Oklahoma Monthly Climate Summary

SEPTEMBER 2019

OKLAHOMA CLIMATOLOGICAL SURVEY

September normally sees at least one or two decent cold fronts to whet the appetite for fall. Mother Nature had different plans this year, however, steering summer right past the beginning of autumn and giving Oklahoma its fourth warmest September since records began in 1895. The Panhandle experienced its warmest September on record, while the north central, southeast, and west central areas of the state had their second warmest. Tulsa ended with their second warmest September on record at 81.2 degrees, 8.2 degrees above normal. Oklahoma City's 78.8 degrees earned them a ranking of seventh warmest at 4.9 degrees above normal. Gage suffered its warmest September since its records began, dating back to 1904. At least eight other NWS sites eclipsed their previous September monthly temperature records.

September 2019 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	103°F	Grandfield	7
Low Temperature	43°F	Eva	23
High Precipitation	11.60 in.	Mt. Herman	--
Low Precipitation	0.10 in.	Freedom	--

The statewide average temperature of 79.4 degrees – as observed by the Oklahoma Mesonet – was a whopping 7.1 degrees above normal. Only 1931's 80.1 degrees, 1998's 79.6 degrees, and 1939's 79.5 degrees were higher. Triple-digit temperatures occurred as late as Sept. 27 with the Buffalo and Freedom Mesonet sites registering 101 and 100 degrees, respectively. The month's highest temperature of 103 degrees occurred at Grandfield on the seventh. Twenty-eight readings of at least 100 degrees were reported by the Mesonet during the month. The month's lowest reading was 43 degrees at Eva on the 23rd. The heat index was not as unbearable as it had been over the previous couple of months, but it did hit the century mark 596 times at the Mesonet's 120 sites. A heat index of 106 degrees topped that category at six different sites. The first nine months of the year ended at 63.7 degrees, 0.3 degrees above normal to rank as the 50th warmest January-September on record.

Rains were both plentiful and scarce, depending upon location. The statewide average of 3.43 inches was a tenth of an inch below normal to rank as the 51st wettest September on record. Deficits of 2-4 inches were the rule across the northwest and parts of central and southeast Oklahoma. Meanwhile, surpluses of 2-5 inches occurred in the north central, northeast and southeast sections of the state. Parts of McCurtain County received more than 10 inches while the far northwest struggled to eclipse a half-inch. The Mesonet's highest recorded total was 11.6 inches at Mt. Herman in McCurtain County. Freedom in Woodward County recorded a tenth of an inch to bring up the rear. The year continued on pace to finish as one of the top-10 wettest on record with a January-September statewide average of 37.01 inches, 8.62 inches above normal, the eighth wettest such period since records began in 1895.

September 2019 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2019)
Month (September)	79.4°F	7.1°F	4th Warmest
Year-to-Date (Jan-Sept)	63.7°F	0.3°F	50th Warmest

Precipitation

	Total	Depart.	Rank (1895-2019)
Month (September)	3.43 in.	-0.10 in.	51st Wettest
Year-to-Date (Jan-Sept)	37.01 in.	8.62 in.	8th Wettest

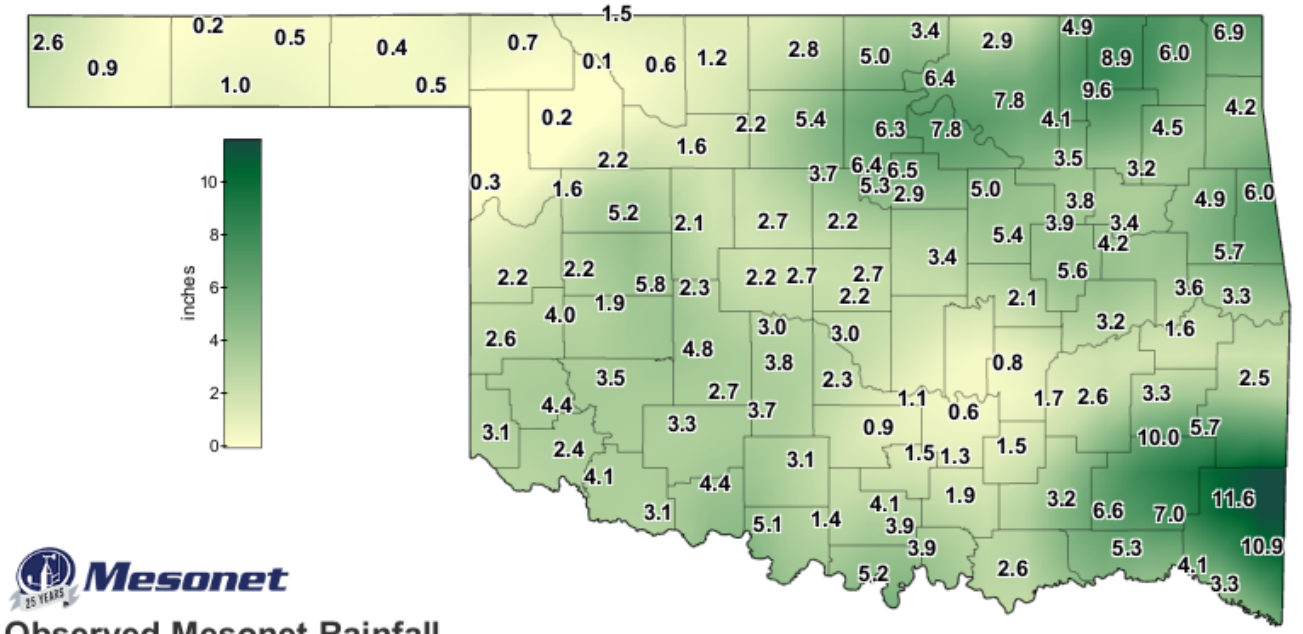
Depart. = departure from 30-year normal

Drought continued a slow decline after peaking in late August. By the end of September, drought had been reduced to less than 12% of the state according to the U.S. Drought Monitor, down from a high of 24% on August 20. Most of the drought was considered moderate in intensity, centered on far southwestern Oklahoma. There was a small area of severe drought in the far southwest that had been downgraded from extreme drought the previous week. The Drought Monitor's intensity scale slides from moderate-severe-extreme-exceptional, with exceptional being the worst classification.

Moderate drought increased slightly across the northwest in Ellis, Roger Mills and Woodward counties. Additionally, 16% of the state was considered in "abnormally dry" conditions, a precursor to drought intensification or an area recovering from drought but not yet back to normal.

The October temperature outlook from the Climate Prediction Center (CPC) indicates increased odds for above normal temperatures across the southeastern half of the United States, including Oklahoma. Those odds are greater across the southern two-thirds of the state. The October precipitation outlook shows increased odds for above normal precipitation across the northwestern one-third of Oklahoma, with better chances in the Panhandle and far northwest. CPC's October drought outlook anticipates drought removal across the northwest and Panhandle, but persistence in southern Oklahoma.

SEPTEMBER 2019 OBSERVED PRECIPITATION

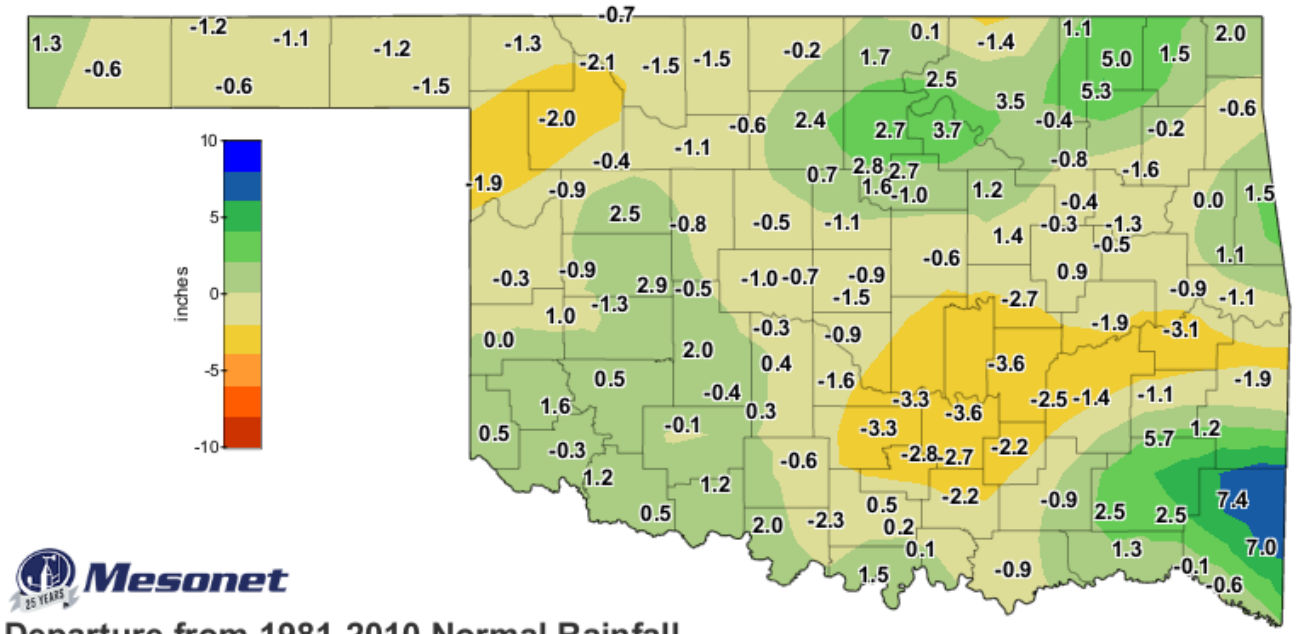


Mesonet

Observed Mesonet Rainfall
Calendar Month to Date

Sep 1, 2019 through Sep 29, 2019
Created 12:01:16 PM September 30, 2019 UTC. Copyright 2019

SEPTEMBER 2019 DEPARTURE FROM NORMAL PRECIPITATION

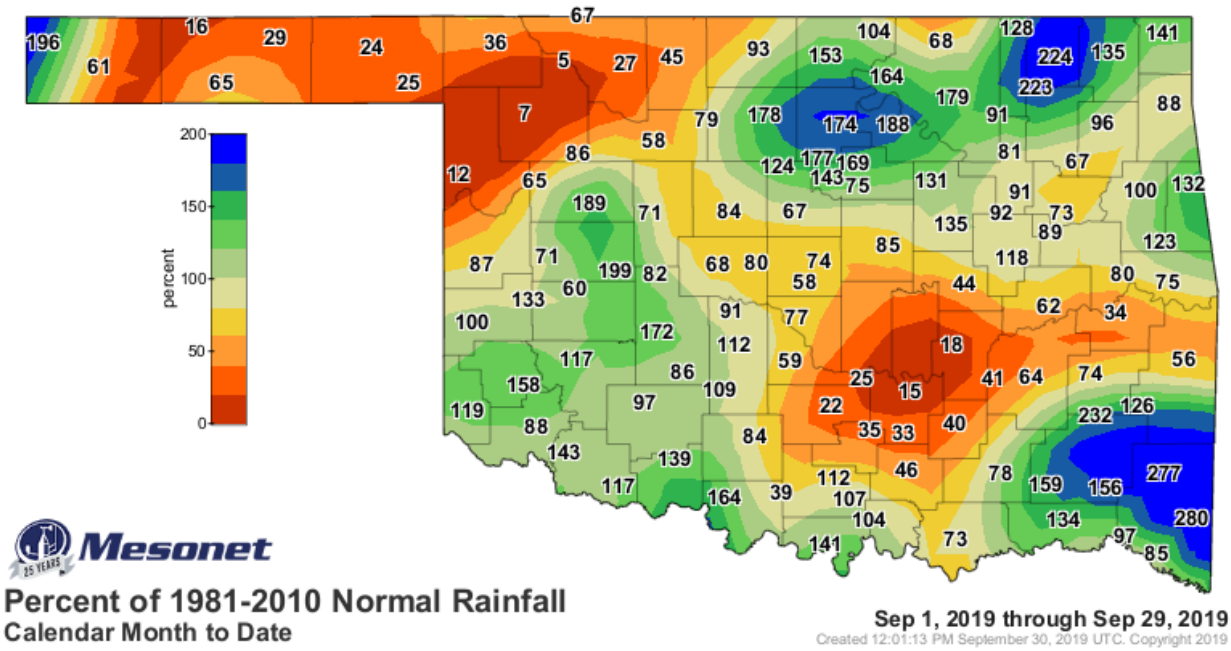


Mesonet

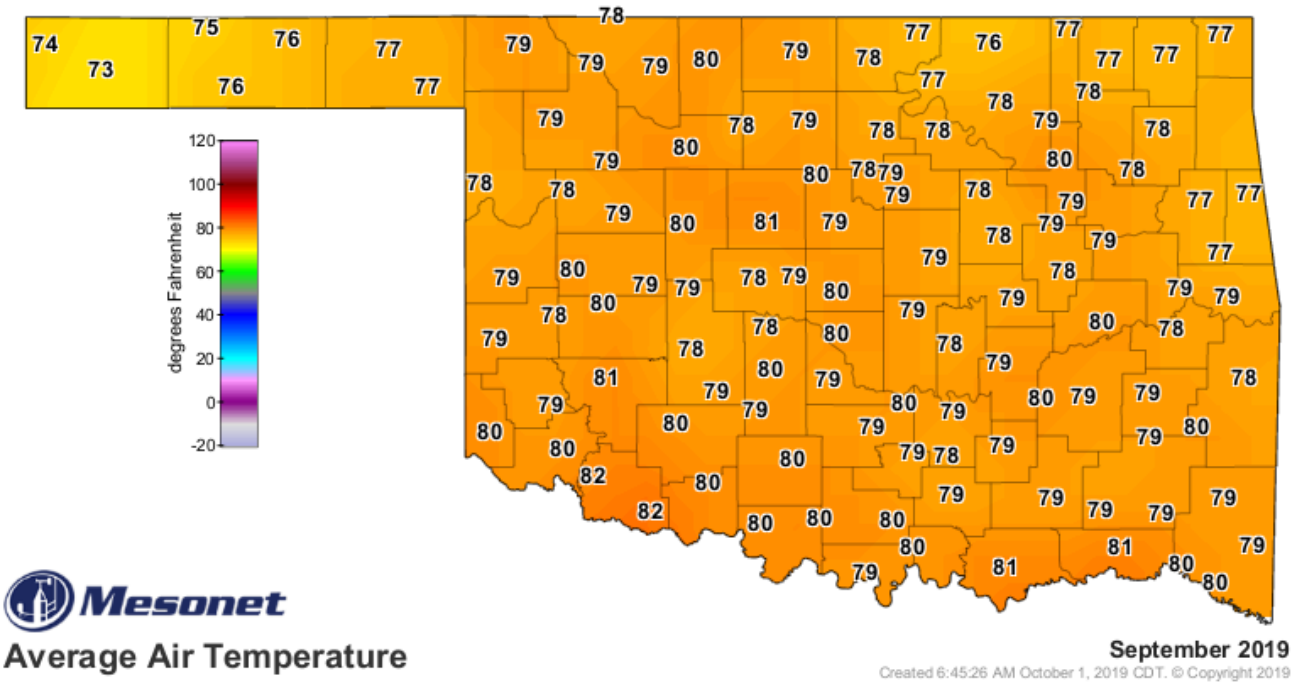
Departure from 1981-2010 Normal Rainfall
Calendar Month to Date

Sep 1, 2019 through Sep 29, 2019
Created 12:01:11 PM September 30, 2019 UTC. Copyright 2019

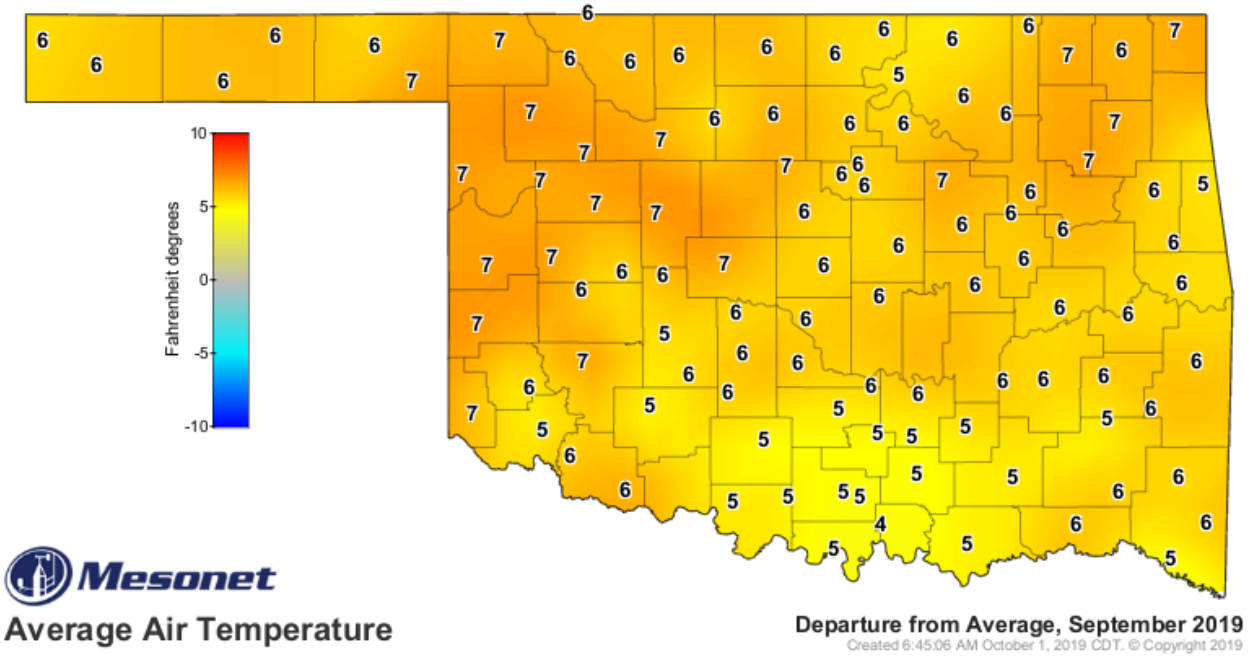
SEPTEMBER 2019 PERCENT OF NORMAL PRECIPITATION



SEPTEMBER 2019 AVERAGE TEMPERATURE



SEPTEMBER 2019 DEPARTURE FROM NORMAL TEMPERATURE

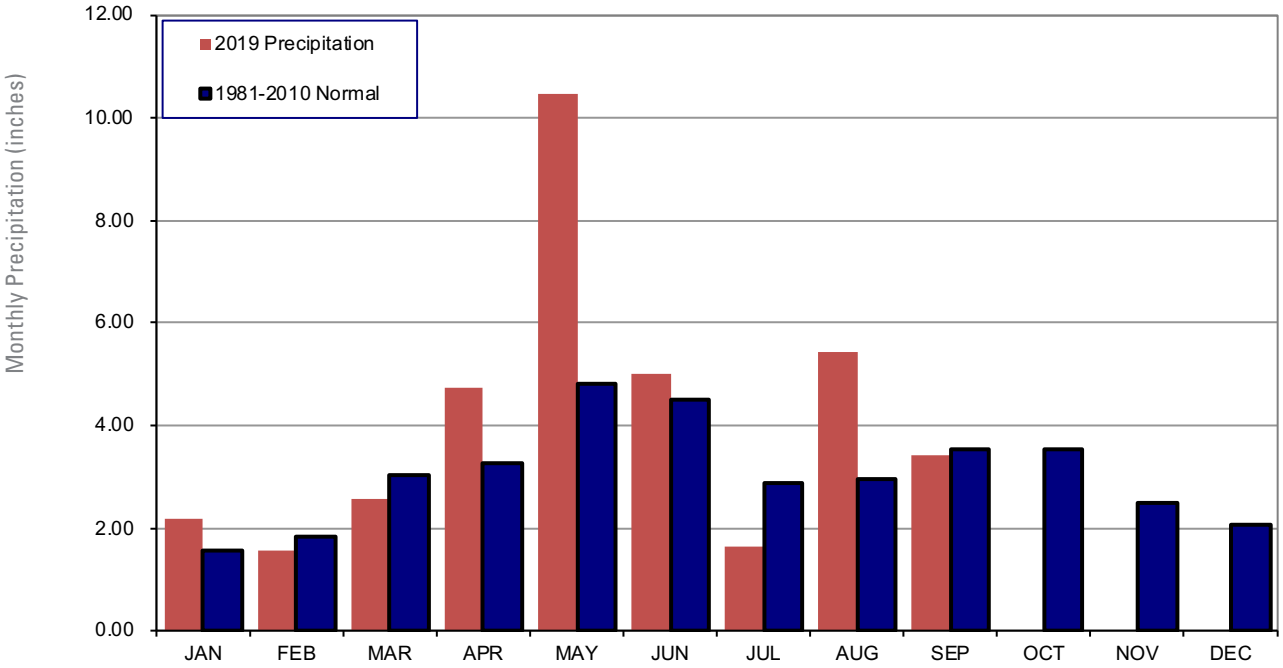


MESONET MONTHLY SUMMARY FOR SEPTEMBER 2019

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	79.1	99	7	56	23	0	424	.26	.12	28
Beaver	77.9	98	7	50	23	0	387	.39	.21	8
Boise City	73.7	97	3	47	23	0	260	.91	.43	9
Buffalo	80.0	101	7	51	23	0	449	.71	.64	8
Eva	75.3	100	2	43	23	0	310	.26	.10	19
NORTH CENTRAL										
Alva	79.7	99	7	57	23	0	442	.56	.32	22
Blackwell	78.6	96	6	60	26	0	409	5.04	2.32	25
Breckinridge	80.0	98	6	63	26	0	450	5.44	3.96	12
Cherokee	80.3	99	7	59	23	0	459	1.24	.46	25
Fairview	80.9	100	7	61	23	0	478	1.57	.90	12
Freedom	79.7	102	7	56	23	0	441	.10	.05	9
Lahoma	79.5	97	7	63	23	0	436	2.24	.64	12
NORTHEAST										
Bixby	79.4	95	8	66	14	0	433	3.83	2.71	26
Burbank	77.9	93	6	60	26	0	388	6.44	2.09	25
Copan	78.4	93	7	62	23	0	402	4.88	1.49	22
Foraker	77.3	93	6	60	23	0	370	2.91	1.44	22
Inola	79.2	94	8	65	14	0	426	3.17	1.50	26
Jay	*****	***	***	***	***	****	****	4.21	1.51	25
Miami	77.9	92	7	60	26	0	386	6.87	3.00	25
Nowata	78.1	93	8	62	26	0	392	8.94	3.30	22
WEST CENTRAL										
Bessie	80.8	99	7	65	23	0	475	1.92	.69	21
Butler	81.0	100	7	64	4	0	479	2.17	1.29	12
Camargo	79.1	100	7	59	6	0	423	1.60	.66	21
Cheyenne	79.9	99	7	62	23	0	447	2.22	1.35	21
Elk City	79.7	97	6	65	23	0	441	3.95	2.35	12
CENTRAL										
Acme	80.1	97	6	66	13	0	452	3.69	2.03	13
Bristow	78.8	94	25	64	6	0	414	5.37	1.61	24
Lake Carl Blac	79.3	96	6	63	6	0	428	6.44	3.55	22
Chandler	79.6	94	7	66	1	0	437	3.40	1.81	12
Chickasha	80.6	99	7	64	6	0	469	3.79	1.47	12
El Reno	79.2	97	6	64	4	0	427	2.15	.66	22
Guthrie	80.6	96	6	67	14	0	468	2.20	1.04	22
Kingfisher	81.1	101	7	64	14	0	483	2.70	2.15	22
Marena	79.4	96	6	65	23	0	431	5.30	2.10	22
Minco	79.3	96	6	66	13	0	429	2.98	.69	12
Marshall	80.6	99	6	65	26	0	468	3.72	1.64	22
Marshall	84.0	106	22	64	4	0	590	1.92	1.41	3
EAST CENTRAL										
Cookson	78.0	92	16	65	26	0	389	5.66	3.86	24
Eufaula	80.6	96	6	67	26	0	467	3.15	2.36	26
Haskell	79.7	96	8	66	6	0	440	4.22	2.24	24
Hectorville	79.8	94	7	66	26	0	445	3.86	2.63	26
Holdenville	80.2	95	16	66	14	0	457	.80	.46	20
McAlester	80.3	97	15	65	6	0	459	2.59	1.35	20
Okmulgee	78.9	95	6	64	9	0	417	5.55	2.89	24
SOUTHWEST										
Altus	80.6	100	6	67	15	****	****	2.40	.67	12
Apache	79.6	96	6	66	5	0	439	2.67	1.12	12
Fort Cobb	78.7	97	6	65	6	****	****	4.84	1.59	24
Grandfield	83.0	103	7	66	6	0	540	3.12	1.23	20
Hinton	80.2	99	7	66	6	0	455	2.31	1.20	22
Hobart	81.6	101	7	66	20	0	497	3.46	1.38	21
SOUTH CENTRAL										
Ada	80.1	96	7	66	1	0	453	.61	.56	20
Ardmore	80.6	96	7	68	15	0	467	3.88	2.62	20
Burneyville	80.1	96	7	65	5	0	454	5.15	3.08	20
Byars	80.2	95	7	67	19	0	455	1.06	.57	20
Centrahoma	80.1	96	16	64	6	0	453	1.46	.90	20
Durant	81.6	98	7	68	6	0	497	2.55	2.00	20
Fittstown	78.5	93	7	66	18	0	406	1.34	1.24	20
Ketchum Ranch	80.4	97	6	66	13	0	463	3.10	1.56	13
SOUTHEAST										
Antlers	80.4	101	7	63	9	0	463	6.63	4.92	20
Broken Bow	80.5	100	8	64	13	0	466	10.92	7.07	23
Clayton	80.1	98	7	65	9	0	453	10.01	4.77	24
Cloudy	80.4	99	15	65	8	0	463	6.95	4.09	20
Hugo	81.5	99	7	67	26	0	494	5.29	3.47	20
Idabel	80.7	97	15	65	13	0	471	3.33	2.34	20

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	76.6	99	2	51	23	0	347	1.34	.99	8
Hooker	77.2	101	3	50	23	0	367	.98	.51	30
Kenton	74.0	98	3	46	23	1	271	2.55	1.72	10
Slapout	78.5	98	7	56	23	0	403	.49	.31	28
May Ranch	79.1	100	7	56	23	0	424	1.47	1.07	24
Medford	80.0	99	7	62	23	0	450	2.84	1.11	25
Newkirk	77.6	93	6	60	26	0	377	3.44	1.15	25
Red Rock	79.5	96	6	64	26	0	436	6.30	1.87	12
Seiling	80.0	99	7	61	23	0	449	2.23	1.36	12
Woodward	80.1	99	27	56	23	0	454	.15	.13	28
Pawnee	79.3	94	7	64	23	0	429	7.82	2.98	22
Porter	79.8	95	8	67	26	0	445	3.42	1.58	26
Pryor	78.6	93	6	64	14	0	408	4.46	2.06	24
Skiatook	79.3	94	7	63	26	0	428	4.10	1.61	25
Talala	78.7	94	8	62	26	****	****	9.56	4.71	24
Tulsa	80.4	95	8	66	14	0	462	3.47	1.34	26
Vinita	77.6	92	7	61	26	****	****	5.98	2.85	25
Wynona	78.8	93	7	62	26	0	413	7.80	2.73	22
Erick	80.1	100	7	61	5	0	453	2.63	1.80	21
Putnam	79.9	99	7	62	23	0	446	5.23	4.31	12
Watonga	80.8	99	7	64	23	0	475	2.05	.93	21
Weatherford	79.7	97	6	66	23	0	442	5.82	3.16	12
Norman	79.9	95	6	67	13	0	448	3.01	1.09	24
Oilton	79.1	95	6	65	4	0	423	5.03	1.80	26
OKC East	80.2	96	6	67	1	0	455	2.15	.76	24
Okemah	80.0	96	15	66	6	0	449	2.08	1.20	26
Perkins	80.1	97	7	66	1	0	453	2.87	1.27	12
Seminole	79.0	93	25	65	6	0	420	1.28	.57	24
Shawnee	80.1	95	7	66	1	****	****	1.84	1.23	12
Spencer	79.9	95	6	66	1	0	447	2.68	.89	12
Stillwater	79.8	95	6	66	4	0	445	6.51	2.74	22
Washington	79.8	97	6	63	8	0	444	2.31	.80	13
Yukon	79.5	95	6	67	1	0	435	2.68	1.37	24
Sallisaw	79.7	95	7	66	26	0	442	3.34	1.52	24
Stigler	79.3	97	8	65	30	0	429	1.57	1.03	26
Stuart	80.5	97	15	66	9	0	465	1.71	1.03	24
Tahlequah	78.2	93	8	65	26	0	396	4.86	1.96	24
Webbers Falls	79.7	95	6	66	26	0	440	3.57	2.12	24
Westville	77.3	91	16	64	14	0	370	6.04	2.65	24
Hollis	81.5	102	7	65	5	0	494	3.10	2.25	21
Mangum	79.9	99	6	62	5	0	448	4.36	1.74	21
Medicine Park	80.4	98	7	66	13	****	****	3.30	1.27	13
Tipton	82.1	101	7	66	5	****	****	4.12	1.60	20
Walters	81.0	99	7	67	6	0	481	4.39	2.92	20
Lane	80.5	98	8	65	6	0	465	3.17	2.08	20
Madill	80.8	95	7	67	6	0	474	3.91	2.91	20
Newport	80.3	95	7	68	20	0	459	4.10	3.62	20
Pauls Valley	80.1	96	6	66	14	0	453	.93	.56	20
Ringling	81.2	98	7	68	14	0	485	1.44	1.15	20
Sulphur	79.7	95	7	65	6	0	442	1.53	1.50	20
Tishomingo	79.7	94	7	66	9	0	442	1.89	1.53	20
Waurika	81.1	98	6	65	6	0	482	5.07	2.86	13
Mt Herman	80.0	96	8	66	26	0	450	11.60	5.83	20
Talihina	80.8	100	16	64	9	0	473	5.74	2.25	20
Valliant	81.3	99	7	65	8	0	490	4.12	1.77	20
Wilburton	80.3	98	8	65	9	0	460	3.29	1.53	24
Wister	79.4	98	8	63	9	0	431	2.45	1.25	20

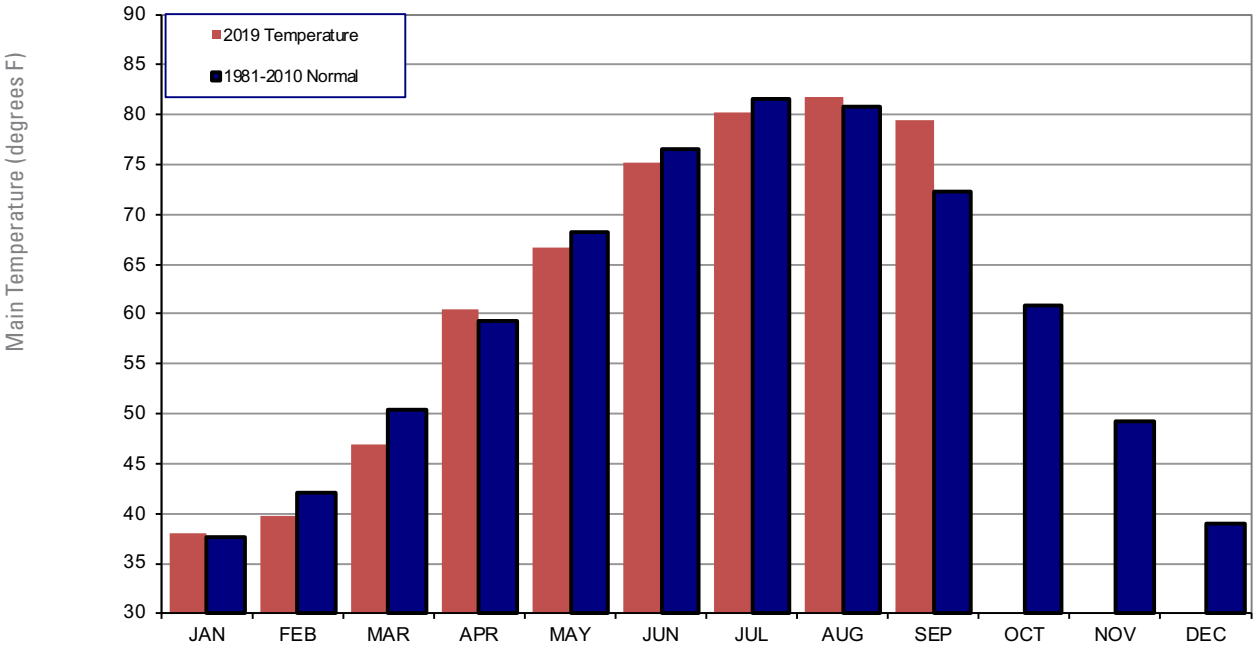
2019 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



September 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	0.88	-0.94	26th Driest	5.03 (1925)	0.04 (1956)	1.90
North Central	2.51	-0.33	60th Driest	7.43 (1923)	0.07 (2000)	2.99
Northeast	5.49	0.99	31st Wettest	12.12 (1986)	0.29 (1948)	2.44
West Central	3.07	0.32	44th Wettest	8.68 (1923)	0.06 (1956)	5.00
Central	3.39	-0.47	54th Wettest	9.81 (1945)	0.21 (1956)	6.43
East Central	3.61	-1.06	58th Driest	10.16 (1993)	0.24 (1948)	6.57
Southwest	3.46	0.48	42nd Wettest	8.48 (1936)	0.04 (1939)	6.34
South Central	2.57	-1.36	53rd Driest	10.58 (2018)	0.13 (1956)	10.58
Southeast	6.39	2.12	21st Wettest	11.97 (1974)	0.36 (2017)	7.44
Statewide	3.43	-0.10	51st Wettest	7.77 (1945)	0.25 (1956)	5.50

2019 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



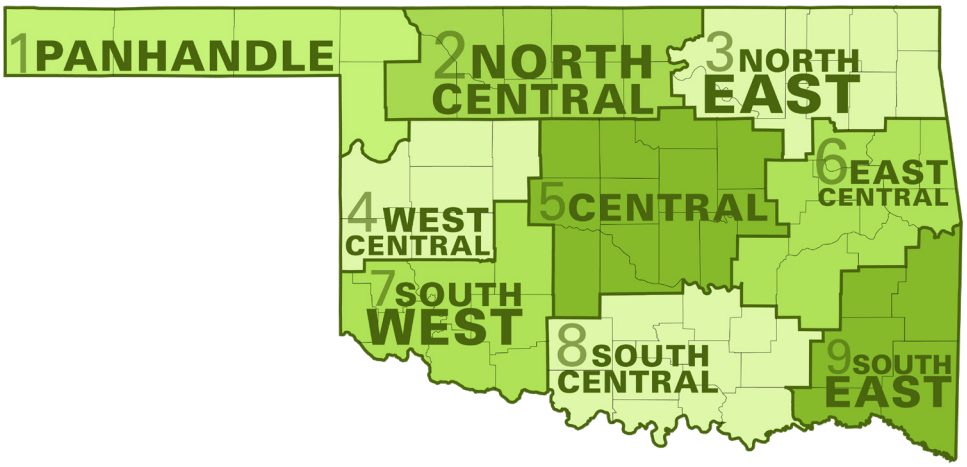
September 2019 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Jul-18 (F)
Panhandle	76.9	7.5	1st Warmest	76.9 (1931)	62.3 (1974)	70.3
North Central	79.6	7.7	2nd Warmest	80.6 (1931)	63.6 (1974)	72.8
Northeast	78.5	6.9	4th Warmest	79.8 (1939)	63.9 (1974)	73.8
West Central	80.1	8.1	2nd Warmest	80.2 (1931)	64.5 (1974)	72.8
Central	79.8	7.0	5th Warmest	81.7 (1931)	64.9 (1974)	74.2
East Central	79.4	6.8	6th Warmest	81.8 (1939)	65.1 (1974)	75.6
Southwest	79.6	5.7	8th Warmest	81.6 (1931)	66.2 (1974)	74.4
South Central	80.3	6.2	7th Warmest	81.8 (1939)	66.6 (1974)	75.3
Southeast	80.5	7.8	2nd Warmest	81.0 (1939)	65.8 (1974)	76.4
Statewide	79.4	7.1	4th Warmest	80.1 (1931)	64.7 (1974)	73.9

MESONET EXTREMES FOR SEPTEMBER 2019

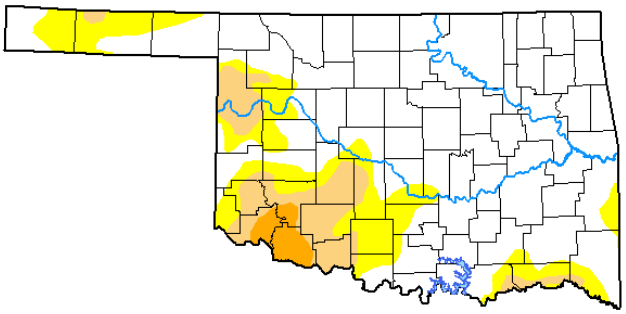
Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	101	7th	Buffalo	43	23rd	Eva	2.55	Kenton	1.72	10th	Kenton
North Central	102	7th	Freedom	56	23rd	Woodward	6.30	Red Rock	3.96	12th	Breckinridge
Northeast	95	8th	Tulsa	60	23rd	Foraker	9.56	Talala	4.71	24th	Talala
West Central	100	7th	Erick	59	6th	Camargo	5.82	Weatherford	4.31	12th	Putnam
Central	101	7th	Kingfisher	63	6th	Lake Carl Blackwell	6.51	Stillwater	3.55	22nd	Lake Carl Blackwell
East Central	97	15th	Stuart	64	9th	Okmulgee	6.04	Westville	3.86	24th	Cookson
Southwest	103	7th	Grandfield	62	5th	Mangum	4.84	Fort Cobb	2.92	20th	Walters
South Central	98	7th	Durant	64	6th	Centrahoma	5.15	Burneyville	3.62	20th	Newport
Southeast	101	7th	Antlers	63	9th	Wister	11.60	Mt Herman	7.07	23rd	Broken Bow
Statewide	103	7th	Grandfield	43	23rd	Eva	11.60	Mt Herman	7.07	23rd	Broken Bow

Oklahoma Climate Divisions



U.S. Drought Monitor

Oklahoma



September 24, 2019

(Released Thursday, Sep. 26, 2019)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.39	27.61	11.41	2.10	0.00	0.00
Last Week *09-17-2019*	59.32	40.68	20.93	7.68	1.97	0.00
3 Months Ago *06-25-2019*	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 *09-25-2018*	72.93	27.07	9.11	4.16	0.00	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:

Eric Luebehusen

U.S. Department of Agriculture

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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