

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



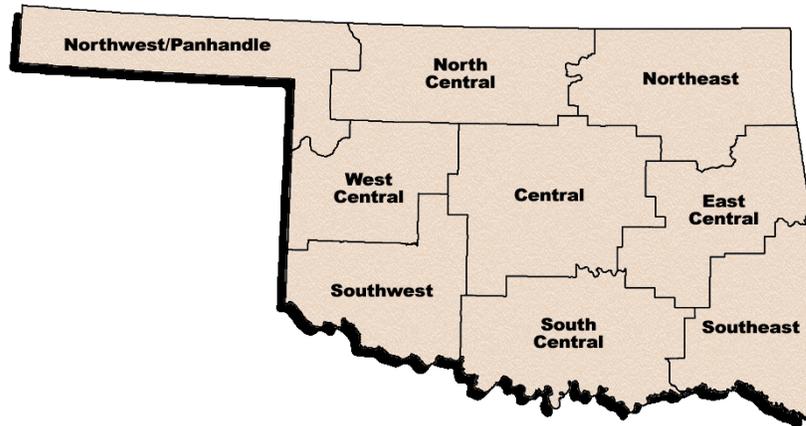
FEBRUARY 25, 2004

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Although rainfall has improved conditions somewhat in recent weeks, dry conditions continue to impact western and southern areas of Oklahoma. 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 September 1, 2003 through February 23, 2004 (the current growing season) remains the Southwest climate division (6.55 inches, a deficit of 5.04 inches and only 57 percent of normal precipitation). The current state-averaged rainfall total is 10.78 inches, 72 percent of normal.

For the current calendar year, the state-averaged rainfall total is 3.52 inches, 124 percent of normal. Only the Panhandle (only 0.57 inches, 56 percent of normal) and East Central climate divisions report a deficit for the year.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON SEPTEMBER 1, 2003-FEBRUARY 23, 2004			CALENDAR YEAR JANUARY 1—FEBRUARY 23, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	4.11	-2.05	67	0.57	-0.46	56
North Central	8.89	-2.18	80	3.19	+1.29	168
Northeast	14.37	-3.08	82	3.60	+0.46	115
West Central	6.74	-3.51	66	2.88	+1.10	162
Central	11.00	-4.43	71	3.46	+0.61	122
East Central	14.58	-5.99	71	3.84	-0.22	95
Southwest	6.55	-5.04	57	3.89	+1.78	184
South Central	12.58	-5.30	70	4.26	+0.61	117
Southeast	18.18	-5.79	76	6.43	+1.13	121
Statewide	10.78	-4.09	72	3.52	+0.67	124

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 (February 21, below), no region in Oklahoma is currently experiencing drought conditions and only three of Oklahoma's nine climate divisions have undergone a PDSI moisture decrease since January 24. The greatest decrease occurred in the Northeast climate division.

The latest monthly Standardized Precipitation Index (through January, below) continues to indicate some long-term dryness in southern and eastern Oklahoma, although conditions have recently improved. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), only "moderately dry" conditions are indicated in the South Central and Southeast climate divisions throughout the last 12-month period. Considering longer periods (through six years), southern and eastern Oklahoma regions indicate dryness at various periods over the past 36 months. In particular, the Southeast is "very dry" over the past 15 and 18 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (February 23, 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 January 26). Hinton, in Southwest Oklahoma, retains the highest KBDI value (501). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 3 (high fire danger). A Red Flag Fire Alert is in effect for 17 counties in northwest Oklahoma, where fire danger is considered very high. A Burn Ban remains in effect for Cimarron County, in the Oklahoma Panhandle.

Palmer Drought Severity Index					Standardized Precipitation Index Through January 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 2/21/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		2/21	1/24					
Northwest (1)	NEAR NORMAL	-0.14	0.20	-0.34	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	MOIST SPELL	1.51	1.40	0.11	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MOIST SPELL	1.43	1.88	-0.45	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.77	0.86	-0.09	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT MOIST SPELL	0.59	0.57	0.02	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT MOIST SPELL	0.69	0.47	0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT MOIST SPELL	0.65	0.38	0.27	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	INCIPIENT MOIST SPELL	0.60	0.13	0.47	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Southeast (9)	INCIPIENT MOIST SPELL	0.72	0.57	0.15	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY

Keetch-Byram Drought Fire Index

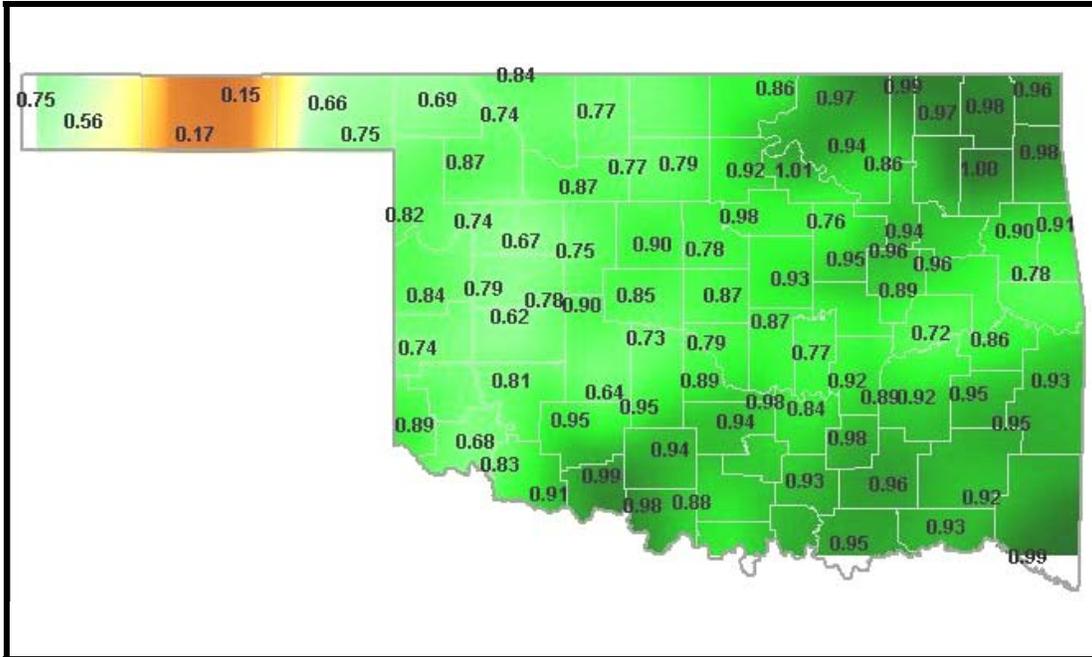
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 2/23/2004	ANTICIPATED IMPACT
Hinton	Caddo	Southwest	501	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Burneyville	Love	South Central	462	
Tipton	Tillman	Southwest	436	

Total stations above 600 = 0

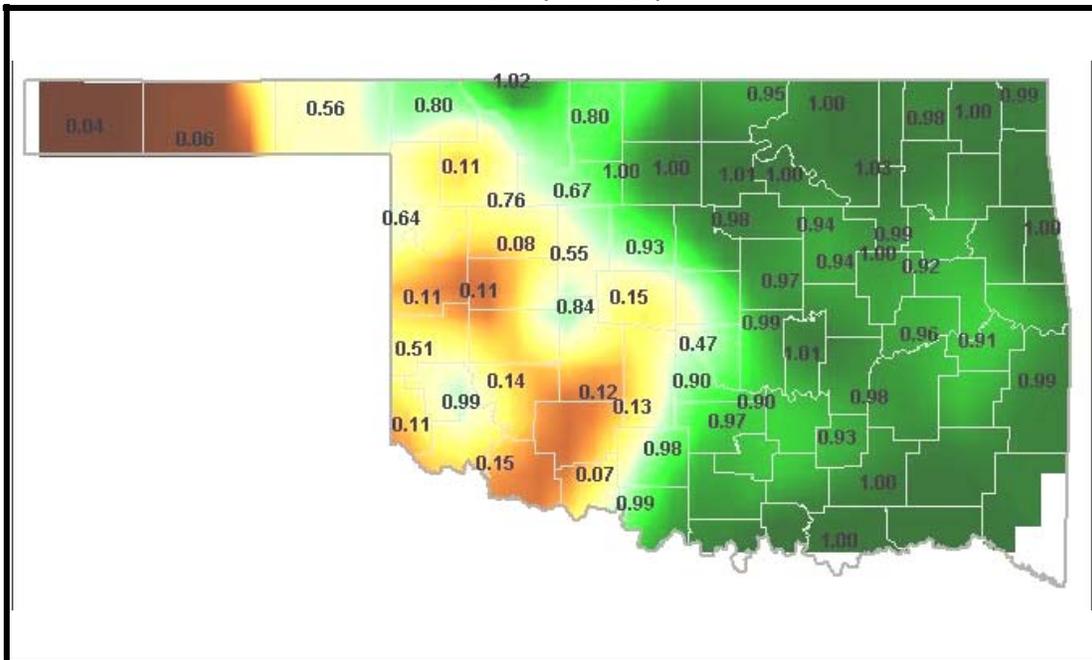
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
February 23, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



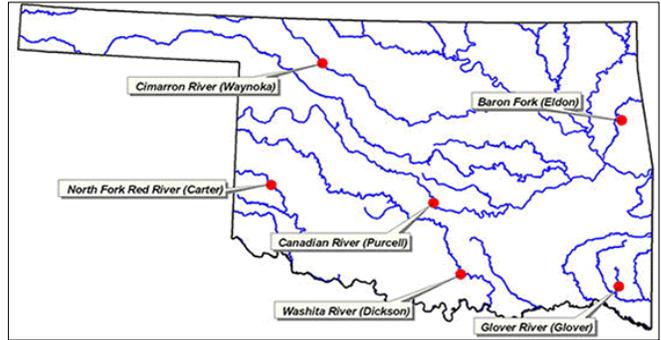
60 cm (~2 feet)



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



Weather Forecast

The National Weather Service 8- to 14-day outlook (March 2-8) calls for above normal precipitation and below normal temperatures for all of Oklahoma throughout the period.

A majority of statistical and coupled model forecasts of atmospheric and oceanic conditions in the tropical Pacific do not support the development of either La Niña or El Niño through March 2004. Thereafter, forecasts are developed with greater uncertainty, during a time of the year when the skill level of forecasting techniques is relatively low.

Crop Report

January 31 - Mostly dry weather during January caused a reduction in soil moisture supplies statewide. Small grain grazing began to show the affect of the lack of rainfall. Some areas reported that dry weather conditions have restricted the growth of wheat pasture and limited available grazing. Both topsoil and subsoil moisture conditions were rated in mostly short to adequate categories.

Wheat, rye, and oat conditions were rated as mostly good to fair. All crop conditions are down compared to last year. Winter wheat being grazed was at 46 percent, lower than last year's 58 percent but above the five-year average of 38 percent. The winter wheat condition was 6 percent excellent, 34 percent good, 30 percent fair, 18 percent poor and 12 percent very poor. During January 2003, the wheat condition was 16 percent excellent, 54 percent good, 25 percent fair, 4 percent poor, and 1 percent very poor. Rye grazing was at 69 percent, down from last year's 82 percent. The five-year average was 36 percent. Rye condition was 5 percent excellent, 41 percent good, 29 percent fair, 15 percent poor and 10 percent very poor. Oats grazing was also down from last year and the five-year average. Oat condition was 3 percent excellent, 17 percent good, 37 percent fair, 26 percent poor, and 17 percent very poor. The dry conditions and cold weather have reduced the acres of small grain pasture being grazed. There was some spraying for worm activity.

Livestock ranged from mostly good to fair condition. Livestock condition was rated as 13 percent excellent, 41 percent good, 36 percent fair, 8 percent poor, and 2 percent very poor. The milder weather has helped livestock conditions. Many cattlemen have supplemented with hay this month. The death loss of cattle has continued to be light due to the mild winter conditions. Hay supplies were rated as mostly average. Pasture and range conditions ranged from mostly fair to poor. Pasture and range conditions were rated as 11 percent very poor, 29 percent poor, 42 percent fair, 15 percent good, and 3 percent excellent. These conditions have slipped some from last month. Some pastures have not recovered from the dry year and most pastures continue to need rain.

Reservoir Storage

Although lakes in southwest Oklahoma continue to suffer from very low levels, lake storage elsewhere remains generally good. As of February 24, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.8 percent full, a 1.4 percent increase from that recorded on January 26, according to information from the U.S. Army Corps of Engineers (Tulsa District). Seventeen reservoirs have experienced lake level decreases since that time. Fourteen reservoirs are currently operating at less than full capacity (compared to 15 four weeks ago). Two reservoirs—Lugert-Altus, only 22.1 percent full; and Tom Steed, 51.5 percent—remain below 80 percent capacity.

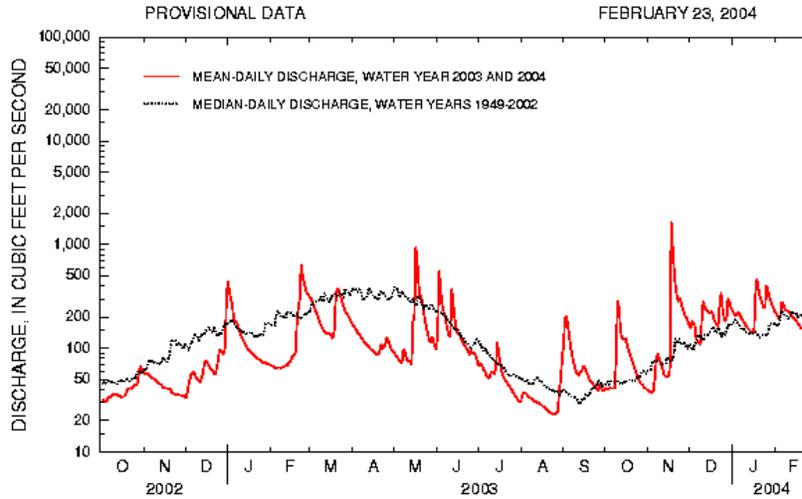
Storage in Selected Oklahoma Lakes & Reservoirs			
02/24/2004			
<i>Climate Division</i> Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,883	99.9
Great Salt Plains	31,420	31,420	100.0
Kaw*	375,160	375,160	100.0
Regional Totals/Averages	420,480	420,463	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	1,595,400	95.4
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	310,397	96.2
Regional Totals/Averages	3,710,194	3,621,291	97.6
West Central			
Canton	111,310	104,848	94.2
Foss	165,480	156,727	94.7
Regional Totals/Averages	276,790	261,575	94.5
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	105,215	88.0
Regional Totals/Averages	154,225	139,840	90.7
East Central			
Eufaula*	2,314,583	2,033,180	87.8
Tenkiller	654,100	654,100	100.0
Regional Totals/Averages	2,968,683	2,687,280	90.5
Southwest			
Fort Cobb	80,010	74,588	93.2
Lugert-Altus	132,830	29,396	22.1
Tom Steed	88,970	45,858	51.5
Regional Totals/Averages	301,810	149,842	49.6
South Central			
Arbuckle	72,400	67,134	92.7
McGee Creek	113,930	103,745	91.1
Texoma*	2,418,626	2,144,093	88.6
Waurika*	190,200	155,914	82.0
Regional Totals/Averages	2,795,156	2,470,886	88.4
Southeast			
Broken Bow*	918,070	918,070	100.0
Hugo*	158,617	158,617	100.0
Pine Creek*	53,750	53,750	100.0
Sardis	274,330	274,330	100.0
Wister	60,162	60,162	100.0
Regional Totals/Averages	1,464,929	1,464,929	100.0
State Totals	12,092,267	11,216,106	92.8

* 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



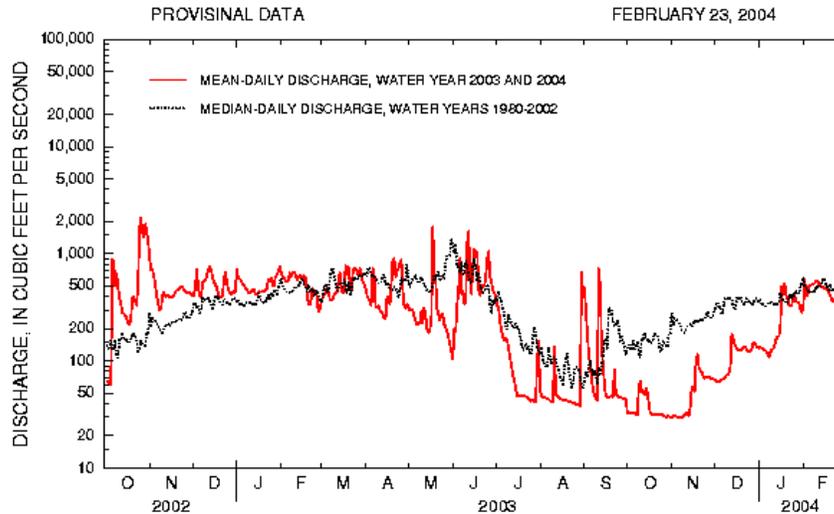
Comparison of daily discharges for water year 2003 and 2004 and period of record for Baron Fork at Eldon, Oklahoma.

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

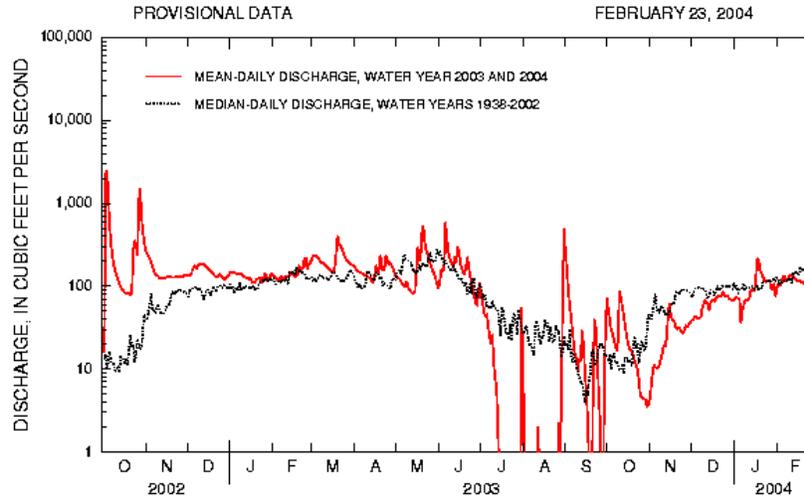
Cimarron River near Waynoka

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

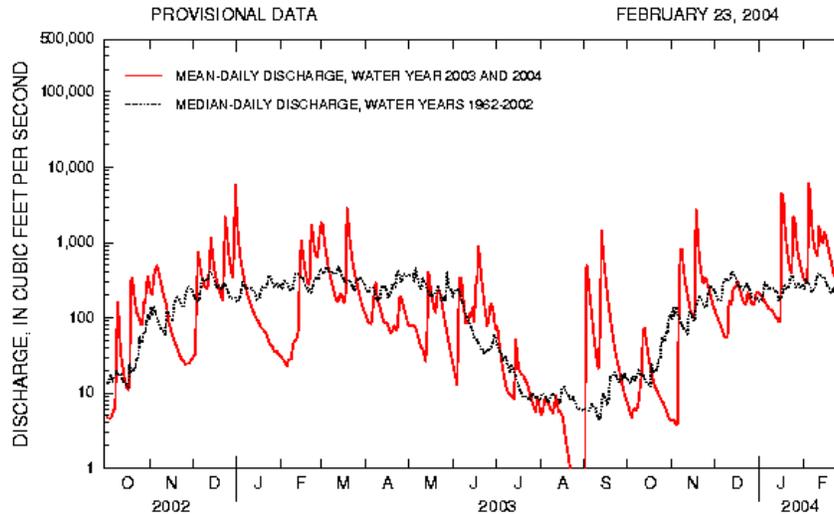
Glover River near Glover

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

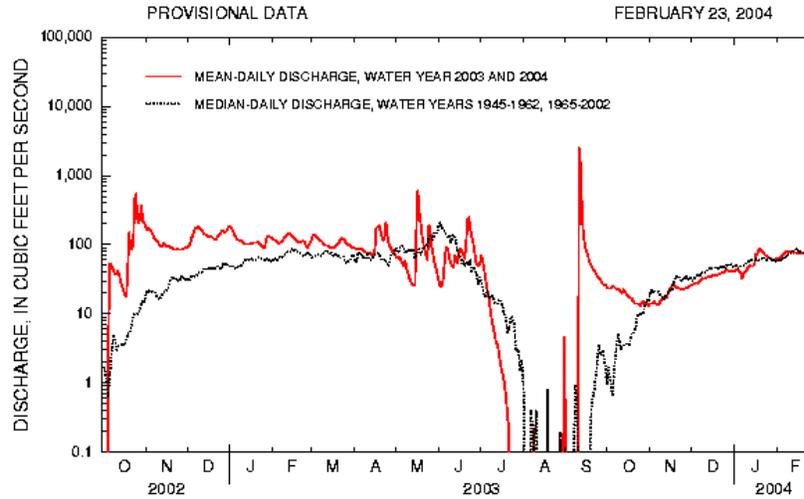
North Fork of the Red River near Carter

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

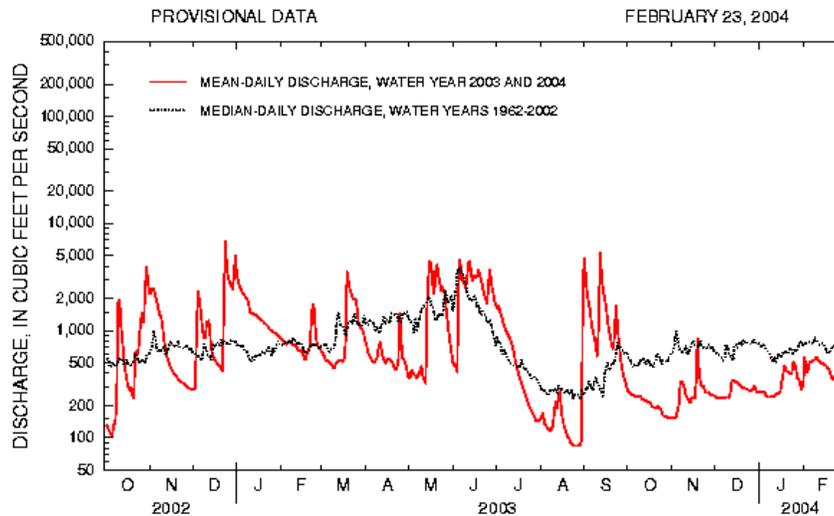
Washita River near Dickson

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