

Oklahoma Water Resources Bulletin & Summary of Current Conditions



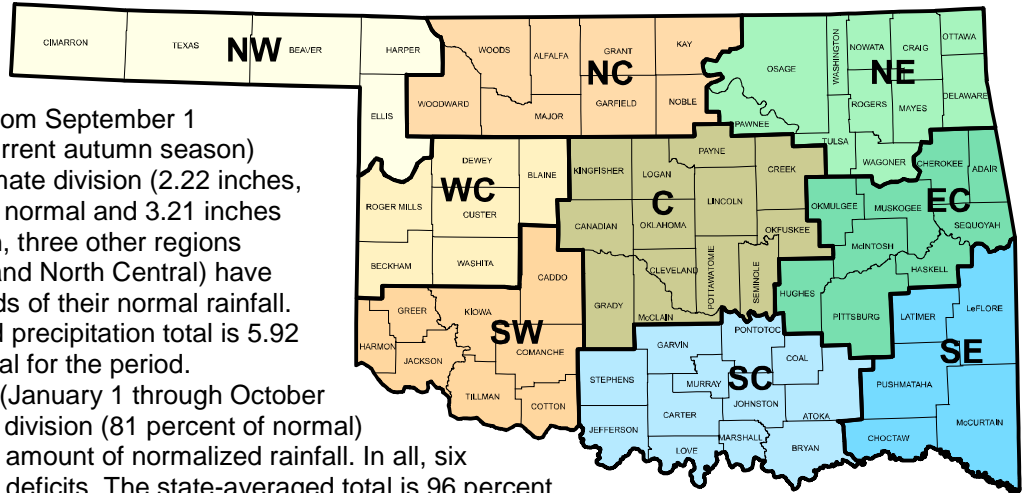
OCTOBER 24, 2001

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Rainfall in Oklahoma has been widely variable throughout the last month and many areas remain in need of moisture. 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 through October 21 (the current autumn season) remains the Southwest climate division (2.22 inches, which is only 41 percent of normal and 3.21 inches below average). In addition, three other regions (Northwest, West Central and North Central) have received less than two-thirds of their normal rainfall. The current state-averaged precipitation total is 5.92 inches, 98 percent of normal for the period.

For the calendar year (January 1 through October 21), the Southwest climate division (81 percent of normal) has also received the least amount of normalized rainfall. In all, six regions report precipitation deficits. The state-averaged total is 96 percent of normal.



PRELIMINARY STATEWIDE PRECIPITATION BY CLIMATE DIVISION

DIVISION (#)	CALENDAR YEAR JANUARY 1 – OCTOBER 21, 2001			AUTUMN 2001 SEPTEMBER 1 – OCTOBER 21, 2001			RAINFALL SINCE SEPTEMBER 24
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	15.81	-1.94	89	1.56	-1.36	53	0.04
North Central (2)	21.66	-2.87	88	3.10	-1.78	63	0.42
Northeast (3)	29.41	-4.32	87	6.11	-1.20	84	3.62
West Central (4)	21.62	-1.66	93	2.94	-1.93	60	0.27
Central (5)	28.42	-1.00	97	6.66	0.27	104	2.14
East Central (6)	38.68	3.03	109	8.77	1.24	117	4.59
Southwest (7)	19.88	-4.67	81	2.22	-3.21	41	0.48
South Central (8)	34.84	2.50	108	11.65	4.44	162	3.40
Southeast (9)	42.62	2.43	106	9.65	1.68	121	4.58
STATE-AVERAGED	28.00	-1.16	96	5.92	-0.10	98	2.18

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 (October 20 below), drought conditions linger in several areas of the state and four regions remain in drought. The West Central, Southwest and North Central climate divisions are in the "moderate drought" category while the Northeast region is in "mild drought." Four of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since September 22. The greatest decrease occurred in the West Central climate division.

The latest monthly Standardized Precipitation Index (through September, below) indicates that North Central and Northeast Oklahoma are experiencing long-term dryness. Among the *selected* time periods (3-, 6-, 9- and 12-month SPI's), those climate divisions report **moderately dry to very dry conditions** throughout the last six to nine months. Among other periods, the 15-month SPI also reports moderately dry conditions in the Northeast, Oklahoma's most consistently dry region.

The latest Keetch-Byram Drought Index (September 24, 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 remain generally good. Statewide, only eight stations are currently above 600, generally indicative of more severe drought conditions (nine stations had a reading above 600 on September 24). Goodwell, in Northwest Oklahoma, reports the highest KBDI value (664), followed by Altus (Southwest; 661) and Hinton (Southwest; 657). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). Only one county, Texas County, remains in the Governor's the Ban on Outdoor Burning and only four other northwest/Panhandle Oklahoma counties (Harper, Ellis, Cimarron and Beaver) remain under a Red Flag Fire Alert. Prolonged dry conditions have produced continued high fire danger across these counties and extra precautions are advised when burning anything outdoors. In these areas, citizens are urged to avoid burning anything outdoors when winds exceed 20 mph.

PALMER DROUGHT SEVERITY INDEX					STANDARDIZED PRECIPITATION INDEX THROUGH SEPTEMBER 2001			
CLIMATE DIVISION (#)	CURRENT STATUS 10/20/2001	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		10/20	9/22					
Northwest (1)	NEAR NORMAL	0.02	0.76	-0.74	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
North Central (2)	MODERATE DROUGHT	-2.14	-1.70	-0.44	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.96	-2.66	0.70	VERY DRY	VERY DRY	MODERATELY DRY	NEAR NORMAL
West Central (4)	MODERATE DROUGHT	-2.25	-1.39	-0.86	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
Central (5)	INCIPIENT MOIST SPELL	0.70	-0.32	1.02	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
East Central (6)	MOIST SPELL	1.13	0.05	1.08	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MODERATE DROUGHT	-2.17	-1.42	-0.75	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
South Central (8)	UNUSUAL MOIST SPELL	2.05	1.62	0.43	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	VERY WET
Southeast (9)	MOIST SPELL	1.35	0.40	0.95	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET

KEETCH-BYRAM DROUGHT FIRE INDEX				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 10/22/2001	ANTICIPATED IMPACT
Goodwell	Texas	Northwest	664	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. 400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Altus	Jackson	Southwest	661	
Hinton	Caddo	Southwest	657	

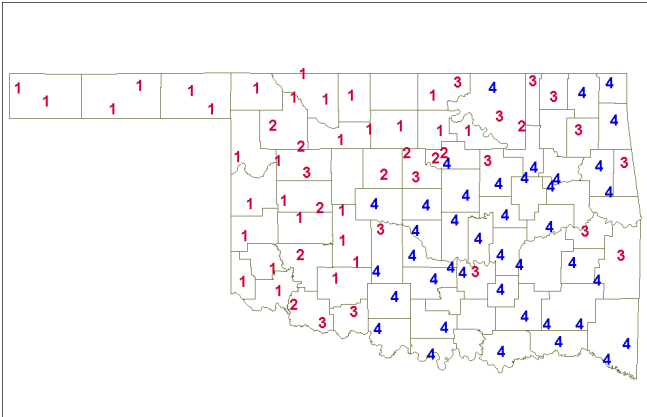
8 total stations above 600

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.

Soil Moisture
October 20, 2001
(courtesy Oklahoma Climatological Survey)

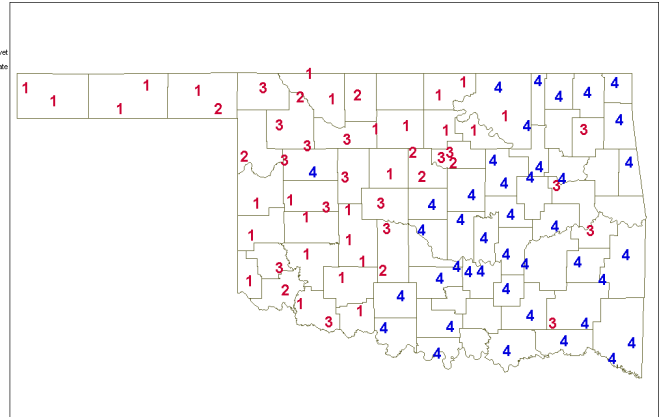
5 cm

Soil_Oct 20, 2001
 0000 UTC
 ## 5cm Cat. 4 = Moist/wet
 ## 5cm Cat. 3 = Adequate
 ## 5cm Cat. 2 = Limited
 ## 5cm Cat. 1 = Dry
 --- County borders (CR)



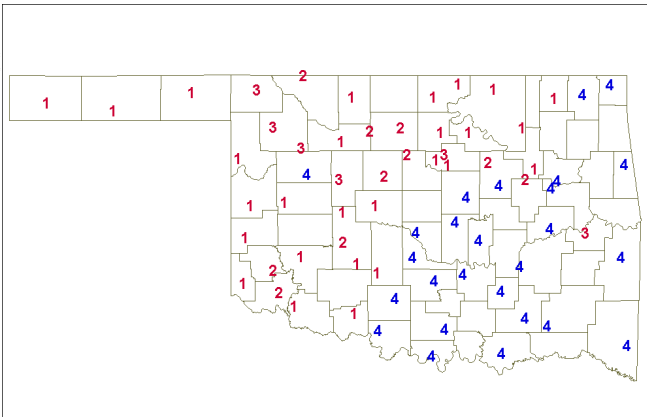
25 cm

Soil_Oct 20, 2001
 0000 UTC
 ## 25cm Cat. 4 = Moist/wet
 ## 25cm Cat. 3 = Adequate
 ## 25cm Cat. 2 = Limited
 ## 25cm Cat. 1 = Dry
 --- County borders (CR)



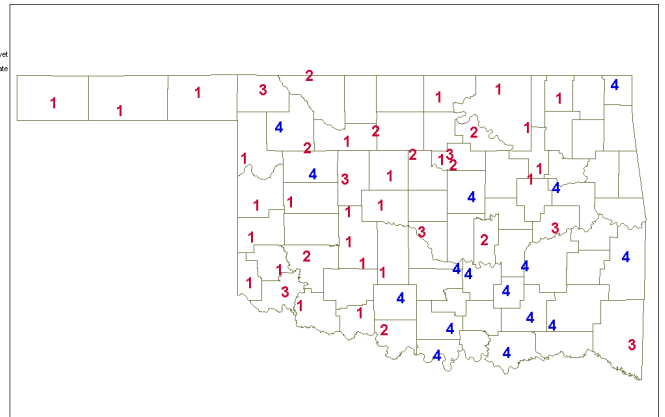
60 cm

Soil_Oct 20, 2001
 0000 UTC
 ## 60cm Cat. 4 = Moist/wet
 ## 60cm Cat. 3 = Adequate
 ## 60cm Cat. 2 = Limited
 ## 60cm Cat. 1 = Dry
 --- County borders (CR)



75 cm

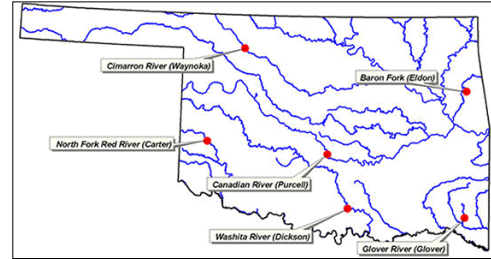
Soil_Oct 20, 2001
 0000 UTC
 ## 75cm Cat. 4 = Moist/wet
 ## 75cm Cat. 3 = Adequate
 ## 75cm Cat. 2 = Limited
 ## 75cm Cat. 1 = Dry
 --- County borders (CR)



Category Description		Depth -- Metric Conversion	
Category 4	Moist/wet	5 cm	2 inches
Category 3	Adequate	25 cm	9.8 inches
Category 2	Limited	60 cm	23.6 inches
Category 1	Dry	75 cm	29.5 inches

Streamflow Conditions

For the current water year (beginning October 1, 2000), flows in state rivers and streams are generally varied across Oklahoma. Considering overall trends as well as current flows, the most recent data (October 15, attached) 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, 2000 compared to long-term, normal/median daily discharges) indicate **below average flow** in the *southeast* (Glover River McCurtain County) and *south central* (Washita River Carter County) regions; **near average flow** in *northeast* (Baron Fork Cherokee County) and *central* (Canadian River McClain County) Oklahoma; and **above average flow** in the *southwest* (North Fork/Red River Beckham County) and *northwest* (Cimarron River Woods County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (October 29 through November 4) calls for normal precipitation and normal temperatures for all of Oklahoma through the period.

Current models indicate that positive (warmer than normal) sub-surface temperature (SST) anomalies continue to arise in the equatorial Pacific Ocean. This trend is expected to continue during the remainder of 2001 and into the first half of 2002. The impacts that this warming, a potential El Niño event, will have on global temperature and precipitation patterns depend to a large degree on its intensity, although Climate Prediction Center officials predict it will most likely be weak or moderate. El Niños, warm water patterns that increase the chances for cooler, wetter conditions in the southern U.S. (including Oklahoma), generally occur every two to seven years.

Crop Report

October 22 -- Rainfall was virtually nonexistent across Oklahoma last week except in a few isolated areas which experienced only limited precipitation. Western areas of the state continue to remain dry and need moisture for root development and plant growth before the onslaught of winter weather. Some northern localities suffered a killing frost early in the week. Unseasonably warm weather in western Oklahoma saw temperatures climb into the upper 80's late in the week. Mostly open weather permitted farmers 6.0 days suitable for fieldwork during the week.

Wheat ranged from mostly poor condition in the southwest to good condition in east central and southeast regions. Wheat was rated in good to fair condition in the major producing North Central area. Wheat development was running approximately two weeks ahead of the five-year average. Emergence ranged from 63 percent in north central and northeast Oklahoma to 85 percent in the east central region. High winds and prolonged dry weather are causing spotted stands of wheat and a bleak outlook for pasture in western Oklahoma. Some wheat was "dusted in" because of dry weather in central Oklahoma.

Reports of armyworms in emerged wheat were reported in scattered areas across the state. Some producers in south central Oklahoma were spraying because of heavy infestation. Rye and oats were rated in good to fair condition. Development of these crops was also well ahead of normal. Harvest of row crops continued to progress during the week. Sorghum harvest ranged from 46 percent in the west central region to near complete in the southeastern third of the state. Soybean harvest ranged from 56 percent in the east central region to near 95 percent in the west central and southeast areas. Digging of peanuts ranged from 24 percent in the south central region to near completion in the southeast. Cotton harvest ranged from less than five percent in the West Central region to near 50 percent in the major-producing southwest area. Condition of alfalfa hay ranged from mostly poor in western Oklahoma to mostly good in the east central region. By the end of the week, 88 percent of the fourth cutting and 53 percent of the fifth cutting was harvested. The second cutting of all other hay was 81 percent complete.

Cattle auctions reported marketing a higher proportion of cattle less than 800 pounds. The price for feeder steers less than 800 pounds decreased slightly from last week and averaged \$90.20 per cwt. The price for feeder heifers less than 800 pounds also declined from last week and averaged \$83 per cwt. Some cattle were put on wheat pasture in some areas of south central Oklahoma. Producers in areas of the north central region were waiting for another rain before putting out cattle. Insect activity on livestock was rated moderate to heavy in the southwest. Range and pastures were rated in poor to very poor condition in western Oklahoma. Prolonged dry weather has stunted pasture growth. Beneficial moisture has pushed ratings to good condition in southeastern areas of the state.

Reservoir Storage

Reservoir storage levels continue to slowly rebound from the summer dry period, although some lakes remain low or very low. As of October 22, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 93.5 percent full, a 1.6 percent increase from that recorded on September 25, according to information from the U.S. Army Corps of Engineers (Tulsa District). Sixteen reservoirs have experienced lake level decreases since that time, including all three in the southwest. Twenty reservoirs are currently operating at less than full capacity (compared to 23 four weeks ago); six reservoirs (**Lugert-Altus, only 36 percent; Hulah, 57.2 percent;** Canton, 71.8 percent; Birch, 72.8 percent; Tom Steed, 75.9 percent; and Copan, 79.3 percent) are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
10/22/2001				
Climate Division	Conservation Storage	Present Storage	Percent of Storage	
Lake or Reservoir	(acre-feet)	(acre-feet)	conservation	flood
NORTH CENTRAL				
Fort Supply	13,900	13,764	99.0	0.00
Great Salt Plains	31,420	26,210	83.4	0.00
Kaw*	397,126	397,126	100.0	0.27
Regional Totals/Averages	442,446	437,100	98.8	0.09
NORTHEAST				
Birch	19,225	14,004	72.8	0.00
Copan	43,400	34,418	79.3	0.00
Fort Gibson	365,200	365,200	100.0	0.42
Grand	1,672,000	1,570,000	93.9	0.00
Hudson	200,300	200,300	100.0	1.76
Hulah	31,160	17,829	57.2	0.00
Keystone	278,122	232,169	83.5	0.00
Oologah	552,210	552,210	100.0	3.34
Skiatook	322,700	275,765	85.5	0.00
Regional Totals/Averages	3,484,317	3,261,895	93.6	0.61
WEST CENTRAL				
Canton	111,310	79,913	71.8	0.00
Foss	165,480	149,985	90.6	0.00
Regional Totals/Averages	276,790	229,898	83.1	0.00
CENTRAL				
Arcadia	27,520	27,520	100.0	0.49
Heyburn	7,105	6,319	88.9	0.00
Thunderbird	119,600	119,420	99.8	0.00
Regional Totals/Averages	154,225	153,259	99.4	0.16
EAST CENTRAL				
Eufaula*	2,314,581	2,126,746	91.9	0.00
Tenkiller	654,100	599,180	91.6	0.00
Regional Totals/Averages	2,968,681	2,725,926	91.8	0.00
SOUTHWEST				
Fort Cobb	80,010	73,914	92.4	0.00
Lugert-Altus	132,830	47,771	36.0	0.00
Tom Steed	88,970	67,545	75.9	0.00
Regional Totals/Averages	301,810	189,230	62.7	0.00
SOUTH CENTRAL				
Arbuckle	72,400	72,400	100.0	1.05
McGee Creek	113,930	113,930	100.0	0.14
Texoma*	2,653,178	2,615,723	98.6	0.00
Waurika*	190,200	176,262	92.7	0.00
Regional Totals/Averages	3,029,708	2,978,315	98.3	0.30
SOUTHEAST				
Broken Bow*	931,480	820,210	88.1	0.00
Hugo*	158,617	158,617	100.0	1.97
Pine Creek*	56,986	56,986	100.0	0.17
Sardis	274,330	274,330	100.0	2.38
Wister	60,162	60,162	100.0	3.28
Regional Totals/Averages	1,481,575	1,370,305	92.5	1.56
STATE TOTALS	12,139,552	11,345,928	93.5	0.49

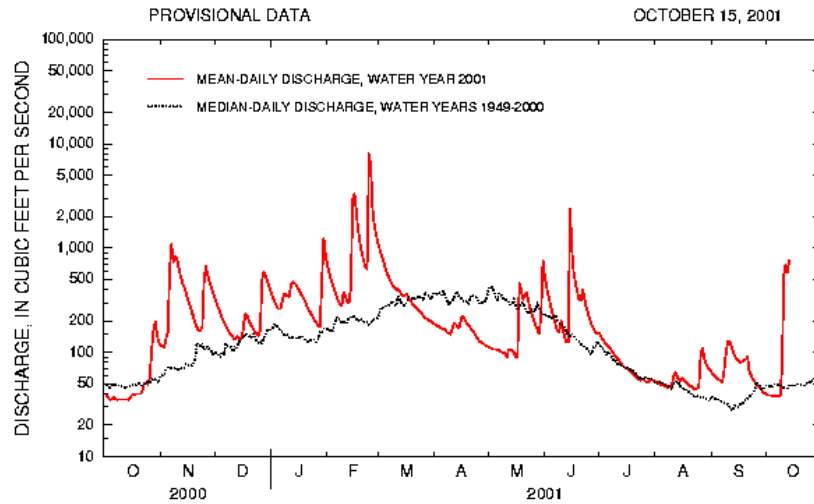
* indicates seasonal pool operation; actual storage figures/percentages may vary.

Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma

Station No. 07197000
Northeast Oklahoma

Drainage Area 307 square miles



Comparison of daily discharges for water year 2001 and period of record for Baron Fork at Eldon, Oklahoma.

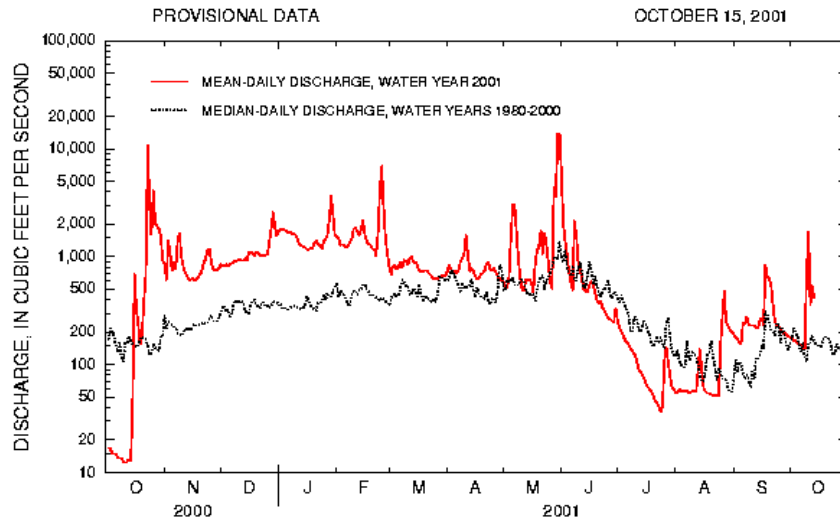
Data from U.S. Geological Survey

Canadian River at Purcell

Canadian River at Purcell, Oklahoma

Station No. 07229200
Central Oklahoma

Drainage Area 25,939 square miles



Comparison of daily discharges for water year 2001 and period of record for Canadian River at Purcell, Oklahoma.

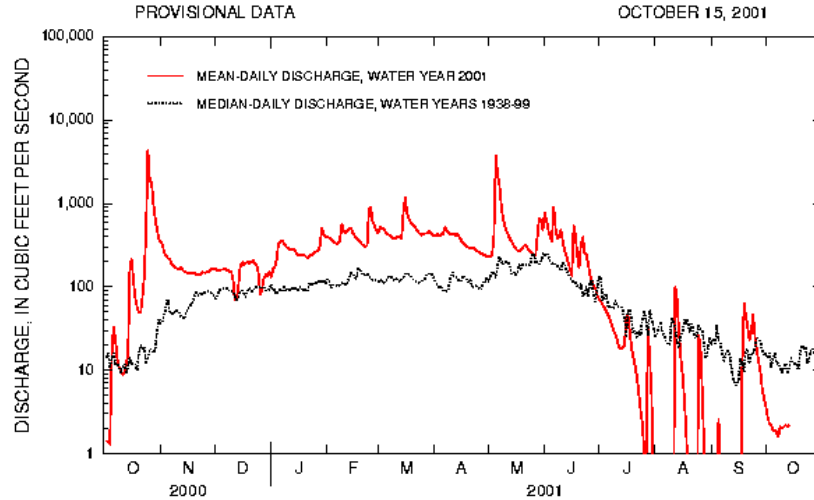
Data from U.S. Geological Survey

Cimarron River near Waynoka

Cimarron River near Waynoka, Oklahoma

Station No. 07158000
Northwest Oklahoma

Drainage Area 13,334 square miles



Comparison of daily discharges for water year 2001 and period of record for Cimarron River near Waynoka, Oklahoma.

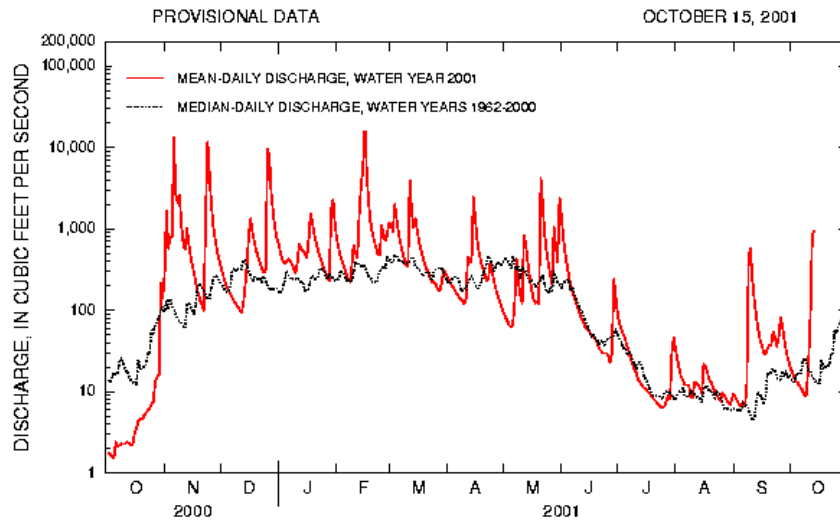
Data from U.S. Geological Survey

Glover River near Glover

Glover River near Glover, Oklahoma

Station No. 07337900
Southeast Oklahoma

Drainage Area 315 square miles



Comparison of daily discharges for water year 2001 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

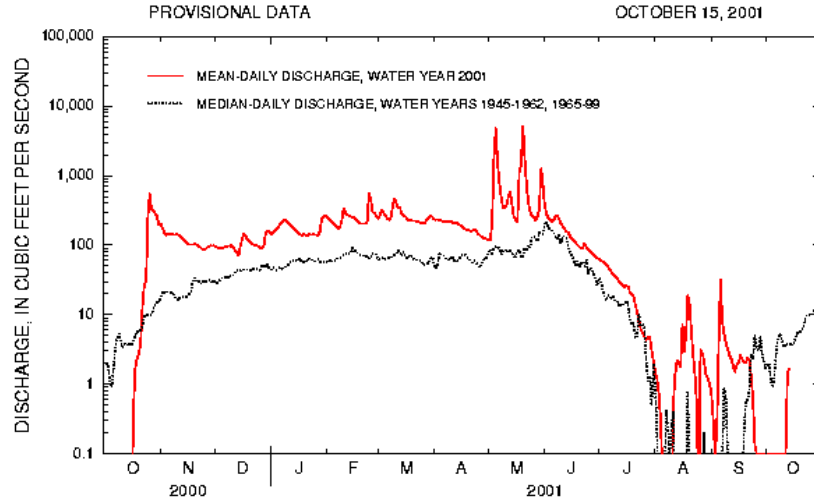
North Fork of the Red River near Carter

North Fork Red River near Carter, Oklahoma

Station No. 07301500

Southwest Oklahoma

Drainage Area 2,337 square miles



Comparison of daily discharges for water year 2001 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

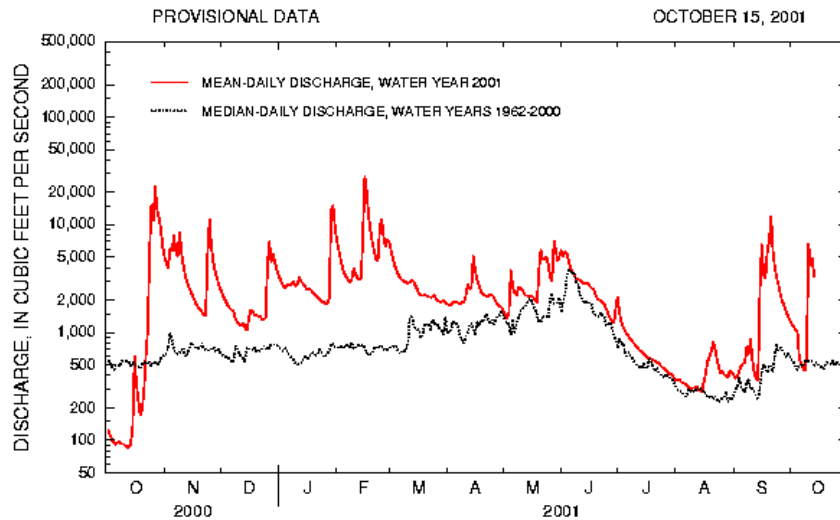
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2001 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey