## Oklahoma Monthly Climate Summary

# **OCTOBER 2021**



Oklahomans are growing accustomed to Mother Nature's October weather shenanigans following a snowstorm of up to 13 inches in 2019 and a crippling ice storm in 2020. A spring severe weather motif was chosen for October 2021 with at least 31 tornadoes touching down during the month, besting the previous October record total of 27 set back in 1998. That preliminary total also surpasses the 25 twisters tallied during the first nine months of the year. While most of the tornadoes were considered weak-rated EF0 or EF1 on the Enhanced Fujita Scale—they were damaging, nonetheless. Oct. 10 was the most active day with 17 confirmed tornadoes along the Interstate 44 corridor. The most intense twister, rated an EF2, touched down near Anadarko and created "substantial" damage throughout the town according to Anadarko city officials. Two EF1 twisters struck Coweta and Webbers Falls later that night and damaged numerous homes and businesses, as well as Coweta High School.

#### **October 2021 Statewide Extremes**

Description	Extreme	Station	Day
High Temperature	102°F	Freedom	9
Low Temperature	26°F	Eva	16
High Precipitation	8.83 in.	Cookson	
Low Precipitation	0.36 in.	Kenton	

Severe winds and large hail were also guite fierce that evening. Norman was hit with hail up to the size of baseballs that caused significant damage to a large swath of the city. It was Norman's second disastrous hailstorm in 6 months. Another severe weather outbreak struck the evening of the 12th overnight into the 13th, producing another 13 tornadoes which were also accompanied by large hail and severe winds. These tornadoes traversed southwest through central Oklahoma, damaging houses and businesses along the way. The month's final tornado struck northeast Norman just after midnight on Oct. 27, damaging trees, fences and homes. The preliminary total for the year now stands at 56. The annual average for Oklahoma is 57.2 tornadoes based off of 1950-2020 data. Non-thunderstorm related winds buffeted the state on Oct. 28. Fifty-seven of the Mesonet's 120 sites recorded wind gusts of at least 50 mph. The site at May Ranch in northern Woods County reported a gust of 74 mph that afternoon.

The statewide average rainfall total of 3.76 inches was 0.4 inches above normal and ranked as the 37th wettest October since records began in 1895. Totals of 4-8 inches were common across central and eastern Oklahoma, as well as parts of the southwestern corner to the state. Several areas across western Oklahoma failed to eclipse the 2-inch mark, however. The Mesonet site at Cookson led the state with 8.82 inches while the site at Kenton had the low end of the sites at 0.36 inches. Fifty-eight Mesonet sites recorded at least 4 inches for the month, and another 18 reported at least 3 inches. The statewide average for the first 10 months of the year was 31.51 inches, 0.42 inches below normal and ranked as the 47th wettest January-October on record.

Summer seemed reluctant to give way to fall during October. Triple-digit temperatures occurred as late as October 9, and Hollis reached 92 degrees on the 26th. The statewide

#### **October 2021 Statewide Statistics**

#### Temperature

	Average	Depart.	Rank (1895-2021)
Month (October)	64°F	2.7°F	22nd Warmest
Season-to-Date (Sept-Oct)	70.2°F	3.2°F	12th Warmest
Year-to-Date (Jan-Oct)	63°F	-0.6°F	61st Coolest

## Precipitation

	Total	Depart.	Rank (1895-2021)
Month (October)	3.76 in.	0.40 in.	37th Wettest
Season-to-Date (Sept-Oct)	4.89 in.	-1.79 in.	42nd Driest
Year-to-Date (Jan-Oct)	31.51 in.	-0.42 in.	47th Wettest

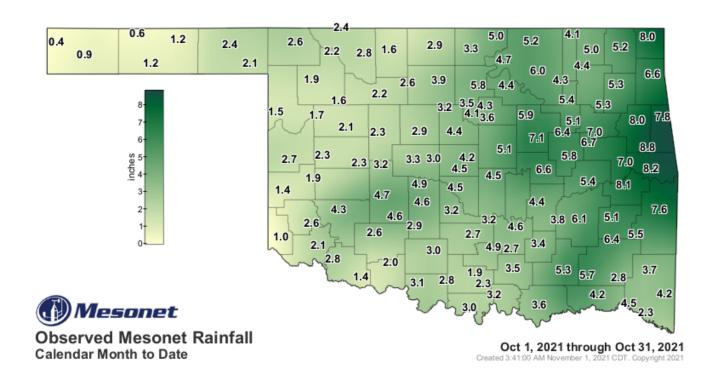
Depart. = departure from 30-year normal

average temperature finished at 64 degrees, 2.7 degrees above normal and ranked as the 22nd warmest October on record. The highest temperature of the month, 102 degrees, was recorded at Freedom on Oct. 9, one of five sites to reach at least 100 degrees on that date. The first freeze of the fall season occurred at Eva on Oct. 14 with a low of 32 degrees. The lowest temperature of the month was 26 degrees at Eva

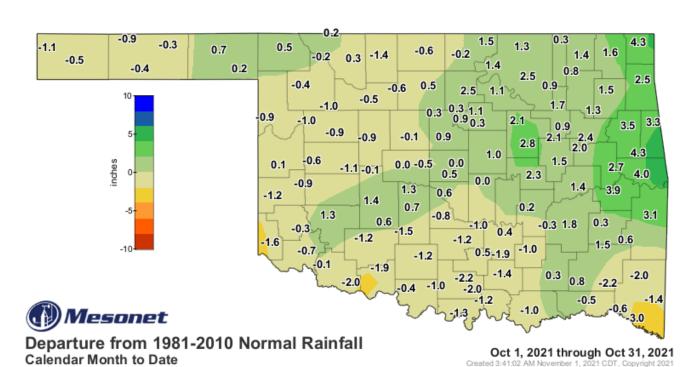
on the 16th. The first 10 months of the year ranked as the 61st coolest on record at 63 degrees, 0.6 degrees below normal.

The flash drought that had surged across the state during September was greatly diminished during October, dropping from 73% to just under 41% throughout the month according to the U.S. Drought Monitor. However, an additional 54% of the state remained under abnormally dry conditions according to the report. The Climate Prediction Center's November outlooks indicate increased odds for above normal temperatures across the entire state, and below normal precipitation across southwestern Oklahoma and the western Panhandle. CPC's November drought outlook sees drought persisting through the month where it is already established, but also developing across all the remaining western twothirds of the state.

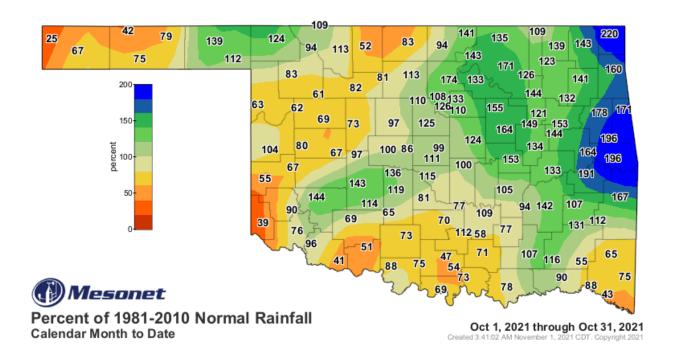
## **OCTOBER 2021 OBSERVED PRECIPITATION**



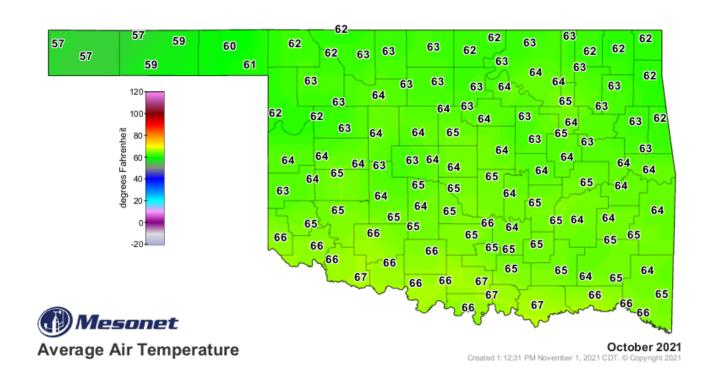
## **OCTOBER 2021 DEPARTURE FROM NORMAL PRECIPITATION**



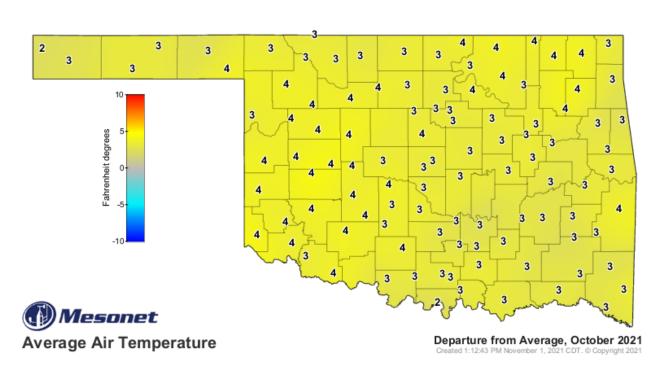
## **OCTOBER 2021 PERCENT OF NORMAL PRECIPITATION**



## **OCTOBER 2021 AVERAGE TEMPERATURE**



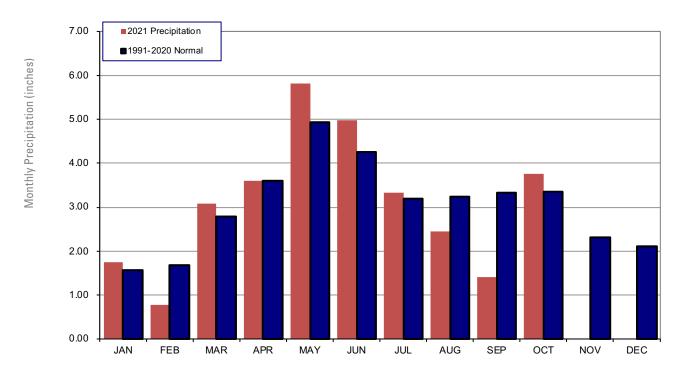
## **OCTOBER 2021 DEPARTURE FROM NORMAL TEMPERATURE**



## **MESONET MONTHLY SUMMARY FOR OCTOBER 2021**

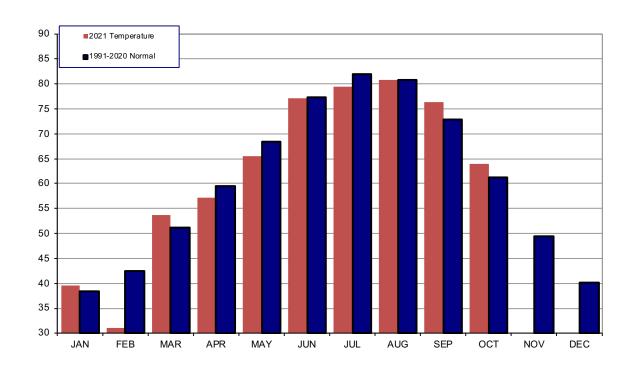
NAME	MEAN TEMP			LOW TEMP	DAY	HDD	CDD		HIGH 24-HR	DAY	NAME	MEAN TEMP			LOW TEMP	DAY	HDD	CDD		HIGH 24-HR	DAY
PANHANDLE Arnett Beaver Boise City Buffalo Eva	62.7 61.3 57.3 63.0 58.1	98 96 90 100 95	9 9 9 9	32 29 29 32 26	16 16 16 30 16	129 157 255 127 237	59 42 15 64 23	1.51 2.44 .92 2.62 .61	.71 1.22 .61 1.27 .27	1 12 1 12 1	Goodwell Hooker Kenton Slapout	60.4 60.4 56.7 62.3	94 97 89 97	9 9 9	29 31 27 33	16 30 16 16	184 178 268 139	41 36 12 54	1.17 1.23 .36 2.06	.76 .45 .21 .92	10 10 10 12
NORTH CENTRAL Alva Blackwell Breckinridge Cherokee Fairview Freedom Lahoma	63.1 62.5 63.3 63.2 64.7 63.3 63.6	100 96 97 97 97 102 95	9 8 8 9 9	35 31 33 33 35 32 39	30 30 30 30 30 16 30	120 135 123 123 89 119 114	60 58 70 66 78 67 72	2.78 3.28 3.91 1.56 2.16 2.19 2.57	1.11 1.30 2.03 .70 .67 .90	26 10 10 10 13 26 10	May Ranch Medford Newkirk Red Rock Seiling Woodward	62.9 63.1 63.0 63.7 63.2 63.8	99 96 94 96 97 101	9 9 8 8 9	39 34 36 33 31 34	16 30 30 30 30 30	121 122 124 113 119 107	57 63 61 72 63 70	2.36 2.88 5.03 5.79 1.59	1.24 .97 2.01 1.67 .55	13 13 10 10 13 13
NORTHEAST Bixby Burbank Copan Foraker Inola Jay Miami Nowata	64.2 63.0 63.1 63.3 62.2 62.1 62.3	93 95 91 92 92 89 90	9 8 8 8 8 9 9	35 31 33 36 34 34 35 32	30 30 30 30 30 30 30 30	112 127 123 121 126 155 150 146	85 66 63 67 74 67 61 62	5.12 4.73 4.10 5.17 5.27 6.58 7.95 4.97	1.36 1.58 1.15 1.28 1.07 1.92 1.92	13 11 10 27 10 28 28 13	Pawnee Porter Pryor Skiatook Talala Tulsa Vinita Wynona	64.3 64.3 63.1 64.2 63.4 65.1 62.5 63.9	94 92 92 90 93 92 93	8 9 8 9 9 8 9	33 39 34 36 36 39 33	30 30 30 30 30 30 30 30	**** 107 134 103 120 96 147 107	**** 87 74 78 71 99 69 74	4.42 7.04 5.29 4.34 4.37 5.40 5.18 6.03	1.03 2.14 1.32 1.20 1.54 1.53 1.54 2.22	10 10 27 13 13 2 13
WEST CENTRAL Bessie Butler Camargo Cheyenne Elk City	65.7 64.0 62.6 64.5 64.8	96 98 98 95 97	8 8 8 9	38 31 31 40 38	30 30 30 16 16	**** 109 127 95 85	**** 78 52 80 79	.67 2.34 1.69 2.65 1.87	.44 1.20 .63 .95 .72	2 13 13 13 13	Erick Putnam Watonga Weatherford	63.8 63.7 64.9 65.1	97 95 95 96	9 8 8 8	32 37 42 37	30 16 30 16	113 107 84 88	75 67 82 91	1.43 2.06 2.32 2.26	.65 .95 .68	2 2 26 2
CENTRAL Acme Bristow Lake Carl Blac Chandler Chickasha El Reno Guthrie Kingfisher Marena Minco Marshall	64.8 63.2 62.8 64.6 64.7 63.1 64.9 64.4 64.7	95 93 94 92 97 95 94 95 96 94	8 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	33 32 30 35 32 33 34 34 35 40 33	30 30 30 30 30 30 30 30 30 30 30	98 120 130 88 97 120 94 103 99 90	91 65 61 76 89 62 90 86 79 82 73	2.85 7.13 3.45 5.05 4.60 3.30 4.41 2.90 4.10 4.92 3.18	1.03 2.14 1.35 1.23 1.89 1.24 1.38 1.27 1.23 1.38	13 15 10 2 10 10 2 10 10 10	Norman Oilton OKC East Okemah Perkins Seminole Shawnee Spencer Stillwater Washington Yukon	64.9 63.2 64.3 64.6 64.9 65.2 65.1 63.8 65.5 64.5	94 92 93 91 95 91 92 95 94	8 9 8 9 8 8 8 8 8 8 8 8	36 32 35 32 35 38 38 35 34 38	30 30 30 30 30 30 30 30 30 30 30	87 126 99 100 93 85 79 85 109 78	85 69 78 77 82 80 84 87 72 93 81	4.48 5.86 4.48 6.63 3.63 4.06 4.50 4.17 4.29 3.24 3.03	1.57 1.76 1.35 3.08 1.08 1.61 1.26 1.33 1.79 1.28	10 27 10 10 10 27 13 10 10 10
EAST CENTRAL Cookson Eufaula Haskell Hectorville Holdenville McAlester Okmulgee	63.4 65.0 63.4 65.1 65.4 65.0	94 92 93 93 91 92 93	9 9 9 9 8 9	36 37 36 36 38 34 35	30 30 30 30 30 30 30	135 90 121 92 77 92 117	87 90 73 96 91 93 73	8.83 5.43 6.65 6.38 4.39 6.12 5.78	2.56 1.48 2.50 2.21 1.53 3.74 2.82	13 27 10 15 13 13	Sallisaw Stigler Stuart Tahlequah Webbers Falls Westville	64.5 64.3 65.4 62.6 64.0 62.3	94 95 91 92 96 91	9 9 8 9 9	38 37 39 34 38 37	31 31 30 30 31 30	107 110 83 146 116 149	93 87 94 73 85 66	8.21 8.11 3.75 8.04 7.04 7.82	3.31 4.05 1.45 1.93 2.68 2.26	13 13 13 13 13 13
SOUTHWEST Altus Apache Fort Cobb Grandfield Hinton Hobart	66.5 65.3 64.6 67.6 64.2 65.5	99 95 96 100 95 97	8 8 8 8 8	36 40 35 39 36 36	30 30 30 30	70 80 92 59 101 84	117 89 80 141 76 101	2.07 4.56 4.72 1.35 3.21 4.28	.74 2.48 1.31 .51 1.00 1.62	2 10 10 13 10	Hollis Mangum Medicine Park Tipton Walters	66.2 65.1 67.1 66.6 66.6	100 97 95 98 96	9 8 8 8	37 32 45 37 38	16 30 30 30 30	70 92 54 70 65	94 118 121	1.01 2.55 2.57 2.83 1.95	.53 1.57 .92 .95	2 13 2
SOUTH CENTRAL Ada Ardmore Burneyville Byars Centrahoma Durant Fittstown Ketchum Ranch	64.8 67.1 66.3 66.0 65.1 67.6 65.0 66.4	92 93 93 92 92 92 91	8 8 8 8 9 9 8	35 38 33 38 32 38 37 36	30 30 30 30 30 30 30 30	86 53 71 66 84 48 77 69	81 120 111 98 87 128 77 111	4.59 2.29 2.97 3.17 3.38 3.55 2.67 3.03	1.80 1.23 1.71 1.46 1.56 1.88 1.23	27 27 13 27 13 13 13	Lane Madill Newport Pauls Valley Ringling Sulphur Tishomingo Waurika	65.5 66.7 67.2 65.4 67.0 65.0 65.7	91 93 94 92 92 92 91 95	9 8 8 8 9 8 8	36 33 37 35 35 31 37 36	30 30 30 30 30 30 30 30	76 61 54 75 63 84 69	91 115 122 89 124 85 90 125	5.33 3.22 1.93 2.72 2.82 4.94 3.45 3.05	2.89 1.79 1.21 1.05 1.55 2.31 1.84	27 27 10
SOUTHEAST Antlers Broken Bow Clayton Cloudy Hugo Idabel	65.0 65.9 64.8 65.1 66.6 66.4	91 91 93 91 91 92	9 9 9 9 9	37 37 36 38 40 37		83 74 92 88 62 76	82 101 88 91 113 119	5.70 4.17 6.40 2.75 4.20 2.29	2.81 1.18 3.52 1.23 1.48 .73	13 27 13 27 27 10	Mt Herman Talihina Valliant Wilburton Wister	65.0 65.2 66.4 64.6 64.3	90 93 93 93 94	9 9 9 9	38 35 37 35 36	30 30 30 30 31	93 94 72 98 111	92 100 117 84 90	3.65 5.46 4.51 5.10 7.62	1.31 3.12 1.20 2.88 3.79	27 13

## 2021 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



## **October 2021 Mesonet Precipitation Comparison**

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	Oct-20 (inches)
Panhandle	1.44	-0.41	56th Wettest	6.84 (1923)	0.03 (2001)	1.84
North Central	2.92	0.00	42nd Wettest	8.97 (1998)	0.00 (1952)	3.79
Northeast	5.37	1.60	23rd Wettest	14.98 (1941)	0.05 (1952)	4.64
West Central	2.08	-0.54	59th Wettest	9.57 (1923)	0.00 (1952)	2.25
Central	4.28	0.87	30th Wettest	13.34 (1941)	0.03 (1952)	3.90
East Central	6.66	2.43	20th Wettest	14.00 (1941)	0.15 (1963)	4.00
Southwest	2.83	0.06	44th Wettest	11.03 (1983)	0.00 (1952)	2.64
South Central	3.32	-0.68	64th Driest	14.83 (1981)	0.09 (1921)	2.08
Southeast	4.71	0.05	42nd Wettest	12.89 (1984)	0.20 (1924)	3.30
Statewide	3.76	0.40	37th Wettest	10.75 (1941)	0.14 (1952)	3.21



## **October 2021 Mesonet Temperature Comparison**

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	Oct-20 (F)
Panhandle	60.3	2.7	22nd Warmest	65.9 (1963)	50.1 (1925)	54.7
North Central	63.4	3.3	17th Warmest	68.9 (1963)	51.6 (1925)	56.7
Northeast	63.3	2.8	32nd Warmest	70.2 (1963)	53.9 (1925)	57.1
West Central	63.6	2.9	17th Warmest	68.5 (1963)	52.1 (1925)	57.2
Central	64.3	2.5	29th Warmest	70.2 (1963)	55.0 (2009)	59.0
East Central	64.2	2.2	36th Warmest	70.9 (1963)	55.5 (1976)	59.0
Southwest	65.9	3.0	17th Warmest	70.2 (1963)	55.4 (1925)	59.8
South Central	66.1	2.6	27th Warmest	71.0 (1963)	56.8 (1976)	60.2
Southeast	65.4	3.0	19th Warmest	69.8 (1963)	55.3 (1976)	60.3
Statewide	64.0	2.7	22nd Warmest	69.5 (1963)	54.6 (1925)	58.2

## **MESONET EXTREMES FOR OCTOBER 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	100	9th	Buffalo	26	16th	Eva	2.62	Buffalo	1.27	12th	Buffalo
North Central	102	9th	Freedom	31	30th	Blackwell	5.79	Red Rock	2.03	10th	Breckinridge
Northeast	95	8th	Burbank	31	30th	Burbank	7.95	Miami	2.22	10th	Wynona
West Central	98	8th	Camargo	31	30th	Camargo	2.65	Cheyenne	1.20	13th	Butler
Central	97	8th	Chickasha	30	30th	Lake Carl Blackwell	7.13	Bristow	3.08	10th	Okemah
East Central	96	9th	Webbers Falls	34	30th	McAlester	8.83	Cookson	4.05	13th	Stigler
Southwest	100	8th	Grandfield	32	30th	Mangum	4.72	Fort Cobb	2.48	10th	Apache
South Central	95	8th	Waurika	31	30th	Sulphur	5.33	Lane	2.89	13th	Lane
Southeast	94	9th	Wister	35	30th	Wilburton	7.62	Wister	3.79	13th	Wister
Statewide	102	9th	Freedom	26	16th	Eva	8.83	Cookson	4.05	13th	Stigler

## **Oklahoma Climate Divisions**



## U.S. Drought Monitor Oklahoma

## October 26, 2021

(Released Thursday, Oct. 28, 2021) Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4				
Current	5.05	94.95	40.74	10.90	0.77	0.00				
Last Week 10-19-2021	6.04	93.96	38.42	10.90	0.77	0.00				
3 Month s Ago 07-27-2021	91.45	8.55	1.13	0.00	0.00	0.00				
Start of Calendar Year 12-29-2020	56.83	43.17	25.21	7.75	1.45	0.00				
Start of Water Year 09-28-2021	6.45	93.55	73.23	23.72	2.65	0.00				
One Year Ago 10-27-2020	47.94	52.06	32.42	15.58	3.61	0.00				

Intensity:

None D2 Severe Drought D0 Abnormally Dry D3 Extreme Drought D1 Moderate 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

<u>Author:</u> Richard Heim NCEI/NOAA









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 is the State Climate Office for Oklahoma

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