Oklahoma Monthly Climate Summary

JULY 2019

OKLAHOMA CLIMATOLOGICAL SURVEY

Drought returned to the state for the first time since March 12, a stark reminder that spring deluges can quickly be forgotten during the unforgiving Oklahoma summer. The abrupt end of the moisture actually extended back to mid-June in some areas, but the deficits widened further during July. The lack of rain coincided with intermittent periods of hot, windy weather. Those sporadic bouts of extreme summer conditions helped to accelerate the drought development process, despite the month being cooler than normal overall. Severe weather still made its presence known with reports of the customary culprits, including high winds, large hail, and flash flooding. There were no official reports of tornadoes. The preliminary Oklahoma twister count for 2019 stood at 129 at the end of July, the second highest total since accurate records began in 1950. The highest total of 145 occurred in 1999.

According to preliminary data from the Oklahoma Mesonet, the statewide average rainfall total was 1.63 inches, 1.25 inches below normal, to rank as the 29th driest July since records began in 1895. Rainfall fortunes varied widely across the state. Substantial rains fell across much of eastern Oklahoma, where totals of 3-5 inches were common. Copan led the Mesonet at 5.81 inches, with Wister a close second at 5.35 inches. Significant deficits reigned across much of central and western Oklahoma. Forty-five of the Mesonet's 120 stations recorded less than an inch of rain for the month, while 87 received less than 2 inches. Chickasha had the lowest total at 0.03 inches, although Minco was close behind with 0.04 inches. The Oklahoma City official observing site at Will Rogers Airport recorded 0.06 inches, tied for its fourth driest July on record. By the end of July, parts of north central Oklahoma had gone 45 days without at least a quarter-inch of rainfall. That streak extended to 38 days across central and southwestern Oklahoma. Chickasha, Hobart and Minco had gone 38 consecutive days without at least a tenth of an inch. The first seven months of the year were still extremely wet with a January-July statewide average of 27.86 inches, a surplus of 5.95 inches and the ninth wettest such period on record.

The statewide average temperature was 80.2 degrees, 1.3 degrees below normal to rank as the 34th coolest July on record. Several cold fronts helped keep the extreme heat confined within shorter windows. The strongest of those fronts moved through the state on the 22nd, dropping high temperatures into the low 80s. Lows in the 50s were common, and Camargo dropped to 48 degrees on the 24th for the month's lowest reading. More than a dozen low temperature records were set across the state that morning. Extreme heat still visited at times, however. Kenton recorded July's highest temperature at 107 degrees on the 19th. The Mesonet measured heat index values of at least 110 degrees 154 times during the month, maxing out at 116 degrees at Burneyville on July 10. The year continues to run on the cool side. The January-July statewide average was 58.6 degrees, a degree below normal, to rank as the 42nd coolest such period on record.

Nearly 6% of the state was in moderate drought according

July 2019 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	107°F	Kenton 19	5
Low Temperature	48°F	Camargo	24
High Precipitation	5.81 in.	Copan	--
Low Precipitation	0.03 in.	Chickasha	--

July 2019 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2019)
Month (Jul)	80.2°F	-1.3°F	34th Coolest
Year-to-Date (Jan-Jul)	58.6°F	-1.0°F	42nd Coolest

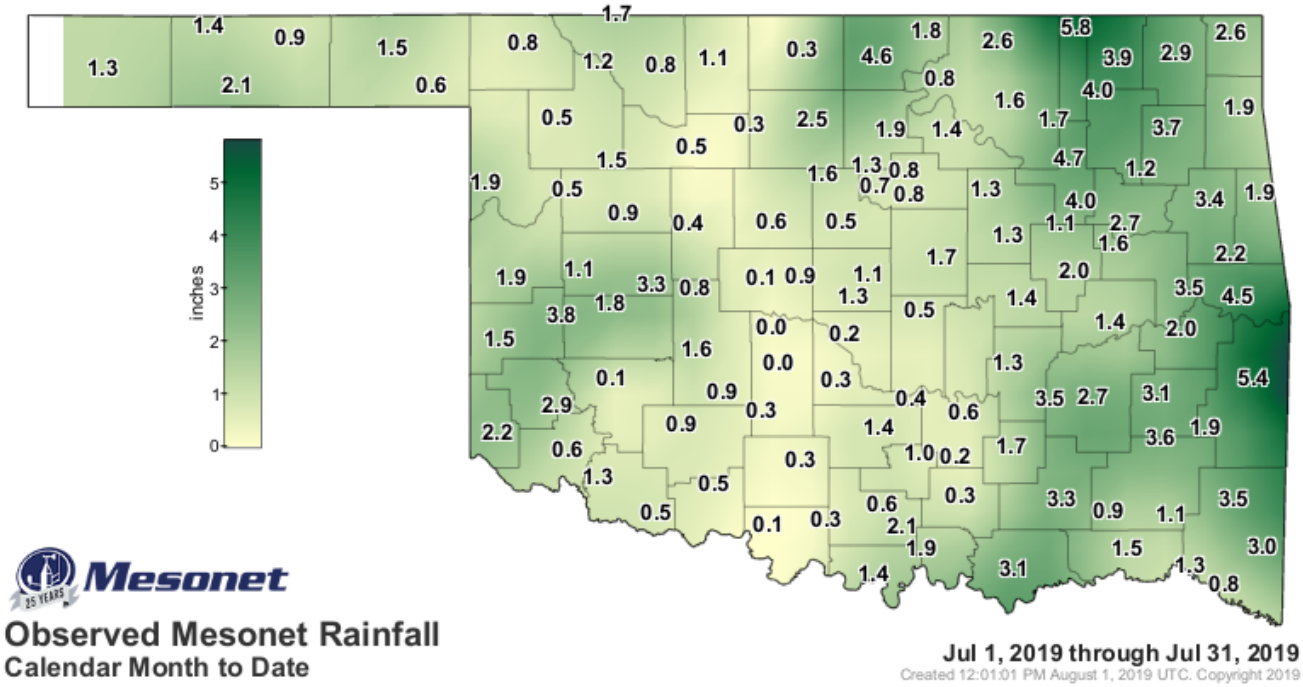
Precipitation

	Total	Depart.	Rank (1895-2019)
Month (Jun)	1.63 in.	-1.25 in.	29th Driest
Year-to-Date (Jan-Jul)	27.86 in.	5.95 in.	9th Wettest

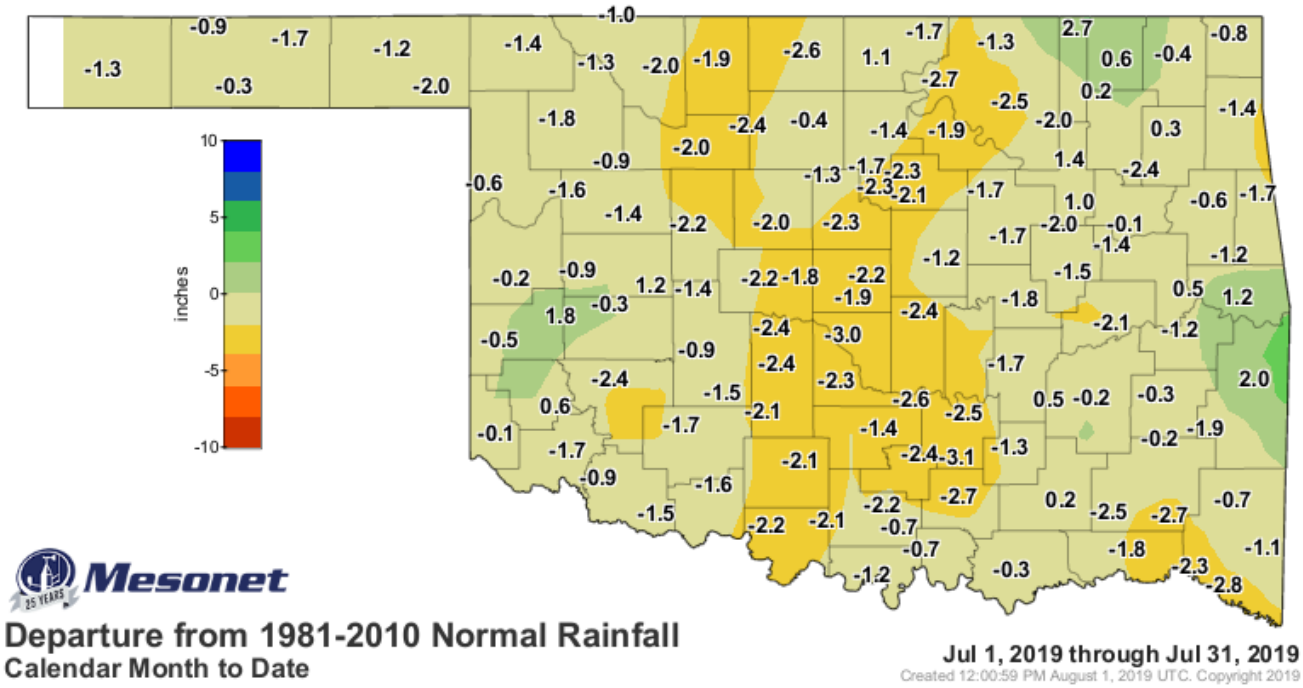
Depart. = departure from 30-year normal

to the July 30 U.S. Drought Monitor report, and another 13% was considered "abnormally dry," a drought precursor. Those designations cover most of the southwestern quarter of the state, with another dollop centered over Ellis County in the northwest. Drought development is considered likely across the western two-thirds of the state through the end of August according to the Climate Prediction Center's (CPC) monthly drought outlook. That drought development would be in addition to those areas that saw drought advance by the end of July. CPC's temperature and precipitation outlooks for August indicate increased odds of above normal temperatures across the southwestern one-third of the state, and above normal precipitation over far northeastern Oklahoma.

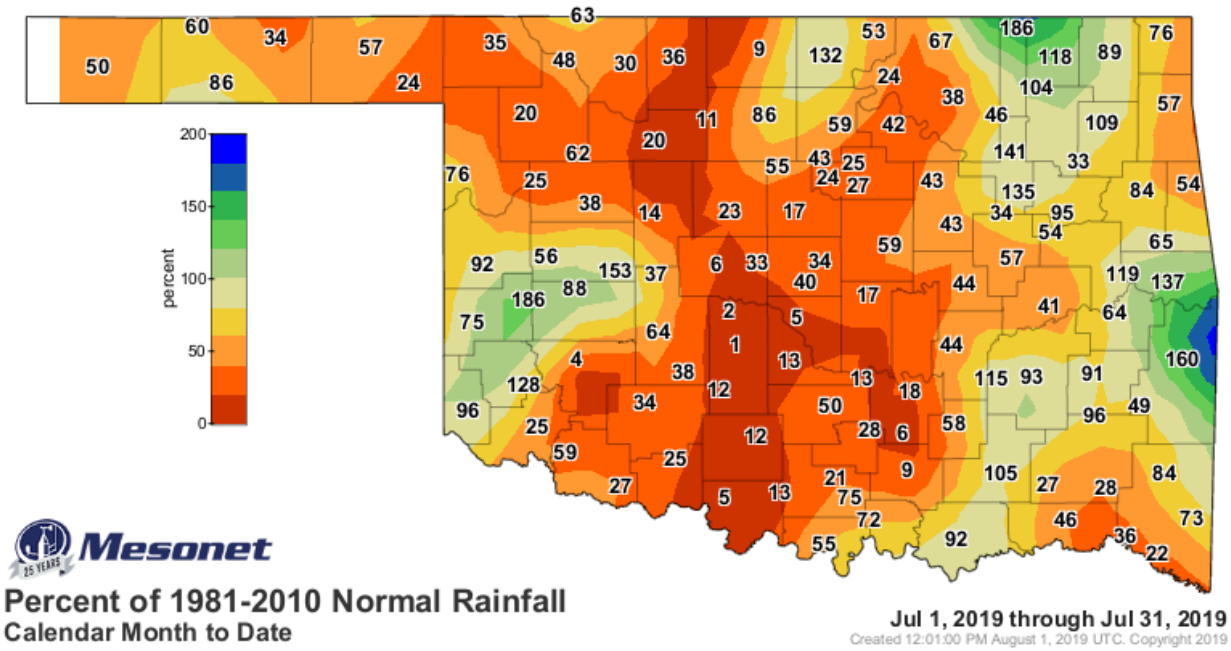
JULY 2019 OBSERVED PRECIPITATION



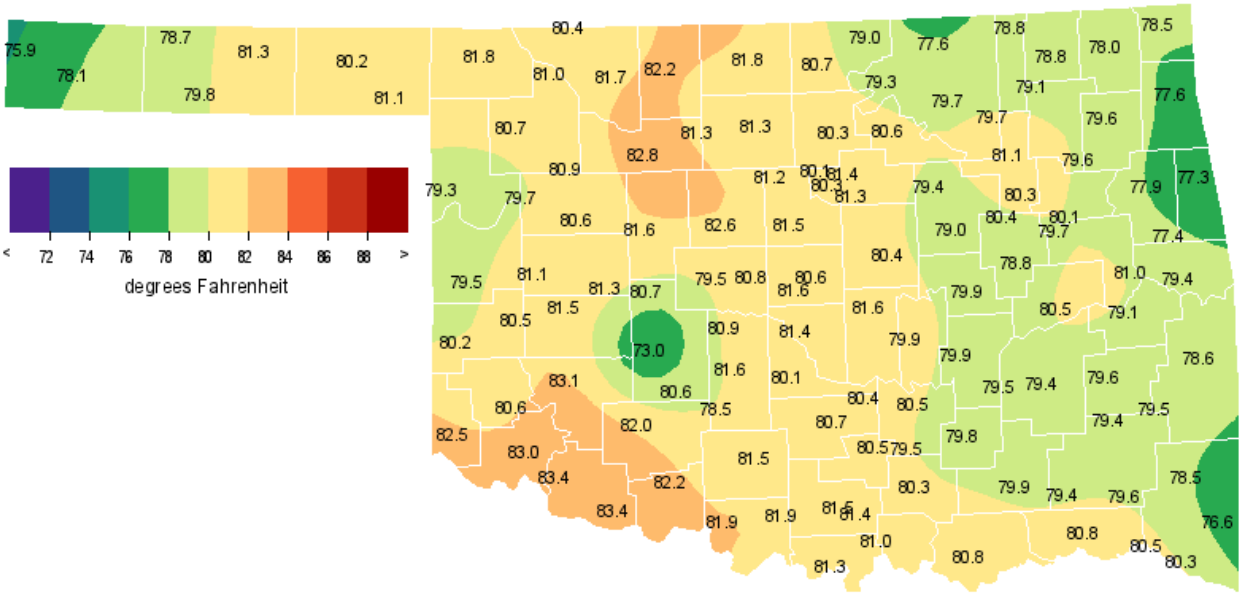
JULY 2019 DEPARTURE FROM NORMAL PRECIPITATION



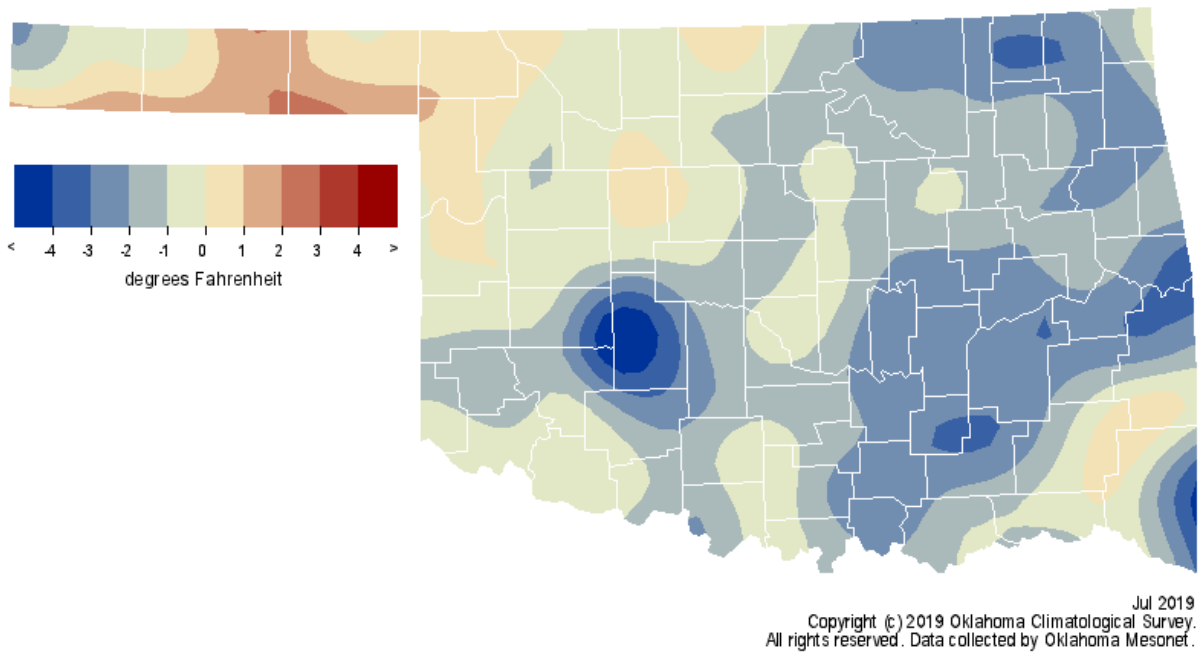
JULY 2019 PERCENT OF NORMAL PRECIPITATION



JULY 2019 AVERAGE TEMPERATURE



JULY 2019 DEPARTURE FROM NORMAL TEMPERATURE

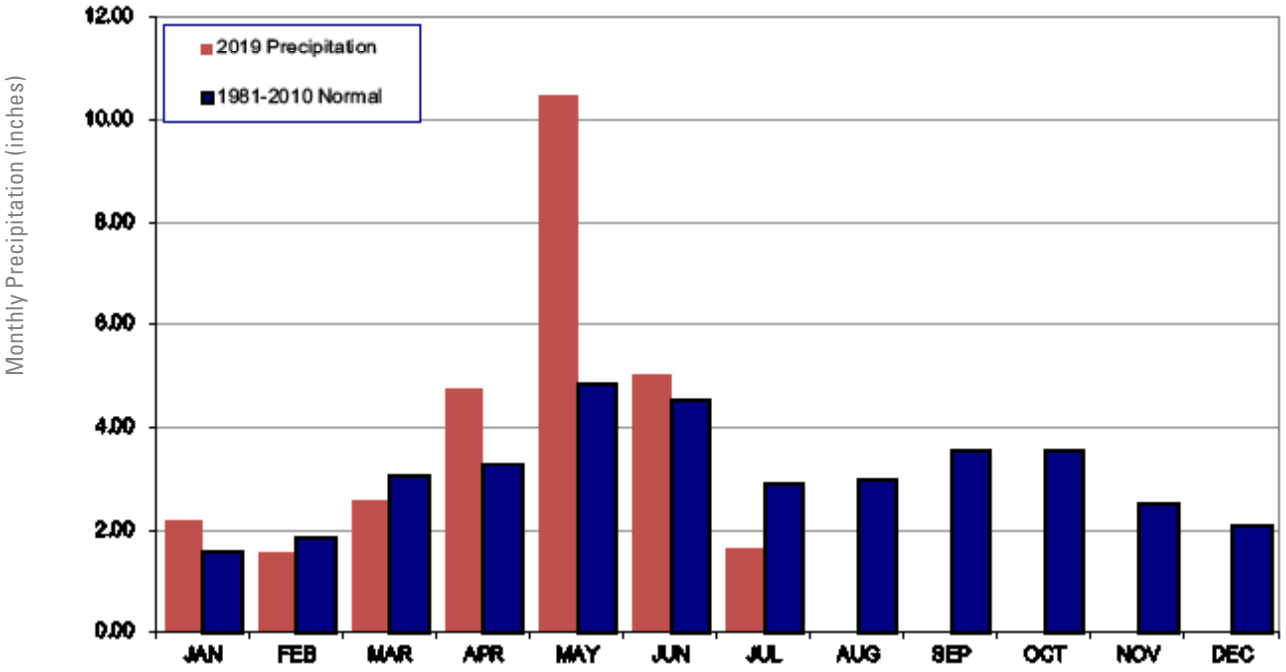


MESONET MONTHLY SUMMARY FOR JULY 2019

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	81.7	102	22	59	4	0	517	.87	.33	15
Arnett	79.3	101	31	54	24	0	442	1.85	.80	7
Beaver	80.2	103	31	55	24	0	473	1.53	.79	2
Boise City	78.2	105	19	54	14	0	408	1.31	.49	2
Buffalo	81.8	105	31	51	24	0	522	.77	.65	5
Eva	78.7	105	20	52	24	0	424	1.35	.77	5
NORTH CENTRAL										
Alva	81.6	104	31	53	24	0	516	.84	.52	6
Blackwell	80.7	100	31	60	24	0	487	4.55	3.89	3
Breckinridge	81.3	100	31	55	24	0	505	2.47	1.60	3
Cherokee	82.2	103	31	55	24	0	534	1.08	1.03	6
Fairview	82.7	103	31	54	24	0	549	.48	.38	6
Freedom	81.0	106	31	54	24	0	497	1.24	.68	5
Lahoma	81.2	102	16	55	24	0	502	.29	.21	2
NORTHEAST										
Bixby	80.3	97	21	60	25	0	474	3.98	1.83	10
Burbank	79.3	98	20	56	24	0	443	.82	.55	3
Copan	78.7	96	19	59	24	0	425	5.81	3.26	3
Foraker	77.6	95	20	57	24	0	390	2.62	1.39	3
Inola	79.6	96	19	58	25	0	452	1.17	.33	10
Jay	77.6	94	21	56	24	0	390	1.91	.69	21
Miami	78.5	95	21	58	24	0	418	2.63	1.19	21
Nowata	78.8	97	19	57	24	0	427	3.85	2.22	21
WEST CENTRAL										
Bessie	81.5	102	31	55	24	0	513	1.84	.97	3
Butler	81.1	102	31	52	24	0	499	1.13	.92	11
Camargo	79.8	102	31	48	24	0	458	.52	.21	6
Cheyenne	79.5	99	31	59	24	0	449	1.88	.70	7
Elk City	80.5	101	31	59	26	0	480	3.83	1.88	11
CENTRAL										
Acme	81.0	101	16	54	24	****	****	.29	.18	2
Bristow	78.9	96	21	57	24	0	431	1.26	.83	21
Lake Carl Blac	80.1	100	21	53	24	0	468	1.31	.97	3
Chandler	80.4	97	21	62	24	0	476	1.68	.84	3
Chickasha	81.6	101	16	56	24	0	514	.03	.03	6
El Reno	79.5	99	21	50	24	0	450	.13	.12	6
Guthrie	81.6	100	21	58	24	0	513	.46	.26	3
Kingfisher	82.5	102	16	54	24	0	543	.61	.31	8
Marena	80.2	99	21	59	25	0	472	.71	.50	3
Minco	81.0	101	29	58	24	0	494	.04	.04	6
Marshall	81.2	99	16	55	24	0	503	1.57	.79	3
EAST CENTRAL										
Cookson	77.4	94	21	56	24	0	384	2.24	1.10	22
Eufaula	80.6	96	21	60	25	0	483	1.42	.46	29
Haskell	79.6	95	21	59	25	0	453	1.58	.52	10
Hectorville	80.4	96	21	61	24	0	476	1.05	.63	29
Holdenville	79.8	96	16	59	24	0	460	1.31	.79	6
McAlester	79.3	95	28	57	25	0	444	2.70	1.51	8
Okmulgee	78.8	95	21	57	25	0	427	2.01	1.17	10
SOUTHWEST										
Altus	83.0	102	29	59	24	0	559	.57	.40	7
Apache	80.6	99	16	58	24	0	485	.92	.61	11
Fort Cobb	80.9	101	16	55	24	****	****	1.61	.63	2
Grandfield	83.4	103	31	57	24	0	571	.53	.52	7
Hinton	80.7	101	16	55	24	0	486	.82	.35	6
Hobart	83.1	104	16	56	24	0	562	.10	.07	7
SOUTH CENTRAL										
Ada	80.5	100	16	56	24	0	480	.55	.26	6
Ardmore	81.3	98	16	60	26	0	505	2.11	1.43	6
Burneyville	81.3	98	31	57	24	0	504	1.41	.72	6
Byars	80.4	98	16	60	24	0	478	.39	.26	7
Centrahoma	79.7	97	16	57	24	0	457	1.72	1.20	6
Durant	80.8	96	16	60	25	0	490	3.09	1.58	8
Fittstown	79.5	99	16	58	24	0	449	.20	.12	29
Ketchum Ranch	81.4	100	16	59	24	0	507	.28	.27	7
SOUTHEAST										
Antlers	79.4	95	16	57	25	0	447	.92	.42	29
Broken Bow	79.3	95	30	57	26	****	****	2.10	1.27	7
Clayton	79.4	95	28	55	26	0	446	3.61	1.78	10
Cloudy	79.5	95	30	56	25	0	449	1.07	.45	29
Hugo	80.8	95	28	61	25	0	488	1.51	.56	29
Idabel	80.3	95	28	59	25	0	473	.78	.22	29

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	80.2	102	18	53	1	0	471	1.01	.77	30
Goodwell	79.8	105	19	57	24	0	459	2.05	.74	20
Hooker	81.3	106	19	57	24	0	504	.86	.39	5
Kenton	78.4	107	19	57	3	****	****	*****	*****	***
Slapout	81.1	104	31	56	24	0	499	.61	.44	28
May Ranch	80.5	103	31	56	24	0	480	1.67	.99	5
Medford	81.8	103	20	55	24	0	520	.26	.16	16
Newkirk	79.1	96	31	59	24	0	436	1.83	1.56	3
Red Rock	80.4	99	21	57	24	0	476	1.93	1.66	3
Seiling	80.9	102	31	52	24	0	492	1.50	.94	6
Woodward	80.6	103	31	56	24	0	485	.46	.24	5
Pawnee	80.6	99	21	60	24	0	484	1.36	1.31	3
Porter	80.0	96	21	61	24	0	466	2.71	1.17	6
Pryor	79.5	97	21	59	25	0	451	3.72	1.20	21
Skiatook	79.6	95	19	62	24	0	453	1.71	.42	21
Talala	79.1	96	19	59	24	0	436	4.02	1.52	5
Tulsa	81.0	97	19	62	25	0	496	4.65	2.27	6
Vinita	77.9	94	21	57	25	0	401	2.85	.97	21
Wynona	79.7	97	21	59	24	0	456	1.55	.81	3
Erick	80.2	103	31	52	24	0	470	1.54	1.28	6
Putnam	80.6	101	31	54	24	0	482	.87	.54	6
Watonga	81.5	101	16	55	24	0	511	.36	.23	6
Weatherford	81.3	100	29	59	24	0	506	3.34	1.99	6
Norman	81.4	100	16	57	24	0	509	.17	.15	2
Oilton	79.4	98	21	55	24	0	447	1.27	.60	6
OKC East	81.6	100	21	58	24	0	515	1.27	1.18	8
Okemah	79.9	97	21	58	25	0	462	1.41	1.19	6
Perkins	81.3	99	16	60	24	0	505	.78	.43	3
Seminole	79.9	97	16	59	24	0	462	.36	.16	7
Shawnee	81.5	101	16	58	24	0	513	.49	.23	29
Spencer	80.6	99	21	58	24	0	484	1.11	.80	3
Stillwater	81.4	100	16	57	24	0	508	.76	.41	3
Washington	80.2	100	31	56	24	0	471	.34	.23	29
Yukon	80.9	100	21	58	23	0	491	.87	.79	7
Sallisaw	79.4	95	21	59	24	0	448	4.49	2.56	2
Stigler	79.1	95	20	57	25	0	438	2.00	.94	2
Stuart	79.6	95	31	58	25	0	451	3.53	3.17	8
Tahlequah	77.9	94	21	58	25	0	400	3.42	1.34	22
Webbers Falls	81.0	97	19	62	25	0	496	3.46	1.55	10
Westville	77.3	92	20	58	25	0	380	1.93	.74	2
Hollis	82.5	104	16	59	24	0	543	2.17	1.51	2
Mangum	80.6	100	29	54	24	0	483	2.91	1.69	6
Medicine Park	82.0	101	16	64	26	0	526	.89	.68	6
Tipton	83.4	102	31	58	24	0	569	1.32	1.23	7
Walters	82.2	101	16	61	25	0	532	.52	.34	6
Lane	79.9	95	16	57	26	0	461	3.33	2.08	6
Madill	81.0	97	31	60	25	0	497	1.89	1.73	6
Newport	81.5	99	16	60	24	0	511	.58	.46	6
Pauls Valley	80.7	98	31	58	24	0	487	1.35	1.01	7
Ringling	81.9	100	16	59	24	0	524	.32	.15	6
Sulphur	80.5	98	16	57	24	0	481	.96	.43	7
Tishomingo	80.3	98	16	57	26	0	473	.25	.13	29
Waurika	81.9	102	31	57	24	0	524	.11	.11	8
Mt Herman	78.4	92	10	60	24	0	416	3.51	1.64	6
Talihina	79.5	97	28	53	26	0	451	1.85	.73	2
Valliant	80.5	95	10	58	25	0	479	1.26	.84	10
Wilburton	79.6	95	21	58	25	0	453	3.05	1.06	29
Wister	78.5	96	21	56	26	0	420	5.35	3.10	6

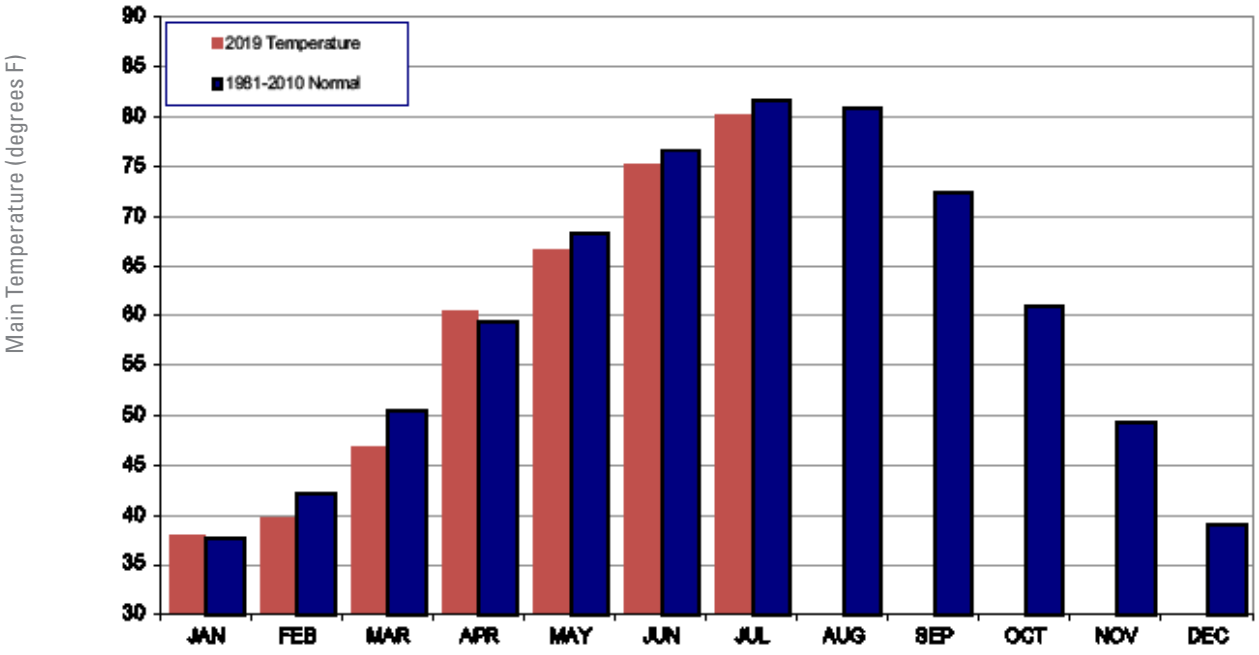
2019 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



July 2019 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Jul-18 (inches)
Panhandle	1.29	-1.28	17th Driest	8.81 (1950)	0.44 (1983)	3.95
North Central	1.43	-1.38	21st Driest	8.59 (1950)	0.12 (1983)	3.40
Northeast	2.83	-0.55	54th Driest	9.52 (1959)	0.28 (1946)	3.57
West Central	1.70	-0.56	45th Driest	7.63 (1950)	0.04 (1983)	2.75
Central	0.77	-2.07	11th Driest	9.61 (1950)	0.16 (1980)	3.22
East Central	2.40	-0.89	45th Driest	10.03 (1950)	0.36 (1993)	3.93
Southwest	1.12	-1.15	27th Driest	6.60 (1950)	0.03 (1980)	2.23
South Central	1.16	-1.59	28th Driest	8.46 (1950)	0.11 (1998)	2.18
Southeast	2.35	-1.27	43rd Driest	12.47 (1950)	0.19 (1993)	4.06
Statewide	1.63	-1.25	29th Driest	9.07 (1950)	0.42 (1980)	3.25

2019 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



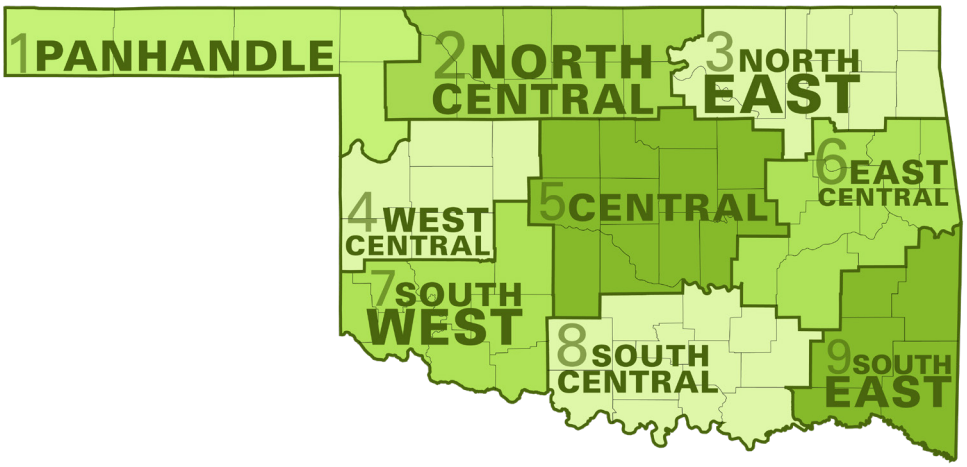
July 2019 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Jul-18 (F)
Panhandle	79.6	0.3	63rd Coolest	86.0 (1934)	72.8 (1906)	79.5
North Central	81.1	-0.7	52nd Coolest	89.6 (2011)	75.9 (1950)	82.0
Northeast	79.3	-1.5	29th Coolest	89.3 (1954)	75.4 (1950)	81.6
West Central	80.7	-1.1	43rd Coolest	89.6 (2011)	75.8 (1906)	83.7
Central	80.6	-1.3	37th Coolest	90.2 (2011)	76.7 (1950)	82.8
East Central	79.3	-1.9	19th Coolest	88.9 (2011)	76.2 (1906)	82.8
Southwest	81.3	-1.9	31st Coolest	91.7 (2011)	78.0 (1908)	85.8
South Central	80.8	-1.7	27th Coolest	90.5 (2011)	77.9 (1950)	85.1
Southeast	79.3	-1.1	33rd Coolest	87.5 (2011)	76.0 (1905)	83.1
Statewide	80.2	-1.3	34th Coolest	89.2 (2011)	76.3 (1906)	82.9

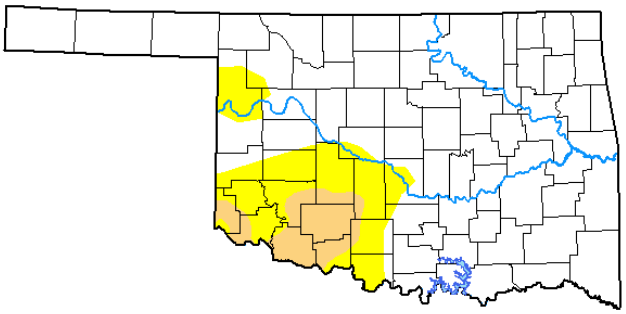
MESONET EXTREMES FOR JULY 2019

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	107	19th	Kenton	51	24th	Buffalo	2.05	Goodwell	0.80	7th	Arnett
North Central	106	31st	Freedom	52	24th	Seiling	4.55	Blackwell	3.89	3rd	Blackwell
Northeast	99	21st	Pawnee	56	24th	Jay	5.81	Copan	3.26	3rd	Copan
West Central	103	31st	Erick	48	24th	Camargo	3.83	Elk City	1.99	6th	Weatherford
Central	102	16th	Kingfisher	50	24th	El Reno	1.68	Chandler	1.19	6th	Okemah
East Central	97	19th	Webbers Falls	56	24th	Cookson	4.49	Sallisaw	3.17	8th	Stuart
Southwest	104	16th	Hobart	54	24th	Mangum	2.91	Mangum	1.69	6th	Mangum
South Central	102	31st	Waurika	56	24th	Ada	3.33	Lane	2.08	6th	Lane
Southeast	97	28th	Talihina	53	26th	Talihina	5.35	Wister	3.10	6th	Wister
Statewide	107	19th	Kenton	48	24th	Camargo	5.81	Copan	3.89	3rd	Blackwell

Oklahoma Climate Divisions



U.S. Drought Monitor
Oklahoma



July 30, 2019
(Released Thursday, Aug. 1, 2019)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	81.30	18.70	5.67	0.00	0.00	0.00
Last Week *07-23-2019*	94.33	5.67	0.00	0.00	0.00	0.00
3 Months Ago *04-30-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year *01-01-2019*	94.85	5.15	0.00	0.00	0.00	0.00
Start of Water Year *09-25-2018*	72.93	27.07	9.11	4.16	0.00	0.00
One Year Ago *07-31-2018*	22.31	77.69	55.48	32.39	6.81	0.00

Intensity:

- None
- 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:
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National Drought Mitigation Center

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

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