

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



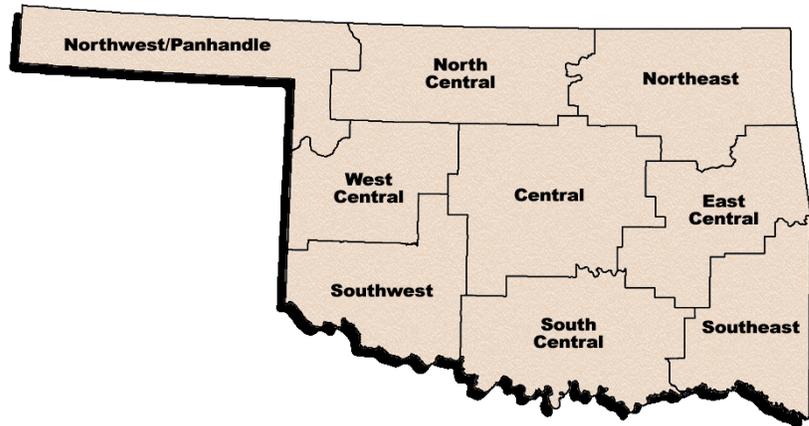
JANUARY 28, 2004

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Although improved 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 January 26, 2004 (the current growing season) remains the Southwest climate division (5.06 inches, a deficit of 5.31 inches and only 49 percent of normal precipitation). The current state-averaged rainfall total is 9.38 inches, 71 percent of normal.

For the current calendar year, reflecting a relatively wet January, the state-averaged rainfall total is 2.12 inches, 174 percent of normal. Only the Panhandle climate division reports a deficit for the year/month.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON SEPTEMBER 1, 2003-JANUARY 26, 2004			CALENDAR YEAR JANUARY 1—26, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	3.91	-1.65	70	0.38	-0.06	86
North Central	8.00	-1.95	80	2.30	+1.52	295
Northeast	13.16	-2.46	84	2.39	+1.08	182
West Central	6.08	-3.11	66	2.23	+1.49	302
Central	9.81	-3.93	71	2.26	+1.11	197
East Central	13.23	-5.07	72	2.49	+0.70	139
Southwest	5.06	-5.31	49	2.40	+1.51	270
South Central	9.97	-5.84	63	1.66	+0.07	104
Southeast	15.02	-6.01	71	3.27	+0.92	139
Statewide	9.38	-3.86	71	2.12	+0.90	174

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 (January 24, below), no region in Oklahoma is currently experiencing drought conditions and only one of Oklahoma's nine climate divisions has undergone a PDSI moisture decrease since December 27. The only decrease occurred in the Northwest/Panhandle climate division.

The latest monthly Standardized Precipitation Index (through December, below) indicates that long-term dryness in southern and central Oklahoma is becoming more pronounced. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "very dry" conditions are indicated in the Southwest climate division throughout the last 3- and 6-month periods and in the Southeast over the past year. "Moderately dry" conditions are indicated in all six southern and central climate divisions at various times during the past 3-, 6-, 9- and 12-month periods. Considering longer periods (through six years), various regions, primarily in southern and eastern Oklahoma, are "moderately dry" during the past 15, 18, 24, and 30 months. The Southeast is "very dry" over the past 18 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (January 26, 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 have improved and 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 December 29). Hinton, in Southwest Oklahoma, has the highest KBDI value (517). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 2 (moderate fire danger). A Burn Ban remains in effect for Cimarron County, in the Oklahoma Panhandle.

Palmer Drought Severity Index					Standardized Precipitation Index Through December 2003			
CLIMATE DIVISION (#)	CURRENT STATUS 1/24/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		1/24	12/27					
Northwest (1)	NEAR NORMAL	0.20	0.48	-0.28	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	MOIST SPELL	1.40	0.13	1.27	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MOIST SPELL	1.88	1.67	0.21	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.86	-0.90	1.76	MODERATELY DRY	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
Central (5)	INCIPIENT MOIST SPELL	0.57	-0.01	0.58	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
East Central (6)	NEAR NORMAL	0.47	0.04	0.43	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
Southwest (7)	NEAR NORMAL	0.38	-1.23	1.61	VERY DRY	VERY DRY	MODERATELY DRY	MODERATELY DRY
South Central (8)	NEAR NORMAL	0.13	-0.06	0.19	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY
Southeast (9)	INCIPIENT MOIST SPELL	0.57	0.02	0.55	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	VERY DRY

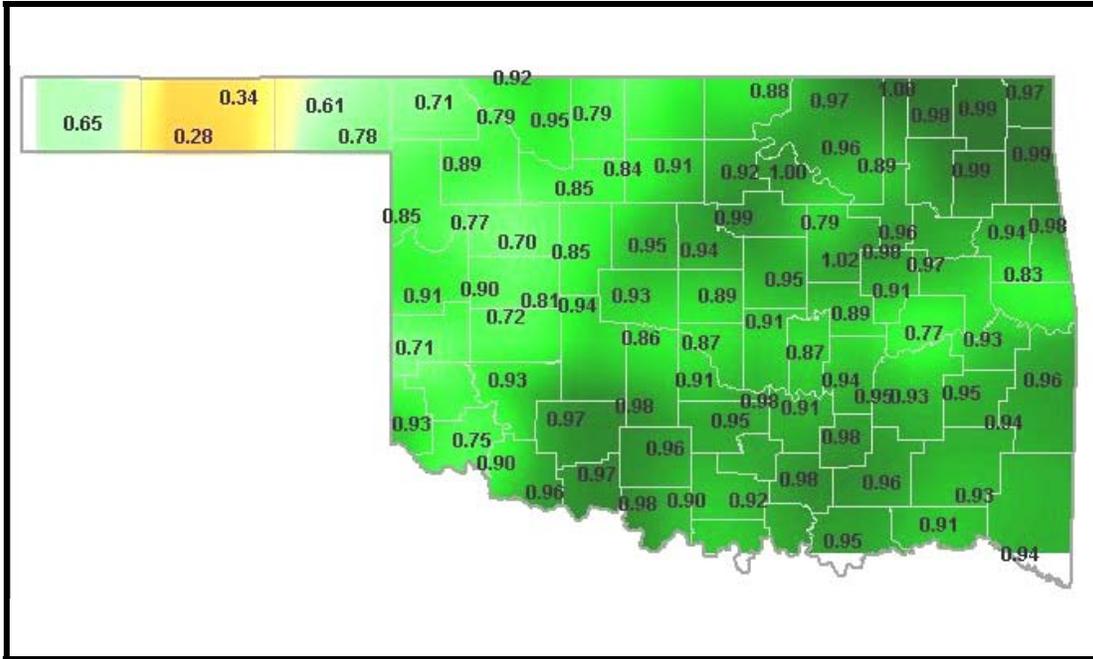
Keetch-Byram Drought Fire Index				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 1/26/2004	ANTICIPATED IMPACT
Hinton	Caddo	Southwest	517	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Burneyville	Love	South Central	498	
Apache	Caddo	Southwest	474	

Total stations above 600 = 0

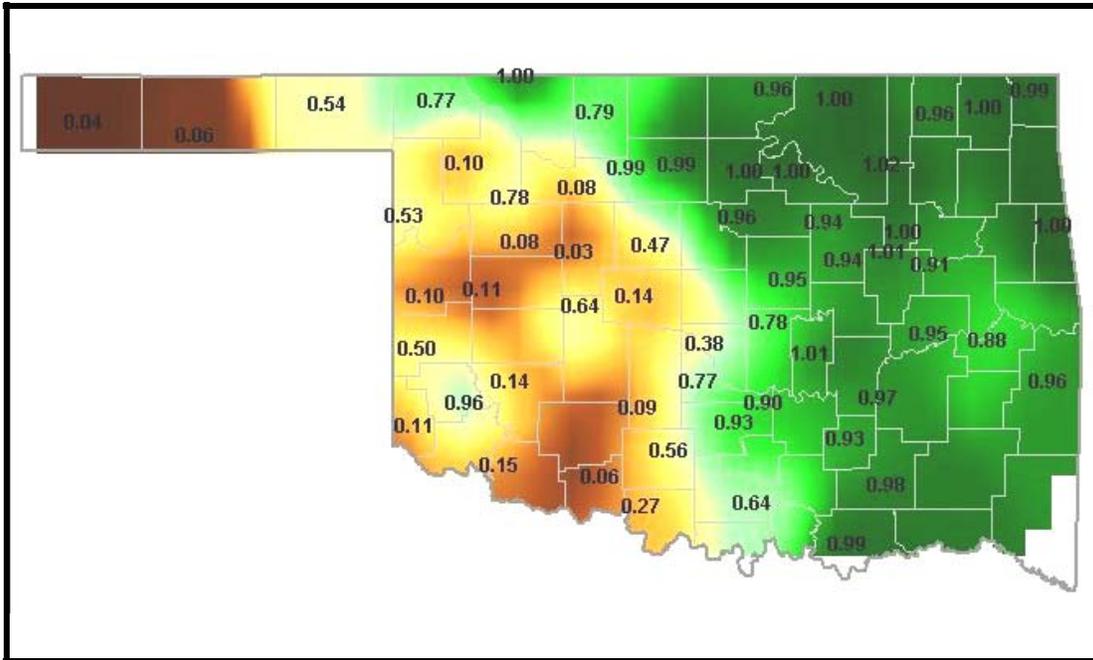
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
January 26, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



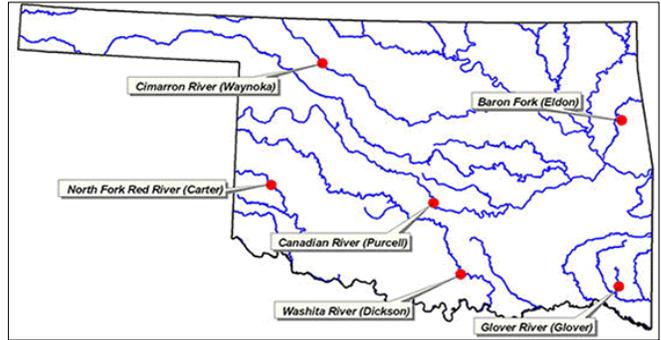
60 cm (~2 feet)



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 remain relatively low in central and south central Oklahoma, but have rebounded somewhat elsewhere. Considering overall trends as well as current flows, the most recent data (January 27, 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 *northwest* (Cimarron River, Woods County), *southwest* (North Fork/Red River, Beckham County), and *southeast* (Glover River, McCurtain County); and **above average flow** in the *northeast* (Baron Fork, Cherokee County) region.



Weather Forecast

The National Weather Service 8- to 14-day outlook (February 3-9) 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

December 31 - Cold temperatures with light snow brought much-needed moisture to many areas of the state. Many areas are in need of rain with ponds and lakes becoming low. Moisture that was received has been depleted by recent windy conditions. Topsoil and subsoil moisture is considerably lower than last year. Topsoil moisture is at 30 percent very short, 29 percent short, 30 percent adequate, and 1 percent surplus compared to last year at 0 percent very short, 4 percent short, 78 percent adequate, and 18 percent surplus. Subsoil moisture is at 28 percent very short, 34 percent short, 38 percent adequate, and no surplus compared to last year at 1 percent very short, 13 percent short, 77 percent adequate, and 9 percent surplus. The major wheat-producing areas are still behind normal for moisture. Farmers had 5.9 days suitable for fieldwork during the last week of December.

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 35 percent, which is lower than last year's 48 percent but equal to the five-year average. Rye grazing was at 50 percent, down from last year's 60 percent. The five-year average is 29 percent. Oats grazing was at 25 percent, compared to last year at 35 percent and the five-year average of 30. The dry conditions and cattle prices have reduced the acres being grazed. Spraying was active in many areas for greenbugs and army cut worms.

Pasture and range conditions ranged from mostly fair to poor. At the end of December, pasture and range condition was rated at 9 percent very poor, 26 percent poor, 45 percent fair, 17 percent good, and 3 percent excellent. Last year it was at 4 percent very poor, 13 percent poor, 38 percent fair, 43 percent good and 2 percent excellent. Some pastures have not recovered from the dry year and most pastures need rain. Livestock ranged from mostly good to fair condition. The milder weather has helped livestock conditions. The death loss of cattle has been light. Hay supplies are rated as mostly average.

Reservoir Storage

Although lakes in southwest Oklahoma continue to suffer from very low levels, lake storage elsewhere remains generally good. As of January 26, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 91.4 percent full, a 3 percent increase from that recorded on December 30, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only five reservoirs have experienced lake level decreases since that time. Fifteen reservoirs are currently operating at less than full capacity (compared to 20 four weeks ago). Two reservoirs—Lugert-Altus, 19.3 percent; and Tom Steed, only 52.5 percent—are below 80 percent capacity.

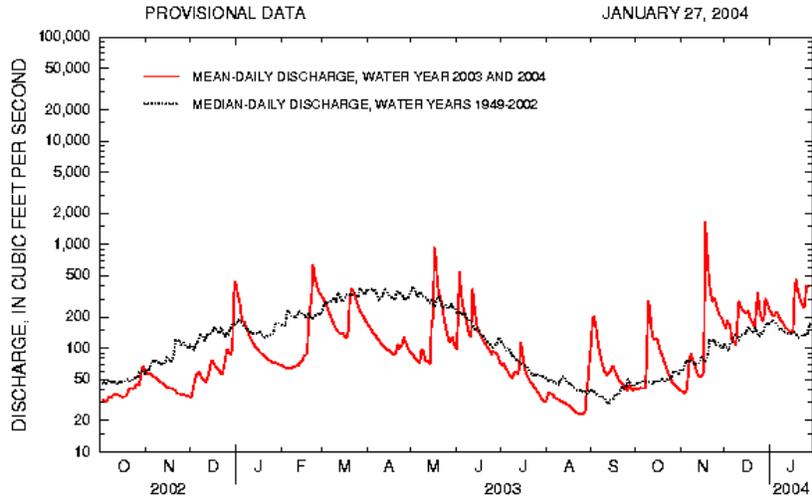
Storage in Selected Oklahoma Lakes & Reservoirs			
<i>01/26/2004</i>			
<i>Climate Division</i> Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,900	100.0
Great Salt Plains	31,420	31,420	100.0
Kaw*	438,526	438,526	100.0
Regional Totals/Averages	483,846	483,846	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	299,801	92.9
Regional Totals/Averages	3,710,194	3,687,295	99.4
West Central			
Canton	111,310	98,283	88.3
Foss	165,480	155,236	93.8
Regional Totals/Averages	276,790	253,519	91.6
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	105,270	88.0
Regional Totals/Averages	154,225	139,895	90.7
East Central			
Eufaula*	2,260,943	1,882,367	83.3
Tenkiller	654,100	626,117	95.7
Regional Totals/Averages	2,915,043	2,508,484	86.1
Southwest			
Fort Cobb	80,010	73,985	92.5
Lugert-Altus	132,830	25,599	19.3
Tom Steed	88,970	46,732	52.5
Regional Totals/Averages	301,810	146,316	48.5
South Central			
Arbuckle	72,400	66,823	92.3
McGee Creek	113,930	97,965	86.0
Texoma*	2,491,418	2,188,967	87.9
Waurika*	190,200	154,957	81.5
Regional Totals/Averages	2,867,948	2,508,712	87.5
Southeast			
Broken Bow*	918,070	846,782	92.2
Hugo*	167,822	167,822	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	1,474,134	1,402,846	95.2
State Totals	12,183,990	11,130,913	91.4

* 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



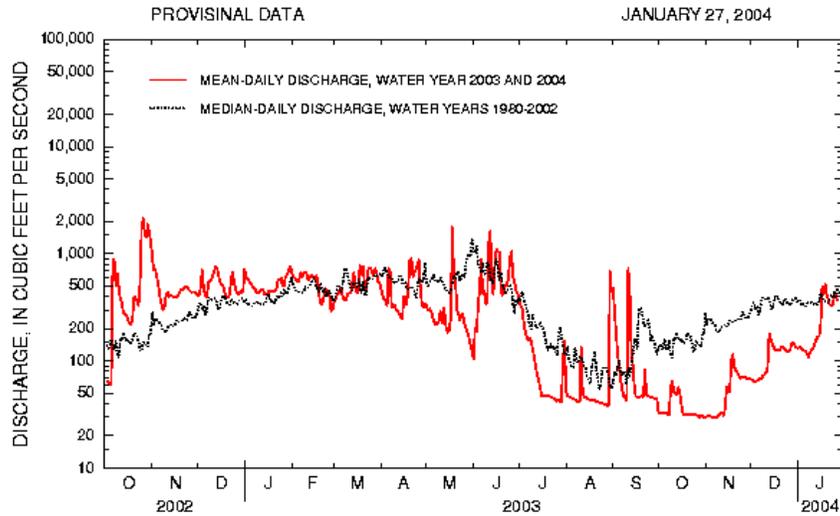
Comparison of daily discharges for water year 2003 and 2004 and period of record for Baron Fork at Eldon, Oklahoma.

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.

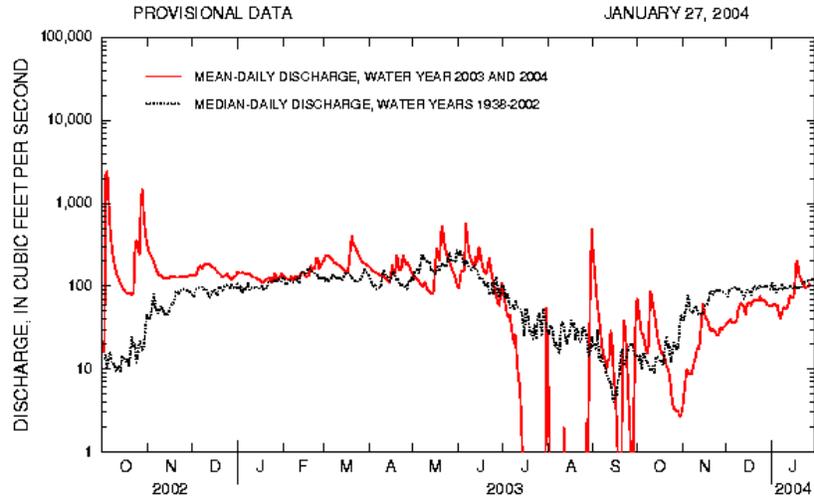
Data from U.S. Geological Survey

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.

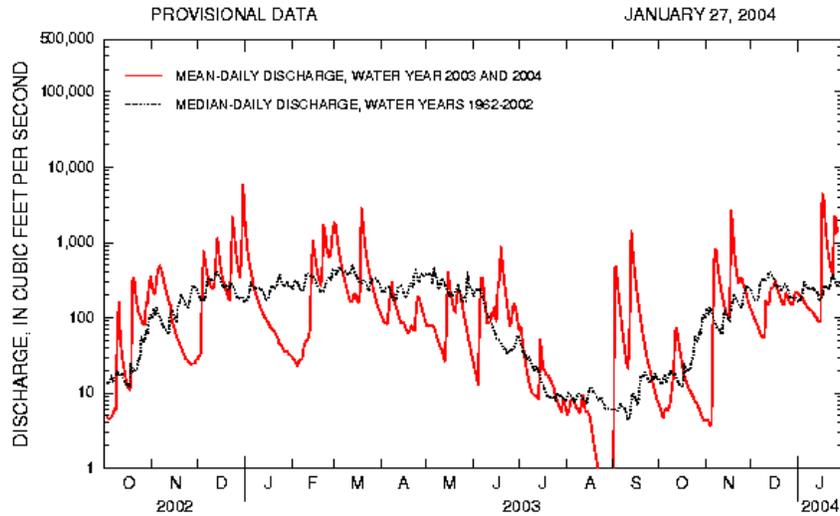
Data from U.S. Geological Survey

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

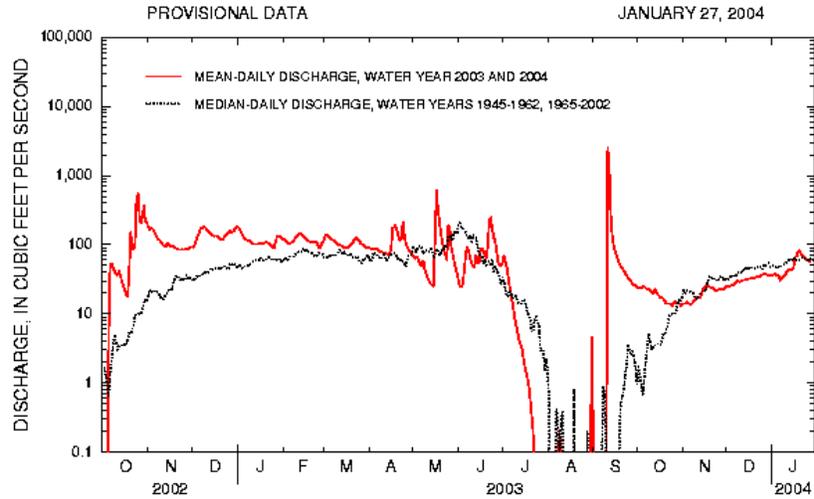
North Fork of the Red River near Carter

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

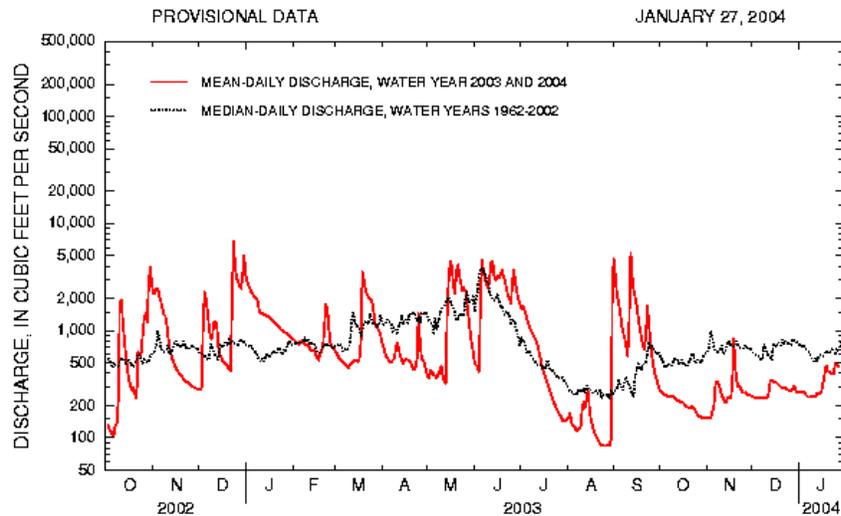
Washita River near Dickson

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