Oklahoma Water Resources Bulletin

& Summary of Current Conditions

NOVEMBER 12, 2003 OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent rainfall deficits have led to considerably dry conditions in some 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 through November 11 (the current growing season) is the Southwest climate division (a deficit of almost five inches, 29 percent of normal precipitation). West Central Oklahoma also remains somewhat dry, with a deficit of 3.21 inches. The current state-averaged rainfall total is 5.21 inches, only 63 percent of normal.

For the current calendar year, the state-averaged rainfall total is 24.43 inches, 74 percent of normal.

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON SEPTEMBER 1-NOVEMBER 11, 2003			CALENDAR YEAR JANUARY 1—NOVEMBER 11, 2003		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	2.68	-1.09	71	17.51	-2.23	89
North Central	4.07	-2.48	62	21.85	-7.18	75
Northeast	6.70	-3.04	69	34.20	-3.20	91
West Central	3.01	-3.21	48	17.48	-9.37	65
Central	5.48	-3.32	62	24.99	-9.21	73
East Central	7.44	-3.37	69	30.06	-10.33	74
Southwest	2.04	-4.96	29	18.86	-9.46	67
South Central	6.64	-3.09	68	24.11	-12.35	66
Southeast	8.57	-2.82	75	29.22	-14.43	67
Statewide	**5.21**	**-3.01**	**63**	**24.43**	**-8.46**	**74**

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.

Drought Indices

According to the latest Palmer Drought Severity Index (November 8, below), no regions in Oklahoma are currently experiencing drought conditions. However, most areas have become somewhat drier within the past few weeks. Eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since October 11. The greatest decrease occurred in the Northwest climate division.

The latest monthly Standardized Precipitation Index (through October, below) indicates some long-term dryness in southern, eastern and western Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "very dry" conditions are indicated in the Southeast climate division throughout the last 12 months. "Moderately dry" conditions are indicated in the Southeast, South Central, West Central, East Central and Southwest regions at various times during the past 9- and 12-month periods. Considering longer periods (through six years), Southeast Oklahoma is "very dry" throughout the past 15- and 18-month periods; East Central Oklahoma is "moderately dry" during those two periods. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (November 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 remain generally good in most areas of Oklahoma. Statewide, only one Mesonet station is currently at or above 600, generally indicative of more severe drought conditions (two stations had a reading above 600 on October 16). Acme, in Central Oklahoma, has the highest KBDI value (600). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness has increased to Level 3 (high fire danger), as most central and western counties remain very dry. **A Burn Ban remains in effect for Cimarron County, in the Oklahoma Panhandle.**

Palmer Drought Severity Index / Standardized Precipitation Index Through October 2003

Climate Division (#)	Current Status 11/8/2003	Value 11/8	Value 10/11	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	NEAR NORMAL	0.42	1.94	**-1.52**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	NEAR NORMAL	0.24	1.61	**-1.37**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	INCIPIENT MOIST SPELL	0.91	2.04	**-1.13**	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT DROUGHT	-0.66	0.79	**-1.45**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
Central (5)	NEAR NORMAL	0.31	1.70	**-1.39**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT MOIST SPELL	0.58	1.10	**-0.52**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Southwest (7)	INCIPIENT DROUGHT	-0.79	0.37	**-1.16**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
South Central (8)	INCIPIENT MOIST SPELL	0.60	0.97	**-0.37**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
Southeast (9)	NEAR NORMAL	0.01	-0.04	**0.05**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	VERY DRY

Keetch-Byram Drought Fire Index

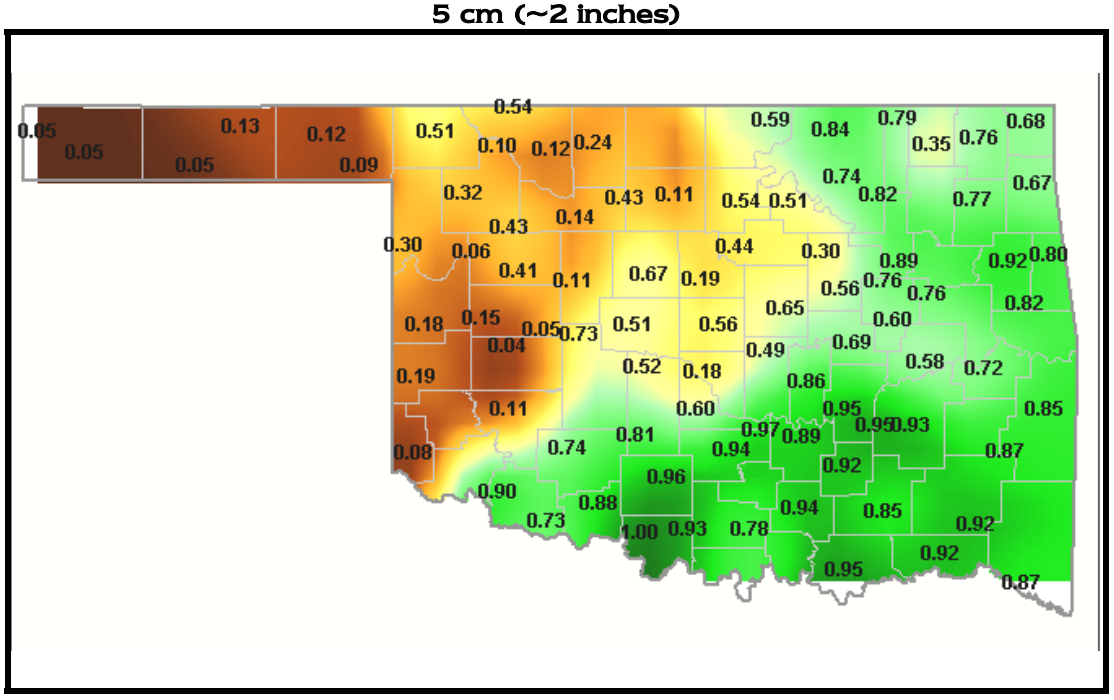
Mesonet Station	County	Climate Division	Current Value 11/12/2003	Anticipated Impact
Acme	Grady	Central	600	600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.
Mangum	Greer	Southwest	586	
Burneyville	Love	South Central	579	

Total stations above 600 = 1

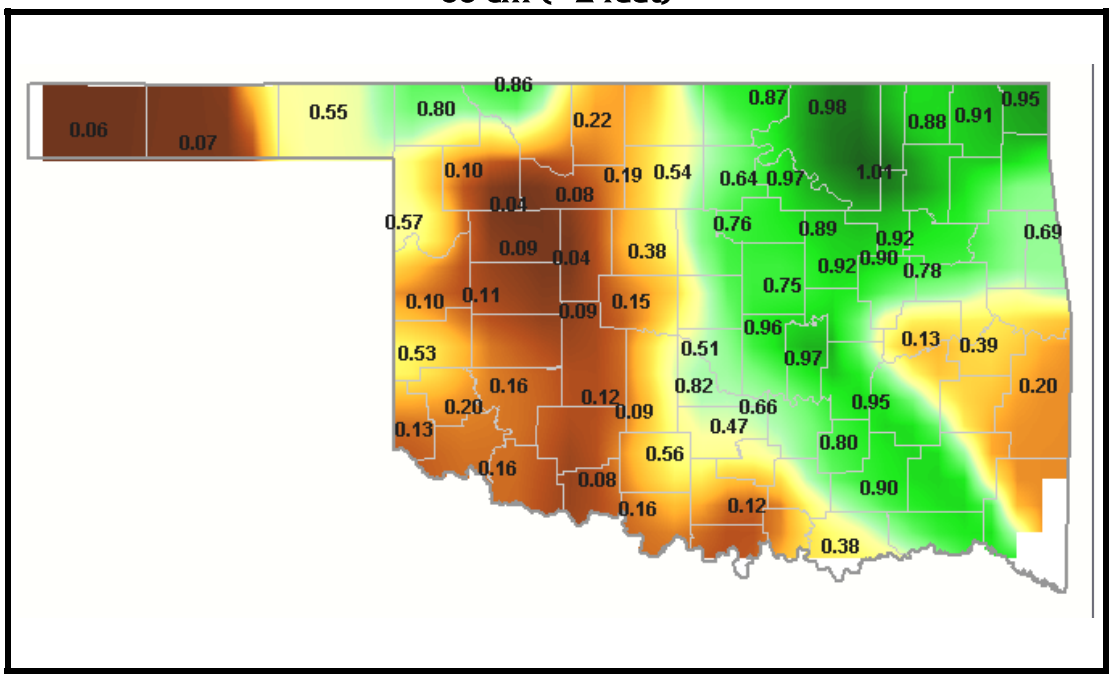
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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
November 11, 2003
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



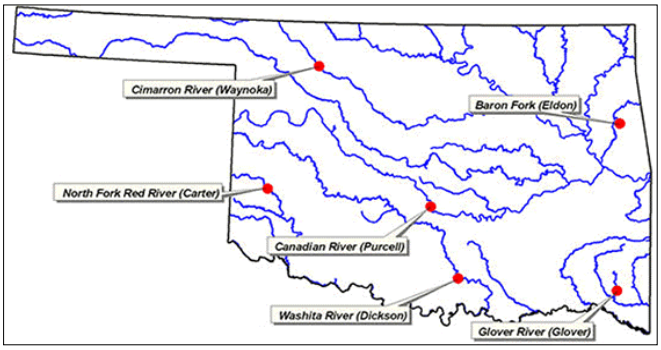
60 cm (~2 feet)



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 state rivers and streams are receding in some areas. Considering overall trends as well as current flows, the most recent data (October 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 **much below average flow** in *central* (Canadian River, McClain County) Oklahoma; **below average flow** in the *southeast* (Glover River, McCurtain County), *northwest* (Cimarron River, Woods County), and *south central* (Washita River, Carter County) regions; and **near average flow** in the *northeast* (Baron Fork, Cherokee County) and *southwest* (North Fork/Red River, Beckham County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (November 19-25) calls for below normal precipitation for all but the Oklahoma Panhandle region, where normal rainfall is anticipated. Above normal temperatures are expected for the entire state 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 within the next few months. However, over the past few months, there has been a trend in the suite of forecasts towards somewhat warmer, borderline El Niño conditions.

Crop Report

November 9 - A cold front passed through the state last week bringing cooler temperatures and scattered showers over the weekend. Wheat fields should improve in areas that received moisture, yet widespread showers are greatly needed for further wheat growth and development. Harvesting of remaining row crops advanced before being slowed or halted by the showers. Farmers had 5.7 days suitable for fieldwork during the week.

Small grain planting made minimal progress from last week. Areas that received moisture over the weekend should soon experience some improvement in wheat condition. However, wheat fields in other areas of the state remain stressed from lack of rainfall. Some producers in the north are grazing cattle on early planted wheat. Wheat planted gained 2 percentage points to 98 percent complete. Wheat emergence improved 4 percentage points from last week to 90 percent of the intended acres. Rye and oats emergence improved by 2 and 5 percentage points from last week and totaled 97 and 55 percent, respectively.

Harvest of the remaining crop acreage continued but progress was slowed or halted in some areas by the rains. Sorghum and soybean harvest gained momentum and were at 79 and 73 percent complete, respectively. Peanut producers made good progress this past week. Digging of peanuts was nearly complete and totaled 94 percent. An additional 9 percent of the peanut crop was combined during the week and reached 81 percent complete, compared with 54 percent last year and the five-year average of 68 percent. Cotton harvest increased 6 percentage points to end the week at 56 percent complete.

Both alfalfa and other hay ranged from mostly fair to good condition. The fifth cutting of alfalfa gained an additional 7 percentage points to end the week with 81 percent being cut. The second cutting of other hay was virtually complete at 96 percent cut.

Pasture and range remained in mostly poor to good condition across the state. However, the recent rains should help improve the grass forage production. Livestock continued to be rated in mostly fair to excellent condition. Cattle auctions reported an increase in marketings of steers under 800 pounds, but a decrease in marketings of heifers less than 800 pounds.

Reservoir Storage

Lakes in southwest Oklahoma continue to suffer from critically low levels. Lake storage elsewhere remains generally good, despite a gradual decline statewide. As of November 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 87.5 percent full, a 1.7 percent decrease from that recorded on October 16, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-seven reservoirs have experienced lake level decreases since that time. Twenty-four reservoirs are currently operating at less than full capacity (compared to 21 three weeks ago). Two reservoirs—Lugert-Altus, 15.2 percent; and Tom Steed, only 56 percent—are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
11/12/2003

Climate Division / *Lake or Reservoir*	*Conservation Storage (acre-feet)*	*Present Storage (acre-feet)*	*Percent of Conservation Storage*
North Central			
Fort Supply	13,900	13,082	94.1
Great Salt Plains	31,420	31,420	100.0
Kaw*	398,695	398,695	100.0
Regional Totals/Averages	**444,015**	**443,197**	**99.8**
Northeast			
Birch	19,225	16,515	85.9
Copan	43,400	43,400	100.0
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,529,260	91.5
Hudson	200,300	198,693	99.2
Hulah	25,100	25,100	100.0
Keystone	510,059	495,161	97.1
Oologah	552,210	552,210	100.0
Skiatook	322,700	272,318	84.4
Regional Totals/Averages	**3,710,194**	**3,497,857**	**94.3**
West Central			
Canton	111,310	89,039	80.0
Foss	165,480	154,135	93.1
Regional Totals/Averages	**276,790**	**243,174**	**87.9**
Central			
Arcadia	27,520	27,128	98.6
Heyburn	7,105	7,087	99.7
Thunderbird	119,600	107,745	90.1
Regional Totals/Averages	**154,225**	**141,960**	**92.0**
East Central			
Eufaula*	2,260,943	1,854,511	82.0
Tenkiller	654,100	561,556	85.9
Regional Totals/Averages	**2,915,043**	**2,416,067**	**82.9**
Southwest			
Fort Cobb	80,010	73,170	91.5
Lugert-Altus	132,830	20,166	15.2
Tom Steed	88,970	49,864	56.0
Regional Totals/Averages	**301,810**	**143,200**	**47.4**
South Central			
Arbuckle	72,400	68,689	94.9
McGee Creek	113,930	92,350	81.1
Texoma*	2,701,706	2,308,461	85.4
Waurika*	190,200	161,572	84.9
Regional Totals/Averages	**3,078,236**	**2,631,072**	**85.5**
Southeast			
Broken Bow*	918,070	786,997	85.7
Hugo*	179,657	144,807	80.6
Pine Creek*	53,750	53,750	100.0
Sardis	274,330	259,127	94.5
Wister	60,162	55,583	92.4
Regional Totals/Averages	**1,485,969**	**1,300,264**	**87.5**
State Totals	**12,366,282**	**10,816,791**	**87.5**

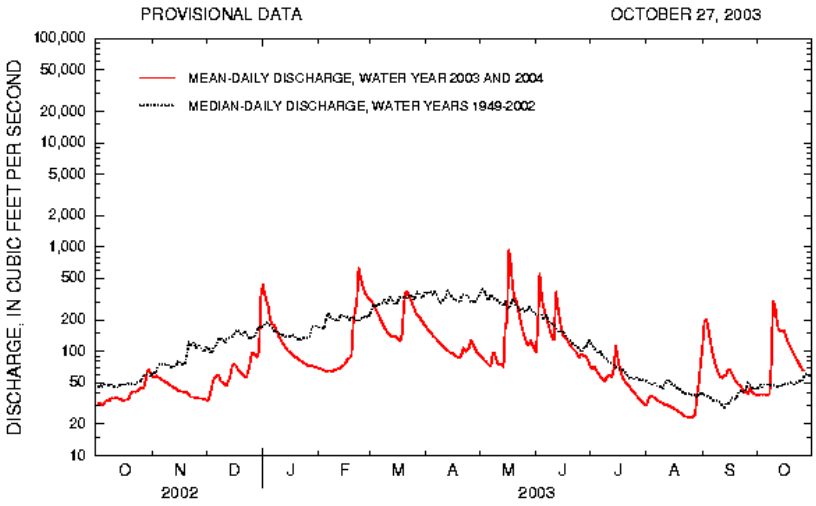
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

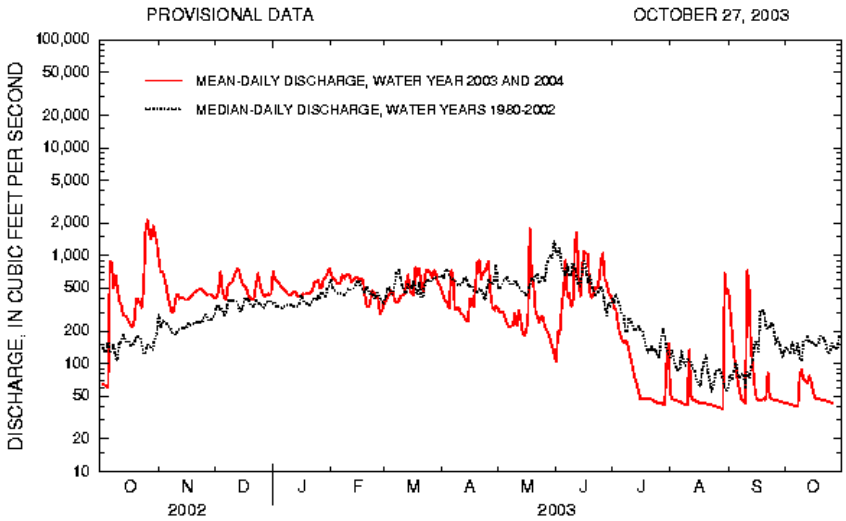
Data from U.S. Geological Survey

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.

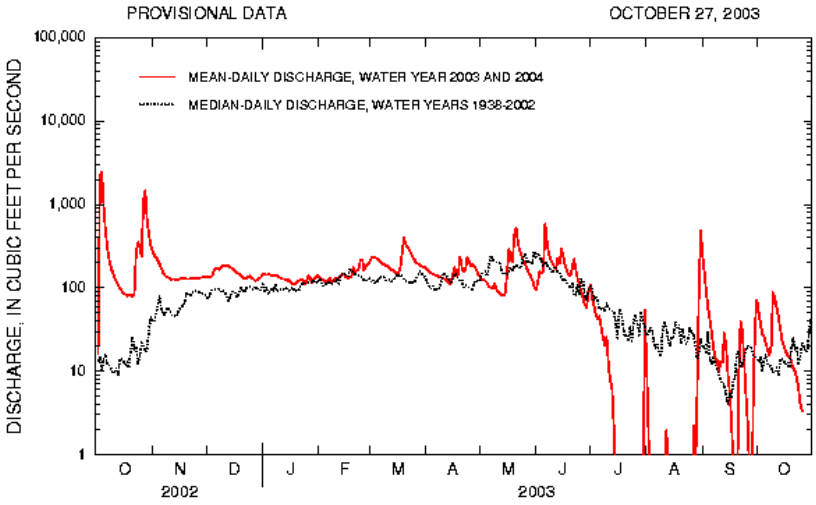
Data from U.S. Geological Survey

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.

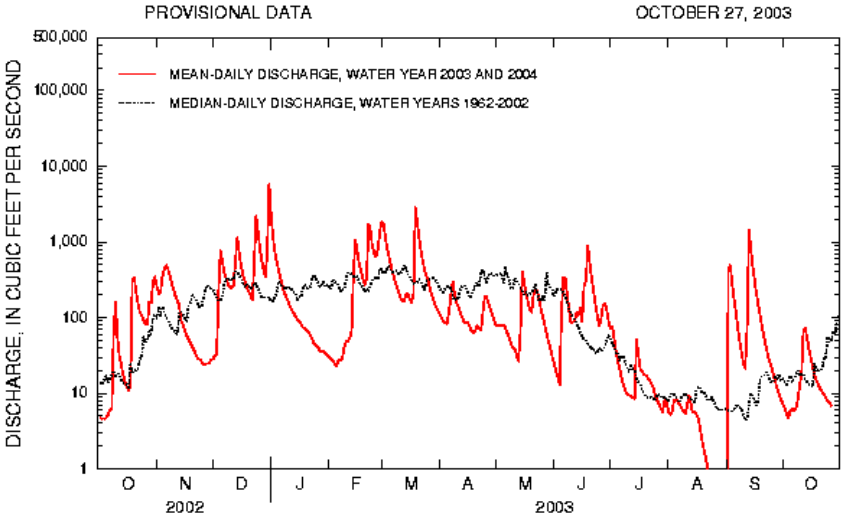
Data from U.S. Geological Survey

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.

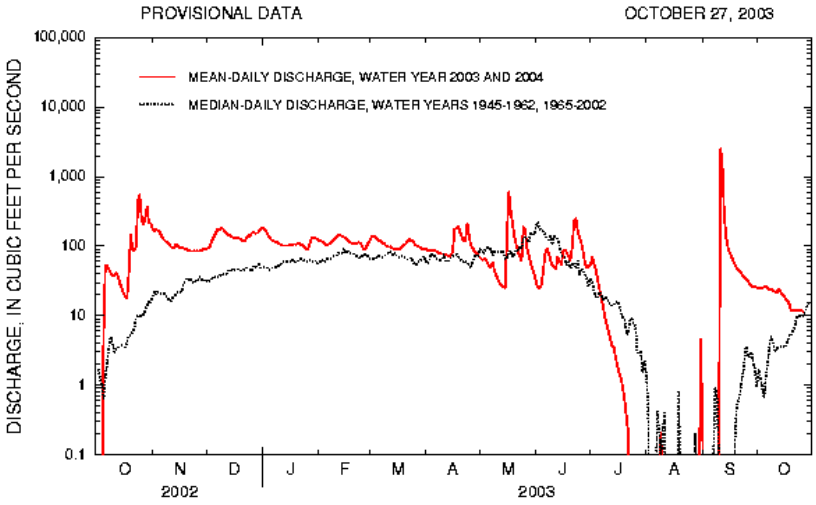
Data from U.S. Geological Survey

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.

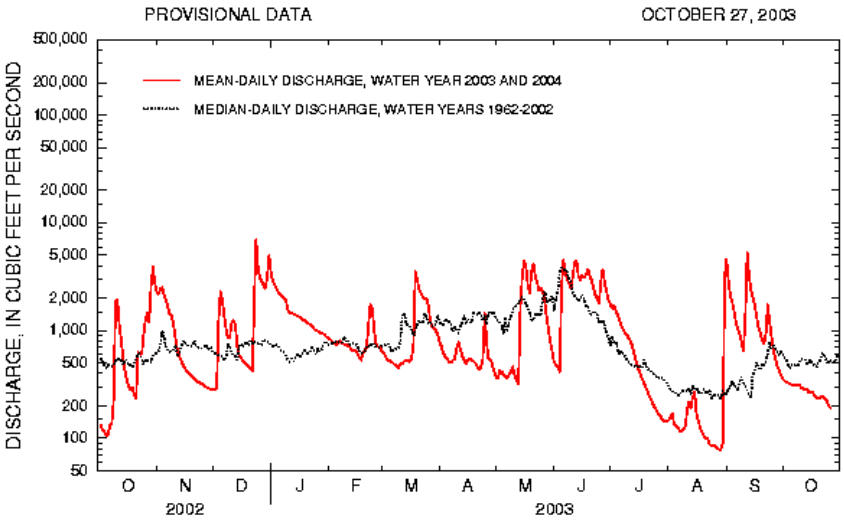
Data from U.S. Geological Survey

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