Oklahoma Water Resources Bulletin

& Summary of Current Conditions

JUNE 4, 2003 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

While many areas continue to benefit somewhat from recent rainfall, southern Oklahoma remains relatively 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 March 1 through June 2 (the current growing season) is the Southeast climate division (7.77 inches, only 50 percent of normal precipitation and almost 8 inches below normal). The South Central, Southwest, West Central, Panhandle/Northwest, and Central regions are also quite dry throughout the period. The current state-averaged rainfall total is 7.83 inches, 65 percent of normal.

For the current water year (October 1, 2002 through June 2, 2003), eight regions report precipitation deficits, although none are below 65 percent of normal. The state-averaged rainfall total is 17.91 inches, 77 percent of normal.

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—JUNE 2, 2003			WATER YEAR OCTOBER 1, 2002—JUNE 2, 2003		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	4.27	-2.77	61	9.82	-1.64	86
North Central	8.86	-1.76	83	18.80	-0.01	100
Northeast	11.91	-1.55	88	20.10	-6.44	76
West Central	6.00	-4.16	59	14.89	-2.72	85
Central	7.90	-4.80	62	17.45	-6.96	71
East Central	10.34	-4.29	71	22.41	-8.33	73
Southwest	5.73	-4.45	56	15.57	-3.09	83
South Central	6.98	-6.23	53	19.43	-7.78	71
Southeast	7.77	-7.87	50	23.11	-12.58	65
Statewide	**7.83**	**-4.13**	**65**	**17.91**	**-5.48**	**77**

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 31, below), four regions in Oklahoma (Southeast, Northwest, South Central, and East Central—all in "mild drought") are experiencing drought conditions. Eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since May 17. The greatest decrease occurred in the Northwest 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 (June 2, 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 May 19). Antlers, in Southeast Oklahoma, retains the highest KBDI value (428). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 1 (low fire danger). 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 5/31/2003	Value 5/31	Value 5/17	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	MILD DROUGHT	-1.64	-0.07	**-1.57**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
North Central (2)	MOIST SPELL	1.76	2.55	**-0.79**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Northeast (3)	INCIPIENT MOIST SPELL	0.50	0.72	**-0.22**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	NEAR NORMAL	-0.07	0.89	**-0.96**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT DROUGHT	-0.83	-0.55	**-0.28**	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.07	-0.11	**-0.96**	NEAR NORMAL	MODERATELY DRY	VERY DRY	VERY DRY
Southwest (7)	INCIPIENT DROUGHT	-0.96	-0.97	**0.01**	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MILD DROUGHT	-1.41	-1.19	**-0.22**	VERY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MILD DROUGHT	-1.86	-1.40	**-0.46**	MODERATELY DRY	VERY DRY	MODERATELY DRY	MODERATELY DRY

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 6/2/2003	Anticipated Impact
Antlers	Pushmataha	Southeast	428	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.
Hugo	Choctaw	Southeast	395	
Hollis	Harmon	Southwest	373	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.

Total stations above 600 = 0

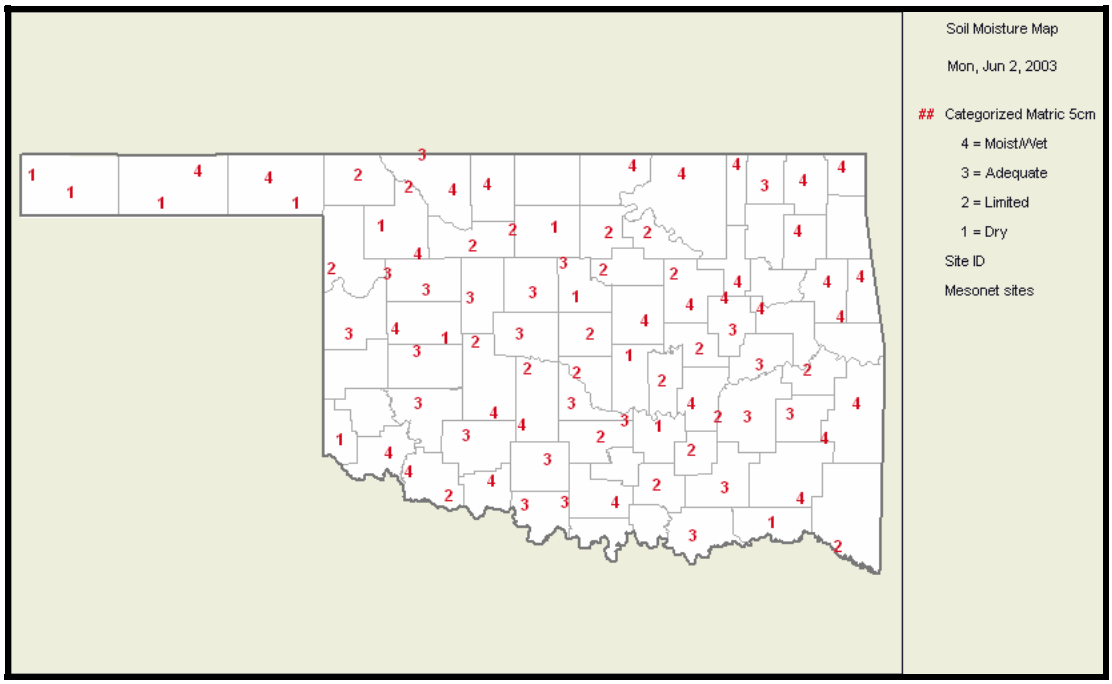
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

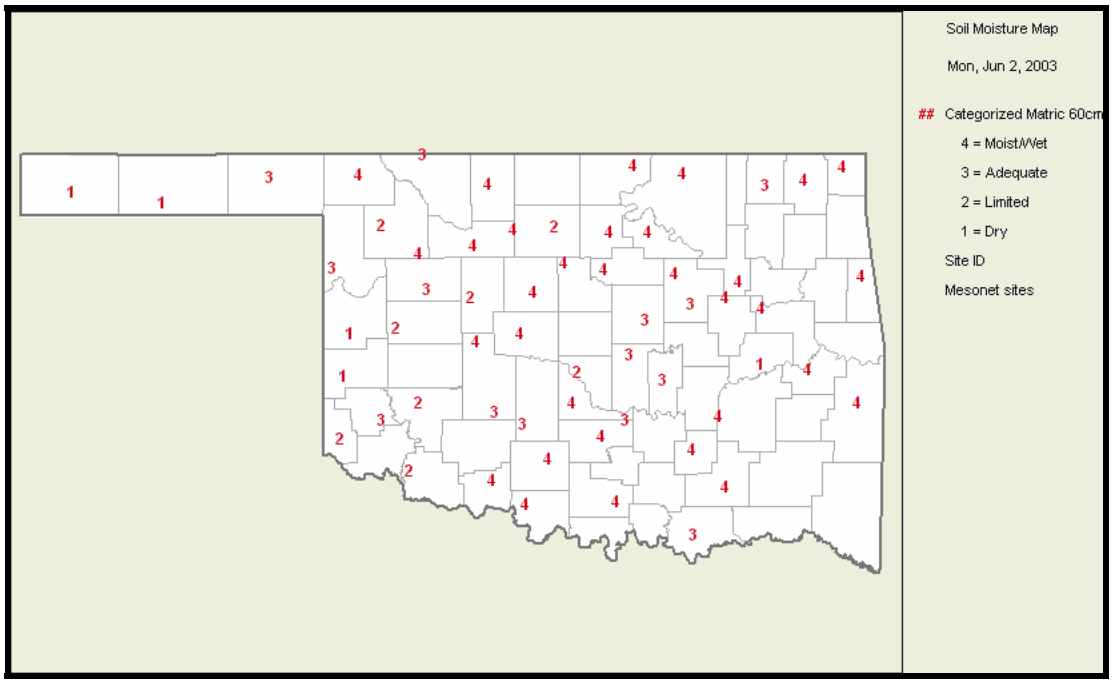
June 2, 2003

(Courtesy Oklahoma Climatological Survey)

5 cm



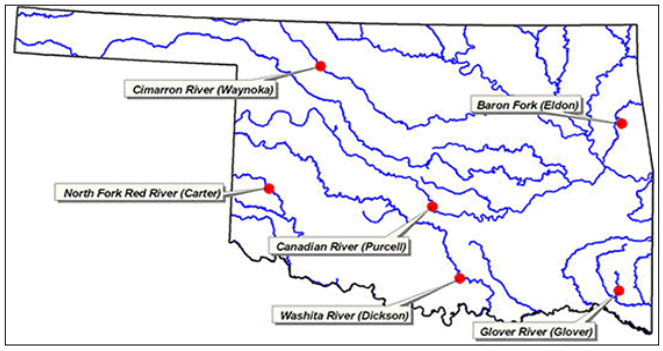
60 cm



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 continue to reflect recent dry conditions. Considering overall trends as well as current flows, the most recent data (June 2, 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, 2002, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *southeast* (Glover River, McCurtain County) and *southwest* (North Fork/Red River, Beckham County) Oklahoma; and **below average flow** in the *central* (Canadian River, McClain County), *south central* (Washita River, Carter County), *northeast* (Baron Fork, Cherokee County), and *northwest* (Cimarron River, Woods County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (June 10-16) calls for above normal precipitation for the general eastern one-half of Oklahoma and normal rainfall in the west. Normal temperatures are anticipated throughout the period for all of Oklahoma.

Observed trends in oceanic and atmospheric variables indicate that the recent El Niño episode continues to rapidly dissipate and a transition to La Niña is underway with more pronounced conditions likely to develop over the next few months. 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

June 1 - Warm, dry weather and virtually no widespread rainfall provided excellent conditions for wheat harvest. Temperatures were warm throughout most of the week. Thursday and Friday were particularly warm with many stations reaching 90 degrees or more and five stations exceeding 100 degrees. Rainfall was light across the state. Both topsoil and subsoil moisture supplies were rated as mostly adequate, although conditions dropped slightly from last week. Farmers had 5.7days suitable for fieldwork during the week.

Statewide, the winter wheat crop was rated in mostly fair to good condition. The dry conditions were very favorable for wheat harvest as it jumped from 1 percent last week to 13 percent complete statewide this week. Harvest ranged from 39 percent in the southwest to none harvested in the northern parts of Oklahoma. Wheat in the soft dough stage of development advanced 14 percentage points from last week to 93 percent. Oats heading advanced to 94 percent, while 68 percent was in the soft dough stage. Crop insect activity was reported as mostly none to light across the state.

Seedbed preparation and planting progressed for all row crops. Corn and peanut planting was winding down at 95 and 97 percent, respectively. Eighty five percent of the cotton was planted. Sorghum and soybean planting were lagging behind normal at 74 and 84 percent, respectively. The warm weather last week had most crops emerging ahead of the normal five-year trends, but additional moisture is needed for the row crops.

Most producers were active cutting and baling hay. The first cutting of alfalfa was nearly complete, while the second cutting of alfalfa made progress and was 23 percent cut statewide. First cutting of other hay was 48 percent cut and ranged from 72 percent in west central Oklahoma to 32 percent in the northeast. Ninety-nine percent of the watermelons were planted with 61 percent running by week's end.

Warm temperatures throughout the week advanced pasture growth, but additional moisture is needed. Pasture and range conditions were rated as mostly fair to good. A growing number of armyworms continued to be reported. Livestock conditions were rated as mostly fair to excellent. Livestock insect activities were rated as light to moderate with horn flies and grasshoppers being the major problems. Cattle auctions reported an increase in average marketings for the week.

Reservoir Storage

Reservoir storage levels remain a concern in some areas of southwest Oklahoma. As of June 3, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 95.4 percent full, a 1.3 percent decrease from that recorded on May 19, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-three reservoirs have experienced lake level decreases since that time. Thirteen reservoirs are currently operating at less than full capacity (compared to 10 two weeks ago). Two reservoirs in southwest Oklahoma—Lugert-Altus, only 50.7 percent, and Tom Steed, only 52.8 percent—remain well below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
06/03/2003

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	0.28
Great Salt Plains	31,420	31,420	100.0	2.83
Kaw*	408,317	408,317	100.0	11.59
Regional Totals/Averages	**453,637**	**453,637**	**100.0**	**4.90**
Northeast				
Birch	19,225	18,353	95.5	0.00
Copan	43,400	43,400	100.0	8.47
Fort Gibson	365,200	365,200	100.0	0.40
Grand	1,672,000	1,668,780	99.8	0.00
Hudson	200,300	200,300	100.0	4.16
Hulah	25,100	25,100	100.0	13.01
Keystone	510,059	510,059	100.0	13.01
Oologah	552,210	552,210	100.0	13.49
Skiatook	322,700	294,223	91.2	0.00
Regional Totals/Averages	**3,710,194**	**3,677,625**	**99.1**	**5.84**
West Central				
Canton	111,310	111,310	100.0	0.48
Foss	165,480	162,808	98.4	0.00
Regional Totals/Averages	**276,790**	**274,118**	**99.0**	**0.24**
Central				
Arcadia	27,520	27,520	100.0	0.23
Heyburn	7,105	7,105	100.0	0.33
Thunderbird	119,600	117,440	98.2	0.00
Regional Totals/Averages	**154,225**	**152,065**	**98.6**	**0.19**
East Central				
Eufaula*	2,529,143	2,359,227	93.3	0.00
Tenkiller	654,100	654,100	100.0	2.54
Regional Totals/Averages	**3,183,243**	**3,013,327**	**94.7**	**1.27**
Southwest				
Fort Cobb	80,010	80,010	100.0	0.79
Lugert-Altus	132,830	67,355	50.7	0.00
Tom Steed	88,970	46,962	52.8	0.00
Regional Totals/Averages	**301,810**	**194,327**	**64.4**	**0.26**
South Central				
Arbuckle	72,400	72,400	100.0	4.38
McGee Creek	113,930	106,898	93.8	0.00
Texoma*	2,742,146	2,522,904	92.0	0.00
Waurika*	190,200	182,266	95.8	0.00
Regional Totals/Averages	**3,118,676**	**2,884,468**	**92.5**	**1.10**
Southeast				
Broken Bow*	958,180	920,652	96.1	0.00
Hugo*	198,067	198,067	100.0	0.08
Pine Creek*	71,120	71,120	100.0	0.40
Sardis	274,330	273,661	99.8	0.00
Wister	60,162	60,162	100.0	0.52
Regional Totals/Averages	**1,561,859**	**1,523,662**	**97.6**	**0.20**
State Totals	**12,760,434**	**12,173,229**	**95.4**	**2.48**

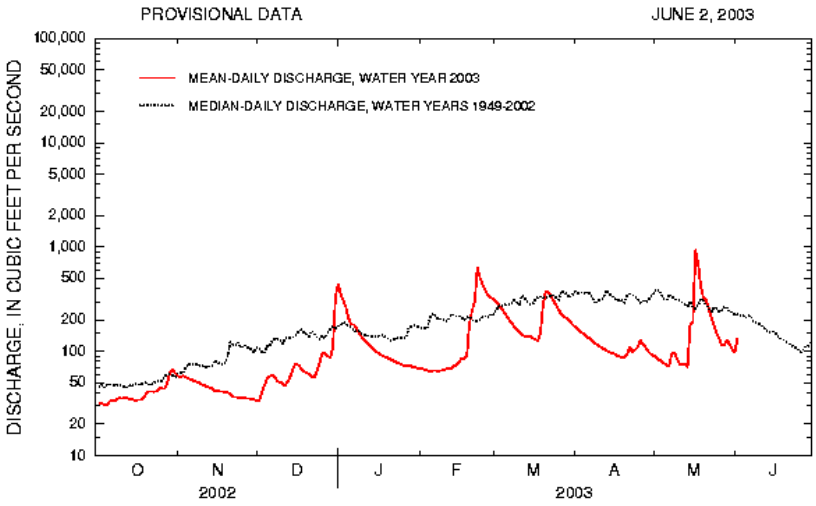
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2003
and period of record for Baron Fork at Eldon, Oklahoma.

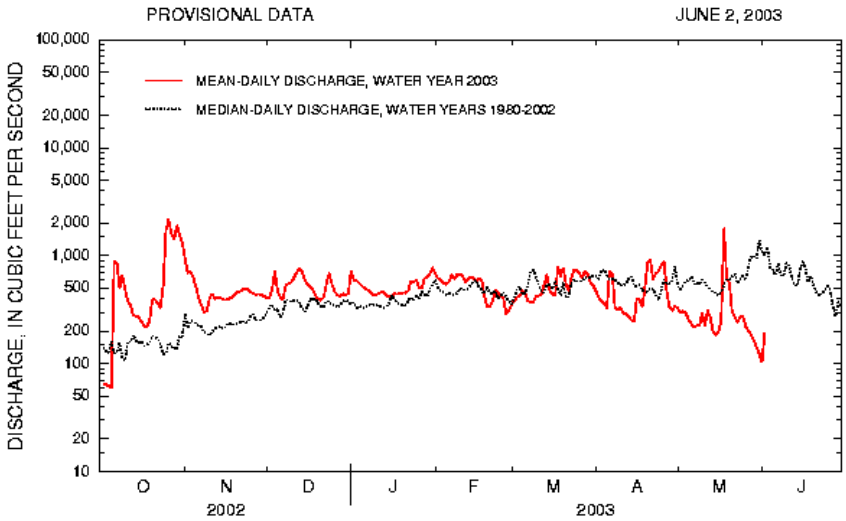
Data from U.S. Geological Survey

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 2003
and period of record for Canadian River at Purcell, Oklahoma.

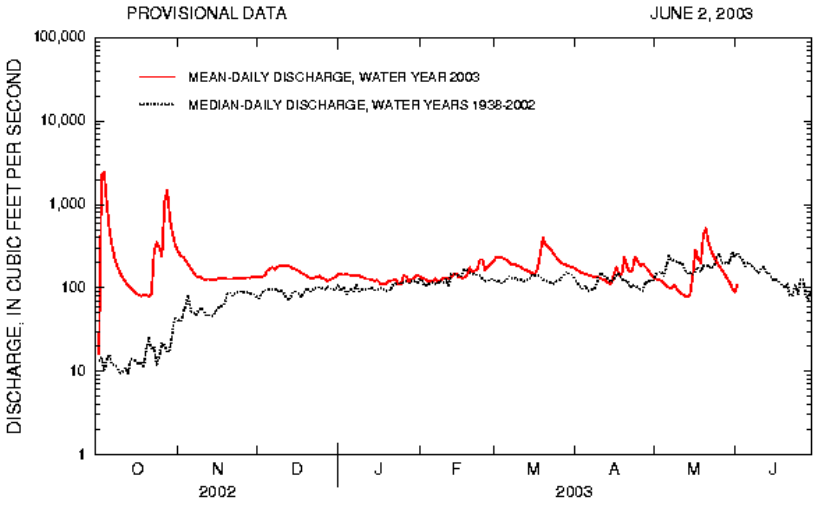
Data from U.S. Geological Survey

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 2003
and period of record for Cimarron River near Waynoka, Oklahoma.

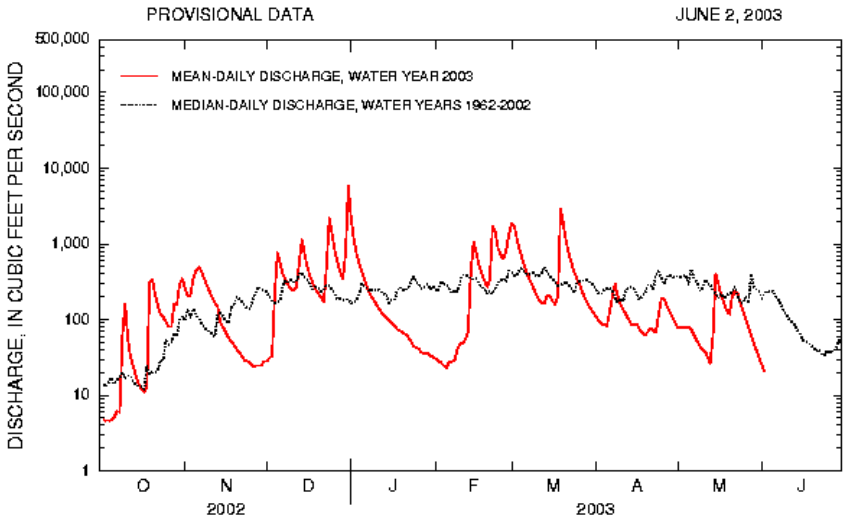
Data from U.S. Geological Survey

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 2003
and period of record for Glover River near Glover, Oklahoma.

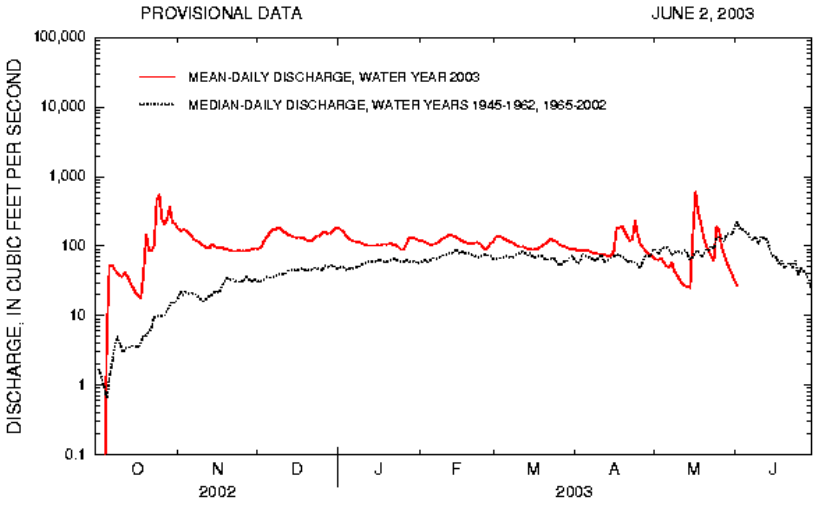
Data from U.S. Geological Survey

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 2003
and period of record for North Fork Red River near Carter, Oklahoma.

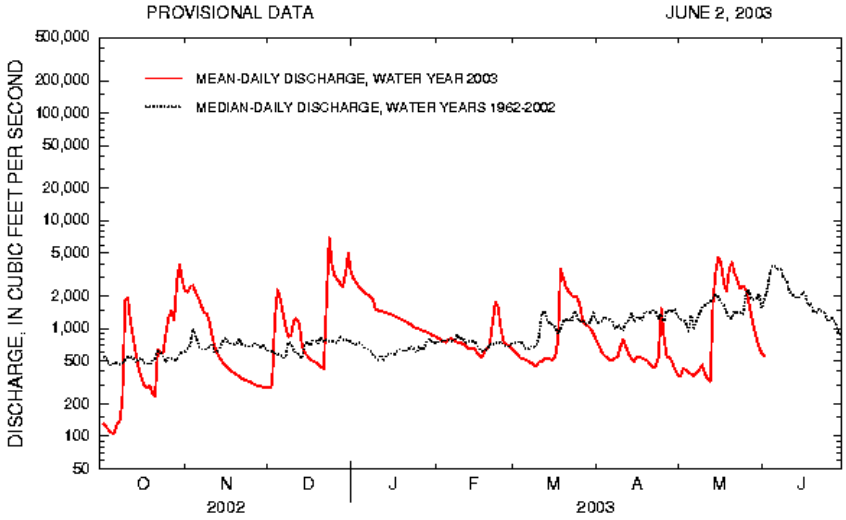
Data from U.S. Geological Survey

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 2003
and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey