

Oklahoma Water Resources Bulletin & Summary of Current Conditions



NOVEMBER 22, 2000

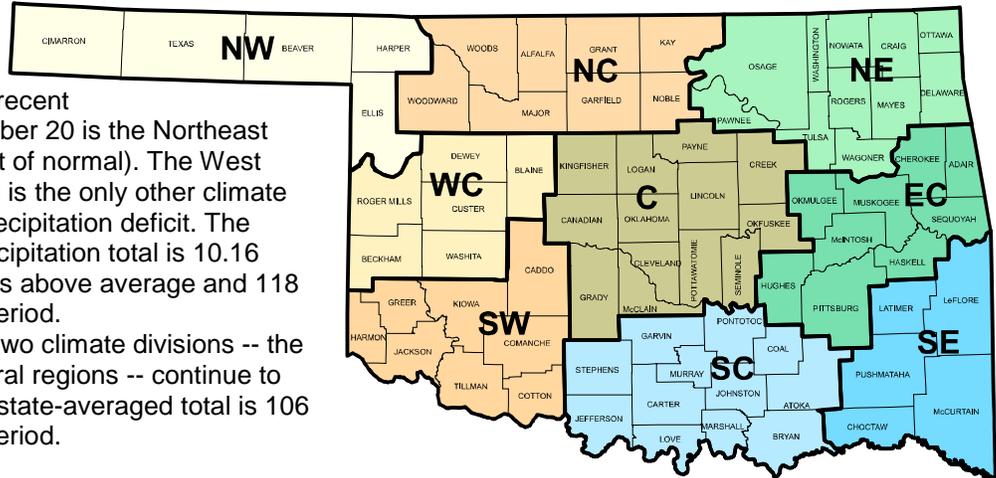
OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent drought conditions in Oklahoma have diminished in recent weeks due to much-needed, abundant precipitation experienced throughout the state. According to preliminary Mesonet weather station data provided by the [Oklahoma Climatological Survey](#) and National Weather Service (see below), the area

experiencing the lowest percent of normal rainfall from September 1 (the general onset of this most recent dry period) through November 20 is the Northeast climate division (80 percent of normal). The West Central region (98 percent) is the only other climate division now reporting a precipitation deficit. The current state-averaged precipitation total is 10.16 inches, which is 1.54 inches above average and 118 percent of normal for the period.

Since January 1, only two climate divisions -- the Southeast and South Central regions -- continue to report rainfall deficits. The state-averaged total is 106 percent of normal for the period.



PRELIMINARY STATEWIDE PRECIPITATION BY CLIMATE DIVISION (IN INCHES)

DIVISION (#)	AUTUMN			CALENDAR YEAR			RAINFALL SINCE OCTOBER 30
	SEPTEMBER 1 – NOVEMBER 20, 2000 TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	JANUARY 1 – NOVEMBER 20, 2000 TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	
Northwest (1)	5.82	1.83	146	19.75	0.93	105	0.30
North Central (2)	8.49	1.64	124	32.02	5.53	121	1.54
Northeast (3)	8.48	-2.13	80	39.92	2.90	108	2.31
West Central (4)	6.52	-0.16	98	29.33	4.25	117	1.10
Central (5)	11.73	2.76	131	36.05	4.04	113	2.63
East Central (6)	12.37	1.07	110	43.00	3.58	109	3.76
Southwest (7)	10.95	3.63	150	30.58	4.15	116	2.06
South Central (8)	12.76	2.62	126	32.88	-2.40	93	3.59
Southeast (9)	14.08	1.83	115	39.24	-5.22	88	6.96
STATE-AVERAGED	10.16	1.54	118	33.68	1.91	106	2.64

Information and data contained in this update of Oklahoma's water resource conditions are courtesy of the National Weather Service, Climate Prediction Center, Oklahoma Climatological Survey, State Department of Agriculture, Oklahoma Forestry Services, Agricultural Statistics Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture/Forest Service, U.S. Geological Survey, Western Drought Coordination Council and National Drought Mitigation Center. This publication is issued weekly during times of specific concern regarding statewide or regional water situations and periodically -- biweekly or monthly -- the remainder of the year.

For more information, visit <http://www.state.ok.us/~owrb/features/drought.html>.

Drought Indices

According to the latest [Palmer Drought Severity Index](#) (November 18, below), moisture/drought conditions continue to improve throughout Oklahoma. No climate divisions currently report drought conditions. Only three of the state's nine climate divisions have undergone PDSI moisture decreases since October 28; the North Central climate division experienced the greatest, though very modest, decrease during the period.

The latest monthly [Standardized Precipitation Index](#) (through October, below) indicates that only the Southeast climate division continues to experience long-term dryness. Among the selected time periods, the 3- and 12-month SPI's reflect "moderately dry" conditions in the Southeast while the South Central region is also "moderately dry" according to the 3-month SPI. Among other time periods, the SPI indicates "very dry" conditions in the Southeast during the 4- and 15-month periods and "moderately dry" conditions during the 10-, 18-, 24- and 30-month periods.

The latest [Keetch-Byram Drought Index](#) (November 20, below), which measures the state of near-surface soil moisture (within the uppermost eight inches of soil) as well as the amount of fuel available for fires, indicates that drought-related fire conditions in Oklahoma continue to greatly improve. Statewide, none of the more than 110 Mesonet stations in Oklahoma report KBDI values in excess of 600, the general threshold of severe drought (7 stations had readings above 500 on October 31). Currently, only seven stations are above 400, generally indicative of moderate drought conditions. Breckinridge, in North Central Oklahoma, has the highest KBDI value (489), followed by Hollis (468; Southwest) and Beaver (456; Northwest).

According to the Oklahoma Department of Agriculture (Forestry Services), as of November 11, [Statewide Wildfire Preparedness](#) is at Level 1 (low fire danger). Caution is still advised when conducting outdoor burning, particularly when high winds and low humidities are forecasted. Avoid burning anything outdoors when winds exceed 20 mph.

CLIMATE DIVISION (#)	PALMER DROUGHT SEVERITY INDEX				STANDARDIZED PRECIPITATION INDEX THROUGH OCTOBER			
	CURRENT STATUS 11/18/2000	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		11/18	10/28					
Northwest (1)	UNUSUAL MOIST SPELL	2.39	2.40	-0.01	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.92	3.01	-0.09	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Northeast (3)	INCIPIENT MOIST SPELL	0.66	0.13	0.53	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.66	1.69	-0.03	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Central (5)	UNUSUAL MOIST SPELL	2.07	1.84	0.23	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MOIST SPELL	1.19	0.72	0.47	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Southwest (7)	UNUSUAL MOIST SPELL	2.21	1.99	0.22	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
South Central (8)	MOIST SPELL	1.63	0.12	1.51	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MOIST SPELL	1.68	-1.79	3.47	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY

KEETCH-BYRAM DROUGHT FIRE INDEX

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 11/20/2000	ANTICIPATED IMPACT
Breckinridge	Garfield	North Central	489	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall. 600-800: associated with severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Hollis	Harmon	Southwest	468	
Beaver	Beaver	Northwest	456	

7 total stations above 400

The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides a seasonal estimation of precipitation while the 6-month SPI can be very effective in showing precipitation over distinct seasons. The Keetch-Byram Drought Index provides a gauge of dead fuel currently available for potential fires.

Streamflow Conditions

For the current water year (beginning October 1, 1999), flows in many state rivers and streams are recovering somewhat from long-term below normal precipitation and runoff. Considering overall trends as well as current flows, the most recent data (October 31) from the six [U.S. Geological Survey/OWRB](#) stream gage sites selected to monitor the general condition of Oklahoma streams (daily streamflow since October 1, 1999 compared to long-term, normal/median daily discharges) indicate **much below average flow** in *southwest* (North Fork/Red River in Beckham County), *central* (Canadian River in McClain County) and *southeast* (Glover River in McCurtain County) Oklahoma; **below average flow** in the *south central* (Washita River in Carter County) and *northwest* (Cimarron River in Beaver County) regions; and **near average flow** in the *northeast* (Baron Fork in Cherokee County).

Weather Forecast

The National Weather Service [6- to 10-day outlook](#) (November 26-30) calls for above normal precipitation for generally the southwestern one-half of Oklahoma, including the Panhandle; normal rainfall is expected for the remainder of the state. Normal temperatures are anticipated for all of Oklahoma. The Climate Prediction Center's [seasonal forecast](#) projects a chance for above normal precipitation for virtually the entire state for December and above normal rainfall for most of southern Oklahoma through the December 2000-February 2001 period.

Current models indicate that the persistent cold water phenomenon in the equatorial Pacific Ocean, referred to as La Niña, has virtually disappeared and tropical Pacific sea levels, which indicate how much heat is stored in the ocean, have returned to near normal after three years of dramatic fluctuations. However, many scientists believe that a larger, longer lasting climate situation, the Pacific Decadal Oscillation, will persist for some time. This long-term pattern of ocean temperature fluctuations that waxes and wanes approximately every 10 to 20 years, has significant implications for global climate, especially over North America.

Crop Report

November 19 – The minimal rainfall received statewide last week was a welcome sight for the many producers who have been waiting for saturated fields to dry out so they can complete planting and harvesting activities. Additional drying will be needed for many other fields. Cold weather persisted over Oklahoma and the average temperature for all areas was 39 degrees or less, with the Panhandle averaging only 33 degrees for the week. Farmers had 3.8 days suitable for fieldwork during the week.

Planting progress of wheat and rye advanced last week in areas that were able to dry out enough, although conditions in many areas still remain too wet. As of Sunday, wheat seeding was 78 percent complete statewide, well behind the five-year average of 99 percent. Wheat planted was around 90 percent complete in the Panhandle, nearly 80 percent in the west central and north central regions, and about 70 percent complete in southwest and central Oklahoma. Emergence of earlier planted fields advanced slightly last week and totaled 65 percent. Growth of the newly planted fields has been slowed due to the low nighttime temperatures. Some producers have had to replant fields due to seed rotting in the ground and poor stands. Availability of adequate winter wheat pasture remains a concern for producers. Wheat was rated in mostly good to fair condition overall. However, there were reports of yellow wheat in some wet areas. Row crop harvest was once again slowed due to continued wet ground conditions. Drying out is desperately needed in most areas before major progress can occur. Sorghum growers were only able to harvest an additional 2 percent of the crop last week, bringing the total to 85 percent complete. Soybeans were harvested, where conditions allowed, and 92 percent of the crop was harvested by week's end. The prolonged wet conditions remain a serious problem for cotton and peanut producers and harvest remains hampered in many areas. As of Sunday, the cotton harvest totaled 76 percent while peanuts dug and combined totaled 88 and 69 percent, respectively. Potential cotton and peanut yield reduction as a result of the prolonged wet conditions continues to concern many producers. Alfalfa hay was rated in mostly fair to good condition overall, while all other hay was rated in mostly poor to fair condition overall. Harvest occurred in isolated areas and the fourth and fifth cutting of alfalfa totaled 97 and 58 percent cut, respectively.

Livestock were rated in mostly good to fair condition statewide. The colder weather has increased feed requirements for many livestock and supplemental feeding has greatly increased. Many producers received cattle last week. Cattle auctions reported average marketings for the week. Recent cold temperatures have minimized insect activity on cattle. Pasture re-growth has been limited as a result of the cool temperatures. Warmer weather is needed to propel pasture growth before winter arrives.

Reservoir Storage

Reservoir storage levels in Oklahoma continue to improve significantly, although some lakes remain low. As of November 20, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 96.8 percent full, a 5.9 percent increase over that measured on October 31, according to information from the [U.S. Army Corps of Engineers \(Tulsa District\)](#). Only seven reservoirs – including all six in the North Central and Central regions -- have experienced lake level decreases since that time. Only 13 reservoirs are operating at less than full capacity (compared to 24 three weeks ago). Two reservoirs (Lugert-Altus and Tom Steed) are now below 80 percent capacity, compared to five on October 31. Lugert-Altus is at only 37.8 percent.

Storage in Selected Oklahoma Lakes & Reservoirs				
as of November 20, 2000				
Climate Division	Conservation Storage	Present Storage	Percent of Storage	
Lake or Reservoir	(acre-feet)	(acre-feet)	conservation	flood
NORTH CENTRAL				
Fort Supply	13,900	12,085	86.9	0.00
Great Salt Plains	31,420	31,420	100.0	2.75
Kaw*	406,540	406,540	100.0	0.80
Regional Totals/Averages	451,860	450,045	99.6	1.18
NORTHEAST				
Birch	19,225	16,612	86.4	0.00
Copan	43,400	37,109	85.5	0.00
Fort Gibson	365,200	360,338	98.7	0.00
Grand	1,672,000	1,502,600	89.9	0.00
Hudson	200,300	200,300	100.0	2.04
Hulah	31,160	31,160	100.0	0.01
Keystone	278,122	278,122	100.0	0.01
Oologah	552,210	518,591	93.9	0.00
Skiatook	322,700	285,979	88.6	0.00
Regional Totals/Averages	3,484,317	3,230,811	92.7	0.23
WEST CENTRAL				
Canton	111,310	111,310	100.0	0.63
Foss	165,480	158,670	95.9	0.00
Regional Totals/Averages	276,790	269,980	97.5	0.32
CENTRAL				
Arcadia	27,520	27,520	100.0	0.78
Heyburn	7,105	7,105	100.0	0.43
Thunderbird	119,600	119,600	100.0	0.16
Regional Totals/Averages	154,225	154,225	100.0	0.46
EAST CENTRAL				
Eufaula*	2,368,223	2,368,223	100.0	0.66
Tenkiller	654,100	631,775	96.6	0.00
Regional Totals/Averages	3,022,323	2,999,998	99.3	0.33
SOUTHWEST				
Fort Cobb	80,010	80,010	100.0	1.34
Lugert-Altus	132,830	50,230	37.8	0.00
Tom Steed	88,970	68,312	76.8	0.00
Regional Totals/Averages	301,810	198,552	65.8	0.45
SOUTH CENTRAL				
Arbuckle	72,400	72,400	100.0	3.85
McGee Creek	113,930	113,930	100.0	5.55
Texoma*	2,701,706	2,701,706	100.0	4.83
Waurika*	199,440	191,794	96.2	0.00
Regional Totals/Averages	3,087,476	3,079,830	99.8	3.56
SOUTHEAST				
Broken Bow*	918,070	914,667	99.6	0.00
Hugo*	184,917	184,917	100.0	0.79
Pine Creek*	53,750	53,750	100.0	1.91
Sardis	274,330	274,330	100.0	0.11
Wister	60,162	60,162	100.0	4.04
Regional Totals/Averages	1,491,229	1,487,826	99.8	1.37
STATE TOTALS	12,270,030	11,871,267	96.8	0.99

* indicates seasonal pool operation; actual storage figures/percentages may vary.

Oklahoma Weather Modification Program

A brief summary/update of recent cloud seeding operations of the Oklahoma Weather Modification Program, including both hail suppression and rainfall enhancement, is presented below. Nine seeding flight operations, five for rainfall enhancement and four for hail suppression, were conducted from October 18-31. **The 1999-2000 Program officially ceased operations on October 31.**

RECENT WEATHER MODIFICATION ACTIVITIES					
OCTOBER 18-31, 2000					
Date/ Flight(s)	County Location(s)	Texas	Kansas	Hail	Rain
20-Oct	Woodward, Harper, Ellis				x
20-Oct	Carter, Jefferson, Cotton, Tillman	x			x
21-Oct	Grady, Stephens, Comanche, Cotton, Tillman	x			x
22-Oct	Cotton				x
25-Oct	Beaver, Harper			x	
26-Oct	Harmon			x	
26-Oct	Okmulgee				x
28-Oct	Custer, Dewey			x	
31-Oct	Texas, Beaver			x	

* Information may not reflect the most recent operations.