

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



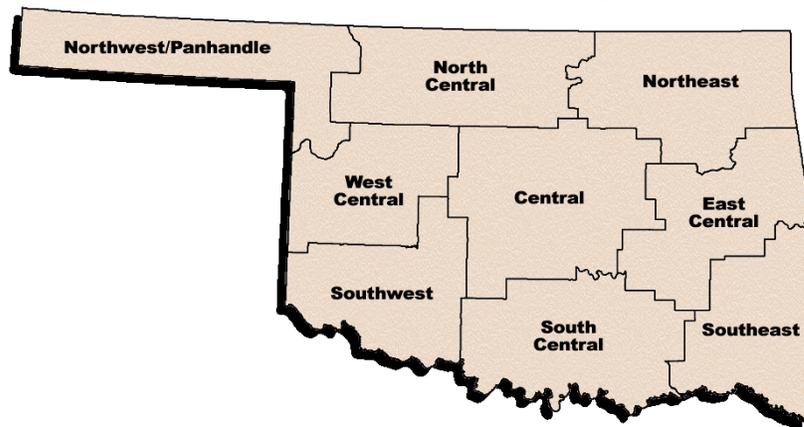
April 13, 2005

Statewide Precipitation & General Summary

A very dry spring season is impacting many areas of Oklahoma. Five regions of the state have received less than one-half of their respective normal precipitation over the past month.

According to preliminary Mesonet weather station data provided by the Oklahoma Climatological Survey and National Weather Service (see below), the areas receiving the lowest percent of normal rainfall over the last 30 days (from March 12 through April 10) are the Southwest (0.52 inches, 22 percent of normal) and South Central (1.02 inches, 29 percent of normal) climate divisions. The current state-averaged rainfall total is 1.80 inches—a deficit of 1.32 inches and 58 percent of normal.

For the water year, which began October 1, 2004, moisture conditions are much more favorable. All areas have received more than their anticipated normal precipitation. The state-averaged rainfall total is 18.08 inches, 115 percent of normal.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2004—APRIL 10, 2005			LAST 30 DAYS MARCH 12—APRIL 10, 2005		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	9.18"	+2.53"	138%	1.22"	-0.45"	73%
North Central	14.02"	+2.17"	118%	1.30"	-1.41"	48%
Northeast	20.67"	+2.59"	114%	2.79"	-0.91"	75%
West Central	13.90"	+3.18"	130%	1.08"	-1.34"	45%
Central	17.37"	+1.24"	108%	1.18"	-2.09"	36%
East Central	25.46"	+3.82"	118%	3.53"	-0.55"	86%
Southwest	14.66"	+3.03"	126%	0.52"	-1.83"	22%
South Central	21.16"	+2.36"	113%	1.02"	-2.52"	29%
Southeast	27.47"	+1.44"	106%	4.02"	-0.36"	92%
Statewide	18.08"	+2.42"	115%	1.80"	-1.32"	58%

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 (April 9, below), no regions in Oklahoma are currently experiencing drought conditions. However, eight of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since March 12. The greatest decrease occurred in the Southwest climate division.

Although most areas are drier, the latest monthly Standardized Precipitation Index (through March, below) indicates no long-term dryness in Oklahoma; wet conditions continue to dominate. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), no climate divisions indicate dryness. And considering longer periods (through six years), no regions indicate dry conditions. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (April 11, 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, while increasing somewhat, remain generally good. 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 March 14). Burneyville, in South Central Oklahoma, retains the highest KBDI value (241). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 2 (moderate fire danger). As of April 11, rain, warmer temperatures and seasonal green-up have reduced the fire danger throughout the state. However, persons conducting outdoor burning are encouraged to take precautions to assure a safe burn; state fire officials ask citizens to avoid burning anything outdoors when winds exceed 20 miles per hour.

Palmer Drought Severity Index					Standardized Precipitation Index Through March 2005			
CLIMATE DIVISION (#)	CURRENT STATUS 4/9/2005	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		4/9	3/12					
Northwest (1)	VERY MOIST SPELL	3.14	2.97	0.17	MODERATELY WET	VERY WET	VERY WET	VERY WET
North Central (2)	UNUSUAL MOIST SPELL	2.80	3.48	-0.68	NEAR NORMAL	VERY WET	MODERATELY WET	MODERATELY WET
Northeast (3)	MOIST SPELL	1.43	1.81	-0.38	NEAR NORMAL	VERY WET	MODERATELY WET	NEAR NORMAL
West Central (4)	UNUSUAL MOIST SPELL	2.21	2.51	-0.30	NEAR NORMAL	VERY WET	VERY WET	MODERATELY WET
Central (5)	INCIPEINT MOIST SPELL	0.97	2.10	-1.13	NEAR NORMAL	MODERATELY WET	MODERATELY WET	NEAR NORMAL
East Central (6)	INCIPEINT MOIST SPELL	0.65	0.68	-0.03	NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET
Southwest (7)	MOIST SPELL	1.19	2.43	-1.24	NEAR NORMAL	VERY WET	VERY WET	MODERATELY WET
South Central (8)	INCIPEINT MOIST SPELL	0.96	2.10	-1.14	NEAR NORMAL	VERY WET	VERY WET	MODERATELY WET
Southeast (9)	NEAR NORMAL	0.40	0.58	-0.18	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL

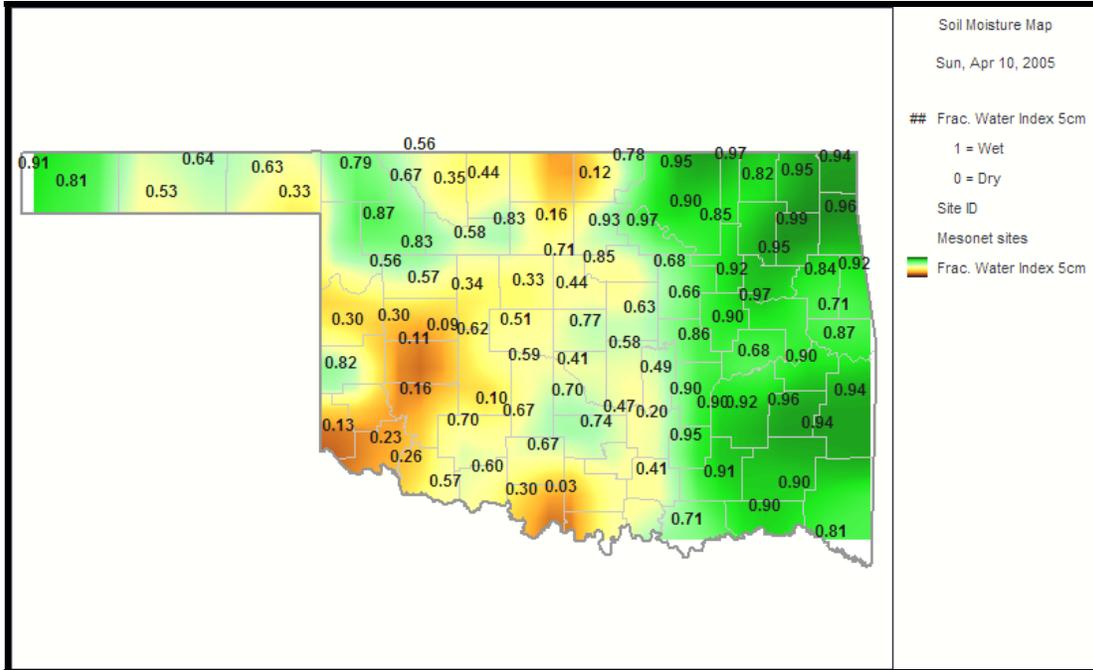
Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 4/11/2005	ANTICIPATED IMPACT
Burneyville	Love	South Central	241	<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.
Madill	Marshall	South Central	201	
Sulphur	Murray	South Central	201	
Vanoss	Pontotoc	South Central	200	
Total stations above 600 = 0				

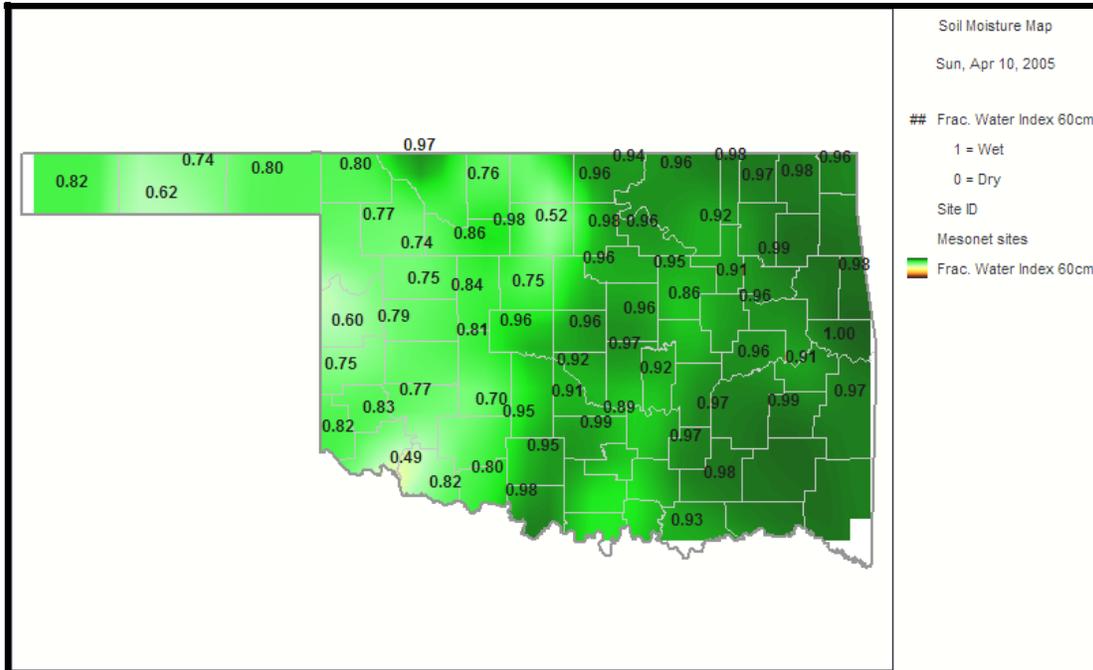
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
April 10, 2005
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



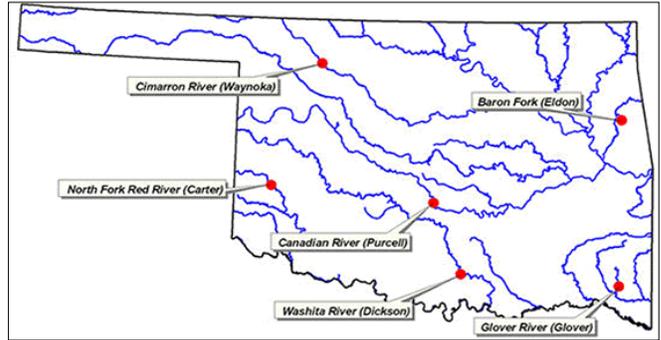
60 cm (~2 feet)



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 remain generally near normal but continue a slight downward trend. Considering overall trends as well as current flows, the most recent data (April 11, 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, 2003, 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 *southeast* (Glover River, McCurtain County), *northeast* (Baron Fork, Cherokee County), *southwest* (North Fork/Red River, Beckham County), and *northwest* (Cimarron River, Woods County) regions; and **above average flow** in *central* (Canadian River, McClain County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (April 18-24) calls for above normal precipitation for all of Oklahoma. Above normal temperatures are forecasted for the general eastern one-half of the state while normal temperatures should prevail in western Oklahoma throughout the period.

The weak warm (El Niño) episode currently in development is weakening. A majority of the statistical and coupled model forecasts indicate that a transition from warm episode to near neutral conditions will continue during the next three months. 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

April 11 - The need for rain across the state was strengthened last week as some ponds were beginning to dry up. The heavy winds coupled with little precipitation caused a reduction in soil moisture supplies, particularly topsoil moisture. Statewide, both subsoil and topsoil moisture supplies were rated mostly adequate to short. Farmers had 5.2 days suitable for fieldwork last week.

Wheat in some areas of the state continued to show signs of drought and heat stress last week due to the lack of moisture. Wheat conditions were rated mostly good to fair. Eighty-five percent of the wheat was jointing compared to 91 percent jointing at this time last year. Some of the wheat crop had begun to head in isolated areas, especially in the southwest. Crop insect activities were rated mostly none to light. Oat planting was virtually complete by week's end.

Seedbed preparation for row crops made good progress last week despite the heavy winds and dry conditions. Peanuts and corn were ahead of the five-year average for seedbed preparation at 49 and 75 percent, respectively. By week's end, soybean seedbeds were 40 percent prepared, while 57 percent of the cotton seedbeds had been prepared. Sorghum producers began planting and, by week's end, had 2 percent of the crop planted. Corn planted increased an additional 6 points to 28 percent planted by the end of the week. This was slightly ahead of normal.

Livestock insect activities remained none to light. Livestock markets continue to be average. Pasture and range conditions were rated mostly good to fair as windy weather and lack of rainfall began to negatively affect the growth and development of pastures. Some producers began applying fertilizers but were selective as to what pastures received fertilizers.

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of April 11, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 96.2 percent full, a 0.9 percent decrease from that recorded on March 14, according to information from the U.S. Army Corps of Engineers (Tulsa District). Ten reservoirs have experienced lake level decreases since that time; only seven reservoirs are currently operating at less than full capacity (compared to five last month). Two reservoirs—Lugert-Altus, only 63.8 percent full; and Tom Steed, 75.7 percent—remain below 80 percent capacity.

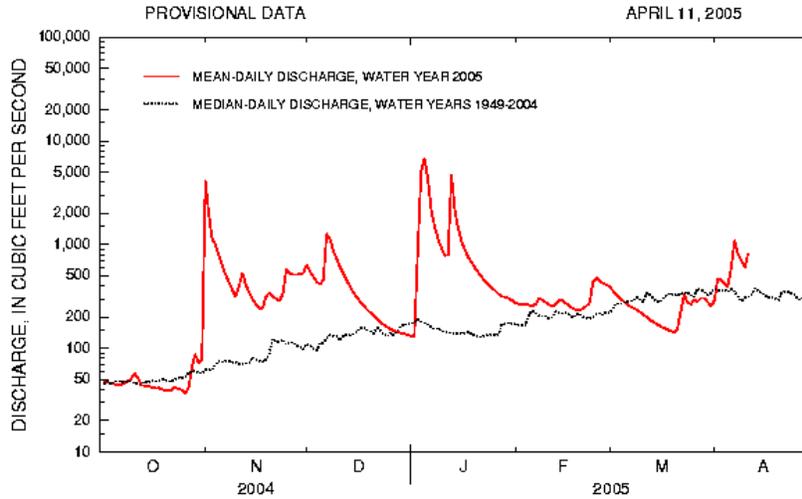
Storage in Selected Oklahoma Lakes & Reservoirs			
04/11/2005			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,900	100.0
Great Salt Plains	31,420	31,420	100.0
Kaw*	400,264	400,264	100.0
Regional Totals/Averages	445,584	445,584	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	1,557,241	93.1
Hudson	200,300	200,300	100.0
Hulah	25,100	25,100	100.0
Keystone	510,059	508,745	99.7
Oologah	552,210	552,210	100.0
Skiatook	322,700	322,700	100.0
Regional Totals/Averages	3,710,194	3,594,121	96.9
West Central			
Canton	111,310	111,310	100.0
Foss	165,480	156,985	94.9
Regional Totals/Averages	276,790	268,295	96.9
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	119,600	100.0
Regional Totals/Averages	154,225	154,225	100.0
East Central			
Eufaula*	2,368,223	2,368,223	100.0
Tenkiller	654,100	654,100	100.0
Regional Totals/Averages	3,022,323	3,022,323	100.0
Southwest			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	84,785	63.8
Tom Steed	88,970	67,327	75.7
Regional Totals/Averages	301,810	73,685	24.4
South Central			
Arbuckle	72,400	72,400	100.0
McGee Creek	113,930	113,930	100.0
Texoma*	2,418,626	2,314,068	95.7
Waurika*	190,200	190,200	100.0
Regional Totals/Averages	2,795,156	2,690,598	96.3
Southeast			
Broken Bow*	924,805	924,805	100.0
Hugo*	198,067	195,663	98.8
Pine Creek*	68,828	68,828	100.0
Sardis	274,330	274,330	100.0
Wister	60,162	60,162	100.0
Regional Totals/Averages	1,526,192	1,523,788	99.8
State Totals	12,232,274	11,772,619	96.2

* 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



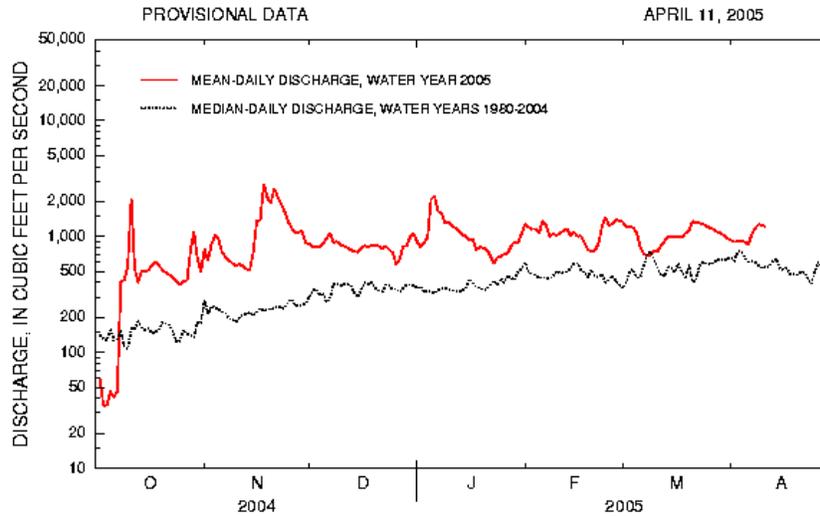
Comparison of daily discharges for water year 2005 and period of record for Baron Fork at Eldon, Oklahoma.

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 2005 and period of record for Canadian River at Purcell, Oklahoma.

Data from U.S. Geological Survey

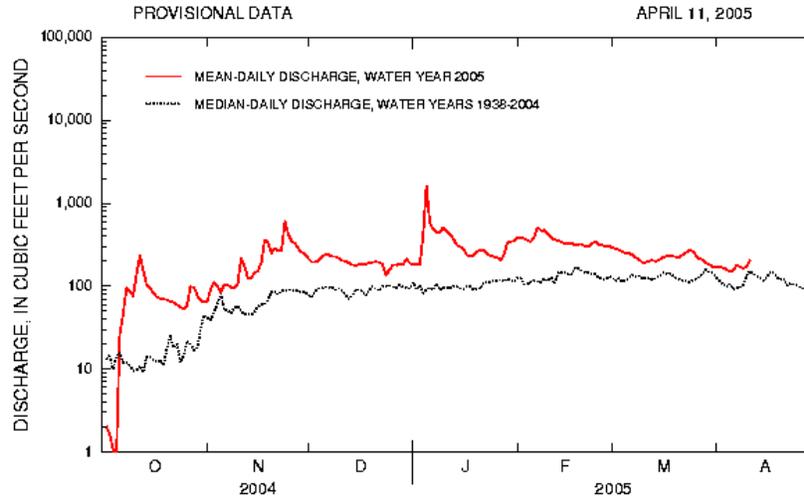
Cimarron River near Waynoka

Cimarron River near Waynoka, Oklahoma

Station No. 07158000

Northwest Oklahoma

Drainage Area 13,334 square miles



Comparison of daily discharges for water year 2005 and period of record for Cimarron River near Waynoka, Oklahoma.

Data from U.S. Geological Survey

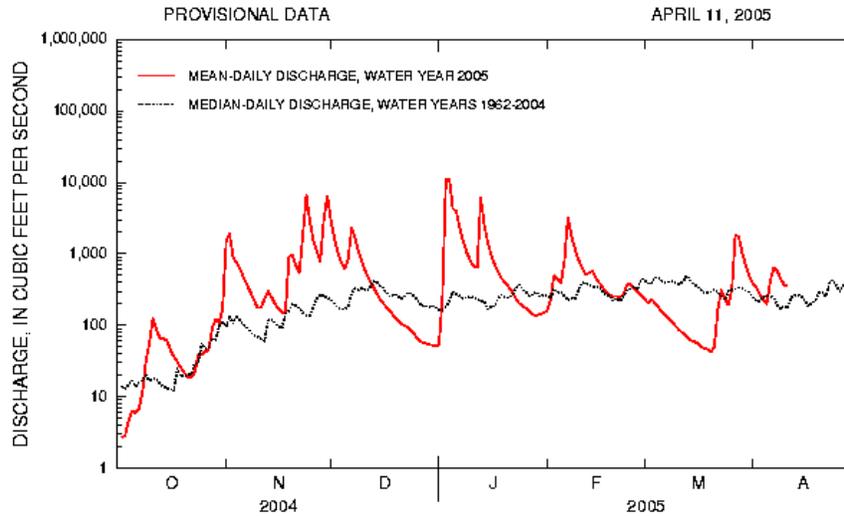
Glover River near Glover

Glover River near Glover, Oklahoma

Station No. 07337900

Southeast Oklahoma

Drainage Area 315 square miles



Comparison of daily discharges for water year 2005 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

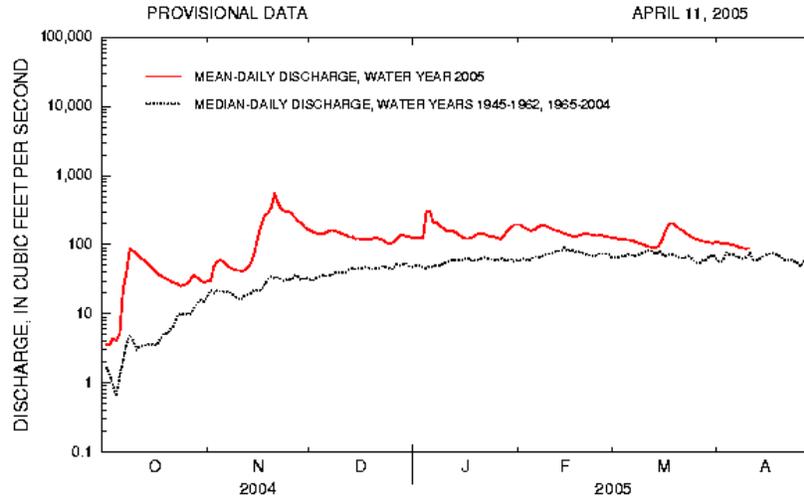
North Fork of the Red River near Carter

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 2005 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

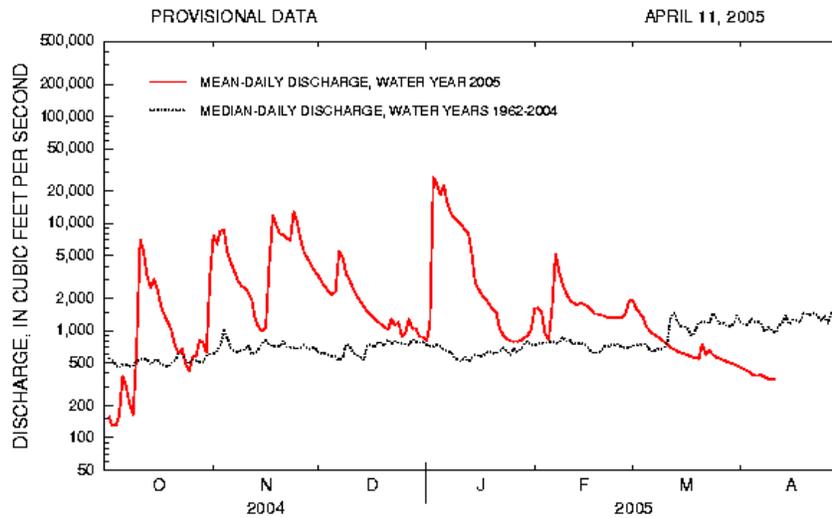
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2005 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey