

Oklahoma Water Resources Bulletin

& Summary of Current Conditions

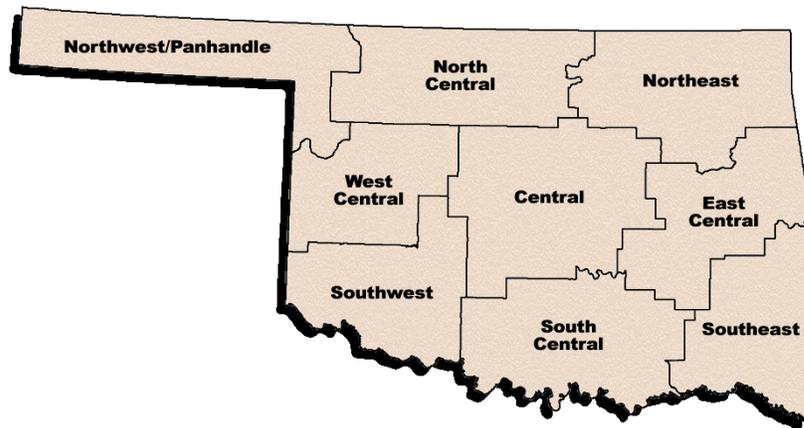


July 14, 2004

Statewide Precipitation & General Summary

Recent rainfall has greatly benefited many areas of Oklahoma, especially in the east and south. 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 July 11 (the current growing season) are the Central, South Central, Southwest and Southeast climate divisions, although all of those regions report deficits of only around one inch or less. The current state-averaged rainfall total is 17.21 inches, 102 percent of normal.

For the last 30 days, the state-averaged rainfall total is 6.53 inches, 178 percent of normal. All regions report at least 150 percent of normal precipitation.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—JULY 11, 2004			LAST 30 DAYS JUNE 12—JULY 11, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	10.68	+0.01	100	5.03	+2.28	183
North Central	16.53	+1.17	108	6.57	+3.02	185
Northeast	23.16	+4.27	123	7.88	+3.84	195
West Central	14.94	+0.42	103	7.03	+3.83	220
Central	16.86	-1.02	94	6.23	+2.43	164
East Central	21.20	+0.97	105	7.72	+3.59	187
Southwest	14.02	-0.81	95	5.61	+2.20	165
South Central	17.26	-1.19	94	5.80	+1.96	151
Southeast	20.05	-1.25	94	7.18	+2.93	169
Statewide	17.21	+0.30	102	6.53	+2.86	178

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> and <http://climate.ocs.ou.edu/drought/>.**

Drought Indices

According to the latest Palmer Drought Severity Index (July 10, below), no regions in Oklahoma are currently experiencing drought conditions and none of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since June 12. The most modest increase occurred in the Northeast climate division.

The latest monthly Standardized Precipitation Index (through June, below) indicates only moderate long-term dryness in east central and southeast Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dry conditions. Considering longer periods (through six years), only the East Central and Southeast climate divisions report "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 (July 12, 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 are generally good throughout Oklahoma. Statewide, no Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (no stations had a reading above 600 on June 15). Idabel, in Southeast Oklahoma, retains the highest KBDI value (412). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 1 (low fire danger). No counties are currently in a Burn Ban or Red Flag Fire Alert.

Palmer Drought Severity Index					Standardized Precipitation Index Through June 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 7/10/2004	VALUE 7/10	VALUE 6/12	CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	MOIST SPELL	1.62	-2.11	3.73	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
North Central (2)	MOIST SPELL	1.17	-0.70	1.87	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MOIST SPELL	1.51	0.73	0.78	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.66	-1.85	2.51	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Central (5)	NEAR NORMAL	-0.17	-1.41	1.24	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT MOIST SPELL	0.93	-1.36	2.29	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	0.20	-1.54	1.74	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MOIST SPELL	1.02	-0.55	1.57	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	INCIPIENT MOIST SPELL	0.96	-1.48	2.44	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

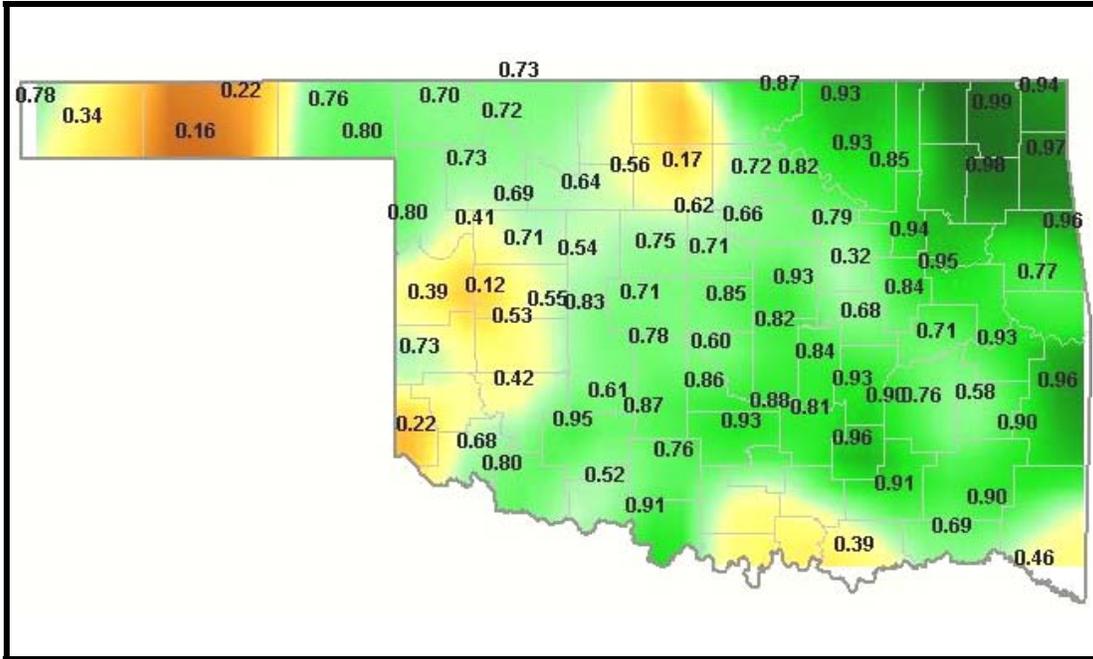
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 7/12/2004	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	412	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively. 400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Durant	Bryan	South Central	374	
Grandfield	Tillman	Southwest	347	

Total stations above 600 = 0

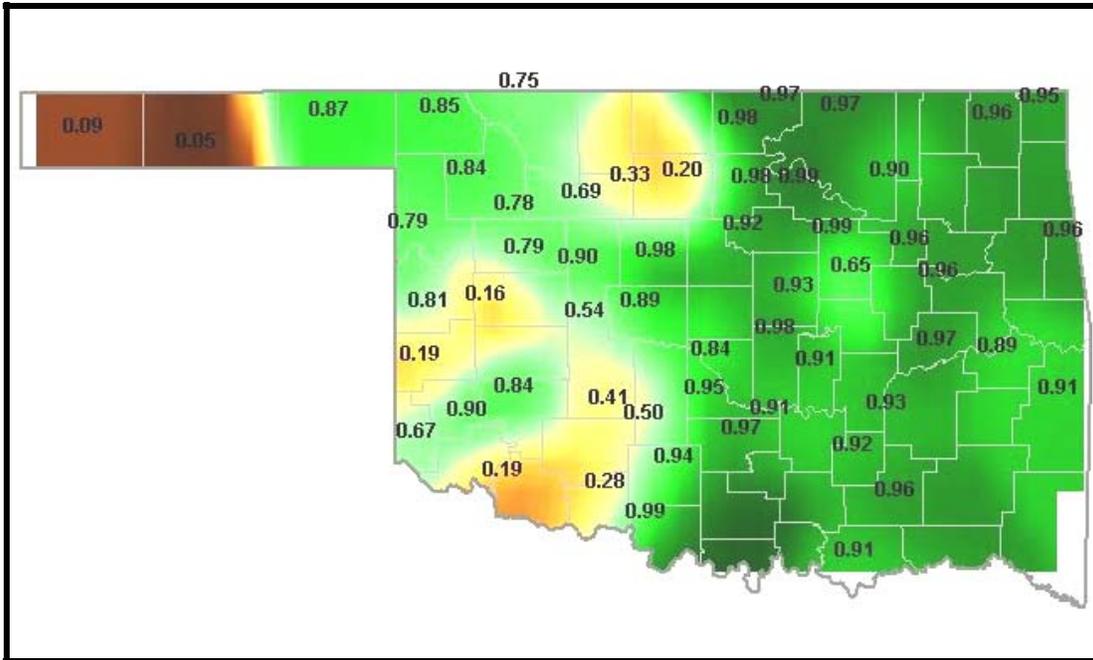
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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
Fractional Water Index**
July 11, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



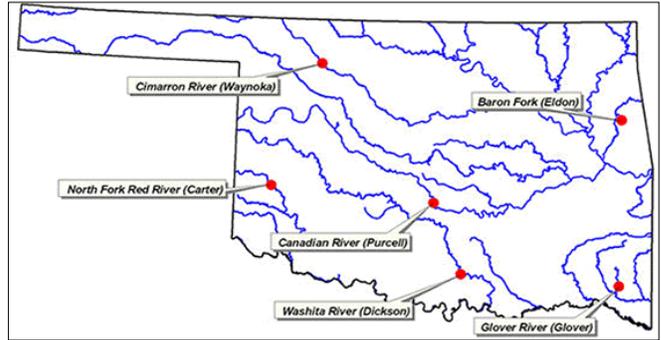
60 cm (~2 feet)



FWI Value Soil Wetness Conditions	
1.0 – 0.8	Enhanced Growth (~Field Capacity)
0.8 – 0.5	Limited Growth
0.5 – 0.3	Plants Dying
< 0.1	Barren Soil

Streamflow Conditions

Flows in rivers and streams in Oklahoma remain generally below or near average, although flows in many areas reflect runoff fluctuations from recent rainfall events. Considering overall trends as well as current flows, the most recent data (June 23, 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 *northwest* (Cimarron River, Woods County), *northeast* (Baron Fork, Cherokee County) and *south central* (Washita River, Carter County) Oklahoma; **near average flow** in the *southwest* (North Fork/Red River, Beckham County) and *central* (Canadian River, McClain County) regions; and **above average flow** in the *southeast* (Glover River, McCurtain County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (July 19-25) calls for below normal precipitation and above normal temperatures for all of Oklahoma throughout the period.

Given recent trends and observed oceanic and atmospheric patterns, it is likely that near-neutral ENSO (El Niño/Southern Oscillation) conditions in the tropical Pacific will continue for at least the next 3 months. After that, however, considerable uncertainty exists. Some forecasts indicate that El Niño could develop within the next three to six months and intensify through the end of the year. 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

July 11 - Row crops made good progress last week due to a break in the rainfall and a few days of warmer temperatures. Respondents were optimistic that the current weather conditions would aid in the development of the row crops throughout the state. Surplus supplies of both topsoil and subsoil dropped back last week and moisture supplies were mostly adequate.

Wheat harvest was close to being finished with 99 percent complete. Sixty-three percent of the wheat was plowed. Oats and rye were 90 and 96 percent harvested, respectively. Warmer weather and the previous rains aided row crop development. Sorghum began turning color and heading was 16 percent complete, slightly ahead of normal. Sorghum conditions improved to 6 percent excellent, 54 percent good, 39 percent fair, and 1 percent poor. Soybeans were at 91 percent emerged, 26 percent blooming, and 10 percent setting pods. At this same time last year soybeans were at 91 percent emerged, 21 percent blooming, and 3 percent setting pods. Soybean conditions improved to 14 percent excellent, 61 percent good, 24 percent fair and 1 percent poor. Corn silking increased 12 points to 60 percent with 35 percent of the corn in the dough stage. Both of these stages of development were ahead of normal. Eighty-eight percent of the corn was in good to excellent condition. Peanuts pegging increased 20 points up to 64 percent with 14 percent setting pods. Peanut conditions were 11 percent excellent, 72 percent good, and 17 percent fair to poor. The warm weather was especially beneficial to cotton as squaring advanced 20 points to 65 percent and 12 percent was setting bolls. Cotton conditions were 8 percent excellent, 58 percent good, 27 percent fair, and 7 percent poor to very poor.

The rain at the beginning of the week kept producers from cutting and baling hay. The second cutting of alfalfa was winding down and the third cutting of alfalfa went up 17 points to 37 percent. This compared to 44 percent last year and 43 percent for the five-year average. Other hay first cutting was 85 percent complete with the second cutting at 20 percent complete. Alfalfa and other hay were in mostly good condition. Watermelons setting fruit was at 86 percent. Twenty percent of the watermelon crop has been harvested. Watermelon conditions were mostly good to fair. Some reports indicated that the watermelon harvest was good but there were a few problems with foliar diseases. Peaches were in good condition. Pecans were starting out with an average nut set. They were also in good condition with some reports of webworm activity. Livestock conditions were 25 percent excellent, 59 percent good, 15 percent fair, and 1 percent poor. Livestock insect activity was mostly moderate to light. Pastures have greatly benefited from the recent weather conditions. The rains and temperatures have encouraged growth of native grass. Pasture conditions have improved to 23 percent excellent, 51 percent good, 23 percent fair, and 3 percent poor.

Reservoir Storage

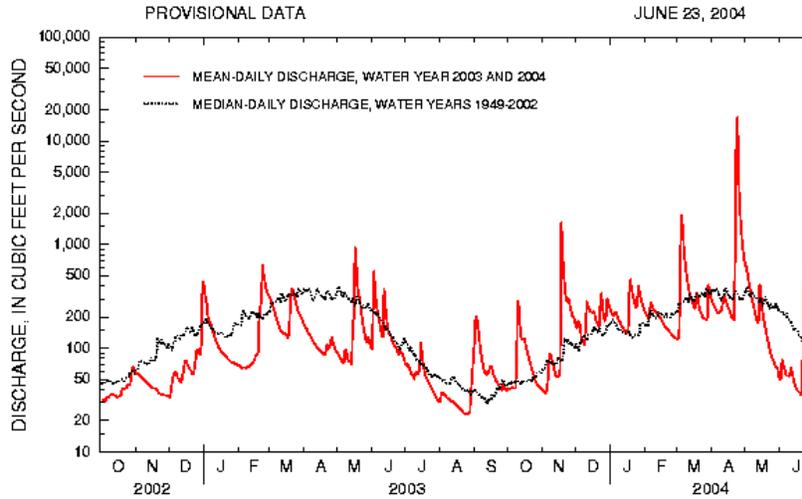
Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels, despite recent rainfall. As of July 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 98.8 percent full, a 1.3 percent increase from that recorded on June 15, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only three reservoirs have experienced lake level decreases since that time. Only seven reservoirs are currently operating at less than full capacity (compared to 10 four weeks ago). Two reservoirs—Lugert-Altus, only 51.4 percent full; and Tom Steed, 58.6 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs			
07/12/2004			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,764	99.0
Great Salt Plains	31,420	31,420	100.0
Kaw*	459,850	459,850	100.0
Regional Totals/Averages	505,170	505,034	100.0
Northeast			
Birch	19,225	19,225	100.0
Copan	43,400	43,400	100.0
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,672,000	100.0
Hudson	200,300	200,300	100.0
Hulah	25,100	25,100	100.0
Keystone	510,059	510,059	100.0
Oologah	552,210	552,210	100.0
Skiatook	322,700	322,700	100.0
Regional Totals/Averages	3,710,194	3,710,194	100.0
West Central			
Canton	111,310	93,280	83.8
Foss	165,480	158,670	95.9
Regional Totals/Averages	276,790	251,950	91.0
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	119,600	100.0
Regional Totals/Averages	154,225	154,225	100.0
East Central			
Eufaula*	2,529,143	2,529,143	100.0
Tenkiller	654,100	654,100	100.0
Regional Totals/Averages	3,183,243	3,183,243	100.0
Southwest			
Fort Cobb	80,010	79,340	99.2
Lugert-Altus	132,830	68,289	51.4
Tom Steed	88,970	52,149	58.6
Regional Totals/Averages	301,810	199,778	66.2
South Central			
Arbuckle	72,400	72,400	100.0
McGee Creek	113,930	113,930	100.0
Texoma*	2,742,146	2,742,146	100.0
Waurika*	190,200	161,036	84.7
Regional Totals/Averages	3,118,676	3,089,512	99.1
Southeast			
Broken Bow*	958,180	958,180	100.0
Hugo*	198,067	198,067	100.0
Pine Creek*	71,120	71,120	100.0
Sardis	274,330	274,196	100.0
Wister	60,162	60,162	100.0
Regional Totals/Averages	1,561,859	1,561,725	100.0
State Totals	12,811,967	12,655,661	98.8

* 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

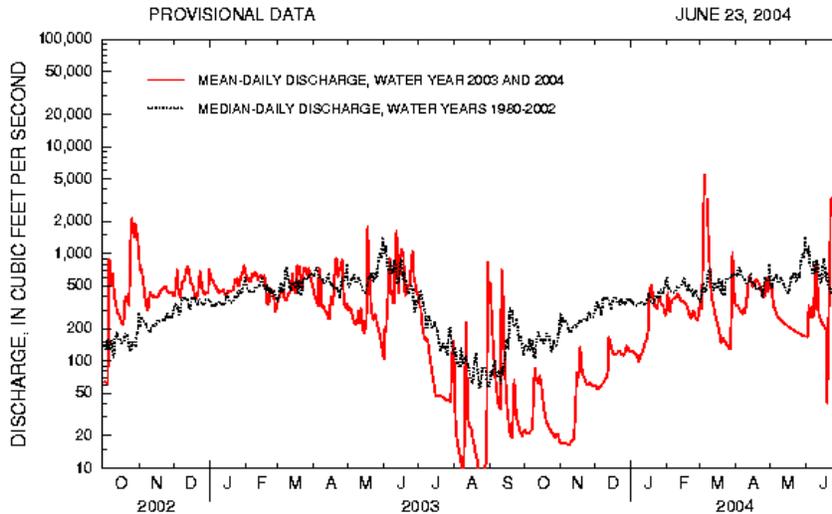


Comparison of daily discharges for water year 2003 and 2004 and period of record for Baron Fork at Eldon, Oklahoma.

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 2004 and period of record for Canadian River at Purcell, Oklahoma.

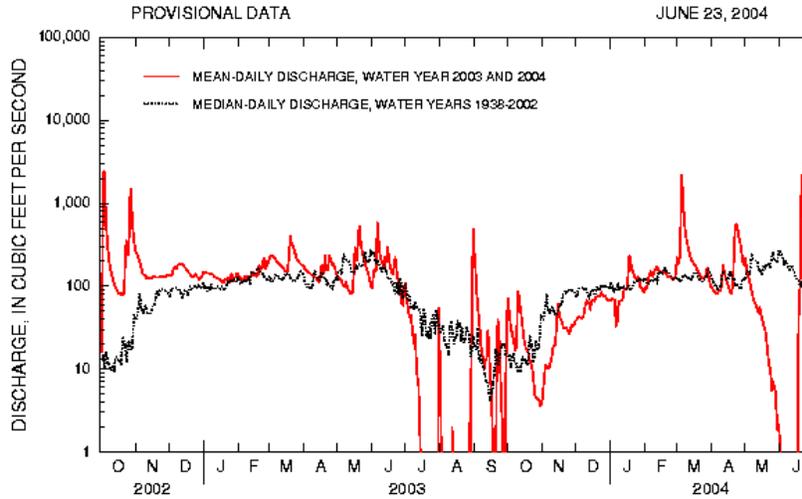
Data from U.S. Geological Survey

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 2004 and period of record for Cimarron River near Waynoka, Oklahoma.

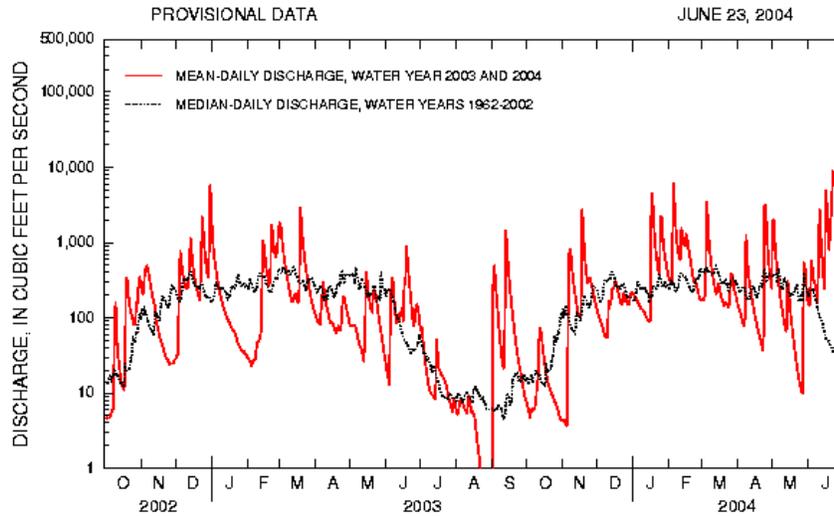
Data from U.S. Geological Survey

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 2004 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

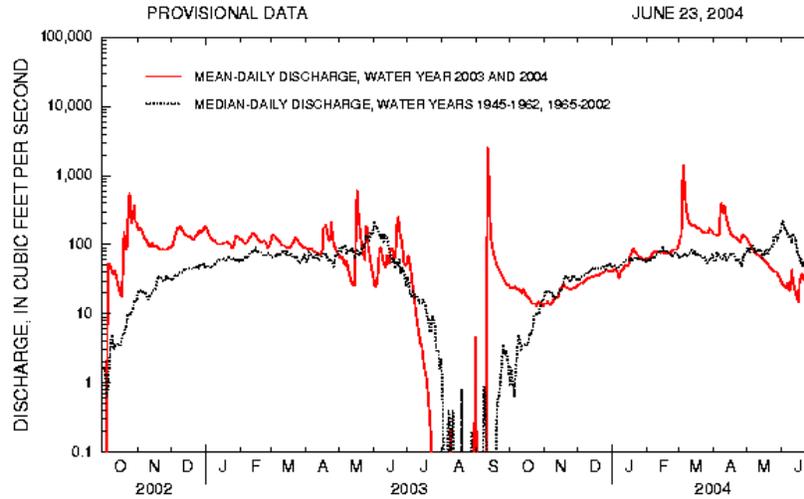
North Fork of the Red River near Carter

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 2004 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

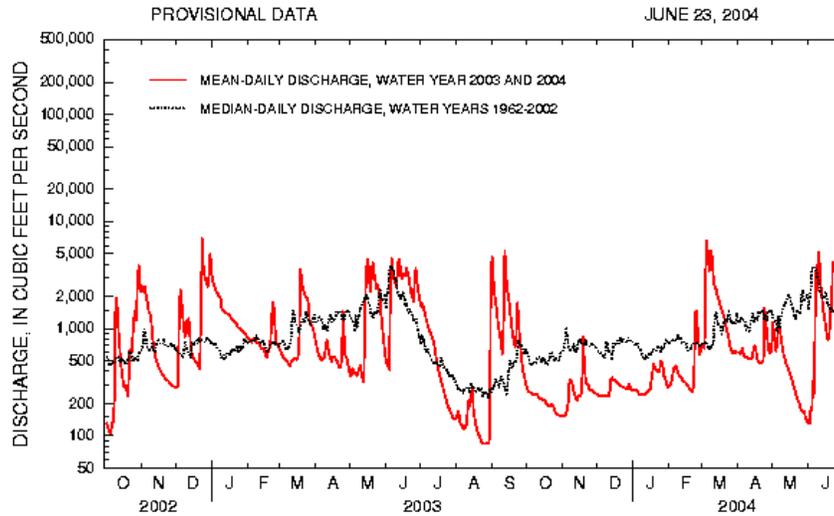
Washita River near Dickson

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 2004 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey