Oklahoma Monthly Climate Summary

SEPTEMBER 2020

OKLAHOMA CLIMATOLOGICAL SURVEY

A historic cold snap set the tone for a cool September, which saw one of the earliest intrusions of winter weather in state history. An unusually strong cold front blasted through the state September 8-9, sending temperatures plummeting up to 50 degrees lower than the previous day's highs. Lowest maximum and minimum temperature records were shattered across the western half of the state. High temperatures on the ninth struggled to a chilly 40 degrees at Boise City and Kenton following lows of 33 degrees. Those maximum and minimum temperatures were the lowest on record for that early in the fall season in Oklahoma. To find the previous instance of the earliest high temperature of 40 degrees requires a journey back to 1945 when Boise City hit 40 on September 28, a full 19 days later than the new September 2020 record. While wind chills remained in the 20s and 30s across the northwestern quarter of the state, heat index values soared close to 100 degrees in the far southeast, which missed out on the early winter feel altogether. Temperatures moderated through the rest of the month, failing to reach the depths of that early cold snap again. Severe weather was almost non-existent during September, although a brush with Tropical Storm Beta provided an unneeded dose of moisture to the far southeast later in the month.

September 2020 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	102°F	Several	25
Low Temperature	33°F	Boise City, Kenton	9
High Precipitation	13.2 in.	alihina	--
Low Precipitation	0.10 in.	Freedom	--

According to preliminary data from the Oklahoma Mesonet, the statewide average temperature for the month was 69.9 degrees, 2.4 degrees below normal to rank as the 13th coolest September since records began in 1895. Summer weather was present, but certainly not common. Several stations reached 102 degrees on the 25th for the highest readings for the month, although the 120 Mesonet sites recorded only nine triple-digit temperatures for all of September. It was a particularly cool month for south central and southwestern Oklahoma. Both fell below normal by more than 3 degrees to rank as their eighth coolest Septembers on record.

The year-to-date statewide average was 64 degrees, 0.7 degrees above normal to rank as the 35th warmest January-September on record.

There was a tremendous difference in rainfall during the month between the northern and southern halves of the state – save for the far southwest, which took dry to another level. From Interstate 40 south, rainfall amounts ranged from 2-5 inches above normal with localized larger totals. Totals north of I-40 fell 1-2 inches below normal. Overall, the September statewide average was 3.81 inches, 0.28 inches above normal and the 43rd wettest September on record. Talihina led the month with 13.2 inches of rain, but 30 Mesonet sites had at least 6 inches during September. The January-September average was 31.69 inches, 3.3 inches above normal to rank as the 24th wettest such period on record.

September 2020 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2020)
Month (September)	69.9°F	-2.4°F	13th Coolest
Year-to-Date (Jan-Sept)	64.0°F	0.7°F	35th Warmest

Precipitation

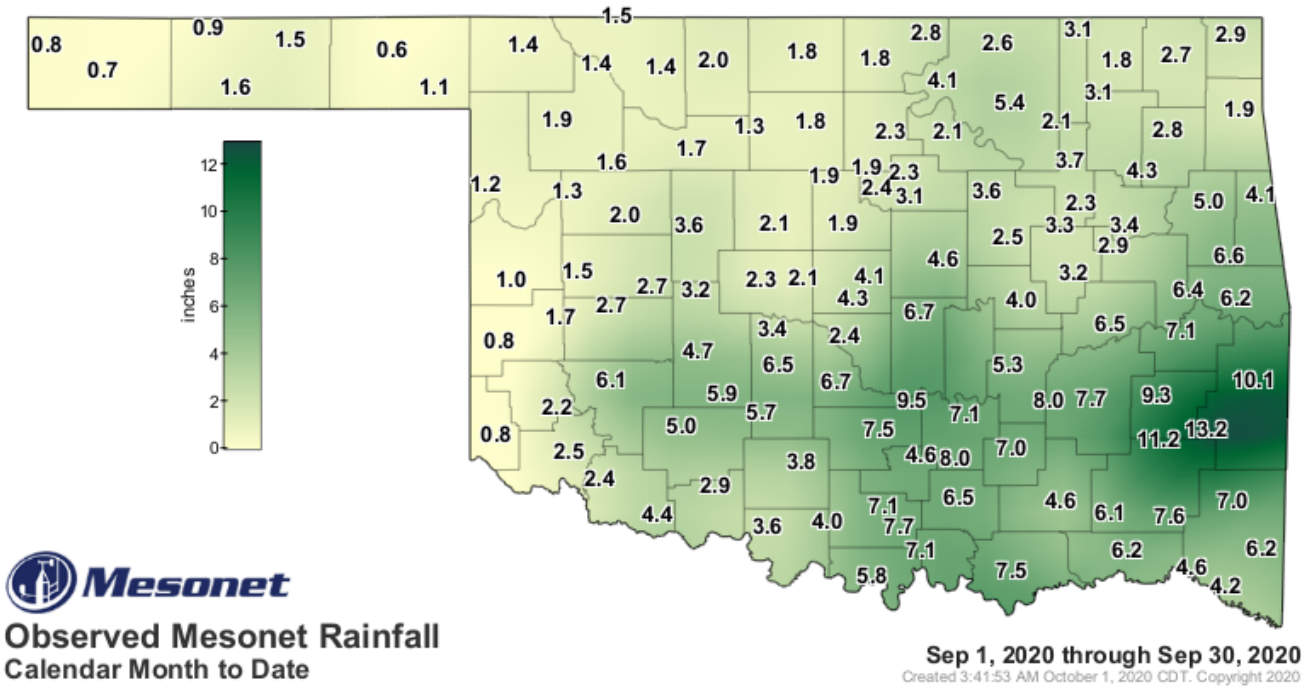
	Total	Depart.	Rank (1895-2020)
Month (September)	3.81 in.	0.28 in.	43rd Wettest
Year-to-Date (Jan-Sept)	31.69 in.	3.30 in.	24th Wettest

Depart. = departure from 30-year normal

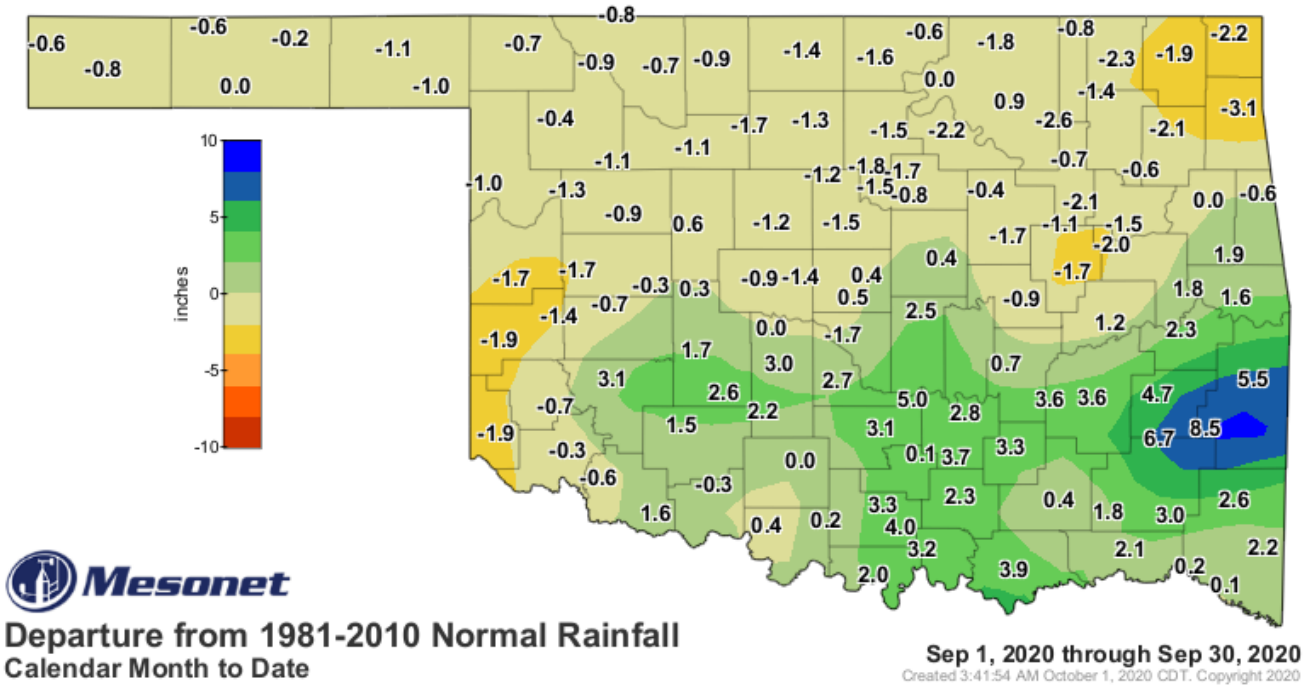
The cool weather helped preserve rains earlier in the summer and minimize drought expansion, but there was also little in the way of drought improvement. Adding to Oklahoma's drought worries, below average sea surface temperatures in the Equatorial Pacific could lead to more dry times through early 2021. According to the Climate Prediction Center (CPC), La Niña conditions developed during September

and are likely to continue through the winter, prompting the agency to issue a La Niña Advisory. This unhelpful El Niño counterpart can push the jet stream farther to the north across the North American continent, leaving the southern tier of the United States – including Oklahoma – warmer and drier than normal during the cool season. CPC's October and October-December outlooks reflect La Niña's influence with increased odds of above normal temperatures and below normal precipitation. CPC's October drought outlook indicates possible drought expansion across western Oklahoma, while the October-December drought outlook shows that drought expansion extending across nearly all of the state, save for the southeastern corner. Possible implications for the state due to La Niña include further intensification of the current drought and an enhanced wildfire season. CPC forecasters caution that each La Niña is different, and not all impacts occur during every episode – their probabilities are increased, however.

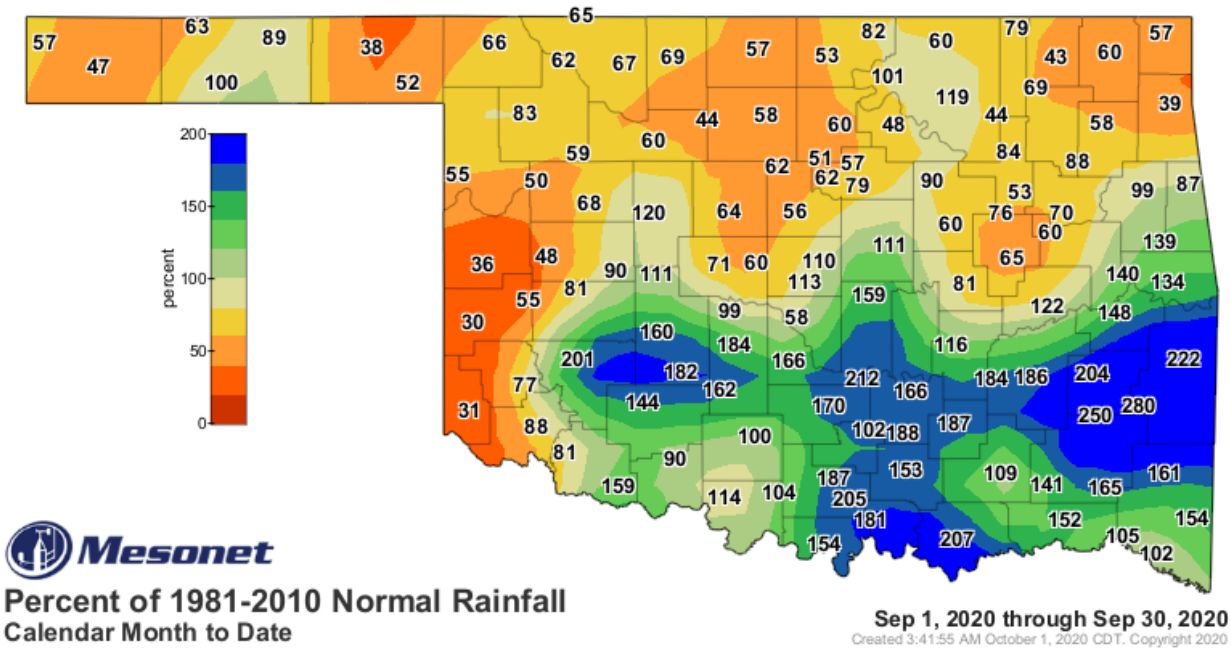
SEPTEMBER 2020 OBSERVED PRECIPITATION



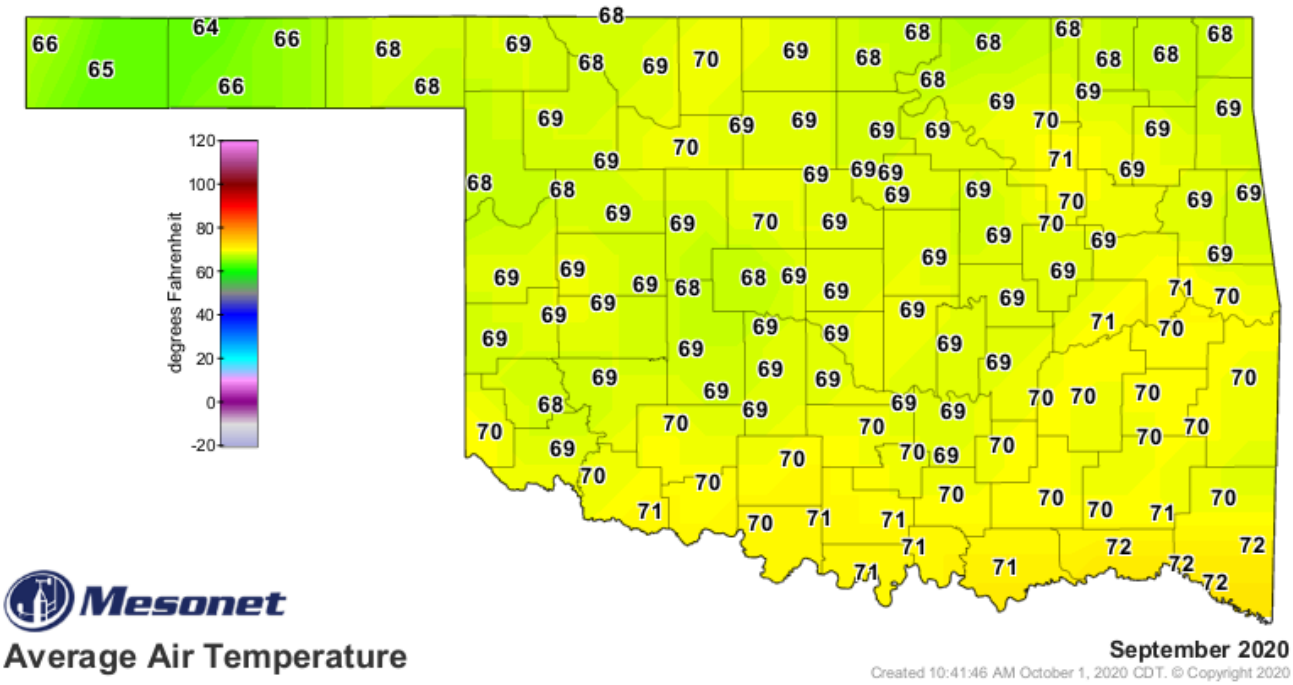
SEPTEMBER 2020 DEPARTURE FROM NORMAL PRECIPITATION



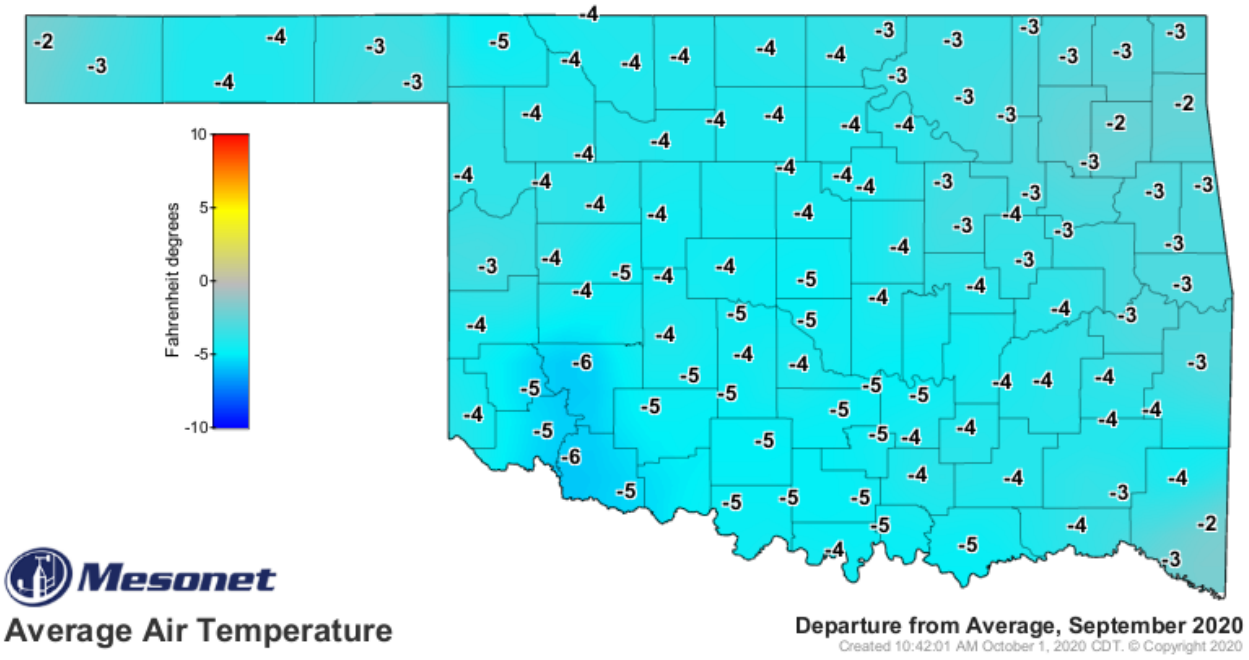
SEPTEMBER 2020 PERCENT OF NORMAL PRECIPITATION



SEPTEMBER 2020 AVERAGE TEMPERATURE



SEPTEMBER 2020 DEPARTURE FROM NORMAL TEMPERATURE

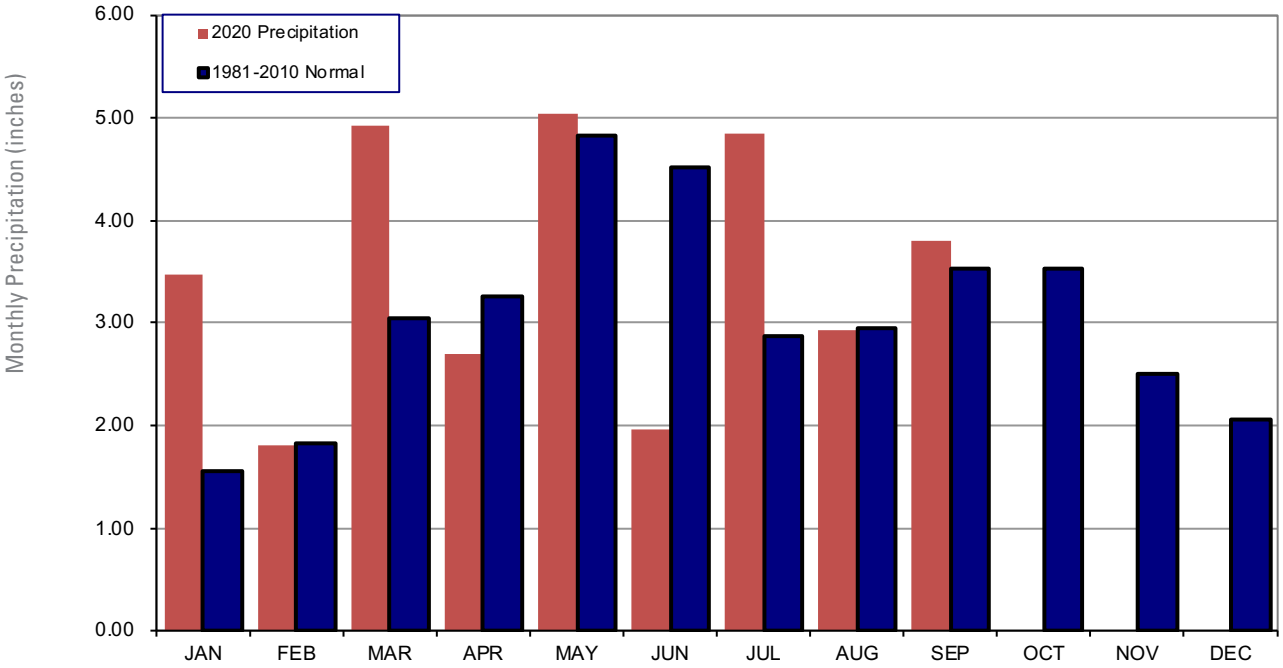


MESONET MONTHLY SUMMARY FOR SEPTEMBER 2020

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	69.0	100	25	40	9	52	173	1.23	.98	9
Beaver	68.8	102	25	36	29	59	173	.63	.27	8
Boise City	65.5	100	6	33	9	93	107	.72	.40	9
Buffalo	69.6	102	25	40	29	49	186	1.35	1.17	9
Eva	65.3	99	25	34	9	88	96	.93	.54	9
NORTH CENTRAL										
Alva	69.6	98	6	41	29	46	185	1.44	1.30	9
Blackwell	69.4	96	7	36	29	39	172	1.82	1.05	9
Breckinridge	69.6	95	6	39	29	37	177	1.82	1.40	9
Cherokee	69.9	98	6	39	29	43	190	1.95	1.83	9
Fairview	70.7	98	6	46	9	34	204	1.66	1.52	9
Freedom	69.3	101	6	37	29	53	183	1.38	1.21	9
Lahoma	69.8	96	6	43	29	36	180	1.30	1.00	9
NORTHEAST										
Bixby	70.1	92	7	41	29	18	172	2.31	1.06	22
Burbank	69.3	95	7	38	29	36	165	4.12	3.16	9
Copan	69.5	96	7	42	29	30	166	3.12	1.53	8
Foraker	69.0	93	7	43	29	35	154	2.64	.88	9
Inola	70.4	93	7	41	29	18	181	4.28	2.53	22
Jay	69.6	90	7	40	29	20	159	1.93	.54	22
Miami	69.2	92	7	41	29	23	149	2.89	1.39	22
Nowata	69.3	95	7	38	29	26	155	1.79	.60	22
WEST CENTRAL										
Bessie	70.3	94	6	45	9	34	192	2.68	1.26	9
Butler	70.1	98	7	42	29	35	188	1.51	1.43	9
Camargo	68.9	99	3	38	29	47	163	1.29	1.13	9
Cheyenne	70.1	95	25	41	9	44	196	.96	.63	9
Elk City	70.3	96	6	44	9	32	192	1.68	1.31	9
CENTRAL										
Acme	69.7	91	7	43	29	34	174	5.70	1.87	8
Bristow	69.5	92	7	39	29	29	165	2.45	.97	22
Lake Carl Blac	69.2	94	6	37	29	36	161	1.93	.97	9
Chandler	70.0	90	5	43	29	29	179	4.56	1.43	1
Chickasha	70.1	93	30	40	29	32	187	6.46	3.40	1
El Reno	68.4	92	7	39	29	45	147	2.33	1.18	9
Guthrie	70.3	92	7	42	29	31	191	1.91	.81	9
Kingfisher	70.1	96	7	38	29	38	191	2.12	1.03	9
Marena	69.6	92	6	39	29	33	170	2.38	.98	9
Minco	69.8	92	30	43	29	34	177	3.36	1.47	9
Marshall	70.0	95	6	38	29	38	187	1.91	1.38	9
EAST CENTRAL										
Cookson	69.9	89	4	41	29	19	167	6.63	2.30	1
Eufaula	71.3	90	7	45	29	10	199	6.45	3.28	1
Haskell	70.3	90	7	42	29	16	174	2.93	1.25	22
Hectorville	70.6	90	5	43	29	18	185	3.27	1.55	22
Holdenville	70.1	90	4	46	29	20	173	5.27	2.53	1
McAlester	70.9	90	5	42	29	14	190	7.73	4.48	1
Okmulgee	69.6	89	5	42	29	24	161	3.17	1.25	22
SOUTHWEST										
Altus	70.2	93	30	39	29	34	189	2.47	1.17	8
Apache	69.7	92	7	44	29	32	174	5.85	2.14	8
Fort Cobb	69.3	93	3	38	29	36	165	4.65	2.66	8
Grandfield	71.8	96	7	42	29	25	228	4.40	2.30	9
Hinton	69.1	95	7	39	29	42	166	3.23	1.62	9
Hobart	69.7	93	7	40	29	37	178	6.12	2.68	8
SOUTH CENTRAL										
Ada	70.3	91	7	42	29	23	183	7.12	5.51	1
Ardmore	71.5	92	7	45	29	14	209	7.72	6.39	1
Burneyville	71.4	92	7	42	29	18	210	5.83	4.71	1
Byars	70.2	90	7	45	29	26	183	9.50	7.50	1
Centrahoma	71.1	91	7	41	29	14	197	7.00	3.68	1
Durant	72.2	91	7	47	29	6	223	7.46	4.46	1
Fittstown	70.0	91	7	45	29	22	173	7.95	5.65	1
Ketchum Ranch	70.9	93	7	47	29	24	200	3.81	2.00	9
SOUTHEAST										
Antlers	71.4	91	5	42	29	11	204	6.08	3.67	1
Broken Bow	72.8	90	9	45	29	10	244	6.22	1.67	21
Clayton	70.9	91	5	43	29	14	192	11.18	7.14	1
Cloudy	71.6	91	5	45	30	12	211	7.61	3.55	1
Hugo	72.6	92	5	48	29	5	233	6.21	3.16	1
Idabel	73.1	89	7	45	29	****	****	4.17	1.12	10

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	66.7	98	26	35	9	75	125	1.63	.80	9
Hooker	67.6	99	25	35	29	72	151	1.48	.89	8
Kenton	65.8	101	6	33	9	98	123	.76	.36	9
Slapout	69.3	102	25	39	9	56	184	1.05	.51	9
May Ranch	69.2	99	6	43	9	51	176	1.46	1.20	9
Medford	69.8	97	6	38	29	42	186	1.79	1.57	9
Newkirk	69.2	94	7	42	29	40	167	2.78	1.41	9
Red Rock	69.5	95	6	38	29	33	169	2.25	1.14	9
Seiling	69.4	98	6	34	29	49	181	1.59	1.42	9
Woodward	69.5	98	25	40	29	52	186	1.85	1.06	9
Pawnee	69.7	92	3	39	29	32	172	2.06	1.11	9
Porter	70.7	90	4	43	29	13	185	3.38	1.39	22
Pryor	70.2	94	7	41	29	18	175	2.78	1.21	22
Skiatook	70.7	93	7	43	29	24	194	2.08	.74	22
Talala	69.9	94	7	43	29	20	169	3.08	.95	9
Tulsa	71.2	92	7	48	29	13	199	3.72	1.12	9
Vinita	68.9	93	7	40	29	25	141	2.73	.87	10
Wynona	69.9	94	7	43	29	27	173	5.36	3.06	8
Erick	69.3	96	6	42	29	40	169	.80	.71	9
Putnam	69.7	96	7	41	29	42	183	1.95	1.53	9
Watonga	69.6	95	7	46	9	39	177	3.57	1.39	9
Weatherford	69.8	95	7	41	29	40	185	2.73	1.61	9
Norman	69.7	90	7	43	29	30	170	2.36	1.01	9
Oilton	69.3	92	7	39	29	35	165	3.56	1.11	9
OKC East	70.2	91	7	42	29	32	186	4.29	1.89	1
Okemah	69.7	89	4	41	29	27	167	3.97	1.69	1
Perkins	70.3	92	6	41	29	29	189	3.13	1.27	9
Seminole	70.0	89	7	44	29	25	176	5.70	3.81	1
Shawnee	70.4	91	7	47	29	25	186	6.73	4.17	1
Spencer	69.9	90	3	44	29	31	177	4.08	1.84	1
Stillwater	69.9	93	6	40	29	31	178	2.28	1.30	9
Washington	70.2	91	30	45	29	23	180	6.70	3.85	1
Yukon	69.6	91	7	43	29	37	173	2.08	1.34	9
Sallisaw	71.5	90	4	44	29	11	207	6.17	2.46	1
Stigler	70.7	90	5	44	29	13	185	7.11	3.31	1
Stuart	71.1	91	4	46	29	9	193	7.98	5.32	1
Tahlequah	69.6	89	4	41	29	18	157	4.99	1.81	22
Webbers Falls	71.9	92	7	44	29	9	217	6.43	1.93	1
Westville	69.5	88	4	41	29	22	158	4.10	1.50	22
Hollis	71.1	96	25	39	29	33	216	.82	.53	9
Mangum	69.4	95	6	40	30	37	170	2.20	1.13	9
Medicine Park	70.4	93	7	47	9	31	192	5.04	2.30	9
Tipton	70.6	95	7	38	29	34	201	2.41	1.13	8
Walters	71.2	94	7	44	29	25	211	2.94	1.37	9
Lane	71.5	91	5	42	29	10	206	4.60	2.64	1
Madill	71.5	91	7	41	29	15	209	7.05	5.55	1
Newport	71.1	91	7	44	29	18	202	7.07	5.43	1
Pauls Valley	70.6	91	7	43	29	23	190	7.50	5.22	1
Ringling	71.5	93	7	41	29	22	216	3.98	1.76	1
Sulphur	70.3	91	7	38	29	26	184	4.57	3.12	1
Tishomingo	71.1	91	7	45	30	11	193	6.50	4.26	1
Waurika	71.3	93	7	41	29	25	213	3.64	2.15	9
Mt Herman	71.0	89	5	44	29	16	195	6.96	1.91	1
Talihina	71.1	91	5	40	29	****	****	13.20	6.25	1
Valliant	72.7	92	5	46	30	8	240	4.60	1.62	1
Wilburton	70.8	91	5	42	29	16	191	9.31	4.12	1
Wister	70.7	90	4	44	29	15	186	10.07	5.82	1

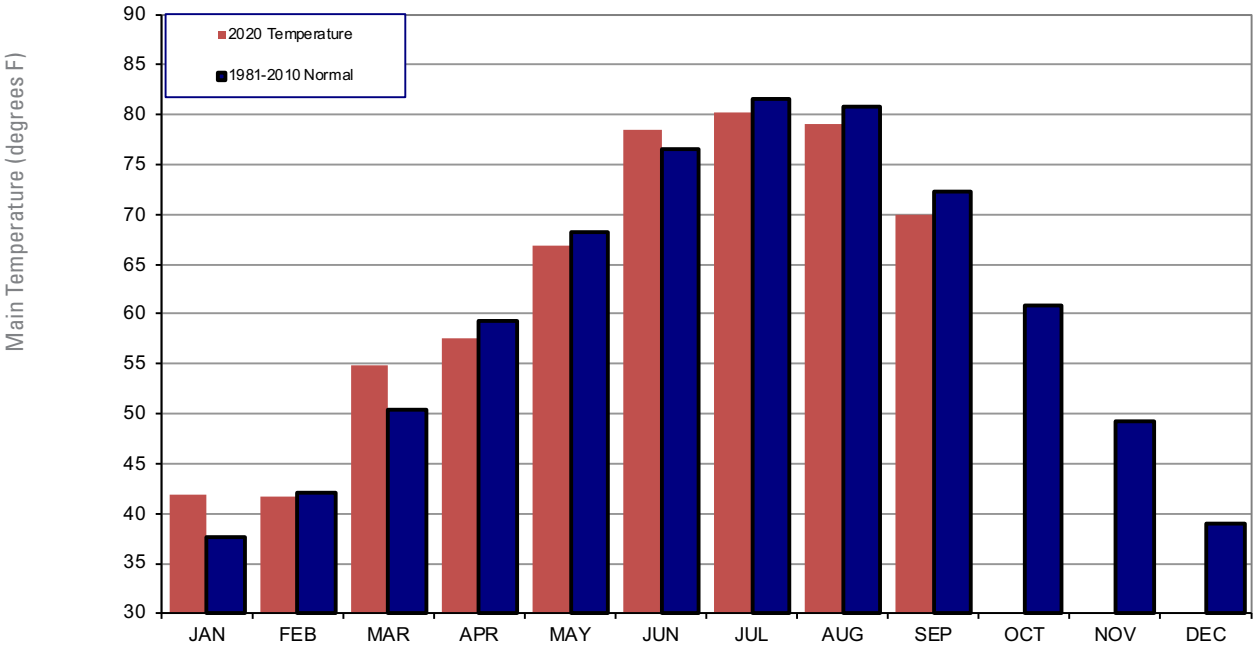
2020 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



September 2020 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Sep-19 (inches)
Panhandle	1.09	-0.73	32nd Driest	5.03 (1925)	0.04 (1956)	0.79
North Central	1.78	-1.06	34th Driest	7.43 (1923)	0.07 (2000)	2.56
Northeast	3.02	-1.48	51st Driest	12.12 (1986)	0.29 (1948)	4.41
West Central	1.91	-0.84	50th Driest	8.68 (1923)	0.06 (1956)	2.77
Central	3.64	-0.22	50th Wettest	9.81 (1945)	0.21 (1956)	3.15
East Central	5.56	0.89	29th Wettest	10.16 (1993)	0.24 (1948)	3.39
Southwest	3.65	0.67	40th Wettest	8.48 (1936)	0.04 (1939)	3.19
South Central	6.33	2.40	20th Wettest	10.58 (2018)	0.13 (1956)	2.84
Southeast	7.78	3.51	13th Wettest	11.97 (1974)	0.36 (2017)	4.05
Statewide	3.81	0.28	43rd Wettest	7.77 (1945)	0.25 (1956)	3.00

2020 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



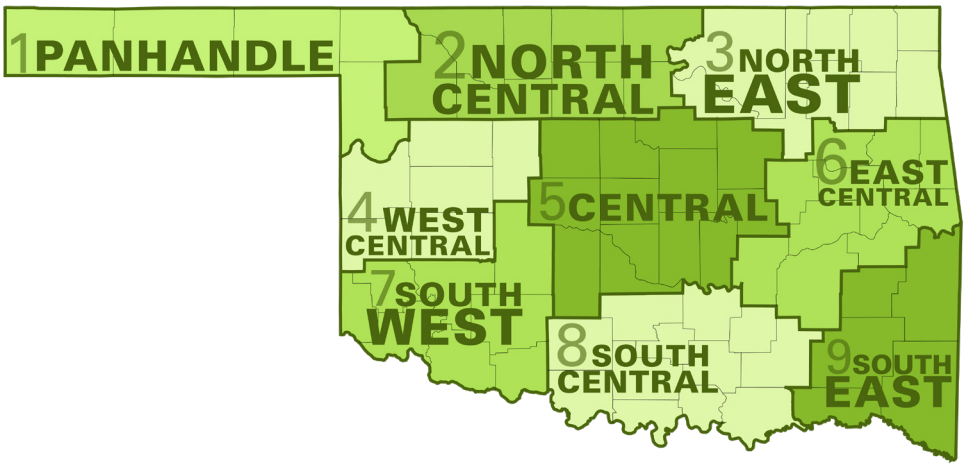
September 2020 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Sep-19 (F)
Panhandle	67.5	-1.9	21st Coolest	76.9 (1931)	62.3 (1974)	76.5
North Central	69.6	-2.3	23rd Coolest	80.6 (1931)	63.6 (1974)	79.2
Northeast	69.9	-1.7	24th Coolest	79.8 (1939)	63.9 (1974)	78.8
West Central	69.8	-2.2	22nd Coolest	80.2 (1931)	64.5 (1974)	79.8
Central	69.8	-3.0	11th Coolest	81.7 (1931)	64.9 (1974)	80.0
East Central	70.6	-2.0	18th Coolest	81.8 (1939)	65.1 (1974)	80.2
Southwest	70.2	-3.7	8th Coolest	81.6 (1931)	66.2 (1974)	81.4
South Central	71.0	-3.1	8th Coolest	81.8 (1939)	66.6 (1974)	81.0
Southeast	71.3	-1.4	27th Coolest	81.1 (2019)	65.8 (1974)	81.1
Statewide	69.9	-2.4	13th Coolest	80.1 (1931)	64.7 (1974)	79.7

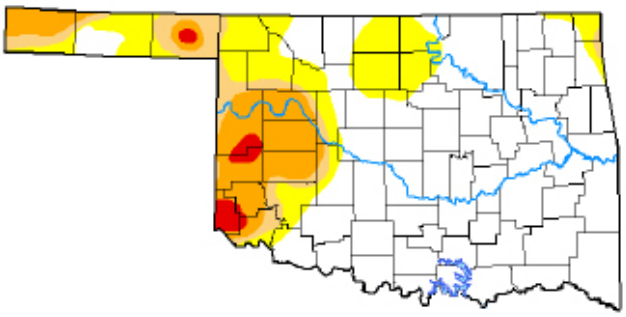
MESONET EXTREMES FOR SEPTEMBER 2020

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	102	25th	Slapout	33	9th	Kenton	1.63	Goodwell	1.17	9th	Buffalo
North Central	101	6th	Freedom	34	29th	Seiling	2.78	Newkirk	1.83	9th	Cherokee
Northeast	96	7th	Copan	38	29th	Burbank	5.36	Wynona	3.16	9th	Burbank
West Central	99	3rd	Camargo	38	29th	Camargo	3.57	Watonga	1.61	9th	Weatherford
Central	96	7th	Kingfisher	37	29th	Lake Carl Blackwell	6.73	Shawnee	4.17	1st	Shawnee
East Central	92	7th	Webbers Falls	41	29th	Westville	7.98	Stuart	5.32	1st	Stuart
Southwest	96	25th	Hollis	38	29th	Tipton	6.12	Hobart	2.68	8th	Hobart
South Central	93	7th	Waurika	38	29th	Sulphur	9.50	Byars	7.50	1st	Byars
Southeast	92	5th	Hugo	40	29th	Talihina	13.20	Talihina	7.14	1st	Clayton
Statewide	102	25th	Slapout	33	9th	Kenton	13.20	Talihina	7.50	1st	Byars

Oklahoma Climate Divisions



U.S. Drought Monitor
Oklahoma



September 29, 2020
(Released Thursday, Oct. 1, 2020)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	66.79	33.21	17.71	11.97	1.55	0.00
Last Week 09-22-2020	73.41	26.59	17.20	10.80	1.00	0.00
3 Months Ago 06-30-2020	34.87	65.13	43.03	15.39	4.46	0.10
Start of Calendar Year 12-31-2019	76.45	23.55	10.47	3.64	0.00	0.00
Start of Water Year 10-01-2019	71.94	28.06	11.08	1.01	0.00	0.00
One Year Ago 10-01-2019	71.94	28.06	11.08	1.01	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. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

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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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