Oklahoma Water Resources Bulletin
& Summary of Current Conditions

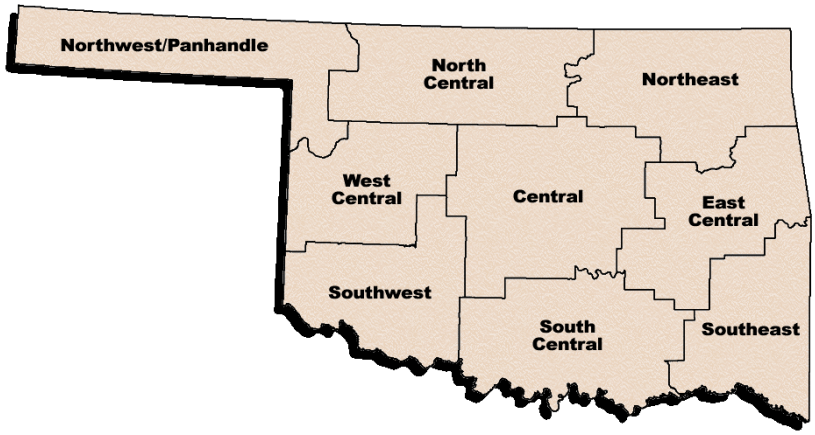
APRIL 24, 2002 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Despite continued rainfall in many areas, more precipitation is required to compensate for rainfall deficits throughout northwest Oklahoma.

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 October 1, 2001 through April 23, 2002 (the current water year) remains the Northwest climate division (2.34 inches, only 31 percent of normal precipitation). The current state-averaged precipitation total is 14.86 inches, 87 percent of normal.

For the current growing season (March 1 through April 23), five climate divisions continue to report precipitation deficits, including the Northwest region at 24 percent of normal. The state-averaged total is 5.83 inches (103 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—APRIL 23, 2002			WARM GROWING SEASON MARCH 1—APRIL 23, 2002			RAINFALL SINCE APRIL 8
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	2.34	-5.11	31	0.74	-2.3	24	0.57
North Central (2)	6.59	-6.55	50	2.64	-2.31	53	1.57
Northeast (3)	17.52	-2.29	88	5.35	-1.38	79	1.77
West Central (4)	6.18	-5.67	52	2.78	-1.61	63	1.74
Central (5)	14.13	-3.52	80	5.58	-0.37	94	1.54
East Central (6)	24.3	0.78	103	9.06	1.65	122	0.75
Southwest (7)	9.66	-3.13	76	4.65	0.34	108	1.53
South Central (8)	20.26	-0.16	99	9.07	2.64	141	1.57
Southeast (9)	34.74	6.77	124	13.54	5.62	171	0.71
STATE-AVERAGED	**14.86**	**-2.26**	**87**	**5.83**	**0.14**	**103**	**1.33**

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 (April 20, below), drought conditions have generally improved although northwest Oklahoma remains quite dry. Three regions—the North Central, West Central, and Northwest climate divisions—remain in "moderate" drought while the Northeast region is classified in the "mild" drought category. Four of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since April 6. The greatest decrease occurred in the Northwest/Panhandle climate division.

The latest monthly Standardized Precipitation Index (through March, below) indicates long-term dryness throughout the past 6 to 12 months, especially in northern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest and North Central climate divisions report "extremely dry" conditions throughout the last 9-month period**. Also particularly dry is the West Central region, which is "very dry" over the past 6- and 9-month periods. Among periods beyond one year, the 15- and 24-month SPIs also report dry conditions for the three northern climate divisions. In particular, the North Central region is "very dry" throughout the past 15 months.

The latest Keetch-Byram Drought Index (April 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 continue to remain of concern in the northwest. Statewide, only two stations are currently above 600, generally indicative of more severe drought conditions (four stations had a reading above 600 on April 8). Goodwell, in Northwest Oklahoma (679), retains the highest KBDI value, followed by Hooker (Northwest; 607), and Buffalo (Northwest; 596). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). Effective April 23, the Governor's Ban on Outdoor Burning remains in effect for five counties in northwest Oklahoma (Beaver, Cimarron, Harper, Texas and Woodward Counties).

Palmer Drought Severity Index / Standardized Precipitation Index (Through March 2002)

Climate Division (#)	Current Status 4/202002	Value 4/20	Value 4/6	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	MODERATE DROUGHT	-2.65	-2.35	**-0.30**	NEAR NORMAL	VERY DRY	EXTREMELY DRY	VERY DRY
North Central (2)	MODERATE DROUGHT	-2.72	-2.74	**0.02**	NEAR NORMAL	VERY DRY	EXTREMELY DRY	VERY DRY
Northeast (3)	MILD DROUGHT	-1.23	-1.05	**-0.18**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
West Central (4)	MODERATE DROUGHT	-2.02	-2.57	**0.55**	NEAR NORMAL	VERY DRY	VERY DRY	MODERATELY DRY
Central (5)	INCIPIENT MOIST SPELL	0.89	0.97	**-0.08**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MOIST SPELL	1.62	1.80	**-0.18**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT MOIST SPELL	0.61	-0.25	**0.86**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
South Central (8)	UNUSUAL MOIST SPELL	2.55	2.53	**0.02**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	VERY MOIST SPELL	3.17	3.02	**0.15**	VERY WET	VERY WET	VERY WET	MODERATELY WET

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 4/24/2002	Anticipated Impact
Goodwell	Texas	Northwest	679	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.
Hooker	Texas	Northwest	607	
Buffalo	Harper	Northwest	596	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.

2 total stations above 600

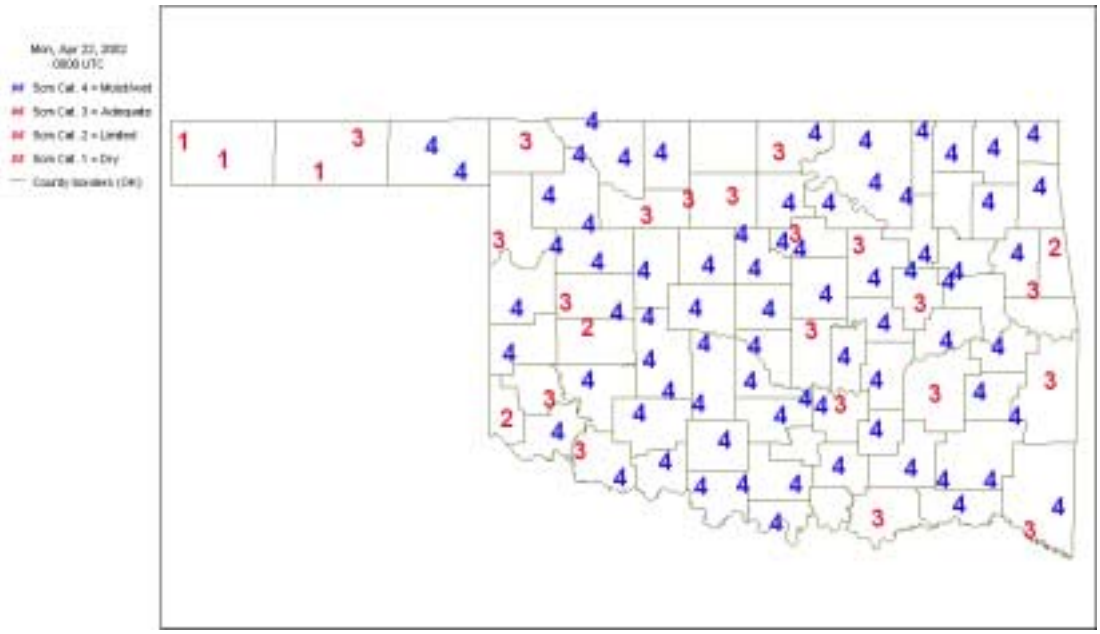
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

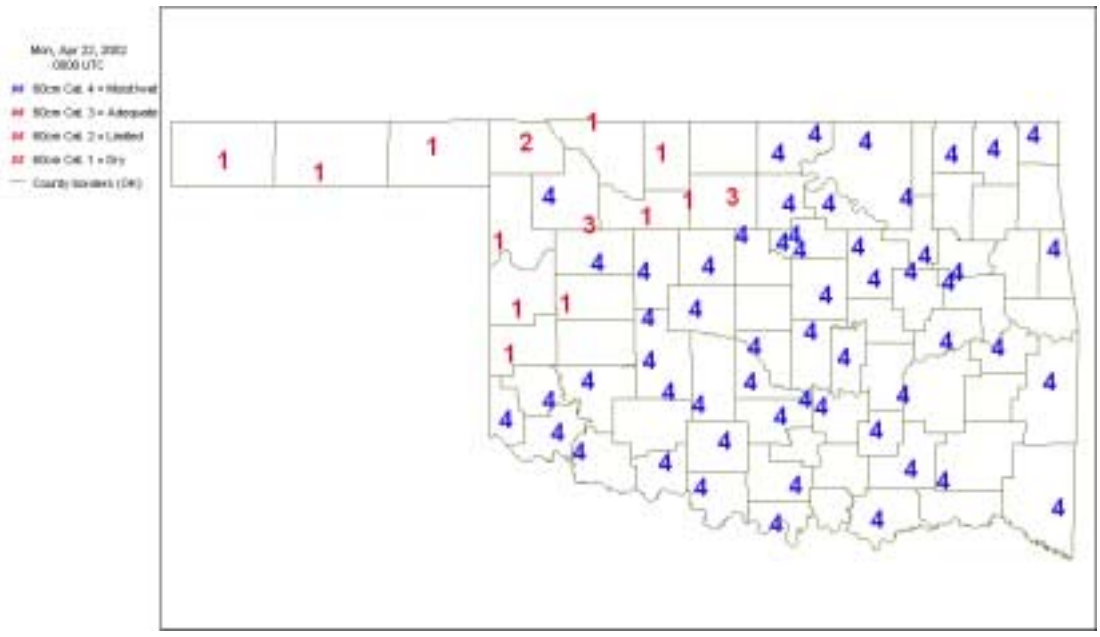
April 22, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



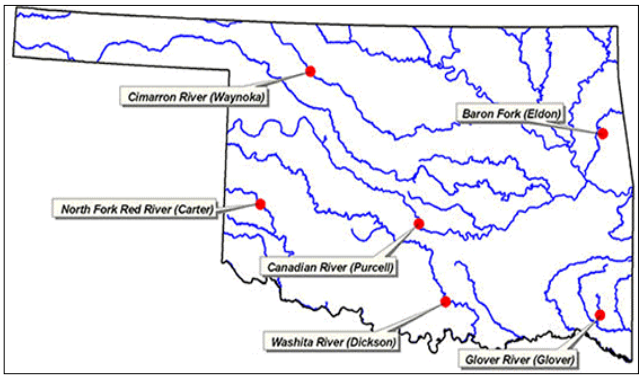
60 cm



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 state rivers and streams are generally about average across Oklahoma, although flows are spiked in some areas due to recent runoff. Considering overall trends as well as current flows, the most recent data (April 24, 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) and *central* (Canadian River, McClain County) Oklahoma; and **near average flow** in the *south central* (Washita River, Carter County), *southwest* (North Fork/Red River, Beckham County), *southeast* (Glover River, McCurtain County), and *northeast* (Baron Fork, Cherokee County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (May 1-7) calls for below normal precipitation for all of Oklahoma. Above normal temperatures are anticipated for all but a small area of the northeast, where normal temperatures are anticipated throughout the period.

Current models indicate that positive (warmer than normal) sub-surface temperature (SST) anomalies continue to arise in the equatorial Pacific Ocean and peak warm episode conditions are likely to develop within the next three to nine months. 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 generally cooler, wetter conditions in the southern U.S. (including Oklahoma), occur about every two to seven years.

Crop Report

April 22—Despite the recent rainfall, hot temperatures and high winds have dried out much of northwest Oklahoma. Parts of the northeast reported dry conditions and low pond water levels accompanied by a growth in fly and tick activity. Statewide, topsoil moisture supplies improved slightly from the previous week with 66 percent of the state now reporting adequate to surplus, compared with 59 percent the previous week. Counties in the Panhandle, north central, and northeast regions continue to experience drought conditions. Statewide, there were 4.2 days suitable for fieldwork.

Recent rains together with warm weather have greatly aided the wheat progress. Winter wheat heading out reached 18 percent, compared with 13 percent last year and the five-year average of 23 percent. Wheat condition improved slightly in areas where adequate precipitation was received. Oats were beginning to head out in 11 percent of the state, slightly ahead of last year, but lagging a bit behind the five-year average of 19 percent. Crop insect activity continued to be moderate to heavy in 34 percent of the state. Peanut seedbed preparation was about two-thirds complete, and planting was getting underway. Cotton seedbed preparation was 75 percent complete but planting was not expected to begin for a week. Soybeans planted gained 3 points from the previous week, but was still lagging behind the 28 percent completed by this time last year, and the five-year average of 15 percent. Corn planted reached 42 percent complete and the crop had begun emerging in some fields. First cutting of alfalfa was getting started in east central and southwest Oklahoma. Jefferson County reported most of their wheat was headed out and what was not being grazed out will be cut for hay. Grady County reported that if weather conditions cooperate initial haying of small grains would begin this week. Hay supplies for the rest of the season continued to be tight.

Livestock conditions continued to be rated in mostly fair or better condition. Statewide, livestock insect activity was mostly light, however there was a report of fly and tick activity becoming heavy. Cattle auctions reported a slight increase in marketings, but activity was still light. Prices received for feeder steers less than 800 pounds edged up slightly and averaged $81.20 per cwt. Heifers less than 800 pounds averaged $74.50 per cwt., about a dollar higher than the previous week. Statewide, range and pasture conditions continued to improve with 61 percent now rated in fair, good, or excellent condition compared with 53 percent last week. Washington County reported ponds dropping to emergency levels and producers were moving cattle off some pastures to accommodate the water availability.

Reservoir Storage

Reservoir storage levels in Oklahoma remain steady, although supplies remain very low in a few isolated areas. As of April 24, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.5 percent full, a 0.4 percent increase from that recorded on April 9, according to information from the U.S. Army Corps of Engineers (Tulsa District). Fifteen reservoirs have experienced lake level decreases since that time. Only eight reservoirs are currently operating at less than full capacity (compared to 12 two weeks ago). However, four reservoirs (including **Hula, the primary water supply for the City of Bartlesville, critically low at only 25.1 percent; Lugert-Altus, 51.8 percent; Tom Steed, 71.3 percent; and Copan, 75.4 percent**) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
04/24/2002

Climate Division / *Lake or Reservoir*	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Storage* conservation	flood
North Central				
Fort Supply	13,900	13,900	100.0	0.48
Great Salt Plains	31,420	31,420	100.0	1.36
Kaw*	406,540	406,540	100.0	0.45
Regional Totals/Averages	**451,860**	**451,860**	**100.0**	**0.76**
Northeast				
Birch	19,225	19,225	100.0	0.31
Copan	43,400	32,727	75.4	0.00
Fort Gibson	365,200	365,200	100.0	1.03
Grand	1,672,000	1,557,241	93.1	0.00
Hudson	200,300	200,300	100.0	1.81
Hulah	25,100	6,290	25.1	0.00
Keystone	278,122	278,122	100.0	0.00
Oologah	552,210	552,210	100.0	1.54
Skiatook	322,700	275,015	85.2	0.00
Regional Totals/Averages	**3,478,257**	**3,286,330**	**94.5**	**0.52**
West Central				
Canton	111,310	98,652	88.6	0.00
Foss	165,480	155,625	94.0	0.00
Regional Totals/Averages	**276,790**	**254,277**	**91.9**	**0.00**
Central				
Arcadia	27,520	27,520	100.0	0.43
Heyburn	7,105	7,105	100.0	1.47
Thunderbird	119,600	119,600	100.0	12.63
Regional Totals/Averages	**154,225**	**154,225**	**100.0**	**4.84**
East Central				
Eufaula*	2,314,581	2,314,581	100.0	5.82
Tenkiller	654,100	654,100	100.0	2.07
Regional Totals/Averages	**2,968,681**	**2,968,681**	**100.0**	**3.95**
Southwest				
Fort Cobb	80,010	80,010	100.0	1.28
Lugert-Altus	132,830	68,777	51.8	0.00
Tom Steed	88,970	63,474	71.3	0.00
Regional Totals/Averages	**301,810**	**212,261**	**70.3**	**0.43**
South Central				
Arbuckle	72,400	72,400	100.0	9.20
McGee Creek	113,930	113,930	100.0	38.38
Texoma*	2,418,626	2,418,626	100.0	11.71
Waurika*	190,200	190,200	100.0	0.67
Regional Totals/Averages	**2,795,156**	**2,795,156**	**100.0**	**14.99**
Southeast				
Broken Bow*	932,815	932,815	100.0	14.06
Hugo*	198,067	198,067	100.0	12.73
Pine Creek*	71,120	71,120	100.0	13.35
Sardis	274,330	274,330	100.0	7.58
Wister	60,162	60,162	100.0	72.69
Regional Totals/Averages	**1,536,494**	**1,536,494**	**100.0**	**24.08**
State Totals	**11,963,273**	**11,659,284**	**97.5**	**6.81**

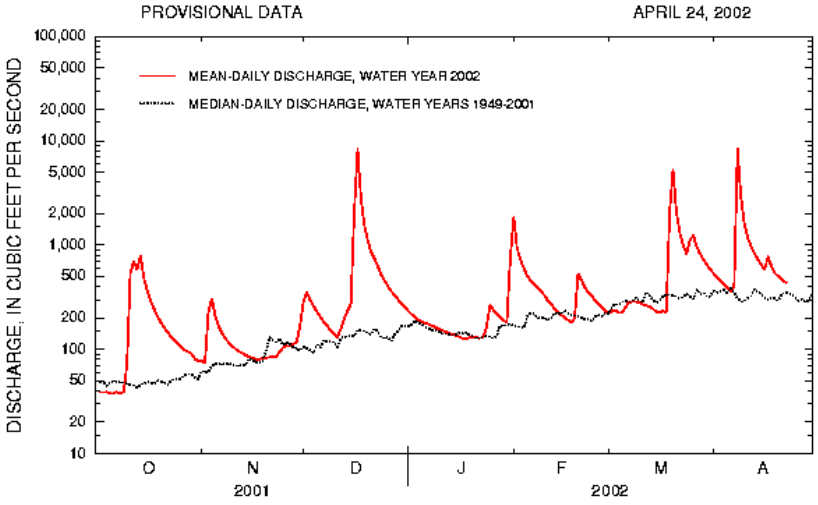
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

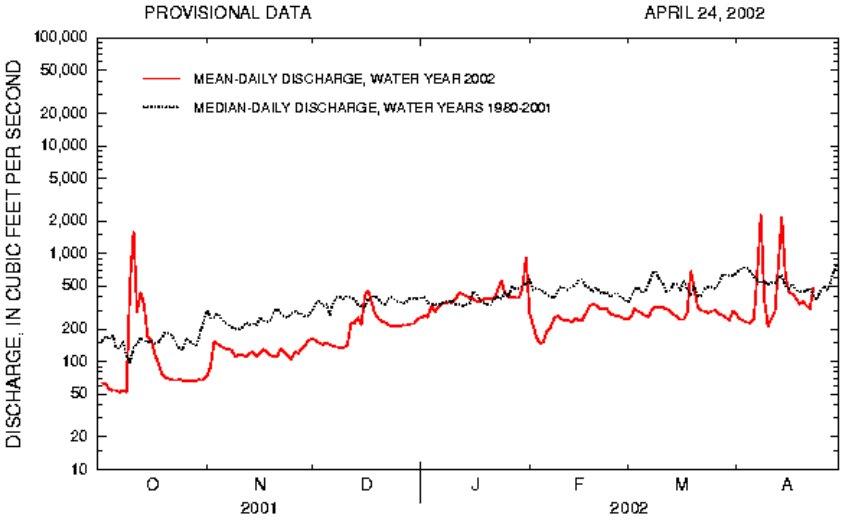
Data from U.S. Geological Survey

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.

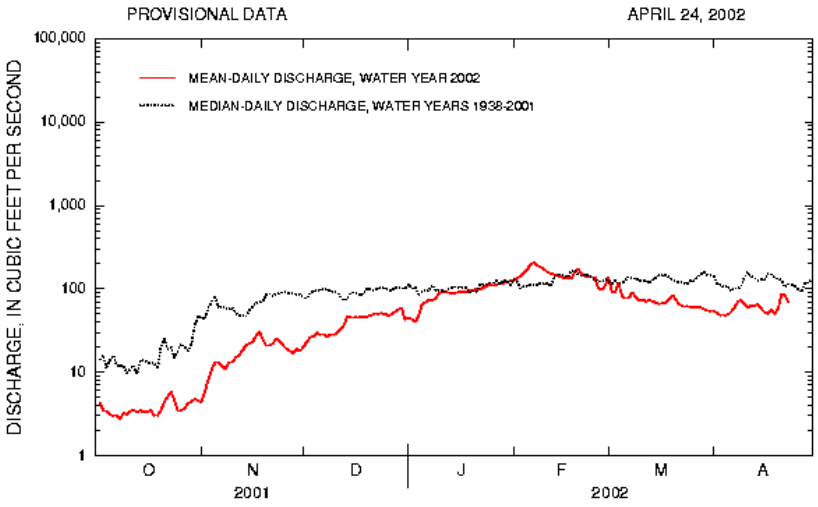
Data from U.S. Geological Survey

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 period of record for Cimarron River near Waynoka, Oklahoma.

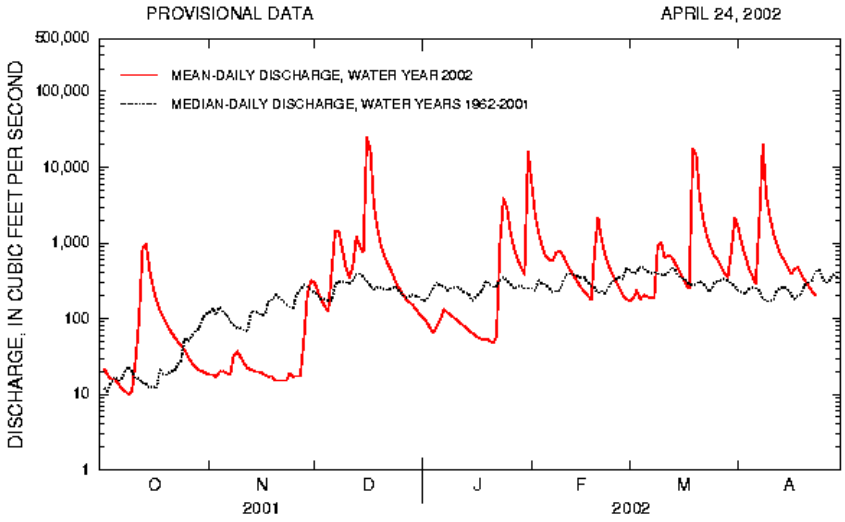
Data from U.S. Geological Survey

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 period of record for Glover River near Glover, Oklahoma.

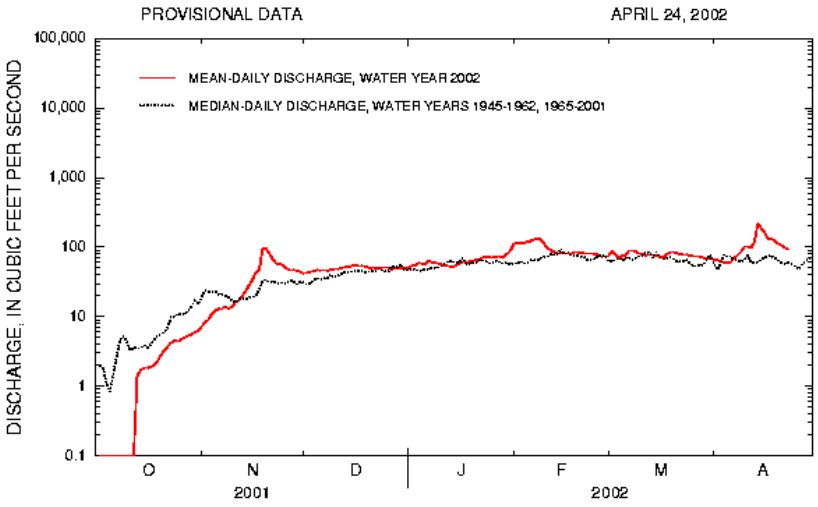
Data from U.S. Geological Survey

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

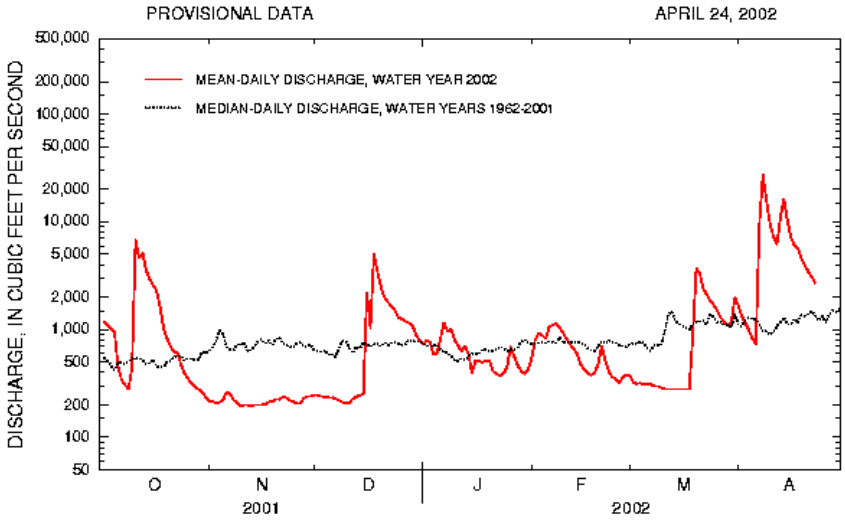
Data from U.S. Geological Survey

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