

Oklahoma Water Resources Bulletin

& Summary of Current Conditions

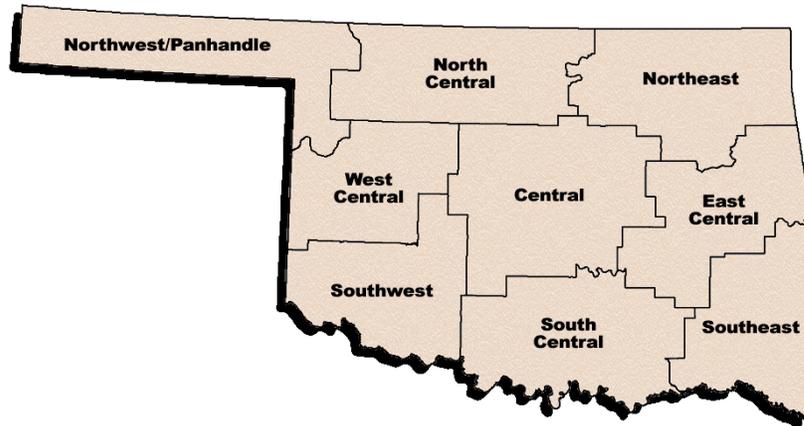


September 29, 2004

Statewide Precipitation & General Summary

Moisture conditions throughout much of Oklahoma remain generally good, although September was unusually warm and dry. 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 August 29 through September 27 (the last 30 days) is the South Central climate division (0.77 inches, a deficit of 3.38 inches, 18 percent of normal). In fact, only the West Central and Panhandle climate divisions have received more than one-half of their normal precipitation for the period. The current state-averaged rainfall total is 1.28 inches, only 35 percent of normal.

For the calendar year, the state-averaged rainfall total is 27.13 inches, 97 percent of normal.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	CALENDAR YEAR JANUARY 1—SEPTEMBER 27, 2004			LAST 30 DAYS AUGUST 29—SEPTEMBER 27, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	18.84	+1.18	107	2.13	+0.20	110
North Central	25.95	+0.65	103	1.41	-1.71	45
Northeast	32.68	+0.72	102	0.97	-3.64	21
West Central	25.33	+1.97	108	2.14	-0.85	71
Central	26.80	-2.30	92	0.84	-3.11	21
East Central	31.45	-2.59	92	1.22	-3.52	26
Southwest	23.62	-0.75	97	1.07	-2.24	32
South Central	27.93	-2.72	91	0.77	-3.38	18
Southeast	31.78	-4.61	87	1.31	-3.06	30
Statewide	27.13	-0.96	97	1.28	-2.42	35

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 (September 25, below), no regions in Oklahoma are currently experiencing drought conditions, although the Southeast climate division is classified in "incipient" drought. However, all of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since August 28. The greatest decrease occurred in the Northeast climate division.

The latest monthly Standardized Precipitation Index (through August, below) indicates only moderate long-term dryness in eastern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dry conditions. Considering longer periods (through six years), the Southeast and East Central climate divisions report "moderately dry" conditions over the past 18 and 24 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (September 28, 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 deteriorated somewhat, especially in southeast Oklahoma. Statewide, seven Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (only one station had a reading above 600 on August 30). Idabel, in Southeast Oklahoma, retains the highest KBDI value (701). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 2 (moderate fire danger). No counties are currently in a Burn Ban or Red Flag Fire Alert, although the fire danger continues to increase along the Oklahoma/Texas border.

Palmer Drought Severity Index					Standardized Precipitation Index Through August 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 9/25/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		9/25	8/28					
Northwest (1)	MOIST SPELL	1.82	1.96	-0.14	VERY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET
North Central (2)	MOIST SPELL	1.17	1.50	-0.33	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Northeast (3)	INCIPIENT MOIST SPELL	0.56	1.99	-1.43	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
West Central (4)	MOIST SPELL	1.18	1.39	-0.21	MODERATELY WET	NEAR NORMAL	MODERATELY WET	NEAR NORMAL
Central (5)	NEAR NORMAL	0.26	1.17	-0.91	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	-0.48	0.57	-1.05	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	0.42	0.84	-0.42	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	0.46	1.44	-0.98	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	INCIPIENT DROUGHT	-0.62	0.58	-1.20	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

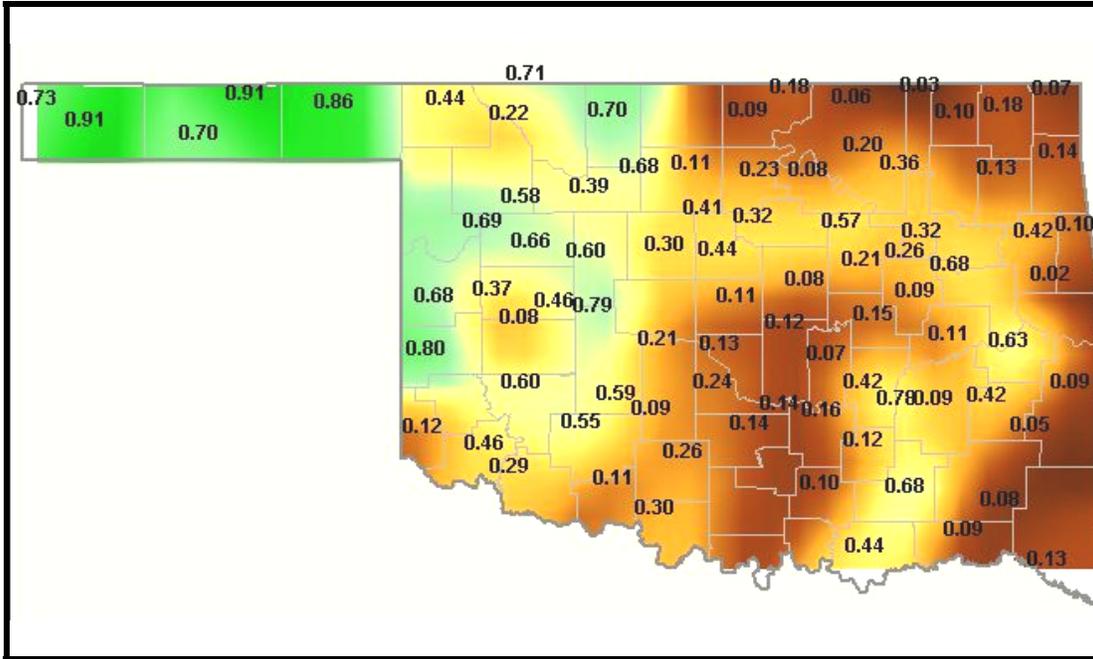
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 9/28/2004	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	701	<u>600-800</u> : often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively. <u>400-600</u> : lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Broken Bow	McCurtain	Southeast	658	
Wister	Johnston	South Central	623	

Total stations above 600 = 7

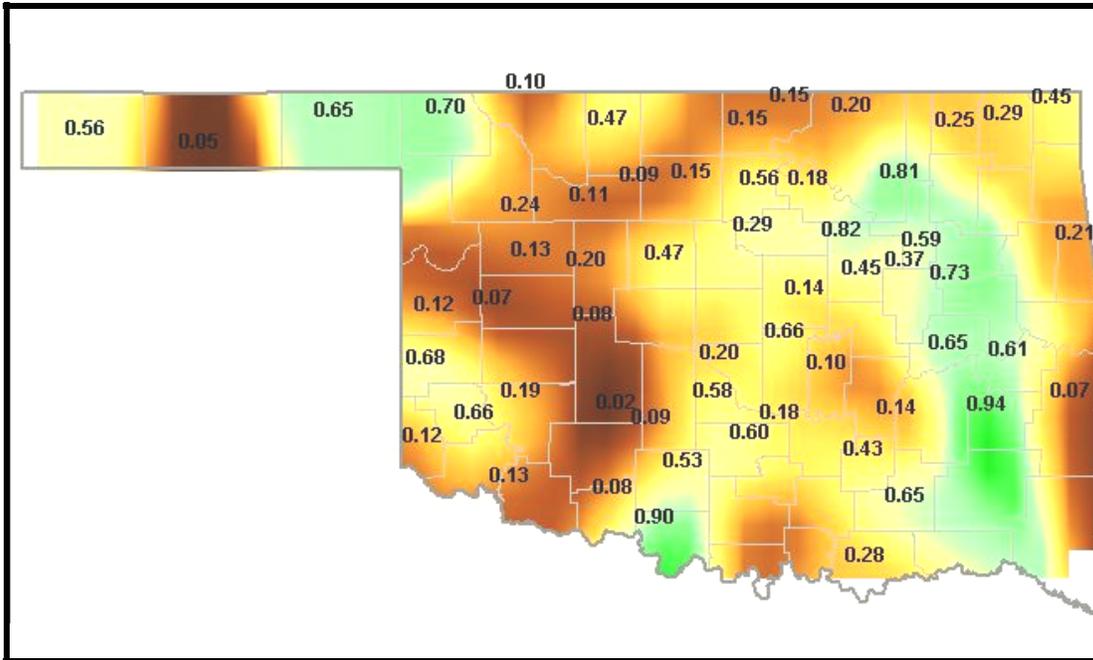
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
September 28, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



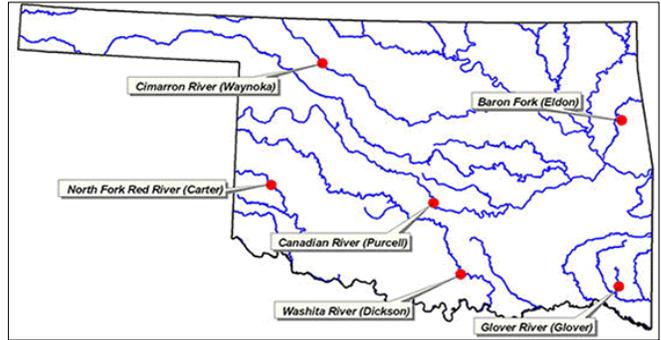
60 cm (~2 feet)



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 receding somewhat. Considering overall trends as well as current flows, the most recent data (September 24, 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 *northwest* (Cimarron River, Woods County), *south central* (Washita River, Carter County), and *central* (Canadian River, McClain County) Oklahoma; **near average flow** in the *southeast* (Glover River, McClain County) and *northeast* (Baron Fork, Cherokee 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 (October 5-11) calls for below normal precipitation for all of Oklahoma. Above normal temperatures should prevail for the entire state throughout the period.

The increase and eastward expansion of an area of anomalous warmth in the central equatorial Pacific Ocean during July and August may indicate the early stages of a warm (El Niño) episode. A majority of the statistical and coupled model forecasts indicate that this temperature pattern will continue through early 2005. El Niños, warm water patterns that increase the chances for generally cooler, wetter conditions in the southern U.S. (including Oklahoma), occur about every two to seven years.

Crop Report

September 26 - Rain was reported in every district last week, although amounts were small in some regions. Topsoil moisture was 1 percent surplus, 47 percent adequate, 39 percent short, and 13 percent very short. Subsoil moisture was 50 percent adequate, 34 percent short, and 16 percent very short. Days suitable for field work during the week were 5.8.

Last week, producers across the state were busy planting wheat and nearly half of the crop was seeded by week's end. The rain was just enough in many areas to cause early planted wheat to begin to emerge. Both planting and emergence were slightly ahead of normal. Rye seeding increased 18 points to 66 percent complete, 1 point above last year and 17 points above the five-year average. Rye emergence was at 39 percent, which was an increase of 17 points. Oat progress increased slightly but seedbed preparations, planting and emergence all lagged behind the five-year average.

The warmer temperatures helped row crops make good progress last week. Corn maturity and harvest were still behind both last year and the five-year average. Harvest was in full swing with over half the corn harvested, but the rain soaked fields delayed harvest in some areas. Most of the corn continues to be in excellent condition. Sorghum made good progress with 30 percent harvested. Many sorghum yields were reported to be excellent. Soybeans progress was about normal for this time of year. Soybeans reaching maturity went up 9 points to 54 percent complete and harvest was 32 percent complete. Peanuts made limited progress with conditions mostly good. Three-fourths of the cotton bolls were open and harvest was just getting underway. Many producers have begun spraying cotton with chemicals to prepare bolls and drop some leaves.

Both alfalfa and other hay were in mostly good condition. The fifth cutting of alfalfa was 64 percent complete, which is 34 points higher than the 5-year average. The sixth cutting of alfalfa is 13 percent complete. Other hay second cutting was at 89 percent complete, which is 13 percent above the five-year average. Most of the hay supplies were above average.

More than 80 percent of livestock were in good to excellent condition. There are reports of cattle producers starting to feed as the grass is losing its protein. Livestock insect activity was mostly light to moderate. Some pastures were running out of water with the warmer temperatures and only small amounts of precipitation. Pastures still require rain, although they benefited from last week's showers. Pastures were reported to be in good condition.

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of September 28, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 94.5 percent full, a 2.2 percent decrease from that recorded on August 30, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-nine reservoirs have experienced lake level decreases since that time. Twenty-seven reservoirs are currently operating at less than full capacity (compared to 19 last month). Three reservoirs—Lugert-Altus, only 17.7 percent full; Tom Steed, 50.7 percent; and Waurika, 78.1 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs			
09/28/2004			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	12,006	86.4
Great Salt Plains	31,420	28,666	91.2
Kaw*	375,160	375,160	100.0
Regional Totals/Averages	420,480	415,832	98.9
Northeast			
Birch	19,225	17,632	91.7
Copan	43,400	41,620	95.9
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,526,250	91.3
Hudson	200,300	200,300	100.0
Hulah	25,100	24,867	99.1
Keystone	510,059	469,380	92.0
Oologah	552,210	528,046	95.6
Skiatook	322,700	313,442	97.1
Regional Totals/Averages	3,710,194	3,486,737	94.0
West Central			
Canton	111,310	90,874	81.6
Foss	165,480	151,879	91.8
Regional Totals/Averages	276,790	242,753	87.7
Central			
Arcadia	27,520	26,310	95.6
Heyburn	7,105	6,492	91.4
Thunderbird	119,600	117,740	98.4
Regional Totals/Averages	154,225	150,542	97.6
East Central			
Eufaula*	2,260,943	2,260,943	100.0
Tenkiller	654,100	636,203	97.3
Regional Totals/Averages	2,915,043	2,897,146	99.4
Southwest			
Fort Cobb	80,010	74,517	93.1
Lugert-Altus	132,830	23,515	17.7
Tom Steed	88,970	45,068	50.7
Regional Totals/Averages	301,810	143,100	47.4
South Central			
Arbuckle	72,400	71,263	98.4
McGee Creek	113,930	104,473	91.7
Texoma*	2,539,946	2,473,217	97.4
Waurika*	190,200	148,552	78.1
Regional Totals/Averages	2,916,476	2,797,505	95.9
Southeast			
Broken Bow*	958,180	878,679	91.7
Hugo*	158,617	139,809	88.1
Pine Creek*	55,458	54,319	97.9
Sardis	274,330	269,108	98.1
Wister	60,162	52,606	87.4
Regional Totals/Averages	1,506,747	1,394,521	92.6
State Totals	12,201,765	11,528,136	94.5

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

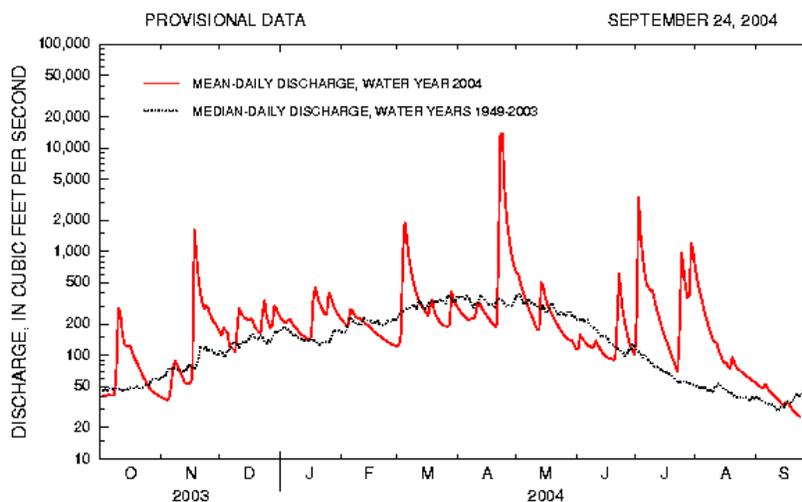
Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma

Station No. 07197000

Northeast Oklahoma

Drainage Area 307 square miles



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

Data from U.S. Geological Survey

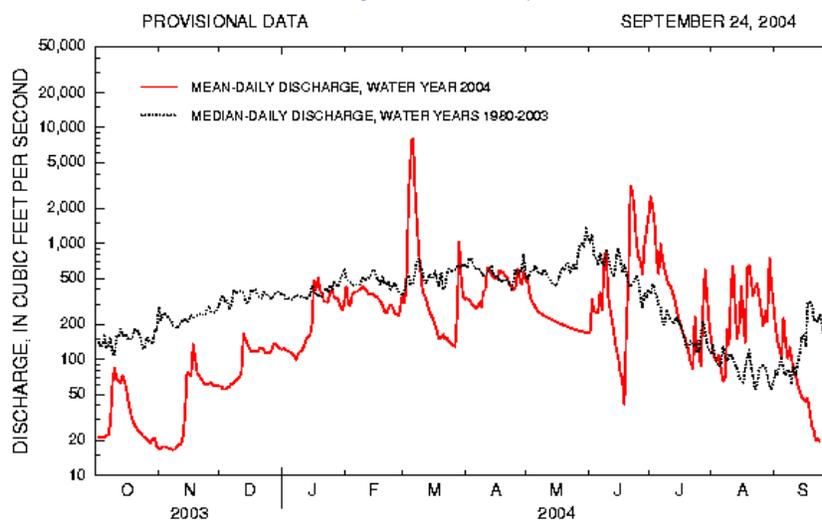
Canadian River at Purcell

Canadian River at Purcell, Oklahoma

Station No. 07229200

Central Oklahoma

Drainage Area 25,939 square miles



Comparison of daily discharges for water year 2004 and period of record for Canadian River at Purcell, Oklahoma.

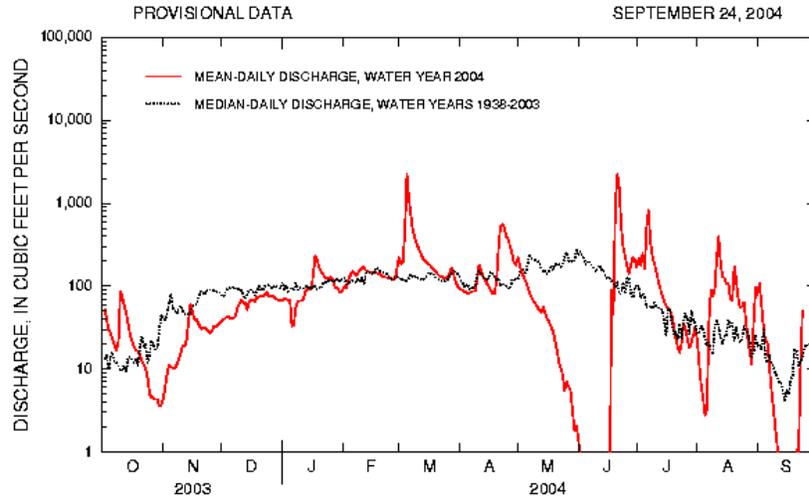
Data from U.S. Geological Survey

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 2004 and period of record for Cimarron River near Waynoka, Oklahoma.

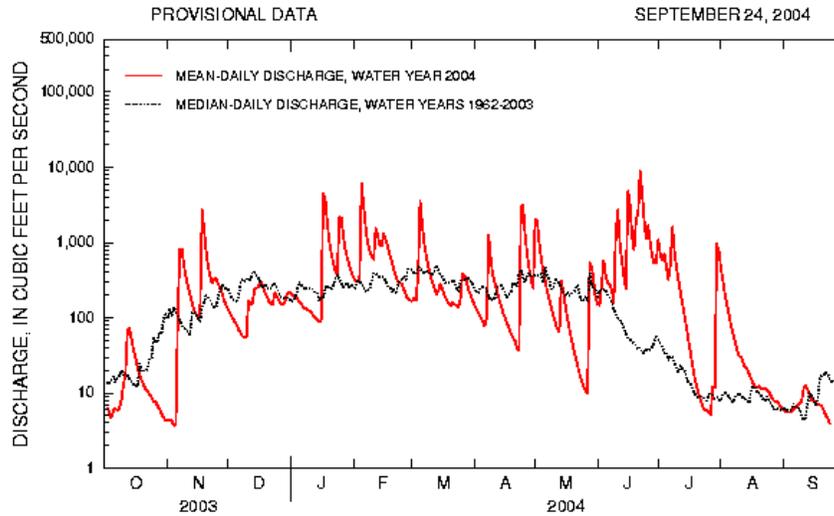
Data from U.S. Geological Survey

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 2004 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

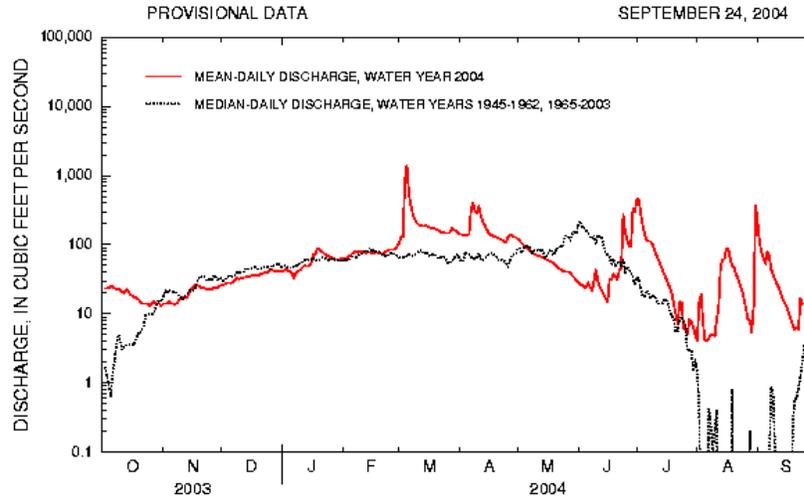
North Fork of the Red River near Carter

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 2004 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

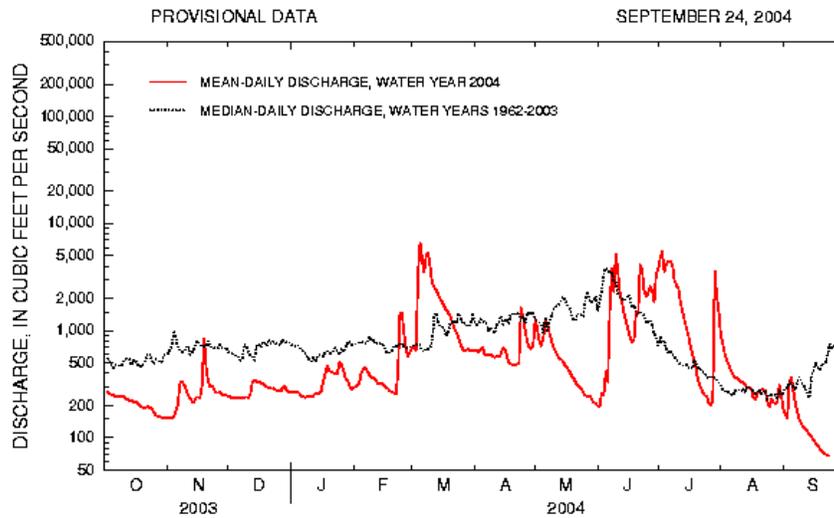
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2004 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey