

# DECEMBER 2021

In what could best be described as a climatological anomaly on steroids, Oklahoma soared to its warmest December on record, besting the previous mark by more than 5 degrees. It was a remarkable display of muscle by Mother Nature that saw the statewide average temperature finish more than 10 degrees above normal as measured by the Oklahoma Mesonet. For some perspective, the next nine warmest Decembers all reside within 2 degrees of each other. No other calendar month in Oklahoma has such a large spread between the top two marks. May has the next largest difference at 1.2 degrees. December 2021 also became the fourth warmest climatological winter month since statewide records began in 1895, just a few tenths of a degree behind the top spot in February 1954. The cool season heat wave was a culmination of warmer and drier than normal weather that began in earnest in mid-August and continued largely uninterrupted right up until the ball dropped on 2022. An arctic cold front

storms closed roads in the Panhandle due to poor visibility, producing images right out of the Dust Bowl era.

The statewide average temperature finished at 50.4 degrees, 10.3 degrees above normal and easily surpassed the previous top mark of 45.1 degrees from both 1931 and 1965. Many individual locations across the state set similar temperature records. Oklahoma City's 50.7 degrees topped its previous record of 48.7 degrees in 1965, and Tulsa's 52.2 degrees eclipsed 1931's 47.3 degrees. Oklahoma City and Tulsa's records date back to 1890 and 1905, respectively. The Mesonet recorded highs of at least 70 degrees on 25 separate days in December, and at least 80 degrees on 13 days. The month's highest reading of 89 degrees at Grandfield on the 24th is the highest December temperature recorded by the Mesonet since its temperature records began in 1997, and ninth highest compared to longer running cooperative

## December 2021 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	89°F	Grandfield	24
Low Temperature	3°F	Camargo	19
High Precipitation	4.26 in.	Cookson	--
Low Precipitation	0 in.	18 sites	--

arrived just before midnight on New Year's Eve and brought an abrupt end to the spring-like temperatures with snow, ice, freezing rain, and bitterly cold air.

A profound lack of precipitation combined with the unusual warmth to propel drought forward in both coverage and intensity at speeds often reserved for the summer months. According to the U.S. Drought Monitor, drought increased from 61% of the state at the end of November to 90% at the end of December. The amount of severe and extreme drought increased from 16% to over 72% during the month. The Drought Monitor's intensity scale slides from moderate-severe-extreme-exceptional, with exceptional being the worst classification. The addition of strong winds to the equation resulted in numerous days with dangerous wildfire conditions. Widespread non-thunderstorm wind gusts of 60-80 mph across western Oklahoma on Dec. 15 fanned flames into the western sides of Guymon, forcing evacuations. Dust

## December 2021 Statewide Statistics

### Temperature

	Average	Depart.	Rank (1895-2021)
Month (December)	50.4°F	10.3°F	1st Warmest
Year-to-Date (Jan-Dec)	61°F	0.6°F	19th Warmest

### Precipitation

	Total	Depart.	Rank (1895-2021)
Month (December)	0.95 in.	-1.16 in.	34th Driest
Year-to-Date (Jan-Dec)	33.63 in.	-2.73 in.	63rd Driest

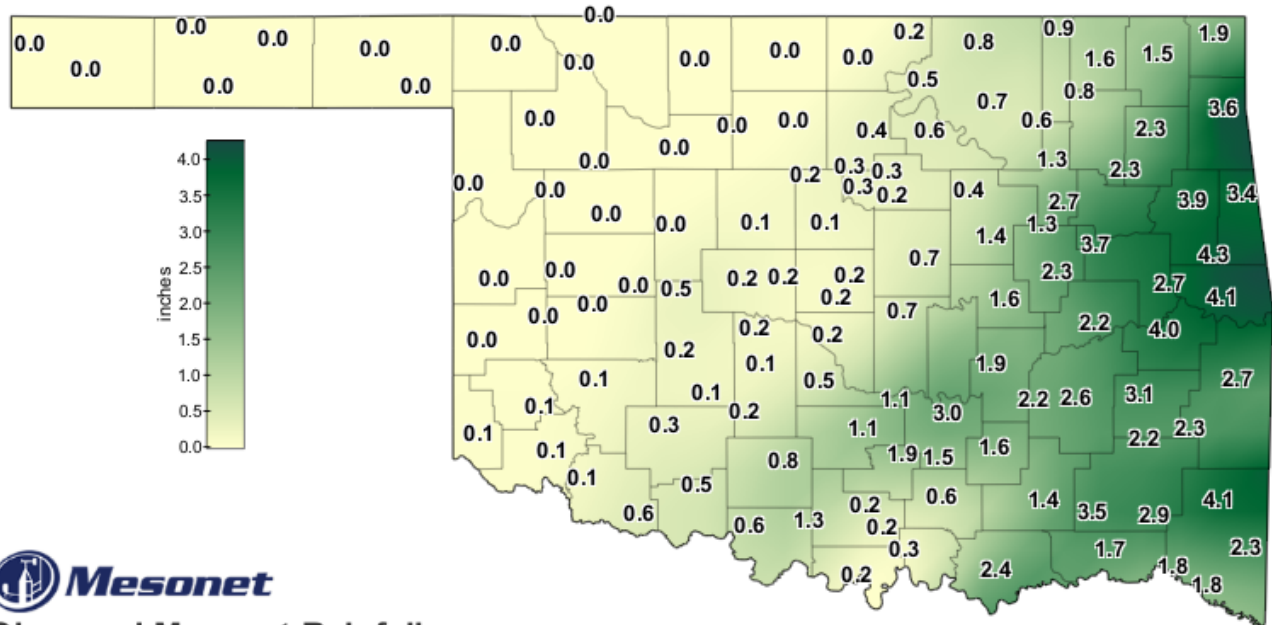
Depart. = departure from 30-year normal

network data that extends back to the early 1870s. Tops is the 92 degrees reported by Ardmore back on Dec. 30, 1951. The coldest reading of December 2021 was 3 degrees at Camargo on the 19th. The warm December vaulted 2021 up to a final ranking of 19th warmest at 61 degrees, 0.6 degrees above normal. 2021's highest temperature was 107 degrees at Eva on June 23, and the lowest of minus 22 degrees was reported at Kenton on Feb. 15.

The month's statewide average precipitation total ended at 0.95 inches, 1.16 inches below normal and ranked as the 34th driest December on record. That statistic is bolstered by decent moisture across far eastern Oklahoma, but most of the western two-thirds of the state experienced an alarming lack of precipitation. Nineteen of the Mesonet's 120 sites recorded no precipitation for the month, and an additional 33 received a quarter-inch or less. The Panhandle suffered its driest December on record with no precipitation for the month, west central had its third driest at 0.01 inches on average, and north central's 0.06 inches ranked as their fifth driest. Many locations in Oklahoma had not received more than a tenth of an inch of rain in a single day for more than two months. Some sites in the Panhandle had gone without measurable moisture since Oct. 10. The Mesonet site at Cookson led the state with 4.26 inches, while 11 other sites across eastern Oklahoma enjoyed more than 3 inches. 2021 finished as the 63rd driest year on record with a statewide average of 33.63 inches, 2.73 inches below normal. Kenton's 12.9 inches was the Mesonet's lowest total during 2021, while the site at Mt. Herman won the top prize with 61.13 inches.

Chances for significant drought relief appear slim according to the Climate Prediction Center's January precipitation outlook, which indicates increased odds of below normal precipitation across the western two-thirds of the state. Their temperature outlook for January shows increased odds of above normal temperatures in far southwestern Oklahoma and the western Panhandle. CPC's January drought outlook calls for the existing drought in Oklahoma to either persist or intensify through January. No further spread is expected, however.

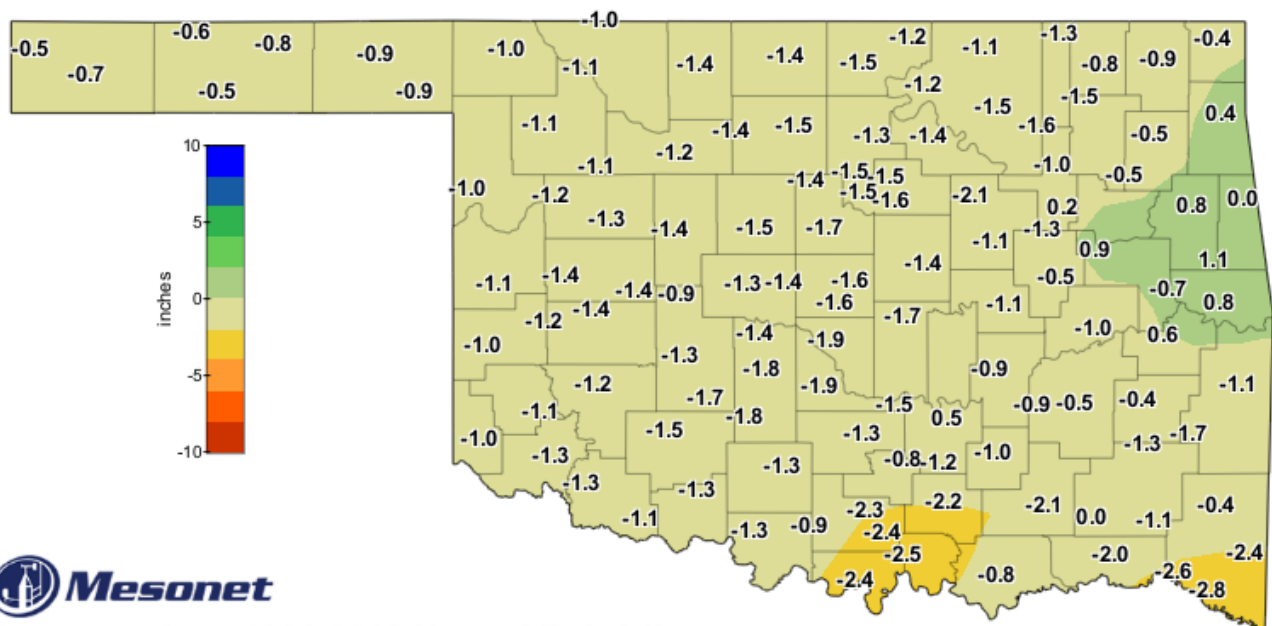
## DECEMBER 2021 OBSERVED PRECIPITATION



Observed Mesonet Rainfall  
Calendar Month to Date

Dec 1, 2021 through Dec 31, 2021  
Created 2:40:31 AM January 1, 2022 CST. Copyright 2022

## DECEMBER 2021 DEPARTURE FROM NORMAL PRECIPITATION

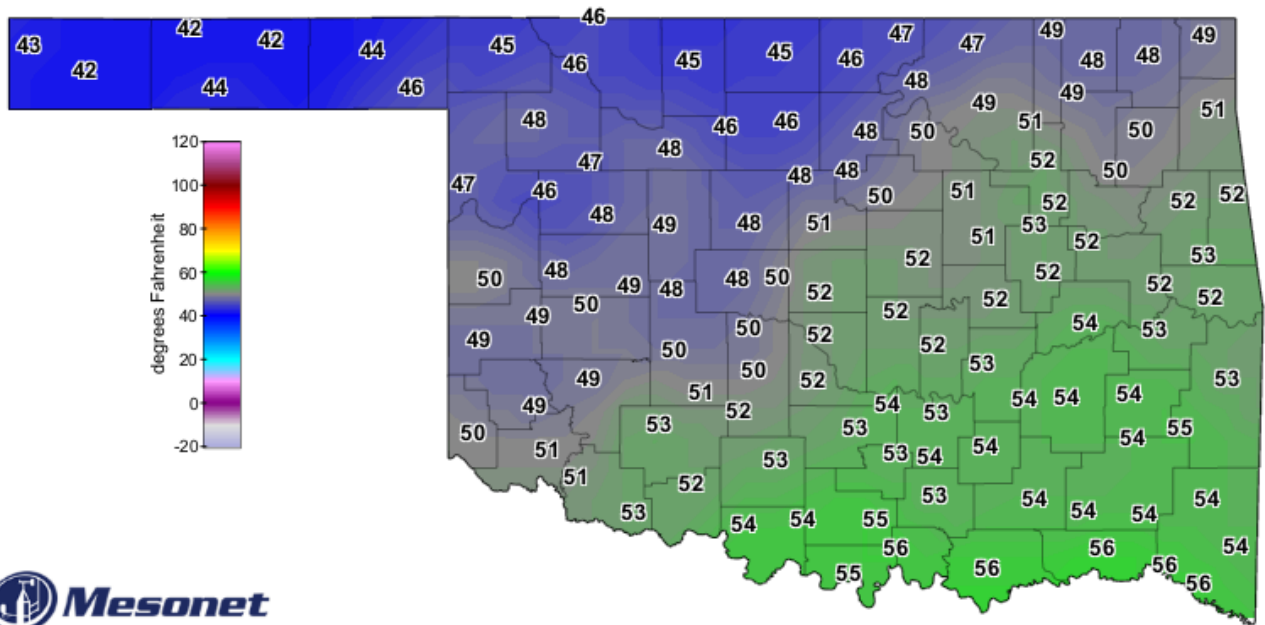


Departure from 1981-2010 Normal Rainfall  
Calendar Month to Date

Dec 1, 2021 through Dec 31, 2021  
Created 2:40:32 AM January 1, 2022 CST. Copyright 2022



## DECEMBER 2021 AVERAGE TEMPERATURE

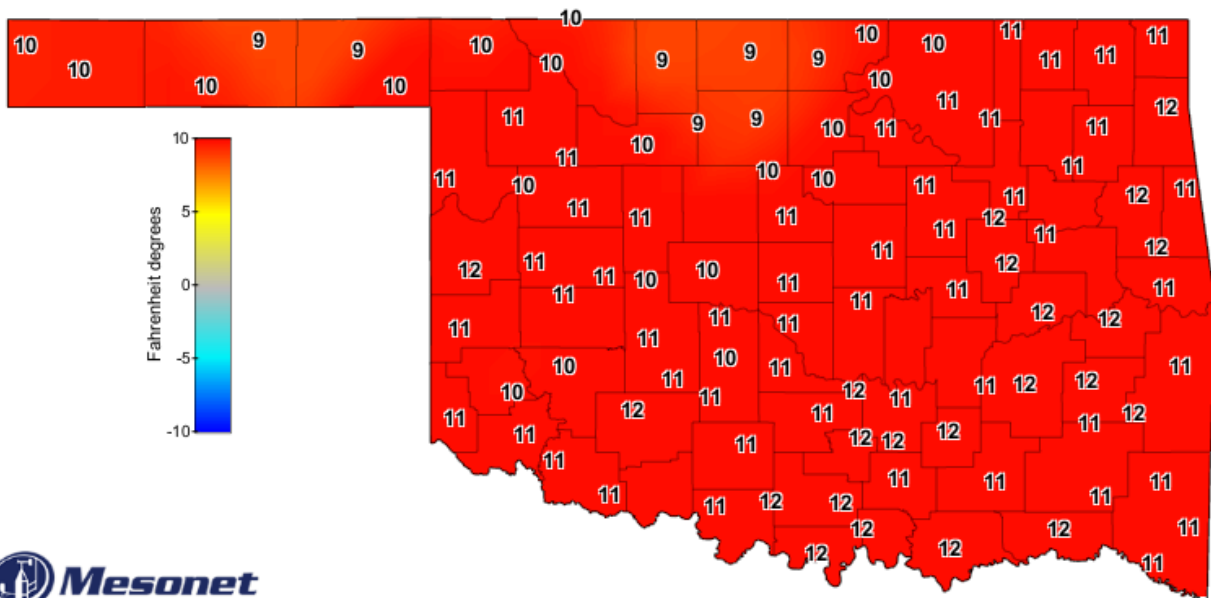


Average Air Temperature

December 2021

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## DECEMBER 2021 DEPARTURE FROM NORMAL TEMPERATURE



Average Air Temperature

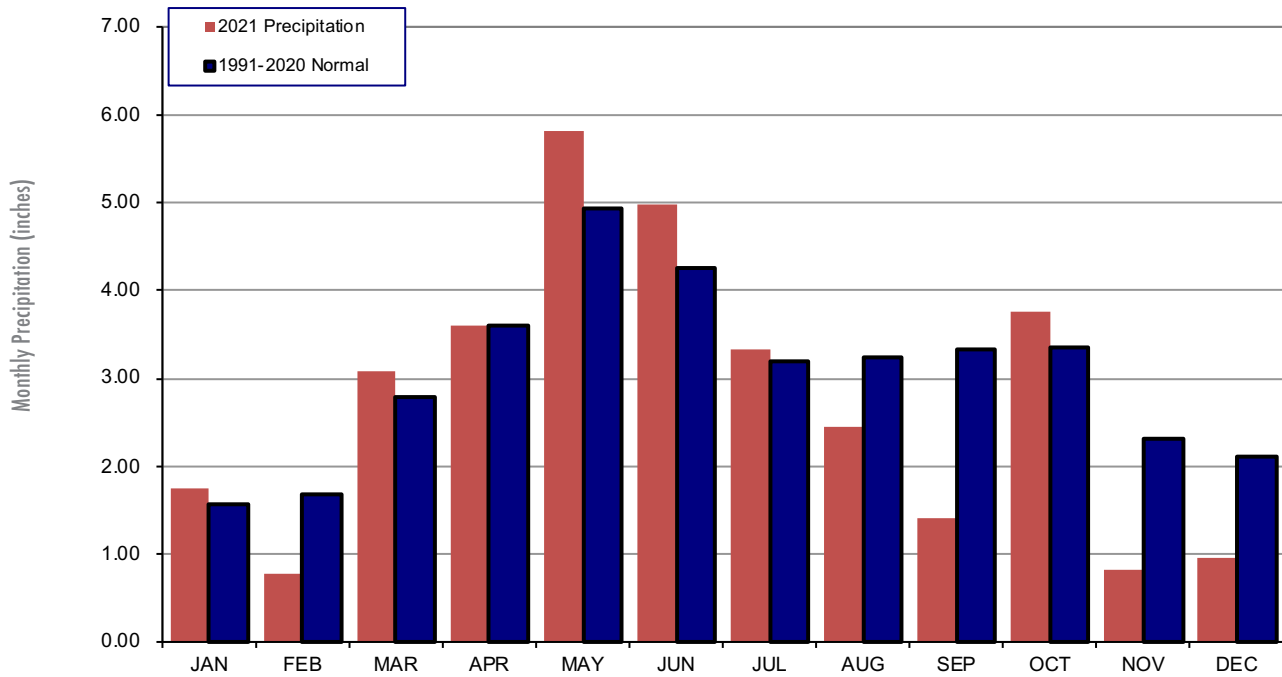
Departure from Average, December 2021

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# MESONET MONTHLY SUMMARY FOR DECEMBER 2021

NAME	MEAN TEMP	HIGH TEMP	LOW DAY	LOW TEMP	DAY	HDD	CDD	TOT PPT	HIGH 24-HR	DAY	NAME	MEAN TEMP	HIGH TEMP	LOW DAY	LOW TEMP	DAY	HDD	CDD	TOT PPT	HIGH 24-HR	DAY
<b>PANHANDLE</b>																					
Arnett	48.3	83	14	9	19	520	2	.02	.02	28	Goodwell	44.1	77	14	13	20	649	0	.00	.00	1
Beaver	44.0	81	14	8	19	651	0	.00	.00	1	Hooker	42.8	79	14	7	19	689	0	.00	.00	1
Boise City	42.5	76	2	8	11	698	0	.00	.00	1	Kenton	41.9	77	5	10	11	717	0	.00	.00	1
Buffalo	44.7	81	2	4	19	630	0	.00	.00	1	Slapout	46.9	80	2	14	19	560	0	.00	.00	1
Eva	42.0	77	2	9	29	714	0	.00	.00	1											
<b>NORTH CENTRAL</b>																					
Alva	****	***	***	***	***	****	****	****	****	***	May Ranch	46.4	80	15	15	19	576	0	.00	.00	1
Blackwell	46.1	81	24	8	19	587	0	.03	.02	15	Medford	45.5	80	24	7	19	606	0	.01	.01	28
Breckinridge	46.6	81	24	6	19	****	****	.01	.01	10	Newkirk	47.2	80	24	14	19	550	0	.24	.12	28
Cherokee	45.3	82	24	5	19	611	0	.00	.00	1	Red Rock	48.8	82	24	11	19	507	4	.36	.21	15
Fairview	48.3	81	26	8	19	520	2	.00	.00	1	Seiling	47.4	83	26	6	19	546	1	.01	.01	28
Freedom	46.4	82	15	7	19	577	0	.00	.00	1	Woodward	48.7	83	14	13	19	509	4	.01	.01	28
Lahoma	46.6	80	24	10	19	572	0	.00	.00	1											
<b>NORTHEAST</b>																					
Bixby	52.0	80	24	26	20	413	9	2.65	1.55	5	Pawnee	50.3	82	24	14	19	462	7	.55	.35	28
Burbank	48.3	83	24	11	19	518	1	.52	.35	28	Porter	52.6	78	2	26	7	****	****	4.19	2.47	17
Copan	49.1	80	24	23	21	495	2	.85	.49	15	Pryor	50.2	78	15	22	20	461	4	2.25	.90	15
Foraker	48.0	83	24	14	19	526	0	.83	.61	28	Skiatook	51.4	80	24	23	19	428	6	.55	.35	15
Inola	50.8	77	15	24	7	448	8	2.28	.87	17	Talala	49.7	78	15	22	21	477	2	.80	.32	15
Jay	51.1	76	2	25	20	433	2	3.60	1.23	5	Tulsa	52.0	78	24	25	19	410	7	1.34	.48	5
Miami	49.4	76	26	25	22	485	0	1.87	.76	15	Vinita	48.7	77	26	21	21	505	0	1.54	.85	15
Nowata	48.6	77	24	20	21	510	3	1.59	.87	15	Wynona	50.0	82	24	16	19	469	6	.73	.39	15
<b>WEST CENTRAL</b>																					
Bessie	50.5	81	5	11	19	451	2	.01	.01	10	Erick	48.6	84	26	8	19	508	1	.00	.00	1
Butler	48.7	82	15	4	19	505	0	.00	.00	1	Putnam	48.9	80	26	14	19	499	0	.00	.00	1
Camargo	46.7	83	26	3	19	568	0	.01	.01	28	Watonga	50.0	78	5	14	19	466	0	.02	.02	10
Cheyenne	50.9	81	15	17	19	438	2	.00	.00	1	Weatherford	50.0	80	5	15	19	466	1	.01	.01	10
Elk City	50.0	84	26	14	19	466	0	.00	.00	1											
<b>CENTRAL</b>																					
Acme	52.2	82	24	9	19	405	8	.22	.16	31	Norman	52.1	81	24	15	19	411	10	.22	.18	31
Bristow	51.0	81	24	19	19	446	12	1.38	.65	5	Oilton	50.5	80	24	13	19	459	9	.35	.18	31
Lake Carl Blac	48.1	82	24	9	19	527	4	.29	.19	28	OKC East	51.8	79	10	13	19	420	10	.18	.18	31
Chandler	52.3	81	24	16	19	404	12	.67	.30	31	Okemah	51.9	79	10	22	19	415	9	1.56	1.25	17
Chickasha	50.5	82	10	11	19	462	11	.14	.10	31	Perkins	50.8	81	24	13	19	446	6	.24	.13	28
El Reno	48.6	79	5	6	19	509	1	.21	.12	31	Seminole	52.7	81	2	20	19	394	12	1.17	.97	17
Guthrie	51.1	79	10	11	19	439	9	.12	.07	28	Shawnee	52.1	79	10	18	19	407	9	.66	.42	17
Kingfisher	48.5	80	24	8	19	513	3	.14	.12	28	Spencer	52.4	79	24	13	19	400	9	.20	.18	31
Marena	50.4	82	24	14	19	458	6	.28	.22	28	Stillwater	49.7	83	24	13	19	480	7	.31	.17	28
Minco	50.8	80	10	14	19	443	5	.23	.20	31	Washington	52.4	83	10	16	19	400	11	.48	.30	31
Marshall	48.3	82	24	8	19	523	6	.23	.22	28	Yukon	50.8	80	10	12	19	446	7	.20	.19	31
<b>EAST CENTRAL</b>																					
Cookson	52.5	76	2	25	21	395	7	4.26	3.06	17	Sallisaw	52.2	79	10	24	12	402	5	4.10	2.52	17
Eufaula	54.1	78	10	27	20	351	12	2.21	1.72	17	Stigler	53.0	79	10	23	12	386	13	4.04	2.54	17
Haskell	52.0	79	15	25	20	416	13	3.70	1.95	17	Stuart	53.7	79	10	24	19	360	10	2.18	1.59	17
Hectorville	53.2	79	24	24	19	379	14	1.29	.44	5	Tahlequah	51.9	76	3	25	19	415	8	3.91	2.32	17
Holdenville	53.0	79	10	20	19	382	10	1.94	1.64	17	Webbers Falls	51.7	79	10	21	12	425	13	2.72	2.01	17
McAlester	53.7	79	10	24	12	362	13	2.59	2.06	17	Westville	51.9	75	3	26	21	411	5	3.39	2.25	17
Okmulgee	52.4	79	2	23	7	403	13	2.32	1.76	17											
<b>SOUTHWEST</b>																					
Altus	51.6	86	26	13	19	419	4	.08	.08	31	Hollis	50.7	86	26	13	19	447	3	.06	.06	31
Apache	51.1	80	15	13	19	435	5	.12	.07	31	Mangum	48.9	85	26	6	19	499	1	.07	.07	31
Fort Cobb	50.2	80	10	12	19	458	1	.24	.16	31	Medicine Park	53.7	81	24	20	19	355	6	.27	.17	31
Grandfield	53.1	89	24	20	19	380	13	.57	.23	17	Tipton	51.7	85	24	12	19	418	6	.14	.08	31
Hinton	49.5	78	5	10	19	482	2	.49	.36	28	Walters	52.6	88	24	18	19	392	8	.53	.28	29
Hobart	49.9	82	5	12	19	467	0	.09	.08	31											
<b>SOUTH CENTRAL</b>																					
Ada	53.4	82	2	21	19	370	11	3.04	2.89	17	Lane	54.2	80	10	22	12	346	12	1.36	.73	18
Ardmore	55.4	82	10	22	19	309	12	.23	.12	29	Madill	55.6	81	2	22	19	305	15	.29	.17	17
Burneyville	54.8	83	2	19	19	335	18	.20	.14	31	Newport	55.2	83	2	20	19	315	11	.17	.10	29
Byars	54.1	82	24	19	19	350	12	1.09	.88	17	Pauls Valley	53.2	83	10	19	19	377	12	1.06	.86	17
Centrahoma	53.6	81	10	22	19	365	12	1.64	1.43	17	Ringling	54.9	84	10	21	19	327	12	1.30	1.20	17
Durant	56.8	81	9	25	12	274	21	2.39	1.75	31	Sulphur	53.1	81	10	21	19	378	9	1.87	1.68	17
Fittstown	53.5	80	2	20	19	365	8	1.49	1.36	17	Tishomingo	53.6	80	10	19	12	363	8	.56	.42	17
Ketchum Ranch	53.3	84	10	19	19	372	8	.84	.59	17	Waurika	54.5	87	24	19	19	342	17	.64	.44	17
<b>SOUTHEAST</b>																					
Antlers	54.4	80	10	20	12	341	12	3.52	2.02	31	Mt Herman	54.5	77	25	24	12	336	10	4.13	1.16	18
Broken Bow	55.2	81	25	22	12	320	16	2.31	1.00	18	Talihina	54.5	77	10	19	12	338	13	2.27	.84	18
Clayton	53.9	77	10	19	12	353	9	2.22	1.01	18	Valliant	56.5	81	25	20	12	295	31	1.77	.85	18
Cloudy	54.7	78	25	19	12	327	9	2.93	1.43	31	Wilburton	53.7	79	10	21	12	361	12	3.06	2.00	17
Hugo	56.7	81	25	24	12	285	27	1.67	.68	18	Wister	52.8	78	10	20	12	392	13	2.74	.99	18
Idabel	56.6	81	25	20	12	294	33	1.77	.85	18											

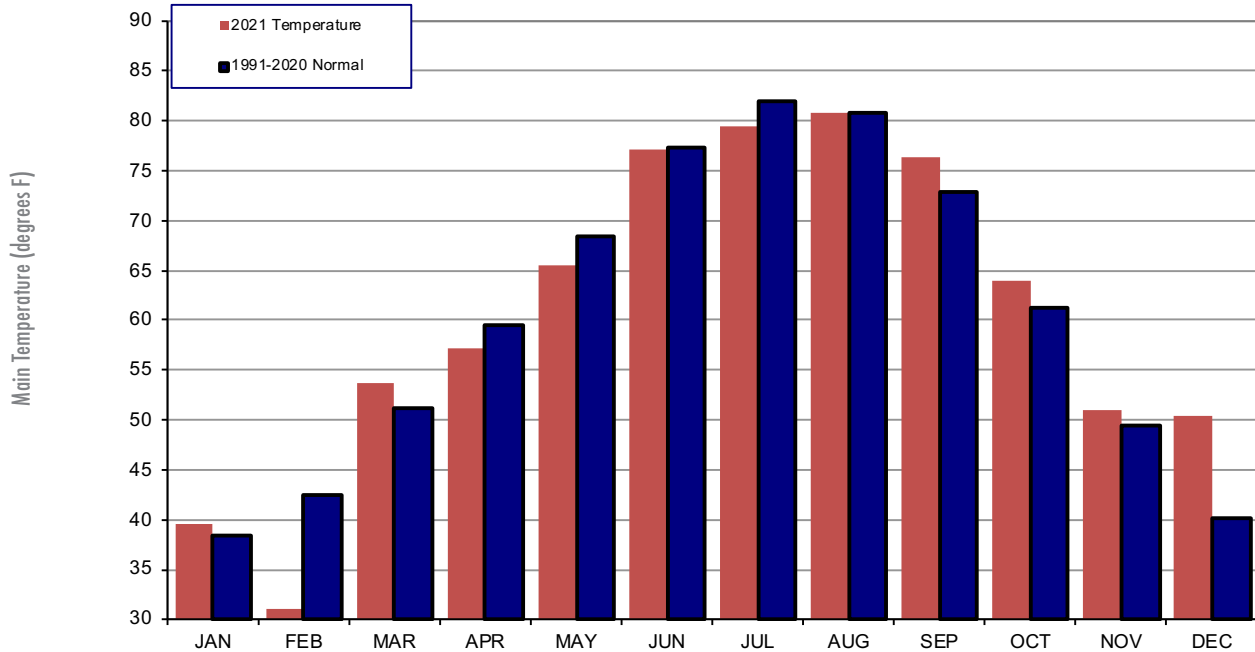
## 2021 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



### December 2021 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Dec-20 (inches)
Panhandle	0.00	-0.84	2nd Driest	3.28 (2006)	0.00 (1976)	1.04
North Central	0.06	-1.29	5th Driest	3.59 (1984)	0.01 (1950)	2.07
Northeast	1.46	-0.80	55th Driest	7.61 (1895)	0.14 (1950)	2.51
West Central	0.01	-1.26	3rd Driest	4.04 (1911)	0.00 (1908)	1.83
Central	0.43	-1.54	19th Driest	6.45 (1984)	0.03 (1908)	2.54
East Central	2.97	-0.16	42nd Wettest	11.09 (2015)	0.20 (1917)	3.32
Southwest	0.24	-1.19	21st Driest	5.65 (1911)	0.00 (1908)	1.74
South Central	1.14	-1.58	35th Driest	6.97 (1991)	0.06 (1917)	1.86
Southeast	2.58	-1.67	50th Driest	12.32 (2015)	0.19 (1917)	3.75
Statewide	0.95	-1.16	34th Driest	5.54 (2015)	0.09 (1950)	2.28

## 2021 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



### December 2021 Mesonet Temperature Comparison

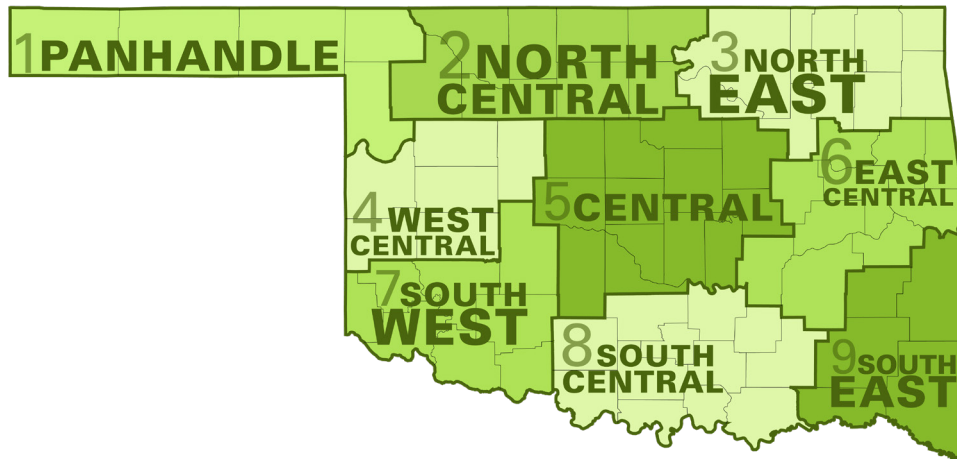
Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Dec-20 (F)
Panhandle	44.1	8.2	1st Warmest	42.1 (1933)	22.6 (1983)	36.3
North Central	46.8	9.3	1st Warmest	42.9 (1965)	21.5 (1983)	38.4
Northeast	50.0	10.8	1st Warmest	44.9 (1965)	23.6 (1983)	40.3
West Central	49.4	10.6	1st Warmest	44.1 (1965)	24.1 (1983)	39.9
Central	50.9	10.3	1st Warmest	46.0 (1965)	25.5 (1983)	41.5
East Central	52.7	10.9	1st Warmest	48.1 (1933)	27.6 (1983)	42.4
Southwest	51.2	9.8	1st Warmest	46.6 (1965)	27.4 (1983)	43.1
South Central	54.3	11.1	1st Warmest	48.4 (1933)	29.4 (1983)	44.3
Southeast	54.9	11.7	1st Warmest	49.7 (1984)	30.4 (1983)	43.1
Statewide	50.4	10.3	1st Warmest	45.1 (1965)	25.7 (1983)	41.0



## MESONET EXTREMES FOR DECEMBER 2021

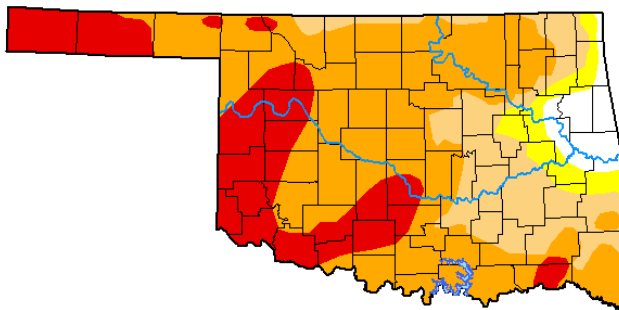
Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	83	14th	Arnett	4	19th	Buffalo	0.02	Arnett	0.02	28th	Arnett
North Central	83	26th	Seiling	5	19th	Cherokee	0.36	Red Rock	0.21	15th	Red Rock
Northeast	83	24th	Burbank	11	19th	Burbank	3.60	Jay	1.55	5th	Bixby
West Central	84	26th	Elk City	3	19th	Camargo	0.02	Watonga	0.02	10th	Watonga
Central	83	10th	Washington	6	19th	El Reno	1.56	Okemah	1.25	17th	Okemah
East Central	79	10th	McAlester	20	19th	Holdenville	4.26	Cookson	3.06	17th	Cookson
Southwest	89	24th	Grandfield	6	19th	Mangum	0.57	Grandfield	0.36	28th	Hinton
South Central	87	24th	Waurika	19	19th	Byars	3.04	Ada	2.89	17th	Ada
Southeast	81	25th	Hugo	19	12th	Talihina	4.13	Mt Herman	2.02	31st	Antlers
Statewide	89	24th	Grandfield	3	19th	Camargo	4.26	Cookson	3.06	17th	Cookson

Oklahoma Climate Divisions



# U.S. Drought Monitor Oklahoma

**December 28, 2021**  
(Released Thursday, Dec. 30, 2021)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	4.92	95.08	90.17	72.51	22.62	0.00
<b>Last Week</b> 12-21-2021	9.90	90.10	79.18	43.68	8.83	0.00
<b>3 Months Ago</b> 09-28-2021	6.45	93.55	73.23	23.72	2.65	0.00
<b>Start of Calendar Year</b> 12-29-2020	56.83	43.17	25.21	7.75	1.45	0.00
<b>Start of Water Year</b> 09-28-2021	6.45	93.55	73.23	23.72	2.65	0.00
<b>One Year Ago</b> 12-29-2020	56.83	43.17	25.21	7.75	1.45	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>

Author:  
Brad Pugh  
CPC/NOAA



[droughtmonitor.unl.edu](https://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 differs 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](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/>



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