

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



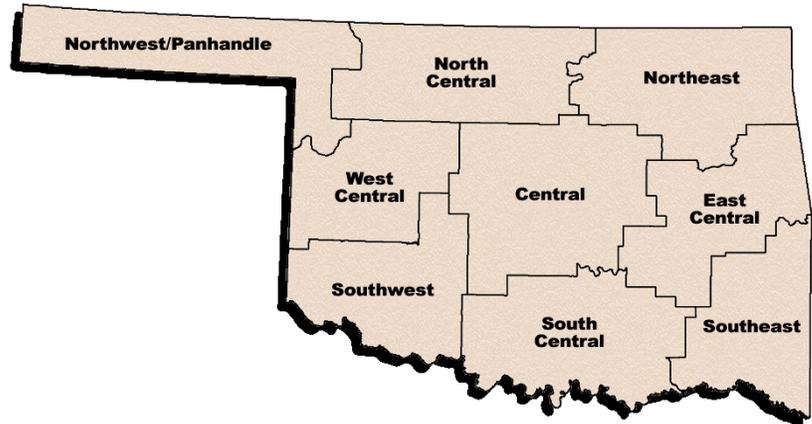
MAY 21, 2003

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Although benefiting 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 areas receiving the lowest percent of normal rainfall from March 1 through May 19 (the current growing season) are the Southwest (3.5 inches) and South Central climate divisions (4.88 inches), only 44 and 45 percent of normal precipitation, respectively. The Southeast region has also received only about one-half of normal rainfall throughout the period. The current state-averaged rainfall total is 6.27 inches, 65 percent of normal.

For the current water year (October 1, 2002 through May 19, 2003), eight regions report precipitation deficits, although none are below 50 percent of normal. The state-averaged rainfall total is 16.36 inches, 78 percent of normal.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—MAY 19, 2003			WATER YEAR OCTOBER 1, 2002—MAY 19, 2003		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	3.44	-2.11	62	8.99	-0.97	90
North Central	7.75	-0.79	91	17.68	+0.96	106
Northeast	9.74	-1.28	88	17.94	-6.17	74
West Central	5.16	-2.85	64	14.05	-1.40	91
Central	6.49	-3.73	64	16.04	-5.89	73
East Central	8.43	-3.60	70	20.50	-7.64	73
Southwest	3.50	-4.48	44	13.34	-3.12	81
South Central	4.88	-5.86	45	17.37	-7.36	70
Southeast	6.49	-6.38	50	21.83	-11.09	66
Statewide	6.27	-3.39	65	16.36	-4.73	78

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 17, below), two regions in Oklahoma (Southeast and South Central, both in "mild drought") remain in a drought category. Four of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since May 3. The greatest decrease occurred in the Southwest climate division ("incipient drought").

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 19, 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 5). Antlers, in Southeast Oklahoma, has the highest KBDI value (391). 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 5/17/2003	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	NEAR NORMAL	-0.07	0.35	-0.42	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.55	2.15	0.40	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Northeast (3)	INCIPIENT MOIST SPELL	0.72	-0.49	1.21	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.89	0.91	-0.02	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT DROUGHT	-0.55	-0.17	-0.38	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	-0.11	-0.99	0.88	NEAR NORMAL	MODERATELY DRY	VERY DRY	VERY DRY
Southwest (7)	INCIPIENT DROUGHT	-0.97	-0.17	-0.80	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MILD DROUGHT	-1.19	-1.29	0.10	VERY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MILD DROUGHT	-1.40	-1.43	0.03	MODERATELY DRY	VERY DRY	MODERATELY DRY	MODERATELY DRY

Keetch-Byram Drought Fire Index

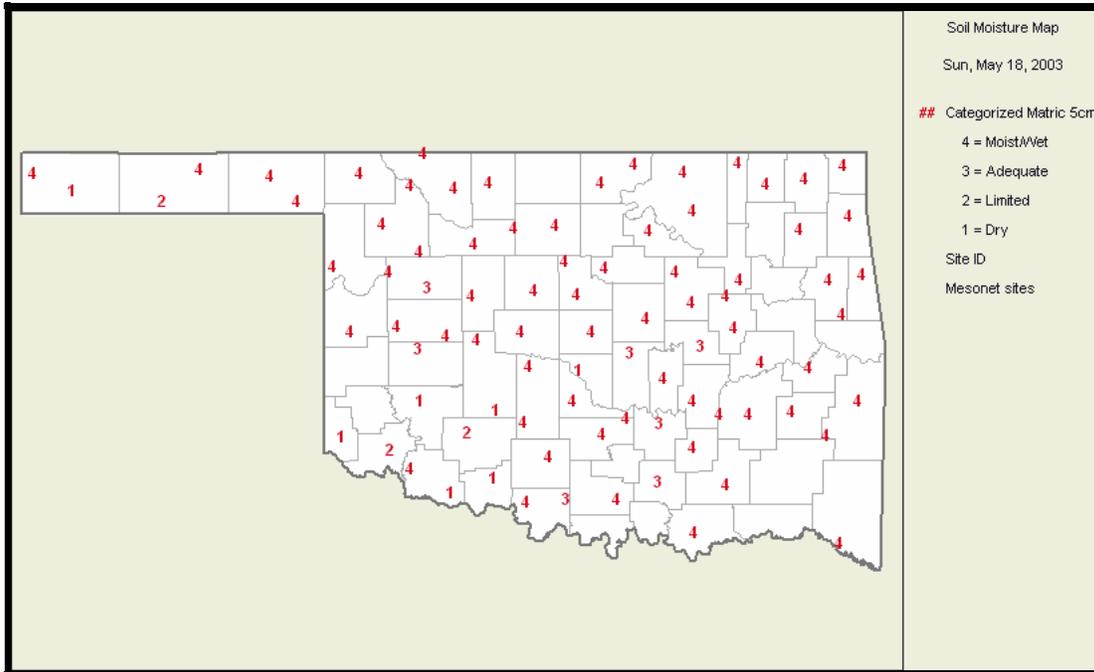
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 5/19/2003	ANTICIPATED IMPACT
Antlers	Pushmataha	Southeast	391	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively. 400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Grandfield	Tillman	Southwest	377	
Walters	Cotton	Southwest	356	

Total stations above 600 = 0

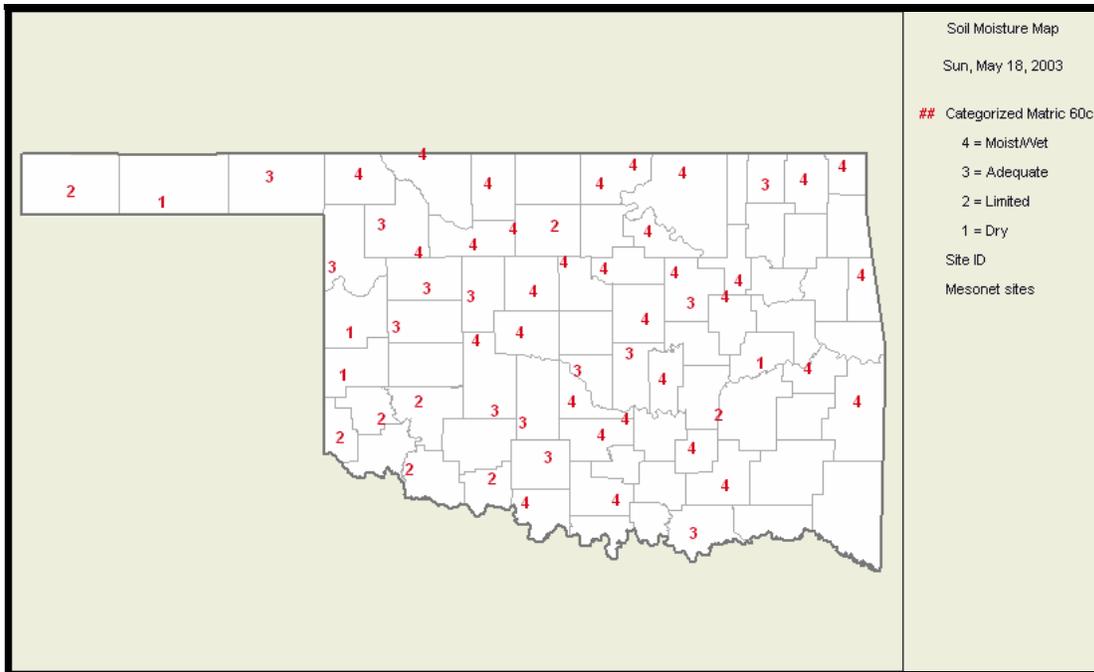
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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
May 18, 2003
 (Courtesy Oklahoma Climatological Survey)

5 cm



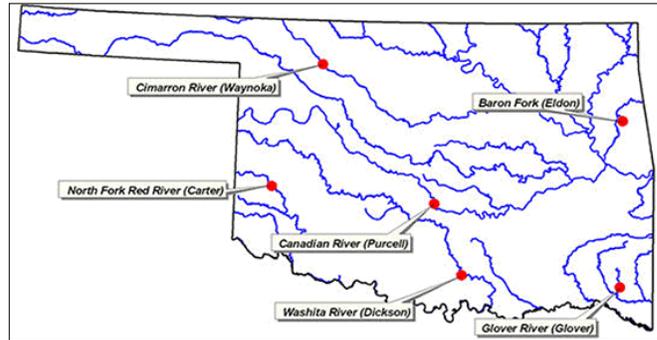
60 cm



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 emerging dry conditions (despite transient high flows from last week's rainfall). Considering overall trends as well as current flows, the most recent data (May 19, 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 **below average flow** in *south central* (Washita River, Carter County), *southeast* (Glover River, McCurtain County), and *northeast* (Baron Fork, Cherokee County) Oklahoma; and **near average flow** in the *southwest* (North Fork/Red River, Beckham County), *central* (Canadian River, McClain County), and *northwest* (Cimarron River, Woods County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (May 26 through June 1) calls for below normal precipitation and above normal temperatures 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

May 18 - Severe weather swept through Oklahoma again last week bringing much-needed rain to some counties, although the southwest remains very dry. The storms also brought strong winds, hail and tornadoes. Some crop and structural damage occurred due to wind and hail. Topsoil moisture was higher this week due to the rain and was rated as mostly adequate. Subsoil moisture was also up with 45 percent rated as adequate. There were 4.6 days suitable for fieldwork during the week.

North central Oklahoma has some wheat lodged due to heavy rains. Some areas, especially Kingfisher County, had some acreage destroyed by hail. The Panhandle received much-needed rain, but probably too late to save much of the dryland wheat. Wheat is at 100 percent headed and 52 percent soft dough. Wheat is rated in good to fair condition. Wheat harvest started over the weekend in southwest Oklahoma with a few fields harvested in Cotton, Jackson, and Tillman Counties. Oats parallel the five-year average with 92 percent jointing, 72 percent headed, and 33 percent in the soft dough stage. Crop insect activity is rated as light to moderate.

Producers continued preparing row crop seedbeds and planting summer crops. Cotton seedbed preparation was 96 percent complete. Cotton planting in Jackson County was extremely active with many large operators completely planted. Cotton was 61 percent planted and 37 percent emerged. Seedbed prepared for corn was at 97 percent with planted and emerged behind the five-year average. Soybeans were behind the average with 39 percent planted and 25 percent emerged. Sorghum was only slightly up from the five-year average with 21 percent planted and 14 percent emerged. Peanuts were up considerably with 95 percent of the seedbed prepared, 72 percent planted and 48 percent emerged.

North central Oklahoma hay producers had a considerable amount of hay in wind rows damaged by the rains. Alfalfa hay and other hay were rated in mostly good to fair condition. Alfalfa had 82 percent of the first cutting complete. Other hay has 33 percent of the first cutting completed. Watermelons were 91 percent planted with 9 percent running.

Pasture and range conditions were rated good to fair. Rainfall is desperately needed in the southwest to promote growth in pastures and rangeland. Livestock were rated in mostly good to fair condition. Livestock insect activities were rated as light to moderate with ticks being the major problem, especially in wooded areas. Cattle auctions reported an increase in marketings from last week.

Reservoir Storage

Reservoir storage levels remain a concern in some areas of southwest Oklahoma. As of May 19, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 96.7 percent full, a 0.9 percent decrease from that recorded on May 5, according to information from the U.S. Army Corps of Engineers (Tulsa District). Nine reservoirs have experienced lake level decreases since that time. Ten reservoirs are currently operating at less than full capacity (compared to 13 two weeks ago). Two reservoirs in southwest Oklahoma—Lugert-Altus, only 48 percent, and Tom Steed, only 52.3 percent—remain well below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
<i>05/19/2003</i>				
<i>Climate Division</i>	<i>Conservation Storage</i>	<i>Present Storage</i>	<i>Percent of Storage</i>	
<i>Lake or Reservoir</i>	<i>(acre-feet)</i>	<i>(acre-feet)</i>	<i>conservation</i>	<i>flood</i>
North Central				
Fort Supply	13,900	13,900	100.0	0.56
Great Salt Plains	31,420	31,420	100.0	4.84
Kaw*	406,540	406,540	100.0	16.79
Regional Totals/Averages	451,860	451,860	100.0	7.40
Northeast				
Birch	19,225	18,915	98.4	0.00
Copan	43,400	43,400	100.0	36.82
Fort Gibson	365,200	365,200	100.0	5.41
Grand	1,672,000	1,672,000	100.0	6.45
Hudson	200,300	200,300	100.0	11.60
Hulah	25,100	25,100	100.0	28.14
Keystone	510,059	510,059	100.0	28.14
Oologah	552,210	552,210	100.0	13.11
Skiatook	322,700	295,023	91.4	0.00
Regional Totals/Averages	3,710,194	3,682,207	99.2	14.41
West Central				
Canton	111,310	111,310	100.0	3.04
Foss	165,480	162,140	98.0	0.00
Regional Totals/Averages	276,790	273,450	98.8	1.52
Central				
Arcadia	27,520	27,520	100.0	0.90
Heyburn	7,105	7,105	100.0	1.85
Thunderbird	119,600	116,660	97.5	0.00
Regional Totals/Averages	154,225	151,285	98.1	0.92
East Central				
Eufaula*	2,314,583	2,314,583	100.0	0.99
Tenkiller	654,100	654,100	100.0	5.20
Regional Totals/Averages	2,968,683	2,968,683	100.0	3.10
Southwest				
Fort Cobb	80,010	80,010	100.0	1.65
Lugert-Altus	132,830	63,812	48.0	0.00
Tom Steed	88,970	46,547	52.3	0.00
Regional Totals/Averages	301,810	190,369	63.1	0.55
South Central				
Arbuckle	72,400	72,400	100.0	2.35
McGee Creek	113,930	109,323	96.0	0.00
Texoma*	2,604,650	2,382,022	91.5	0.00
Waurika*	190,200	177,903	93.5	0.00
Regional Totals/Averages	2,981,180	2,741,648	92.0	0.59
Southeast				
Broken Bow*	950,170	921,970	97.0	0.00
Hugo*	198,067	198,067	100.0	0.21
Pine Creek*	71,120	71,120	100.0	1.51
Sardis	274,330	274,330	100.0	1.58
Wister	60,162	60,162	100.0	0.96
Regional Totals/Averages	1,553,849	1,525,649	98.2	0.85
State Totals	12,398,591	11,985,151	96.7	5.55

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

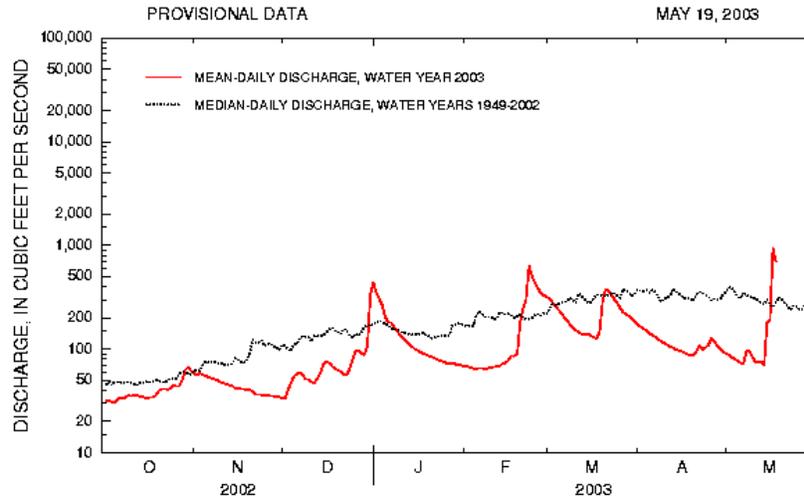
Baron Fork at Eldon

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

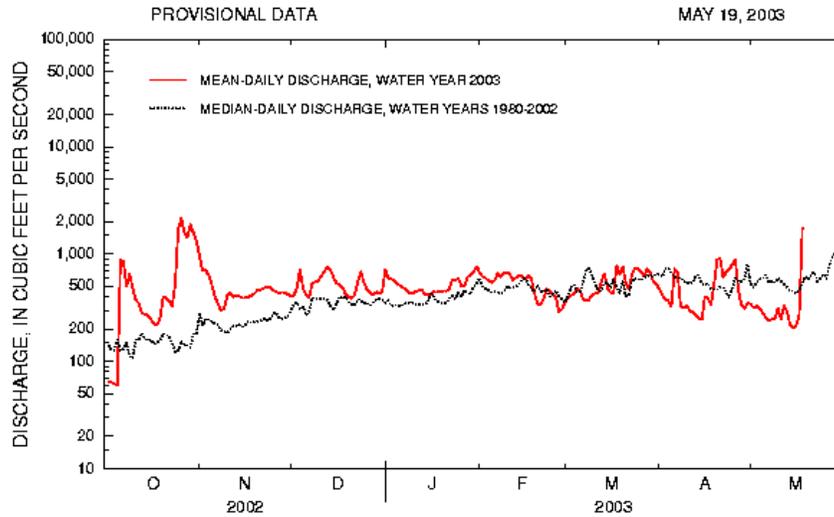
Canadian River at Purcell

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.

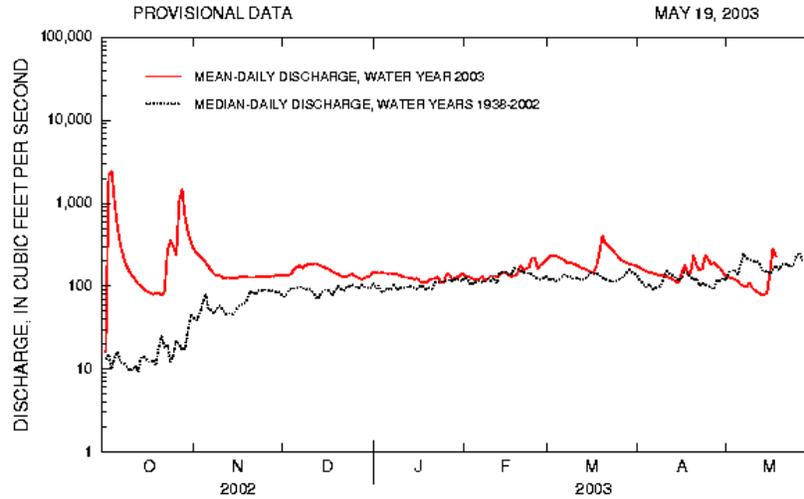
Data from U.S. Geological Survey

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.

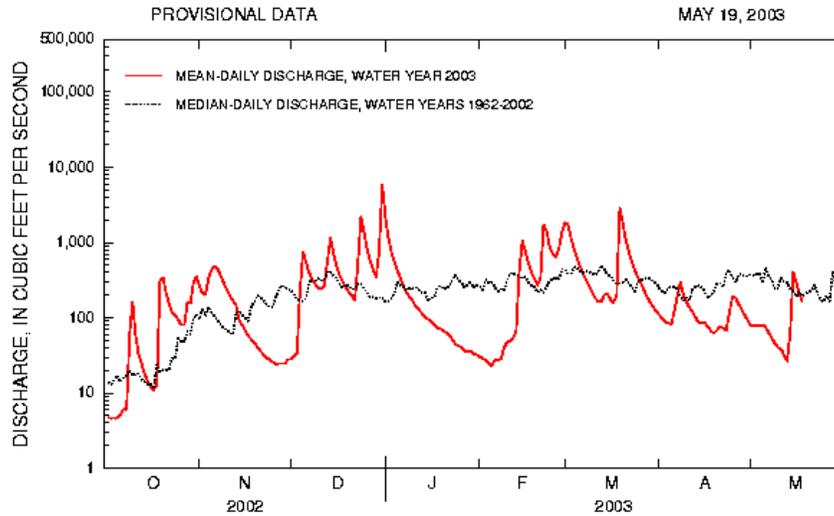
Data from U.S. Geological Survey

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

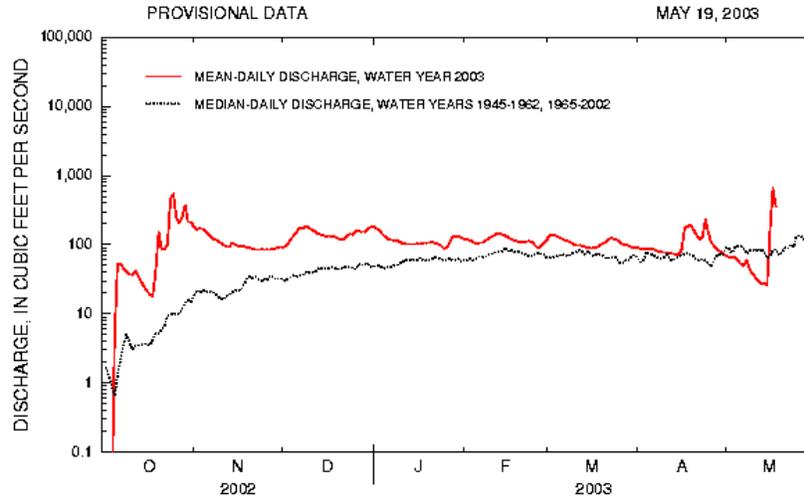
North Fork of the Red River near Carter

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

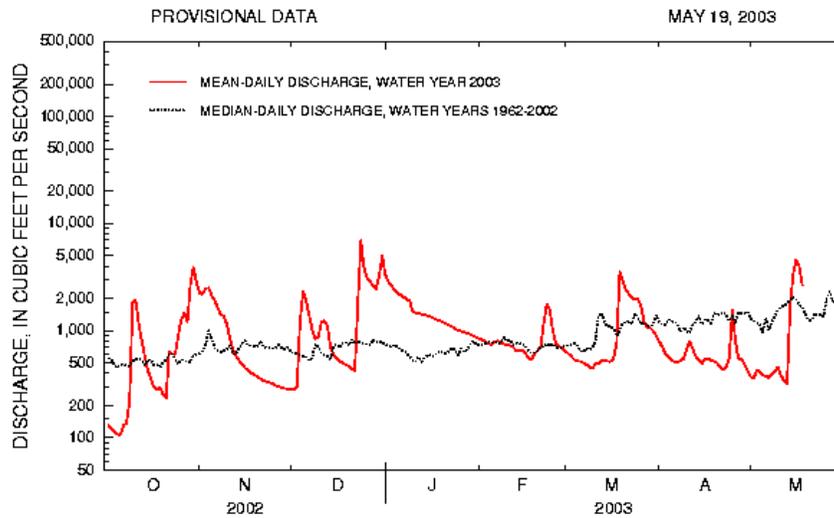
Washita River near Dickson

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