

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



APRIL 21, 2004

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Areas in southern and eastern Oklahoma are becoming somewhat dry due to much below normal rainfall in recent months. 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 April 19 (the current growing season) is the South Central climate division (2.64 inches, a deficit of 3.29 inches and only 44 percent of normal precipitation). The Southeast climate division also remains relatively dry (59 percent of normal, a rainfall deficit of more than three inches). The current state-averaged rainfall total is 4.83 inches, 92 percent of normal.

For the current calendar year, the state-averaged rainfall total is 8.81 inches, 104 percent of normal. Only the South Central, East Central and Southeast climate divisions report a deficit for the year.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON MARCH 1—APRIL 19, 2004			CALENDAR YEAR JANUARY 1—APRIL 19, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	3.62	+0.82	129	4.60	+0.64	116
North Central	5.66	+1.11	124	9.37	+2.67	140
Northeast	6.88	+0.67	111	10.82	+1.07	111
West Central	6.02	+1.97	149	9.59	+3.52	158
Central	5.12	-0.36	94	9.06	+0.36	104
East Central	4.72	-2.12	69	8.90	-2.49	78
Southwest	4.57	+0.62	116	9.23	+2.89	146
South Central	2.64	-3.29	44	7.35	-2.69	73
Southeast	4.28	-3.04	59	10.98	-2.29	83
Statewide	4.83	-0.41	92	8.81	+0.37	104

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 (April 17, below), only one region in Oklahoma (South Central, "mild drought") is currently experiencing drought conditions. However, eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since March 20. The greatest decrease occurred in the Southeast climate division.

The latest monthly Standardized Precipitation Index (through March, below) continues to indicate some long-term dryness in southern and eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "moderately dry" conditions are indicated in the Southeast over the past 9 months and in the Southeast, South Central and East Central climate divisions throughout the last 12-month period. Considering longer periods (through six years), southern and eastern Oklahoma regions 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 (April 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 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 March 22). Burneyville, in South Central Oklahoma, reports the highest KBDI value (486). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 3 (high fire danger). A Burn Ban remains in effect for Cimarron County, in the Oklahoma Panhandle. Fire danger at this time of year changes very quickly. Extreme conditions can develop relatively soon after rainfall, with high winds or very low humidity. Persons using fire outdoors are advised to obtain accurate, up to the minute weather information prior to burning. Avoid burning anything outdoors when the winds exceed 20 mph or the relative humidity is below 20 percent.

Palmer Drought Severity Index					Standardized Precipitation Index Through March 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 4/17/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		4/17	3/20					
Northwest (1)	MOIST SPELL	1.02	1.47	-0.45	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	MOIST SPELL	1.95	2.27	-0.32	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MOIST SPELL	1.70	1.93	-0.23	VERY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
West Central (4)	MOIST SPELL	1.96	1.93	0.03	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Central (5)	NEAR NORMAL	0.07	1.09	-1.02	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT DROUGHT	-0.67	0.55	-1.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Southwest (7)	MOIST SPELL	1.00	1.77	-0.77	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MILD DROUGHT	-1.03	0.26	-1.29	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Southeast (9)	INCIPIENT DROUGHT	-0.97	0.45	-1.42	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY

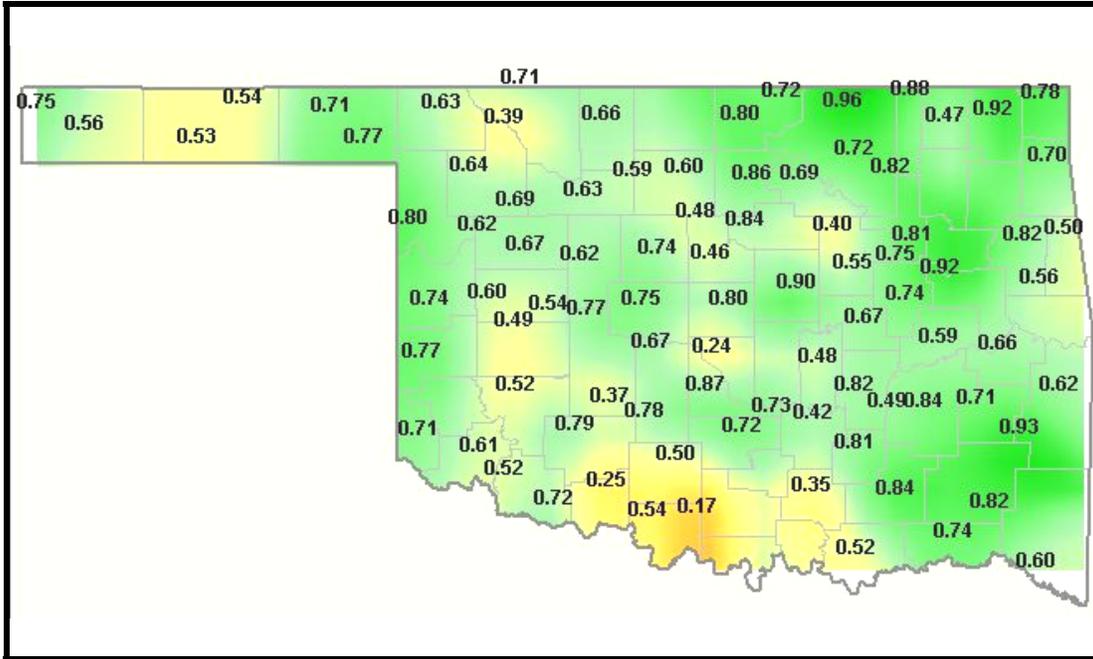
Keetch-Byram Drought Fire Index				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 4/19/2004	ANTICIPATED IMPACT
Burneyville	Love	South Central	486	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Kenton	Cimarron	Northwest	391	
Boise City	Cimarron	Northwest	333	

Total stations above 600 = 0

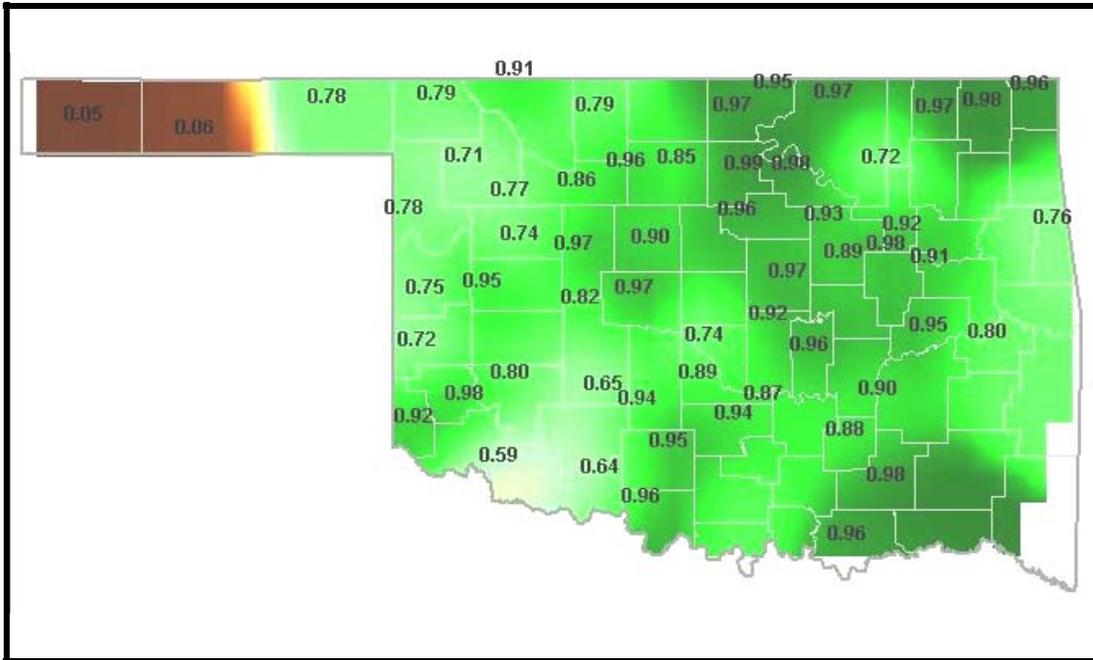
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
April 18, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



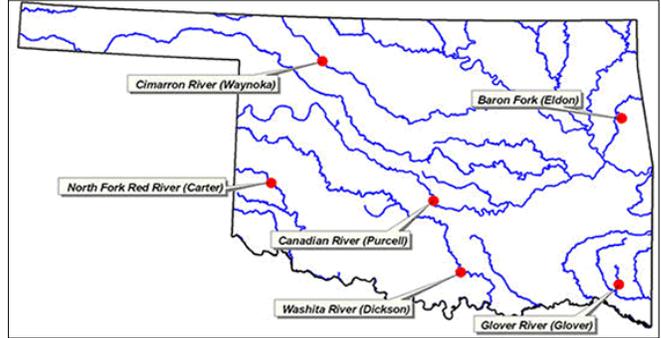
60 cm (~2 feet)



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, reflective of recent below average runoff. Considering overall trends as well as current flows, the most recent data (April 20, 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 *central* (Canadian River, McClain County) and *south central* (Washita River, Carter County) Oklahoma; **near average flow** in the *southeast* (Glover River, McCurtain County), *northeast* (Baron Fork, Cherokee County), and *northwest* (Cimarron River, Woods County) regions; and **above average flow** in the *southwest* (North Fork/Red River, Beckham County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (April 27 to May 3) calls for below normal precipitation for the general northern half of Oklahoma and normal rainfall for the south and Panhandle regions. Above normal temperatures are anticipated for most of Oklahoma throughout the period.

Given recent trends and observed oceanic and atmospheric patterns, it is likely that ENSO-neutral (El Niño/Southern Oscillation) conditions in the tropical Pacific will continue for at least the next 3 to 6 months.

Crop Report

April 19 - Extreme temperatures were common in Oklahoma this week, although the week began with lower than normal temperatures. Parts of the northeast saw a morning freeze on Monday and Tuesday. The week ended with temperatures in the 80s and 90s. Moisture levels dropped throughout the state. Several areas received no precipitation the entire week. Strong winds blew throughout the state affecting soil moisture. Topsoil moisture was at 1 percent surplus, 68 percent adequate, 25 percent short and 6 percent very short. Subsoil moisture was at 1 percent surplus, 62 percent adequate, 27 percent short and 7 percent very short. There were 5.9 days suitable for fieldwork.

It is too soon to tell if the extreme temperatures will have any affect on small grain crops. Wheat was mostly in good condition. The warmer weather towards the end of the week helped the wheat progress to ninety-seven percent jointed. Wheat headed progressed from 6 percent last week to 25 percent this week. Rye condition decreased slightly to 9 percent excellent, 59 percent good, 21 percent fair, 8 percent poor, and 3 percent very poor. Rye has completed the jointing process, and is 26 percent headed. The oat condition was also down to 4 percent excellent, 40 percent good, 45 percent fair, 8 percent poor, and 3 percent very poor. Oats jointing were up 13 points from last week to 63 percent.

Row crop preparations made good progress due to favorable weather. Sorghum seedbed prepared went up five points to 35 percent. Three percent of the crop has been planted. Seedbed preparations for corn, soybeans, peanuts and cotton were over halfway complete as of the end of last week. Corn seedbed prepared went up 11 points to 87 percent and planted was up to 41 percent. Soybean seedbed prepared also increased from 46 percent last week to 54 percent this week. Soybean planting was just getting underway with 2 percent of the acres planted. Seedbed preparation for peanuts caught up with the normal trend at 59 percent. Cotton seedbed preparation was slightly higher than the five-year average at 81 percent. Harvesting of alfalfa and other hay was active this week. First cutting of alfalfa was at 15 percent. Alfalfa conditions were at 14 percent excellent, 56 percent good, 24 percent fair, 5 percent poor, and 1 percent very poor. Other hay was reported as having 5 percent of the first cutting completed. Conditions for other hay were at 8 percent excellent, 47 percent good, 39 percent fair, 5 percent poor, and 1 percent very poor.

Livestock conditions were mostly good this week. Conditions were at 14 percent excellent, 55 percent good, 26 percent fair, and 5 percent poor. Livestock insect activity was light. The warm weather has increased pasture growth. Pasture conditions were rated as mostly fair. Conditions were at 5 percent excellent, 38 percent good, 41 percent fair, 13 percent poor and 3 percent very poor.

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of April 20, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.3 percent full, a 1.5 percent decrease from that recorded on March 22, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-two reservoirs have experienced lake level decreases since that time. Only 12 reservoirs are currently operating at less than full capacity (compared to seven four weeks ago). Two reservoirs—Lugert-Altus, only 43.5 percent full; and Tom Steed, 56.3 percent—remain below 80 percent capacity.

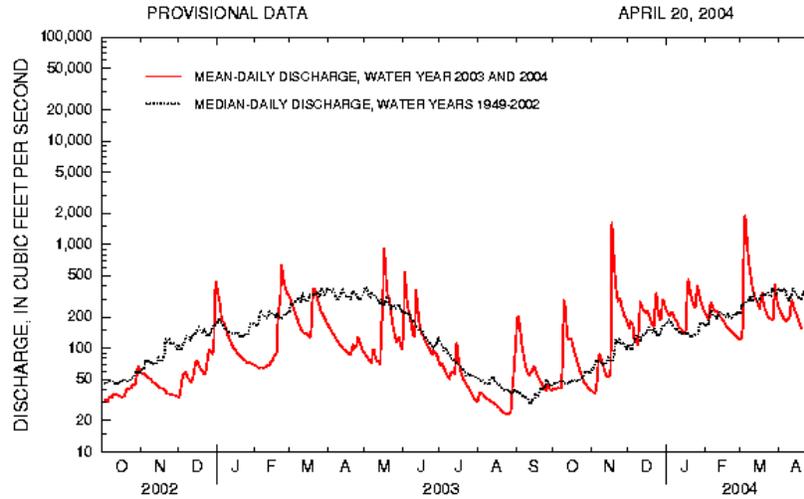
Storage in Selected Oklahoma Lakes & Reservoirs			
04/20/2004			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,900	100.0
Great Salt Plains	31,420	31,420	100.0
Kaw*	406,540	406,540	100.0
Regional Totals/Averages	451,860	451,860	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	1,539,640	92.1
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	3,577,834	96.4
West Central			
Canton	111,310	110,278	99.1
Foss	165,480	159,001	96.1
Regional Totals/Averages	276,790	269,279	97.3
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	112,730	94.3
Regional Totals/Averages	154,225	147,355	95.5
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	57,755	43.5
Tom Steed	88,970	50,048	56.3
Regional Totals/Averages	301,810	187,813	62.2
South Central			
Arbuckle	72,400	69,077	95.4
McGee Creek	113,930	109,323	96.0
Texoma*	2,418,626	2,393,912	99.0
Waurika*	190,200	154,435	81.2
Regional Totals/Averages	2,795,156	2,726,747	97.6
Southeast			
Broken Bow*	930,145	930,145	100.0
Hugo*	198,067	197,922	99.9
Pine Creek*	71,120	69,461	97.7
Sardis	274,330	274,330	100.0
Wister	60,162	60,162	100.0
Regional Totals/Averages	1,533,824	1,532,020	99.9
State Totals	12,192,542	11,861,591	97.3

* 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



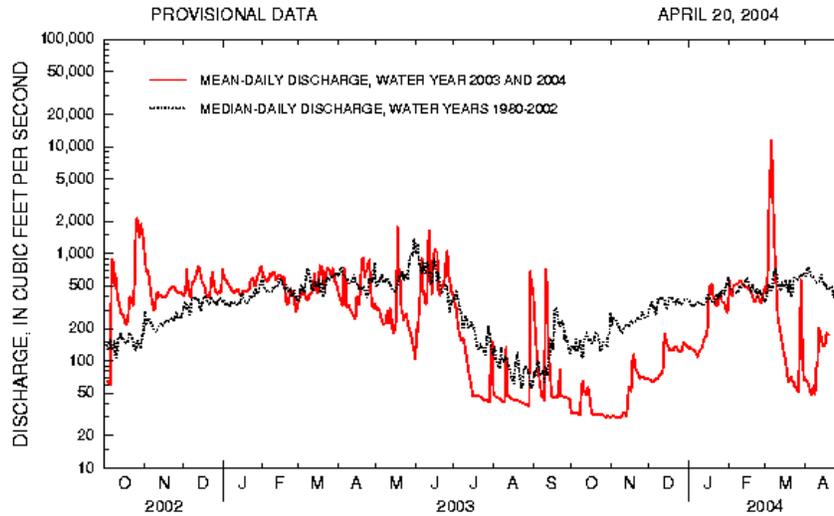
Comparison of daily discharges for water year 2003 and 2004 and period of record for Baron Fork at Eldon, Oklahoma.

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.

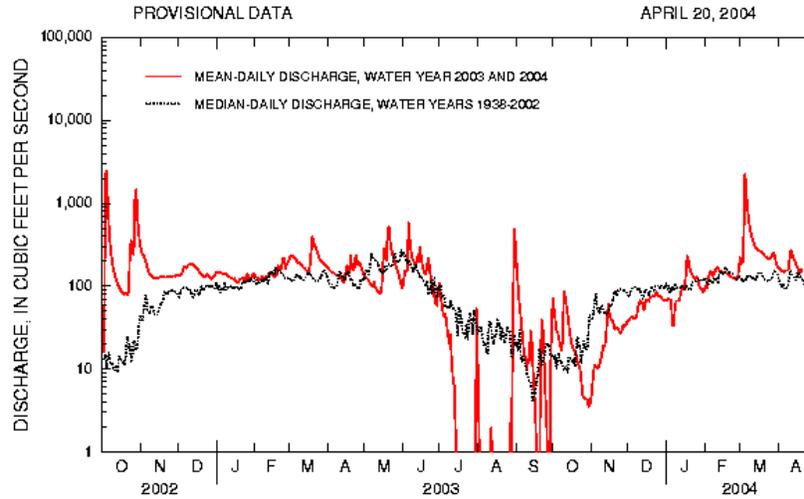
Data from U.S. Geological Survey

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.

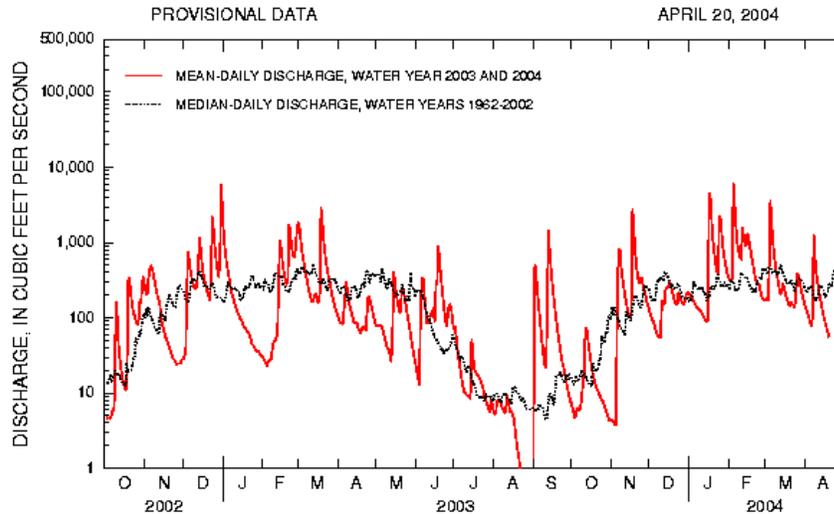
Data from U.S. Geological Survey

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

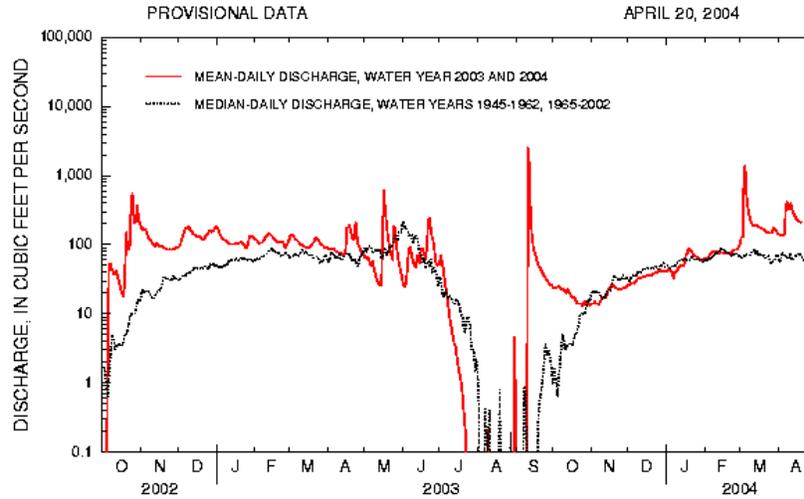
North Fork of the Red River near Carter

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

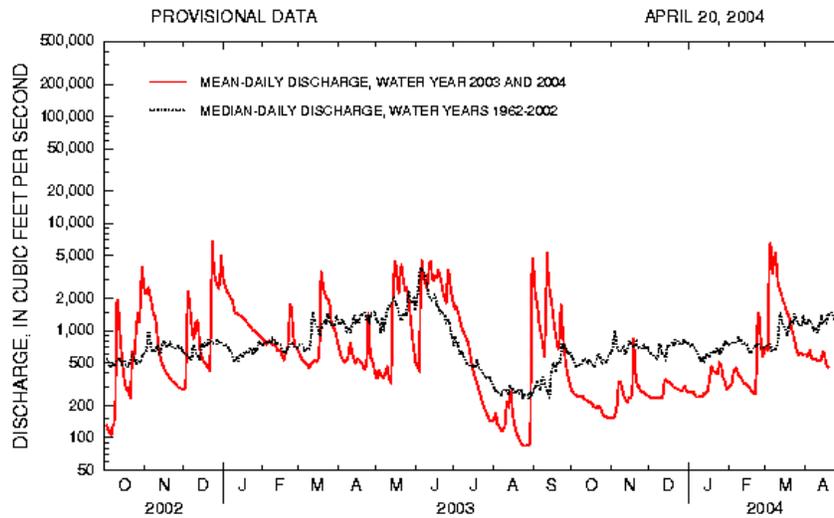
Washita River near Dickson

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