Oklahoma Water Resources Bulletin
& Summary of Current Conditions

MAY 8, 2002 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Much of northern and western Oklahoma, especially the Panhandle region, continues to suffer from rainfall deficiencies.

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 May 6, 2002 (the current water year) remains the Northwest climate division (2.55 inches, only 30 percent of normal precipitation). In addition, the North Central region has received only 50 percent (7.38 inches) of its normal rainfall. The current state-averaged precipitation total is 15.85 inches, 84 percent of normal.

For the current growing season (March 1 through May 6), six climate divisions report precipitation deficits, including the Northwest region at a paltry 0.95 inches (23 percent of normal). The state-averaged total is 6.81 inches (91 percent of normal).

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—MAY 6, 2002			WARM GROWING SEASON MARCH 1—MAY 6, 2002			RAINFALL SINCE APRIL 23
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	2.55	-5.99	30	0.95	-3.18	23	0.21
North Central (2)	7.38	-7.36	50	3.43	-3.12	52	0.79
Northeast (3)	18.96	-2.85	87	6.73	-2.00	77	1.44
West Central (4)	7.14	-6.26	53	3.74	-2.21	63	0.96
Central (5)	15.10	-4.47	77	6.55	-1.31	83	0.97
East Central (6)	25.07	-0.60	98	9.83	+0.27	103	0.77
Southwest (7)	10.69	-3.68	74	5.68	-0.21	96	1.03
South Central (8)	21.45	-0.93	96	10.26	+1.86	122	1.19
Southeast (9)	36.35	+6.10	120	15.16	+4.96	149	1.61
STATE-AVERAGED	**15.85**	**-3.06**	**84**	**6.81**	**-0.67**	**91**	**0.99**

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 (May 4, below), drought conditions continue to worsen in northwest Oklahoma. **The Panhandle region is now in the "severe" drought category** and three additional regions—the North Central, West Central, and Northeast climate divisions—remain in either "moderate" or "mild" drought. Eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since April 20; the greatest decrease occurred in the East Central climate division.

The latest monthly Standardized Precipitation Index (through April, below) indicates long-term dryness throughout the past year in northern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest and North Central climate divisions both report "very dry" conditions throughout the last 9- and 12-month periods**. In addition, the Northeast and West Central regions are "moderately dry" over the past 12- and 9-month periods, respectively. Among periods beyond one year, the 15-, 18-, 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 (May 6, 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 be of concern in northwest Oklahoma. Statewide, only four stations are currently above 600, generally indicative of more severe drought conditions (two stations had a reading above 600 on April 24). Goodwell, in Northwest Oklahoma (688), retains the highest KBDI value, followed by Hooker (Northwest; 619), and Buffalo (Northwest; 615). 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 April 2002)

Climate Division (#)	Current Status 5/4/2002	Value 5/4	Value 4/20	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	SEVERE DROUGHT	-3.08	-2.65	**-0.43**	MODERATELY DRY	MODERATELY DRY	VERY DRY	VERY DRY
North Central (2)	MODERATE DROUGHT	-2.81	-2.72	**-0.09**	NEAR NORMAL	NEAR NORMAL	VERY DRY	VERY DRY
Northeast (3)	MILD DROUGHT	-1.13	-1.23	**0.10**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
West Central (4)	MODERATE DROUGHT	-2.44	-2.02	**-0.42**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Central (5)	NEAR NORMAL	0.08	0.89	**-0.81**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT MOIST SPELL	0.68	1.62	**-0.94**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Southwest (7)	NEAR NORMAL	0.19	0.61	**-0.42**	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MOIST SPELL	1.84	2.55	**-0.71**	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Southeast (9)	UNUSUAL MOIST SPELL	2.39	3.17	**-0.78**	MODERATELY WET	VERY WET	VERY WET	VERY WET

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 5/6/2002	Anticipated Impact
Goodwell	Texas	Northwest	688	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	619	
Buffalo	Harper	Northwest	615	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.

4 total stations above 600

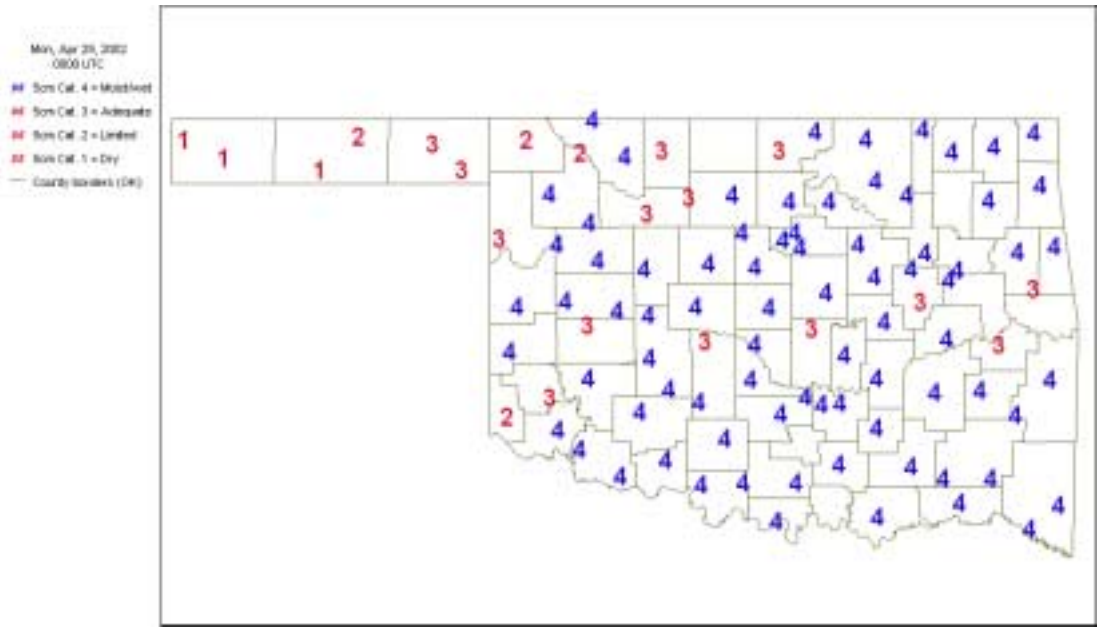
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

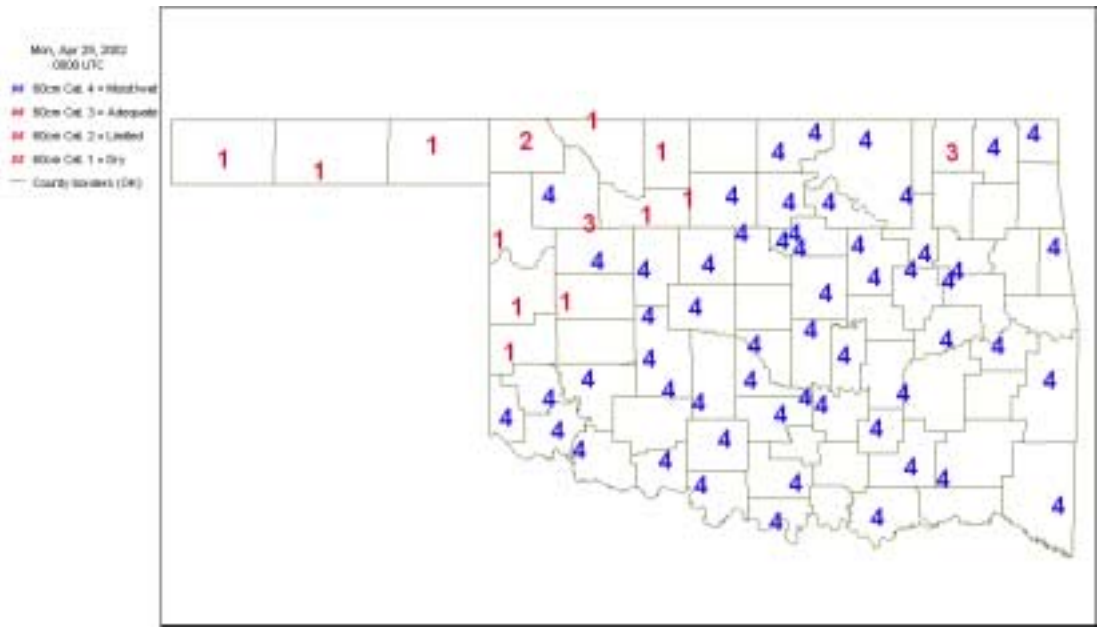
April 29, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



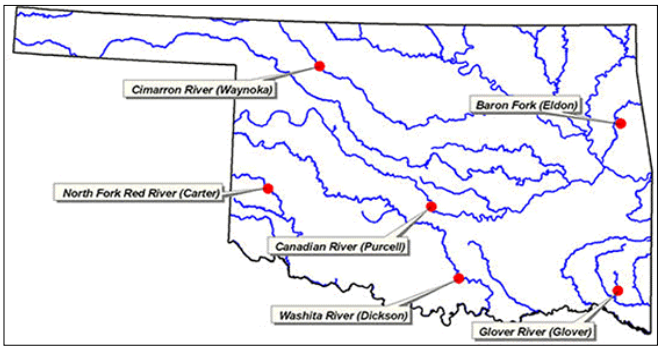
60 cm



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 remain generally about average across Oklahoma, although flows in the northwest are mostly inadequate. 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 *southeast* (Glover River, McCurtain County), *south central* (Washita River, Carter County), *southwest* (North Fork/Red River, Beckham County), and *northeast* (Baron Fork, Cherokee County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (May 14-20) calls for normal precipitation and above normal temperatures for all of Oklahoma 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

May 6—Severe weather arrived in the state late Sunday evening with heavy thunderstorms and tornadic activity. This interrupted an otherwise mild and dry week. The weather was good for getting field work done, but most areas could still use the rain. Statewide, soil moisture supplies began drying up last week with topsoil moisture being rated as 66 percent adequate or surplus compared with 72 percent the previous week. Subsoil moisture supplies also declined from last week. Statewide, there were 5.6 days suitable for fieldwork.

Wheat was rated in mostly fair to good condition statewide. The Panhandle and west central regions continued to rate a large portion of their acreage in poor to very poor condition, with diminishing prospects for harvest. Wheat heading advanced significantly to 90 percent, well ahead of last year's average (70 percent) and the five-year average of 72 percent. Wheat entering the soft dough stage of development was 12 percent, about the same as last year and slightly ahead of the five-year average of 9 percent. Crop insect pressure increased last week with 22 percent reporting none, 47 percent light, 28 percent moderate, and 3 percent heavy compared with 27 percent none, 46 percent light, 25 percent moderate, and 2 percent heavy the previous week. Corn planting picked up last week with 87 percent completed, ahead of last year's 84 percent, and the five-year average of 76 percent. Row crop emergence progressed primarily in the corn crop where an additional 14 percent had emerged. Sorghum, soybeans, peanuts and cotton progress only advanced modestly, with cotton running ahead of last year's pace and the five-year average. Cutting was gaining momentum with the first cutting of alfalfa reaching 25 percent complete. Dry conditions that curtailed the growth was keeping both alfalfa and other hay cutting behind last year's pace and the five-year average. Despite the slower growth, both other hay and alfalfa were rated in mostly fair to good condition. Jackson County reported that hay being cut was shorter than last year due to the drought conditions over the past year. Watermelons were 48 percent planted statewide, nearly the same as the 5-year average of 50 percent but well ahead of last year's 31 percent. Planting ranged from not yet started in two regions to 86 percent complete in south central Oklahoma.

Livestock were rated in mostly fair to good condition. Livestock insect activity was rated mostly light to moderate with ticks and flies the most prominent problem reported. Statewide, range and pasture conditions continued to be rated in mostly fair or good condition. The Panhandle and west central areas showed some improvement. The drought over the past year has caused many pastures to come back weedy. Some producers were busy spraying for weeds and fertilizing pastures.

Reservoir Storage

Reservoir storage levels in Oklahoma remain steady, although supplies remain very low in a few isolated areas. As of May 6, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.8 percent full, a 0.3 percent increase from that recorded on April 24, according to information from the U.S. Army Corps of Engineers (Tulsa District). Nineteen reservoirs have experienced lake level decreases since that time. Ten reservoirs are currently operating at less than full capacity (compared to 8 two weeks ago). Four reservoirs (including **Hula, the primary water supply for the City of Bartlesville, still exceptionally low at 50.8 percent; Lugert-Altus, 53 percent; Tom Steed, 70.2 percent; and Copan, 79.6 percent**) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
05/06/2002

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	0.87
Great Salt Plains	31,420	31,420	100.0	1.26
Kaw*	406,540	406,540	100.0	0.17
Regional Totals/Averages	**451,860**	**451,860**	**100.0**	**0.77**
Northeast				
Birch	19,225	19,225	100.0	1.76
Copan	43,400	34,558	79.6	0.00
Fort Gibson	365,200	365,200	100.0	0.57
Grand	1,672,000	1,567,801	93.8	0.00
Hudson	200,300	200,300	100.0	2.94
Hulah	25,100	12,746	50.8	0.00
Keystone	278,122	278,122	100.0	0.00
Oologah	552,210	552,210	100.0	0.97
Skiatook	322,700	281,768	87.3	0.00
Regional Totals/Averages	**3,478,257**	**3,311,930**	**95.2**	**0.69**
West Central				
Canton	111,310	111,231	99.9	0.00
Foss	165,480	156,467	94.6	0.00
Regional Totals/Averages	**276,790**	**267,698**	**96.7**	**0.00**
Central				
Arcadia	27,520	27,520	100.0	0.95
Heyburn	7,105	7,105	100.0	0.36
Thunderbird	119,600	119,600	100.0	2.07
Regional Totals/Averages	**154,225**	**154,225**	**100.0**	**1.13**
East Central				
Eufaula*	2,314,581	2,314,581	100.0	2.56
Tenkiller	654,100	653,052	99.8	0.00
Regional Totals/Averages	**2,968,681**	**2,967,633**	**100.0**	**1.28**
Southwest				
Fort Cobb	80,010	80,010	100.0	0.92
Lugert-Altus	132,830	70,443	53.0	0.00
Tom Steed	88,970	62,476	70.2	0.00
Regional Totals/Averages	**301,810**	**212,929**	**70.6**	**0.31**
South Central				
Arbuckle	72,400	72,400	100.0	1.89
McGee Creek	113,930	112,475	98.7	0.00
Texoma*	2,418,626	2,418,626	100.0	4.46
Waurika*	190,200	190,200	100.0	0.67
Regional Totals/Averages	**2,795,156**	**2,793,701**	**99.9**	**1.76**
Southeast				
Broken Bow*	932,815	932,815	100.0	4.66
Hugo*	198,067	198,067	100.0	0.51
Pine Creek*	71,120	71,120	100.0	0.59
Sardis	274,330	274,330	100.0	1.58
Wister	60,162	60,162	100.0	25.36
Regional Totals/Averages	**1,536,494**	**1,536,494**	**100.0**	**6.54**
State Totals	**11,963,273**	**11,696,470**	**97.8**	**1.78**

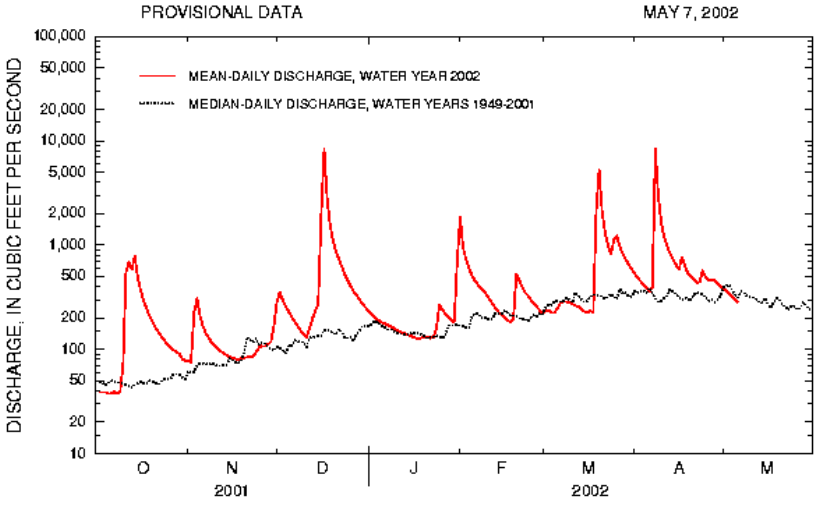
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

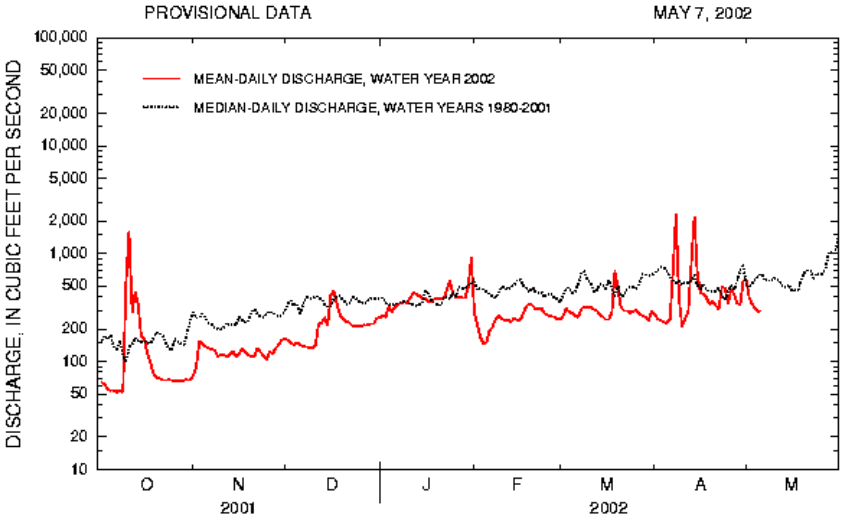
Data from U.S. Geological Survey

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.

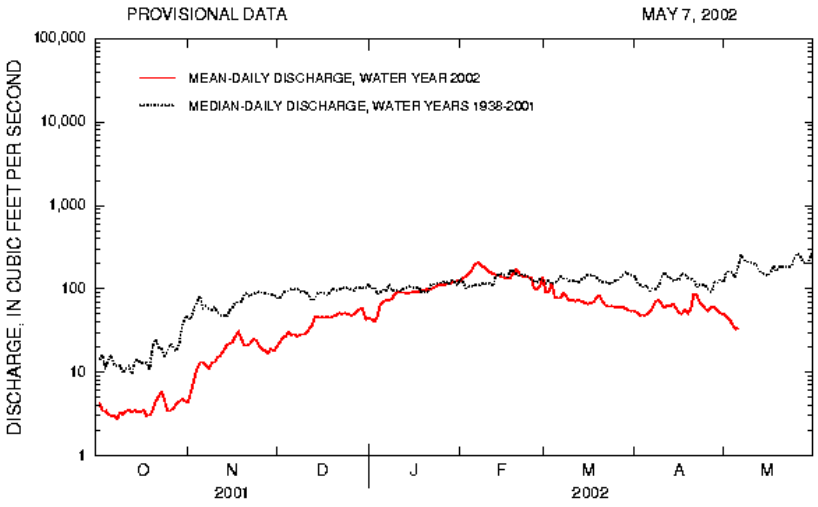
Data from U.S. Geological Survey

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.

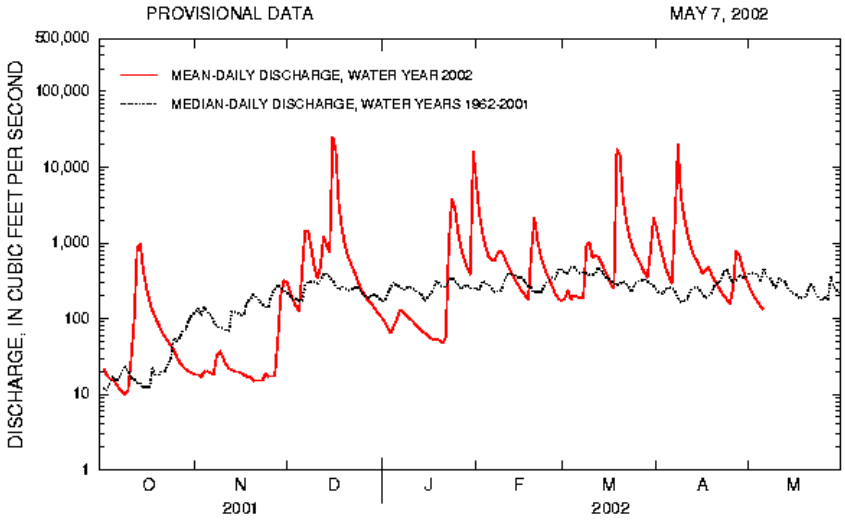
Data from U.S. Geological Survey

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.

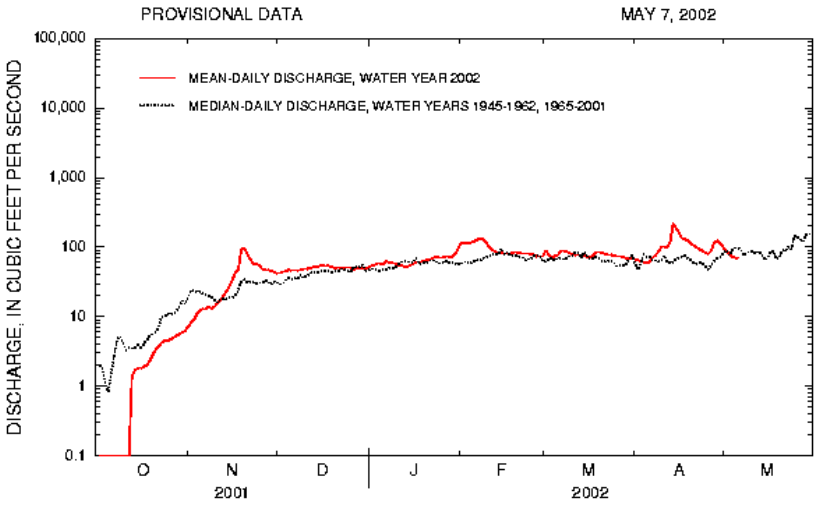
Data from U.S. Geological Survey

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.

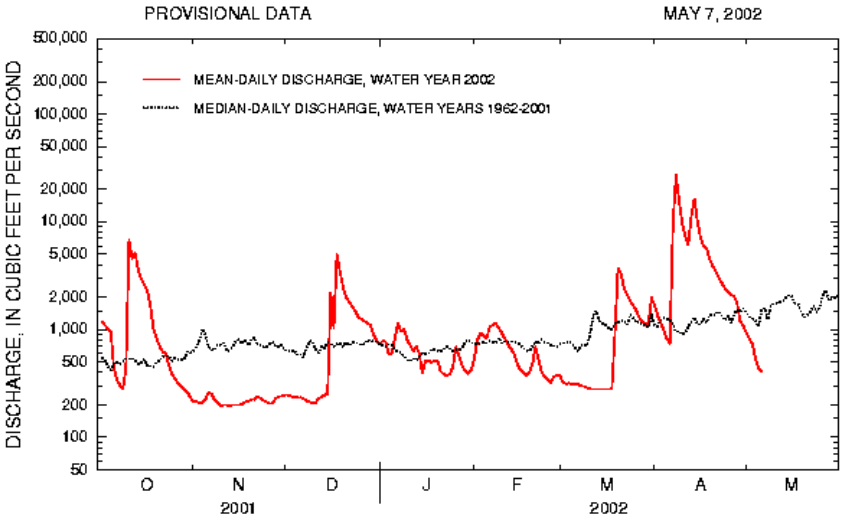
Data from U.S. Geological Survey

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