

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



DECEMBER 11, 2002

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Some areas of eastern Oklahoma remain 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 December 8 (the current growing season), remains the East Central climate division (7.08 inches, 49 percent of normal precipitation). The Northeast region is also somewhat dry, receiving 7.46 inches of precipitation (59 percent of normal) during the period. The current state-averaged rainfall total is 9.31 inches, 88 percent of normal.

For the current calendar year (January 1 through December 8), the East Central region has received 35.39 inches (81 percent of normal, 8.49 inches below the average) of rainfall. Only one region does not report a precipitation deficit over the period. The state-averaged rainfall total is 32.66 inches (93 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	COOL GROWING SEASON SEPTEMBER 1—DECEMBER 8, 2002			CALENDAR YEAR JANUARY 1—DECEMBER 8, 2002			RAINFALL SINCE NOVEMBER 12
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	6.72	+2.11	146	17.74	-2.84	86	0.52
North Central (2)	11.24	+3.04	137	32.48	+1.80	106	0.74
Northeast (3)	7.46	-5.16	59	35.07	-5.20	87	1.39
West Central (4)	10.07	+2.45	132	27.21	-1.04	96	0.96
Central (5)	10.84	-0.26	98	34.49	-2.01	94	1.38
East Central (6)	7.08	-7.22	49	35.39	-8.49	81	1.37
Southwest (7)	10.04	+1.58	119	27.72	-2.06	93	1.12
South Central (8)	10.08	-2.27	82	37.55	-1.53	96	1.34
Southeast (9)	10.12	-5.53	65	46.44	-1.48	97	0.99
STATE-AVERAGED	9.31	-1.22	88	32.66	-2.53	93	1.10

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, 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 (December 7, below), drought conditions continue to improve throughout most of Oklahoma, although eastern areas are somewhat dry. Two climate divisions (the Northeast and East Central regions, both in "mild drought") are currently classified in drought. Seven of Oklahoma's nine climate divisions have undergone minor PDSI moisture decreases since November 9. The greatest decreases occurred in the East Central and Southeast climate divisions.

The latest monthly Standardized Precipitation Index (through November, below) indicates general long-term dryness in east central and northwest Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), the East Central climate division reports "very dry" conditions throughout the last 3-month period and "moderately dry" conditions over the past 6 months. Also, the Northeast region is "moderately dry" over the last 3 months. Considering longer periods (through six years), the Northwest, Northeast, and Southwest indicate dry conditions at various times over the past 18, 24, and 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (December 9, 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. Statewide, no Mesonet stations are currently above 600, generally indicative of more severe drought conditions (one station had a reading above 600 on November 12). Clayton, in Southeast Oklahoma (560), retains the highest KBDI value, followed by Eufaula (East Central; 465), and Sallisaw (East Central; 420). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 2 (moderate fire danger). Recent moisture has temporarily reduced fire danger across the state. However, generally dry conditions in November have left wildland fuels extremely dry and a return to drier and windy conditions could result in additional Red Flag Fire Alerts.

Palmer Drought Severity Index					Standardized Precipitation Index Through November 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 12/7/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		12/7	11/9					
Northwest (1)	UNUSUAL MOIST SPELL	2.24	1.90	0.34	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.72	2.78	-0.06	MODERATELY WET	VERY WET	MODERATELY WET	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.25	-1.00	-0.25	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.78	1.99	-0.21	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Central (5)	MOIST SPELL	1.20	1.31	-0.11	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.16	-0.84	-0.32	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MOIST SPELL	1.55	1.43	0.12	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	INCIPIENT MOIST SPELL	0.80	1.06	-0.26	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	NEAR NORMAL	0.25	0.56	-0.31	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET

Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 12/9/2002	ANTICIPATED IMPACT
Clayton	Pushmataha	Southeast	560	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	465	
Sallisaw	Sequoyah	East Central	420	

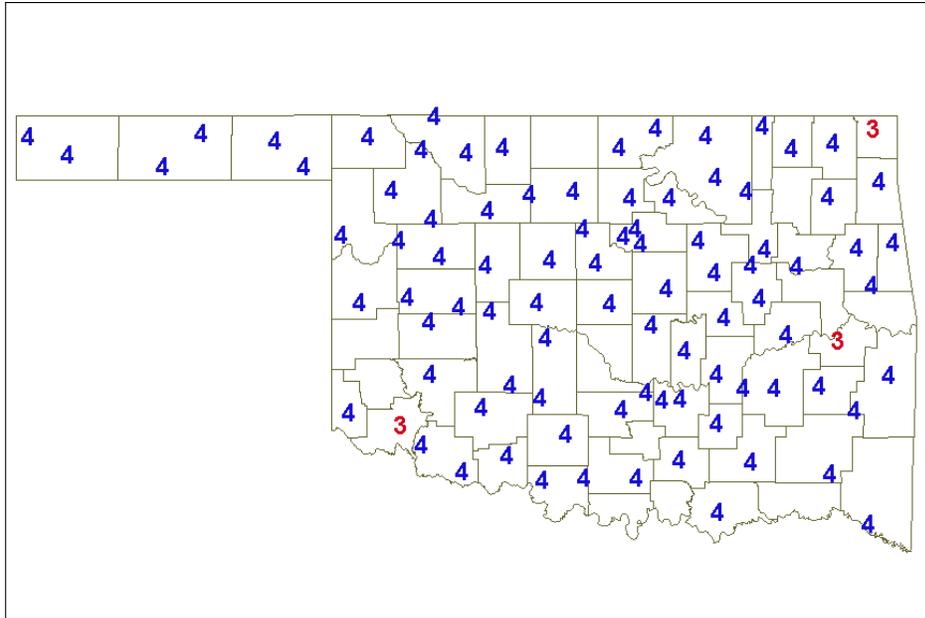
Total stations above 600 = 0

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
December 8, 2002
(courtesy Oklahoma Climatological Survey)

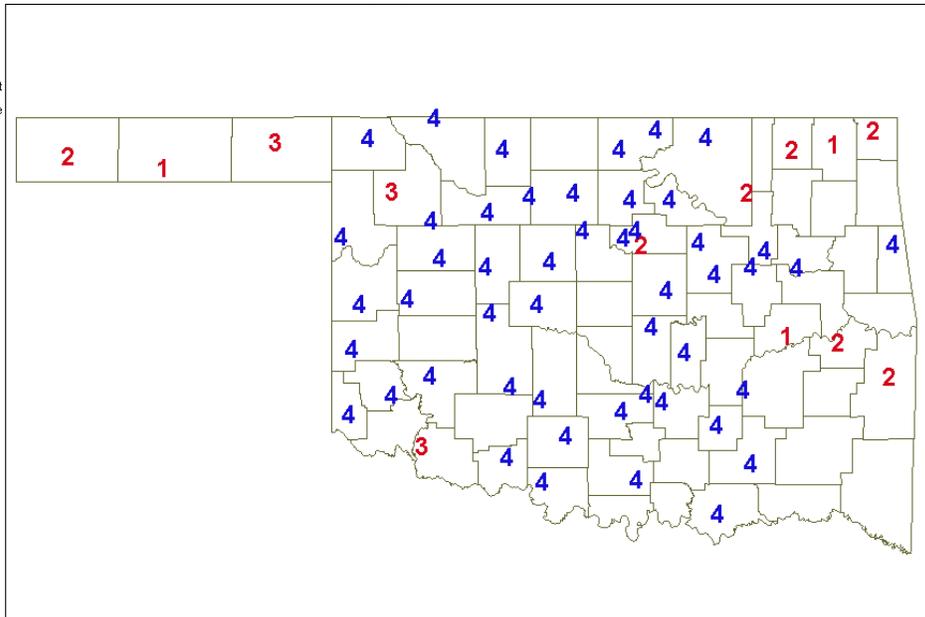
5 cm

Sun, Dec 8, 2002
 0000 UTC
 ## 5cm Cat. 4 = Moist/wet
 ## 5cm Cat. 3 = Adequate
 ## 5cm Cat. 2 = Limited
 ## 5cm Cat. 1 = Dry
 — County borders (OK)



60 cm

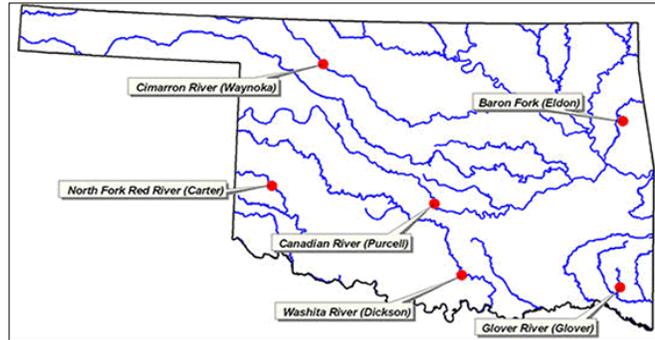
Sun, Dec 8, 2002
 0000 UTC
 ## 60cm Cat. 4 = Moist/wet
 ## 60cm Cat. 3 = Adequate
 ## 60cm Cat. 2 = Limited
 ## 60cm Cat. 1 = Dry
 — County borders (OK)



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 state rivers and streams continue to rebound from recently dry conditions. Considering overall trends as well as current flows, the most recent data (December 9, 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 *northeast* (Baron Fork, Cherokee County) Oklahoma; **near average flow** in the *southeast* (Glover River, McCurtain County), *south central* (Washita River, Carter County), and *central* (Canadian River, McClain County) regions; and **above average flow** in *northwest* (Cimarron River, Woods County) and *southwest* (North Fork/Red River, Beckham County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (December 16-22) calls for above normal precipitation for northeast and much of north central Oklahoma with normal rainfall anticipated for the remainder of the state. 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 24 - Continued mild temperatures and dry conditions allowed producers to get fieldwork done last week. Many areas reported demand for stockers increasing with many being put on wheat for grazing. Several areas reported some yellowing wheat, but expect it to recover. Kingfisher County reported finding winter mites and rust on wheat, but most areas remain optimistic about the crop. Soil moisture supplies began drying up but continued to be rated mostly adequate. Farmers had 6.6 days suitable for fieldwork during the week.

Nearly all the 2003 intended wheat acreage had been planted by week's end. Ninety-four percent had emerged as of Sunday. Wheat conditions slipped slightly from the previous week, but continued to be rated mostly fair or good. Oat seeding increased 3 percentage points from the previous week to 68 percent of the intended acreage, behind last year's pace and the five-year average. Of the oats planted, 65 percent had already emerged. Oat condition remained mostly fair or good.

Sorghum harvest increased 3 percentage points from the previous week to 88 percent complete. Soybean harvest advanced rapidly for a second consecutive week with 93 percent completed as of Sunday. McClain County reported soybean yields were much improved over the past years. Peanut producers had a busy week combining, wrapping up the week with 85 percent completed. Cotton harvest increased another 13 percentage points to end the week with 68 percent picked.

The fifth cutting of alfalfa increased 7 percentage points to end the week with 82 percent cut. A couple areas reported getting a late 6th cutting of quality alfalfa. The second cutting of other hay was virtually complete at 99 percent. Washington County, in the Northeast, reported a lot of hay being sold because of lower forage supplies in pastures.

Range and pasture conditions are in mostly fair or good condition. Livestock also continued to be rated in mostly fair or good condition. Livestock auctions reported a decrease in marketings of steers and heifers less than 800 pounds.

Reservoir Storage

Reservoir storage levels in Oklahoma remain in generally good condition. As of December 9, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.1 percent full, a 0.4 percent decrease from that recorded on November 13, according to information from the U.S. Army Corps of Engineers (Tulsa District). Nineteen reservoirs have experienced lake level decreases since that time. Twenty-three reservoirs are currently operating at less than full capacity (compared to 23 one month ago). Five reservoirs (including **Lugert-Altus, only 23.8 percent**; and Tom Steed, 58.9 percent) are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
<i>12/09/2002</i>				
<i>Climate Division</i>	<i>Conservation Storage</i>	<i>Present Storage</i>	<i>Percent of Storage</i>	
<i>Lake or Reservoir</i>	<i>(acre-feet)</i>	<i>(acre-feet)</i>	<i>conservation</i>	<i>flood</i>
North Central				
Fort Supply	13,900	13,866	99.8	0.00
Great Salt Plains	31,420	31,420	100.0	1.92
Kaw*	422,533	419,680	99.3	0.00
Regional Totals/Averages	467,853	464,966	99.4	0.64
Northeast				
Birch	19,225	14,653	76.2	0.00
Copan	43,400	41,303	95.2	0.00
Fort Gibson	365,200	365,200	100.0	0.21
Grand	1,672,000	1,455,781	87.1	0.00
Hudson	200,300	200,300	100.0	1.76
Hulah	25,100	25,100	100.0	0.28
Keystone	510,059	507,869	99.6	0.28
Oologah	552,210	518,022	93.8	0.00
Skiatook	322,700	266,528	82.6	0.00
Regional Totals/Averages	3,710,194	3,394,756	91.5	0.28
West Central				
Canton	111,310	111,310	100.0	1.82
Foss	165,480	161,806	97.8	0.00
Regional Totals/Averages	276,790	273,116	98.7	0.91
Central				
Arcadia	27,520	27,520	100.0	0.63
Heyburn	7,105	6,579	92.6	0.00
Thunderbird	119,600	111,628	93.3	0.00
Regional Totals/Averages	154,225	145,727	94.5	0.21
East Central				
Eufaula*	2,314,583	2,074,356	89.6	0.00
Tenkiller	654,100	617,507	94.4	0.00
Regional Totals/Averages	2,968,683	2,691,863	90.7	0.00
Southwest				
Fort Cobb	80,010	79,601	99.5	0.00
Lugert-Altus	132,830	31,624	23.8	0.00
Tom Steed	88,970	52,377	58.9	0.00
Regional Totals/Averages	301,810	163,602	54.2	0.00
South Central				
Arbuckle	72,400	72,400	100.0	5.23
McGee Creek	113,930	106,898	93.8	0.00
Texoma*	2,669,354	2,600,984	97.4	0.00
Waurika*	190,200	182,557	96.0	0.00
Regional Totals/Averages	3,045,884	2,962,839	97.3	1.31
Southeast				
Broken Bow*	918,070	826,682	90.0	0.00
Hugo*	184,917	145,833	78.9	0.00
Pine Creek*	53,750	53,750	100.0	0.47
Sardis	274,330	265,091	96.6	0.00
Wister	60,162	45,439	75.5	0.00
Regional Totals/Averages	1,491,229	1,336,795	89.6	0.09
State Totals	12,416,668	11,433,664	92.1	0.41

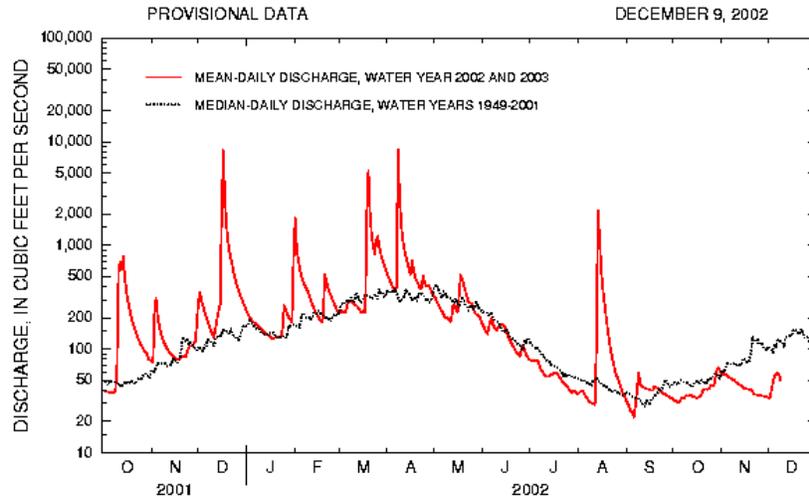
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

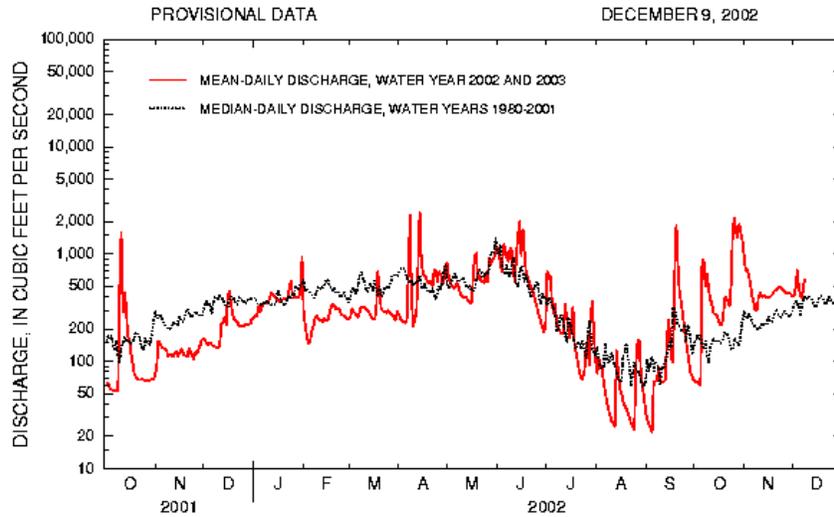
Data from U.S. Geological Survey

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

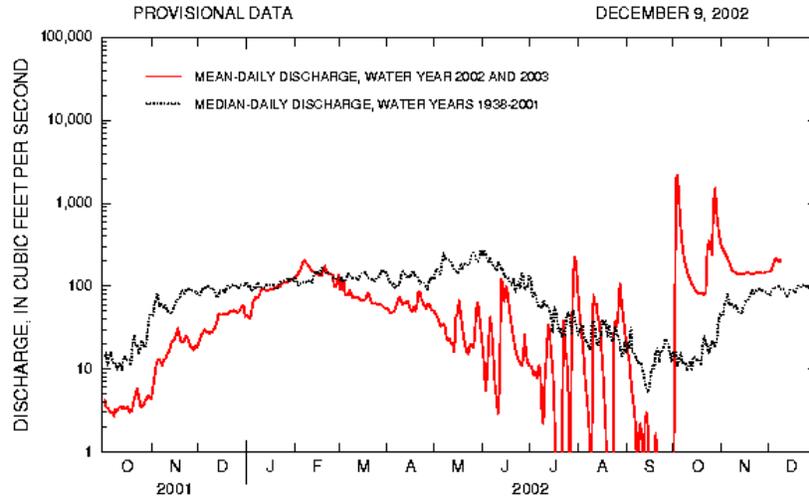
Cimarron River near Waynoka

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

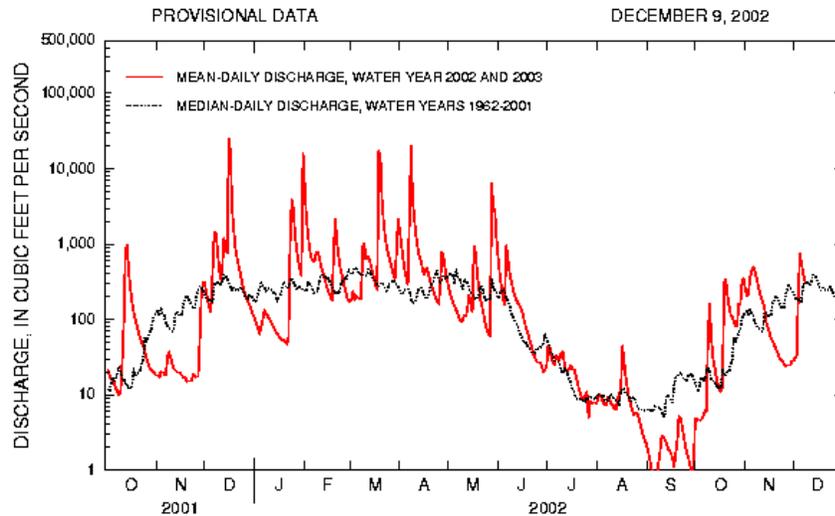
Glover River near Glover

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

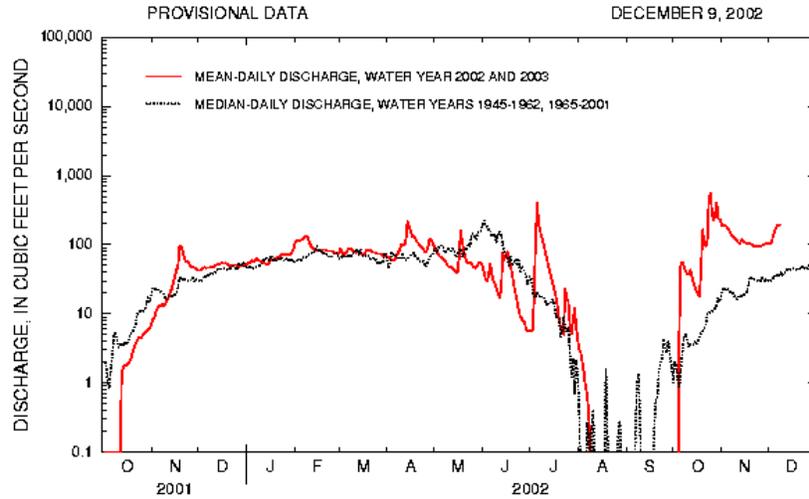
North Fork of the Red River near Carter

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

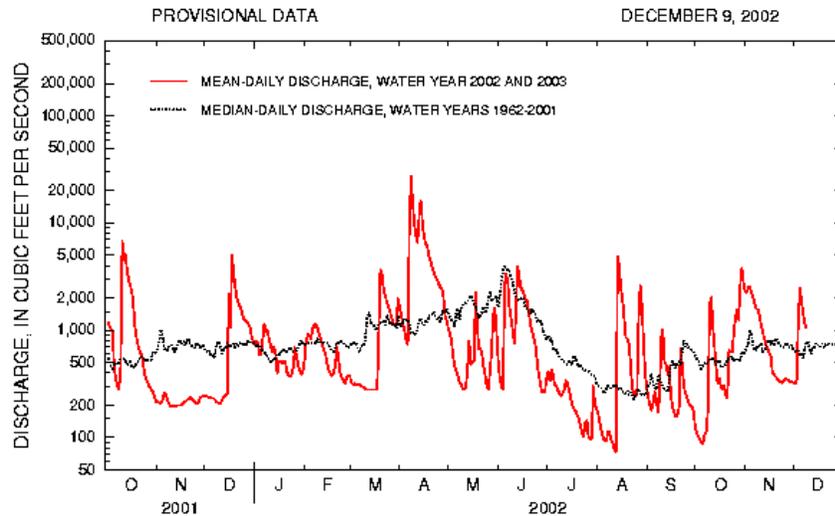
Washita River near Dickson

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