Oklahoma Water Resources Bulletin

& Summary of Current Conditions

OCTOBER 15, 2003 OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent rainfall continues to abate dry conditions throughout much 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 October 15 (the current growing season) is the Southwest climate division (a deficit of 3.47 inches, 28 percent of normal precipitation). West Central Oklahoma also remains somewhat dry, with a deficit of 1.38 inches. The current state-averaged rainfall total is 4.46 inches, 82 percent of normal.

For the current water year (October 1, 2002 through October 15, 2003), the state-averaged rainfall total is 32.22 inches, 84 percent of normal.

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	GROWING SEASON SEPTEMBER 1-OCTOBER 15, 2003			WATER YEAR OCTOBER 1, 2002—OCTOBER 15, 2003		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	2.68	+0.07	103	22.65	+0.82	104
North Central	4.04	-0.38	91	30.89	-2.05	94
Northeast	6.34	-0.20	97	39.90	-3.83	91
West Central	2.89	-1.38	68	25.63	-4.70	85
Central	5.31	-0.57	90	33.14	-6.62	83
East Central	5.97	-1.06	85	37.85	-10.30	79
Southwest	1.36	-3.47	28	27.25	-5.00	85
South Central	4.91	-1.49	77	32.75	-10.27	76
Southeast	5.91	-1.06	85	38.91	-14.43	73
Statewide	**4.46**	**-0.99**	**82**	**32.22**	**-6.10**	**84**

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 (October 11, below), conditions continue to generally improve; no regions in Oklahoma are currently experiencing drought conditions. Only three of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since September 20. The greatest decrease occurred in the Southwest climate division.

The latest monthly Standardized Precipitation Index (through September, below) continues to indicate some long-term dryness in southeast and east central Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "moderately dry" conditions are indicated in the Southeast climate division throughout the last 9- and 12-month periods and during the past 9 months in the East Central region. Considering longer periods (through six years), both East Central and Southeast Oklahoma are "moderately dry" throughout the past 15- and 18-month periods. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (October 16, 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 two Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (one station had a reading above 600 on September 22). Tipton, in Southwest Oklahoma, has the highest KBDI value (617). 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 September 2003)

Climate Division (#)	Current Status 10/11/2003	Value 10/11	Value 9/20	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	MOIST SPELL	1.94	1.87	**0.07**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
North Central (2)	MOIST SPELL	1.61	0.55	**1.06**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	UNUSUAL MOIST SPELL	2.04	1.56	**0.48**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.79	0.18	**0.61**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	MOIST SPELL	1.70	1.30	**0.40**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MOIST SPELL	1.10	0.78	**0.32**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Southwest (7)	NEAR NORMAL	0.37	0.61	**-0.24**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	INCIPIENT MOIST SPELL	0.97	1.15	**-0.18**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	NEAR NORMAL	-0.04	0.14	**-0.18**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 10/15/2003	Anticipated Impact
Tipton	Tillman	Southwest	617	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.
Grandfield	Tillman	Southwest	609	
Burneyville	Love	South Central	573	

Total stations above 600 = 2

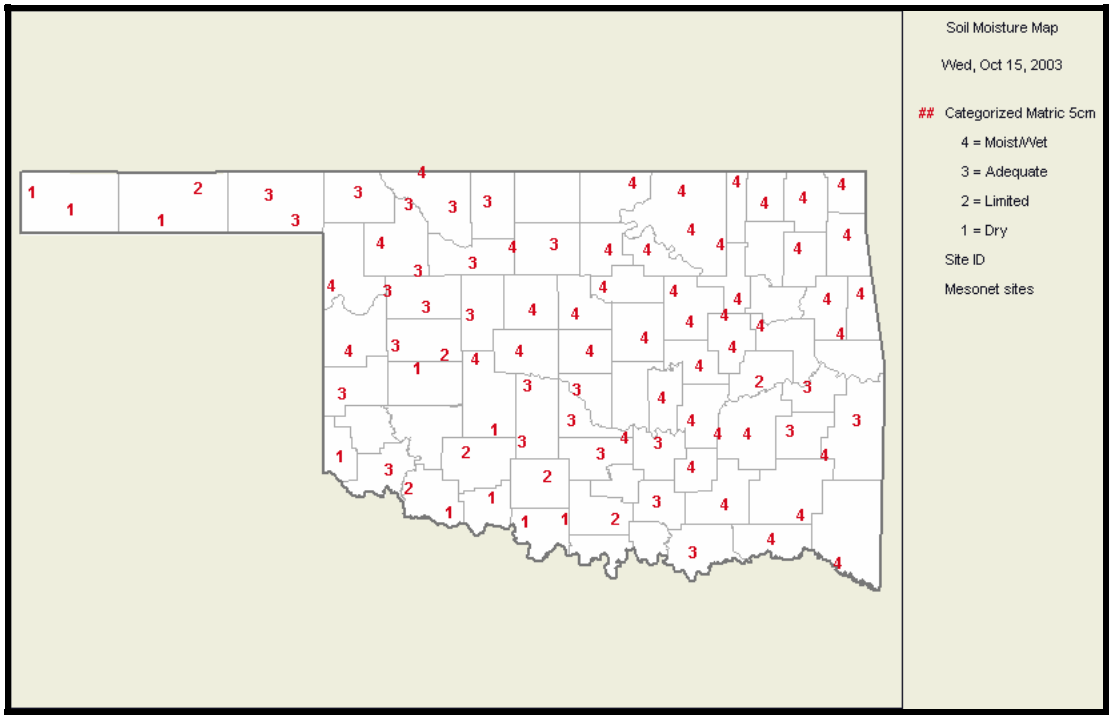
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

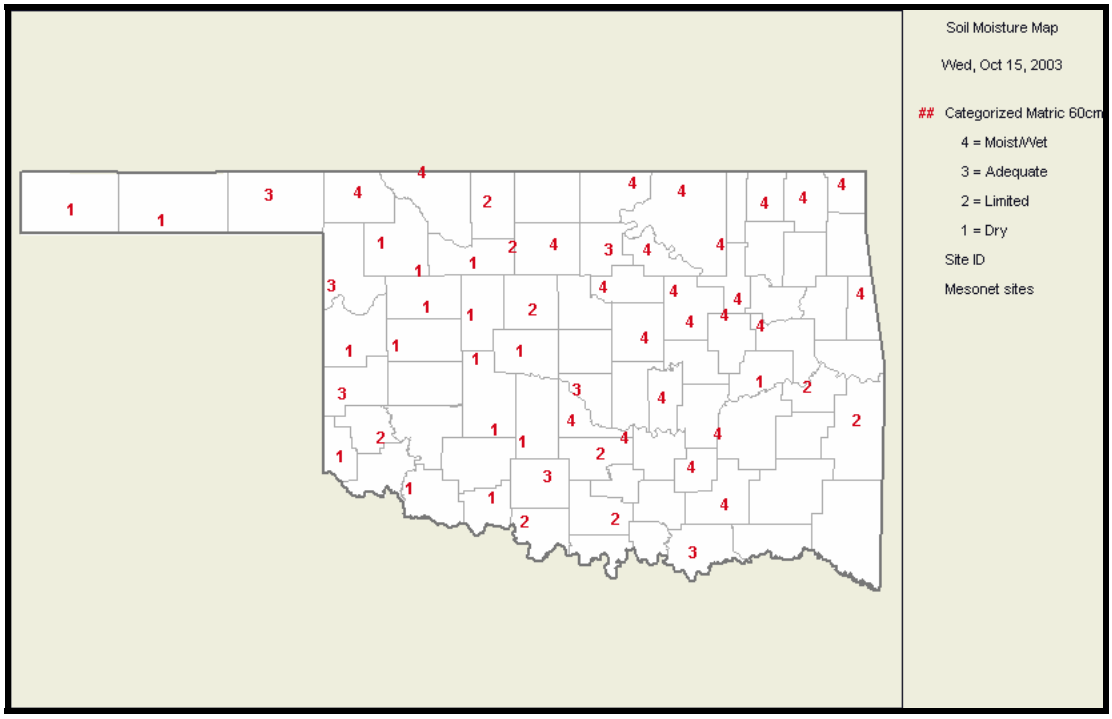
October 15, 2003

(Courtesy Oklahoma Climatological Survey)

5 cm



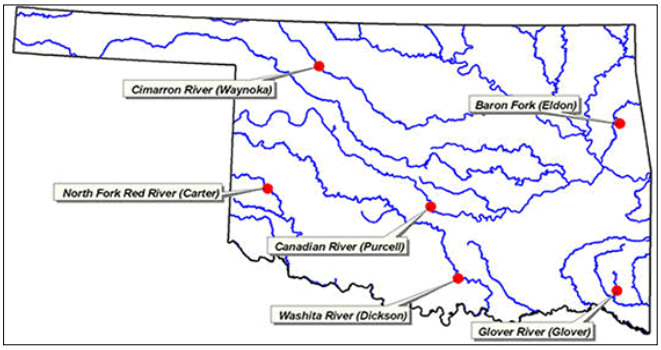
60 cm



Category Description		Depth -- Metric Conversion
Category 4	Moist/wet	5 centimeters = 2 inches
Category 3	Adequate	*corresponds to the approximate depth of grass roots
Category 2	Limited	60 centimeters = 23.6 inches
Category 1	Dry	*corresponds to the approximate root depth of the majority of Oklahoma crops

Streamflow Conditions

Flows in state rivers and streams remain generally good. Considering overall trends as well as current flows, the most recent data (October 10, 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), *southeast* (Glover River, McCurtain County), and *south central* (Washita River, Carter County) Oklahoma; and **near average flow** in the *northwest* (Cimarron River, Woods County), *northeast* (Baron Fork, Cherokee County), and *southwest* (North Fork/Red River, Beckham County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (October 24-30) calls for normal precipitation for all of Oklahoma. Below normal temperatures are expected for all but the Panhandle region of the state, where normal temperatures should prevail.

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.

Crop Report

October 5 - Beneficial moisture was received across most of the state last week. Temperatures were relatively cool throughout the week with all district high temperatures averaging 74 degrees or less. Field conditions were wet in some areas which has slowed harvesting progress. Most producers were hoping for dry weather this coming week to get back to harvesting and planting activities. Pastures continued to show improvements with the recent rainfall. Farmers had 4.9 days suitable for fieldwork during the week.

Despite the wet conditions, producers made progress in preparing and planting small grain crops. At week's end, 70 percent of the state's intended wheat acreage had been planted. Wheat emerging advanced 18 percentage points from last week to 47 percent complete. Emergence of earlier planted small grains continued to develop in areas with adequate soil moisture supplies. Reports of armyworms continued to concern producers. Producers were spraying to keep infestations under control.

Harvest activities were slowed by the recent wet conditions and progress was at a minimal even in areas that were dry enough to operate equipment. Corn harvest made limited advancements and was 74 percent complete. Sorghum and soybeans both stood at 36 percent harvested. At week's end, good progress was made on digging and combining peanuts and totaled 20 and 7 percent, respectively. The cotton crop was rated in mostly fair to good condition with 90 percent opening bolls. Cotton harvest gained an additional 5 percentage points from last week and totaled 10 percent harvested. All row crops continued to be rated in mostly fair to good condition.

Both alfalfa and other hay ranged from mostly fair to good condition. Alfalfa and other hay continued to grow in areas with adequate moisture although the unseasonably cool temperatures have slowed growth considerably. The fourth and fifth cuttings of alfalfa made minimal progress and totaled 89 and 42 percent cut, respectively. The second cutting of other hay was 83 percent cut.

Pasture and range conditions were rated mostly fair to good. Livestock conditions ranged from mostly fair to good.

Reservoir Storage

Lakes in southwest Oklahoma continue to suffer from critically low levels, but lake storage elsewhere remains generally good. As of October 16, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 89.2 percent full, a 0.7 percent increase from that recorded on September 23, according to information from the U.S. Army Corps of Engineers (Tulsa District). Sixteen reservoirs have experienced lake level decreases since that time. Twenty-one reservoirs are currently operating at less than full capacity (compared to 22 three weeks ago). Two reservoirs—Lugert-Altus, 15.3 percent; and Tom Steed, only 58.2 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
10/16/2003

Climate Division Lake or Reservoir	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Conservation Storage*
North Central			
Fort Supply	13,900	12,860	92.5
Great Salt Plains	31,420	31,420	100.0
Kaw*	376,729	376,729	100.0
Regional Totals/Averages	**422,049**	**421,009**	**99.8**
Northeast			
Birch	19,225	17,479	90.9
Copan	43,400	43,400	100.0
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,518,080	90.8
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	276,985	85.8
Regional Totals/Averages	**3,710,194**	**3,508,813**	**94.6**
West Central			
Canton	111,310	89,674	80.6
Foss	165,480	155,949	94.2
Regional Totals/Averages	**276,790**	**245,623**	**88.7**
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	110,758	92.6
Regional Totals/Averages	**154,225**	**145,383**	**94.3**
East Central			
Eufaula*	2,260,943	1,958,588	86.6
Tenkiller	654,100	578,144	88.4
Regional Totals/Averages	**2,915,043**	**2,536,732**	**87.0**
Southwest			
Fort Cobb	80,010	74,092	92.6
Lugert-Altus	132,830	20,321	15.3
Tom Steed	88,970	51,812	58.2
Regional Totals/Averages	**301,810**	**146,225**	**48.4**
South Central			
Arbuckle	72,400	69,419	95.9
McGee Creek	113,930	92,799	81.5
Texoma*	2,620,826	2,304,892	87.9
Waurika*	190,200	163,807	86.1
Regional Totals/Averages	**2,997,356**	**2,630,917**	**87.8**
Southeast			
Broken Bow*	938,155	789,103	84.1
Hugo*	158,617	145,035	91.4
Pine Creek*	53,750	53,020	98.6
Sardis	274,330	260,810	95.1
Wister	60,162	58,374	97.0
Regional Totals/Averages	**1,485,014**	**1,306,342**	**88.0**
State Totals	**12,262,481**	**10,941,044**	**89.2**

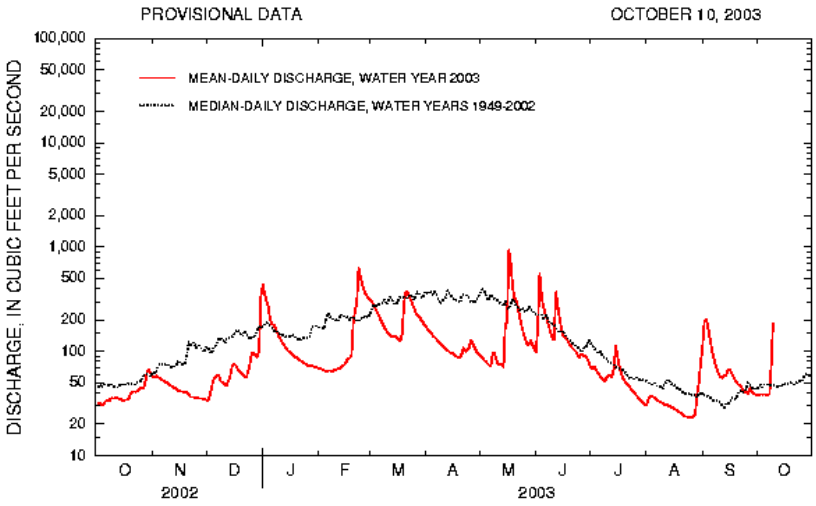
* indicates seasonal pool operation; actual storage figures/percentages may v ary.

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.

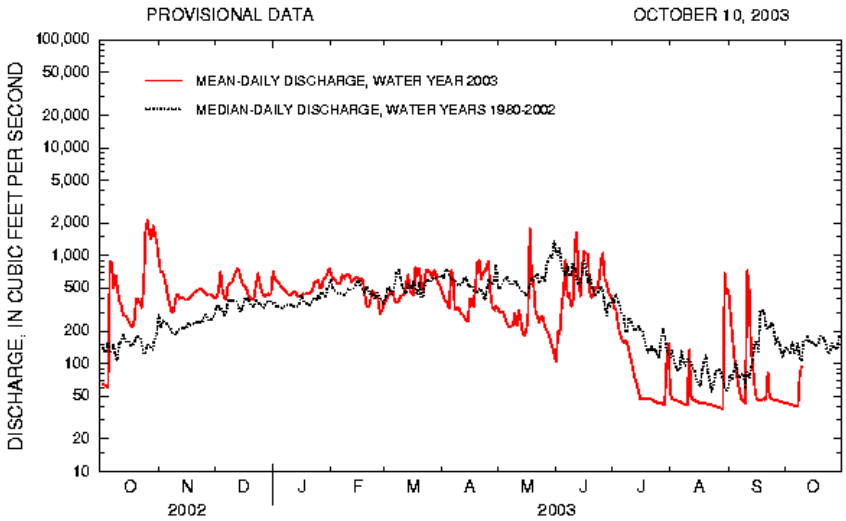
Data from U.S. Geological Survey

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.

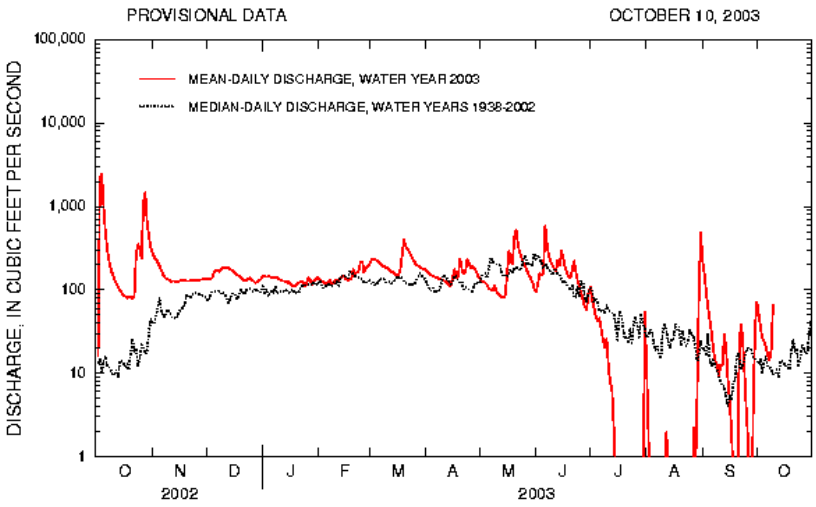
Data from U.S. Geological Survey

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.

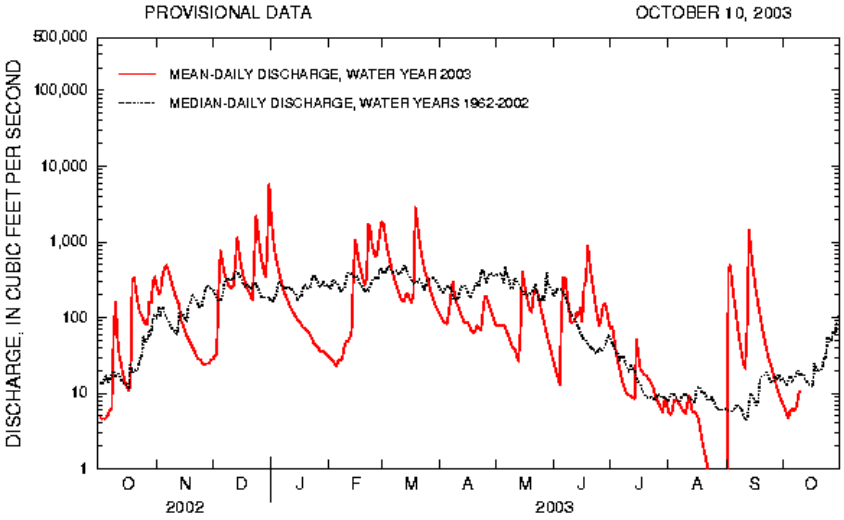
Data from U.S. Geological Survey

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.

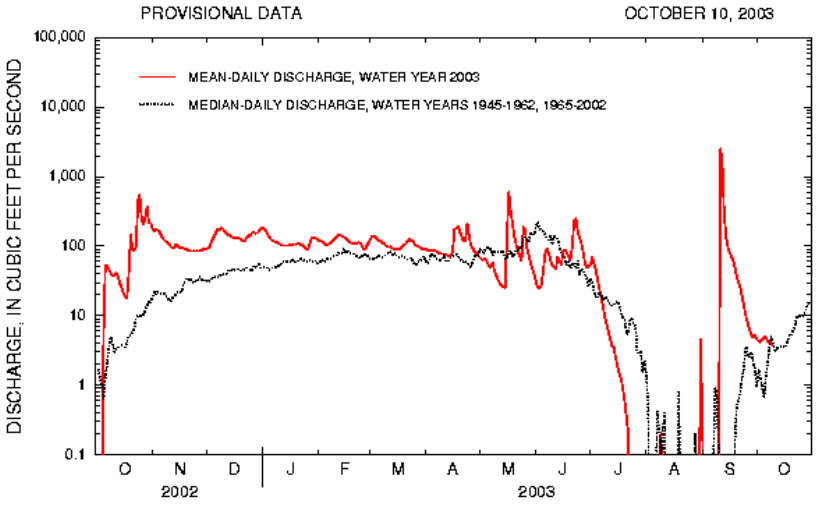
Data from U.S. Geological Survey

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.

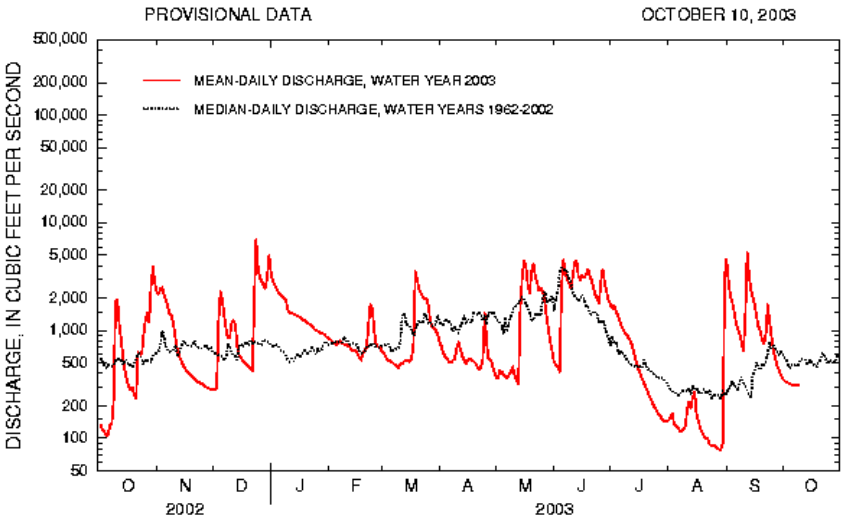
Data from U.S. Geological Survey

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