Oklahoma Monthly Climate Summary

NOVEMBER 2013

OKLAHOMA CLIMATOLOGICAL SURVEY

November is considered a fall month climatologically, but it certainly did its best to look like a winter month during 2013. Emphatically cooler than normal, thanks mostly to a frigid outburst by Mother Nature during its final 10 days, November was punctuated by an early cool-season snowstorm that dumped more than a foot of snow across southwestern Oklahoma. According to data from the Oklahoma Mesonet, the statewide average temperature for the month ended 1.8 degrees below normal at 46.5 degrees, the 33rd coolest November since records began in 1895. November was the eighth month during 2013 to finish with below normal temperatures. Prior to that, 28 out of the 34 months between April 2010 and January 2013 had been warmer than normal. The January-November statewide average of 61.1 degrees is the 40th coolest such period on record at half of a degree below normal, standing in stark contrast to last year's mark of 65 degrees over the same period. The fall season itself, however, was actually 0.2 degrees above normal and ranked as the 59th warmest on record. The lowest temperature recorded by the Mesonet was 9 degrees from Alva on the ninth, and the highest temperature of 85 degrees occurred at Altus on the 16th.

November 2013 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	85°F	Altus	16
Low Temperature	9°F	Alva	27
High Precipitation	6.52 in.	Idabel	--
Low Precipitation	0.18 in.	Freedom	--

Moisture was plentiful in a few select areas, but scarce for most. The statewide average precipitation total as measured by the Mesonet came in at 1.64 inches, more than an inch below normal, to rank as the 47th driest November on record. The most notable exception was drought-parched southwestern Oklahoma, a result of their late-month wintry blast, although far southeastern Oklahoma saw some hefty precipitation totals as well. Other than those lucky few, the rest of the state saw deficits of 1-3 inches. Far northwestern Oklahoma was particularly dry with less than 20 percent of normal November rainfall. Fall was also dry with a statewide average of 7.22 inches, 2.8 inches below normal, to rank as the 45th driest on record. The Mesonet station at Idabel led the state with 6.52 inches while Freedom recorded a meager 0.18 inches.

The wintry precipitation actually came in two successive waves. The first storm brought a light glaze of ice to the state on the 22nd and 23rd and wind chills down into the single digits. The more powerful storm struck on the 24th and 25th with snow, sleet and freezing rain falling over a large area, creating widespread traffic problems and scattered power outages. National Weather Service (NWS) cooperative observers at Altus, Hobart and Vinson all recorded 13 inches of snow during the storm on November 24 and 25, and the Mangum observer was close behind with 11 inches. Widespread totals of 4-6 inches were reported across other parts of southwestern Oklahoma. Some snow spread to the north and east from the storm, but the rest of the state saw precipitation mainly in the form of rain, sleet and freezing rain. Oklahoma City saw less than an inch of snow during the storm and Tulsa recorded a trace.

November 2013 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2013)
Month (November)	46.5°F	-1.8°F	34th Coolest
Season-to-Date (Sep-Nov)	60.9°F	0.2°F	59th Warmest
Year-to-Date (Jan-Nov)	61.1°F	-0.5°F	40th Coolest

Precipitation

	Average	Depart.	Rank (1895-2013)
Month (November)	1.64 in.	-1.18 in.	47th Driest
Season-to-Date (Sep-Nov)	7.22 in.	-2.79 in.	45th Driest
Year-to-Date (Jan-Nov)	35.34 in.	-0.67 in.	37th Wettest

Very little change occurred in drought conditions during November according to the U.S. Drought Monitor. There was an increase in drought intensity across far southwestern and west central Oklahoma, but a bit of a decrease across south central Oklahoma. At month's end, 31 percent of Oklahoma remained in some intensify of drought on the Drought Monitor, almost entirely within the western one-third of the state.

NOVEMBER 2013 DAILY SUMMARIES

NOVEMBER 1-2: High temperatures started out in the pleasant mid-70s until a cold front moved through southeast Oklahoma in the afternoon of the first. The highest maximum temperatures in the state were as high as 76 in Centrahoma, Lane, Antlers, and Tishomingo, but dropped to 67 in Grady and Hollis by the second. The lowest maximum temperature was 56 on both days. The warmest minimum temperatures fell only slightly from 47 in Oklahoma City and Tulsa, to 44 in Ardmore and Medicine Park. The coolest temperatures reported were both below freezing at 31 degrees on the first and 28 degrees on the second. Despite a passing front, rainfall remained absent. Average wind speeds blew between 5- 13mph on the first and 5-15mph on the second.

NOVEMBER 3-5: The highest maximum temperatures rebounded from the previous cold front, measuring between 74 (Grady) and 77 degrees (Goodwell). The lowest maximum temperatures averaged in the mid-50s. Although there wasn't much variation in maximum temperatures during this period, the highest minimum temperatures drastically increased from 48 in Beaver on the third to 59 in Burneyville and Ardmore on the fifth. The lowest temperatures recorded climbed from 30 in Talihina to 34 in Boise City. This warming trend, coupled with a sufficient amount of atmospheric moisture, caused liquid precipitation to fall on Monday and Tuesday. Rainfall generally stayed within the southeast and ranged from one-tenth of an inch to 0.45 inches in Talihina on the fourth. By the fifth, however, thunderstorms formed along the cold front and the entire state received some amount of precipitation—around one-tenth of an inch in the panhandle and northwest to 2.76 inches in Watonga. Average wind speeds were variable and gusty throughout the state on the third with a range of 5-26mph. Winds quieted down just a bit the following two days and ranged between 5-16mph. Peak gusts were as high as 53 mph in Boise City (Nov. 3rd), 45 in Freedom (Nov. 4th), and 47 in Medicine Park (5th).

NOVEMBER 6-7: Another cold front passed through the eastern half of the state which decreased temperatures and caused as much as one inch of rain to fall in Broken Bow on the sixth. The large range of maximum temperatures was between 51 degrees in Newkirk and 69 degrees in the southeast. Minimum temperatures had a large spread as well, ranging from 20 degrees in Kenton to 41 degrees in Durant. Daily average wind speeds were generally between 7-18 mph on the sixth and less than 12 mph on the seventh. A gust of 47 mph was reported in Medicine Park on Wednesday.

NOVEMBER 8-10: The weather was fairly uneventful during this period except for patches of fog on the 10th. The highest maximum temperatures decreased from 78 in Kenton on the eighth to 72 in Talihina on the 10th. Some areas only got as warm as 63 on the eighth (Westville) and 54 on the ninth (Mt. Herman) and 10th (Goodwell). Despite this drop in high temperatures, the highest minimum temperatures in the state actually increased from 47 degrees to 52 degrees. Remaining below freezing, the coldest temperatures during this period were sandwiched between 31 and 27 degrees. The highest daily average wind speeds weakened each day from 23mph on the eight to 12 mph on the ninth and 9 mph on the 10th. Wind gusts in the low-mid 50s were reported on the eighth.

NOVEMBER 11-14: A strong cold front started to push into the state from the north on the 11th, decreasing the highest maximum temperatures from 74 in Bristow to 62 in Durant on the 12th. The night remained chilly due to clear skies following the frontal passage—the warmest temperatures in the state were only reaching 63 degrees by the 14th. The lowest maximum temperatures fell drastically with the front as well, sinking from 58 in May Ranch to 37 in Medford on the 11th and 12th. However, maximum temperatures never got below 48 on the 13th and 14th. High minimum temperatures ranged between 50 (Ringling) and 32 (Boise City) degrees; low minimum temperatures ranged between a frigid 12 (El Reno) and 27 degrees (Kenton). Patchy fog over western OK reduced visibility to less than 2 miles on the 11th. Although rainfall was mostly negligible for this period, areas in central and south central OK received around one-tenth of an inch. The highest daily average wind speeds were 14 mph on the 11th, 20 mph on the 12th, 18 mph on the 13th, and 19 mph on the 14th.

NOVEMBER 15-16: As a warm front advanced into the region, temperatures rose. The highest maximum temperatures jumped from 75 in Beaver on the 15th to 85 in Altus on the 16th. Likewise, the lowest maximum temperatures increased from 57 in Broken Bow, Cloudy, and Westville to 69 in Kenton, Westville, Boise City, and Cookson the following day. Minimum temperatures drastically increased as well, measuring between 25-49 on the 15th and 45-62 on the 16th. With a mid-level disturbance aloft, north-central Oklahoma witnessed passing showers and thunderstorms. Although some portions of central and eastern OK received around a quarter inch of precipitation, most areas got less than one-tenth of an inch on both days. The highest average wind speeds jumped from 15 mph to 26 mph on the 16th, and peak wind gusts as high as 53 mph were reported in May Ranch, Woodward, and Beaver on Saturday—winds were so high that day, a wind advisory was in affect for western Oklahoma.

NOVEMBER 17-19: A cold front approached from the northwest and brought the highest temperatures down from 84 (Idabel) on the 17th to 70 (Idabel) and 72degrees (Hooker) on the 18th and 19th, respectively. Low maximum temperatures didn't drop nearly as much as they only fell from 63 degrees on the 17th to 55 on the 18th and 57 on the 19th. Minimum temperatures averaged between the frigid 20s and 50s. Skies were rain-free and average wind speeds measured between 7-15 mph on Sunday, less than 10 mph on Monday, and between 5-18 mph on Tuesday.

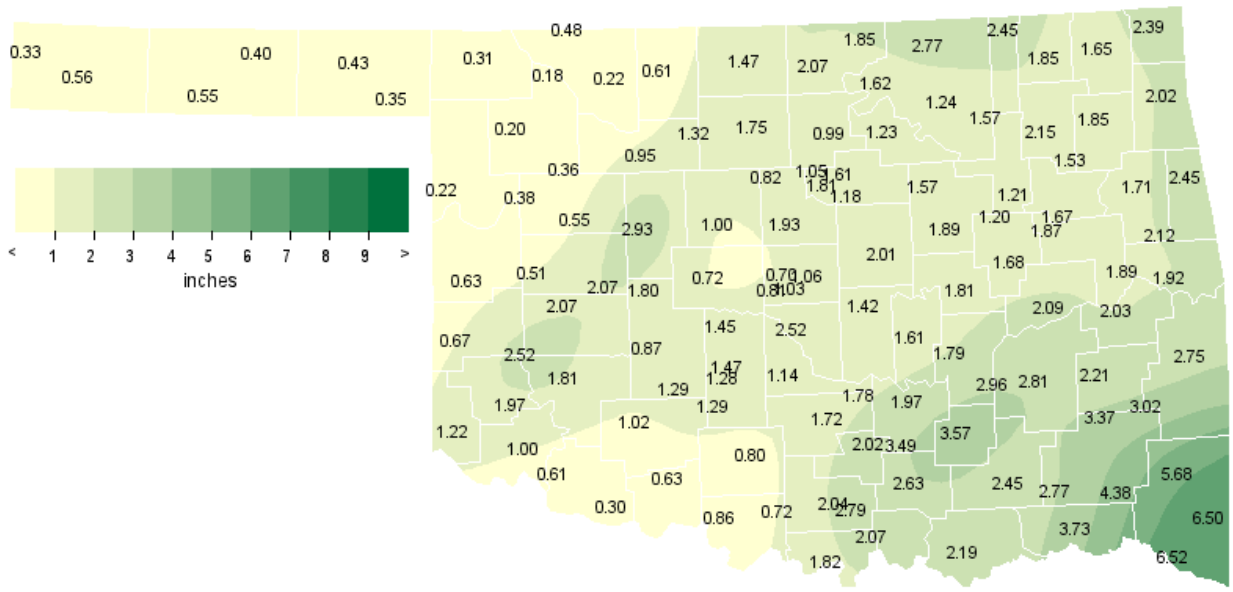
NOVEMBER 20-25: Maximum temperatures in the mid-upper 70s were short lived on the 20th and 21st as a strong cold front caused temperatures to plummet throughout the state. The

highest temperatures decreased by roughly 10 degrees each day, reaching 37 degrees by the 24th and 25th. The lowest maximum temperatures fluctuated a bit and fell from the 50s down into the 20s. The range of minimum temperatures started between 35 and 53 on the 20th, but tumbled down to a range of 13 to 31 degrees by the 25th. The Mesonet sites with the coldest minimums during this period were Boise City (13 degrees) and Goodwell (15 degrees) on the 25th. The frosty temperatures broke a daily record for the coldest high temperature at 30 degrees in Oklahoma City on the 24th.

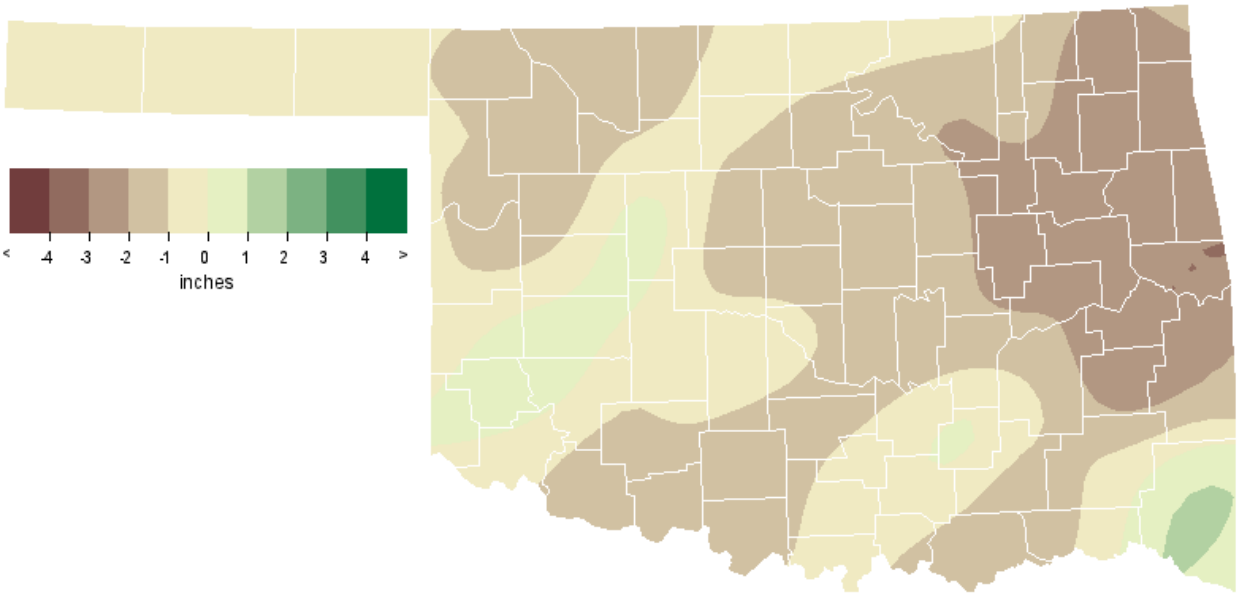
The upper level low and passing front caused winter precipitation to fall throughout most of the region. A significant amount of rainfall during the 21st transitioned to freezing rain and sleet on the 22nd and 23rd. The wintry mix started to fall as snow and sleet on the 24th and continued as freezing rain and sleet again by the 25th. The maximum liquid precipitation equivalents measured by the Mesonet each day were .13 in. on the 20th (Tahlequah), 1.92 inches on the 21st (Mt. Herman), 1.70 inches on the 22nd (Idabel), .28 inches on the 23rd (Chickasha), .1 inches on the 24th (Goodwell), and .40 inches on the 25th (Idabel). Snowfall amounts, however, were as high as 8 inches in Mangum and Roosevelt on the 24th, with many areas receiving 1 – 5 inches. Oklahoma City hit a record for daily maximum snowfall on the 24th at 0.6 inches, which breaks the previous record set in 1918. Highest daily wind speeds were in the low 20s from the 20th to the 22nd, fell to 16 mph on the 23rd, and amped back up a little to 18 mph on the 24th and 25th. The uppermost wind gusts hit 55 mph in Medicine Park on the 21st and 58 mph in the same location on the 22nd.

NOVEMBER 26-30: Oklahoma tried to gradually warm itself up at the end of November from the previous period's frigid temperatures. The highest temperatures in the state climbed from 51 degrees at Idabel on the 26th to 67 degrees at Arnett and Waurika on the 30th. Despite a little dip in temperatures on the 26th and 27th from 40 degrees to 35 degrees, the lowest observed maximum temperatures gradually warmed to 56 by the 30th. Following a similar trend, minimum temperatures slowly increased each day in spite of a slight drop on the 27th. The range of minimum temperatures shifted upward from 16-34 degrees on Tuesday to a range of 26-43 degrees by Saturday. Daily low temperature records were broken in Bartlesville on the 27th at 15 degrees and McAlester on the 28th at 19 degrees. According to the Mesonet, the previous days' snowmelt measured as much as 0.45 inches at Acme and 0.42 inches at Medicine Park on the 26th. Daily average wind speeds were generally 5-15 mph on the 26th, 28th, 29th, and 30th, and 5-12 mph on the 27th.

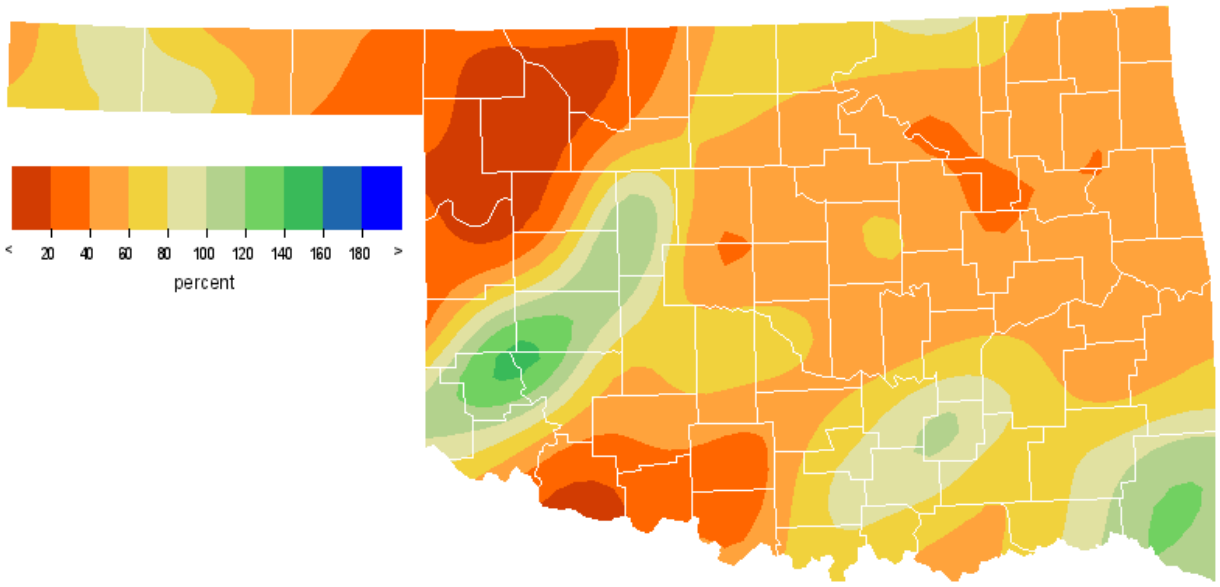
NOVEMBER 2013 OBSERVED PRECIPITATION



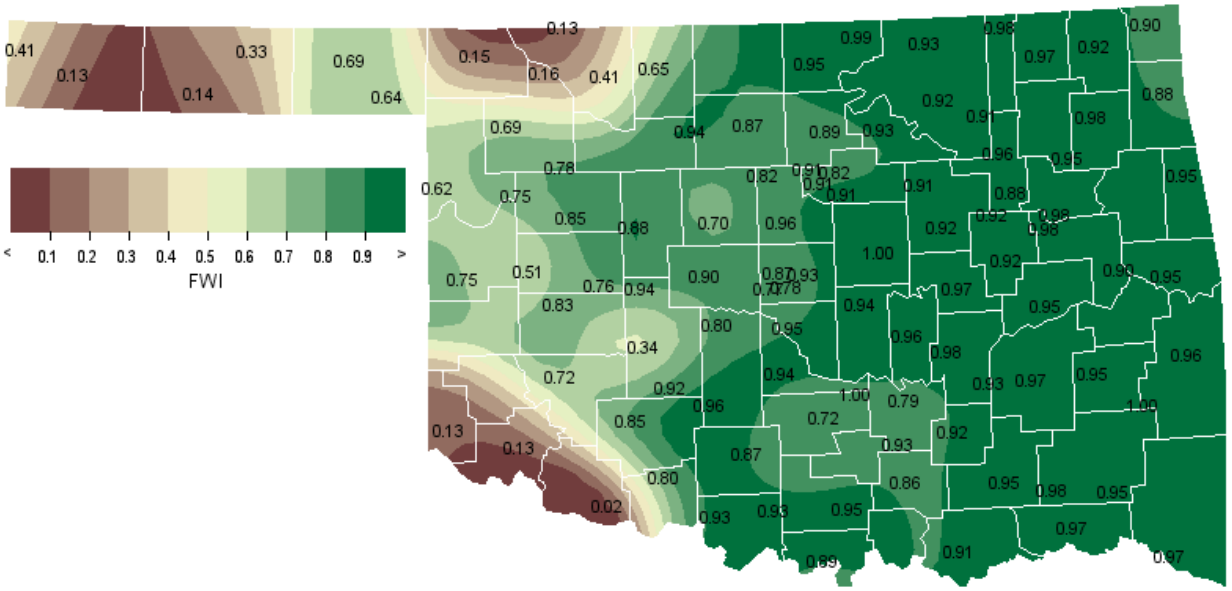
NOVEMBER 2013 DEPARTURE FROM NORMAL PRECIPITATION



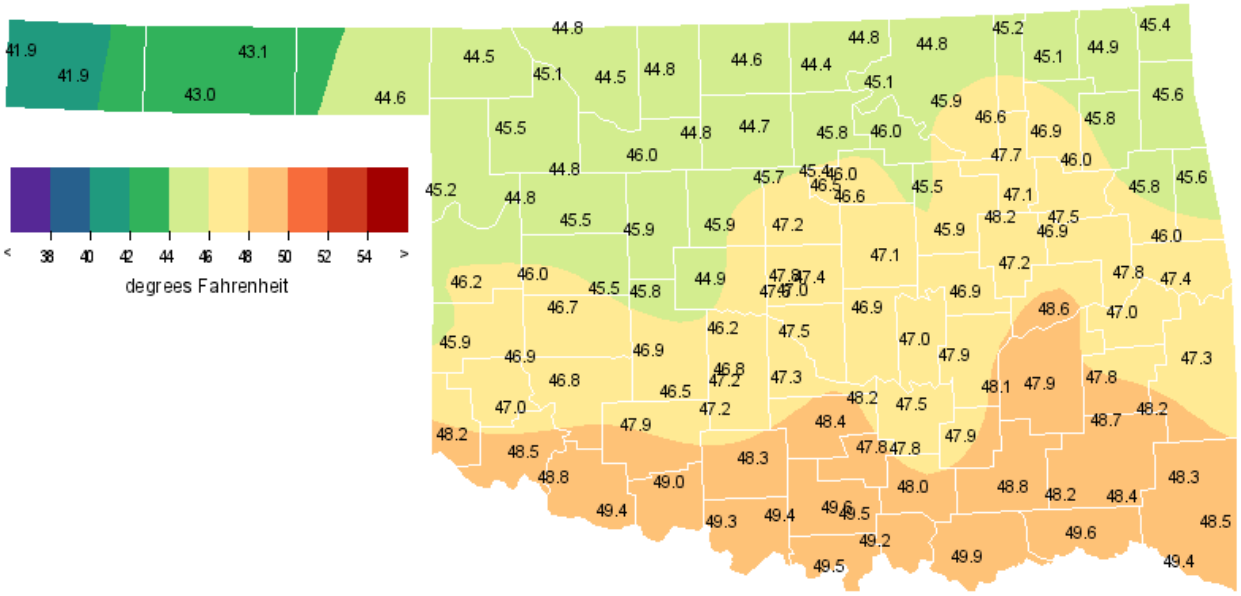
NOVEMBER 2013 PERCENT OF NORMAL PRECIPITATION



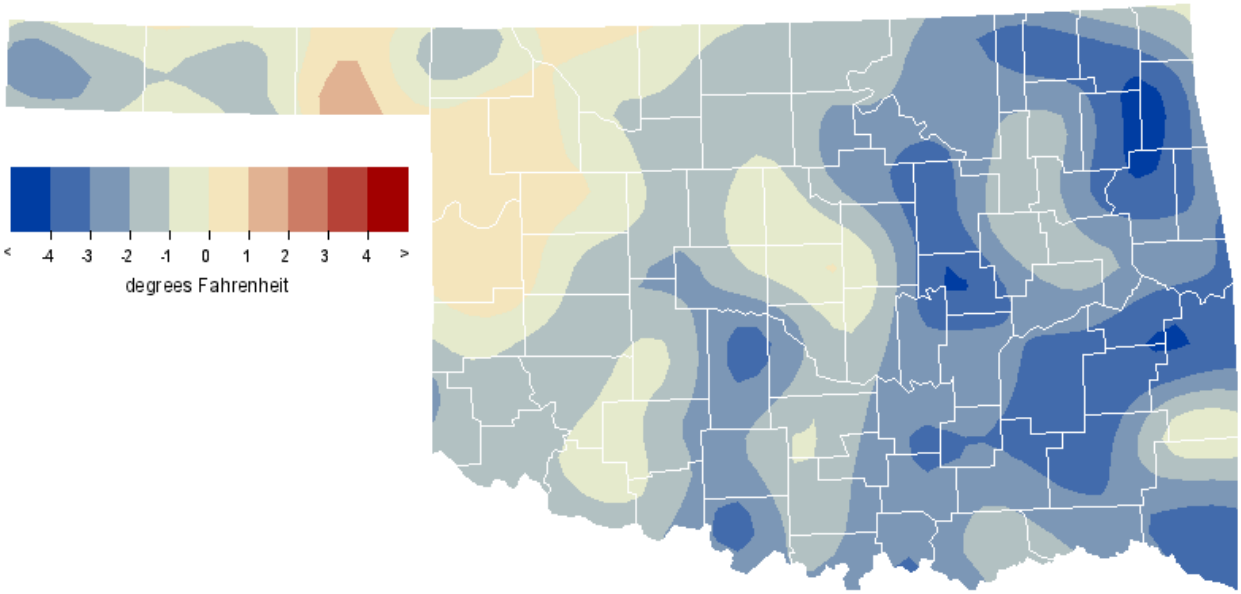
NOVEMBER 2013 AVERAGE SOIL MOISTURE AT 25CM



NOVEMBER 2013 AVERAGE TEMPERATURE



NOVEMBER 2013 DEPARTURE FROM NORMAL TEMPERATURE

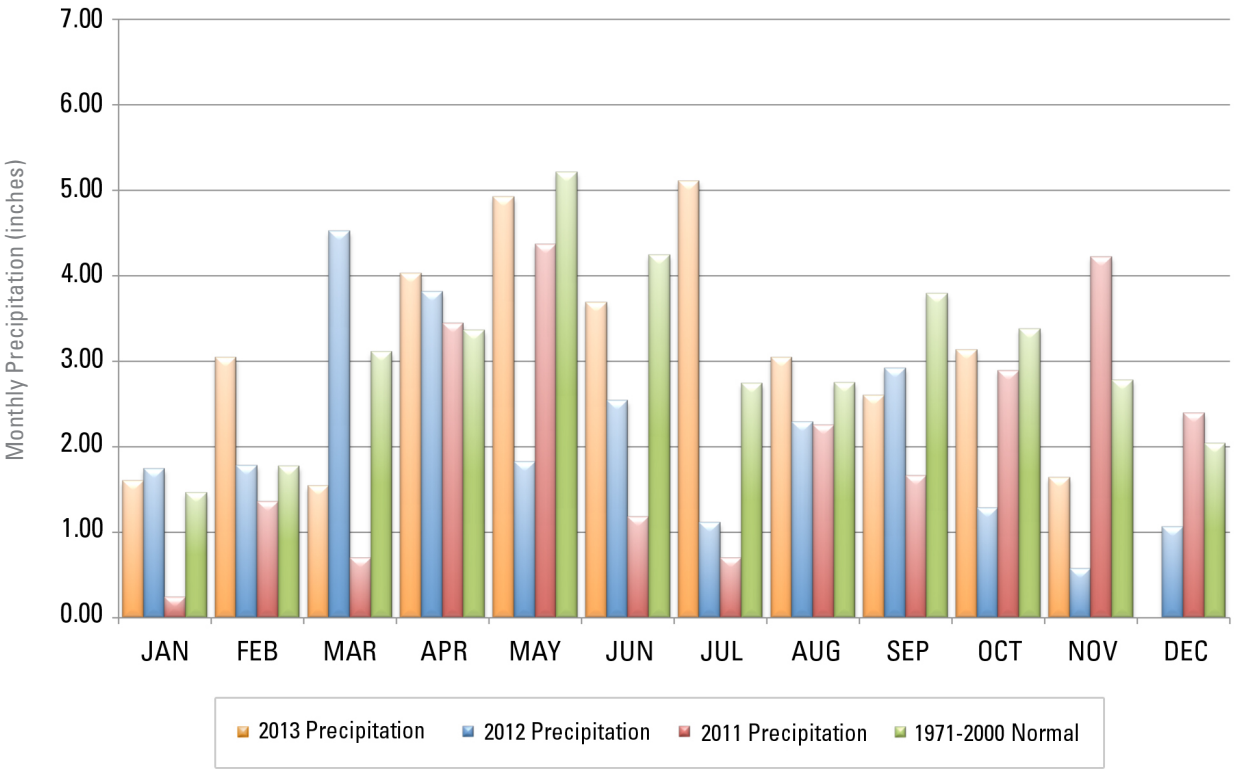


MESONET MONTHLY SUMMARY FOR NOVEMBER 2013

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	45.3	77	16	15	27	592	0	.22	.07	26
Beaver	*****	***	***	***	***	****	****	.43	.22	5
Boise City	41.8	72	3	13	25	695	0	.56	.36	5
Buffalo	44.5	79	16	10	27	618	4	.31	.19	5
NORTH CENTRAL										
Alva	44.5	82	16	9	27	620	5	.22	.20	5
Blackwell	44.4	77	16	13	27	619	0	2.07	1.34	5
Breckinridge	44.7	78	16	10	27	610	2	1.75	1.30	5
Cherokee	44.8	81	16	14	27	609	2	.61	.47	21
Fairview	46.0	80	16	17	27	574	3	.95	.81	21
Freedom	45.1	80	16	13	27	600	3	.18	.17	5
Lahoma	44.8	80	16	15	27	608	1	1.32	.90	5
NORTHEAST										
Bixby	47.0	76	16	20	13	539	0	1.21	.47	5
Burbank	45.1	76	16	15	27	597	0	1.62	.96	5
Claremore	46.9	75	16	18	27	543	0	2.15	.76	5
Copan	45.2	75	16	17	27	595	0	2.45	1.36	5
Foraker	44.9	75	16	14	27	603	0	2.77	1.41	5
Inola	46.1	75	16	17	13	567	0	1.53	.64	6
Jay	45.6	72	17	17	13	581	0	2.02	.76	6
Miami	45.4	72	16	18	27	589	0	2.39	.69	6
WEST CENTRAL										
Bessie	46.7	80	16	20	27	553	3	2.07	1.74	5
Butler	45.9	82	16	13	13	576	4	.51	.26	26
Camargo	44.7	81	16	12	27	609	0	.38	.23	5
Cheyenne	46.1	80	16	20	13	568	2	.63	.35	5
Erick	45.9	81	16	15	13	576	2	.67	.40	26
CENTRAL										
Acme	47.3	79	16	13	13	535	4	1.29	.52	5
Bowlegs	47.1	75	16	18	27	539	1	1.61	.98	5
Bristow	45.9	75	16	16	13	572	0	1.89	1.29	5
Lake Carl Blac	45.3	78	16	13	27	593	3	1.05	.88	5
Chandler	47.2	75	16	18	27	535	0	2.01	1.60	5
Chickasha	46.9	79	16	17	13	549	4	1.47	.68	5
El Reno	45.0	78	16	12	13	602	2	.72	.33	5
Guthrie	47.2	77	16	17	27	537	4	1.93	1.71	5
Kingfisher	45.9	79	16	14	27	577	4	1.00	.84	5
Marena	46.6	78	16	15	27	555	2	1.81	1.61	5
Minco	46.2	77	16	16	27	565	2	1.45	.93	5
Marshall	45.7	78	16	14	27	584	4	.82	.60	5
EAST CENTRAL										
Cookson	46.0	76	17	18	13	569	0	2.12	.89	21
Eufaula	48.6	77	17	22	27	492	0	2.09	.75	5
Haskell	46.9	75	16	19	27	542	0	1.87	.63	6
Hectorville	48.2	75	16	20	27	505	1	1.20	.60	5
Holdenville	47.9	77	17	17	27	515	1	1.79	.78	5
McAlester	47.8	79	17	19	13	517	1	2.81	1.12	21
Okmulgee	47.1	74	16	18	13	537	1	1.68	.77	5
SOUTHWEST										
Altus	48.5	85	16	18	13	502	7	1.00	.36	26
Apache	46.5	79	16	17	27	558	3	1.29	.52	5
Fort Cobb	46.9	80	16	14	13	547	3	.87	.36	26
Grandfield	49.4	83	16	17	13	476	7	.30	.12	5
Hinton	45.8	80	16	17	27	578	2	1.80	1.47	5
Hobart	46.8	82	16	17	13	549	3	1.81	1.11	5
SOUTH CENTRAL										
Ada	47.5	77	17	18	13	524	0	1.97	.80	5
Ardmore	49.5	79	17	23	13	469	5	2.79	1.03	5
Burneyville	49.5	81	17	18	13	471	7	1.82	.72	5
Byars	48.2	76	17	19	27	506	1	1.78	.57	5
Centrahoma	48.0	81	17	19	13	514	3	3.57	1.39	21
Durant	49.8	81	17	24	28	462	6	2.19	.82	22
Fittstown	47.8	76	17	21	13	518	1	3.49	1.52	5
Ketchum Ranch	48.3	78	16	18	13	505	3	.80	.48	5
Lane	48.8	80	17	20	28	492	4	2.45	.59	5
SOUTHEAST										
Antlers	48.2	83	17	17	28	511	6	2.77	.91	5
Antlers	*****	***	***	***	***	****	****	*****	*****	***
Broken Bow	48.5	83	17	20	28	499	3	6.50	2.24	5
Clayton	48.6	80	17	19	28	497	4	3.37	1.34	21
Cloudy	48.4	82	17	20	28	505	7	*****	*****	***
Hugo	49.6	83	17	22	28	469	7	3.73	1.20	21

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	43.0	77	3	15	25	661	0	.55	.18	5
Hooker	43.1	75	3	16	25	657	0	.40	.15	5
Kenton	41.9	78	8	16	22	694	0	.33	.16	26
Slapout	44.6	76	16	17	27	611	0	.35	.20	5
May Ranch	44.9	79	16	13	27	607	2	.48	.43	5
Medford	44.6	79	16	13	27	614	2	1.47	.77	21
Newkirk	44.8	75	16	14	27	607	0	1.85	1.04	5
Red Rock	45.7	78	16	13	27	582	2	.99	.80	5
Seiling	44.8	81	16	11	27	610	3	.36	.22	5
Woodward	45.6	79	16	14	27	586	3	.20	.09	5
Nowata	45.1	74	16	15	27	598	0	1.85	.87	5
Pawnee	45.9	76	16	14	27	573	0	1.23	1.01	5
Porter	47.5	75	17	20	27	526	0	1.67	.64	6
Pryor	45.8	74	16	18	27	577	0	1.85	.90	6
Skiatook	46.5	74	16	18	27	555	0	1.57	.92	5
Vinita	44.9	72	17	15	27	603	0	1.65	.51	5
Wynona	45.9	76	16	17	27	573	0	1.24	1.01	5
Putnam	45.5	81	16	16	27	588	3	.55	.35	21
Retrop	46.8	81	16	21	13	549	4	2.52	1.88	5
Watonga	45.9	78	16	18	27	576	2	2.93	2.76	5
Weatherford	45.6	79	16	19	27	586	3	2.07	1.77	5
Ninnekah	47.3	79	16	15	13	535	4	1.28	.68	5
Norman	47.4	76	16	19	27	529	2	2.52	1.82	5
Oilton	45.5	75	16	14	27	586	0	1.57	1.04	5
OKC East	47.0	76	16	19	13	542	2	1.03	.58	5
OKC North	47.9	76	16	19	27	516	2	.70	.36	5
OKC West	47.7	76	16	21	27	522	2	.81	.42	5
Okemah	46.9	75	17	19	13	543	0	1.81	.85	5
Perkins	46.6	76	16	17	27	554	1	1.18	.84	5
Shawnee	46.9	73	17	17	27	542	0	1.42	.96	5
Spencer	47.4	75	16	17	27	532	2	1.06	.61	5
Stillwater	46.0	77	16	15	27	572	2	1.61	1.41	5
Washington	47.3	77	16	18	13	533	3	1.14	.47	5
Sallisaw	47.4	79	17	19	28	529	0	1.92	.83	21
Stigler	47.0	78	17	19	28	541	0	2.03	.83	21
Stuart	48.1	78	17	20	27	509	1	2.96	1.12	5
Tahlequah	45.8	73	17	18	27	575	0	1.71	.52	5
Webbers Falls	47.7	78	17	21	28	518	0	1.89	.88	21
Westville	45.7	73	17	18	27	580	0	2.45	.92	21
Hollis	48.3	83	16	20	13	508	6	1.22	.54	5
Mangum	47.0	83	16	13	13	543	3	1.97	1.15	5
Medicine Park	47.9	80	16	22	24	514	2	1.02	.42	26
Tipton	48.7	84	16	17	13	496	7	.61	.20	5
Walters	*****	***	***	***	***	****	****	*****	*****	***
Madill	49.2	80	17	20	13	481	7	2.07	.94	5
Newport	49.6	80	17	22	13	467	7	2.04	.77	5
Pauls Valley	48.4	77	16	19	13	500	3	1.72	.61	5
Ringling	49.4	79	17	19	13	475	7	.72	.26	21
Sulphur	47.8	78	17	18	13	518	3	2.02	.93	5
Tishomingo	48.0	80	17	19	28	514	4	2.63	1.14	5
Vanoss	*****	***	***	***	***	****	****	*****	*****	***
Waurika	49.4	81	16	17	13	475	7	.86	.26	5
Idabel	49.3	84	17	21	28	473	2	6.52	1.94	5
Mt Herman	48.3	83	17	21	13	505	4	5.68	2.28	5
Talihina	48.2	82	17	17	28	506	3	3.02	.79	21
Wilburton	47.8	79	17	20	28	519	3	2.21	.66	21
Wister	47.3	80	17	16	28	532	0	2.75	.84	21

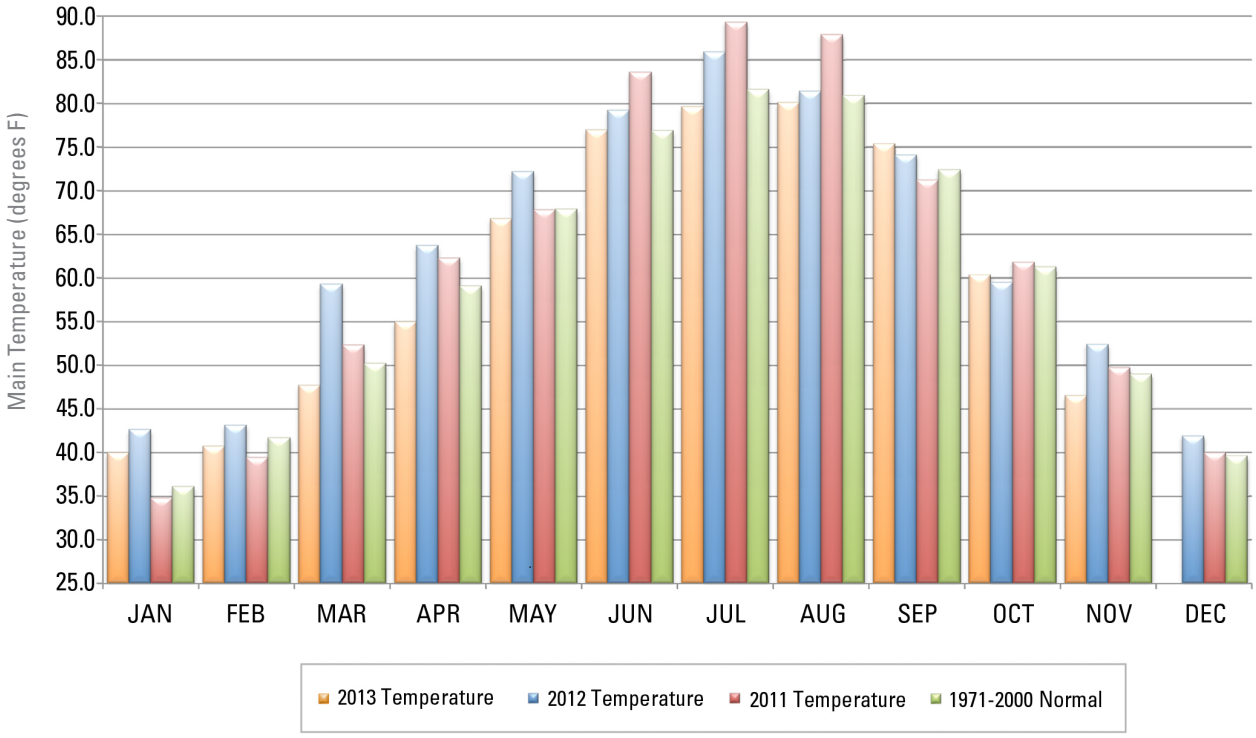
2011, 2012 AND 2013 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



November 2013 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Nov-12
Panhandle	0.39	-0.65	44th Driest	4.07 (1909)	0.00 (1897)	0.19
North Central	0.96	-1.12	49th Driest	6.48 (1964)	0.00 (1910)	0.63
Northeast	1.81	-1.81	43rd Driest	7.37 (1994)	0.00 (1904)	1.05
West Central	1.37	-0.36	52nd Wettest	6.62 (1964)	0.00 (1897)	0.44
Central	1.38	-1.43	46th Driest	6.88 (1931)	0.00 (1910)	0.73
East Central	2.04	-2.26	42nd Driest	10.16 (1996)	0.20 (1914)	0.74
Southwest	1.14	-0.59	59th Wettest	6.61 (2004)	0.00 (1897)	0.40
South Central	2.06	-1.04	58th Driest	7.62 (1902)	0.00 (1903)	0.48
Southeast	4.09	-0.98	48th Wettest	13.16 (1946)	0.00 (1903)	0.71
Statewide	1.64	-1.18	47th Driest	6.12 (2004)	0.14 (1910)	0.61

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



November 2013 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Nov-12 (F)
Panhandle	43.5	-0.5	45th Coolest	51.4 (1999)	36.0 (1929)	49.9
North Central	45.0	-1.3	36th Coolest	54.5 (1999)	39.0 (1929)	51.2
Northeast	46.0	-2.0	34th Coolest	56.4 (1999)	40.9 (1929)	50.4
West Central	45.9	-0.9	38th Coolest	54.7 (1999)	39.7 (1929)	52.7
Central	46.6	-2.2	32nd Coolest	56.8 (1999)	41.3 (1929)	53.0
East Central	47.3	-2.6	30th Coolest	57.8 (1999)	43.4 (1929)	51.9
Southwest	47.7	-1.5	33rd Coolest	56.3 (1999)	42.1 (1929)	54.6
South Central	48.7	-2.3	26th Coolest	58.3 (1927)	44.1 (1929)	54.2
Southeast	48.4	-2.3	22nd Coolest	58.9 (1909)	44.1 (1976)	52.2
Statewide	46.5	-1.8	34th Coolest	56.0 (1999)	41.3 (1929)	52.2

RECORD EVENT REPORTS

Description	Day	Location	Record	Previous Record	Year
daily coldest high temperature	24	Oklahoma City	30	32	1918
daily maximum snowfall	25	Oklahoma City	0.6	0.3	1918
daily low temperature	27	Bartlesville	15	15	2002
daily low temperature	28	McAlester	19	19	

MESONET EXTREMES FOR NOVEMBER 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	79	16th	Buffalo	10	27th	Buffalo	0.56	Boise City	0.36	5th	Boise City
North Central	82	16th	Alva	9	27th	Alva	2.07	Blackwell	1.34	5th	Blackwell
Northeast	76	16th	Pawnee	14	27th	Pawnee	2.77	Foraker	1.41	5th	Foraker
West Central	82	16th	Butler	12	27th	Camargo	2.93	Watonga	2.76	5th	Watonga
Central	79	16th	Acme	12	13th	El Reno	2.52	Norman	1.82	5th	Norman
East Central	79	17th	Sallisaw	17	27th	Holdenville	2.96	Stuart	1.12	21st	McAlester
Southwest	85	16th	Altus	13	13th	Mangum	1.97	Mangum	1.47	5th	Hinton
South Central	81	16th	Waurika	17	13th	Waurika	3.57	Centrahoma	1.52	5th	Fittstown
Southeast	84	17th	Idabel	16	28th	Wister	6.52	Idabel	2.28	5th	Mt Herman
Statewide	85	16th	Altus	9	27th	Alva	6.52	Idabel	2.76	5th	Watonga

DECEMBER OUTLOOK

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 25.8 degrees in 1983 to a high of 45.4 degrees, achieved 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 18 degrees below zero (-18) at Perry on December 22, 1989.

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 0.10 inch in 1950 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 in Western McCurtain County, 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.

Precipitation

Mean	2.04 inches
Wettest December	1984, 4.98 inches
Driest December	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

Tornadoes

Average September Tornadoes	0.4
Most	4 (1982)

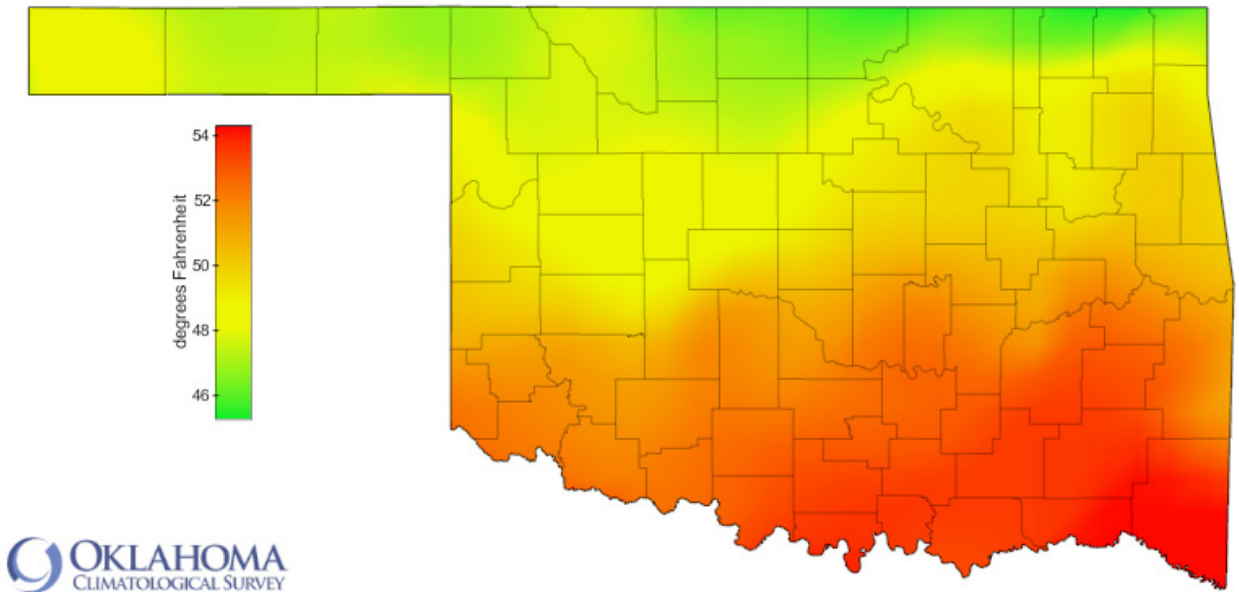
Snow is common in the northwestern portions of the state by late December. Boise City averages 6.1 inches of snow per December. Stations in the far southern portions of the state generally average less than one-half inch of snow during December. Records for snowfall extremes were set at Beaver. That 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.

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

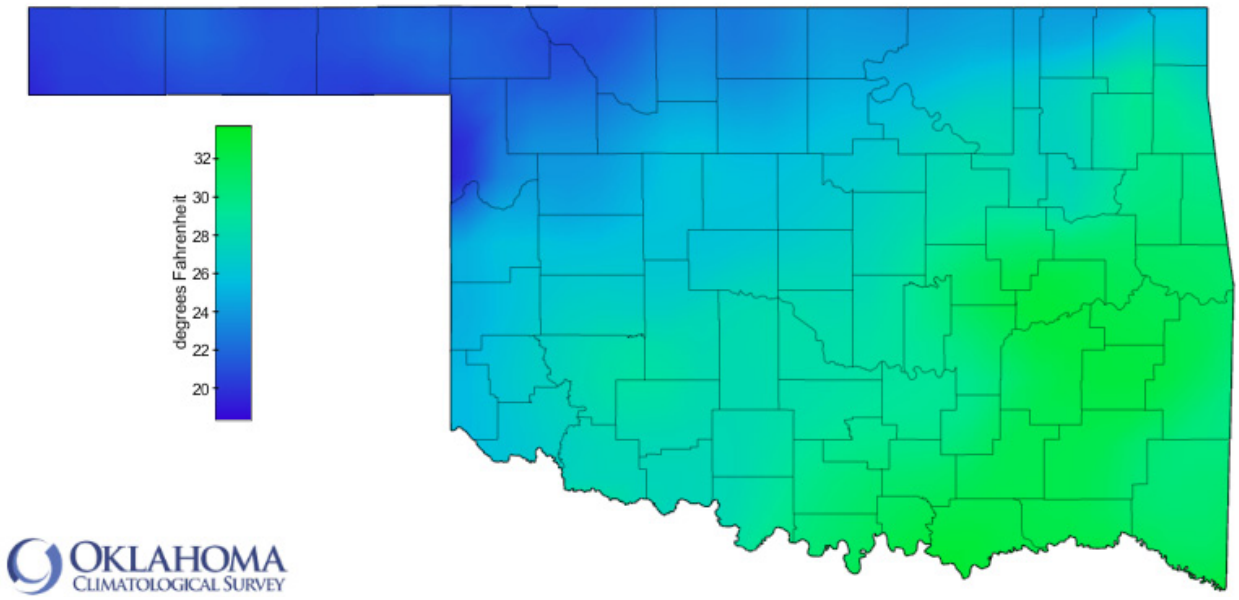
damage to power and telephone lines in central and northern Oklahoma. For many late December travelers, the winter storms that seem inevitable during the week between Christmas and New Year's Day sometimes appear to have become something of an Oklahoma tradition. Other major ice storms struck Oklahoma 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.

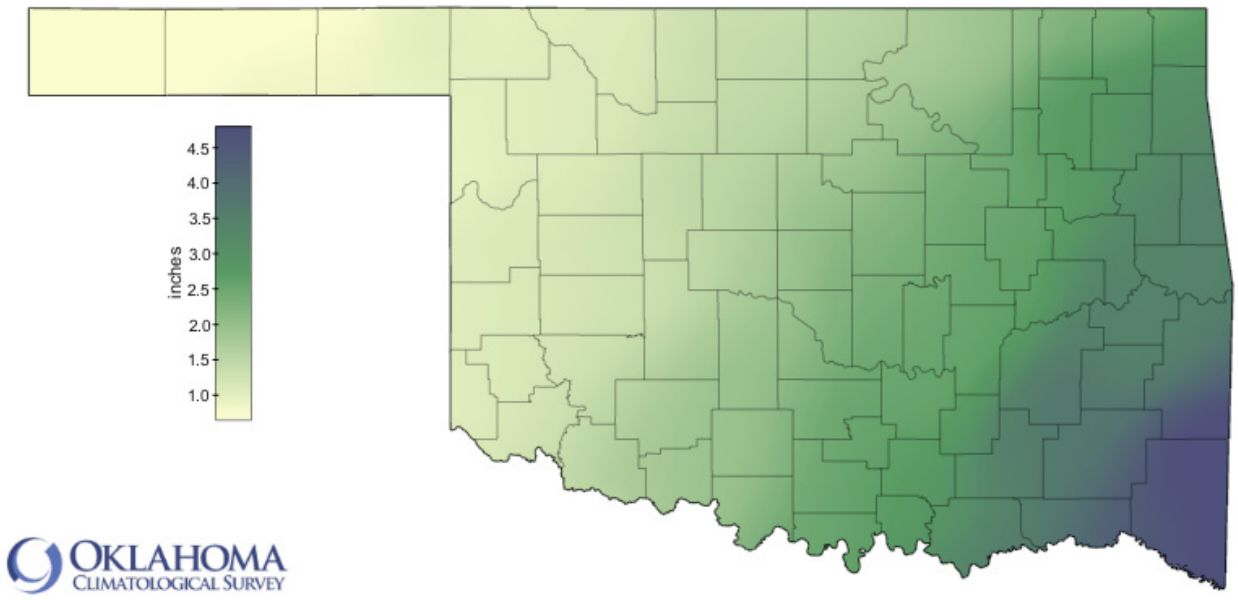
DECEMBER NORMAL DAILY MAXIMUM TEMPERATURE (1981-2010)



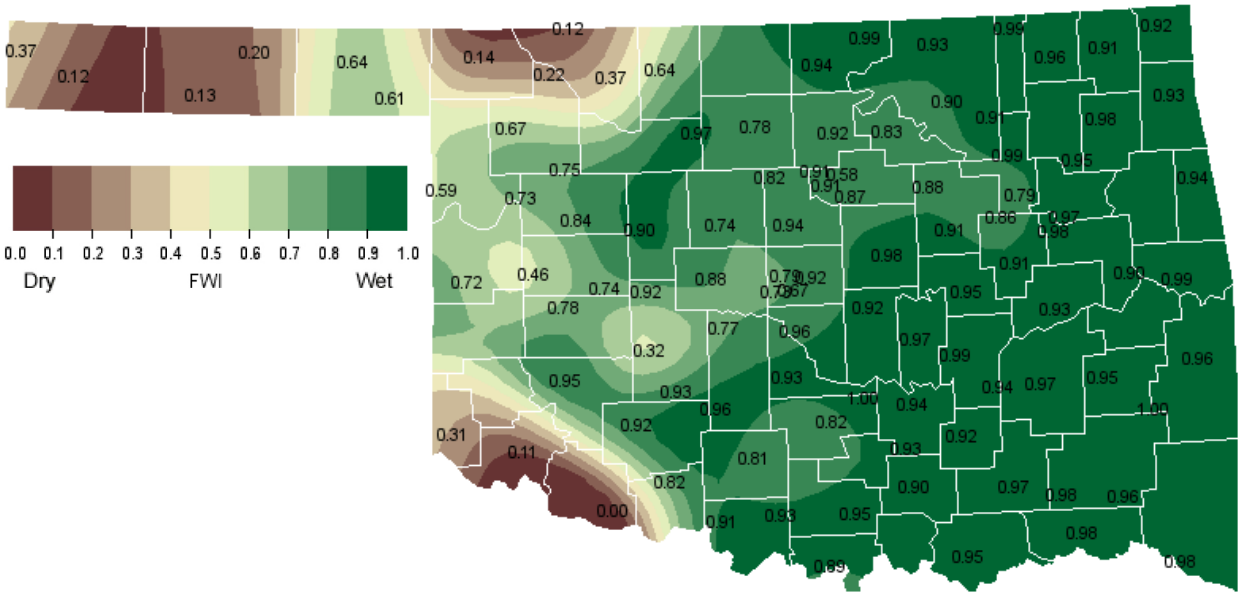
DECEMBER NORMAL DAILY MINIMUM TEMPERATURE (1981-2010)



DECEMBER NORMAL PRECIPITATION (1981-2010)

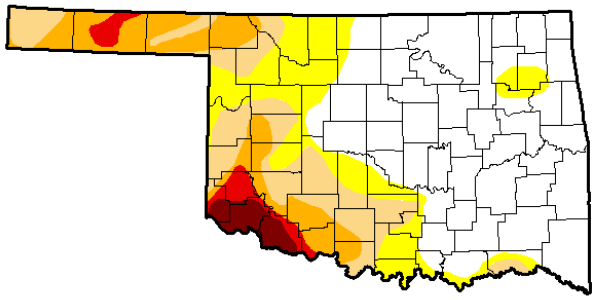


DECEMBER 1, 2013 SOIL MOISTURE CONDITIONS AT 25CM



DECEMBER 2013 DROUGHT INDICES

U.S. Drought Monitor
Oklahoma



November 26, 2013
(Released Thursday, Nov. 28, 2013)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	52.66	47.34	30.90	15.93	4.92	2.40
Last Week 11/19/2013	50.19	49.81	30.97	15.93	4.92	2.40
3 Months Ago 8/27/2013	39.80	60.20	38.01	19.44	9.89	0.54
Start of Calendar Year 1/1/2013	0.00	100.00	100.00	100.00	94.89	37.06
Start of Water Year 10/1/2013	21.74	78.26	43.00	17.62	4.42	1.45
One Year Ago 11/27/2012	0.00	100.00	100.00	99.64	90.50	34.46

Intensity:

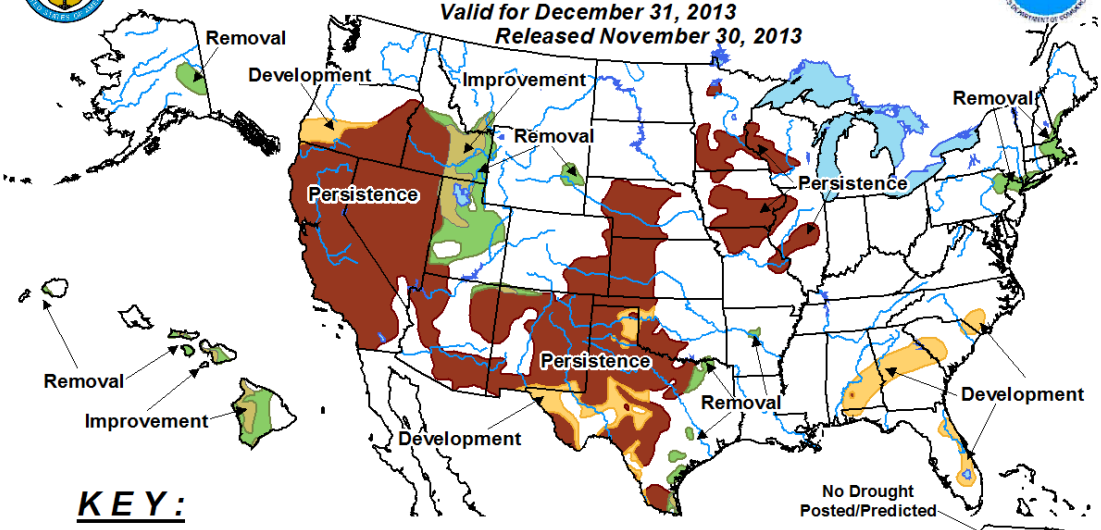
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author:
Richard Heim
NCDC/NOAA

http://droughtmonitor.unl.edu/

U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period
Valid for December 31, 2013
Released November 30, 2013



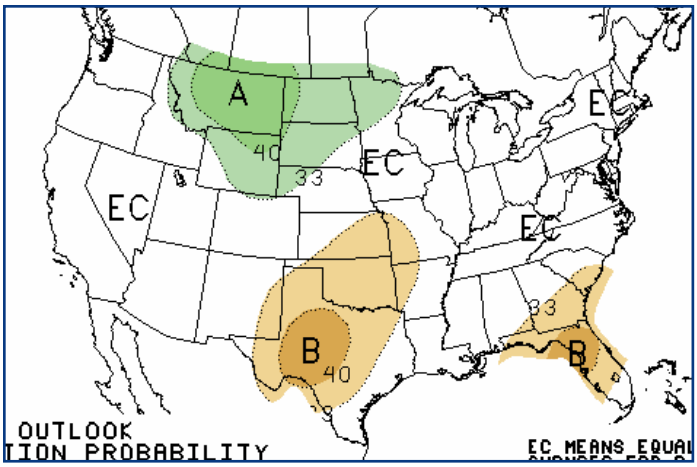
KEY:

- **Drought persists or intensifies**
- **Drought remains but improves**
- **Drought removal likely**
- **Drought development likely**

Author: David Miskus, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

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 tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

DECEMBER 2013 U.S. PRECIPITATION FORECAST



Percent Likelihood of Above or Below Average Precipitation*

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

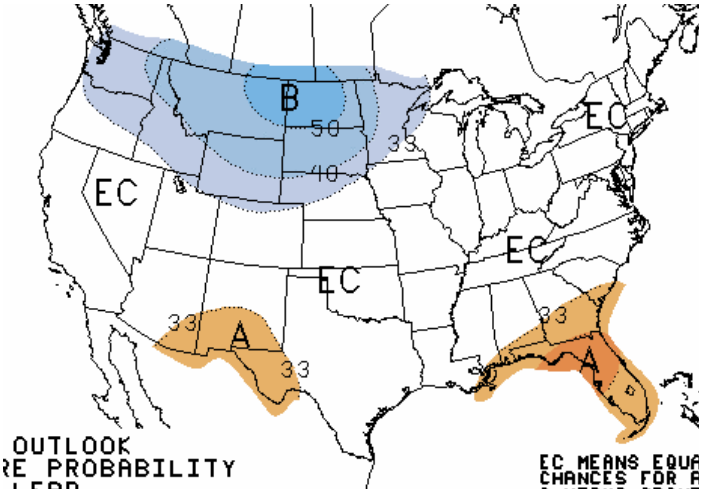
A = Above

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

B = Below

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

DECEMBER 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%

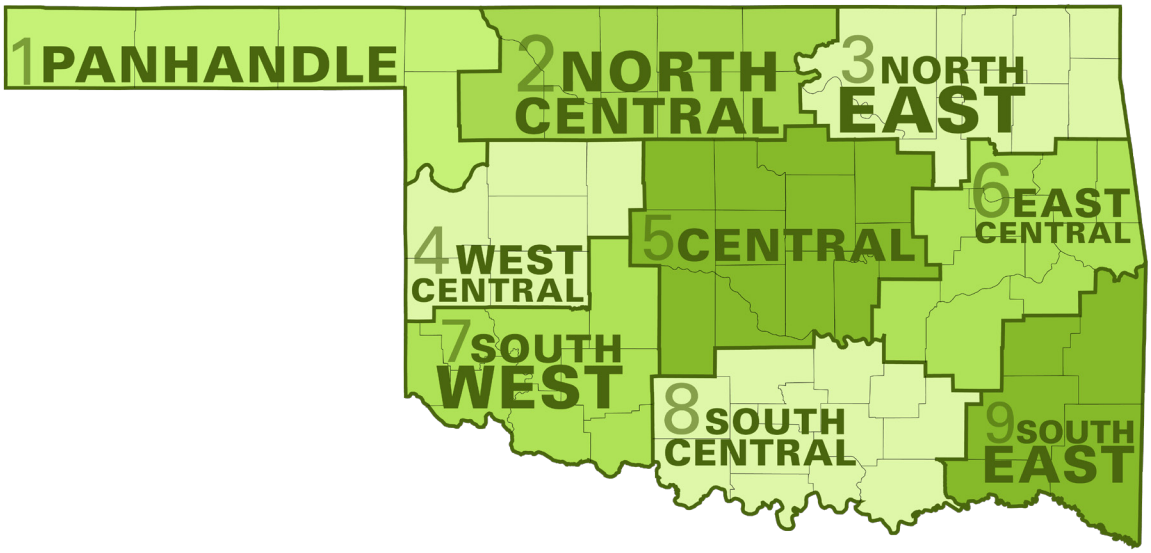
B = Below

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

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 June 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 June 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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