

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



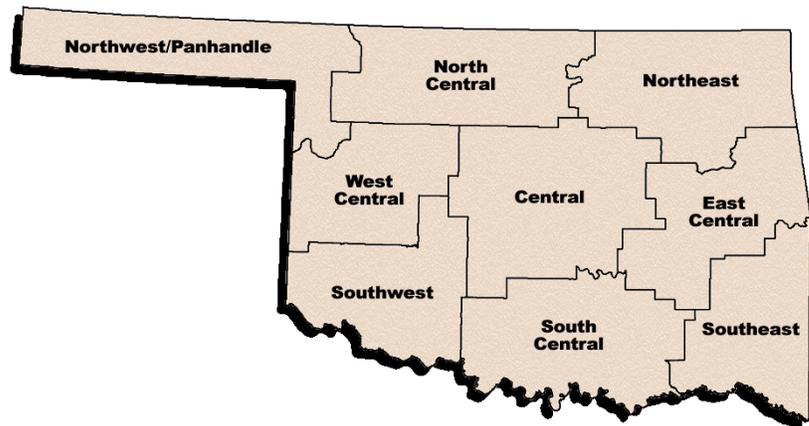
OCTOBER 16, 2002

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent rainfall has at least temporarily alleviated dry conditions in western Oklahoma. However, eastern areas are becoming quite dry. According to preliminary Mesonet weather station data provided by the Oklahoma Climatological Survey and National Weather Service (see below), the area receiving the lowest percent of normal rainfall from September 1 through October 14 (the current growing season), is the East Central climate division (2.12 inches, only 31 percent of normal precipitation). The Northeast region is also very dry, receiving only 3.11 inches of precipitation (48 percent of normal) during the period. The current state-averaged rainfall total is 4.42 inches, 83 percent of normal.

For the current calendar year (January 1 through October 14), the Northwest region has received 14.49 inches (78 percent of normal) of rainfall. Six additional regions report precipitation deficits over the period. The state-averaged rainfall total is 27.74 inches (92 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	COOL GROWING SEASON SEPTEMBER 1—OCTOBER 14, 2002			CALENDAR YEAR JANUARY 1—OCTOBER 14, 2002			RAINFALL SINCE SEPTEMBER 15
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	3.47	+0.91	135	14.49	-4.05	78	2.13
North Central (2)	6.48	+2.15	150	27.72	+0.91	103	4.93
Northeast (3)	3.11	-3.31	48	30.78	-3.30	90	2.17
West Central (4)	4.09	-0.09	98	21.23	-3.59	86	2.42
Central (5)	5.48	-0.28	95	29.11	-2.05	93	3.39
East Central (6)	2.12	-4.77	31	30.43	-6.04	83	1.81
Southwest (7)	4.87	+0.13	103	22.55	-3.51	87	3.41
South Central (8)	4.91	-1.35	78	32.38	-0.62	98	2.74
Southeast (9)	4.75	-2.06	70	40.71	+1.63	104	3.66
STATE-AVERAGED	4.42	-0.92	83	27.74	-2.26	92	2.98

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.owrb.state.ok.us/features/drought.html>.

Drought Indices

According to the latest Palmer Drought Severity Index (October 12, below), drought conditions have improved throughout much of Oklahoma, although the east is now becoming rather dry. Four climate divisions remain in drought. The Panhandle/Northwest region, recently in the "extreme" drought category, has improved to "mild" drought. The East Central, Northeast, and Southeast climate divisions are also in the "mild" drought category. Only one (the Northeast) of Oklahoma's nine climate divisions has undergone a PDSI moisture decrease since September 14.

The latest monthly Standardized Precipitation Index (through September, below) indicates that recent long-term dryness has been alleviated somewhat in northwest Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), the Northwest/Panhandle climate division reports only "moderately dry" conditions throughout the last 12-month period. Short-term dryness is now impacting eastern Oklahoma as the East Central region reports "moderately dry" conditions during the last 3 months. Considering longer periods, conditions remain dry throughout the past 24 to 30 months in northern and western Oklahoma. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (October 15, 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 remain generally good, although conditions continue to worsen in eastern Oklahoma. Statewide, only six Mesonet stations are currently above 600, generally indicative of more severe drought conditions (12 stations had a reading above 600 on September 17). Eufaula, in East Central Oklahoma (718), retains the highest KBDI value, followed by Clayton (Southeast; 653), and Sallisaw (East Central; 632). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger) and extremely dry conditions have developed in eastern Oklahoma. The Governor's Ban on Outdoor Burning, previously in effect for Texas County as well as four counties in the east, has been cancelled. However, seven counties in east central Oklahoma (Haskell, LeFlore, McIntosh, Muskogee, Okfuskee, Okmulgee, and Sequoyah Counties) remain under a Red Flag Fire Alert.

Palmer Drought Severity Index					Standardized Precipitation Index Through September 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 10/12/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		10/12	9/14					
Northwest (1)	MILD DROUGHT	-1.10	-3.26	2.16	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
North Central (2)	MOIST SPELL	1.85	-0.44	2.29	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.53	-1.31	-0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT DROUGHT	-0.75	-2.30	1.55	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT MOIST SPELL	0.87	-0.12	0.99	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.73	-1.79	0.06	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	0.47	-0.70	1.17	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	0.48	0.33	0.15	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MILD DROUGHT	-1.02	-1.70	0.68	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

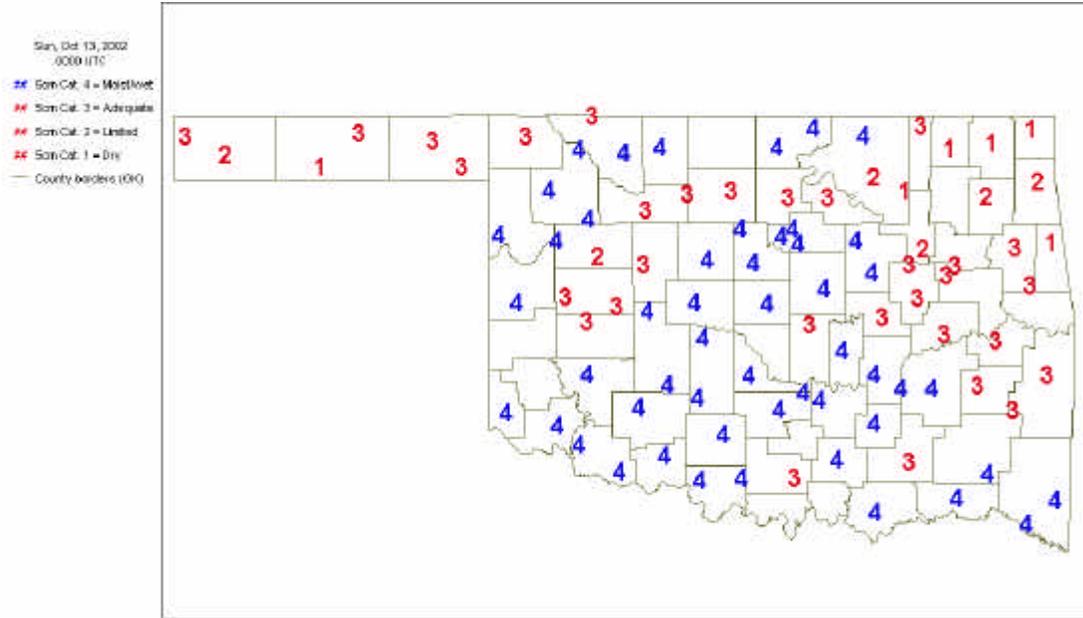
Keetch-Byram Drought Fire Index				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 10/15/2002	ANTICIPATED IMPACT
Eufaula	McIntosh	East Central	718	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live 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.
Clayton	Pushmataha	Southeast	653	
Sallisaw	Sequoyah	East Central	632	

6 total stations above 600

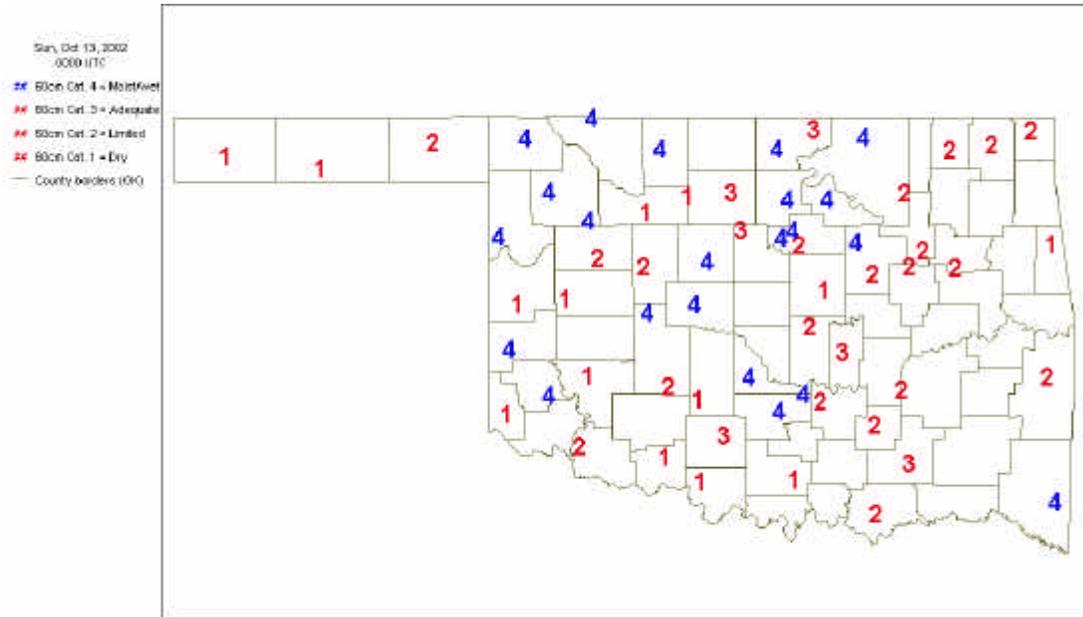
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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 13, 2002
(courtesy Oklahoma Climatological Survey)

5 cm



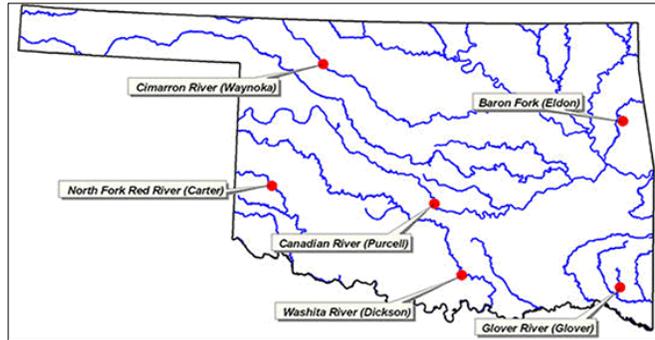
60 cm



Category Description		Depth -- Metric Conversion
Category 4	Moist/wet	5 cm = 2 inches
Category 3	Adequate	*corresponds to the approximate depth of grass roots
Category 2	Limited	60 cm = 23.6 inches
Category 1	Dry	*corresponds to the approximate root depth of the majority of Oklahoma crops

Streamflow Conditions

For the current water year, flows in many state rivers and streams remain generally low but continue to improve in some areas. Considering overall trends as well as current flows, the most recent data (October 14, 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, 2001, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *northwest* (Cimarron River, Woods County) and *south central* (Washita River, Carter County) Oklahoma; **below average flow** in the *southwest* (North Fork/Red River, Beckham County) and *southeast* (Glover River, McCurtain County) regions; and **near average flow** in *central* (Canadian River, McClain County) and *northeast* (Baron Fork, Cherokee County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (October 22-28) calls for above normal precipitation for all of Oklahoma. Below normal temperatures are also expected for the entire state throughout the period.

Models continue to indicate gradual warming of equatorial Pacific Ocean waters and relatively weak El Niño conditions (especially compared to the very strong 1997-98 El Niño) are forecasted to continue through early 2003. The impacts that this warming will have on global temperature and precipitation patterns depend to a large degree on its intensity. El Niños, warm water patterns that increase the chances for generally cooler, wetter conditions in the southern U.S. (including Oklahoma), occur about every two to seven years.

Crop Report

October 6—A strong cold front entered the State dropping temperatures in the Panhandle counties dramatically. Heavy thunderstorms, rain, isolated large hail, and flooding occurred along the frontal boundary. The Mesonet site at Cherokee recorded 7.87 inches of precipitation for the week. One hundred and seven of the state's 112 Mesonet sites recorded rainfall last week. Heavy rains halted fieldwork in many areas, and producers in some areas will have to replant wheat fields washed out by the storms. Statewide, both topsoil and subsoil moisture supplies improved from the previous week. Farmers had 5.5 days suitable for fieldwork during the week.

Producers made some progress in preparing and planting small grains despite wet conditions. Wheat emerging advanced 19 percentage points from the previous week to 47 percent of the crop. Sixty percent of the rye planted by Sunday had already emerged. Oats planted was 36 percent complete, and nearly one-fourth had emerged as of Sunday. Many counties reported armyworms showing up in fields. Cotton County reported armyworms were eating wheat faster than it could emerge, and Stephens County reported producers having to replant because of armyworm damage. Many farmers were busy spraying to keep populations under control. Producers made decent progress harvesting row crops before rains halted fieldwork in many areas. Corn harvest advanced 10 percentage points to 70 percent complete, but was running behind both last year and normal. McClain County reported this summer's heat and wind have increased aflatoxin problems in their corn. Sorghum harvest was 62 percent complete compared with 44 percent last year and the average of 30 percent complete. Three-fourths of the soybeans were mature and 40 percent had been harvested as of Sunday. Peanuts dug advanced 12 percentage points to 31 percent complete. Twenty percent had been combined by week's end. Bolls were open on 80 percent of this year's cotton crop, and 21 percent had been harvested. All major row crops continued to be rated in mostly fair or good condition. The fourth cutting of alfalfa was progressing slowly, gaining just one percentage point during the week, but producers working on their fifth cutting made good progress and ended the week with 62 percent completed. Other hay harvest was slowly coming to an end at 91 percent complete. Many areas have already reported being done for the year. Both alfalfa and other hay continued to be rated in mostly fair or good condition.

Livestock conditions continued to be rated in mostly fair or good condition. Dry conditions in the Southeast and East Central districts have forced many producers to start supplemental feeding of livestock. Last week, 7 percent of pastures were rated in very poor condition, 15 percent poor, 33 percent fair, 39 percent good, and 6 percent excellent. Parts of the Panhandle, southeast, and southwest regions of Oklahoma were in the worst shape, and other areas reported new pasture growth at a standstill.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good, although they continue to drop in most areas. As of October 15, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 90.2 percent full, a 1.6 percent decrease from that recorded on September 16, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-three reservoirs have experienced lake level decreases since that time. Twenty-five reservoirs are currently operating at less than full capacity (compared to 25 one month ago). Three reservoirs (**Lugert-Altus, only 10.1 percent; Tom Steed, 54.7 percent; and Wister, 79 percent**) are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs						
<i>10/15/2002</i>						
<i>Climate Division</i>	<i>Conservation Storage</i>		<i>Present Storage</i>		<i>Percent of Storage</i>	
<i>Lake or Reservoir</i>						
	(acre-feet)		(acre-feet)		conservation	flood
North Central						
Fort Supply	13,900		13,405		96.4	0.00
Great Salt Plains	31,420		31,420		100.0	6.27
Kaw*	375,160		375,160		100.0	0.10
Regional Totals/Averages	420,480		419,985		99.9	2.12
Northeast						
Birch	19,225		15,615		81.2	0.00
Copan	43,400		41,908		96.6	0.00
Fort Gibson	365,200		357,159		97.8	0.00
Grand	1,672,000		1,481,401		88.6	0.00
Hudson	200,300		190,661		95.2	0.00
Hulah	25,100		25,100		100.0	0.93
Keystone	510,059		510,059		100.0	0.93
Oologah	552,210		528,046		95.6	0.00
Skiatook	322,700		275,672		85.4	0.00
Regional Totals/Averages	3,710,194		3,425,621		92.3	0.21
West Central						
Canton	111,310		102,785		92.3	0.00
Foss	165,480		151,058		91.3	0.00
Regional Totals/Averages	276,790		253,843		91.7	0.00
Central						
Arcadia	27,520		27,520		100.0	0.75
Heyburn	7,105		6,366		89.6	0.00
Thunderbird	119,600		109,946		91.9	0.00
Regional Totals/Averages	154,225		143,832		93.3	0.25
East Central						
Eufaula*	2,260,943		1,924,609		85.1	0.00
Tenkiller	654,100		629,069		96.2	0.00
Regional Totals/Averages	2,915,043		2,553,678		87.6	0.00
Southwest						
Fort Cobb	80,010		76,148		95.2	0.00
Lugert-Altus	132,830		13,404		10.1	0.00
Tom Steed	88,970		48,666		54.7	0.00
Regional Totals/Averages	301,810		138,218		45.8	0.00
South Central						
Arbuckle	72,400		72,400		100.0	1.63
McGee Creek	113,930		108,717		95.4	0.00
Texoma*	2,612,738		2,451,900		93.8	0.00
Waurika*	190,200		180,812		95.1	0.00
Regional Totals/Averages	2,989,268		2,813,829		94.1	0.41
Southeast						
Broken Bow*	939,490		798,130		85.0	0.00
Hugo*	158,617		136,728		86.2	0.00
Pine Creek*	53,750		53,312		99.2	0.00
Sardis	274,330		265,626		96.8	0.00
Wister	60,162		47,513		79.0	0.00
Regional Totals/Averages	1,486,349		1,301,309		87.6	0.00
State Totals	12,254,159		11,050,315		90.2	0.34

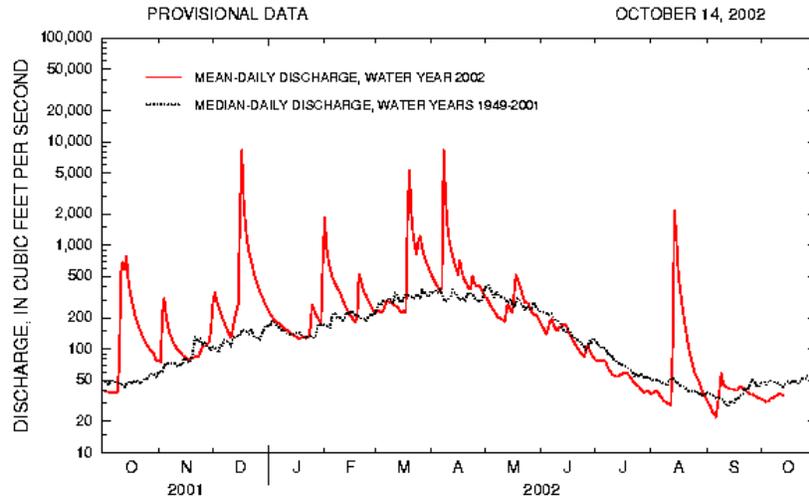
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2002 and period of record for Baron Fork at Eldon, Oklahoma.

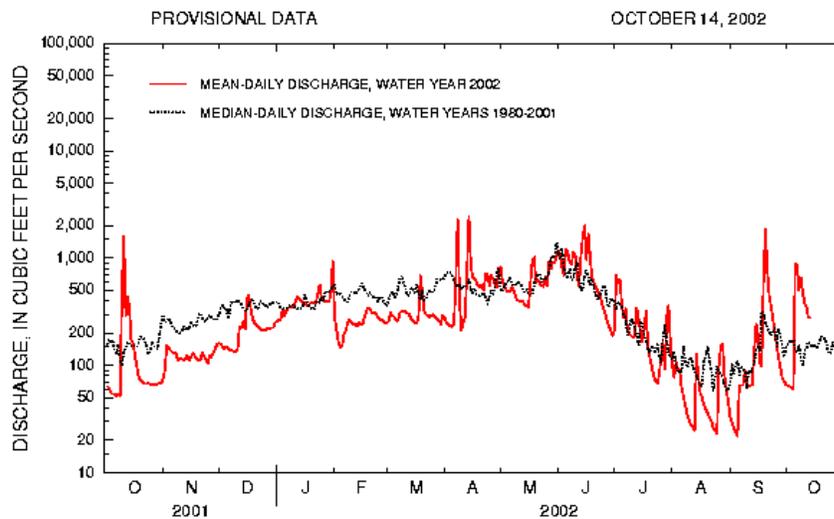
Data from U.S. Geological Survey

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 2002 and period of record for Canadian River at Purcell, Oklahoma.

Data from U.S. Geological Survey

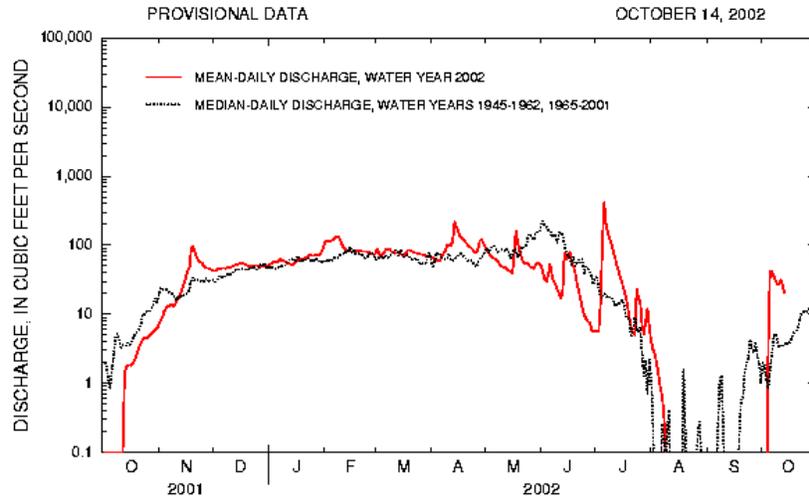
North Fork of the Red River near Carter

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 2002 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

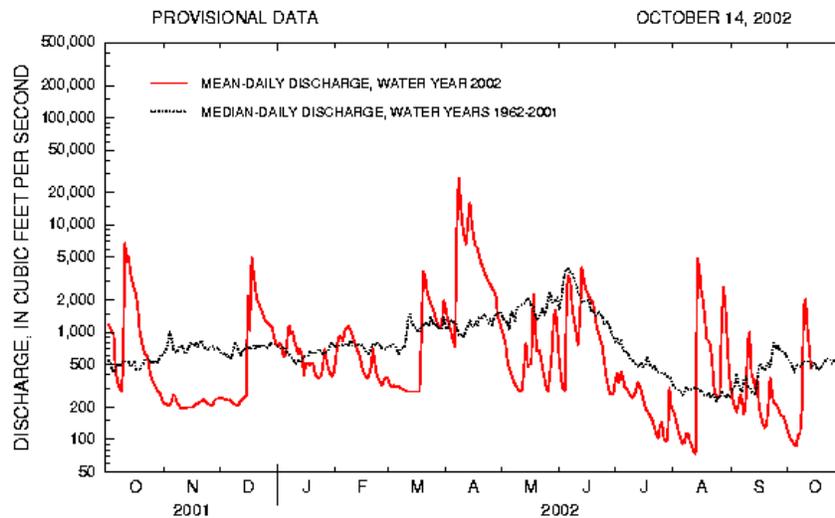
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2002 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey