Oklahoma Monthly Climate Summary

DECEMBER 2020

OKLAHOMA CLIMATOLOGICAL SURVEY

A powerful winter storm pounded the state on 2020's final day, a fitting epitaph to a tumultuous year—and a wintry December. The storm lasted into the first morning of 2021 and brought widespread totals of 2-6 inches of snow from southwestern into northeastern Oklahoma. Localized areas in central Oklahoma reported up to 10 inches of snow. The storm was the last in a series of four impactful winter systems that struck the state during December, and the fifth of the season. The month's first storm dumped 10-15 inches of snow in far northwestern Oklahoma between Dec. 2-3. Two more storms traversed the state in quick succession on Dec. 13 and Dec. 15. The northwest was again the big winner between the two storms with over a foot of snow reported in Woodward and Ellis counties. Fargo and Arnett led official December totals at 27.1 inches and 26 inches, respectively, with Vici close behind at 25.5 inches. Fargo's tally is the third highest December total in state history, behind Beaver's 35 inches in 1911 and Goodwell's 28 inches in 1918. Arnett's total ranks fifth all-time. The highest Oklahoma snow total for any month remains Kenton's 46 inches from February 1903. Arnett's 32.3 inches—including 6.3 inches from a late October winter storm—led this season's totals through December.

December 2020 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	80°F	Centrahoma	9
Low Temperature	2°F	Hooker, Beaver	14, 16
High Precipitation	8.22 in.	Broken Bow	--
Low Precipitation	0.22 in.	Boise City	--

The statewide average precipitation total finished at 2.84 inches according to preliminary data from the Oklahoma Mesonet. That ranks the month as the 22nd wettest December since records began in 1895, 0.78 inches above normal. The entire state saw near or above normal precipitation for the month, save for the far western Panhandle where deficits continued to accumulate. Heavy rains provided surpluses of 2-4 inches in far southeastern Oklahoma. Broken Bow's 8.22 inches led the December totals. Boise City had the lowest total at 0.22 inches. The statewide average total for 2020 was 39.71 inches, 3.21 inches above normal, to rank as the 20th wettest year on record. Annual rainfall varied tremendously across the state, however. Southeastern Oklahoma's average of 65.43 inches was 14.84 inches above normal to rank as their seventh wettest annual total on record, while the Panhandle saw a deficit of 4.05 inches for their 25th driest. Individually, The Mesonet site at Mt Herman had 2020's highest total at 77.86 inches, 23.1 inches above normal. Boise City's 10.16 inches was the lowest, and 8.4 inches below normal.

December was warmer than normal despite the wintry intrusions throughout the month. The statewide average temperature was 40.8 degrees, 1.9 degrees above normal, to rank as the 45th warmest December on record. The Mesonet site at Centrahoma recorded December's highest reading with 80 degrees on the ninth. Hooker and Beaver shared the lowest reading of 2 degrees on the 14th and 16th, respectively. The 2020 temperature extremes ranged from 1.2 degrees at Tipton on Feb. 6 to 113 degrees at Hollis on July 14. The 2020 statewide average was 60.7 degrees, 0.8 degrees above normal, to rank as the 28th warmest year on record.

December 2020 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2020)
Month (December)	40.8°F	1.9°F	45th Warmest
Year-to-Date (Jan-Dec)	60.7°F	0.8°F	28th Warmest

Precipitation

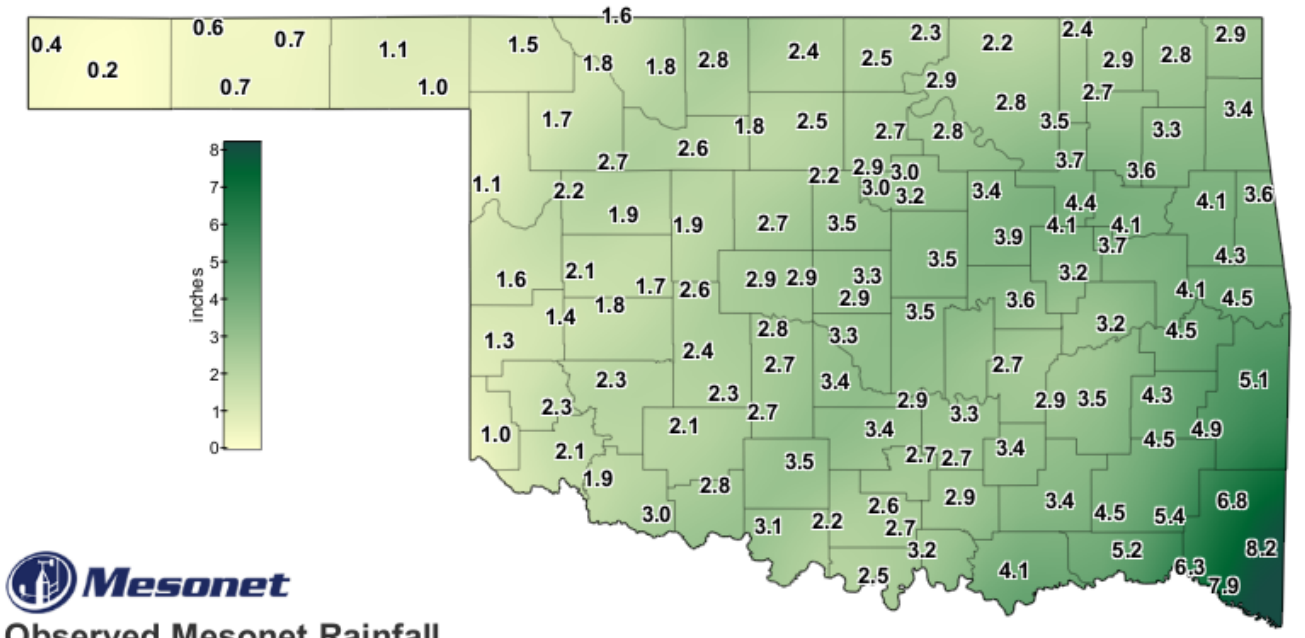
	Total	Depart.	Rank (1895-2020)
Month (December)	2.84 in.	0.78 in.	22nd Wettest
Year-to-Date (Jan-Dec)	39.71 in.	3.21 in.	20th Wettest

Depart. = departure from 30-year normal

There was virtually no change in the U.S. Drought Monitor depiction for Oklahoma throughout December, with a little over 25% of the state categorized in at least moderate drought. The heaviest moisture fell outside the hardest hit areas in western and southern Oklahoma, and the far western Panhandle. Improvements were expected in 2021's first map

due to the moisture-laden storm that ended the year. The Climate Prediction Center's (CPC) January outlooks indicate increased odds of above normal temperatures across the entire state, and above normal precipitation over the eastern half of Oklahoma—especially the eastern one-third. CPC's January drought outlook calls for drought persistence in those areas where it exists across western Oklahoma, but drought removal in the south central section of the state. No drought development is likely during January according to CPC's outlook.

DECEMBER 2020 OBSERVED PRECIPITATION

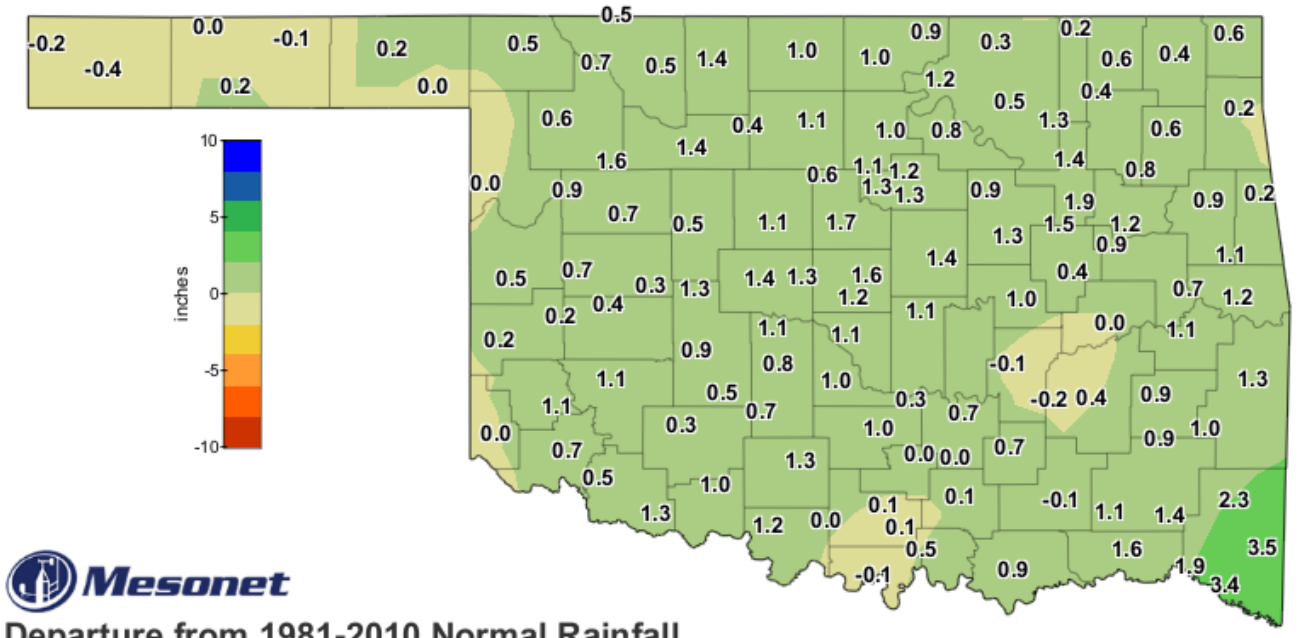


Mesonet

Observed Mesonet Rainfall
Calendar Month to Date

Dec 1, 2020 through Dec 31, 2020
Created 2:40:46 AM January 1, 2021 CST. Copyright 2021

DECEMBER 2020 DEPARTURE FROM NORMAL PRECIPITATION



Mesonet

Departure from 1981-2010 Normal Rainfall
Calendar Month to Date

Dec 1, 2020 through Dec 31, 2020
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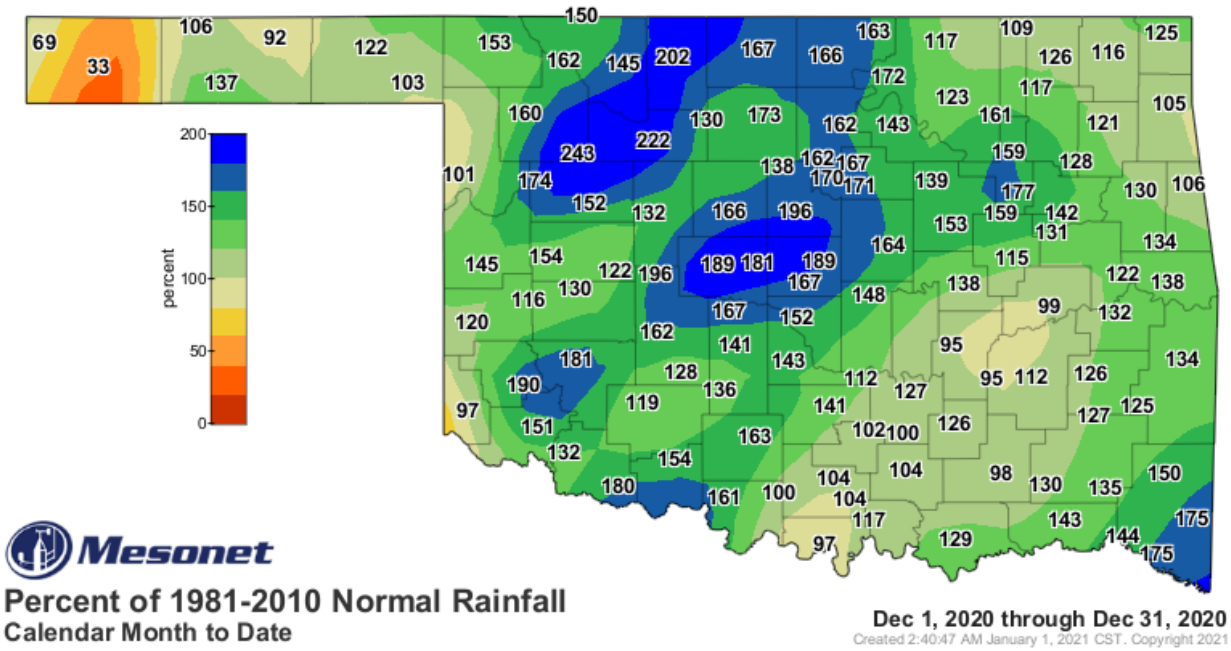
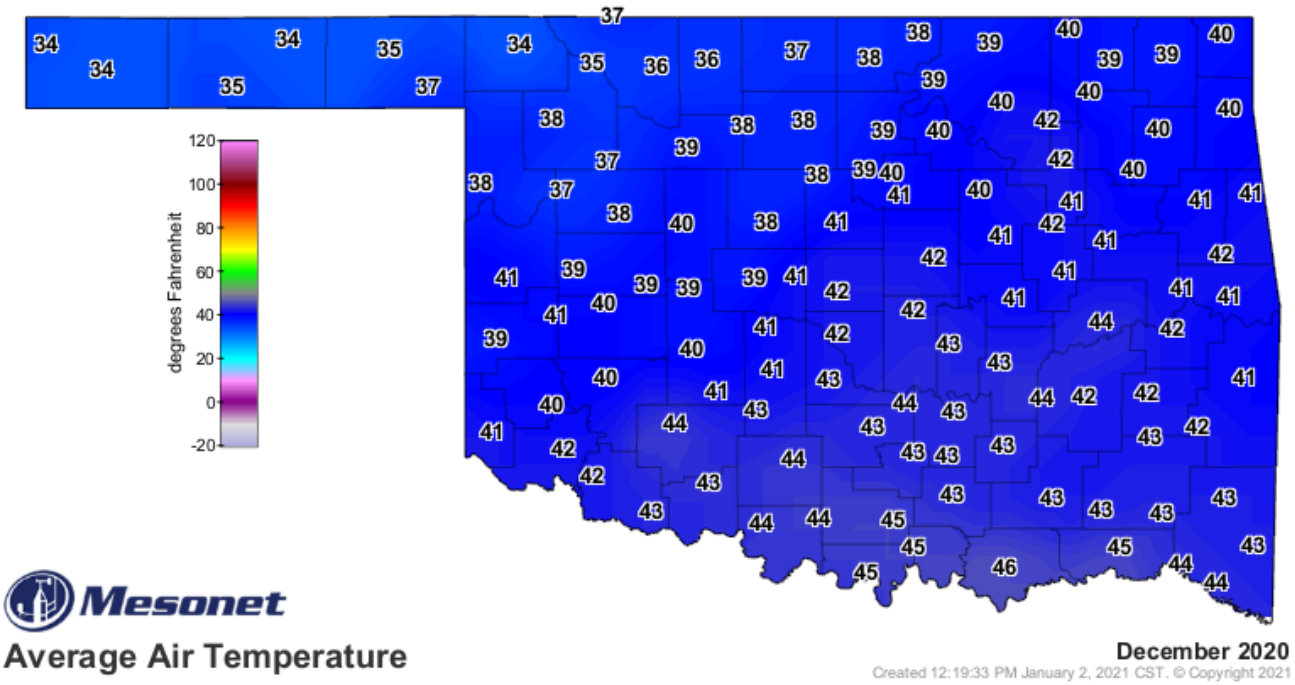
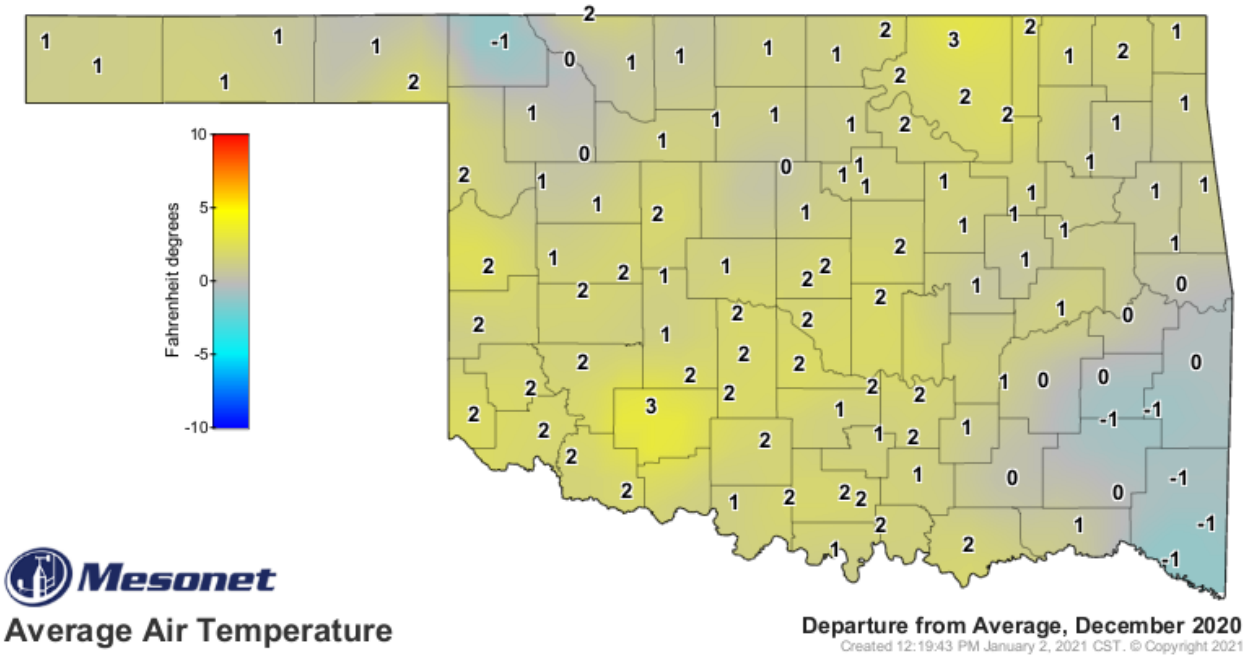
DECEMBER 2020 PERCENT OF NORMAL PRECIPITATION



DECEMBER 2020 AVERAGE TEMPERATURE



DECEMBER 2020 DEPARTURE FROM NORMAL TEMPERATURE

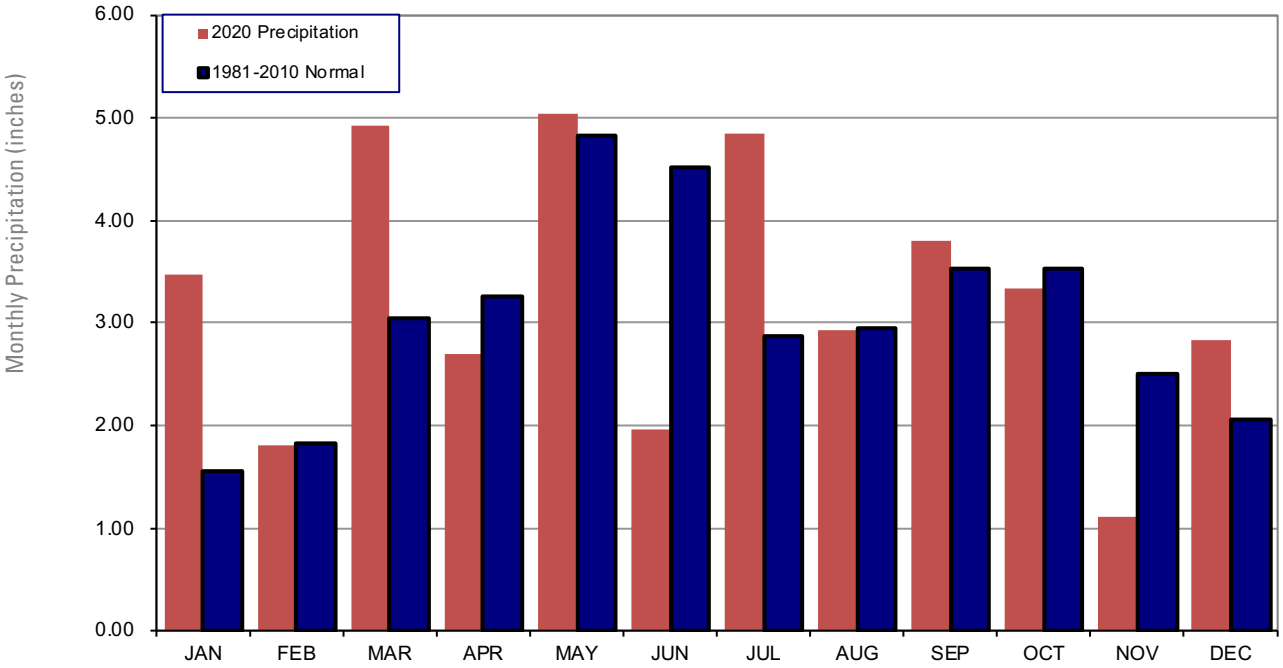


MESONET MONTHLY SUMMARY FOR DECEMBER 2020

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
AArnett	38.5	71	9	10	14	821	0	1.06	.26	17
Beaver	35.5	67	22	2	16	915	0	1.13	.29	4
Boise City	34.7	68	8	7	13	939	0	.22	.06	16
Buffalo	35.0	67	22	3	14	930	0	1.48	.30	18
Eva	*****	***	***	***	***	****	****	.58	.16	17
NORTH CENTRAL										
Alva	37.3	66	9	11	14	860	0	1.75	.58	29
Blackwell	38.3	67	22	12	14	829	0	2.50	.92	29
Breckinridge	38.8	68	9	11	14	813	0	2.54	1.33	29
Cherokee	37.5	67	22	8	14	853	0	2.77	1.13	29
Fairview	39.8	68	10	11	14	782	0	2.57	1.13	29
Freedom	35.9	65	26	9	14	903	0	1.76	.50	18
Lahoma	38.6	68	9	11	14	818	0	1.77	.91	29
NORTHEAST										
Bixby	41.4	76	10	20	14	730	0	4.36	1.33	30
Burbank	39.5	73	10	16	25	791	0	2.91	.82	2
Copan	40.0	73	9	14	25	775	0	2.36	.62	2
Foraker	40.1	75	10	15	25	770	0	2.23	.77	2
Inola	40.1	74	10	16	25	771	0	3.59	.98	31
Jay	40.4	75	10	13	25	762	0	3.40	.90	30
Miami	39.6	74	10	14	25	788	0	2.86	.93	30
Nowata	38.9	72	10	12	25	808	0	2.94	.85	2
WEST CENTRAL										
Bessie	41.0	70	9	14	14	745	0	1.80	.69	29
Butler	39.6	72	9	10	14	786	0	2.10	1.08	29
Camargo	37.3	72	9	7	14	858	0	2.17	1.25	29
Cheyenne	41.3	72	9	15	16	734	0	1.58	1.03	29
Elk City	41.4	72	8	17	14	732	0	1.39	.80	29
CENTRAL										
Acme	9.6	73	10	***	1	656	0	2.74	1.02	30
Bristow	40.8	76	10	16	14	751	0	3.86	1.22	30
Lake Carl Blac	39.6	76	10	13	14	787	0	2.85	.72	30
Chandler	42.2	77	10	19	24	708	0	3.45	.95	30
Chickasha	41.6	74	10	20	25	726	0	2.67	.74	30
El Reno	39.4	72	9	12	14	795	0	2.87	.60	29
Guthrie	41.2	74	10	14	14	738	0	3.50	.95	30
Kingfisher	38.6	72	10	6	14	817	0	2.67	.62	29
Marena	41.1	76	10	17	14	742	0	3.04	.79	30
Minco	41.6	71	10	18	14	725	0	2.75	.84	29
Marshall	38.8	74	10	6	14	812	0	2.23	.72	29
EAST CENTRAL										
Cookson	41.6	73	9	15	25	725	0	4.30	1.10	31
Eufaula	43.7	73	10	22	25	661	0	3.15	.89	31
Haskell	41.0	74	10	19	24	744	0	3.72	1.11	31
Hectorville	42.4	77	10	19	24	700	0	4.11	1.30	30
Holdenville	43.2	76	9	21	14	676	0	2.67	.87	30
McAlester	42.7	76	9	19	25	690	0	3.51	1.05	31
Okmulgee	40.8	76	10	17	25	751	0	3.18	1.10	30
SOUTHWEST										
Altus	42.7	73	9	18	24	692	0	2.07	.96	29
Apache	42.0	71	10	18	14	713	0	2.31	.62	30
Fort Cobb	41.1	73	10	16	14	740	0	2.42	.64	29
Grandfield	44.2	76	10	18	24	646	0	3.00	1.34	31
Hinton	40.4	69	10	14	14	762	0	2.64	.93	29
Hobart	41.2	70	10	13	14	739	0	2.34	1.12	29
SOUTH CENTRAL										
Ada	43.7	78	9	21	24	659	0	3.27	1.34	31
Ardmore	45.3	76	10	24	24	611	0	2.70	1.35	31
Burneyville	44.7	78	9	20	24	629	0	2.47	1.07	31
Byars	44.4	76	10	20	24	639	0	2.88	1.24	30
Centrahoma	43.6	80	9	20	17	664	0	3.35	1.26	31
Durant	45.9	78	9	23	17	592	0	4.08	2.33	31
Fittstown	43.8	75	9	21	24	658	0	2.68	1.10	31
Ketchum Ranch	44.4	76	10	21	24	637	0	3.45	1.85	30
SOUTHEAST										
Antlers	43.6	76	9	18	1	663	0	4.54	1.97	31
Broken Bow	44.2	75	10	19	1	646	0	8.22	2.80	31
Clayton	42.8	74	9	20	25	687	0	4.48	1.31	2
Cloudy	43.7	74	10	18	1	661	0	5.41	1.96	31
Hugo	45.5	77	9	22	1	605	0	5.21	2.21	31
Idabel	44.5	76	10	18	1	636	0	7.94	2.99	31

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	36.1	68	8	10	13	895	0	.67	.19	17
Hooker	34.7	69	8	2	14	940	0	.71	.19	18
Kenton	34.6	70	8	4	13	943	0	.35	.10	18
Slapout	37.9	69	22	9	14	841	0	.97	.28	17
May Ranch	37.9	69	9	13	14	840	0	1.56	.52	29
Medford	38.2	65	9	12	14	830	0	2.37	1.12	29
Newkirk	39.0	69	9	17	25	805	0	2.31	.94	29
Red Rock	39.5	74	10	13	14	791	0	2.73	.77	29
Seiling	37.3	68	9	8	14	858	0	2.70	1.55	29
Woodward	38.1	67	26	12	16	835	0	1.71	.43	17
Pawnee	40.5	75	10	17	14	760	0	2.81	.70	30
Porter	42.0	75	10	20	25	714	0	4.10	1.22	31
Pryor	39.8	74	10	15	25	781	0	3.32	.93	31
Skiatook	41.8	74	10	17	25	720	0	3.50	.88	30
Talala	40.0	72	10	15	25	774	0	2.72	.77	30
Tulsa	42.7	76	10	20	25	692	0	3.71	.93	30
Vinita	38.9	74	10	12	25	810	0	2.84	.85	30
Wynona	40.6	75	10	17	25	756	0	2.75	.71	30
Erick	40.1	72	9	8	14	773	0	1.25	.74	29
Putnam	39.2	71	9	15	14	799	0	1.94	1.02	29
Watonga	40.6	71	9	17	14	756	0	1.88	.86	29
Weatherford	39.6	68	10	15	14	786	0	1.69	.68	29
Norman	42.5	73	10	19	24	697	0	3.25	.96	30
Oilton	40.3	77	10	10	14	765	0	3.38	1.00	30
OKC East	42.2	74	9	18	14	706	0	2.93	.86	30
Okemah	41.2	74	9	17	25	738	0	3.62	1.56	30
Perkins	41.3	75	10	17	14	735	0	3.17	.78	30
Seminole	43.4	77	10	21	25	670	0	3.47	1.46	30
Shawnee	42.9	74	9	20	14	685	0	3.47	1.33	30
Spencer	42.7	74	9	19	14	690	0	3.30	.85	30
Stillwater	40.5	76	10	16	14	760	0	3.00	.75	30
Washington	43.6	76	10	20	24	662	0	3.38	1.56	30
Yukon	40.9	74	10	16	14	748	0	2.92	.79	30
Sallisaw	41.5	75	10	20	25	728	0	4.51	1.45	31
Stigler	42.2	75	10	19	25	708	0	4.51	1.28	2
Stuart	43.9	76	9	21	25	655	0	2.93	1.02	31
Tahlequah	40.6	73	10	14	25	758	0	4.08	1.08	31
Webbers Falls	41.9	74	10	20	25	717	0	4.10	1.18	31
Westville	40.9	73	10	15	25	746	0	3.61	1.07	31
Hollis	42.3	75	9	16	24	704	0	.98	.38	29
Mangum	41.1	74	9	12	14	****	****	2.26	.94	29
Medicine Park	44.7	73	10	24	24	630	0	2.12	.66	29
Tipton	42.9	74	10	17	24	684	0	1.94	.70	31
Walters	43.8	75	10	19	24	658	0	2.79	1.46	30
Lane	43.8	78	9	18	1	657	0	3.39	1.55	31
Madill	45.5	77	9	23	17	606	0	3.21	1.68	31
Newport	45.2	78	10	21	24	612	0	2.61	1.07	31
Pauls Valley	43.9	78	10	21	17	654	0	3.39	1.47	30
Ringling	44.6	78	10	18	24	631	0	2.22	.87	31
Sulphur	43.0	77	9	18	24	681	0	2.67	1.03	31
Tishomingo	43.6	75	9	19	1	663	0	2.90	1.33	31
Waurika	44.7	79	10	20	14	631	0	3.13	1.48	30
Mt Herman	42.9	71	10	19	1	684	0	6.84	1.96	2
Talihina	42.4	75	9	16	1	702	0	4.90	1.51	31
Valliant	44.3	76	9	18	1	642	0	6.32	2.50	31
Wilburton	42.1	76	9	19	1	710	0	4.33	1.22	2
Wister	41.2	76	10	16	1	739	0	5.11	1.81	31

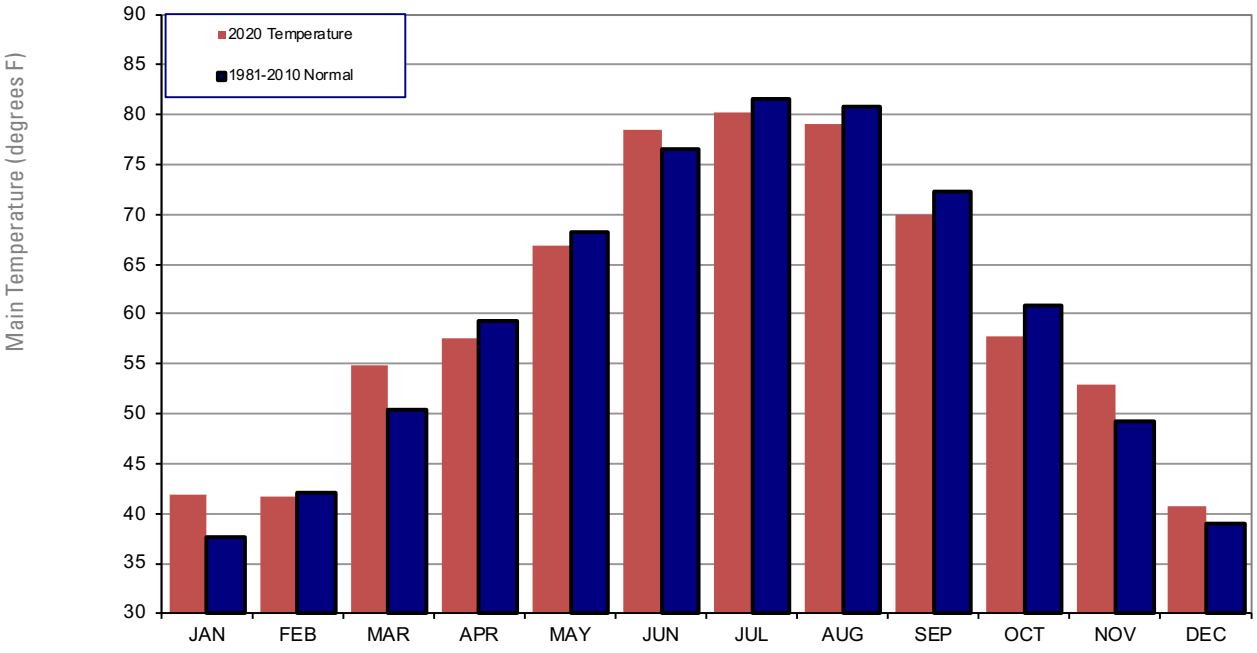
2020 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



December 2020 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Dec-19 (inches)
Panhandle	0.80	0.06	36th Wettest	3.28 (2006)	0.00 (1976)	1.10
North Central	2.23	0.94	20th Wettest	3.59 (1984)	0.01 (1950)	1.27
Northeast	3.15	0.80	19th Wettest	7.61 (1895)	0.14 (1950)	1.10
West Central	1.76	0.57	25th Wettest	4.04 (1911)	0.00 (1908)	1.11
Central	3.11	1.11	17th Wettest	6.45 (1984)	0.03 (1908)	0.93
East Central	3.72	0.63	25th Wettest	11.09 (2015)	0.20 (1917)	1.25
Southwest	2.26	0.85	21st Wettest	5.65 (1911)	0.00 (1908)	0.74
South Central	3.03	0.40	35th Wettest	6.97 (1991)	0.06 (1917)	0.98
Southeast	5.75	1.75	16th Wettest	12.32 (2015)	0.19 (1917)	1.40
Statewide	2.84	0.78	22nd Wettest	5.54 (2015)	0.09 (1950)	1.09

2020 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



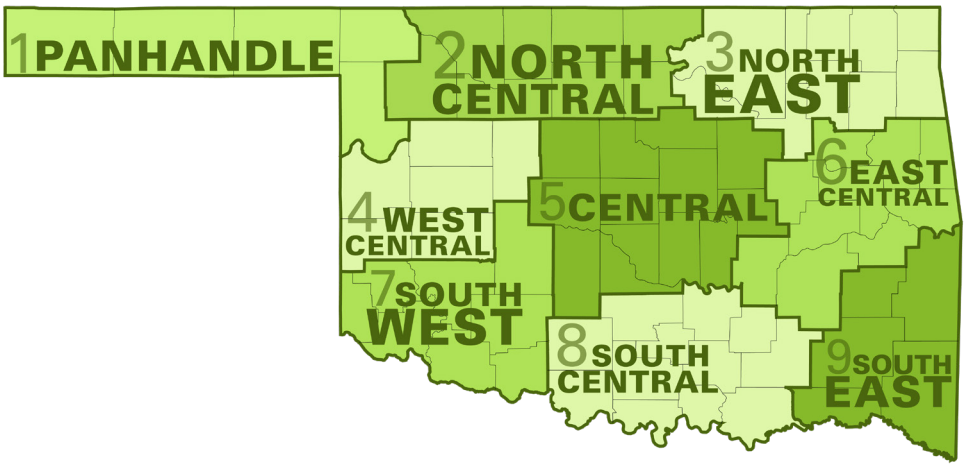
December 2020 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Dec-19 (F)
Panhandle	35.9	0.9	57th Warmest	42.1 (1933)	22.6 (1983)	39.4
North Central	38.2	2.1	44th Warmest	42.9 (1965)	21.5 (1983)	41.0
Northeast	40.4	2.6	39th Warmest	44.9 (1965)	23.6 (1983)	42.6
West Central	40.0	2.4	32nd Warmest	44.1 (1965)	24.1 (1983)	42.2
Central	41.3	2.0	46th Warmest	46.0 (1965)	25.5 (1983)	43.8
East Central	42.0	1.5	55th Warmest	48.1 (1933)	27.6 (1983)	44.4
Southwest	42.3	2.1	37th Warmest	46.6 (1965)	27.4 (1983)	44.3
South Central	44.4	2.3	41st Warmest	48.4 (1933)	29.4 (1983)	45.7
Southeast	43.4	1.5	54th Warmest	49.7 (1984)	30.4 (1983)	45.5
Statewide	40.8	1.9	45th Warmest	45.1 (1965)	25.7 (1983)	43.2

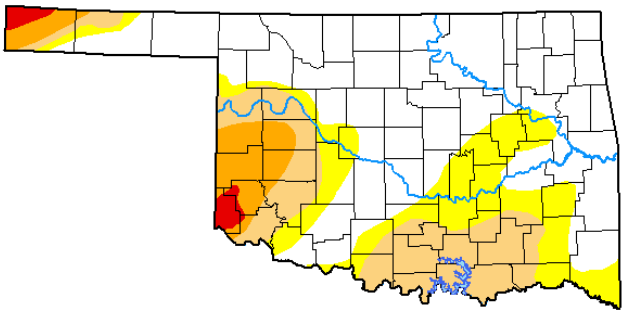
MESONET EXTREMES FOR DECEMBER 2020

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	71	9th	Arnett	2	14th	Hooker	1.48	Buffalo	0.30	18th	Buffalo
North Central	74	10th	Red Rock	8	14th	Seiling	2.77	Cherokee	1.55	29th	Seiling
Northeast	76	10th	Bixby	12	25th	Vinita	4.36	Bixby	1.33	30th	Bixby
West Central	72	9th	Erick	7	14th	Camargo	2.17	Camargo	1.25	29th	Camargo
Central	77	10th	Chandler	6	14th	Marshall	3.86	Bristow	1.56	30th	Okemah
East Central	77	10th	Hectorville	14	25th	Tahlequah	4.51	Stigler	1.45	31st	Sallisaw
Southwest	76	10th	Grandfield	12	14th	Mangum	3.00	Grandfield	1.46	30th	Walters
South Central	80	9th	Centrahoma	18	24th	Ringling	4.08	Durant	2.33	31st	Durant
Southeast	77	9th	Hugo	16	1st	Talihina	8.22	Broken Bow	2.99	31st	Idabel
Statewide	80	9th	Centrahoma	2	14th	Hooker	8.22	Broken Bow	2.99	31st	Idabel

Oklahoma Climate Divisions



U.S. Drought Monitor
Oklahoma



December 29, 2020
(Released Thursday, Dec. 31, 2020)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	56.83	43.17	25.21	7.75	1.45	0.00
Last Week *12-22-2020*	56.83	43.17	25.21	7.75	1.45	0.00
3 Months Ago *09-29-2020*	66.79	33.21	17.71	11.97	1.55	0.00
Start of Calendar Year *12-31-2019*	76.45	23.55	10.47	3.64	0.00	0.00
Start of Water Year *09-29-2020*	66.79	33.21	17.71	11.97	1.55	0.00
One Year Ago *12-31-2019*	76.45	23.55	10.47	3.64	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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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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