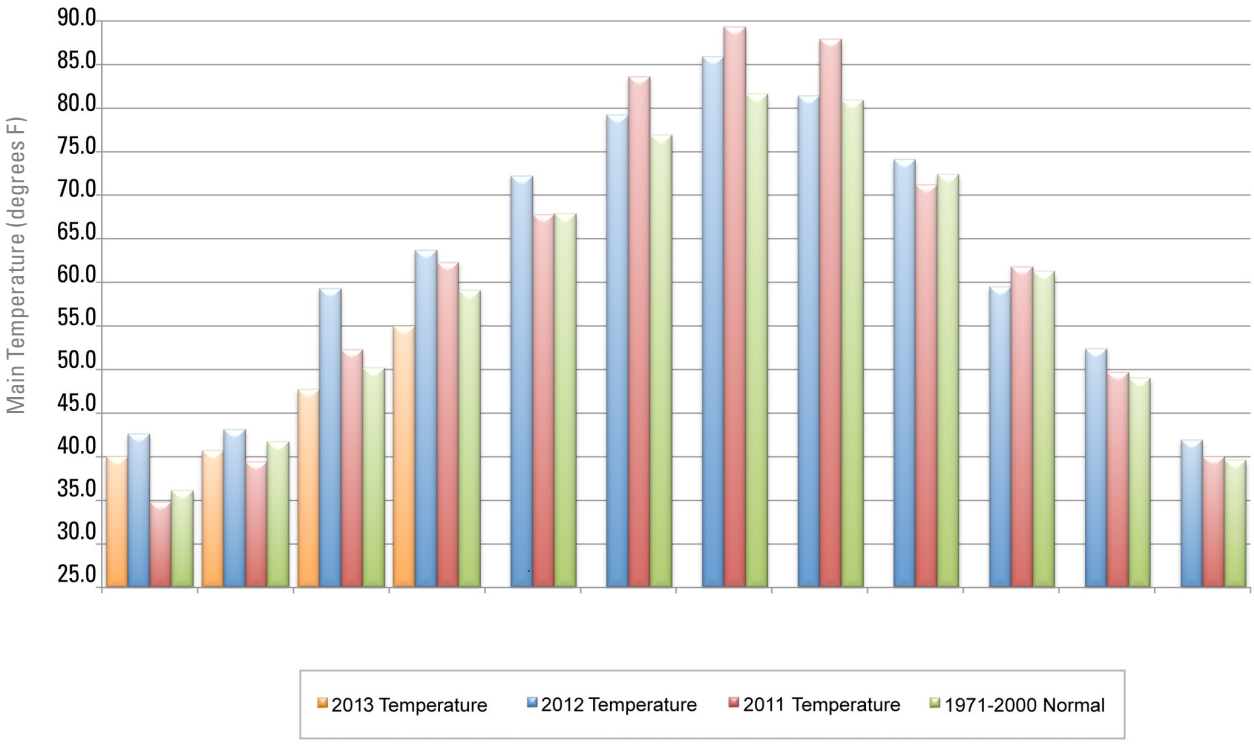
2011, 2012 AND 2013 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



April 2013 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Apr-12
Panhandle	0.55	-1.30	9th Driest	5.28 (1942)	0.00 (1909)	2.67
North Central	3.01	0.05	46th Wettest	7.43 (1999)	0.55 (1989)	6.10
Northeast	4.55	0.55	45th Wettest	9.67 (1942)	0.17 (1989)	5.37
West Central	2.43	-0.17	57th Wettest	8.73 (1997)	0.15 (1996)	3.06
Central	6.74	3.21	5th Wettest	9.49 (1942)	0.24 (1989)	3.91
East Central	5.77	1.44	30th Wettest	11.82 (1957)	0.75 (1989)	2.55
Southwest	3.75	1.08	18th Wettest	7.30 (1997)	0.14 (1989)	3.30
South Central	3.43	-0.33	56th Wettest	11.43 (1942)	0.53 (1989)	2.56
Southeast	5.32	0.83	45th Wettest	12.79 (1957)	0.53 (1987)	2.45
Statewide	4.03	0.67	37th Wettest	8.50 (1942)	0.58 (1989)	3.63

2011, 2012 AND 2013 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



April 2013 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Apr-12 (F)
Panhandle	50.4	-4.8	9th Coolest	62.2 (1981)	48.2 (1926)	62.0
North Central	52.1	-5.5	4th Coolest	65.0 (1981)	50.8 (1983)	62.6
Northeast	54.8	-4.1	9th Coolest	66.1 (1981)	52.5 (1907)	63.5
West Central	52.6	-5.3	4th Coolest	64.8 (2006)	52.1 (1926)	63.5
Central	55.0	-4.6	6th Coolest	66.4 (2006)	53.6 (1983)	64.6
East Central	57.3	-2.9	16th Coolest	67.0 (2006)	53.9 (1907)	64.4
Southwest	55.6	-4.8	5th Coolest	67.1 (2006)	54.2 (1926)	65.7
South Central	58.3	-3.0	9th Coolest	67.6 (2006)	55.9 (1983)	65.8
Southeast	59.3	-1.3	29th Coolest	66.7 (1954)	55.3 (2007)	64.5
Statewide	55.0	-4.1	7th Coolest	65.5 (2006)	53.2 (1983)	64.1

RECORD EVENT REPORTS

Description	Day	Location	Record	Previous Record	Year
Daily Precipitation	2	Oklahoma City	1.4	0.99	1922
Daily coldest max temperature	4	Oklahoma City	41	43	1979
Daily coldest max temperature	10	Oklahoma City	39	45	1958
Daily coldest min temperature	11	Oklahoma City	29	29	1940
Daily maximum rainfall	17	Oklahoma City	2.42	1.4	1908
Daily high min temperature	17	McAlester	73	70	1968
Daily coldest max temperature	18	Oklahoma City	47	47	1953
Daily coldest min temperature	19	Oklahoma City	33	35	1953
Daily low temperature	19	Tulsa	34	34	1953
Daily low temperature	19	McAlester	32	33	1988
Daily coldest min temperature	24	Oklahoma City	31	35	1995
Daily low temperature	24	Tulsa	32	37	2005
Daily low max temperature	24	McAlester	58	60	1999
Daily low min temperature	24	McAlester	35	35	1995
Daily low mean temperature	24	McAlester	47	54	1983
Daily coldest min temperature	25	Oklahoma City	35	35	1910
Daily low temperature	25	Tulsa	34	36	1910
Daily low temperature	25	McAlester	31	38	1983

MESONET EXTREMES FOR APRIL 2013

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	96	30th	Beaver	14	10th	Boise City	1.14	Buffalo	0.52	26th	Beaver
North Central	92	29th	May Ranch	23	10th	Woodward	4.77	Red Rock	1.40	10th	Newkirk
Northeast	90	29th	Pawnee	27	24th	Foraker	5.95	Jay	2.34	18th	Jay
West Central	91	29th	Butler	23	10th	Cheyenne	4.56	Watonga	1.28	26th	Putnam
Central	90	29th	Lake Carl Blackwell	25	24th	El Reno	10.58	Chickasha	4.16	17th	Shawnee
East Central	86	29th	Sallisaw	29	25th	Tahlequah	8.02	Okmulgee	2.94	2nd	McAlester
Southwest	94	29th	Altus	24	11th	Mangum	8.86	Medicine Park	6.57	17th	Medicine Park
South Central	89	29th	Waurika	28	25th	Burneyville	6.63	Byars	2.76	2nd	Byars
Southeast	87	16th	Broken Bow	30	25th	Antlers	8.52	Clayton	3.46	2nd	Talihina
Statewide	96	30th	Beaver	14	10th	Boise City	10.58	Chickasha	6.57	17th	Medicine Park

MAY OUTLOOK

Oklahoma's weather reaches something of a crescendo in May as springtime comes to full flower. May is Oklahoma's wettest (statewide-averaged precipitation of 5.13 inches) and certainly its stormiest month (an average of 19.9 tornadoes, more than one-third of the annual average, occurring on 5.5 days, statewide). Its position in the spring transition season is confirmed by a monthly mean temperature, averaged statewide, of 68.4 degrees that ranks fifth highest among the months. Vestiges of winter are occasionally seen in the far northwestern portions of the state, but mostly May is a time for flowering of most plants, full leafing of deciduous trees, planting of row crops, and the maturing and ripening of the winter wheat that was sowed the previous fall.

Temperature

Mean	68.4 degrees
Warmest May	1896, 75.8 degrees
Coolest May	1907, 62.3 degrees
Hottest recorded	114 degrees, Weatherford, May 25, 2000
Coldest recorded	19 degrees, Hooker, May 1, 1909

May usually is characterized by a pleasant range of temperatures across the state, although there are times most years when it is evident that the hot Oklahoma summer is drawing near. Monthly mean temperatures since 1892 have ranged from 62.3 degrees in 1907 to 75.8 degrees in 1896. Normal daily maximum temperatures across the state vary from 84.6 degrees at Waurika to 76.5 degrees at Arnett. Normal daily minimum temperatures fall between 61.2 degrees at Ardmore and 46.8 degrees at Boise City. Historical extremes of temperature during the month are 114 degrees at Weatherford, reported on May 25, 2000 and 19 degrees at Hooker on May 1, 1909. Temperatures in southwestern Oklahoma, the state's hot spot, reach 100 degrees an average of slightly more than once each May. Freezing temperatures are also rare, occurring less than once per year in the panhandle, rarely elsewhere. Freezes have occurred in the state's most northerly regions as late as the end of the month.

The Oklahoma panhandle's climate differs from the rest of the state in that its primary precipitation season is shifted toward summer, being tied to the patterns of the High Plains, of which it is a part. Elsewhere in the state, May is the month of maximum precipitation and May is, in fact, the panhandle's second wettest month by a small margin. May has produced statewide-averaged monthly precipitation totals ranging from 10.68 inches in 1957 to 1.30 inches in 1988. Extremes of individual station-normal precipitation for the month are 7.06 inches in the southeast at Smithville and 2.29 inches in the western panhandle at Regnier. Miami recorded the greatest May monthly total precipitation, 23.95 inches, in 1943. The record-breaking 1957 statewide-averaged precipitation was amplified by the May total of 22.38 inches of rain recorded at Hennessey, most of which fell during the drought-breaking, flood-producing deluge that hammered much of the state on the 15th and 16th. Purcell apparently holds the single reporting-day precipitation record for May, measuring 13.68 inches of rain on May 11, 1950. Interestingly, the events that produced the Purcell and Hennessey precipitation records (and the widespread flooding that occurred after each) bracket the state's driest ever 7-year period.

Precipitation

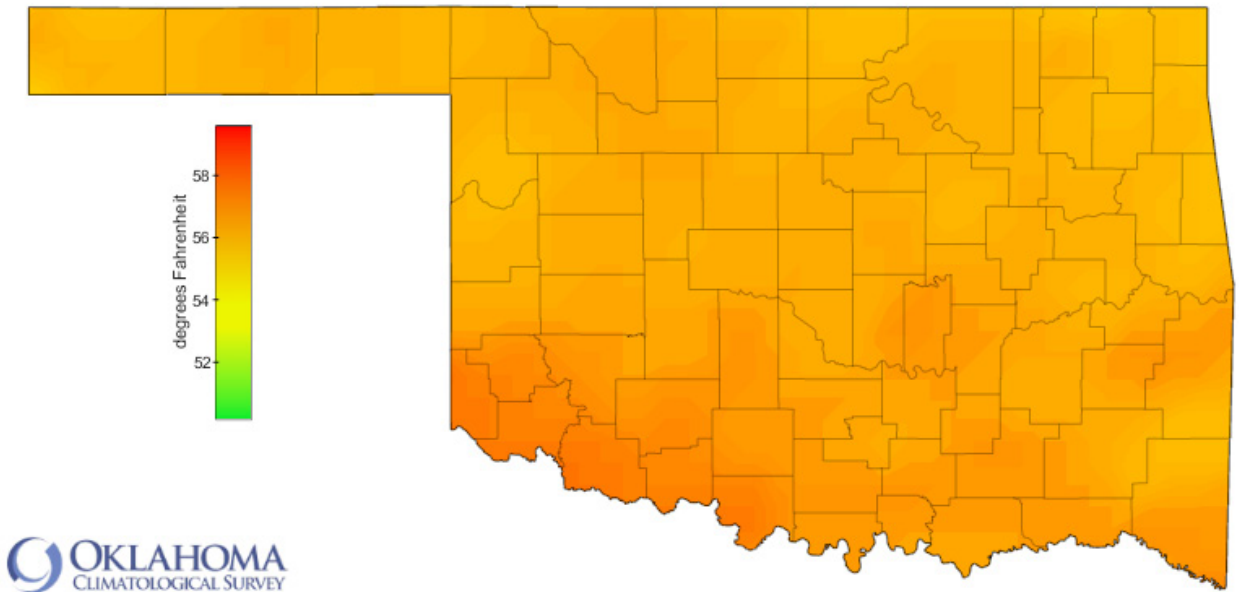
Mean	5.13 inches
Wettest May	1957, 10.68 inches
Driest May	1988, 1.30 inches
Wettest location	Smithville, 7.06 inches
Driest location	Regnier, 2.02 inches
Most recorded	22.38 inches, Hennessey, 1957

Tornadoes

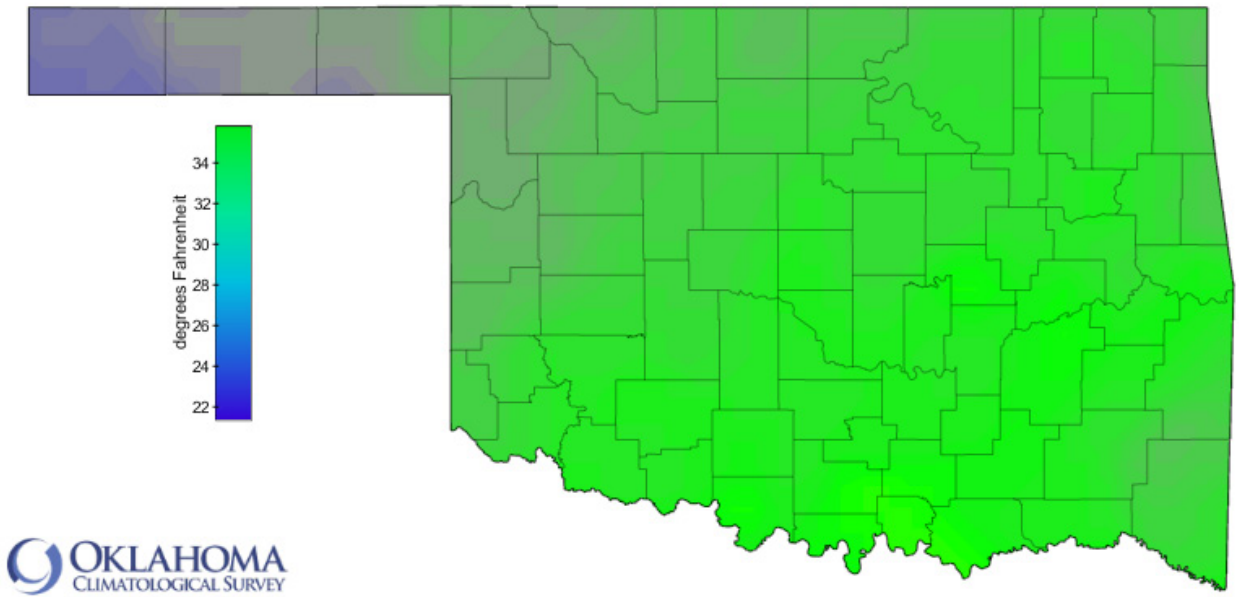
Average May Tornadoes	21.7
Most	90 (1999, 2010)

Springtime in Oklahoma is noted for severe thunderstorms and tornadoes. Over the last 52 years (the period of reasonably comprehensive statistics on the subject) Oklahoma has been struck by more tornadoes in May than in any other two months combined (April and June rank second and third, respectively, among the months). May 1999 holds the state record for most tornadoes in a single month with a nearly unbelievable confirmed total of 91. Most of those tornadoes (59) occurred in central and western Oklahoma on the afternoon and evening of May 3. That outbreak caused extensive damage and killed 40 people along a wide path extending generally from Amber to Stroud. Some of the fiercest storms struck in the southern portion of the Oklahoma City metropolitan area. A mobile Doppler radar operated by a University of Oklahoma research team measured winds as great as 318 miles per hour in one of the funnels, the greatest wind speed yet measured on the planet.

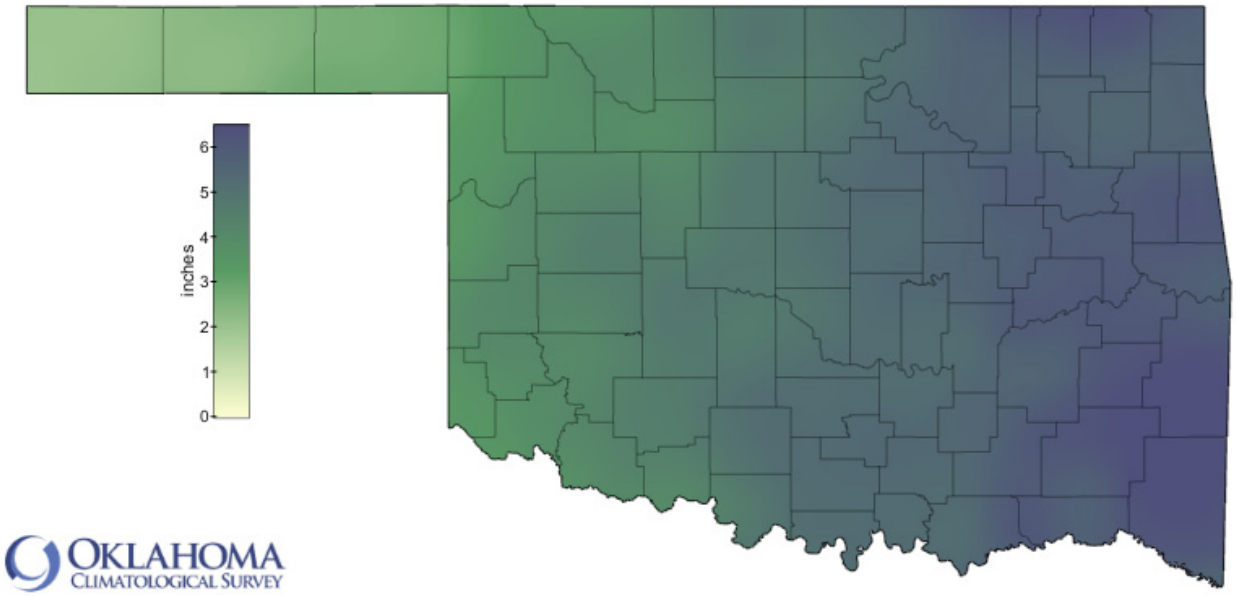
MAY NORMAL DAILY MAXIMUM TEMPERATURE (1981-2010)



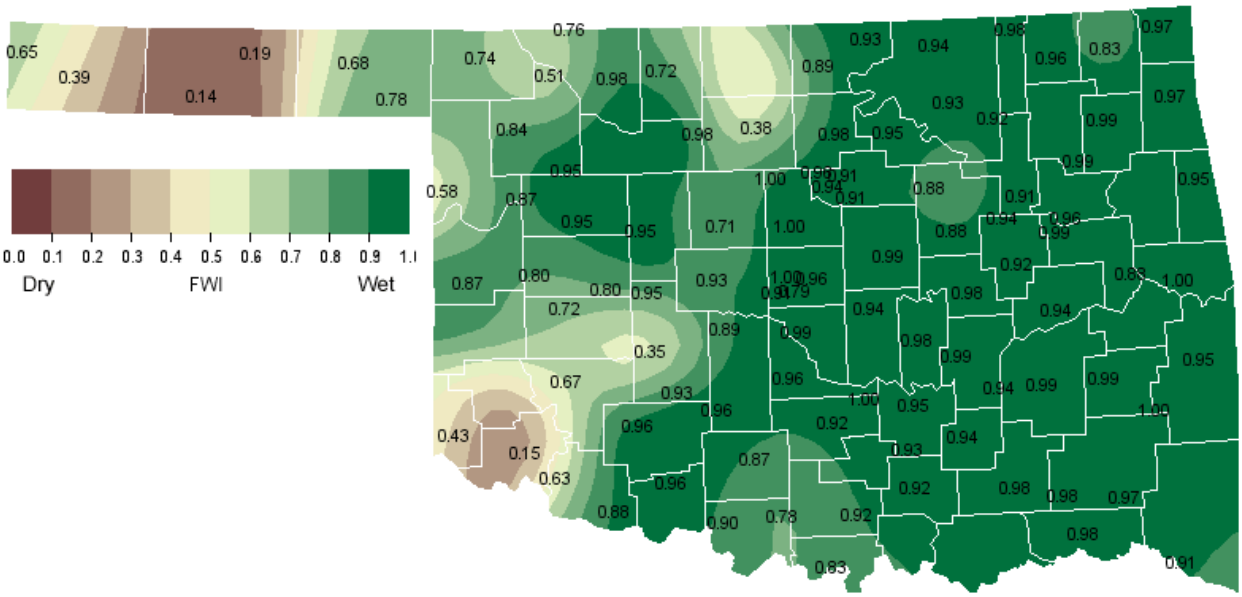
MAY NORMAL DAILY MINIMUM TEMPERATURE (1981-2010)



MAY NORMAL PRECIPITATION (1981-2010)



MAY 1, 2013 SOIL MOISTURE CONDITIONS AT 25CM



MAY 2013 DROUGHT INDICES

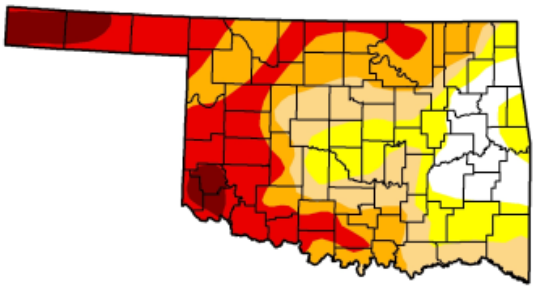
U.S. Drought Monitor

April 23, 2013
Valid 7 a.m. EST

Oklahoma

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	10.80	89.20	72.08	53.76	30.53	5.48
Last Week (04/16/2013 map)	8.09	91.91	81.91	57.61	33.47	7.62
3 Months Ago (01/22/2013 map)	0.00	100.00	100.00	100.00	91.80	39.58
Start of Calendar Year (01/01/2013 map)	0.00	100.00	100.00	100.00	94.89	37.06
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	99.98	95.33	42.09
One Year Ago (04/17/2012 map)	74.94	25.06	15.00	9.78	3.36	0.00



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.

http://droughtmonitor.unl.edu

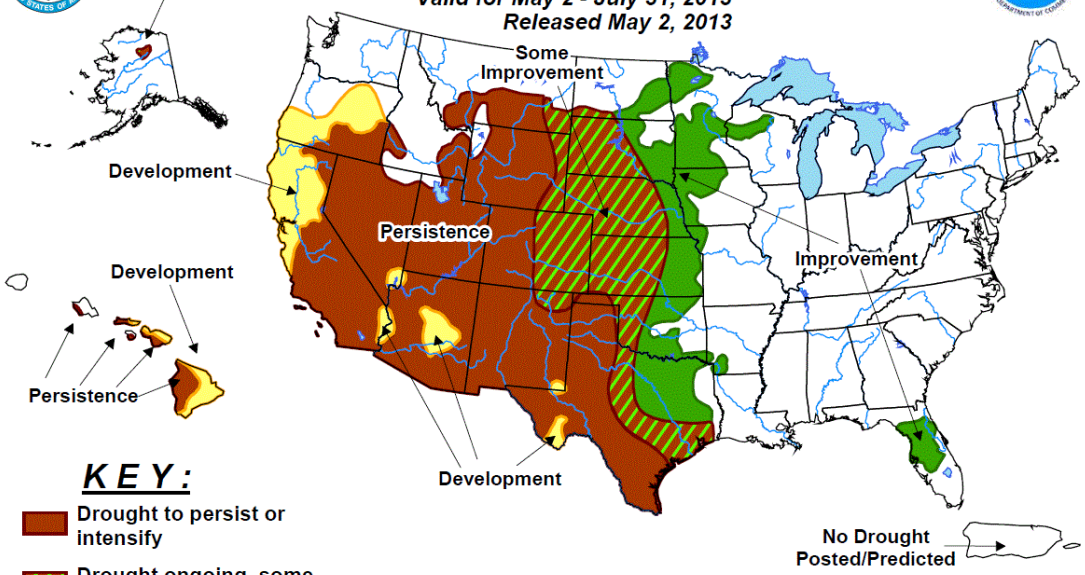
USDA National Drought Mitigation Center

Released Thursday, April 25, 2013
Eric Luebehusen, U.S. Department of Agriculture

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for May 2 - July 31, 2013
Released May 2, 2013

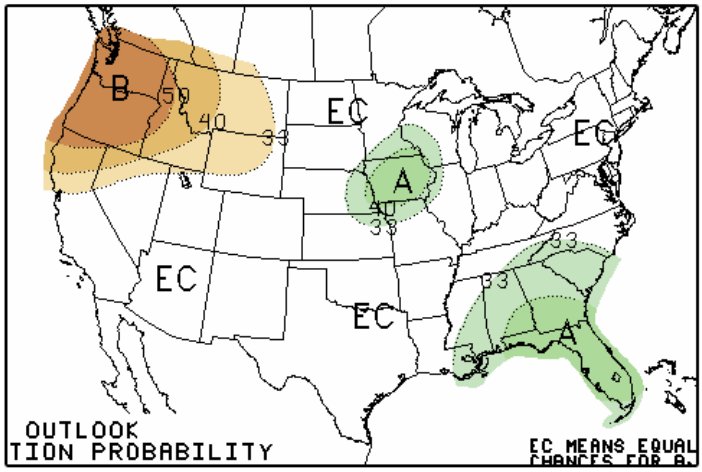


KEY:

- 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.

MAY 2013 U.S. PRECIPITATION FORECAST



Percent Likelihood of Above or Below Average Precipitation*

- 5% - 10%
- 0% - 5%

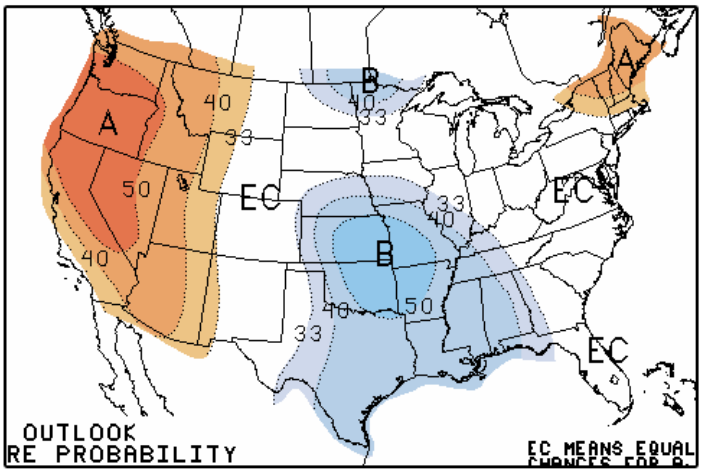
A = Above

- 0% - 5%
- 5% - 10%

B = Below

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

MAY 2013 U.S. TEMPERATURE FORECAST



Percent Likelihood of Above or Below Average Temperatures*

- 10% - 20%
- 5% - 10%
- 0% - 5%

A = Above

- 0% - 5%
- 5% - 10%

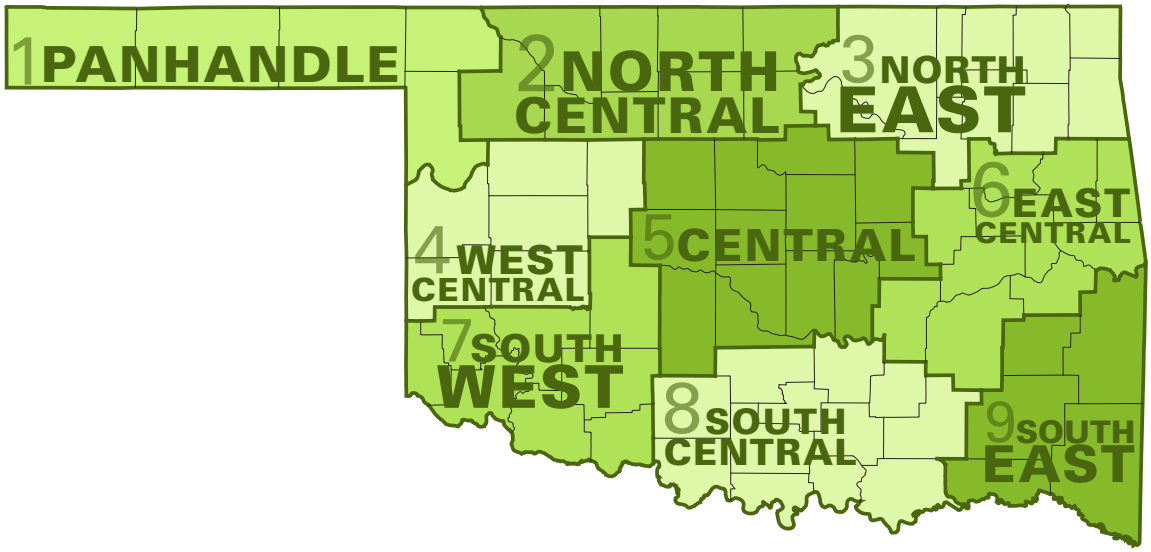
B = Below

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

MAY CLIMATE NORMALS

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	78.8	50.8	64.8	3.30
2	79.1	54.9	67.0	4.68
3	78.9	56.6	67.8	5.40
4	79.5	55.0	67.3	4.64
5	79.6	57.5	68.6	5.45
6	79.2	57.8	68.5	5.77
7	81.8	56.8	69.3	4.80
8	80.8	58.8	69.8	5.52
9	80.5	57.5	69.0	6.31
Statewide	79.8	56.3	68.1	5.21

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.mesonet.org or http://climate.ok.gov/

OKLAHOMA CLIMATOLOGICAL SURVEY

Oklahoma Climatological Survey is the State Climate Office for Oklahoma

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