Oklahoma Water Resources Bulletin

& Summary of Current Conditions

FEBRUARY 12, 2003 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Much of eastern Oklahoma remains somewhat dry and little precipitation has fallen throughout the state since the first of the year.

According to preliminary Mesonet weather station data provided by the Oklahoma Climatological Survey and National Weather Service (see below), the areas receiving the lowest percent of normal rainfall from September 1, 2002 through February 9 (the current growing season), are the Northeast (9.47 inches, 57 percent of normal precipitation) and East Central (11.18 inches, 58 percent of normal precipitation) climate divisions. The Southeast region is also somewhat dry, receiving 15.39 inches of precipitation (68 percent of normal) during the period. The current state-averaged rainfall total is 11.69 inches, 83 percent of normal.

For the current calendar year (January 1 through February 9), seven regions—the Southeast, Northwest, North Central, Northeast, East Central, South Central, and Central—have received less than 30 percent of normal precipitation. The state-averaged rainfall total is a meager 0.53 inches (26 percent of normal).

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	COOL GROWING SEASON SEPTEMBER 1, 2002—FEBRUARY 9, 2003			CALENDAR YEAR JANUARY 1—FEBRUARY 9, 2003			RAINFALL SINCE JANUARY 6
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	7.25	+1.39	124	0.18	-0.55	24	0.16
North Central (2)	12.16	+1.67	116	0.33	-1.00	25	0.31
Northeast (3)	9.47	-7.04	57	0.56	-1.65	25	0.52
West Central (4)	11.34	+1.63	117	0.47	-0.77	38	0.48
Central (5)	12.74	-1.82	87	0.57	-1.39	29	0.58
East Central (6)	11.18	-8.24	58	0.75	-2.16	26	0.65
Southwest (7)	12.05	+1.08	110	0.53	-0.95	36	0.54
South Central (8)	13.98	-2.85	83	0.71	-1.90	27	0.93
Southeast (9)	15.39	-7.10	68	0.69	-3.13	18	0.67
STATE-AVERAGED	**11.69**	**-2.36**	**83**	**0.53**	**-1.49**	**26**	**0.54**

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 (February 8, below), 'mild' drought conditions have arisen in northeast Oklahoma, but no other climate divisions are currently classified in drought. However, all of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since January 4. The greatest decreases occurred in the Northwest and Southeast climate divisions.

The latest monthly Standardized Precipitation Index (through January, below) indicates some long-term dryness in eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "moderately dry" conditions are indicated in the East Central climate division throughout the last 6- and 9-month periods and in the Northeast over the past 3- and 6-month periods. Also, the North Central region is dry throughout the last 3 months. Considering longer periods (through six years), the Northeast and Northwest climate divisions exhibit dryness at various periods over the past 18, 24, and 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (February 10, 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 moderately good. Statewide, no Mesonet stations are currently above 600, generally indicative of more severe drought conditions (no stations had a reading above 600 on January 6). Miami, in Northeast Oklahoma, has the highest KBDI value (368), followed by Hooker (Northwest, 366) and Vinita (Northeast; 355). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 2 (moderate fire danger). Recent moisture has once again temporarily reduced fire danger across the state. Still, outdoor burning should be avoided when winds exceed 20 miles per hour.

Palmer Drought Severity Index / Standardized Precipitation Index (Through January 2003)

Climate Division (#)	Current Status 2/8/2003	Value 2/8	Value 1/4	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	INCIPIENT MOIST SPELL	0.62	1.73	**-1.11**	NEAR NORMAL	VERY WET	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.01	2.71	**-0.70**	MODERATELY DRY	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.55	-0.75	**-0.80**	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.17	1.77	**-0.60**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT MOIST SPELL	0.85	1.51	**-0.66**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	-0.47	0.21	**-0.68**	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL
Southwest (7)	MOIST SPELL	1.40	1.77	**-0.37**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MOIST SPELL	1.34	2.31	**-0.97**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	NEAR NORMAL	-0.43	0.66	**-1.09**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 2/10/2003
Miami	Ottawa	Northeast	368
Hooker	Texas	Northwest	366
Vinita	Craig	Northeast	355

Total stations above 600 = 0

Anticipated Impact

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.

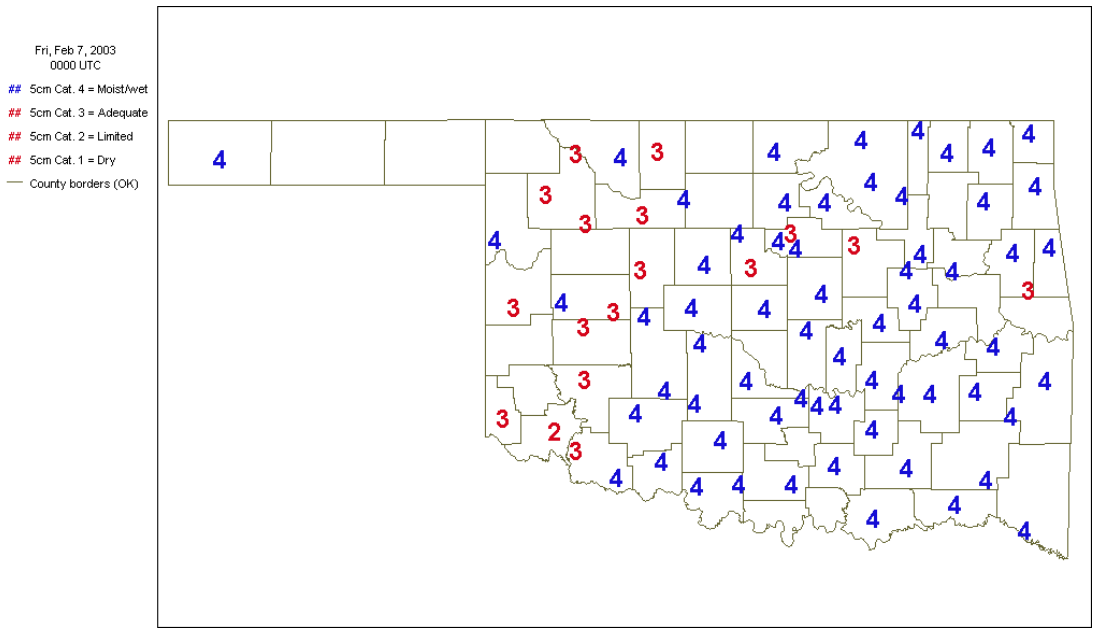
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

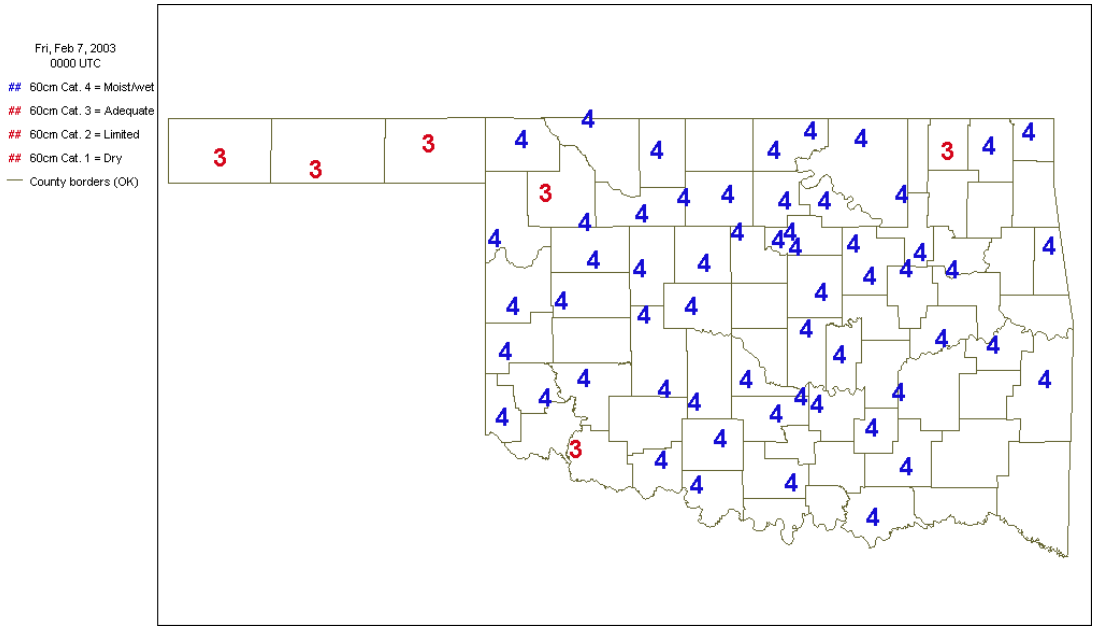
February 7, 2003

(Courtesy Oklahoma Climatological Survey)

5 cm



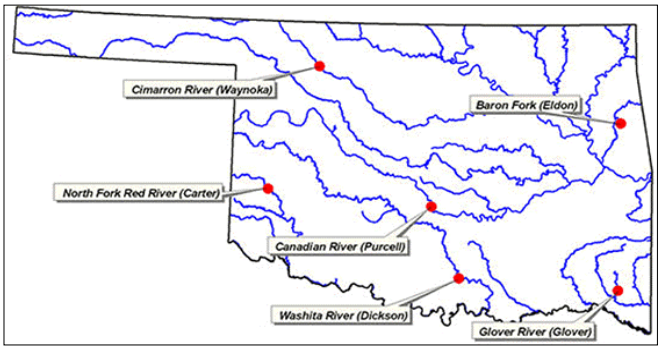
60 cm



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 near normal. Considering overall trends as well as current flows, the most recent data (February 10, 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 *southeast* (Glover River, McCurtain County) Oklahoma; **below average flow** in the *northeast* (Baron Fork, Cherokee County); **near average flow** in the *northwest* (Cimarron River, Woods County), *south central* (Washita River, Carter County), and *central* (Canadian River, McClain County) regions; and **above average flow** in *southwest* (North Fork/Red River, Beckham County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (February 17-23) calls for above normal precipitation for all but the northwest/Panhandle region of Oklahoma, where below normal rainfall is probable. Above normal temperatures are expected to prevail statewide throughout the period.

Models indicate that the current mature El Niño episode is weakening and should continue to weaken through April 2003. Thereafter, the consensus forecast is for near-normal conditions during the May-October period. El Niños, warm water anomalies in the equatorial regions 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

January 31 - Mostly dry weather during January caused a reduction in soil moisture supplies statewide. Small grain grazing began to show the effects of dryness. Some areas reported that dry weather conditions have restricted the growth of wheat pasture and limited available grazing. Both topsoil and subsoil moisture conditions were rated mostly short to adequate.

Winter wheat condition was rated good to fair. Condition of rye and oats remained about the same as last month with both crops rated in mostly good to fair condition. Winter wheat grazed reached 60 percent, compared to 35 percent last year and the 5-year average of 35 percent. Rye grazed was 86 percent, compared to 40 percent last year and the 5-year average of 22 percent.

Livestock were rated in mostly good condition. Mild temperatures in January have been good for cattle feeding statewide. Hay supplies are above average. In some areas, pond levels are getting low enough that producers have had to haul water. Wheat pasture available for grazing was limited across the state due to the unusual dryness and below normal temperatures. Cattle producers need rain to assist winter grass growth. Pasture was rated in mostly good to fair condition.

Reservoir Storage

Reservoir storage levels in Oklahoma remain in generally good condition. As of February 10, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.4 percent full, a 3.7 percent decrease from that recorded on January 6, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-three reservoirs have experienced lake level decreases since that time. Seventeen reservoirs are currently operating at less than full capacity (compared to 16 one month ago). Three reservoirs (including **Lugert-Altus, only 35.6 percent**; and Tom Steed, 58 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
02/10/2003

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	0.11
Great Salt Plains	31,420	31,420	100.0	1.57
Kaw*	390,850	387,899	99.2	0.00
Regional Totals/Averages	**436,170**	**433,219**	**99.3**	**0.56**
Northeast				
Birch	19,225	14,534	75.6	0.00
Copan	43,400	41,303	95.2	0.00
Fort Gibson	365,200	362,956	99.4	0.00
Grand	1,672,000	1,496,150	89.5	0.00
Hudson	200,300	200,300	100.0	1.09
Hulah	25,100	25,100	100.0	0.29
Keystone	510,059	510,059	100.0	0.29
Oologah	552,210	534,993	96.9	0.00
Skiatook	322,700	260,808	80.8	0.00
Regional Totals/Averages	**3,710,194**	**3,446,203**	**92.9**	**0.19**
West Central				
Canton	111,310	111,310	100.0	1.11
Foss	165,480	159,334	96.3	0.00
Regional Totals/Averages	**276,790**	**270,644**	**97.8**	**0.56**
Central				
Arcadia	27,520	27,520	100.0	0.43
Heyburn	7,105	6,912	97.3	0.00
Thunderbird	119,600	111,628	93.3	0.00
Regional Totals/Averages	**154,225**	**146,060**	**94.7**	**0.14**
East Central				
Eufaula*	2,314,583	2,050,416	88.6	0.00
Tenkiller	654,100	586,844	89.7	0.00
Regional Totals/Averages	**2,968,683**	**2,637,260**	**88.8**	**0.00**
Southwest				
Fort Cobb	80,010	80,010	100.0	1.65
Lugert-Altus	132,830	47,279	35.6	0.00
Tom Steed	88,970	51,618	58.0	0.00
Regional Totals/Averages	**301,810**	**178,907**	**59.3**	**0.55**
South Central				
Arbuckle	72,400	72,400	100.0	3.27
McGee Creek	113,930	113,930	100.0	1.73
Texoma*	2,434,802	2,340,926	96.1	0.00
Waurika*	190,200	185,466	97.5	0.00
Regional Totals/Averages	**2,811,332**	**2,712,722**	**96.5**	**1.25**
Southeast				
Broken Bow*	918,070	831,346	90.6	0.00
Hugo*	158,617	158,617	100.0	5.01
Pine Creek*	53,750	53,750	100.0	0.31
Sardis	274,330	274,330	100.0	2.04
Wister	60,162	60,162	100.0	0.23
Regional Totals/Averages	**1,464,929**	**1,378,205**	**94.1**	**1.52**
State Totals	**12,124,133**	**11,203,220**	**92.4**	**0.62**

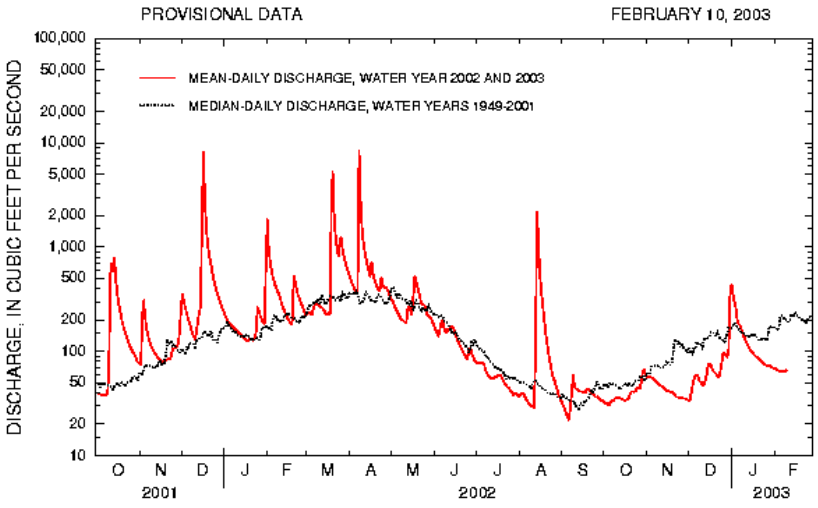
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

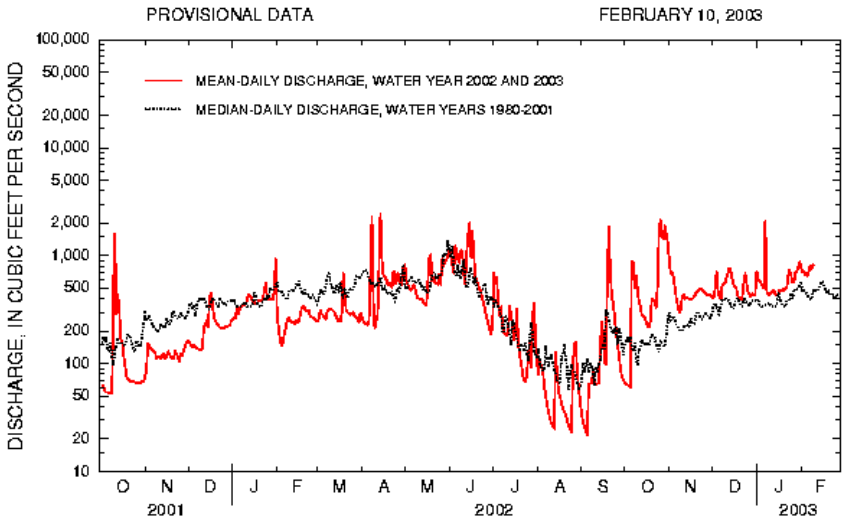
Data from U.S. Geological Survey

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.

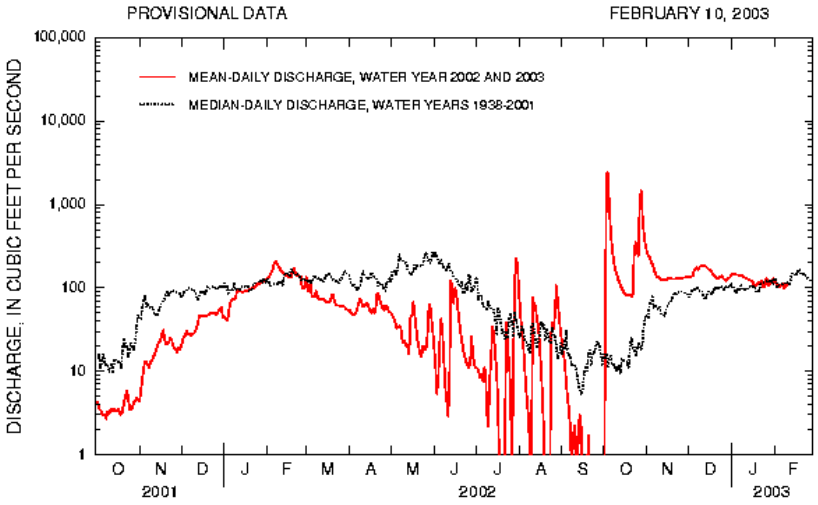
Data from U.S. Geological Survey

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.

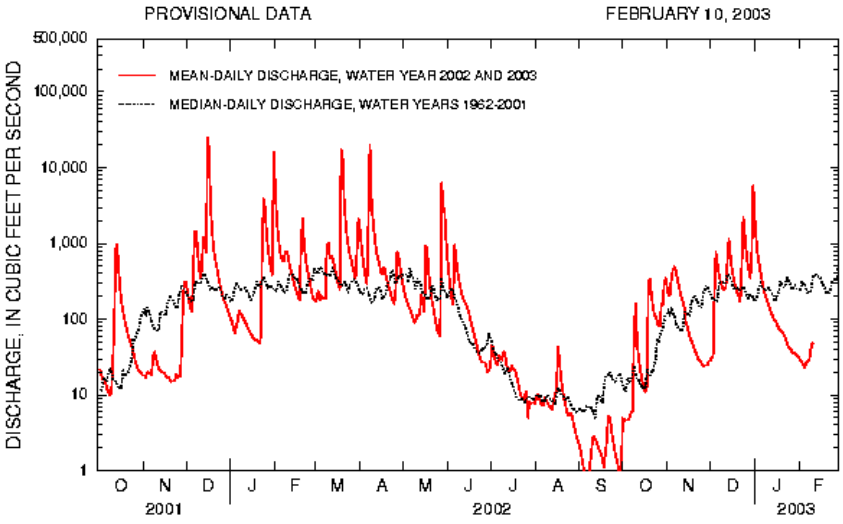
Data from U.S. Geological Survey

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.

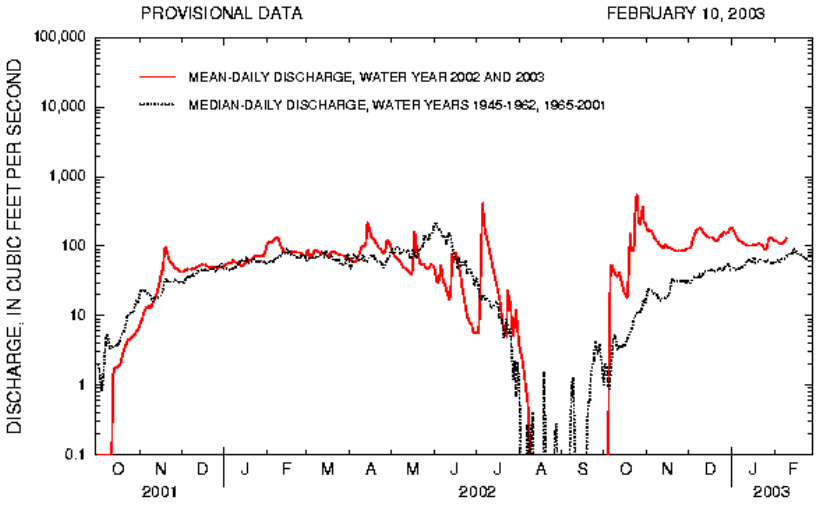
Data from U.S. Geological Survey

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.

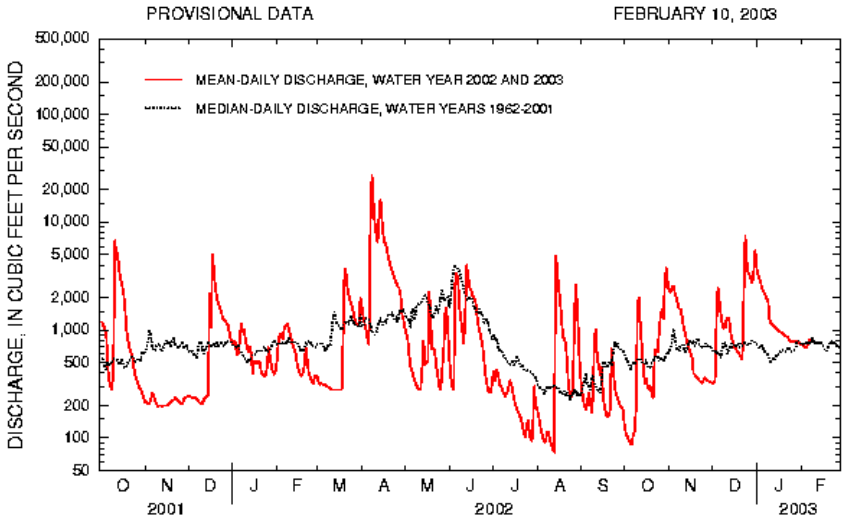
Data from U.S. Geological Survey

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