

Oklahoma Water Resources Bulletin

& Summary of Current Conditions

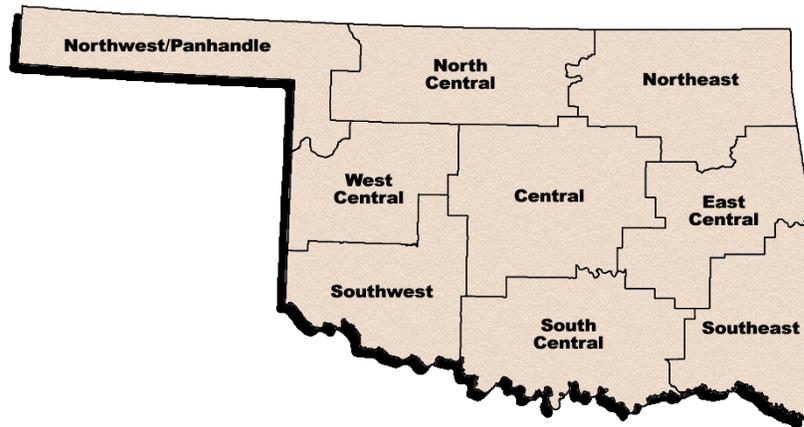


May 20, 2004

Statewide Precipitation & General Summary

Areas in southern and western Oklahoma are becoming quite dry due to recent below normal rainfall. 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 18 (the current growing season) remains the South Central climate division (6.51 inches, a deficit of 4.05 inches and 62 percent of normal precipitation). The Southeast climate division also remains relatively dry (67 percent of normal, a rainfall deficit of more than four inches). The current state-averaged rainfall total is 8.14 inches, 86 percent of normal.

For the last 30 days, the state-averaged rainfall total is 3.43 inches, 78 percent of normal. However, the West Central climate division has received less than one inch of rainfall (only 22 percent of normal) over that period—the fourth driest such period in that region since 1921. The Southwest and Central regions are also quite dry throughout the past month.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—MAY 18, 2004			LAST 30 DAYS APRIL 19—MAY 18, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	5.00	-0.44	92	1.94	-0.76	72
North Central	8.54	+0.16	102	3.15	-0.77	80
Northeast	12.88	+2.03	119	6.00	+1.22	126
West Central	6.88	-0.96	88	0.86	-3.02	22
Central	7.63	-2.41	76	2.56	-2.12	55
East Central	10.58	-1.26	89	5.87	+0.72	114
Southwest	6.54	-1.27	84	2.01	-1.94	51
South Central	6.51	-4.05	62	3.89	-0.87	82
Southeast	8.49	-4.17	67	4.21	-1.28	77
Statewide	8.14	-1.35	86	3.43	-0.94	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> and <http://climate.ocs.ou.edu/drought/>.**

Drought Indices

According to the latest Palmer Drought Severity Index (May 15, below), only one region in Oklahoma (Southeast, "mild drought") is currently experiencing drought conditions. However, six of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since April 17. The greatest decrease occurred in the West Central climate division.

The latest monthly Standardized Precipitation Index (through April, below) indicates only moderate long-term dryness in southern and eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no dry conditions are indicated in any region. However, considering longer periods (through six years), the South Central, Southeast, and East Central climate divisions indicate moderate dryness at various periods over the past 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (May 20, 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 good in most areas of 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 April 19). Boise City, in Northwest Oklahoma, reports the highest KBDI value (319). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is 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 April 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 5/15/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		5/15	4/17					
Northwest (1)	NEAR NORMAL	0.21	1.02	-0.81	MODERATELY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET
North Central (2)	MOIST SPELL	1.60	1.95	-0.35	VERY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Northeast (3)	UNUSUAL MOIST SPELL	2.75	1.70	1.05	MODERATELY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET
West Central (4)	NEAR NORMAL	0.29	1.96	-1.67	VERY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Central (5)	INCIPIENT DROUGHT	-0.67	0.07	-0.74	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT DROUGHT	-0.55	-0.67	0.12	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	0.11	1.00	-0.89	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
South Central (8)	INCIPIENT DROUGHT	-0.97	-1.03	0.06	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MILD DROUGHT	-1.00	-0.97	-0.03	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

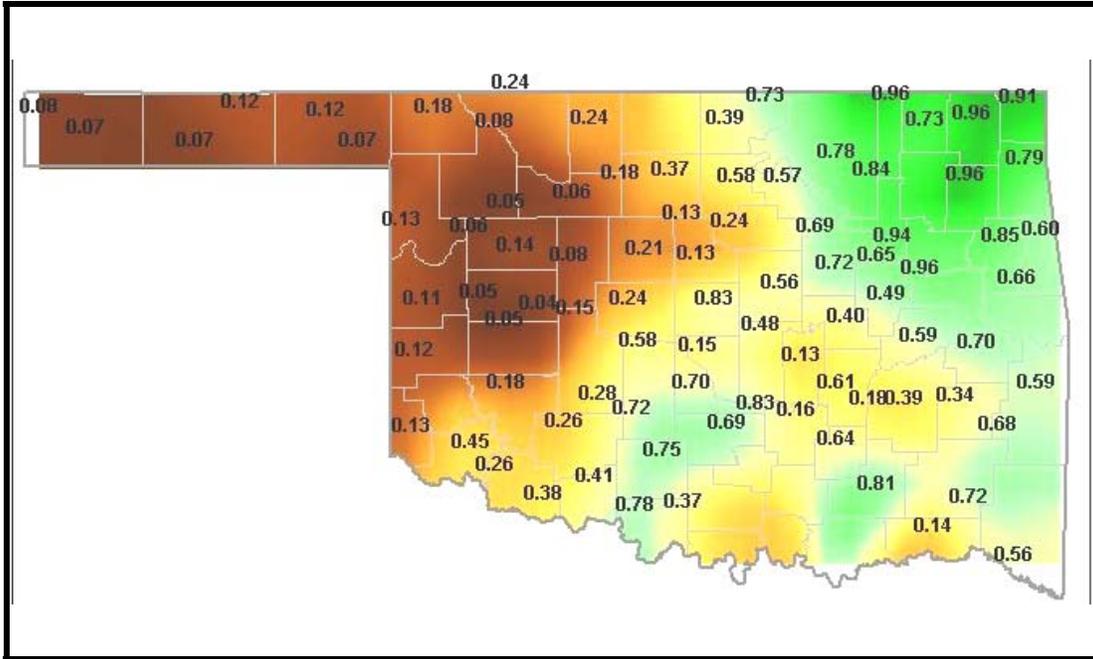
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 5/20/2004	ANTICIPATED IMPACT
Boise City	Cimarron	Northwest	319	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Kenton	Cimarron	Northwest	289	
Goodwell	Texas	Northwest	288	

Total stations above 600 = 0

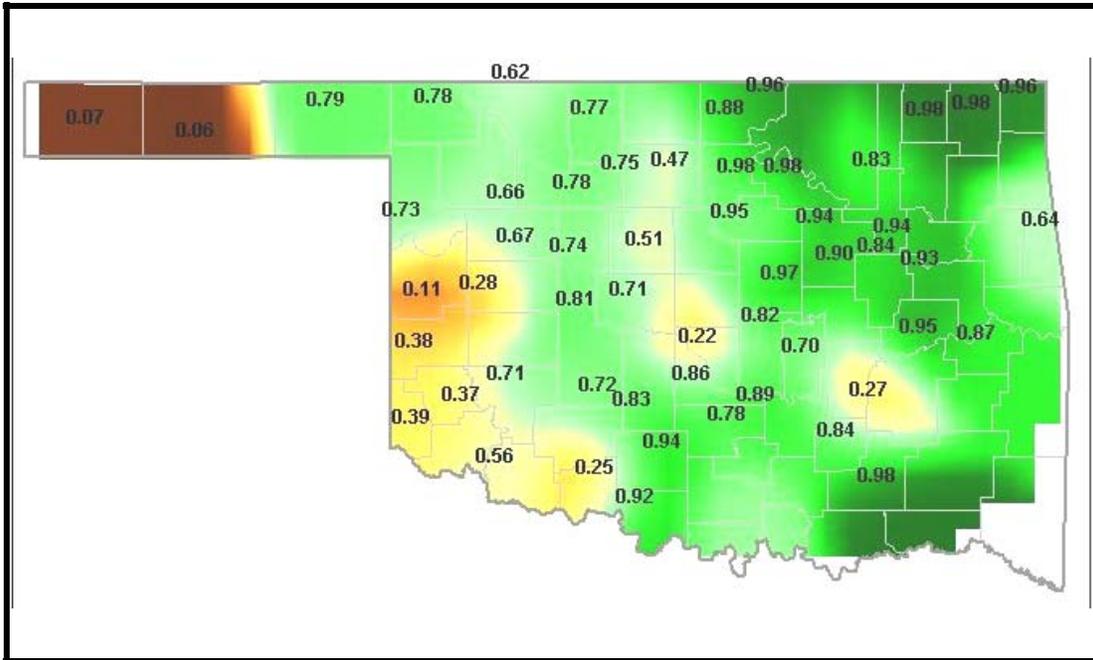
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
May 19, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



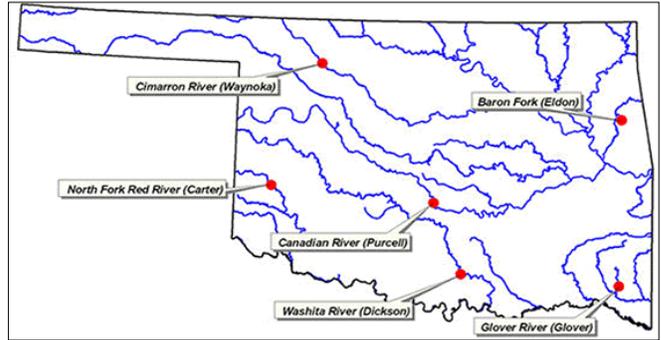
60 cm (~2 feet)



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 are generally below or near average and are beginning to reflect the recent onset of dry conditions in much of the state. Considering overall trends as well as current flows, the most recent data (May 11, 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 *central* (Canadian River, McClain County) Oklahoma; **below average flow** in the *south central* (Washita River, Carter County) region; and **near average flow** in the *southeast* (Glover River, McCurtain County), *northwest* (Cimarron River, Woods County), *northeast* (Baron Fork, Cherokee County), and *southwest* (North Fork/Red River, Beckham County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (May 27 through June 2) calls for below normal precipitation and above normal temperatures for all of Oklahoma.

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 will 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

May 16 - Crop development made moderate progress this past week due to the warmer weather. Hot, dry winds continued to deplete the soil moisture. Despite rainfall in some areas, soil moisture became drier.

Small grains are maturing at a higher rate due to the dry warm weather. In most areas, maturity of wheat is so advanced that rainfall, at this point, would more likely hurt than help production. Wheat conditions were slightly down from last week. Seven percent of the wheat was in excellent condition, 44 percent was in good condition, 33 percent was in fair condition, and 16 percent was in poor to very poor condition. Wheat is 99 percent headed, which is normal for this time of year. Wheat soft dough is at 58 percent, above the five-year average of 45 percent. Rye condition was 8 percent excellent, 56 percent good, 21 percent fair, 11 percent poor, and 4 percent very poor. Rye is 83 percent soft dough stage. Oats condition was 1 percent excellent, 49 percent good, 34 percent fair, 10 percent poor, and 6 percent very poor. Oats are consistent with the five-year norm with 94 percent jointing, 70 percent headed, and 28 percent soft dough.

The warm, dry weather has accelerated row crop planting; however, rain is still needed to aid in the germination and growth of newly planted crops. Sorghum progressed slightly above the five-year average. Sorghum seedbed preparation increased 23 points from 52 to 75 percent. Twenty-six percent of the crop was reported planted, increasing 5 points from the previous week. Sorghum also had 13 percent of the crop emerged. Corn planting also made great progress this week. Corn planting was at 95 percent, up 20 points from last week and up from the five-year average. Corn emergence increased 4 points from the previous week to 59 percent. Soybean seedbed preparation reached 80 percent and planting increased to 36 percent. Nineteen percent of soybeans had emerged. Peanut progress was also above last year and the five-year average. Peanuts had 63 percent planted, 12 points above the five-year average. Fifty percent of the cotton was planted compared to the historic average of 45 percent. Thirty-one percent of cotton had emerged.

Harvesting of alfalfa and other hay continued this week. The first cutting of alfalfa was at 88 percent, up 14 points from last week and 15 points above the 5-year average. The lack of moisture and hot, dry winds are limiting the regrowth of alfalfa. Alfalfa condition was at 15 percent excellent, 58 percent good, 19 percent fair, and 8 percent poor to very poor. Other hay was slightly above the historic trend. Conditions for other hay were at 11 percent excellent, 52 percent good, 31 percent fair, 5 percent poor, and 1 percent very poor. Watermelons were 72 percent planted statewide, below the 5-year average of 84 percent.

Livestock conditions stayed consistent with 19 percent excellent, 59 percent good, 20 percent fair, and 2 percent poor. Insect activity was 80 percent light to moderate. Pastures need rain as dryness and heat are starting to have an effect. Pasture conditions were rated at 13 percent excellent, 46 percent good, 30 percent fair, and 11 percent poor to very poor.

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of May 20, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.8 percent full, a 0.5 percent increase from that recorded on April 20, according to information from the U.S. Army Corps of Engineers (Tulsa District). Thirteen reservoirs have experienced lake level decreases since that time. Only 11 reservoirs are currently operating at less than full capacity (compared to 12 four weeks ago). Two reservoirs—Lugert-Altus, only 46.3 percent full; and Tom Steed, 55.2 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs			
05/20/2004			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,866	99.8
Great Salt Plains	31,420	31,420	100.0
Kaw*	406,540	406,540	100.0
Regional Totals/Averages	451,860	451,826	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	1,659,579	99.3
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	3,697,773	99.7
West Central			
Canton	111,310	103,090	92.6
Foss	165,480	157,828	95.4
Regional Totals/Averages	276,790	260,918	94.3
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	111,106	92.9
Regional Totals/Averages	154,225	145,731	94.5
East Central			
Eufaula*	2,314,583	2,314,583	100.0
Tenkiller	654,100	654,100	100.0
Regional Totals/Averages	2,968,683	2,968,683	100.0
Southwest			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	61,515	46.3
Tom Steed	88,970	49,081	55.2
Regional Totals/Averages	301,810	190,606	63.2
South Central			
Arbuckle	72,400	69,168	95.5
McGee Creek	113,930	113,930	100.0
Texoma*	2,620,826	2,535,171	96.7
Waurika*	190,200	154,609	81.3
Regional Totals/Averages	2,997,356	2,872,878	95.8
Southeast			
Broken Bow*	950,170	950,170	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	1,553,849	1,553,715	100.0
State Totals	12,414,767	12,142,130	97.8

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

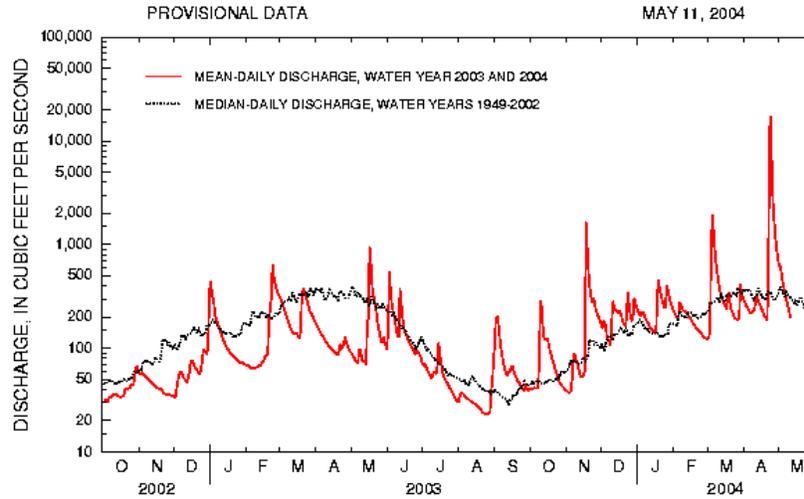
Baron Fork at Eldon

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

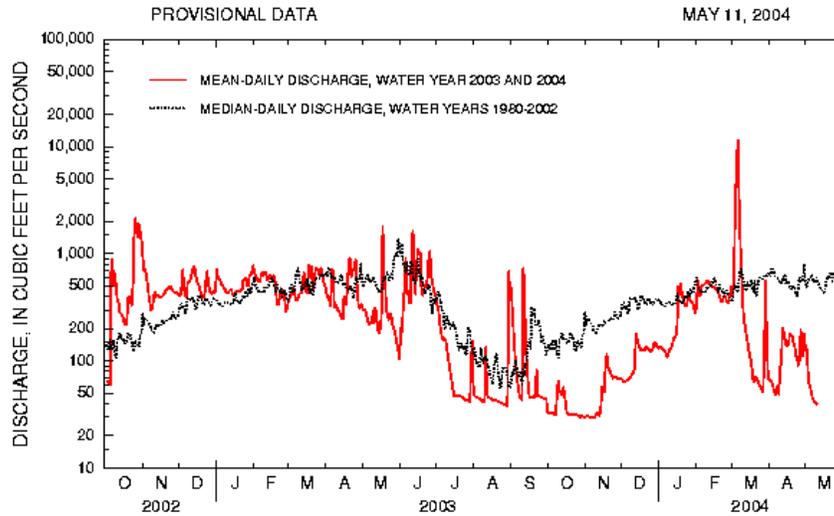
Canadian River at Purcell

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.

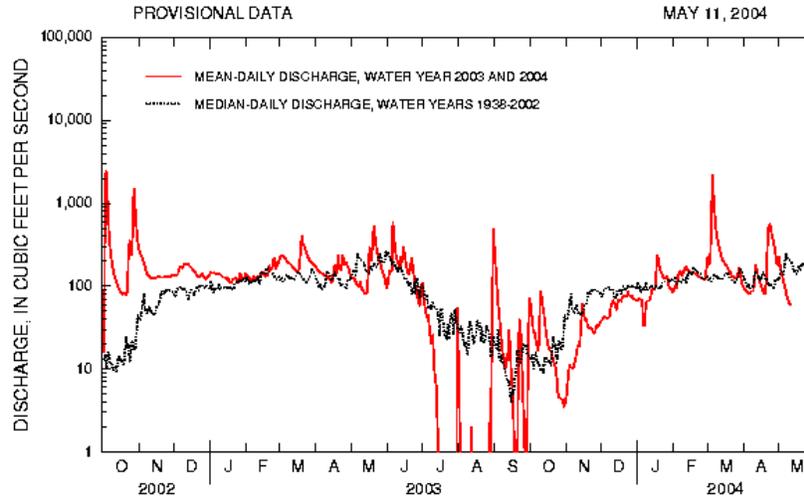
Data from U.S. Geological Survey

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.

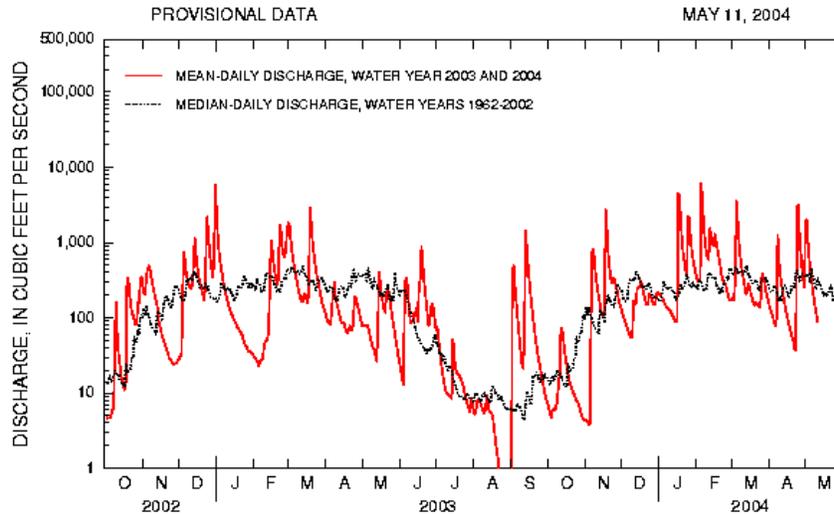
Data from U.S. Geological Survey

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

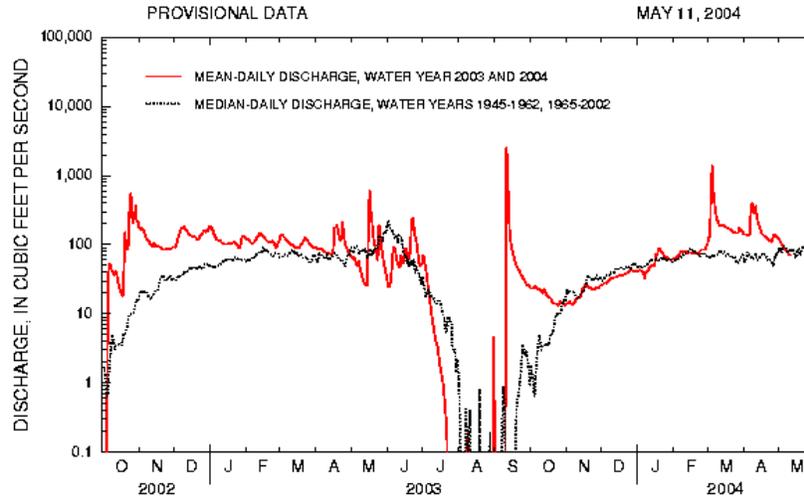
North Fork of the Red River near Carter

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

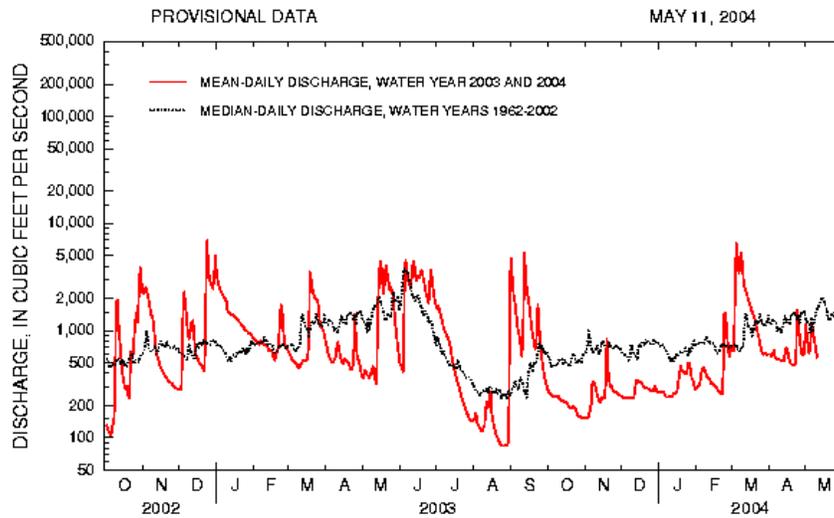
Washita River near Dickson

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