Oklahoma Monthly Climate Summary

AUGUST 2014

OKLAHOMA CLIMATOLOGICAL SURVEY

August made a valiant effort to continue the unusually cool and remarkably wet conditions of June and July and place a final exclamation point on one of the more enjoyable Oklahoma summers in recent memory. Unfortunately, that message was lost during the month's final two weeks as the heat and dry weather of a normal Oklahoma summer found their way back to the state. According to preliminary data from the Oklahoma Mesonet, the mild first half and summery second half of the month combined to produce a statewide average temperature of 80.6 degrees, two-tenths of a degree above normal and the 57th coolest August since records began in 1895. Even that statistic was somewhat misleading, however, as the abundant moisture across eastern Oklahoma produced heat indices well into the triple-digits at times. The highest actual air temperature measured by the Mesonet was 105 degrees at several locations, certainly nothing out of the ordinary for August in Oklahoma. But the heat index often topped that mark, with Lane recorded a state-leading 112 degrees on August 8. The Mesonet recorded heat index values greater than 105 degrees 57 times during August. The climatological summer ended as the 26th coolest on record with a June-August average temperature of 78.7 degrees, nearly a degree below normal. The summer's highest temperature, 107 degrees, was recorded by the Mesonet at several locations during June and July.

August 2014 Statewide Extremes

Description	Extreme	Station	Day
High Temperature	105°F	Freedom (2), Grandfield	22, 24
Low Temperature	53°F	Boise City, Miami	26, 13
High Precipitation	4.10 in.	Porter	
Low Precipitation	0.10 in.	Okemah, Putnam	

Only a late-month storm system saved Oklahoma from one of its top-five driest Augusts on record. There were a few locations that recorded generous moisture amounts. The Mesonet site at Porter led the state with 4.1 inches and several other stations across northern Oklahoma reported more than 3 inches, but 50 Mesonet stations recorded less than an inch for the entire month. Okemah and Putnam brought up the rear with a tenth of an inch in each of their gauges during August. The statewide average precipitation total of 1.4 inches was half of the normal total for August and the 12th driest since records began in 1895. West central Oklahoma suffered through its third driest August on record with an average of 0.3 inches. The summer as a whole was still wetter than normal, however, with a statewide average of 11.4 inches, 1.6 inches above normal to rank as the 34th wettest on record. North central Oklahoma had a near miraculous recovery from a disastrous first five months of the year with its 11th wettest June-August on record, 4.5 inches above normal.

August 2014 Statewide Statistics

Temperature

	Average	Depart.	Rank (1895-2014)
Month (August)	80.6°F	0.2°F	57th Coolest
Season-to-Date (Jun-August)	78.7°F	-0.9°F	26th Coolest
Year-to-Date (Jan-August)	60.5°F	-1.4°F	15th Coolest

Precipitation

	Total	Depart.	Rank (1895-2014)
Month (August)	1.39 in.	-1.38 in.	12th Driest
Season-to-Date (Jun-August)	11.38 in.	1.61 in.	34th Wettest
Year-to-Date (Jan-August)	18.76 in.	-5.90 in.	21st Driest

Depart. = departure from 30-year normal

The drought relief that was so prevalent from late May through July dwindled along with the rains during August. The month's final U.S. Drought Monitor actually saw a slight increase in drought from the previous week as a result of the extended period of hot, dry weather. That final map portrayed approximately 49 percent of the state in at least severe drought, with 16 percent of that amount in the extreme-to-exceptional drought categories. The Drought Monitor's intensity scale slides from moderate-severe-extreme-exceptional, with exceptional being the worst classification. The worst of the drought remained from

southwestern through northwestern Oklahoma. Roughly 29 percent of the state, mostly across southeastern Oklahoma, was considered to be free of any abnormally dry conditions.

AUGUST 2014 DAILY SUMMARIES

AUGUST 1-6: August welcomed Oklahoma residents with climbing temperatures, very little rain, and dense fog in north-central and southeast Oklahoma. The most precipitation any city saw during this time was .30 inches from isolated storms in Sallisaw on the 2nd and .25 inches in Vinita on the 6th. The warmest maximum temperatures escalated from 91 degrees in Buffalo on the 1st to 102 degrees in Grady and Hollis by the 6th. The coolest maximum temperatures reported during this stretch increased from 74 degrees in Mt. Herman to 90 degrees in central and eastern parts of the state. Minimum temperatures started out between 57 and 68 degrees, but eventually measured between 58 and 77 degrees. The highest daily average wind speeds increased from 7mph to 16mph from the 1st through the 6th.

AUGUST 7-10: The combination of triple digit temperatures and rain made for some muggy conditions. Despite a cold front stalled across the region, temperatures remained warm. The highest temperatures in the state were in the low 100s each day and the lowest highs hovered around the mid-80s. Lows averaged from the low 60s to the mid- 70s. Moving along a cold front, storms dropped a sufficient amount of rain in parts of north-central and northeast Oklahoma. Daily maximum rainfall amounts measured 2.21 inches in Newkirk on the 7th, 1.82 inches in Stillwater on the 8th, 2.12 inches in Pawnee on the 9th, and .76 inches in Porter on the 10th. Average daily wind speeds were generally less than 12mph, but wind gusts in the 50s were reported in Pryor, Buffalo, Alva, Oilton, and Boise City.

AUGUST 11: More showers and thunderstorms moved through south-central and southeastern Oklahoma due to a passing cold front. Although most rain-fed areas received less than a quarter of an inch, Lane managed a hefty 1.94 inches. Maximum temperatures were anywhere between 82 degrees in Boise City and 98 degrees in Grady. Minimum temperatures were between 59 degrees in Kenton and 74 degrees in Walters. The highest wind gust in the state was 40mph in Lane and average wind speeds were less than 10mph.

AUGUST 12-15: Due to high pressure over the region, a warming trend ensued with high maximum temperatures increasing from the upper 90s to the lower 100s. The coolest maximum temperatures occurred in the east and stayed in the 80s. Low temperatures were sandwiched between 53 degrees in Miami and 76 degrees in Beaver. Skies were rain-free except for a few light showers that dropped less than one-tenth of an inch in portions of northern OK and .27 inches in Seiling on the 15th. The highest daily average wind speeds increased from 10mph in Boise City on the 12th to 18mph in Freedom on the 15th.

AUGUST 16-18: Showers and thunderstorms moved through the state with some of them becoming severe in northern Oklahoma on the 16th. These storms continued on the following two days, spreading over southern OK on the 17th and north and central OK on the 18th. Most Mesonet sites measured less than one-tenth of an inch on the 16th and 17th, but Copan measured 1.66 inches on the 16th and quite a few sites measured between half an inch and 1.63 inches (Lake Carl Blackwell) on the 18th. Maximum temperatures stayed between the mid-80s and low 100s while minimum temperatures averaged between the low 60s and mid-70s. A couple fairly strong wind gusts occurred on the 18th with Wister experiencing a gust of 63mph and Hooker measuring a gust of 60mph. Wind speed averages were less than 11mph on the 16th and 17th, and less than 15mph on the 18th.

AUGUST 19: There was a slight pause in rainfall despite a lingering shower that produced .16 inches of rain in Burbank. Highs ranged from 90 degrees in Mt. Herman to 100 degrees in Hooker, which was a minor cool down from the previous day's maximum high of 104 degrees. Lows ranged from 59 degrees in Boise City to 75 degrees in Eufaula. Average wind speeds were 5-14mph.

AUGUST 20: Despite a few showers developing in the southern half of the state, most areas remained dry with less than one-tenth of an inch of rain. The highest amounts of precipitation observed were .36 inches in Bowlegs and .32 inches in Ada. Maximum temperatures were anywhere between 89 degrees in Jay to 102 degrees in Grady. Minimum temperatures were between 64 degrees in Boise City and 78 degrees in Walters and Burneyville. Average wind speeds ranged from 5-20mph.

AUGUST 21-25: Rain took another hiatus during this period with only.26 inches falling in Slapout and .14 inches falling in Kenton on the 22nd. Hot temperatures became ever so familiar as the highest maximums consistently fluctuated between 104 and 105 degrees. Few cities escaped the heat as even the lowest maximums wavered in the low 90s. Minimum temperatures were generally between the low 60s and upper 70s. The only outliers that got below 60 degrees were Kenton (58°), Goodwell (59°), and Boise City (°59) on the 24th. A gust of 69mph was reported with the brief thunderstorms in Slapout on the 22nd. Daily wind speeds averaged less than 17mph from the 21st-24th and less than 13mph on the 25th.

AUGUST 26-29: This period was characterized by rain showers, thunderstorms, and cooling temperatures. The showers and storms were primarily confined to the west and northwest portions of the state, except for areas in southern and

north-central Oklahoma on the 29th. The maximum daily rainfall amounts were 1.18 inches in Kenton on the 26th, 2.10 inches in Slapout on the 27th, 1.53 inches in Grady on the 28th, and .93 inches in Wister on the 29th. Flooding was reported in Beaver on the 27th with a Mesonet rain gauge measurement of .90 inches. The highest maximum temperatures dwindled from 102 degrees in the southwest to 93 degrees in Erick by the end of this period. Low maximum temperatures dropped from 91 degrees in Mt. Herman and Boise City to 82 degrees in Minco and Apache. The range of low temperatures fell from 61-78 degrees to 53-73 degrees. The highest wind gusts during these wet four days were 52mph in Beaver (27th) and 54mph in Woodward and Alva (28th). Average wind speeds were less than 13mph on the 26th, less than 14mph on the 27th and 28th, and less than 11mph on the 29th.

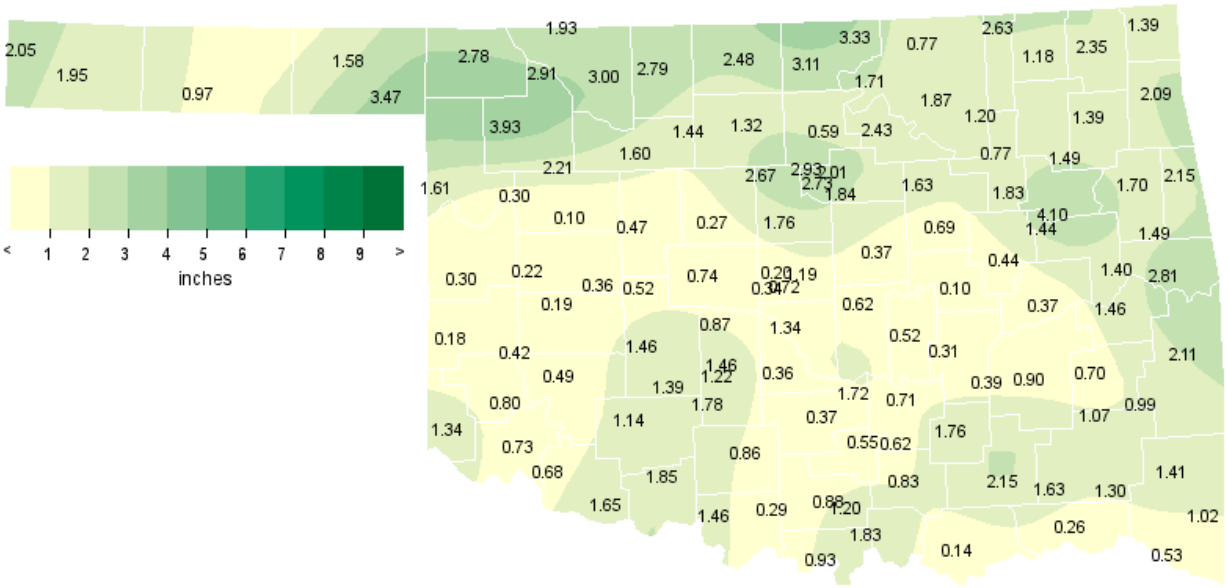
AUGUST 30-31: Temperatures managed to end on a high note for August. The warmest reported temperatures were 99 degrees in Butler on the 30th and a blustery 105 degrees in Hooker on the 31st. The lowest maximum temperature was 87 degrees in Wister, Westville, and Webbers Falls on the 27th, and 89 degrees in Westville and Mt. Herman on the 31st. Minimum temperatures ranged from 57 degrees in Goodwell and Seiling to 75 degrees in Guthrie and the Oklahoma City North Mesonet station. Scattered showers and thunderstorms moved through eastern and north-central Oklahoma on Saturday, but dissipated by Sunday. Most areas received less than one-tenth of an inch of rain, however, Sallisaw received 1.33 inches, Porter received .50 inches, and McAlester and Stigler measured just under one-half of an inch on the 30th. Although average wind speeds were less than 12mph on the 30th, they were breezy by the 31st with the highest average wind speeds measuring 21mph in the panhandle.

AUGUST 2014 SEVERE WEATHER

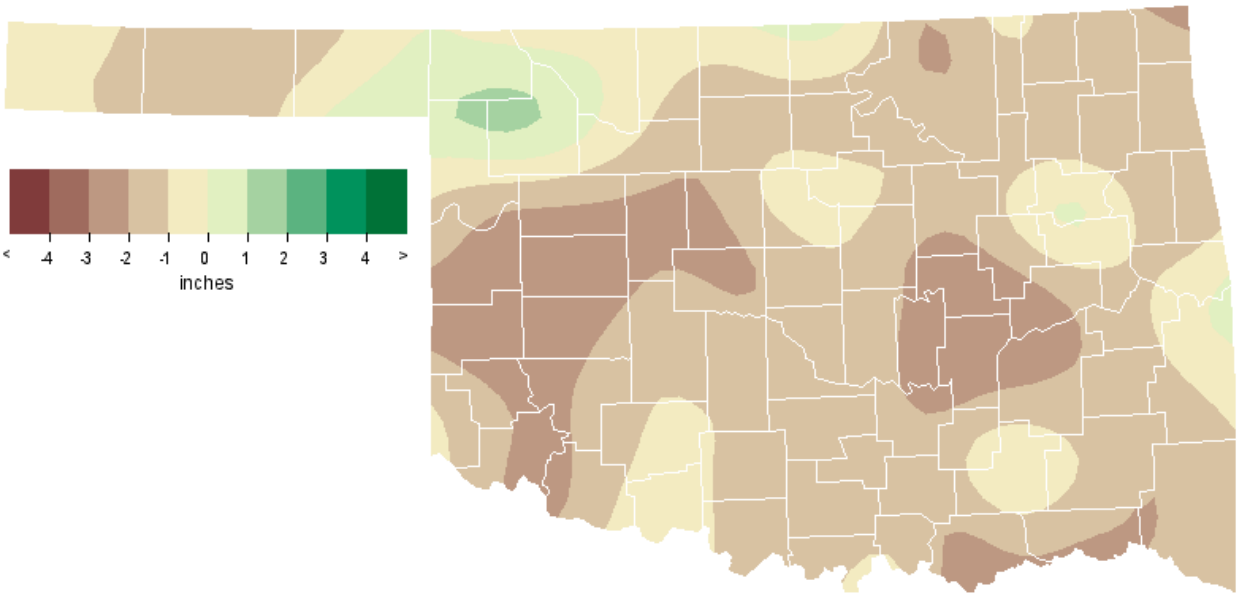
Flooding

Location	County	Day
10 SE Beaver	Beaver	27

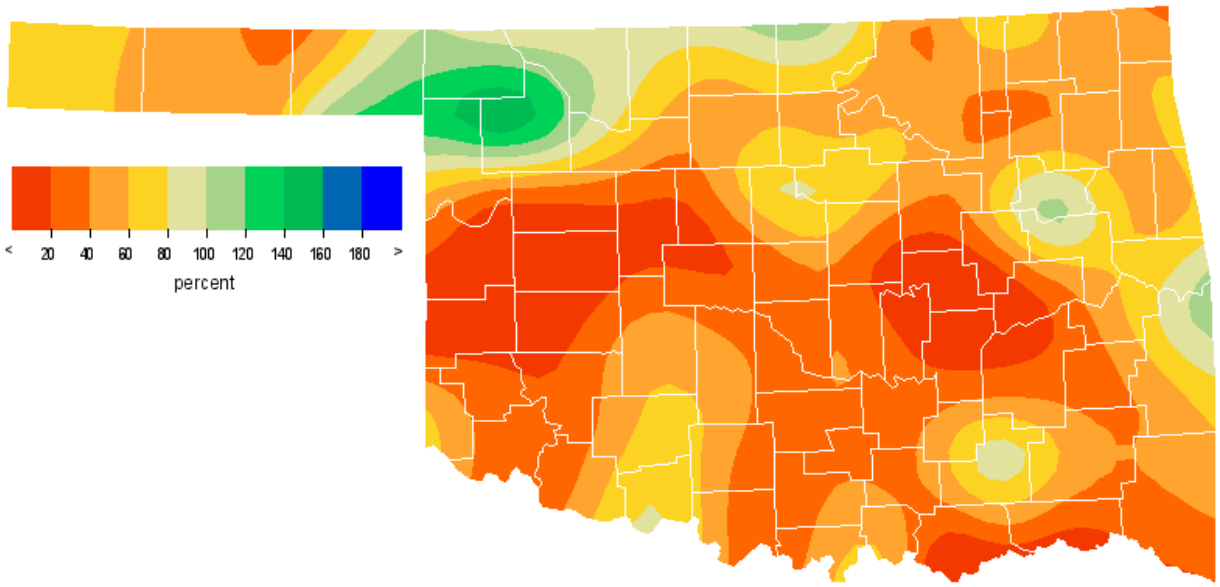
AUGUST 2014 OBSERVED PRECIPITATION



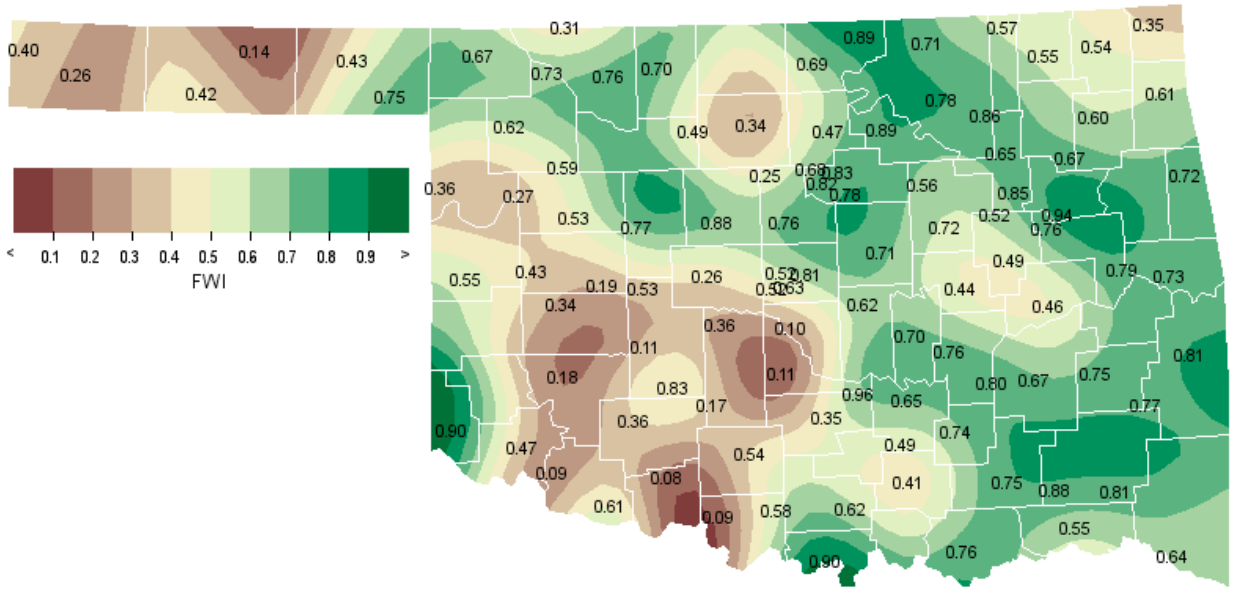
AUGUST 2014 DEPARTURE FROM NORMAL PRECIPITATION



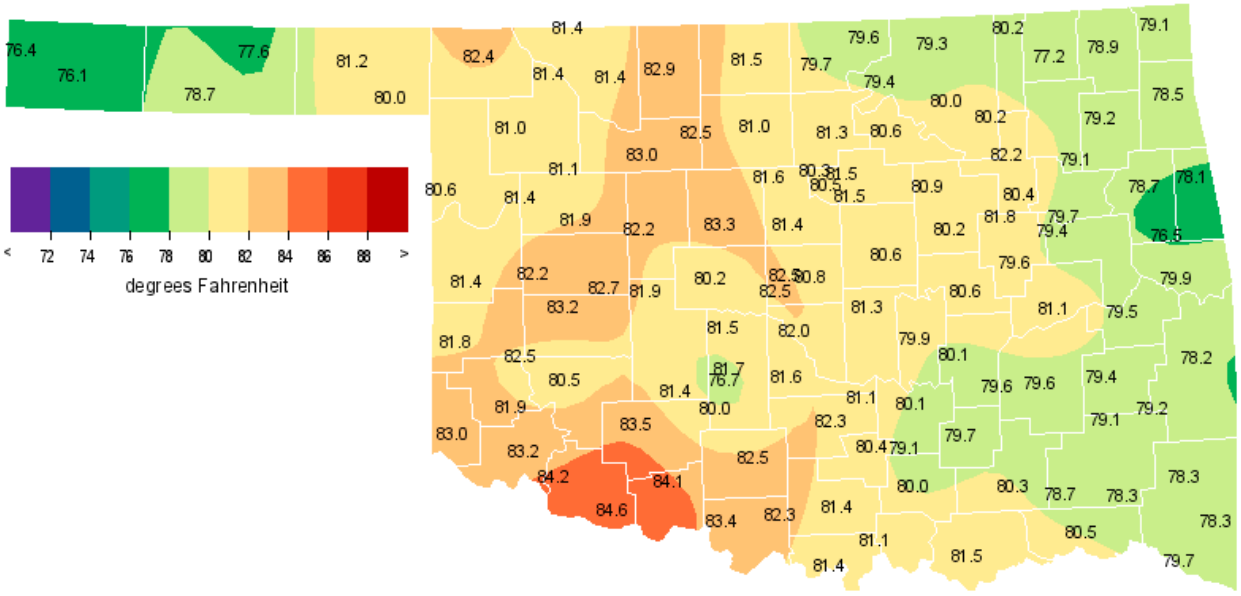
AUGUST 2014 PERCENT OF NORMAL PRECIPITATION



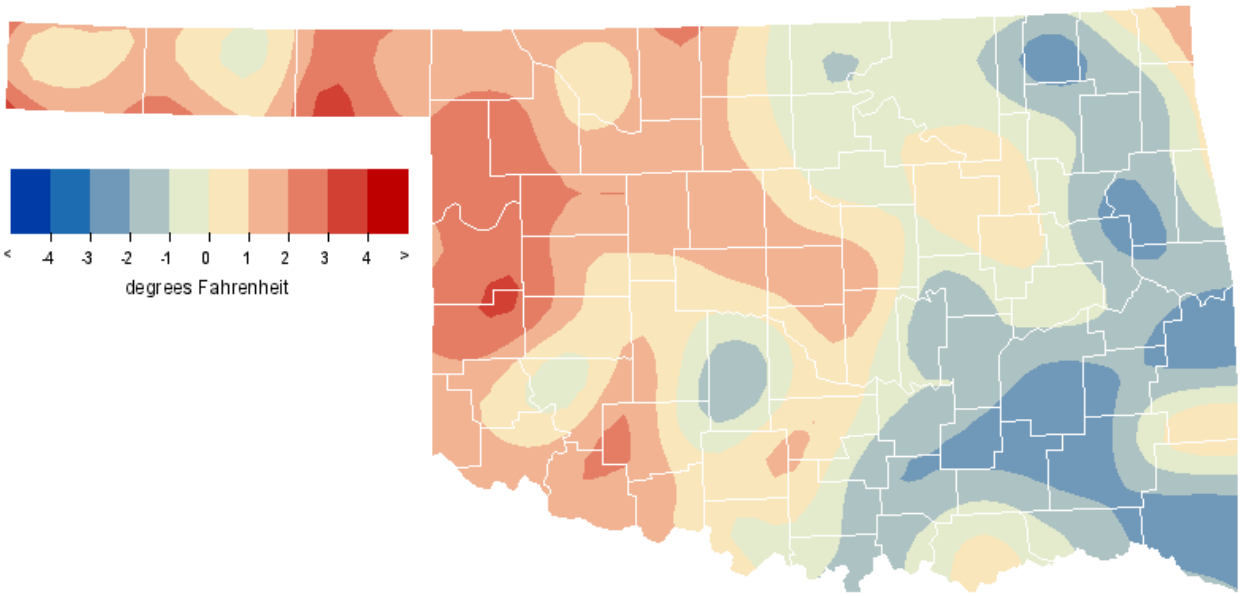
AUGUST 2014 AVERAGE SOIL MOISTURE AT 25CM



AUGUST 2014 AVERAGE TEMPERATURE



AUGUST 2014 DEPARTURE FROM NORMAL TEMPERATURE

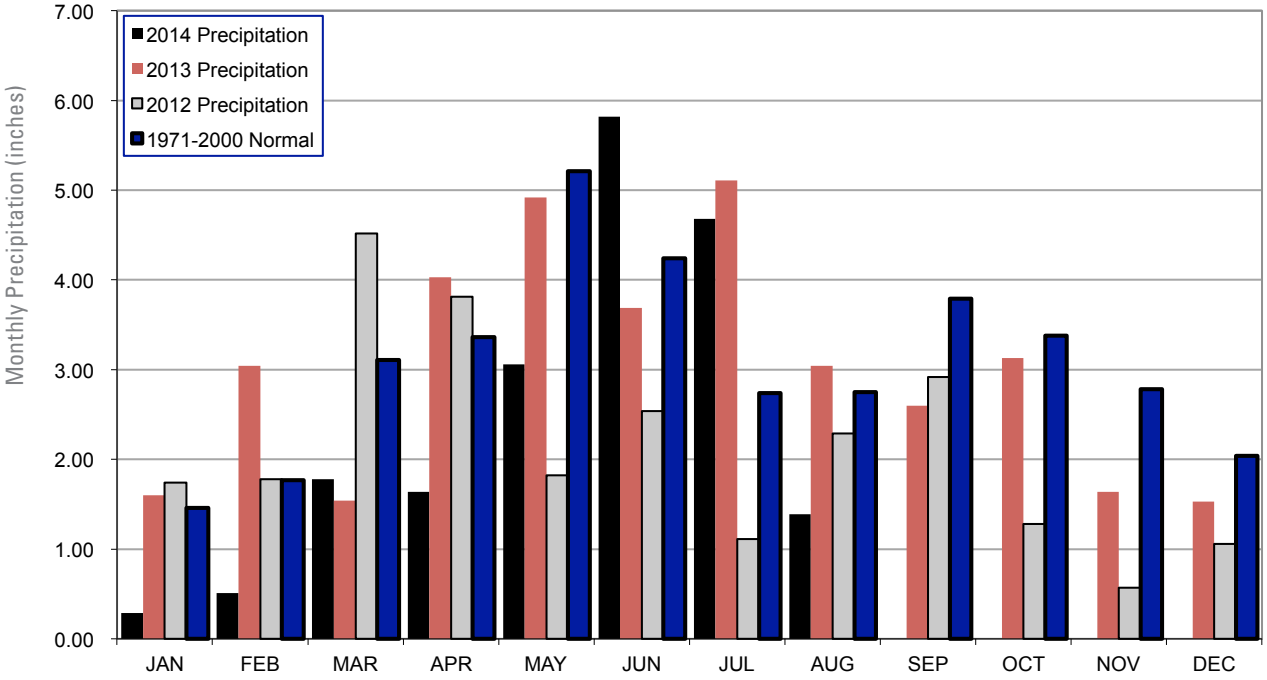


MESONET MONTHLY SUMMARY FOR AUGUST 2014

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
PANHANDLE										
Arnett	80.6	102	24	58	1	0	483	1.61	.82	27
Beaver	81.2	103	25	57	1	0	503	1.58	.90	27
Boise City	76.1	97	31	53	29	0	344	1.95	.84	26
Buffalo	82.4	104	22	61	1	0	539	2.78	1.31	8
NORTH CENTRAL										
Alva	81.3	104	25	58	1	0	507	3.00	1.10	8
Blackwell	79.7	100	25	58	12	0	455	3.11	1.39	18
Breckinridge	81.0	102	18	57	12	0	496	1.32	.73	18
Cherokee	82.8	104	22	62	12	0	553	2.79	1.07	28
Fairview	83.1	104	22	61	12	0	560	1.60	.94	8
Freedom	81.3	105	24	60	1	0	506	2.91	1.62	8
Lahoma	82.5	104	18	61	12	0	543	1.44	1.01	8
NORTHEAST										
Bixby	80.4	100	22	60	13	0	478	1.83	1.40	7
Burbank	79.4	100	25	57	13	0	446	1.71	.77	7
Copan	80.2	98	23	56	13	0	471	2.63	1.66	16
Foraker	79.3	100	24	55	13	0	443	.77	.32	7
Inola	79.1	96	26	57	13	0	437	1.49	1.05	7
Jay	78.6	96	25	54	13	0	420	2.09	1.01	8
Miami	79.1	97	25	53	13	0	437	1.39	.90	7
Nowata	79.8	100	23	54	13	****	****	1.18	.48	9
WEST CENTRAL										
Bessie	83.2	103	25	62	12	0	564	.19	.14	28
Butler	82.2	103	22	58	12	0	534	.22	.12	11
Camargo	81.4	103	22	57	1	0	508	.30	.20	26
Cheyenne	81.4	100	22	60	12	0	509	.30	.11	8
Erick	81.8	103	22	58	12	0	520	.18	.08	8
CENTRAL										
Acme	82.6	103	25	59	12	****	****	1.78	1.50	28
Bowlegs	79.8	99	24	59	13	0	460	.52	.36	20
Bristow	80.2	101	25	55	13	0	470	.69	.42	8
Lake Carl Blac	80.2	99	25	57	12	0	472	2.93	1.63	18
Chandler	80.6	99	25	61	13	0	484	.37	.24	7
Chickasha	81.7	103	25	61	13	0	517	1.46	1.38	28
El Reno	80.2	100	25	57	1	0	471	.74	.68	18
Guthrie	81.4	101	25	61	12	0	509	1.76	.73	8
Kingfisher	83.3	104	24	62	1	0	567	.27	.17	18
Marena	80.4	101	25	59	12	0	478	2.73	1.69	8
Minco	81.5	102	25	60	12	0	512	.87	.68	28
Marshall	81.5	102	18	58	12	0	512	2.67	1.28	8
EAST CENTRAL										
Cookson	79.1	98	25	54	13	****	****	1.49	.64	7
Eufaula	81.1	98	25	59	13	0	500	.37	.18	7
Haskell	79.4	97	22	59	13	0	447	1.44	.82	7
Hectorville	81.7	101	24	61	13	0	518	*****	*****	***
Holdenville	80.1	97	25	60	12	0	468	.31	.11	18
McAlester	79.6	96	25	58	13	0	454	.90	.43	30
Okmulgee	79.6	98	24	56	13	0	451	.44	.19	7
SOUTHWEST										
Altus	83.1	103	7	63	1	0	562	.73	.73	28
Apache	81.4	102	25	61	1	0	508	1.39	1.32	28
Fort Cobb	*****	***	***	***	***	****	****	1.46	1.35	28
Grandfield	84.5	105	7	63	1	0	605	1.65	1.53	28
Hinton	81.9	102	25	59	12	0	524	.52	.39	28
Hobart	48.4	104	24	***	19	0	546	.49	.48	28
SOUTH CENTRAL										
Ada	80.1	99	24	59	13	0	468	.71	.32	20
Ardmore	*****	***	***	***	***	****	****	1.20	.52	29
Burneyville	81.4	99	25	61	2	0	507	.93	.47	29
Byars	81.0	98	25	62	12	0	497	1.72	.94	9
Centrahoma	79.6	97	25	60	13	0	454	1.76	.71	11
Durant	81.4	98	23	62	13	0	510	.14	.06	9
Fittstown	79.1	97	25	60	13	0	437	.62	.20	11
Ketchum Ranch	82.5	102	25	63	12	0	543	.86	.82	28
SOUTHEAST										
Antlers	78.7	95	25	57	13	0	423	1.63	.80	11
Broken Bow	78.3	95	25	59	14	0	411	1.02	.77	8
Clayton	79.1	95	25	57	13	0	437	1.07	.37	9
Cloudy	78.3	95	25	60	13	0	411	1.30	.66	9
Hugo	80.5	97	8	61	13	0	480	.26	.18	8

NAME	MEAN TEMP	HIGH TEMP	HIGH DAY	LOW TEMP	LOW DAY	HDD	CDD	TOT PPT	HIGH 24-HR	HIGH DAY
Goodwell	78.6	102	31	56	29	0	423	.97	.46	16
Hooker	80.1	105	31	57	1	****	****	*****	*****	***
Kenton	76.3	98	25	55	29	0	352	2.05	1.18	26
Slapout	79.9	102	22	59	3	0	463	3.47	2.10	27
May Ranch	81.4	103	24	61	12	0	507	1.93	.90	8
Medford	81.6	102	24	58	12	0	514	2.48	1.01	9
Newkirk	79.5	97	24	57	12	0	451	3.33	2.21	7
Red Rock	81.3	103	25	57	12	0	505	.59	.26	9
Seiling	81.1	101	18	57	30	0	499	2.21	1.50	18
Woodward	81.0	103	24	59	1	0	497	3.93	1.30	28
Pawnee	80.6	100	25	57	12	0	483	2.43	2.12	9
Porter	79.7	96	25	60	13	0	454	4.10	1.75	7
Pryor	79.2	96	25	56	13	0	440	1.39	1.29	7
Skiatook	80.2	99	24	60	12	0	470	1.20	.96	7
Tulsa	82.2	101	22	61	13	0	533	.77	.67	7
Vinita	78.9	98	24	54	13	0	431	2.35	.94	7
Wynona	80.0	99	25	59	13	0	466	1.87	1.07	7
Putnam	81.9	102	24	59	12	0	525	.10	.05	8
Retrop	82.5	102	22	61	1	0	543	.42	.37	28
Watonga	82.2	102	25	61	12	0	532	.47	.43	28
Weatherford	82.6	102	18	62	1	0	546	.36	.23	28
Ninnekah	82.0	102	22	62	3	****	****	1.22	1.00	28
Norman	81.9	101	25	63	1	0	524	1.34	.76	9
Oilton	80.8	103	25	55	12	0	490	1.63	.84	8
OKC East	*****	***	***	***	***	****	****	.72	.61	9
OKC North	82.5	100	25	63	12	0	542	.20	.10	28
OKC West	82.5	99	18	64	1	0	541	.34	.22	18
Okemah	80.6	100	25	58	13	0	483	.10	.06	29
Perkins	81.5	101	25	62	12	0	512	1.84	1.58	8
Shawnee	81.2	98	23	61	12	0	502	.62	.31	7
Spencer	80.8	98	18	61	12	0	490	1.19	.67	18
Stillwater	81.6	101	25	59	12	0	513	2.01	1.82	8
Washington	81.6	104	25	61	13	0	514	.36	.18	7
Sallisaw	79.9	98	23	57	13	0	461	2.81	1.33	30
Stigler	79.4	99	25	57	13	0	448	1.46	.85	7
Stuart	79.7	97	25	59	13	0	455	.39	.19	11
Tahlequah	78.7	96	25	56	13	0	425	1.70	1.08	7
Webbers Falls	80.6	99	23	59	13	0	482	1.40	.98	7
Westville	78.1	95	25	56	13	0	407	2.15	1.17	9
Hollis	83.1	103	7	63	1	0	561	1.34	1.33	28
Mangum	81.9	104	22	57	12	0	524	.80	.80	28
Medicine Park	83.5	102	22	63	1	0	573	1.14	1.14	28
Tipton	84.2	104	22	62	1	0	594	.68	.60	28
Walters	84.1	104	22	64	2	0	592	1.85	1.39	28
Lane	80.3	97	25	60	13	0	474	2.15	1.94	11
Madill	81.1	99	25	62	2	0	500	1.83	.91	29
Newport	81.4	101	25	62	2	0	508	.88	.33	29
Pauls Valley	82.2	102	25	63	2	0	534	.37	.21	7
Ringling	82.3	102	25	63	2	0	537	.29	.17	29
Sulphur	80.4	99	23	59	2	0	476	.55	.28	11
Tishomingo	80.1	99	23	61	2	0	467	.83	.31	11
Waurika										
Idabel	79.6	96	23	60	13	0	454	.53	.32	18
Mt Herman	78.3	94	24	58	13	0	413	1.41	.57	8
Talihina	79.2	99	25	56	13	0	440	.99	.31	11
Wilburton	79.4	96	25	57	13	0	445	.70	.32	7
Wister	78.2	97	23	55	13	0	410	2.11	.93	29

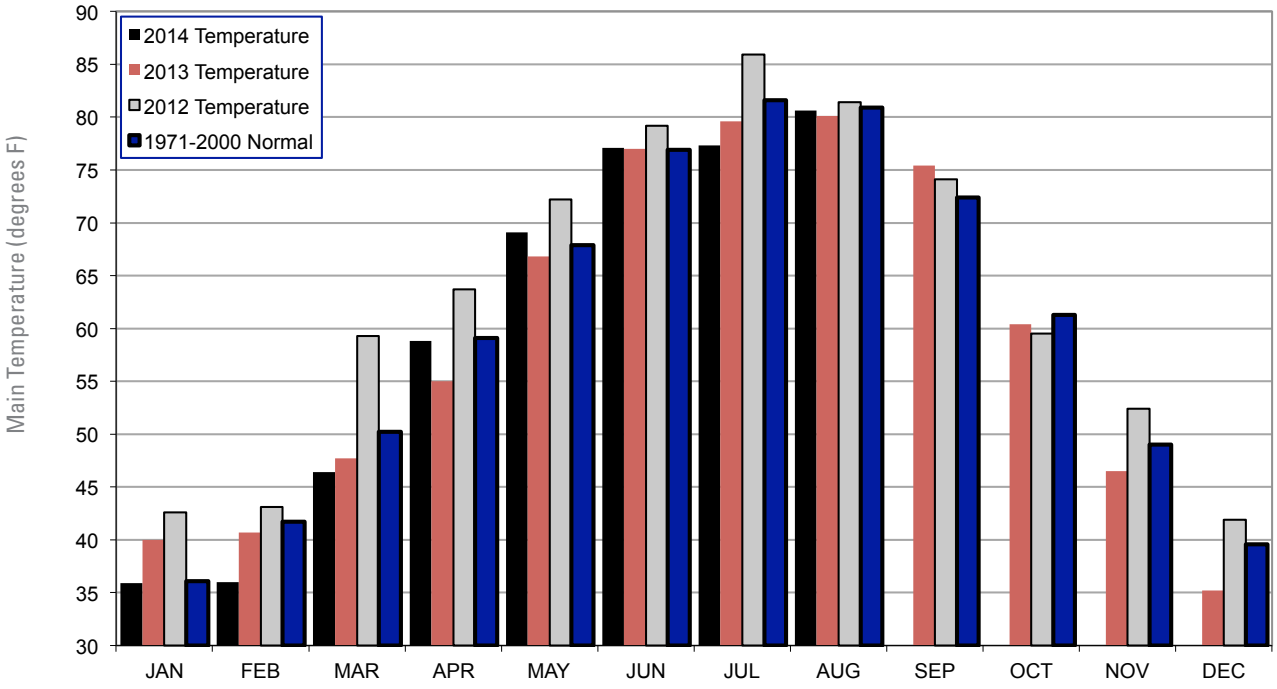
2012, 2013 AND 2014 STATEWIDE PRECIPITATION MONTHLY TOTALS VS. NORMAL



August 2014 Mesonet Precipitation Comparison

Climate Division	Precipitation (inches)	Departure from Normal (inches)	Rank since 1895	Wettest on Record (Year)	Driest on Record (Year)	August-13
Panhandle	2.06	-0.45	48th Driest	5.81 (1917)	0.54 (1936)	4.12
North Central	2.36	-0.69	56th Driest	8.10 (1974)	0.14 (2000)	4.26
Northeast	1.86	-1.32	26th Driest	7.51 (1964)	0.03 (2000)	4.96
West Central	0.28	-2.44	3rd Driest	6.18 (2005)	0.02 (2000)	3.28
Central	1.18	-1.45	20th Driest	8.18 (1906)	0.02 (2000)	3.64
East Central	1.21	-1.66	18th Driest	10.88 (1915)	0.02 (2000)	3.88
Southwest	1.10	-1.59	30th Driest	7.38 (1996)	0.00 (2000)	2.09
South Central	1.02	-1.52	12th Driest	8.72 (1906)	0.01 (2000)	1.29
Southeast	1.10	-1.61	11th Driest	9.68 (1915)	0.25 (1936)	2.05
Statewide	1.39	-1.38	12th Driest	6.47 (1915)	0.12 (2000)	78.00

2012, 2013 AND 2014 STATEWIDE TEMPERATURE MONTHLY TOTALS VS. NORMAL



August 2014 Mesonet Temperature Comparison

Climate Division	Average Temp (F)	Departure from Normal (F)	Rank since 1895	Hottest on Record (Year)	Coldest on Record (Year)	August-13 (F)
Panhandle	79.1	1.3	40th Warmest	83.7 (1937)	71.4 (1915)	77.8
North Central	81.4	0.7	48th Warmest	88.3 (1936)	72.9 (1915)	79.3
Northeast	79.6	-0.2	47th Coolest	88.8 (1936)	72.7 (1915)	78.6
West Central	82.1	1.9	38th Warmest	87.9 (2011)	73.6 (1915)	80.7
Central	81.0	0.0	55th Coolest	88.7 (1936)	74.1 (1915)	80.5
East Central	79.6	-0.8	35th Coolest	88.6 (1936)	73.5 (1915)	79.8
Southwest	82.4	0.6	60th Warmest	91.4 (2011)	76.1 (1915)	83.0
South Central	81.1	-0.7	38th Coolest	90.8 (2011)	76.1 (1992)	82.9
Southeast	79.0	-1.3	38th Coolest	87.5 (2011)	74.2 (1915)	80.4
Statewide	80.6	0.2	57th Coolest	87.7 (2011)	73.9 (1915)	80.3

MESONET EXTREMES FOR AUGUST 2014

Climate Division	High Temp (F)	Day	Station	Low Temp (F)	Day	Station	High Monthly Rainfall (inches)	Station	High Daily Rainfall (inches)	Day	Station
Panhandle	105	31st	Hooker	53	29th	Boise City	3.47	Slapout	2.10	27th	Slapout
North Central	105	24th	Freedom	57	12th		3.93	Woodward	2.21	7th	Newkirk
Northeast	101	22nd	Tulsa	53	13th	Miami	4.10	Porter	2.12	9th	Pawnee
West Central	103	22nd	Butler	57	1st	Camargo	0.47	Watonga	0.43	28th	Watonga
Central	104	24th	Kingfisher	55	12th	Oilton	2.93	Lake Carl Blackwell	1.82	8th	Stillwater
East Central	101	24th	Hectorville	54	13th	Cookson	2.81	Sallisaw	1.33	30th	Sallisaw
Southwest	105	7th	Grandfield	57	12th	Mangum	1.85	Walters	1.53	28th	Grandfield
South Central	104	22nd	Waurika	59	13th	Ada	2.15	Lane	1.94	11th	Lane
Southeast	99	25th	Talihina	55	13th	Wister	2.11	Wister	0.93	29th	Wister
Statewide	105	7th	Grandfield	53	29th	Boise City	4.10	Porter	2.21	7th	Newkirk

SEPTEMBER OUTLOOK

Summer's heat fades as precipitation increases across most of Oklahoma during September. The statewide-averaged normal temperature for the month, 73.0 degrees, makes September the fourth warmest month of the year. As such, climatologists consider it the first month of the autumn transitional season. Monthly precipitation decreases in extreme northwestern portions of the state, even as the rest of the state enjoys a second rainy season. Normal monthly precipitation, averaged statewide, is 3.80 inches, an increase of more than one inch over either of the two previous months. An increasing frequency of fronts, bringing cooler air from the northern plains, leads to the lower temperatures, an effect that often isn't apparent before the middle of the month.

Freezes are uncommon in September, but stations in the extreme northwest experience a freeze before the end of September in about 10 percent of years. The earliest reported freeze is September 15, in 1993 at Freedom (28 degrees), Gage (30 degrees), and Hammon (30 degrees), and in 1947 at Kenton (31 degrees). Hot weather is most evident in the southwest. Chattanooga averages 16 days in September with a high temperature of 90 degrees or more, including four days in which the temperature reaches 100 degrees or more. Conversely, Kansas and Stilwell each average only six September days with the high temperature in the 90s. Triple digit temperatures occur only about once every third year at Miami, Kenton, and Boise City.

Temperature

Mean	73.0 degrees
Hottest September	1931, 79.8 degrees
Coolest September	1974, 64.7 degrees
Hottest location	Waurika, 76.8 degrees
Coolest location	Boise City, 68.0 degrees
Hottest recorded	115 degrees, Alva, September 3, 1939 and 1947
Coldest recorded	25 degrees, Boise City, September 30, 1985

Statewide-averaged precipitation has varied between 0.27 inch in 1956 and 7.86 inches in 1945. Wyandotte recorded 16.82 inches in September 1945 to hold the monthly state record. The record daily precipitation at a regular reporting station is the 10.42 inches reported at Barnsdall on September 29, 1986. Snow is rare in September, But Boise City reported 4 inches for the month in 1984 and Kenton recorded 3 inches on September 17, 1971, the earliest snowfall in the state since at least 1910.

Tornadoes are slightly more frequent in September, averaging 2.1 each year, than they are during the previous two months. The most tornadoes reported in the state during September is 16 in 1992. No tornadoes were reported in the state during September in 18 of 52 years from 1950 through 2001 (the period of comprehensive records). Two people killed in Pottawattomie County on September 14, 1957 are the only tornado-related deaths recorded in September during that period.

Precipitation

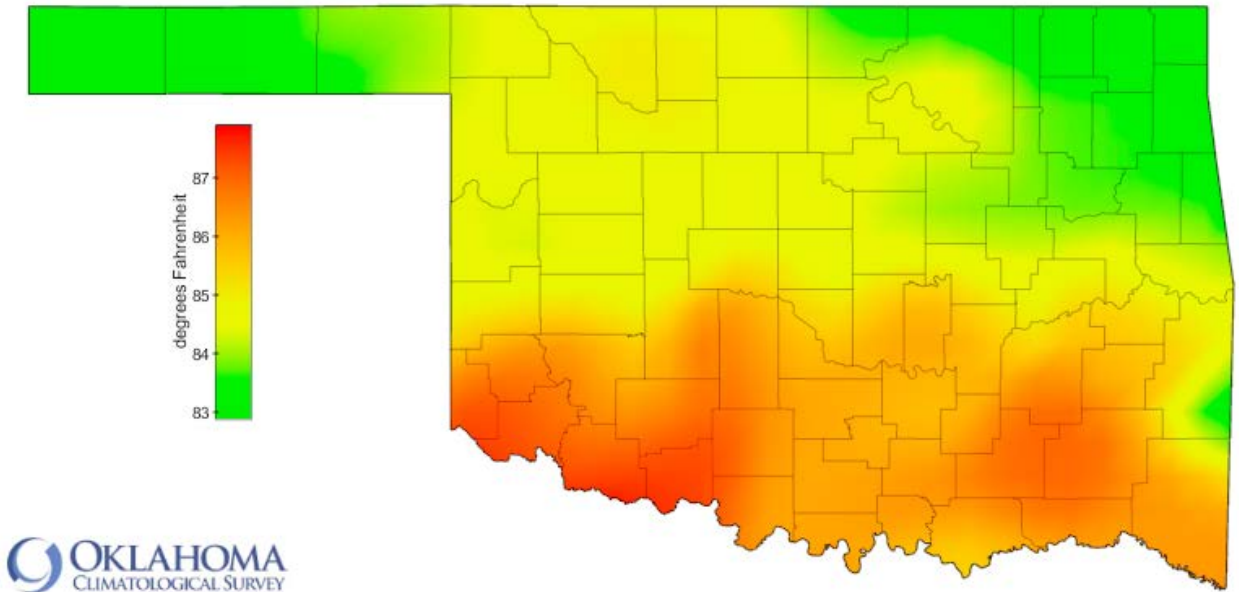
Mean	3.80 inches
Wettest September	1945, 7.86 inches
Driest September	1956, 0.27 inches
Wettest location	Kansas, 5.56 inches
Driest location	Regnier, 1.44 inches
Most recorded	16.82 inches, Wyandotte, 1945

Tornadoes

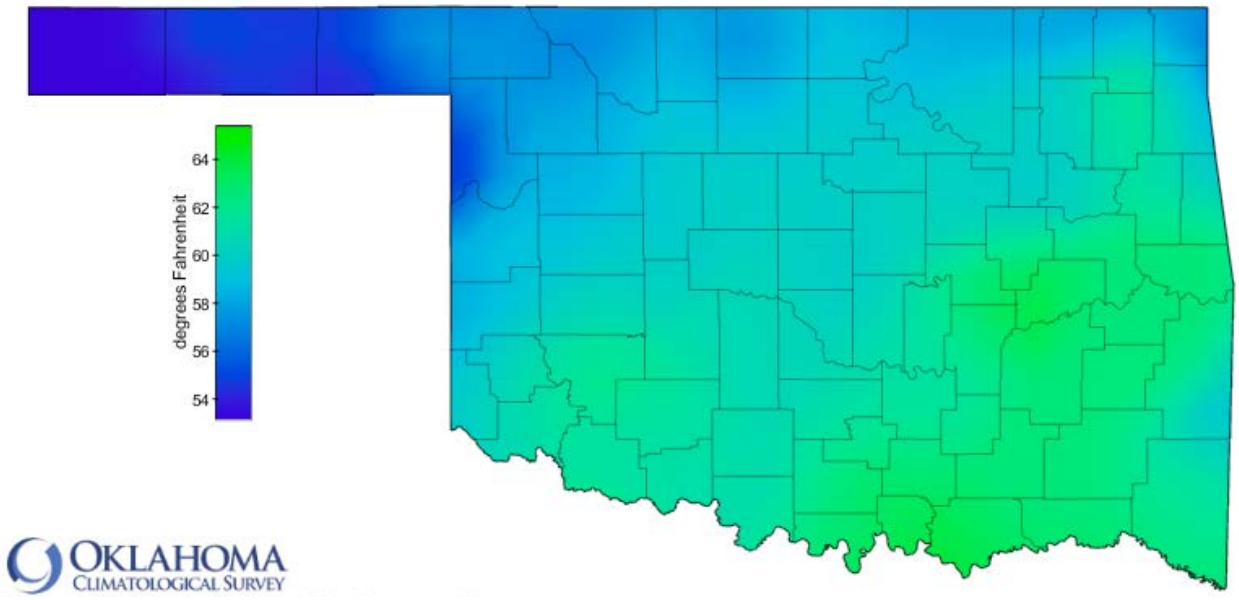
Average September Tornadoes (1950-2013)	2.0
Most	16 (1992)

Floods present a more common weather hazard than tornadoes in September. Residual moisture from tropical disturbances, usually from the Gulf of Mexico but occasionally from the Pacific Ocean, interacts with slow moving frontal systems in the state from time-to-time during the autumn months. Widespread heavy downpours are the typical result, frequently leading to flooding on larger rivers and streams. On other occasions, a frontal system will stall within the state and successive thunderstorms will form along the frontal boundary and follow each other along a narrow path, thereby producing intense rain over a limited area and causing dangerous flash flooding.

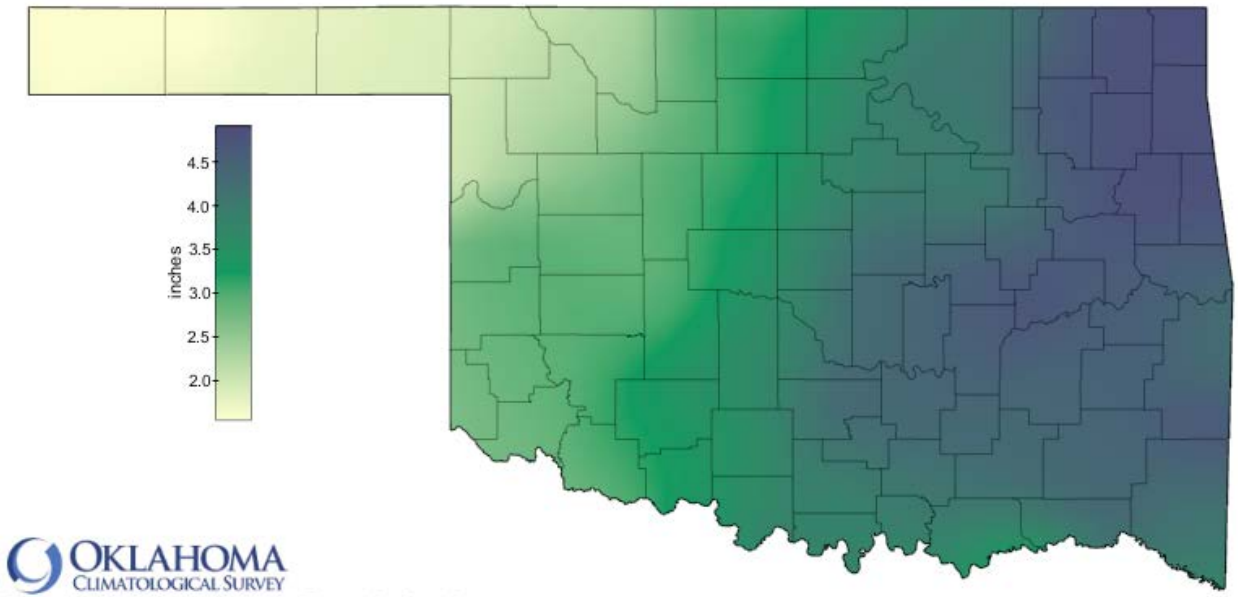
SEPTEMBER NORMAL DAILY MAXIMUM TEMPERATURE (1981-2010)



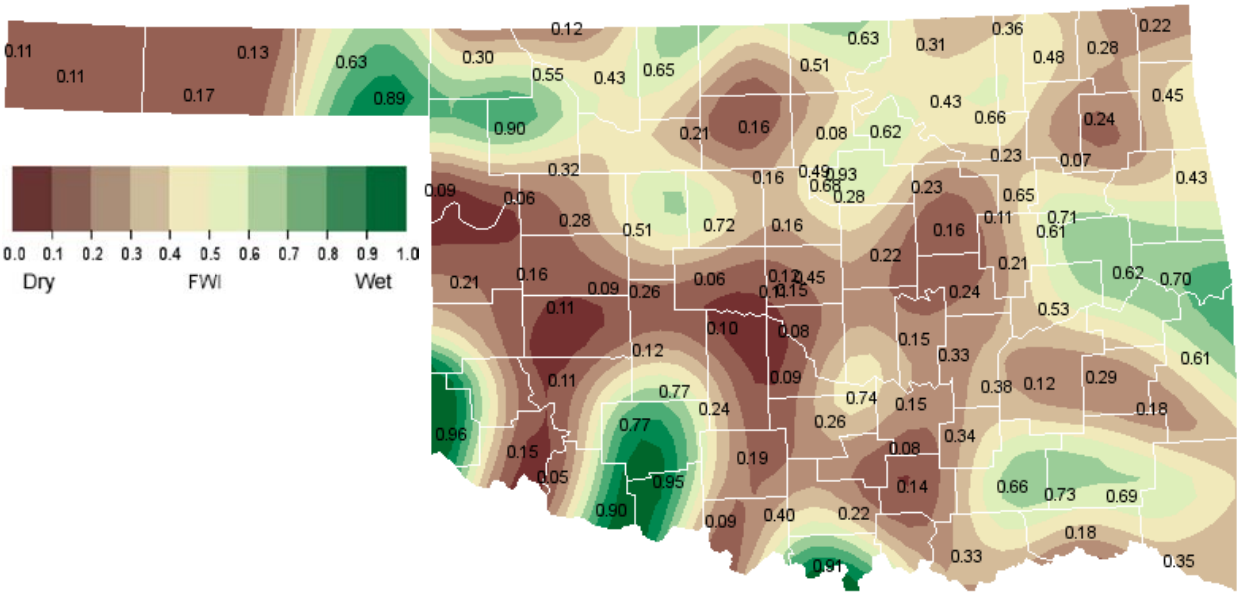
SEPTEMBER NORMAL DAILY MINIMUM TEMPERATURE (1981-2010)



SEPTEMBER NORMAL PRECIPITATION (1981-2010)

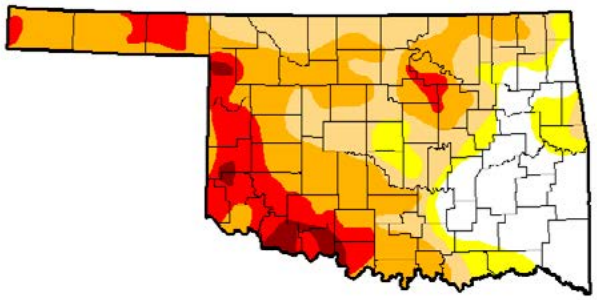


SEPTEMBER 1, 2014 SOIL MOISTURE CONDITIONS AT 25CM



SEPTEMBER 2014 DROUGHT INDICES

U.S. Drought Monitor
Oklahoma



August 26, 2014
(Released Thursday, Aug. 28, 2014)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	19.52	80.48	71.14	48.51	15.75	2.25
Last Week 8/19/2014	19.52	80.48	71.14	47.11	15.35	2.25
3 Months Ago 5/27/2014	5.78	94.22	79.94	73.26	55.04	26.47
Start of Calendar Year 12/31/2013	50.84	49.16	38.17	18.99	4.84	2.40
Start of Water Year 10/1/2013	21.74	78.26	43.00	17.62	4.42	1.45
One Year Ago 8/27/2013	39.80	60.20	38.01	19.44	9.89	0.54

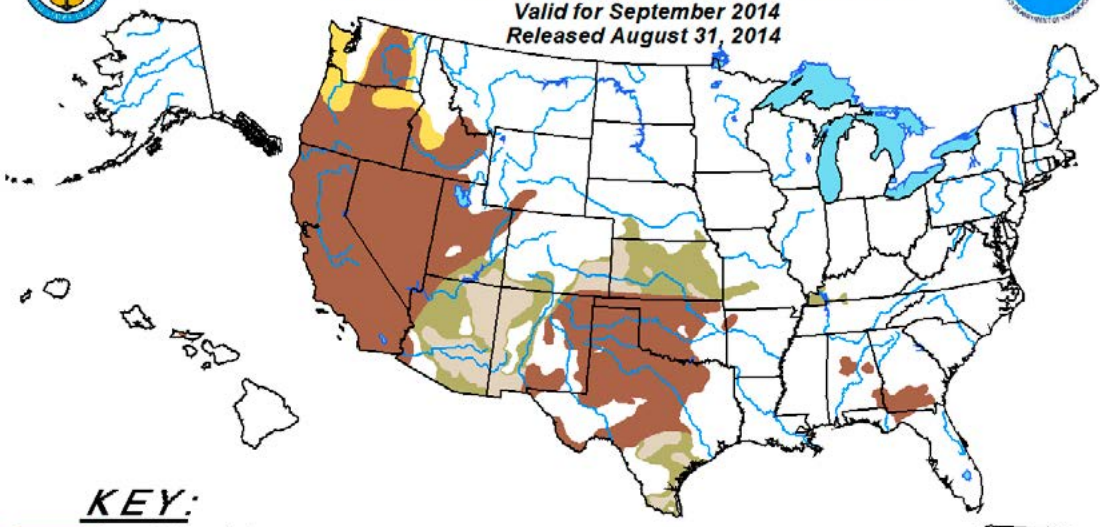
Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
David Simeral
Western Regional Climate Center

http://droughtmonitor.unl.edu/

U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period
Valid for September 2014
Released August 31, 2014

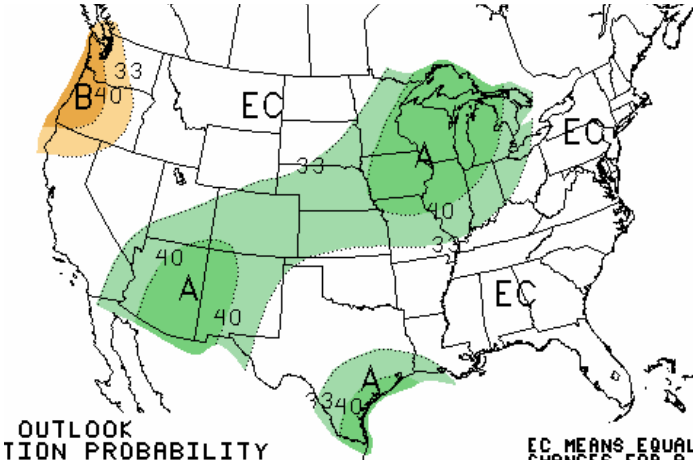


KEY:
- Drought persists or intensifies
- Drought remains but improves
- Drought removal likely
- Drought development likely

Author: David Miskus, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

SEPTEMBER 2014 U.S. PRECIPITATION FORECAST



Percent Likelihood of Above or Below Average Precipitation*

- 5% - 10%
- 0% - 5%

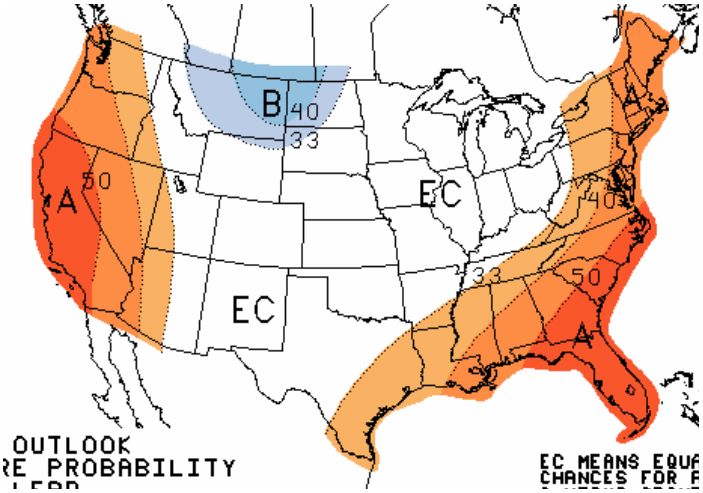
A = Above

- 0% - 5%
- 5% - 10%

B = Below

*EC indicates no forecasted anomalies due to lack of model skill.

SEPTEMBER 2014 U.S. TEMPERATURE FORECAST



Percent Likelihood of Above or Below Average Temperatures*

- 10% - 20%
- 5% - 10%
- 0% - 5%

A = Above

- 0% - 5%
- 5% - 10%

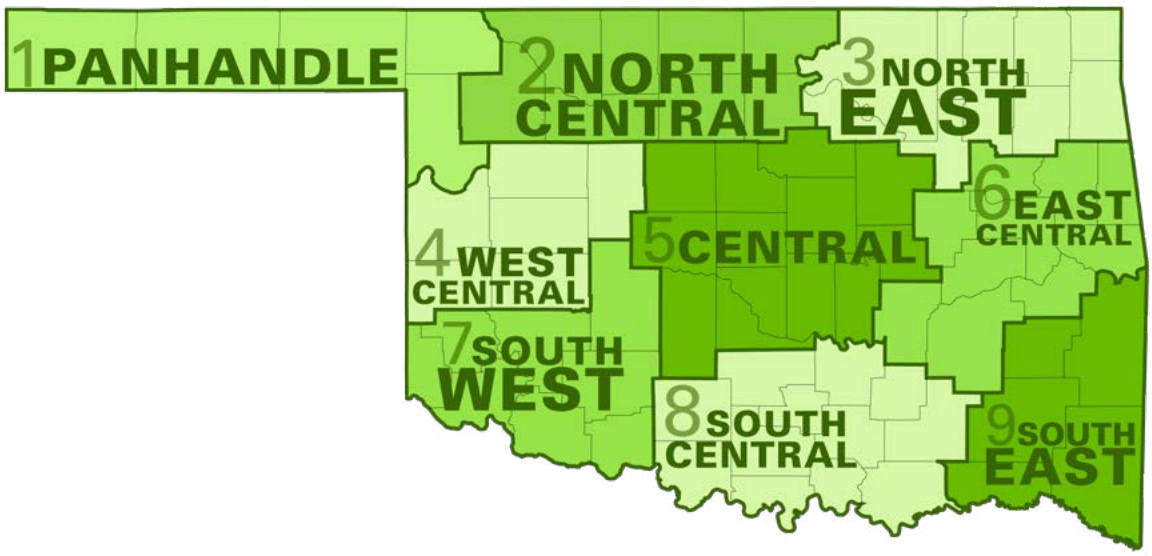
B = Below

*EC indicates no forecasted anomalies due to lack of model skill.

SEPTEMBER CLIMATE NORMALS

Climate Division	Max. Temperature (°F)	Min. Temperature (°F)	Avg. Temperature (°F)	Precipitation (inches)
1	83.4	55.5	69.4	1.82
2	84.5	59.2	71.9	2.84
3	83.2	59.9	71.6	4.50
4	84.6	59.5	72.0	2.75
5	84.6	60.9	72.8	3.86
6	84.2	60.9	72.6	4.67
7	86.2	61.6	73.9	2.98
8	85.9	62.2	74.1	3.93
9	84.7	60.6	72.7	4.27
Statewide	84.5	60.1	72.3	3.53

Oklahoma Climate Divisions



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 September 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 September result in an artificially high or low value.

SEVERE WEATHER REPORTS: Only the most significant events are listed. Tornadoes of F2 or greater strength (on the 0-5 Fujita scale), hail of two inches diameter or greater, and wind speeds of 70 miles per hour or above are listed. National Weather Service defines storms as severe when they produce a tornado, hail of three-quarters inch or greater, or wind speeds above 57 miles per hour (50 knots). For additional reports, contact the Oklahoma Climatological Survey, Storm Prediction Center, or your local National Weather Service forecast office.

SOIL MOISTURE: The soil moisture variable displayed is the Fractional Water Index (FWI), measured at a depth of 25 cm. This unitless value ranges from very dry soil having a value of 0, to saturated soils having a value of 1.

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 Climatic Data Center (more than about 4-5 months old):
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms

SEASONAL OUTLOOKS
Climate Prediction Center:
http://www.cpc.ncep.noaa.gov/products/OUTLOOKS_index.html

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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