Oklahoma Monthly Climate Summary

DECEMBER 2017

OKLAHOMA CLIMATOLOGICAL SURVEY

Oklahoma's seemingly endless supply of mild weather came to an abrupt halt during the third week of December, ushering in a frigid end to a warm 2017. A bulge in the jet stream allowed frosty air to plunge southward and place most of the country into an arctic deep freeze. Oklahoma's introduction to the cold air came on Dec. 21 and lasted through the end of the year. Highs in the 60s and even a few 70s were common during the first three weeks of December, topped by a high of 83 degrees at three Mesonet sites in southwest Oklahoma on the fourth. Following the arctic front on the 21st, much of the state endured more than 150 hours at or below freezing through the rest of December, topped by Beaver and Slapout's 216 hours. Mother Nature saved the coldest air for December's final day with temperatures dipping into the single digits and wind chills of minus 10 degrees or lower across northern Oklahoma. The month's lowest temperature of zero degrees was recorded at the Eva Mesonet site on the 31st. With the cold air in place, small storm systems brought bouts of occasional wintry weather in its usual forms. Sporadic stretches of light snow provided joy to some, while freezing drizzle caused travel problems for others. Despite the chilly end, December was warm for the most part. According to preliminary data from the Oklahoma Mesonet, the month finished above normal by about a degree with a statewide average of 39.8 degrees. Those records date back to 1895.

December 2017 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	83°F	Several	4
Low Temperature	0°F	Eva	31
High Precipitation	5.65 in.	Valliant	--
Low Precipitation	0.00 in.	Several	

The dry weather that had plagued the state since early October continued through December. Of the 120 Mesonet sites, five in northwestern Oklahoma received no moisture for the month, and an additional 39 recorded a quarter-inch or less. The Mesonet site at Beaver had not recorded a drop of precipitation for 85 consecutive days as of Dec. 31, dating back to Oct. 7. Several storm systems managed to squeeze out significant moisture across far southeastern Oklahoma. Eleven stations in the southeast recorded at least 3 inches of rain, with Valliant leading the way at 5.65 inches. Unfortunately, the totals dropped rapidly to the northwest leaving approximately 90 percent of the state below normal for the month. The snowfall was light for the most part, although the Tulsa area accumulated as much as 2.5 inches on the 23rd.

Drought increased at an unusually rapid pace during December, when evaporation and consumption are diminished. The extended dearth of precipitation began to cause significant harm to Oklahoma's wheat and cattle industry, however. The percentage of drought coverage in the state increased from 40 percent in late November to 76 percent at the end of December according to the U.S. Drought Monitor. Most of that increase occurred across southern and western Oklahoma. The drought intensity was lessened across far southeastern Oklahoma thanks to the beneficial rains, although the area remained in drought. The percentage of the state in drought at the end of December was the most since late March.

December 2017 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2017)
Month (December)	39.8°F	0.9°F	56th Warmest
Year-to-Date (Jan-Dec)	61.8°F	1.8°F	13th Warmest

Precipitation

	Total	Depart.	Rank (1895-2017)
Month (December)	1.03 in.	-1.03 in.	40th Driest
Year-to-Date (Jan-Dec)	38.52 in.	2.02 in.	29th Wettest

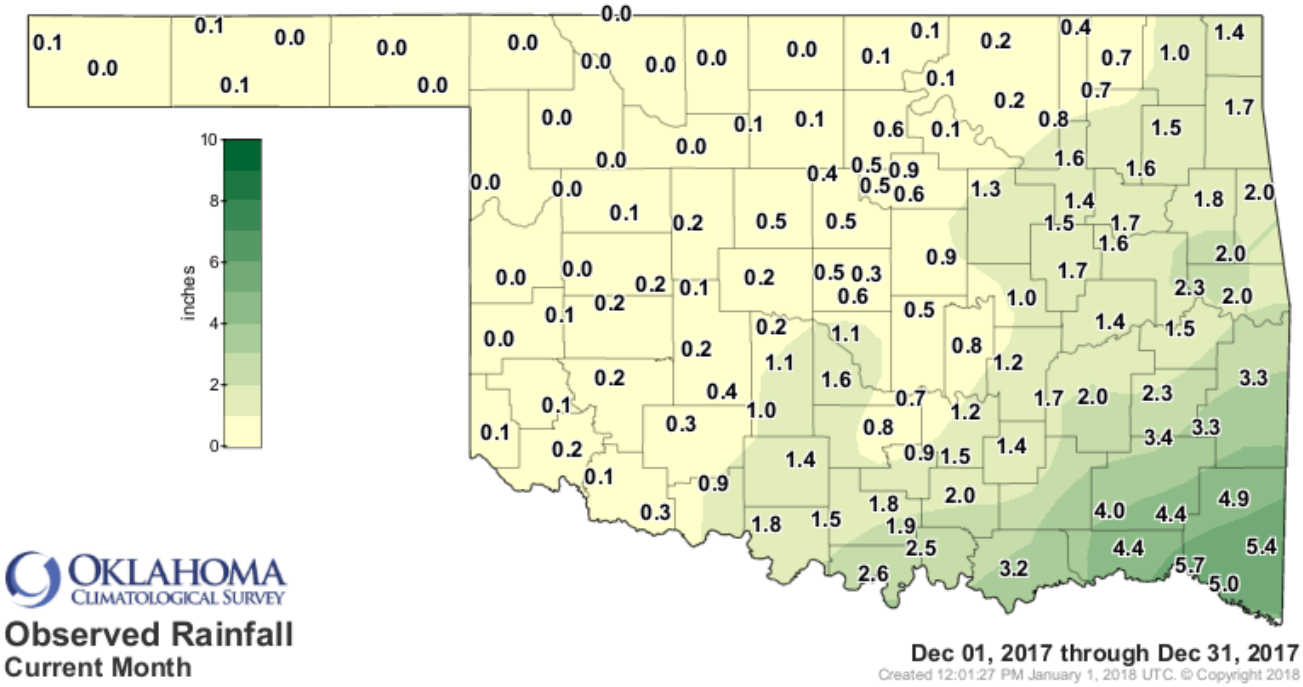
Depart. = departure from 30-year normal

Although the statistics paint 2017 as a warm and wet year, the shorter time scales portray Oklahoma's normal highly variable climate. According to preliminary data from the Oklahoma Mesonet, the year was the 13th warmest since records began in 1895 with a statewide average of 61.8 degrees, 1.8 degrees above normal. The highest temperature recorded

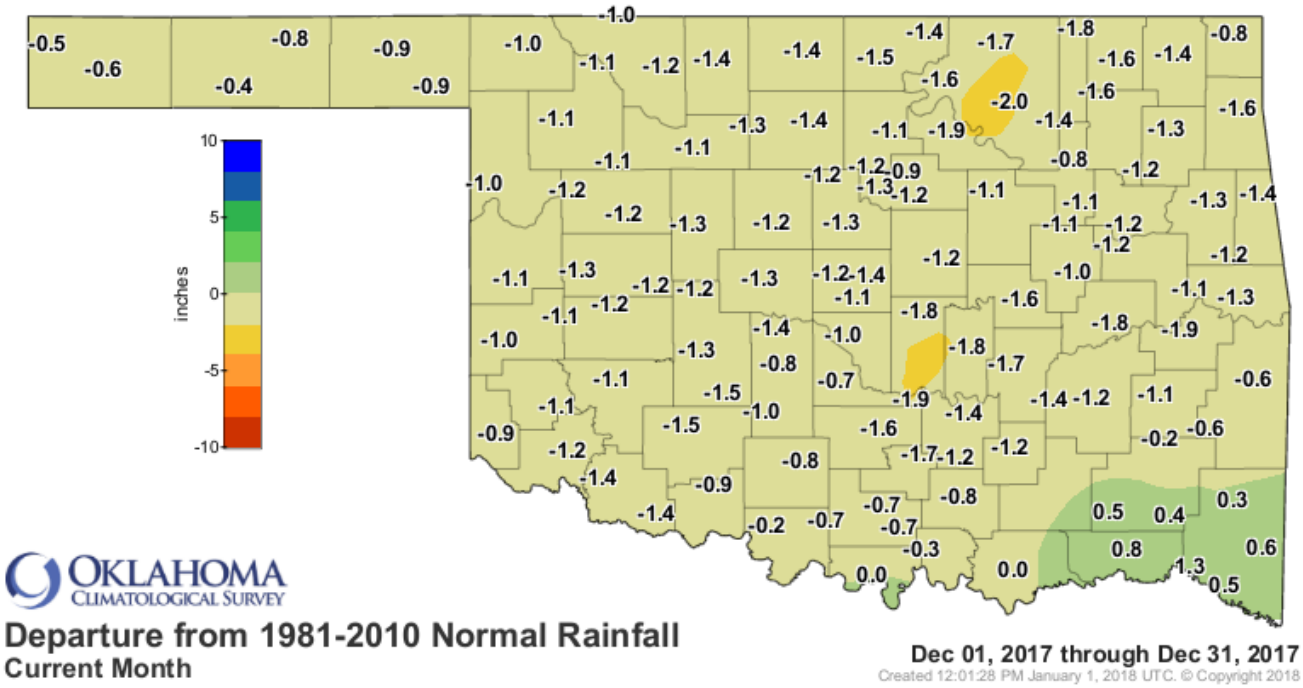
by the Mesonet in 2017 was 108 degrees at Kingfisher on July 22, although the heat index calculated at Copan was 115 degrees that same day. The lowest reading of minus 19 degrees came at Kenton on Jan. 7. On that same day, the wind chill calculated at Hooker bottomed out at minus 28 degrees. 2017 also ranked as the 29th wettest year on record at 2.02 inches above normal with a statewide average of 38.52 inches. That rain came in fits and spurts, however. Extended dry stretches occurred during February-March, June-July, and again during the final three months of the year. April and August were both exceedingly wet, ranking as the third and second wettest on record for those particular months, respectively. November ranked as the fifth driest on record. Hugo led the Mesonet with 56.9 inches of rain for the year. Buffalo had the lowest total at 21.1 inches. The National Weather Service's preliminary tornado count of 86 was well above the 1950-2016 average of 56. May was the big twister month with 57 reported touchdowns, including a deadly EF2 tornado in Beckham and Washita counties that resulted in one fatality. An EF2 tornado injured 30 and caused significant damage to businesses in the midtown Tulsa area on Aug. 6.

The precipitation and temperature outlooks for January from the Climate Prediction Center (CPC) indicate increased odds of below normal temperatures and above normal precipitation across eastern Oklahoma. No clear signal was apparent for the remainder of the state. The CPC January-March outlooks released on December 21 show increased odds for above normal temperatures and below normal precipitation across the entire state, but especially across western Oklahoma. The January Drought Outlook from CPC calls for either persistence or intensification within the drought stricken areas across the western two-thirds of the state. Far eastern Oklahoma could see improvement or even drought removal by the end of the month. La Niña – the cooling of waters in the eastern equatorial Pacific Ocean that tilts the odds for warmer and drier cool seasons across the southern tier of the United States – is expected to continue through mid-to-late spring according to the most recent CPC advisory.

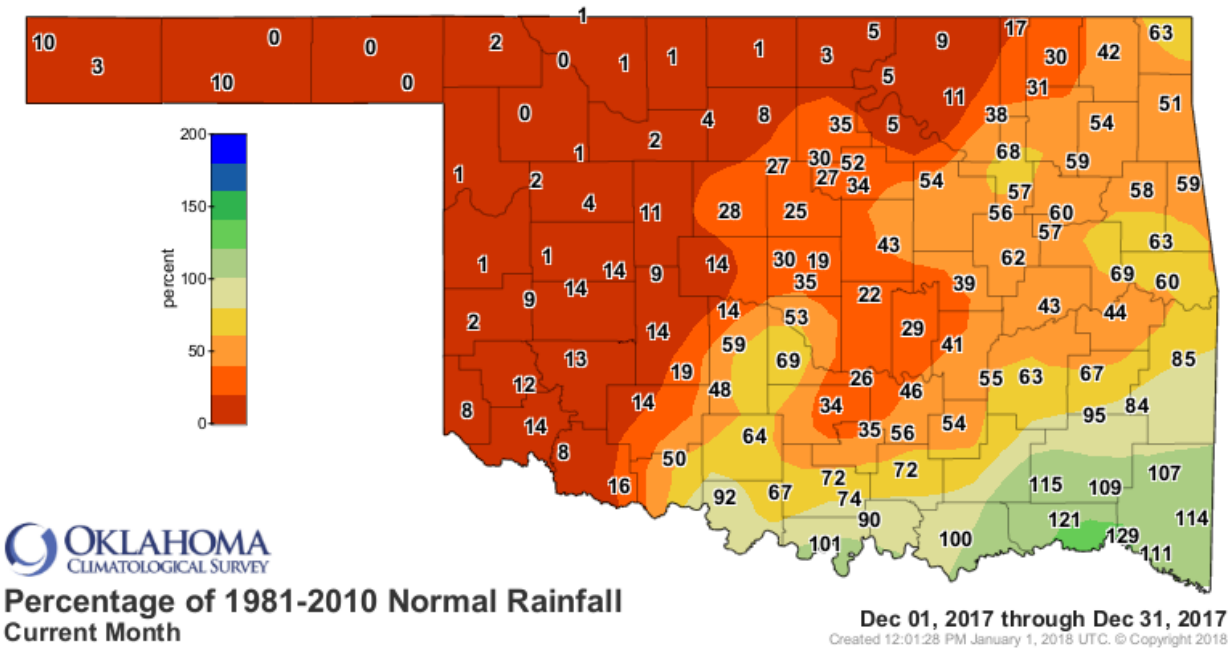
DECEMBER 2017 OBSERVED PRECIPITATION



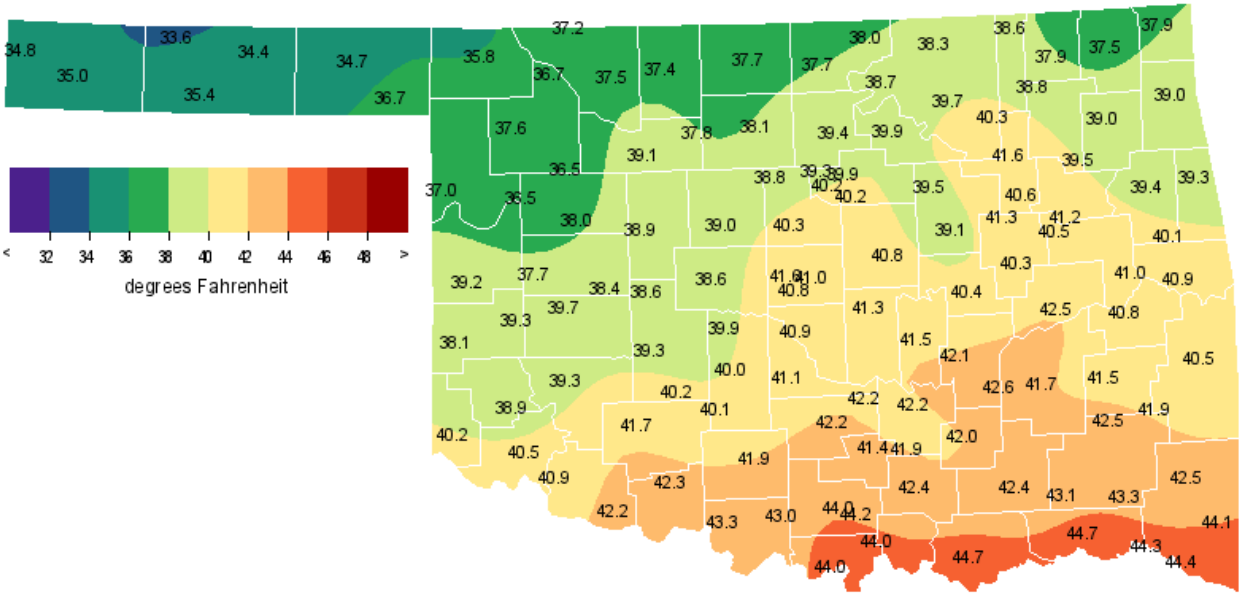
DECEMBER 2017 DEPARTURE FROM NORMAL PRECIPITATION



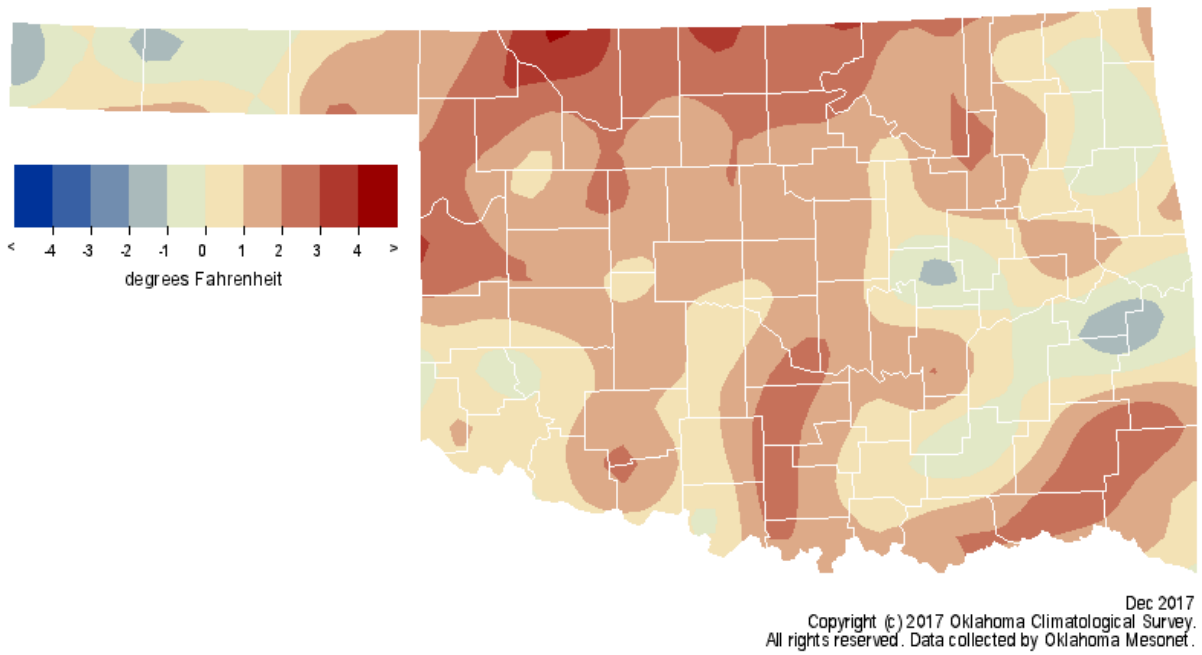
DECEMBER 2017 PERCENT OF NORMAL PRECIPITATION



DECEMBER 2017 AVERAGE TEMPERATURE



DECEMBER 2017 DEPARTURE FROM NORMAL TEMPERATURE

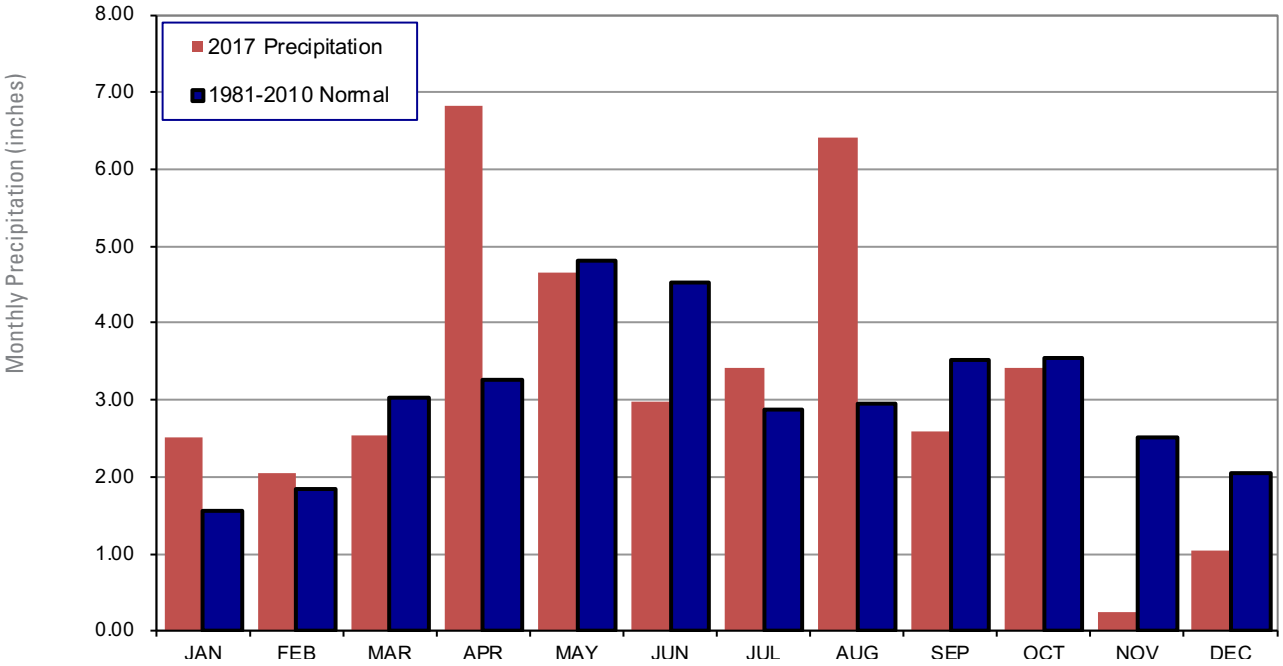


MESONET MONTHLY SUMMARY FOR DECEMBER 2017

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	37.0	77	3	7	31	867	0	.01	.01	20
Beaver	34.7	82	3	3	31	941	0	.00	.00	1
Boise City	35.0	74	29	6	31	929	0	.02	.01	14
Buffalo	35.8	79	3	1	31	905	0	.02	.02	16
Eva	33.7	77	3	0	31	971	0	.05	.02	14
NORTH CENTRAL										
Alva	37.5	75	3	5	31	853	0	.01	.01	18
Blackwell	37.8	72	4	7	31	845	0	.05	.03	16
Breckinridge	38.1	74	4	8	31	835	0	.12	.09	19
Cherokee	37.4	71	3	7	31	856	0	.02	.01	18
Fairview	39.1	73	3	7	31	802	0	.02	.01	19
Freedom	36.7	75	3	2	31	876	0	.00	.00	1
Lahoma	37.9	72	4	6	31	842	0	.06	.03	19
NORTHEAST										
Bixby	40.6	78	4	11	31	757	0	1.40	.59	22
Burbank	38.7	75	4	6	31	816	0	.09	.07	16
Copan	38.6	77	4	5	31	819	0	.36	.22	17
Foraker	38.3	76	4	4	31	826	0	.17	.11	16
Inola	39.5	76	4	10	31	792	0	1.64	.66	22
Jay	39.0	74	4	8	31	805	0	1.66	.77	22
Miami	37.9	73	4	7	31	839	0	1.44	.68	22
Nowata	37.9	77	4	7	31	841	0	.71	.22	17
WEST CENTRAL										
Bessie	39.6	75	3	9	31	787	0	.19	.16	19
Butler	37.8	76	3	9	31	844	0	.02	.01	19
Camargo	36.5	76	3	7	31	884	0	.02	.01	19
Cheyenne	39.2	74	3	7	31	800	0	.01	.01	20
Elk City	39.3	75	4	10	31	796	0	.11	.05	23
CENTRAL										
Acme	40.2	75	4	11	8	768	0	.97	.75	19
Bowlegs	41.5	78	4	10	8	729	0	.75	.28	19
Bristow	39.6	79	4	7	8	786	0	1.17	.30	22
Lake Carl Blac	39.3	76	4	9	31	798	0	.52	.49	19
Chandler	40.8	78	4	10	31	750	0	.91	.40	19
Chickasha	40.0	77	4	10	8	775	0	1.12	.91	19
El Reno	38.6	75	4	9	31	819	0	.22	.20	19
Guthrie	40.3	75	4	10	31	766	0	.45	.43	19
Kingfisher	38.9	74	4	11	31	808	0	.45	.41	19
Marena	40.1	77	4	8	31	771	0	.48	.41	19
Minco	39.8	75	4	10	31	780	0	.23	.20	19
EAST CENTRAL										
Cookson	40.1	74	3	10	8	772	0	2.03	.82	22
Eufaula	42.5	77	4	13	31	699	0	1.36	.57	22
Haskell	40.5	77	4	10	8	761	0	1.62	.53	19
Hectorville	41.3	78	4	10	31	736	0	1.45	.49	22
Holdenville	42.0	79	4	12	31	713	1	1.15	.63	19
McAlester	41.7	76	3	11	8	723	1	1.96	.68	19
Okmulgee	40.3	78	4	8	8	765	0	1.73	.50	22
SOUTHWEST										
Altus	40.5	78	4	13	8	759	0	.19	.14	19
Apache	40.3	75	4	11	31	766	0	.35	.29	19
Fort Cobb	39.3	74	3	12	31	796	0	.21	.19	19
Grandfield	42.2	80	4	14	31	708	0	.26	.19	19
Hinton	38.6	74	4	9	31	818	0	.12	.09	19
Hobart	39.3	76	4	11	31	796	0	.17	.14	19
SOUTH CENTRAL										
Ada	42.2	80	4	12	8	707	1	1.19	.68	19
Ardmore	44.2	82	4	14	8	649	4	1.93	1.36	19
Burneyville	44.1	83	4	8	8	658	10	2.57	1.93	19
Byars	42.2	78	4	11	31	708	0	.66	.37	19
Centrahoma	42.0	82	4	7	8	716	3	1.44	.67	19
Durant	44.6	80	4	15	8	637	4	3.17	1.47	19
Fittstown	42.0	81	4	9	8	714	1	1.50	1.00	19
Ketchum Ranch	41.9	77	4	13	8	715	0	1.35	.93	19
SOUTHEAST										
Antlers	43.2	78	4	12	8	678	2	4.03	1.73	19
Broken Bow	44.1	76	3	17	8	648	0	5.35	2.34	22
Clayton	42.5	75	4	14	8	696	0	3.35	1.26	19
Cloudy	43.4	75	3	15	8	671	1	4.37	1.63	22
Hugo	44.6	79	3	17	8	633	2	4.40	1.64	19
Idabel	44.4	77	3	19	9	641	1	5.03	1.87	22

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	35.4	77	3	4	31	918	0	.05	.04	14
Hooker	34.4	79	3	4	31	949	0	.00	.00	1
Kenton	34.7	74	29	5	31	938	0	.05	.03	15
Slapout	36.7	81	3	3	31	877	0	.00	.00	1
May Ranch	37.2	74	3	2	31	862	0	.01	.01	3
Medford	37.7	72	4	7	31	848	0	.02	.01	18
Newkirk	38.0	74	4	4	31	837	0	.07	.04	16
Red Rock	39.4	75	4	8	31	794	0	.59	.54	19
Seiling	36.5	74	3	6	31	883	0	.01	.01	21
Woodward	37.6	75	3	5	31	849	0	.00	.00	1
Pawnee	39.9	76	4	7	31	778	0	.09	.07	16
Porter	41.2	76	4	11	31	737	0	1.73	.57	22
Pryor	38.9	76	4	9	31	808	0	1.48	.68	22
Skiatook	40.3	77	4	7	31	766	0	.82	.25	22
Talala	38.7	79	4	7	31	814	0	.71	.29	22
Tulsa	41.6	78	4	10	31	724	0	1.58	.71	19
Vinita	37.5	76	4	7	31	851	0	1.04	.37	22
Wynona	39.7	78	4	7	31	786	0	.24	.15	16
Erick	38.1	76	3	9	31	833	0	.02	.01	20
Putnam	37.9	74	3	7	31	839	0	.05	.02	19
Watonga	39.0	73	4	7	31	807	0	.16	.16	19
Weatherford	38.4	73	4	8	31	826	0	.19	.17	19
Marshall	38.8	75	4	10	31	813	0	.43	.41	19
Norman	40.9	75	4	12	31	746	0	1.13	.94	19
Oilton	39.4	78	4	9	8	793	0	1.32	.74	19
OKC East	40.8	75	4	11	31	751	0	.62	.48	19
OKC North	41.6	75	4	11	31	724	0	.50	.38	19
Okemah	40.4	79	4	6	8	762	0	1.02	.32	22
Perkins	40.2	76	4	9	31	768	0	.62	.50	19
Shawnee	41.3	76	4	11	31	734	0	.51	.34	19
Spencer	41.0	75	4	10	31	743	0	.33	.19	19
Stillwater	39.9	77	4	9	31	777	0	.93	.85	19
Washington	41.1	77	4	11	8	740	0	1.62	.78	19
Sallisaw	40.9	75	4	10	8	747	0	1.95	.82	20
Stigler	40.7	76	4	10	8	753	0	1.52	.64	22
Stuart	42.6	78	4	12	8	694	0	1.69	.63	19
Tahlequah	39.4	73	3	9	8	793	0	1.82	.72	22
Webbers Falls	41.1	76	4	13	8	742	0	2.31	.70	22
Westville	39.4	71	4	9	31	795	0	2.01	.88	22
Hollis	40.2	78	3	11	31	768	0	.08	.07	23
Mangum	38.9	78	4	9	8	809	0	.14	.09	23
Medicine Park	41.7	75	3	11	31	723	0	.25	.20	19
Tipton	40.9	77	4	13	31	747	0	.12	.07	19
Walters	42.3	78	4	14	8	704	0	.91	.60	19
Lane	43.1	79	4	12	8	681	2	2.60	1.18	19
Madill	43.9	83	4	10	8	659	5	2.48	1.26	19
Newport	44.0	83	4	14	8	658	5	1.81	1.25	19
Pauls Valley	42.2	79	4	11	8	708	0	.82	.54	19
Ringling	43.1	82	4	10	8	682	2	1.48	1.15	19
Sulphur	41.4	82	4	6	8	734	3	.92	.58	19
Tishomingo	42.5	82	4	8	8	701	3	2.02	1.02	19
Waurika	43.4	81	4	12	8	672	1	1.79	1.57	19
Mt Herman	42.6	73	3	14	8	695	0	4.87	1.93	22
Talihina	41.9	75	11	10	8	717	0	3.31	1.38	22
Valliant	44.3	78	3	14	8	643	1	5.18	2.15	22
Wilburton	41.5	75	11	12	8	727	0	2.29	.69	22
Wister	40.5	77	11	11	8	760	0	3.26	.99	22

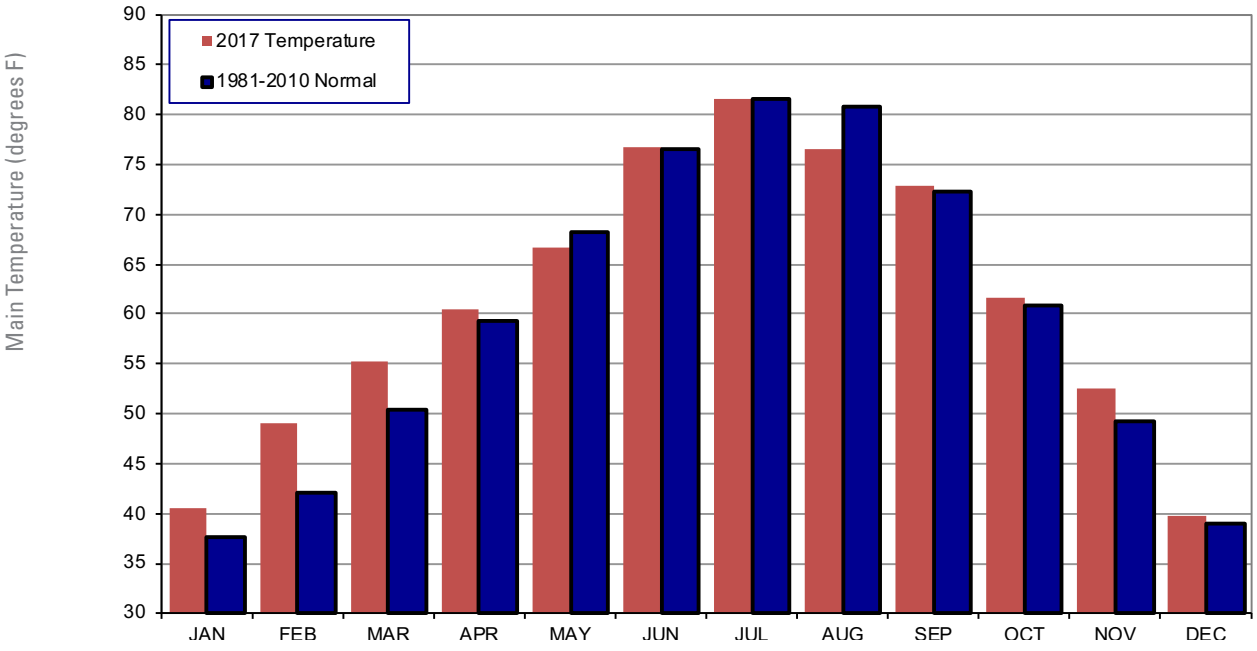
2017 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



December 2017 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Dec-16 (inches)
Panhandle	0.02	-0.72	6th Driest	3.28 (2006)	0.00 (1976)	0.44
North Central	0.08	-1.21	6th Driest	3.59 (1984)	0.01 (1950)	0.42
Northeast	0.95	-1.40	37th Driest	7.61 (1895)	0.14 (1950)	0.62
West Central	0.09	-1.10	11th Driest	4.04 (1911)	0.00 (1908)	0.73
Central	0.72	-1.28	32nd Driest	6.45 (1984)	0.03 (1908)	0.60
East Central	1.74	-1.35	42nd Driest	11.09 (2015)	0.20 (1917)	0.90
Southwest	0.25	-1.16	21st Driest	5.65 (1911)	0.00 (1908)	0.97
South Central	1.68	-0.95	55th Driest	6.97 (1991)	0.06 (1917)	0.84
Southeast	4.17	0.17	42nd Wettest	12.32 (2015)	0.19 (1917)	1.53
Statewide	1.03	-1.03	40th Driest	5.54 (2015)	0.09 (1950)	0.76

2017 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



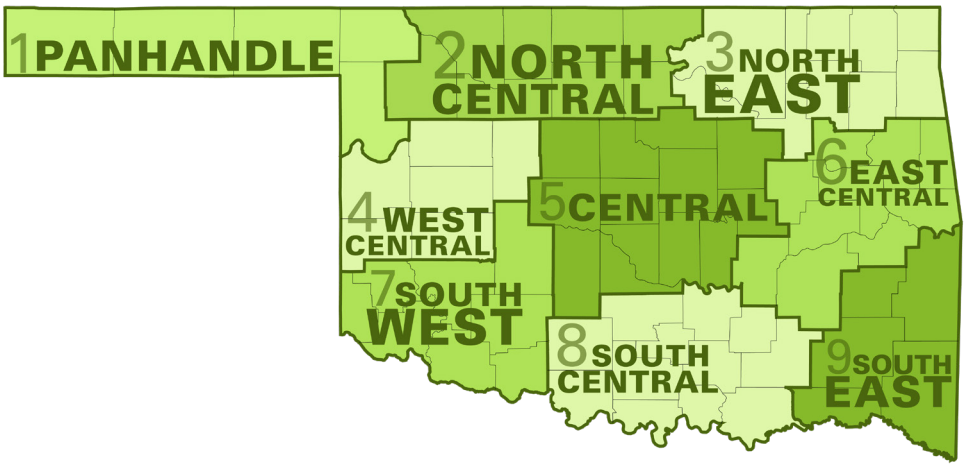
December 2017 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Dec-16 (F)
Panhandle	35.3	0.3	59th Coolest	42.1 (1933)	22.6 (1983)	33.6
North Central	37.7	1.6	46th Warmest	42.9 (1965)	21.5 (1983)	34.9
Northeast	39.3	1.5	53rd Warmest	44.9 (1965)	23.6 (1983)	37.2
West Central	38.4	0.8	58th Warmest	44.1 (1965)	24.1 (1983)	37.0
Central	40.2	0.9	56th Warmest	46.0 (1965)	25.5 (1983)	39.1
East Central	41.0	0.5	62nd Coolest	48.1 (1933)	27.6 (1983)	41.2
Southwest	40.4	0.2	58th Coolest	46.6 (1965)	27.4 (1983)	40.4
South Central	42.9	0.8	60th Warmest	48.4 (1933)	29.4 (1983)	42.8
Southeast	43.0	1.1	54th Warmest	49.7 (1984)	30.4 (1983)	43.7
Statewide	39.8	0.9	56th Warmest	45.1 (1965)	25.7 (1983)	38.8

MESONET EXTREMES FOR DECEMBER 2017

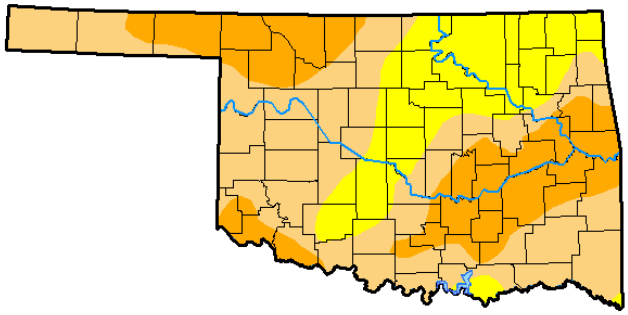
Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	82	3rd	Beaver	0	31st	Eva	0.05	Goodwell	0.04	14th	Goodwell
North Central	75	3rd	Freedom	2	31st	May Ranch	0.59	Red Rock	0.54	19th	Red Rock
Northeast	79	4th	Talala	4	31st	Foraker	1.73	Porter	0.77	22nd	Jay
West Central	76	3rd	Camargo	7	31st	Putnam	0.19	Bessie	0.17	19th	Weatherford
Central	79	4th	Bristow	6	8th	Okemah	1.62	Washington	0.94	19th	Norman
East Central	79	4th	Holdenville	8	8th	Okmulgee	2.31	Webbers Falls	0.88	22nd	Westville
Southwest	80	4th	Grandfield	9	31st	Hinton	0.91	Walters	0.60	19th	Walters
South Central	83	4th	Burneyville	6	8th	Sulphur	3.17	Durant	1.93	19th	Burneyville
Southeast	79	3rd	Hugo	10	8th	Talihina	5.65	Valliant	2.43	22nd	Valliant
Statewide	83	4th	Burneyville	0	31st	Eva	5.65	Valliant	2.43	22nd	Valliant

Oklahoma Climate Divisions



U.S. Drought Monitor

Oklahoma



December 26, 2017

(Released Thursday, Dec. 28, 2017)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	75.97	28.19	0.00	0.00
Last Week 12-19-2017	0.00	100.00	65.20	37.26	1.21	0.00
3 Months Ago 09-26-2017	64.46	35.54	0.77	0.00	0.00	0.00
Start of Calendar Year 01-03-2017	5.61	94.39	83.21	55.75	5.55	0.00
Start of Water Year 09-26-2017	64.46	35.54	0.77	0.00	0.00	0.00
One Year Ago 12-27-2016	5.63	94.37	72.32	45.73	3.14	0.00

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:

David Miskus

NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

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 November 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 November result in an artificially high or low value.

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 Centers for Environmental Information:
https://www.ncdc.noaa.gov/stormevents/

SEASONAL OUTLOOKS
Climate Prediction Center:
http://www.cpc.ncep.noaa.gov/products/OUTLOOKS_index.shtml

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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