

Oklahoma Water Resources Bulletin & Summary of Current Conditions



SEPTEMBER 20, 2000

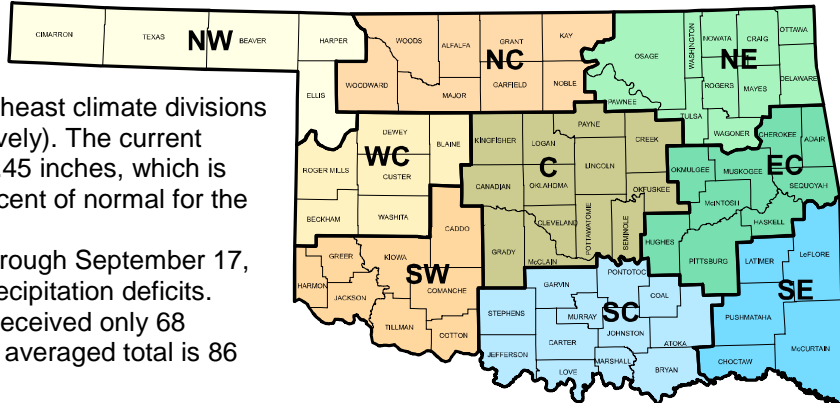
OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Following the driest August on record for Oklahoma – including rainless streaks of 50 days or more in many areas -- Oklahoma remains critically dry. According to preliminary Mesonet weather station data provided by the [Oklahoma Climatological Survey](#) and National Weather Service (see below), the areas

experiencing the lowest percent of normal rainfall for the current water year (October 1 through September 17) remain the South Central and Southeast climate divisions (71 and 74 percent of normal, respectively). The current state-averaged precipitation total is 29.45 inches, which is 3.07 inches below average and 91 percent of normal for the period.

For the summer season (June 1 through September 17, 2000), eight climate divisions report precipitation deficits. The Northwest/Panhandle region has received only 68 percent of its normal rainfall. The state averaged total is 86 percent of normal for that period.



PRELIMINARY STATEWIDE PRECIPITATION BY CLIMATE DIVISION (IN INCHES)

DIVISION (#)	WATER YEAR			SUMMER			RAINFALL SINCE SEPTEMBER 6
	OCTOBER 1, TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	JUNE 1 – TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	
Northwest (1)	16.03	-2.83	85	6.19	-2.87	68	0.01
North Central (2)	28.44	1.66	106	8.94	-2.47	78	0.00
Northeast (3)	39.68	1.47	104	13.27	-0.08	99	0.19
West Central (4)	26.19	1.08	104	9.34	-1.02	90	0.00
Central (5)	30.95	-1.66	95	10.86	-0.72	94	0.00
East Central (6)	37.36	-4.06	90	14.25	1.92	116	0.15
Southwest (7)	25.52	-1.03	96	8.39	-1.79	82	0.11
South Central (8)	25.78	-10.38	71	8.61	-3.02	74	0.18
Southeast (9)	34.94	-12.46	74	10.05	-3.41	75	0.36
STATE-AVERAGED	29.45	-3.07	91	10.02	-1.61	86	0.10

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, Agricultural Statistics Service, State Department of Environmental Quality, 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](#) (September 16, below), moisture/drought conditions in Oklahoma continue to worsen. **Eight climate divisions are now in various stages of drought, including the South Central region which has been downgraded to the “severe drought” category.** The Northwest, Southeast and Southwest climate divisions are all experiencing “moderate drought.” All nine climate divisions have undergone PDSI moisture decreases since September 2; the North Central (“near normal”) climate division experienced the greatest decrease during the period.

The latest monthly [Standardized Precipitation Index](#) (through August, below) indicates that the South Central and Southeast climate divisions are experiencing long-term dryness, at least over the last 12 months. Although no other regions are experiencing long-term moisture deficits, virtually all areas are experiencing very dry to extremely dry SPI conditions throughout the past two months. The 6-, 9- and 12-month SPI time periods reflect “moderately dry” conditions in the South Central region and the 12-month SPI indicates “moderately dry” conditions in the Southeast. No other regions experienced a dry SPI reading among the selected time periods.

The latest [Keetch-Byram Drought Index](#) (September 18, 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 worsen. Statewide, 36 of the 115 Mesonet stations in Oklahoma report KBDI values in excess of 700, indicating severe fire/drought conditions (22 stations had readings above 700 on September 5). Ringling, in the South Central climate division, retains the highest KBDI value (772), followed by Burneyville (771; South Central) and Antlers (769; Southeast).

As of September 17, according to the Oklahoma Department of Agriculture (Forestry Services), [Statewide Wildfire Preparedness](#) is at Level 4 (very high to extreme fire danger). **A Burn Ban is now in effect for all of Oklahoma.** Governor Keating has also activated the Oklahoma Drought Management Team, a standing group of state officials who will review Oklahoma’s short-term and long-term response to wildfires and drought. Carter, Comanche, Cotton, Jefferson, Love, Marshall and Tillman Counties have received a Secretarial Disaster Designation. The Governor has requested U.S. Agriculture Secretary Dan Glickman to extend the designation to 70 additional counties.

CLIMATE DIVISION (#)	PALMER DROUGHT SEVERITY INDEX				STANDARDIZED PRECIPITATION INDEX THROUGH AUGUST			
	CURRENT STATUS 09/16/2000	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	MODERATE DROUGHT	-2.94	-2.41	-0.53	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	NEAR NORMAL	0.08	1.23	-1.15	NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET
Northeast (3)	MILD DROUGHT	-1.34	-0.49	-0.85	NEAR NORMAL	MODERATELY WET	MODERATELY WET	NEAR NORMAL
West Central (4)	MILD DROUGHT	-1.91	-1.34	-0.57	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
Central (5)	MILD DROUGHT	-1.73	-1.28	-0.45	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.75	-1.44	-0.31	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MODERATE DROUGHT	-2.46	-2.14	-0.32	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	SEVERE DROUGHT	-3.02	-2.70	-0.32	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY
Southeast (9)	MODERATE DROUGHT	-2.73	-2.43	-0.30	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY

KEETCH-BYRAM DROUGHT FIRE INDEX

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 09/18/2000	ANTICIPATED IMPACT
Ringling	Jefferson	South Central	772	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Burneyville	Love	South Central	771	
Antlers	Pushmataha	Southeast	769	

36 total stations with KBDI values above 700

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 virtually all state rivers and streams are now reflecting the impacts of much below normal precipitation and runoff. Considering overall trends as well as current flows, the most recent data (September 6) 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) and *central* (Canadian River in McClain County) Oklahoma; **below average flow** in the *south central* (Washita River in Carter County), *southeast* (Glover River in McCurtain 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](#) (September 24-28) calls for normal precipitation for all of Oklahoma but the western two-thirds of the Panhandle, where no rainfall is anticipated. Above normal temperatures are expected for all of Oklahoma during the 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.

Crop Report

September 17 - Small amounts of rainfall brought temporary relief from extremely hot and dry conditions in eastern and south central portions of the state early last week. However, most regions again received no rainfall. The continued dry weather has resulted in a soil moisture level decrease for the seventh straight week and soil moisture levels remain critically low. Statewide, topsoil moisture is very short while subsoil moisture is very short to short.

Hot and dry conditions continue to hamper planting for fall small grains in most areas of the state. Most wheat farmers are waiting for rain so they can get underway with planting the 2001 crop. Some farmers have proceeded to dust in the 2001 crop.

Row crop conditions continue to decline overall. Absence of adequate moisture and hot temperatures continue to deteriorate dryland row crops. Corn remains in mostly good condition across the state. However, the extreme conditions have rapidly matured the crop to 18 percent ahead of normal. Growers made good progress last week and harvested an additional 13 percent of the crop. As of Sunday, 87 percent of the crop had matured and 61 percent had been harvested, both well ahead of the five-year averages. Sorghum is in mostly fair condition while heading of the crop is nearly complete. Sorghum coloring was at 71 percent last week while 52 percent of the crop was mature and 29 percent had been harvested. Soybeans are in mostly fair condition, but proper pod filling remains a concern. Soybean harvest continues where possible and is 33 percent complete. Cotton and peanuts are rated in mostly fair condition statewide. Dryland and some irrigated peanuts continued to suffer from the extreme conditions. A few peanut fields in the southwest have been dug. The heat and dry conditions have led to the advanced maturity of dryland cotton. Some growers applied defoliant to their crop last week while some began harvesting on a limited basis.

Both alfalfa and all other hay are in mostly fair condition. The fourth cutting of alfalfa progressed slowly and totaled 72 percent complete, but remains ahead of the five-year average of 66 percent. The fifth cutting of alfalfa was 21 percent cut by week's end. Hay conditions in the southwest and south central regions have been the most affected by the dry conditions.

Pastures continue to suffer from the dry weather, although areas that received rain have shown some improvement. Both hay and protein feeding continue in areas most hurt from the absence of adequate pastures. Pasture conditions were rated in poor to fair condition. Cattle remain in mostly good to fair condition statewide. However, many cattle are showing evidence of stress. Stock water levels continue to decline and many ranchers are hauling water in critical areas. Plans for herd reduction continue as prospects for improved conditions remain uncertain. Insect pressures on cattle continue to be moderate to light.

Reservoir Storage

Reservoir storage levels throughout much of Oklahoma continue to decline, albeit slowly. As of September 18, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 87.5 percent full, a 2.6 percent decrease over that measured on September 7, according to information from the [U.S. Army Corps of Engineers \(Tulsa District\)](#). Thirty reservoirs (all but Kaw, in north central Oklahoma) have experienced lake level decreases since that time. In addition, all 31 reservoirs are currently operating at less than full capacity, compared to 30 less than two weeks ago. Still, only three reservoirs (**Lugert-Altus, only 32.4 percent**; Keystone, 70.9 percent; and Tom Steed, 71.5 percent) are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
as of September 18, 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	12,741	91.7	0.00
Great Salt Plains	31,420	27,187	86.5	0.00
Kaw*	384,574	379,908	98.8	0.00
Keystone	505,381	358,311	70.9	0.00
Regional Totals/Averages	935,275	778,147	83.2	0.00
NORTHEAST				
Birch	19,225	17,094	88.9	0.00
Copan	43,400	37,462	86.3	0.00
Fort Gibson	365,200	344,700	94.4	0.00
Grand	1,672,000	1,478,881	88.4	0.00
Hudson	200,300	198,693	99.2	0.00
Hulah	31,160	26,018	83.5	0.00
Oologah	552,210	512,332	92.8	0.00
Skiatook	322,700	298,109	92.4	0.00
Regional Totals/Averages	3,206,195	2,913,289	90.9	0.00
WEST CENTRAL				
Canton	111,310	100,720	90.5	0.00
Foss	165,480	156,143	94.4	0.00
Regional Totals/Averages	276,790	256,863	92.8	0.00
CENTRAL				
Arcadia	27,520	24,656	89.6	0.00
Heyburn	7,105	6,082	85.6	0.00
Thunderbird	119,600	110,178	92.1	0.00
Regional Totals/Averages	154,225	140,916	91.4	0.00
EAST CENTRAL				
Eufaula*	2,368,223	2,016,278	85.1	0.00
Tenkiller	654,100	572,344	87.5	0.00
Regional Totals/Averages	3,022,323	2,588,622	85.7	0.00
SOUTHWEST				
Fort Cobb	80,010	75,262	94.1	0.00
Lugert-Altus	132,830	42,998	32.4	0.00
Tom Steed	88,970	63,632	71.5	0.00
Regional Totals/Averages	301,810	181,892	60.3	0.00
SOUTH CENTRAL				
Arbuckle	72,400	66,347	91.6	0.00
McGee Creek	113,930	100,659	88.4	0.00
Texoma*	2,539,946	2,292,740	90.3	0.00
Waurika*	178,188	148,146	83.1	0.00
Regional Totals/Averages	2,904,464	2,607,892	89.8	0.00
SOUTHEAST				
Broken Bow*	958,180	812,860	84.8	0.00
Hugo*	158,617	132,811	83.7	0.00
Pine Creek*	59,660	51,758	86.8	0.00
Sardis	274,330	257,574	93.9	0.00
Wister	60,162	50,998	84.8	0.00
Regional Totals/Averages	1,510,949	1,306,001	86.4	0.00
STATE TOTALS	12,312,031	10,773,622	87.5	0.00

* 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. Three individual seeding flight operations, all for rainfall enhancement, were conducted from September 7-19. The 2000 Program officially began operations on March 1, 2000.

RECENT WEATHER MODIFICATION ACTIVITIES SEPTEMBER 7-19, 2000					
Date/ Flight(s)	County Location(s)	Texas	Kansas	Hail	Rain
11-Sep	Comanche, Jefferson				x
12-Sep	Carter, Love, Murray				x
12-Sep	LeFlore, Pushmataha				x
* Information may not reflect the most recent operations.					