Oklahoma Water Resources Bulletin

& Summary of Current Conditions

MAY 7, 2003 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Much of southern Oklahoma remains relatively dry. Preliminary data indicate that the March-April period was the driest in 83 years in the state's south central region and the second driest in the southeast.

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 March 1 through May 4 (the current growing season) is the South Central climate division (2.42 inches, only 30 percent of normal precipitation). The Southeast and Southwest regions have also received less than one-half of normal rainfall throughout the period. The current state-averaged rainfall total is 3.94 inches, 55 percent of normal.

For the current water year (October 1, 2002 through May 4, 2003), eight regions report precipitation deficits. The state-averaged rainfall total is 14.02 inches, 76 percent of normal.

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—MAY 4, 2003			WATER YEAR OCTOBER 1, 2002—MAY 4, 2003		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	2.35	-1.57	60	7.90	-0.43	95
North Central	5.08	-1.17	81	15.02	+0.58	104
Northeast	6.07	-2.31	72	14.26	-7.20	66
West Central	3.32	-2.31	59	12.21	-0.87	93
Central	4.18	-3.31	56	13.73	-5.48	71
East Central	4.89	-4.29	53	16.96	-8.33	67
Southwest	2.72	-2.85	49	12.56	-1.49	89
South Central	2.42	-5.61	30	15.03	-6.99	68
Southeast	4.17	-5.62	43	19.51	-10.34	65
Statewide	**3.94**	**-3.20**	**55**	**14.05**	**-4.52**	**76**

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 (May 3, below), two regions in Oklahoma (Southeast and South Central, both in "mild drought") are currently classified in a drought category. Eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since April 5. The greatest decrease occurred in the South Central climate division.

The latest monthly Standardized Precipitation Index (through April, below) indicates both short- and long-term dryness in southern and eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "very dry" conditions are indicated in the South Central climate division throughout the last 3- and 6-month periods and in East Central Oklahoma over the past 9- and 12-month periods. Also, the Southeast indicates dryness throughout the past year, including a "very dry" spell over the past 6 months. Considering longer periods (through six years), the Northeast and East Central climate divisions indicate moderately dry conditions at various times over the past 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (May 5, 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 relatively good. Statewide, no Mesonet stations are currently above or even near 600, generally indicative of more severe drought conditions (no stations had a reading above 600 on April 7). Hooker, in Northwest Oklahoma, retains the highest KBDI value (354). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 1 (low fire danger). The Red Flag Fire Alert, in effect last month for all of Oklahoma, has been cancelled. However, as spring transitions to summer, long periods of hot, dry and windy weather could result in a return to dangerous wildfire conditions. Outdoor burning should be avoided when winds exceed 20 miles per hour.

Palmer Drought Severity Index / Standardized Precipitation Index Through April 2003

Climate Division (#)	Current Status 5/3/2003	Value 5/3	Value 4/5	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	NEAR NORMAL	0.35	0.97	**-0.62**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.15	2.36	**-0.21**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Northeast (3)	NEAR NORMAL	-0.49	0.72	**-1.21**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.91	0.59	**0.32**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	NEAR NORMAL	-0.17	1.24	**-1.41**	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT DROUGHT	-0.99	-0.33	**-0.66**	NEAR NORMAL	MODERATELY DRY	VERY DRY	VERY DRY
Southwest (7)	NEAR NORMAL	-0.17	0.37	**-0.54**	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MILD DROUGHT	-1.29	0.43	**-1.72**	VERY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MILD DROUGHT	-1.43	-0.70	**-0.73**	MODERATELY DRY	VERY DRY	MODERATELY DRY	MODERATELY DRY

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 5/5/2003
Hooker	Texas	Northwest	354
Walters	Cotton	Southwest	342
Antlers	Pushmataha	Southeast	340

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.

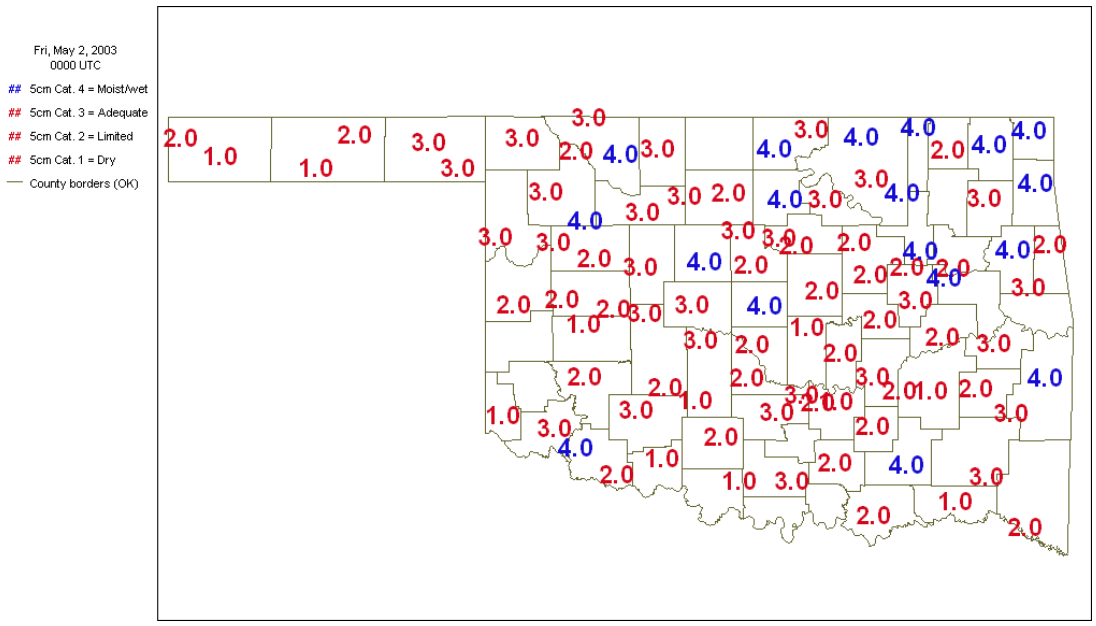
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

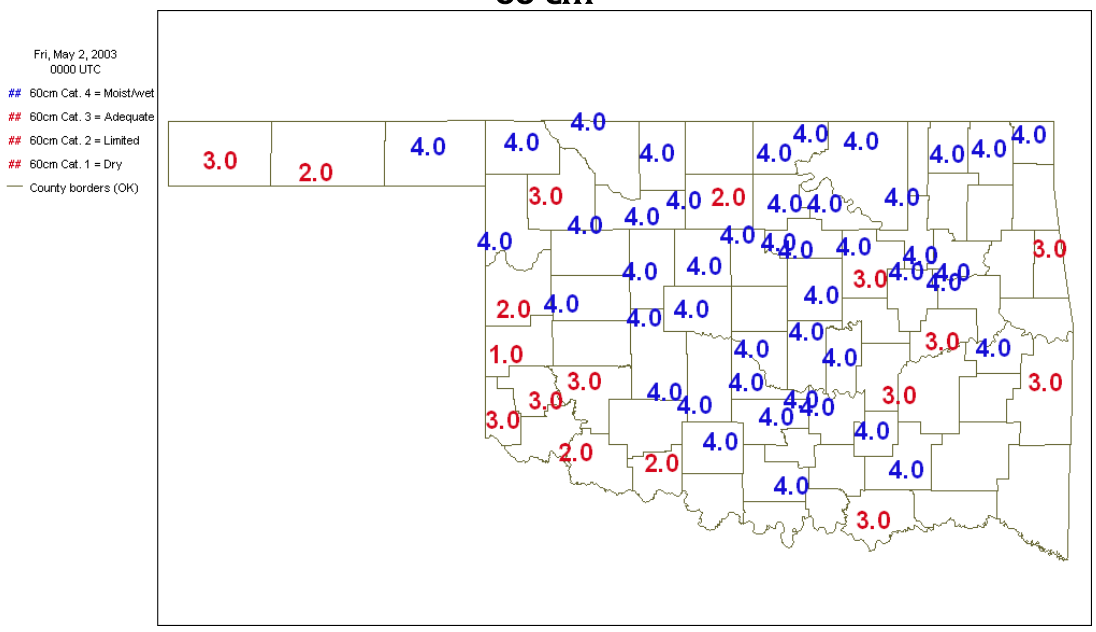
May 2, 2003

(Courtesy Oklahoma Climatological Survey)

5 cm



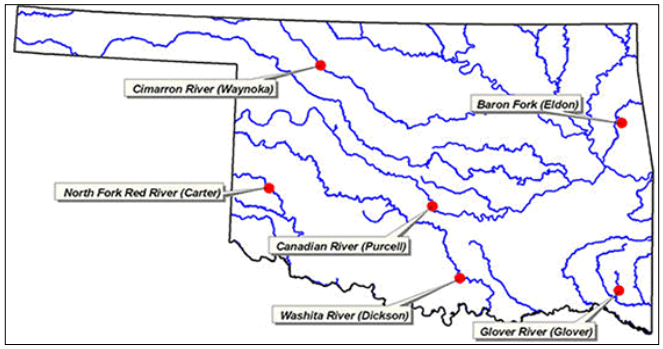
60 cm



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 some state rivers and streams are beginning to reflect emerging dry conditions. Considering overall trends as well as current flows, the most recent data (May 5, 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), *south central* (Washita River, Carter County), and *southeast* (Glover River, McCurtain County) Oklahoma; and **near average flow** in the *central* (Canadian River, McClain County), *northwest* (Cimarron River, Woods County), and *southwest* (North Fork/Red River, Beckham County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (May 13-19) calls for normal precipitation and above normal temperatures for all of Oklahoma.

Models indicate that the current moderate El Niño episode continues to weaken, with the possibility of continued weak El Niño conditions or near normal conditions through September. However, there are indications that La Niña conditions may develop during the last half of 2003. 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. La Niña episodes, cold-water phenomena, are generally believed to cause temporary warmer and drier conditions throughout most of the southern U.S.

Crop Report

May 4 - A relatively warm and dry week allowed farmers to make progress with fieldwork activities. Only small amounts of rainfall were recorded across Oklahoma. The Southeast, Northeast, and East Central received the most moisture but even those amounts were less than ½ inch. These rains were short-lived due to the high winds and warm temperatures, which reduced soil moisture supplies. Additional rainfall is needed to further aid the development of the wheat crop, particularly in the southwest and Panhandle regions. Rain is also needed to continue progress with row crops. Moisture supplies for both topsoil and subsoil dropped from last week and were rated mostly adequate to short. Farmers had 6.1 days suitable for fieldwork during the week.

Wheat was rated in mostly good to fair condition. Most areas need additional rains to enable proper growth and maturity for the wheat crop. Wheat heading advanced to 91 percent, compared to 85 percent last year and the 5-year average of 74 percent. Wheat entered the soft dough stage of development at 13 percent, slightly ahead of the 5-year average of 10 percent. Oats were rated in good to fair condition with 38 percent of the crop headed. Crop insect activity was reported as none to light across the state.

Producers continued preparing row crop seedbeds and planting summer crops. Cotton seedbed preparation was 88 percent complete, slightly ahead of normal. At week's end, corn seedbeds were 93 percent prepared, while 48 percent of the sorghum seedbeds had been prepared. Peanuts and soybeans seedbeds were 79 and 65 percent prepared, respectively. Corn producers made progress and planted an additional 13 percent of the crop during the week, with 58 percent planted by week's end. Peanut and cotton planting were at 25 and 15 percent planted, respectively, both ahead of normal. Sorghum planting made limited progress with 14 percent planted, while 25 percent of the soybean crop had been planted.

Alfalfa and other hay were rated in good to fair condition. First cutting of both alfalfa and other hay continued to make progress for many farmers last week. Many producers were baling their wheat last week. The first cutting of alfalfa was at 46 percent, while other hay was at 16 percent complete, both ahead of normal. Watermelons were 61 percent planted statewide, ahead of the normal of 47 percent. Planting ranged from not yet started in two regions to 74 percent complete in south central Oklahoma.

Livestock were rated in mostly good to fair condition. Livestock insect activities were rated as none to moderate with flies and ticks the major problem reported. Pasture and range conditions were rated good to fair. The warm and sunny days continued to promote pasture growth, but additional rainfall is needed. Weed populations were reported in many pastures across the state. Producers applied fertilizer to warm season pastures in scattered areas.

Reservoir Storage

Reservoir storage levels in Oklahoma remain in generally good condition, except in some areas of the southwest. As of May 5, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.6 percent full, identical to that recorded on April 7, according to information from the U.S. Army Corps of Engineers (Tulsa District). Seventeen reservoirs have experienced lake level decreases since that time. Thirteen reservoirs are currently operating at less than full capacity (compared to 12 one month ago). Two reservoirs (including **Lugert-Altus, only 46.7 percent**; and Tom Steed, 54.1 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
05/05/2003

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	0.26
Great Salt Plains	31,420	31,420	100.0	3.01
Kaw*	406,540	406,540	100.0	3.67
Regional Totals/Averages	**451,860**	**451,860**	**100.0**	**2.31**
Northeast				
Birch	19,225	17,831	92.7	0.00
Copan	43,400	43,400	100.0	6.22
Fort Gibson	365,200	365,200	100.0	0.13
Grand	1,672,000	1,612,951	96.5	0.00
Hudson	200,300	200,300	100.0	4.16
Hulah	25,100	25,100	100.0	5.08
Keystone	510,059	510,059	100.0	5.08
Oologah	552,210	552,210	100.0	5.55
Skiatook	322,700	293,828	91.1	0.00
Regional Totals/Averages	**3,710,194**	**3,620,879**	**97.6**	**2.91**
West Central				
Canton	111,310	111,310	100.0	0.03
Foss	165,480	163,743	99.0	0.00
Regional Totals/Averages	**276,790**	**275,053**	**99.4**	**0.02**
Central				
Arcadia	27,520	27,449	99.7	0.00
Heyburn	7,105	7,105	100.0	0.11
Thunderbird	119,600	117,740	98.4	0.00
Regional Totals/Averages	**154,225**	**152,294**	**98.7**	**0.04**
East Central				
Eufaula*	2,314,583	2,314,583	100.0	0.99
Tenkiller	654,100	654,100	100.0	0.25
Regional Totals/Averages	**2,968,683**	**2,968,683**	**100.0**	**0.62**
Southwest				
Fort Cobb	80,010	80,010	100.0	1.47
Lugert-Altus	132,830	62,042	46.7	0.00
Tom Steed	88,970	48,159	54.1	0.00
Regional Totals/Averages	**301,810**	**190,211**	**63.0**	**0.49**
South Central				
Arbuckle	72,400	72,400	100.0	3.46
McGee Creek	113,930	110,778	97.2	0.00
Texoma*	2,459,066	2,408,674	98.0	0.00
Waurika*	190,200	180,230	94.8	0.00
Regional Totals/Averages	**2,835,596**	**2,772,082**	**97.8**	**0.87**
Southeast				
Broken Bow*	940,825	917,349	97.5	0.00
Hugo*	198,067	198,067	100.0	0.23
Pine Creek*	71,120	71,120	100.0	0.40
Sardis	274,330	273,928	99.9	0.00
Wister	60,162	60,162	100.0	0.25
Regional Totals/Averages	**1,544,504**	**1,520,626**	**98.5**	**0.18**
State Totals	**12,243,662**	**11,951,688**	**97.6**	**1.30**

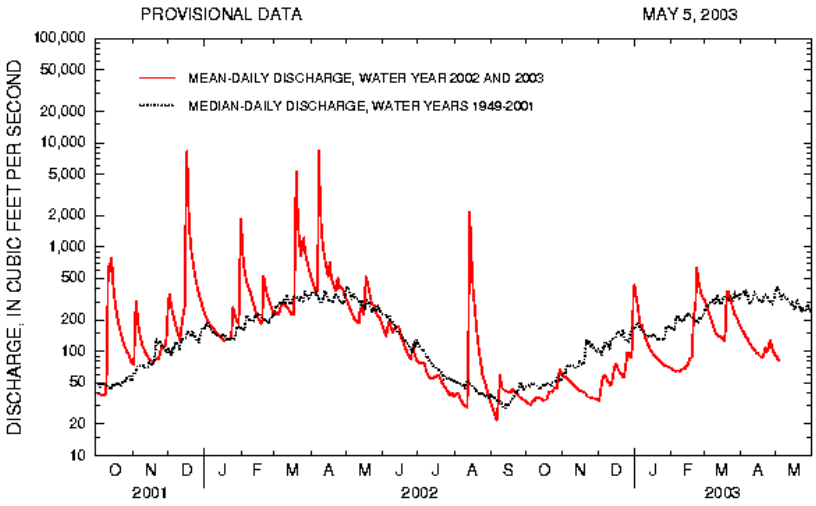
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

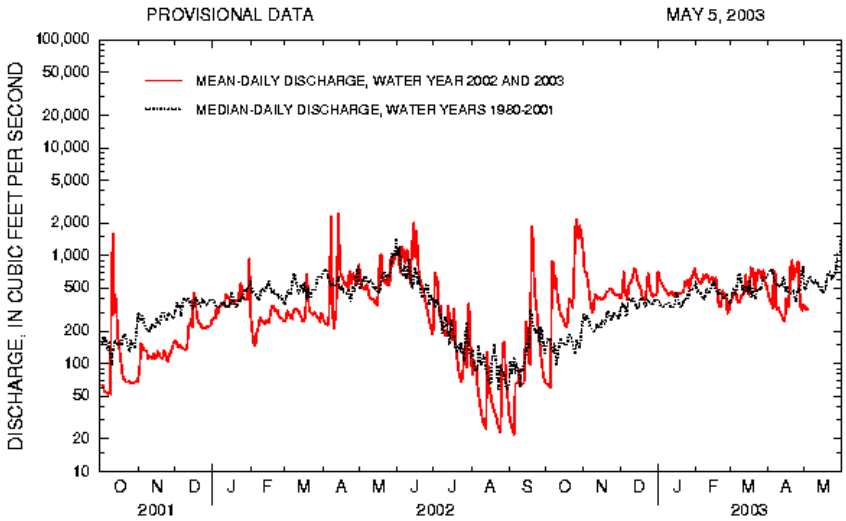
Data from U.S. Geological Survey

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.

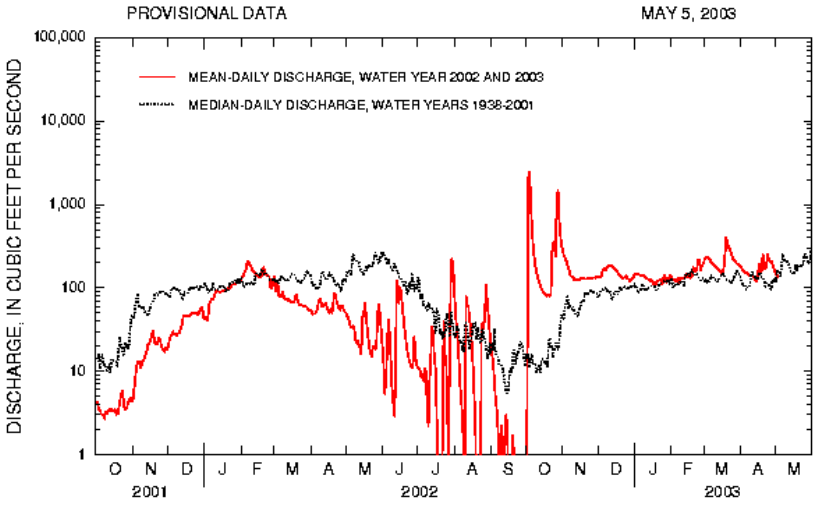
Data from U.S. Geological Survey

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.

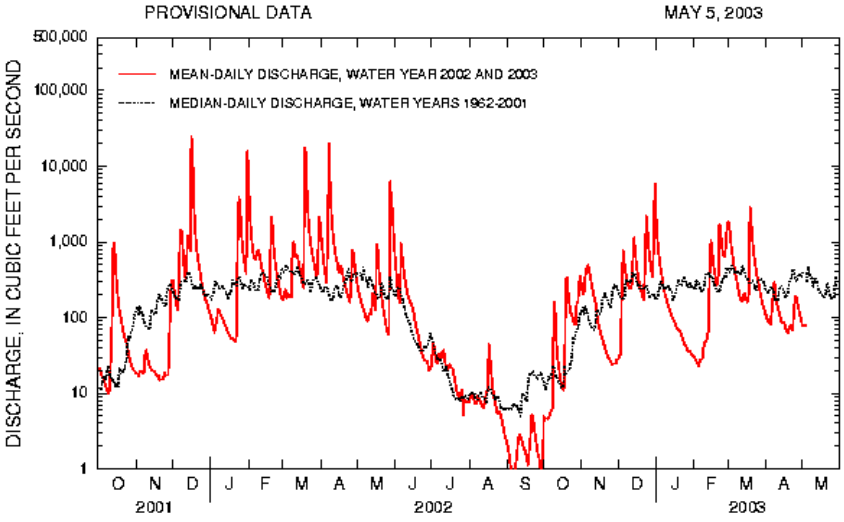
Data from U.S. Geological Survey

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.

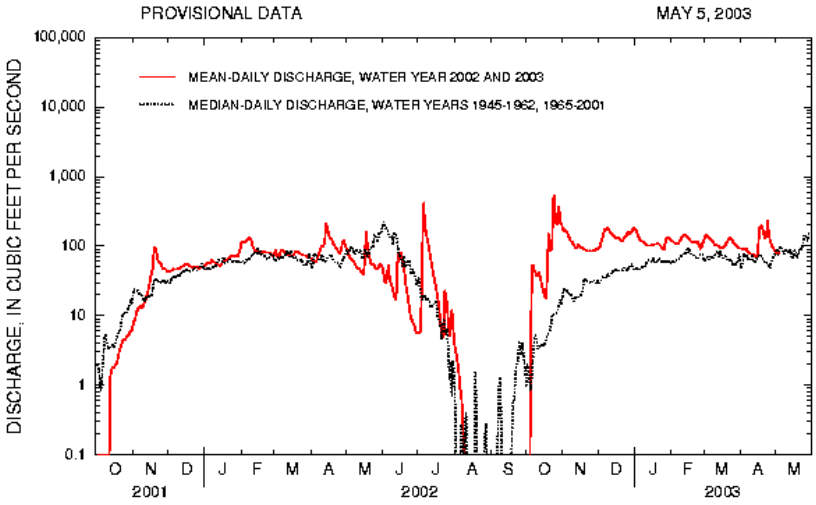
Data from U.S. Geological Survey

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.

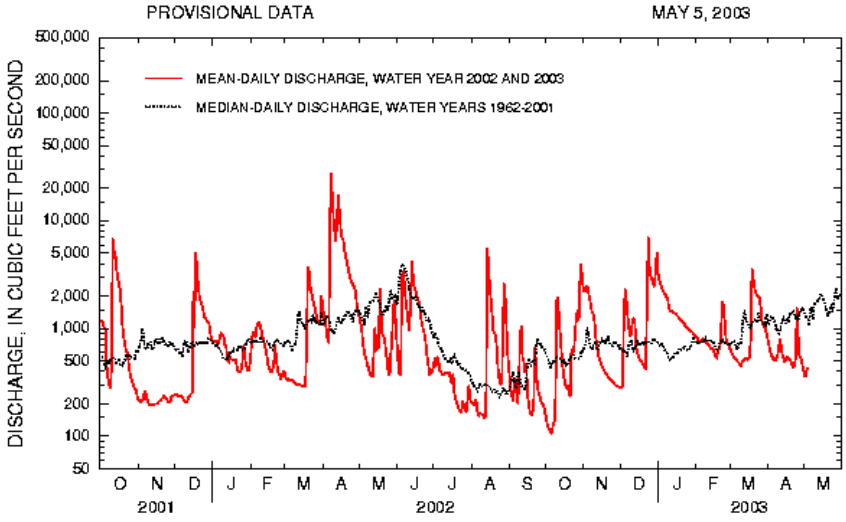
Data from U.S. Geological Survey

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