

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



NOVEMBER 13, 2002

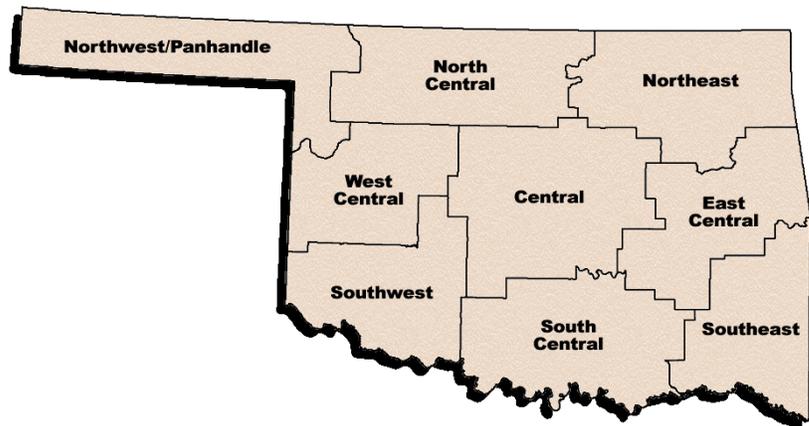
OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent rainfall continues to alleviate dry conditions, except in some areas of eastern Oklahoma, which remains rather 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 November 12 (the current growing season), remains the East Central climate division (5.71 inches, 52 percent of normal precipitation). The Northeast region is also somewhat dry, receiving 6.07 inches of precipitation (62 percent of normal) during the period. The current state-averaged rainfall total is 8.21 inches, 99 percent of normal.

For the current calendar year (January 1 through November 12), the East Central region has received 34.03 inches (84 percent of normal, 6.5 inches below the average) of rainfall. Six additional regions report precipitation deficits over the period.

The state-averaged rainfall total is 31.53 inches (96 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	COOL GROWING SEASON SEPTEMBER 1—NOVEMBER 12, 2002			CALENDAR YEAR JANUARY 1—NOVEMBER 12, 2002			RAINFALL SINCE OCTOBER 14
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	6.20	+2.39	163	17.21	-2.56	87	2.73
North Central (2)	10.50	+3.88	159	31.74	+2.64	109	4.02
Northeast (3)	6.07	-3.79	62	33.72	-3.80	90	2.96
West Central (4)	9.11	+2.83	145	26.25	-0.66	98	5.02
Central (5)	9.46	+0.57	106	33.10	-1.19	97	3.98
East Central (6)	5.71	-5.24	52	34.03	-6.50	84	3.59
Southwest (7)	8.92	+1.86	126	26.60	-1.78	94	3.87
South Central (8)	8.74	-1.09	89	36.22	-0.35	99	3.83
Southeast (9)	9.13	-2.43	79	45.08	+1.26	103	4.38
STATE-AVERAGED	8.21	-0.11	99	31.53	-1.45	96	3.79

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 (November 9, below), drought conditions continue to improve throughout most of Oklahoma, although the east is now becoming somewhat dry. Only one climate division (Northeast, "mild drought") is currently classified in drought, although the East Central region is experiencing "incipient drought." None of Oklahoma's nine climate divisions have undergone a PDSI moisture decrease since October 12.

The latest monthly Standardized Precipitation Index (through October, below) indicates that recent long-term dryness has been alleviated in northwest Oklahoma, but dryness has developed in the east central region. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), only the East Central climate division reports dry ("moderately dry") conditions throughout the last 12-month period. Considering longer periods (through six years), no regions indicate dry conditions. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (November 12, 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 one Mesonet station is currently above 600, generally indicative of more severe drought conditions (six stations had a reading above 600 on October 15). Clayton, in Southeast Oklahoma (664), has the highest KBDI value, followed by Eufaula (East Central; 533), and Sallisaw (East Central; 479). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness is now at Level 2 (moderate fire danger). The Red Flag Fire Alert, previously in effect for seven counties in east central Oklahoma, has been cancelled.

Palmer Drought Severity Index					Standardized Precipitation Index Through October 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 11/9/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		11/9	10/12					
Northwest (1)	MOIST SPELL	1.90	-1.10	3.00	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.78	1.85	0.93	VERY WET	VERY WET	MODERATELY WET	MODERATELY WET
Northeast (3)	MILD DROUGHT	-1.00	-1.53	0.53	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.99	-0.75	2.74	VERY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Central (5)	MOIST SPELL	1.31	0.87	0.44	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT DROUGHT	-0.84	-1.73	0.89	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MOIST SPELL	1.43	0.47	0.96	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MOIST SPELL	1.06	0.48	0.58	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	INCIPIENT MOIST SPELL	0.56	-1.02	1.58	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET

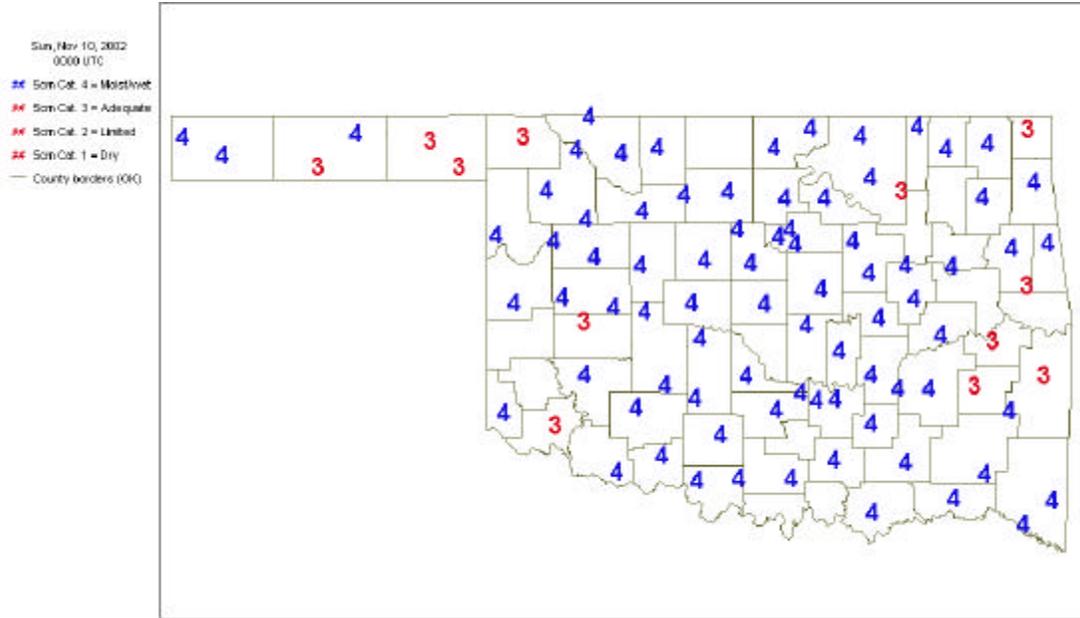
Keetch-Byram Drought Fire Index				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 11/12/2002	ANTICIPATED IMPACT
Clayton	Pushmataha	Southeast	664	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live 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.
Eufaula	McIntosh	East Central	533	
Sallisaw	Sequoyah	East Central	479	

Total stations above 600 = 1

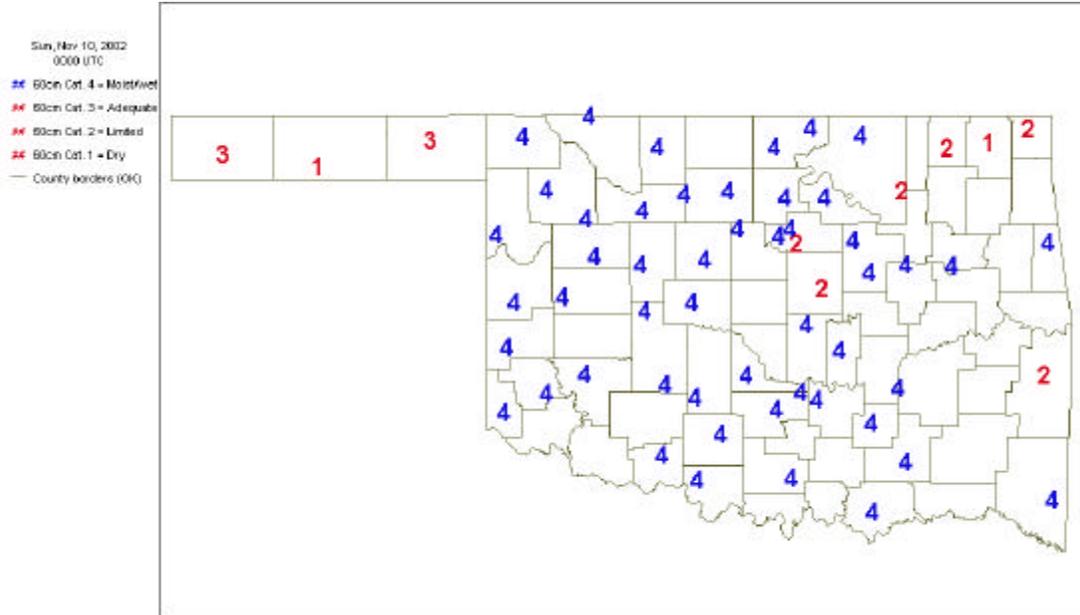
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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
November 11, 2002
(courtesy Oklahoma Climatological Survey)

5 cm



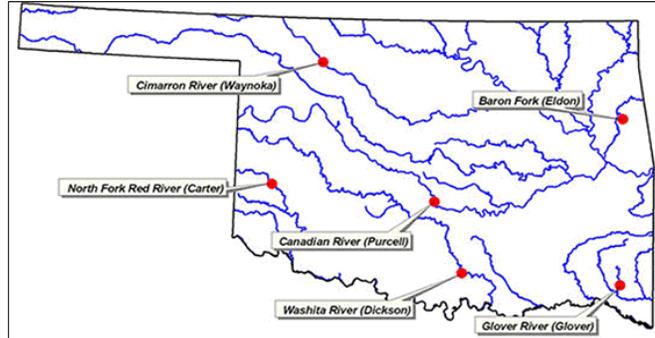
60 cm



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 are rebounding from recently dry conditions. Considering overall trends as well as current flows, the most recent data (November 4, 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 **below average flow** in *northwest* (Cimarron River, Woods County) Oklahoma; **near average flow** in the *northeast* (Baron Fork, Cherokee County), *south central* (Washita River, Carter County), and *southeast* (Glover River, McCurtain County) regions; and **above average flow** in *southwest* (North Fork/Red River, Beckham County) and *central* (Canadian River, McClain County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (November 19-25) calls for below normal precipitation for all of Oklahoma. Above normal temperatures are expected for the entire state throughout the period.

Models continue to indicate that relatively weak El Niño conditions (especially compared to the very strong 1997-98 El Niño) will continue through spring 2003. 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

November 10 - Sunshine and warmer temperatures began drying out muddy fields that were keeping producers sidelined. Many producers began harvesting remaining row crops or finishing up seeding of small grain fields. Low temperatures during the week continued to be below freezing in many areas, but reached the low 80s in some areas. Statewide, both topsoil and subsoil moisture supplies were rated mostly adequate or surplus. Farmers had 2.8 day suitable for fieldwork during the week.

Producers began getting back into fields that were too wet to seed last week. Winter wheat planted increased 2 percentage points to 94 percent complete. Wheat emerging increased 6 percentage points from the previous week to 91 percent of the intended acres. Sunshine and milder temperatures added to improved wheat condition with more acreage rated good or excellent than last week. Virtually all of the state's intended rye acreage had emerged by week's end. Oats seeded increased 3 percentage points during the week to 60 percent of the intended acreage. Rye was rated in mostly good or excellent condition while oats were in mostly fair or good condition. Row crop harvest began gaining momentum after a nearly 3-week slowdown. Corn harvest was wrapping up in most areas, while sorghum, soybeans, peanuts and cotton still had a ways to go. Recent cool wet conditions held sorghum turning mature slightly behind last year and the five-year average pace. Sorghum harvest, at 80 percent complete, was running near the normal pace. Soybean harvest increased 7 percentage points during the week to 81 percent complete. Peanuts dug and combined were running behind the normal pace. Cotton harvest was approaching the halfway mark with 43 percent completed by week's end. Normally, 65 percent would be completed at this point in the season. Cotton conditions improved during the week with more rated as fair, good, or excellent than in the previous week. The fifth cutting of alfalfa gained some momentum last week, increasing 3 percentage points to 74 percent of the crop. The second cutting of other hay was winding down with 97 percent of the crop harvested as of Sunday. Both alfalfa and other hay continued to be rated in mostly fair or good condition.

Livestock continued to be rated in mostly fair or good condition. Livestock auctions reported an increase in marketings of steers and heifers less than 800 pounds. Range and pasture conditions continued to be rated in mostly fair or good condition, however parts of the Panhandle, southwest, and southeast regions had many acres rated in poor or very poor condition.

Reservoir Storage

Reservoir storage levels in Oklahoma have rebounded somewhat in most areas. As of November 13, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.5 percent full, a 2.3 percent increase from that recorded on October 15, according to information from the U.S. Army Corps of Engineers (Tulsa District). Thirteen reservoirs have experienced lake level decreases since that time. Twenty-three reservoirs are currently operating at less than full capacity (compared to 25 one month ago). Five reservoirs (including **Lugert-Altus, only 19.9 percent**; and Tom Steed, 60 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		13,900		100.0	0.80
Great Salt Plains	31,420		31,420		100.0	2.59
Kaw*	398,695		396,596		99.5	0.00
Regional Totals/Averages	444,015		441,916		99.5	1.13
Northeast						
Birch	19,225		14,882		77.4	0.00
Copan	43,400		41,505		95.6	0.00
Fort Gibson	365,200		365,200		100.0	0.08
Grand	1,672,000		1,494,430		89.4	0.00
Hudson	200,300		198,158		98.9	0.00
Hulah	25,100		25,100		100.0	0.22
Keystone	510,059		510,059		100.0	0.22
Oologah	552,210		525,025		95.1	0.00
Skiatook	322,700		270,204		83.7	0.00
Regional Totals/Averages	3,710,194		3,444,563		92.8	0.06
West Central						
Canton	111,310		111,310		100.0	2.94
Foss	165,480		159,334		96.3	0.00
Regional Totals/Averages	276,790		270,644		97.8	1.47
Central						
Arcadia	27,520		27,520		100.0	0.43
Heyburn	7,105		6,461		90.9	0.00
Thunderbird	119,600		112,324		93.9	0.00
Regional Totals/Averages	154,225		146,305		94.9	0.14
East Central						
Eufaula*	2,314,583		2,079,142		89.8	0.00
Tenkiller	654,100		630,668		96.4	0.00
Regional Totals/Averages	2,968,683		2,709,810		91.3	0.00
Southwest						
Fort Cobb	80,010		79,154		98.9	0.00
Lugert-Altus	132,830		26,393		19.9	0.00
Tom Steed	88,970		53,355		60.0	0.00
Regional Totals/Averages	301,810		158,902		52.6	0.00
South Central						
Arbuckle	72,400		72,400		100.0	3.92
McGee Creek	113,930		108,110		94.9	0.00
Texoma*	2,701,706		2,622,952		97.1	0.00
Waurika*	190,200		182,945		96.2	0.00
Regional Totals/Averages	3,078,236		2,986,407		97.0	0.98
Southeast						
Broken Bow*	918,070		821,515		89.5	0.00
Hugo*	180,972		143,734		79.4	0.00
Pine Creek*	53,750		51,341		95.5	0.00
Sardis	274,330		266,162		97.0	0.00
Wister	60,162		46,059		76.6	0.00
Regional Totals/Averages	1,487,284		1,328,811		89.3	0.00
State Totals	12,421,237		11,487,358		92.5	0.36

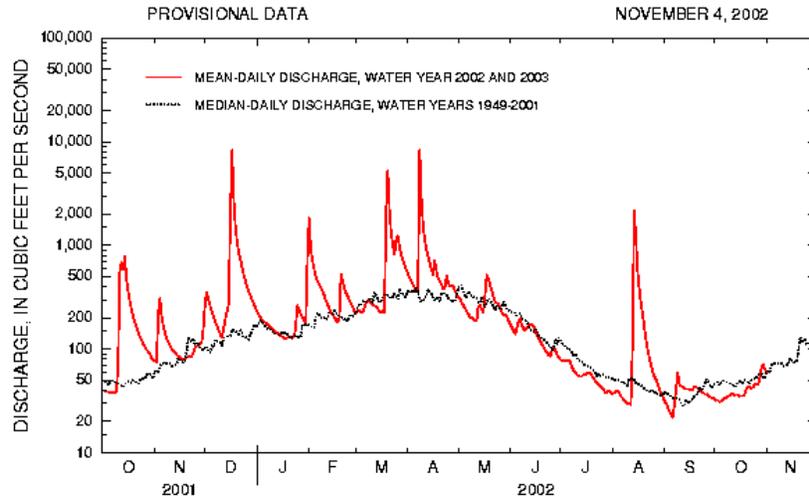
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2003 and period of record for Baron Fork at Eldon, Oklahoma.

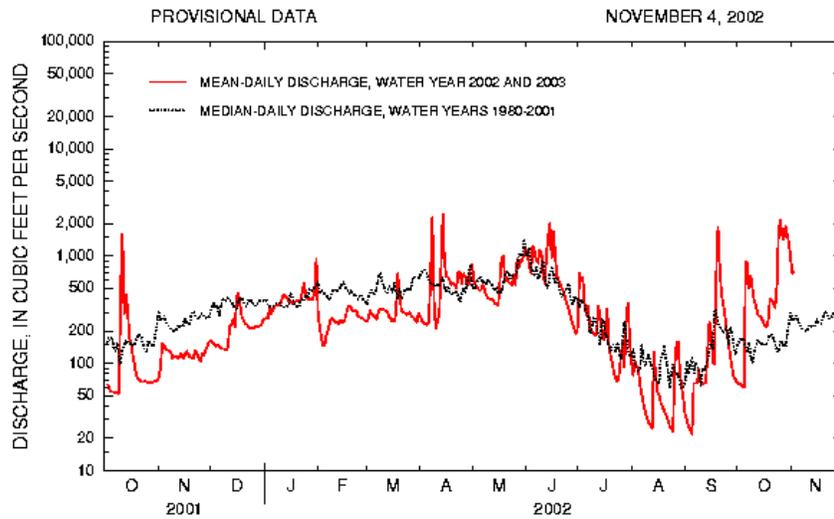
Data from U.S. Geological Survey

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 2003 and period of record for Canadian River at Purcell, Oklahoma.

Data from U.S. Geological Survey

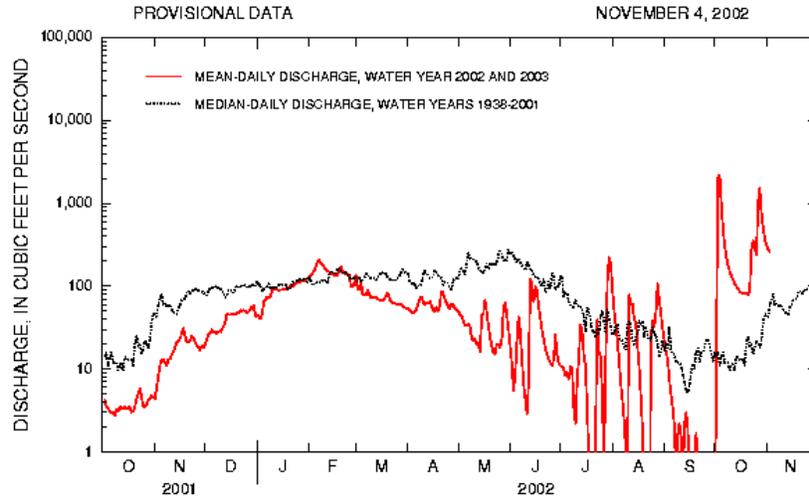
Cimarron River near Waynoka

Cimarron River near Waynoka, Oklahoma

Station No. 07158000

Northwest Oklahoma

Drainage Area 13,334 square miles



Comparison of daily discharges for water year 2002 and 2003 and period of record for Cimarron River near Waynoka, Oklahoma.

Data from U.S. Geological Survey

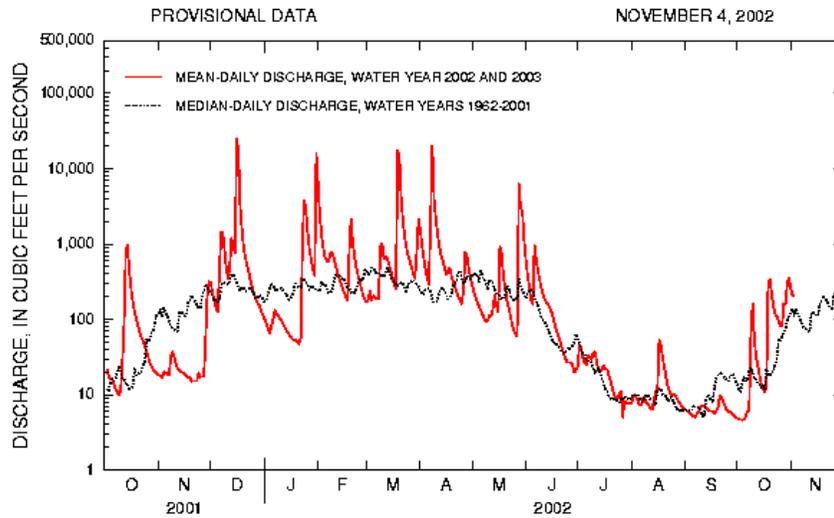
Glover River near Glover

Glover River near Glover, Oklahoma

Station No. 07337900

Southeast Oklahoma

Drainage Area 315 square miles



Comparison of daily discharges for water year 2002 and 2003 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

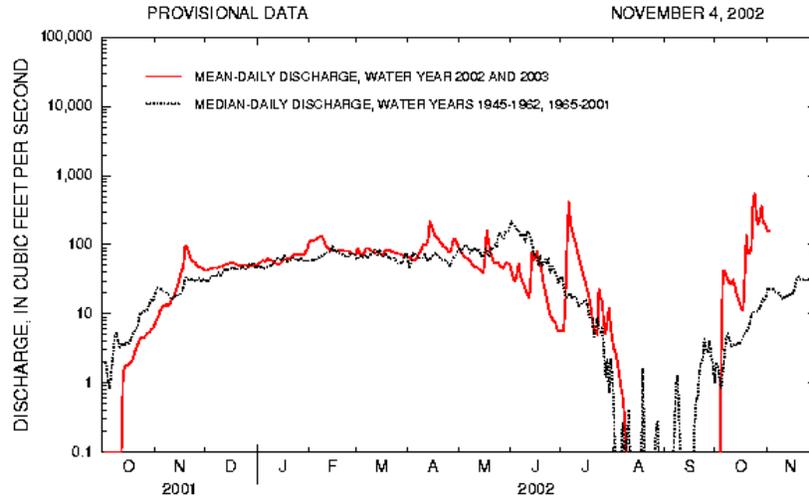
North Fork of the Red River near Carter

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 2002 AND 2003 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

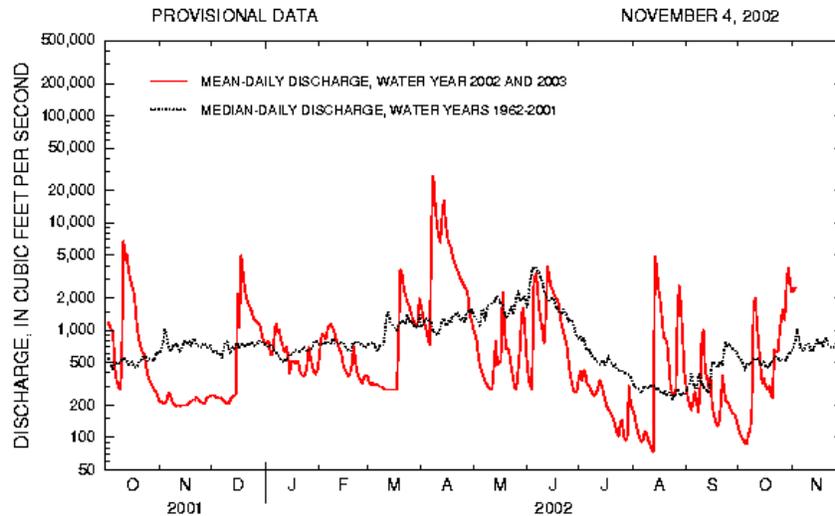
Washita River near Dickson

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 2003 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey