

Oklahoma Water Resources Bulletin

& Summary of Current Conditions

July 6, 2005

Statewide Precipitation & General Summary

Recent rainfall has reduced the imminent drought threat in many areas of the state, although much of southern Oklahoma remains relatively 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 over the last 30 days (from June 5 through July 4) is the Southeast climate division (1.99 inches, only 44 percent of normal). Most other areas, especially in the north, have fared much better over the period. The current state-averaged rainfall total is 5.04 inches—a surplus of 1.00 inch and 125 percent of normal.

For the warm growing season, which began March 1, moisture conditions are less favorable. Two regions—the South Central and Southeast climate divisions—have received only 50 percent of their anticipated normal precipitation. The state-averaged rainfall total is 10.71 inches, 66 percent of normal.



**Preliminary Statewide Precipitation
By Climate Division**

DIVISION (#)	WARM GROWING SEASON MARCH 1—JULY 4, 2005			LAST 30 DAYS JUNE 5—JULY 4, 2005		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	9.46	-0.65	94	4.74	+1.87	165
North Central	12.14	-2.54	83	8.21	+4.41	216
Northeast	13.28	-4.89	73	6.33	+1.92	144
West Central	11.05	-2.99	79	5.84	+2.22	161
Central	10.98	-6.32	63	6.46	+2.17	151
East Central	11.81	-7.75	60	4.23	-0.37	92
Southwest	8.16	-6.18	57	3.21	-0.68	83
South Central	8.91	-8.97	50	3.20	-1.15	74
Southeast	10.22	-10.27	50	1.99	-2.55	44
Statewide	10.71	-5.58	66	5.04	+1.00	125

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 (July 2, below), six regions in Oklahoma are currently experiencing drought conditions, compared to five regions last month. The South Central, Southeast, East Central, Central, and Northeast climate divisions are all in "moderate drought" while the Southwest and Northeast climate divisions are in "mild drought." Five of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since June 4. The greatest decrease occurred in the Southwest climate division.

The latest monthly Standardized Precipitation Index (through May, below) reflects increasingly dry conditions in Oklahoma over the past several months. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "extremely dry" conditions exist in Central and South Central Oklahoma over the past 90 days; "very" or "moderately dry" conditions are reported in all other regions, except the Northwest, during that period. The 6-month SPI indicates similarly dry conditions in five climate divisions, although none are suffering extreme dryness. Considering longer periods (through six years), the Southeast climate division reports "moderately dry" conditions over the past 30 and 36 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (July 7, 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 are becoming a concern. Statewide, however, no Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (no stations had a reading above 600 on June 6). Idabel, in southeast Oklahoma, has the highest KBDI value (572). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 3 (high fire danger). As of June 29, a Red Flag Fire Alert is in effect for much of southeastern and southern Oklahoma (Atoka, Bryan, Carter, Choctaw, Coal, Comanche, Cotton, Garvin, Grady, Haskell, Hughes, Jefferson, Johnston, Kiowa, Latimer, LeFlore, Love, McClain, McCurtain, McIntosh, Marshall, Murray, Muskogee, Pittsburg, Pontotoc, Pushmataha, Seminole, Stephens and Tillman Counties). High temperatures and low humidities are occurring throughout this area where dry, grassy fuels will ignite easily and burn with surprising intensity. 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 May 2005			
CLIMATE DIVISION (#)	CURRENT STATUS 7/2/2005	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		7/2	6/4					
Northwest (1)	UNUSUAL MOIST SPELL	2.96	1.72	1.24	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	VERY WET
North Central (2)	NEAR NORMAL	0.44	-0.69	1.13	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.44	-1.44	0.00	VERY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.74	0.11	0.63	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
Central (5)	MODERATE DROUGHT	-2.10	-2.09	-0.01	EXTREMELY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
East Central (6)	MODERATE DROUGHT	-2.30	-1.80	-0.50	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MILD DROUGHT	-1.75	-0.74	-1.01	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	VERY WET
South Central (8)	MODERATE DROUGHT	-2.79	-1.88	-0.91	EXTREMELY DRY	VERY DRY	NEAR NORMAL	MODERATELY WET
Southeast (9)	MODERATE DROUGHT	-2.73	-1.97	-0.76	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL

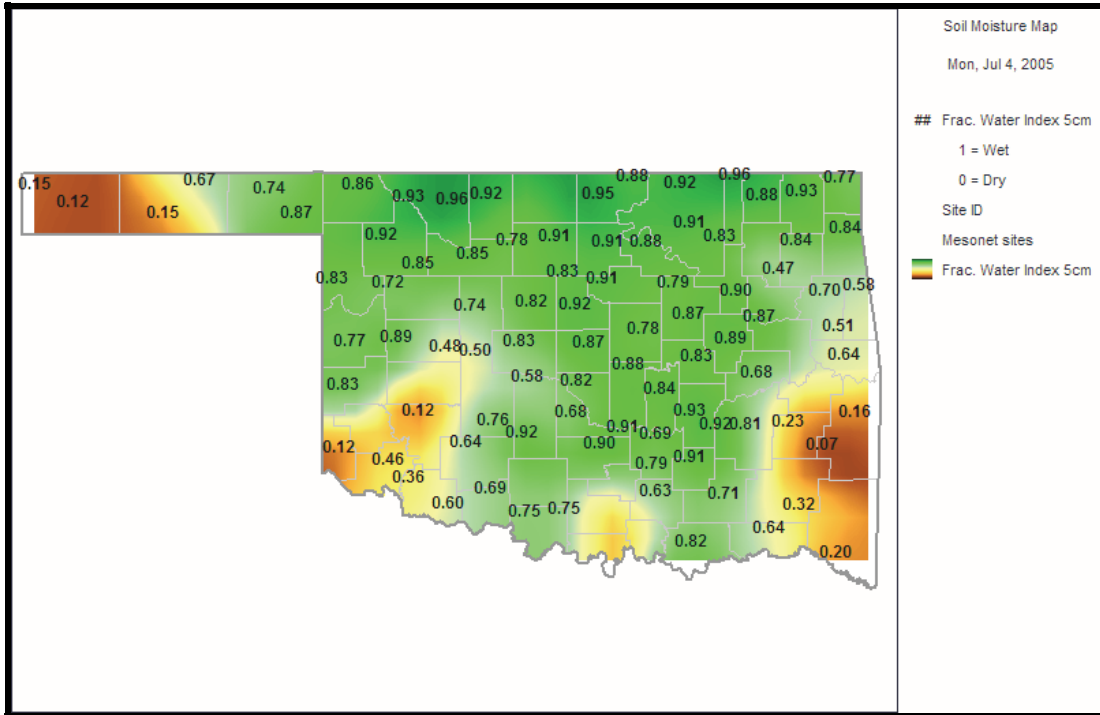
Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 7/5/2005	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	572	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. 400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Talihina	LeFlore	Southeast	566	
Burneyville	Love	South Central	559	

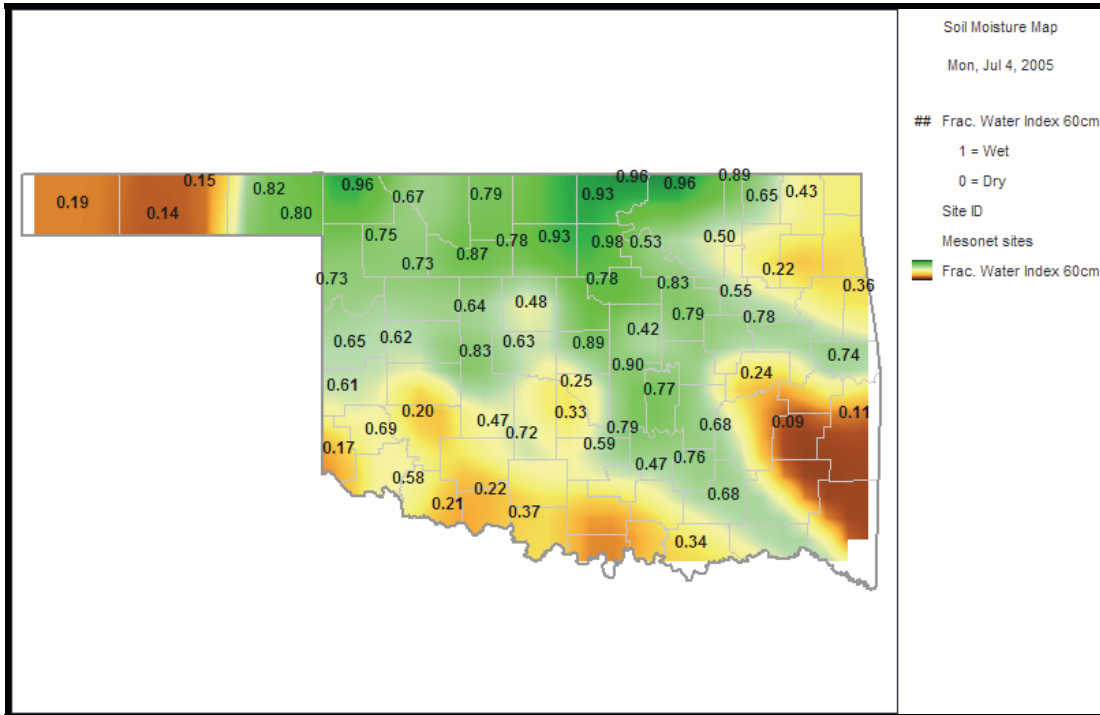
Total stations above 600 = 0

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**
July 4, 2005
(Courtesy Oklahoma Climatological Survey)
5 cm (~2 inches)



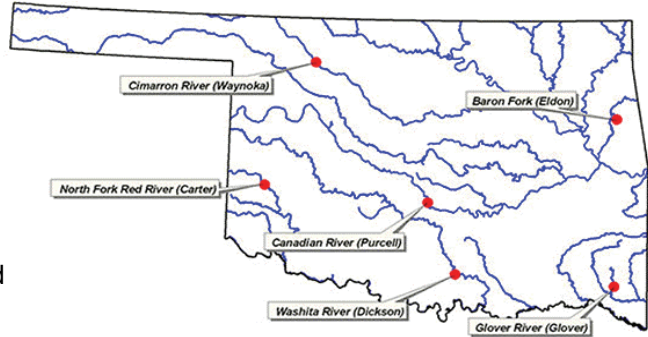
60 cm (~2 feet)



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 a concern due to the recent dry weather. Considering overall trends as well as current flows, the most recent data (June 26, 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, 2004, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *southeast* (Glover River, McCurtain County) Oklahoma; **below average flow** in the *northeast* (Baron Fork, Cherokee County) and *south central* (Washita River, Carter County) regions; and **near average flow** in *central* (Canadian River, McClain County), *northwest* (Cimarron River, Woods County), and *southwest* (North Fork/Red River, Beckham County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (July 12-18) calls for normal precipitation. Below normal temperatures are forecasted for the general southern one-half of Oklahoma; normal temperatures should prevail in the north throughout the period.

A majority of the statistical and coupled model forecasts indicate that a transition to near neutral El Niño Southern Oscillation (ENSO) conditions will continue through August. For the remainder of the year, much uncertainty exists in the forecasts. 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

July 5 - Hot, dry weather with moderate winds dominated the first part of the week. Late-week showers kept soil moisture supplies from dropping too sharply. Wheat harvest was essentially finished except for the Panhandle and some isolated acres in the rest of the state. As of Sunday, dryland row crops needed additional moisture for good development. There were 6.1 days suitable for field work.

The Oklahoma wheat harvest was 98 percent complete. Harvest ranged from 91 percent finished in the Panhandle to essentially complete in most other areas. Acreage harvested for grain in the state was down moderately from last year. Rye was in mostly fair condition and harvest was at 96 percent complete. Oat harvest was at 92 percent complete.

Farmers were concentrating more on row crops after wheat harvest was drawing to a close. Conditions in the southeastern third of Oklahoma were drought-stressed and moisture is needed to salvage summer crops. Corn and sorghum development in the Panhandle was running well behind the rest of the state. Corn silking was only 8 percent in the Panhandle while most other regions were over 90 percent. Sorghum heading had not yet started in the Panhandle while other areas ranged from 6 to 22 percent complete. Soybeans were beginning to bloom statewide. Peanut development was more advanced in the western third of the State. Peanuts pegging ranged from 16 percent in central Oklahoma to 82 percent in the west central region. Cotton received a boost with the opening of Lake Lugert-Altus for irrigation early in the week. Cotton squaring ranged from 13 percent in central Oklahoma to 43 percent in the west central region. Some cotton was setting bolls south central fields.

Warm, dry weather was beneficial for hay growth. Most areas reported that the second cutting of alfalfa hay was nearly completed. Alfalfa hay third cuttings ranged from 2 percent in the Panhandle to 76 percent in the south central region. All other hay first cutting ranged from 64 percent in the North Central region to essentially complete in the west central region. Second cutting of all other hay remains mostly limited to the southern half of the State.

Watermelons were rated in mostly fair condition. Development made rapid advancement from last week. Harvest has started in the southwestern third of the State. Peaches were rated in mostly fair-to-good condition. Fruit set was above average in central and south central Oklahoma.

Pasture conditions continued to decline and are now rated in mostly fair condition. Rain is desperately needed in the southeastern third of Oklahoma where poor ratings are more prominent. Livestock remain in mostly good condition.

Reservoir Storage

Lake storage in Oklahoma remains generally good. As of July 5, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 92.2 percent full, a 0.5 percent increase from that recorded on June 6, according to information from the U.S. Army Corps of Engineers (Tulsa District). Sixteen reservoirs have experienced lake level decreases since that time; 17 reservoirs are currently operating at less than full capacity (compared to 10 last month). Two reservoirs—Lugert-Altus, only 69.7 percent full; and Tom Steed, 71.7 percent—remain below 80 percent capacity.

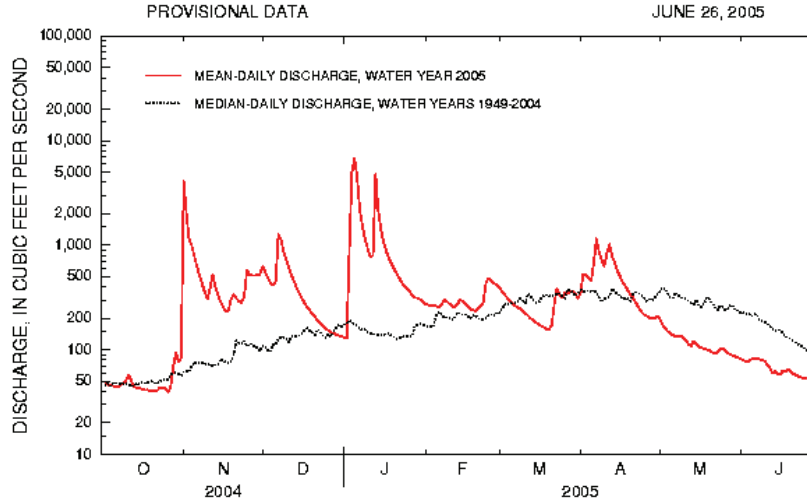
Storage in Selected Oklahoma Lakes & Reservoirs			
07/05/2005			
Climate Division Lake or Reservoir	Conservation Storage (acre-feet)	Present Storage (acre-feet)	Percent of Conservation Storage
North Central			
Fort Supply	13,900	13,354	96.1
Great Salt Plains	31,420	31,420	100.0
Kaw*	459,850	459,850	100.0
Regional Totals/Averages	505,170	504,624	99.9
Northeast			
Birch	19,225	18,870	98.2
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	321,276	99.6
Regional Totals/Averages	3,710,194	3,708,415	100.0
West Central			
Canton	111,310	111,310	100.0
Foss	165,480	163,276	98.7
Regional Totals/Averages	276,790	274,586	99.2
Central			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,105	100.0
Thunderbird	119,600	118,520	99.1
Regional Totals/Averages	154,225	153,145	99.3
East Central			
Eufaula*	2,529,143	2,280,839	90.2
Tenkiller	654,100	634,727	97.0
Regional Totals/Averages	3,183,243	2,915,566	91.6
Southwest			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	92,527	69.7
Tom Steed	88,970	63,790	71.7
Regional Totals/Averages	301,810	73,685	24.4
South Central			
Arbuckle	72,400	72,400	100.0
McGee Creek	113,930	113,324	99.5
Texoma*	2,742,146	2,339,710	85.3
Waurika*	190,200	189,592	99.7
Regional Totals/Averages	3,118,676	2,715,026	87.1
Southeast			
Broken Bow*	958,180	876,751	91.5
Hugo*	198,067	190,097	96.0
Pine Creek*	71,120	68,479	96.3
Sardis	274,330	270,714	98.7
Wister	60,162	58,231	96.8
Regional Totals/Averages	1,561,859	1,464,272	93.8
State Totals	12,811,967	11,809,319	92.2

* 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



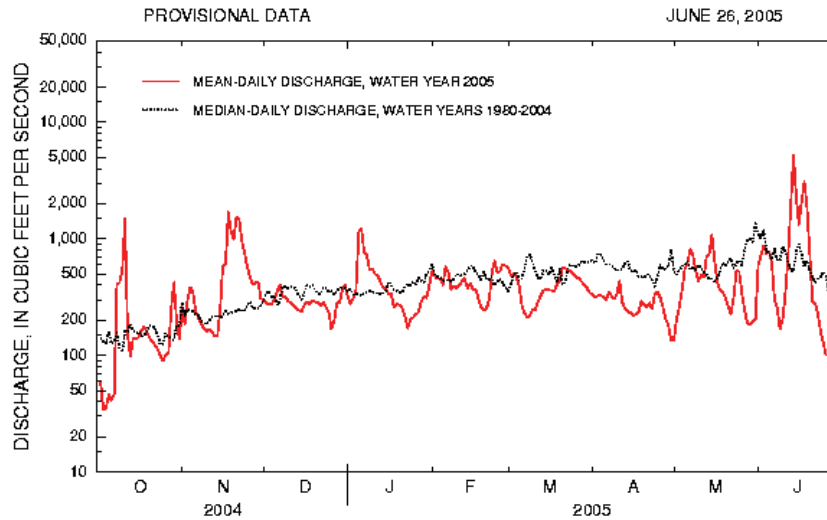
Comparison of daily discharges for water year 2005 and period of record for Baron Fork at Eldon, Oklahoma.

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

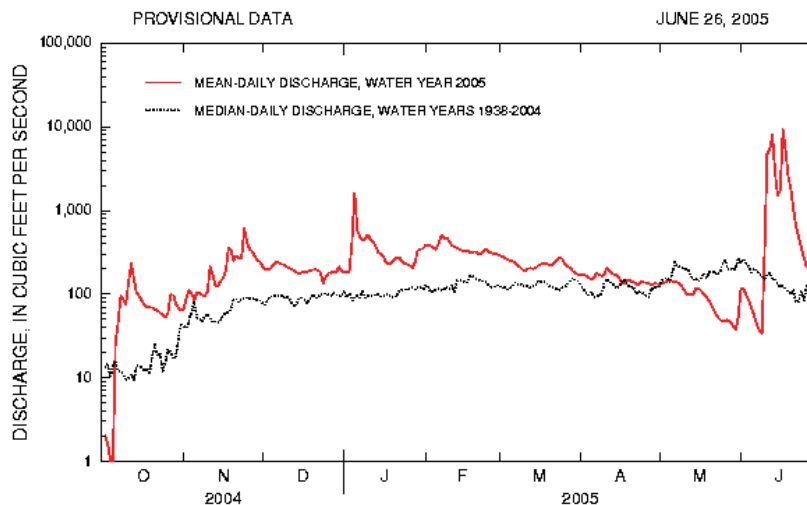
Cimarron River near Waynoka

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

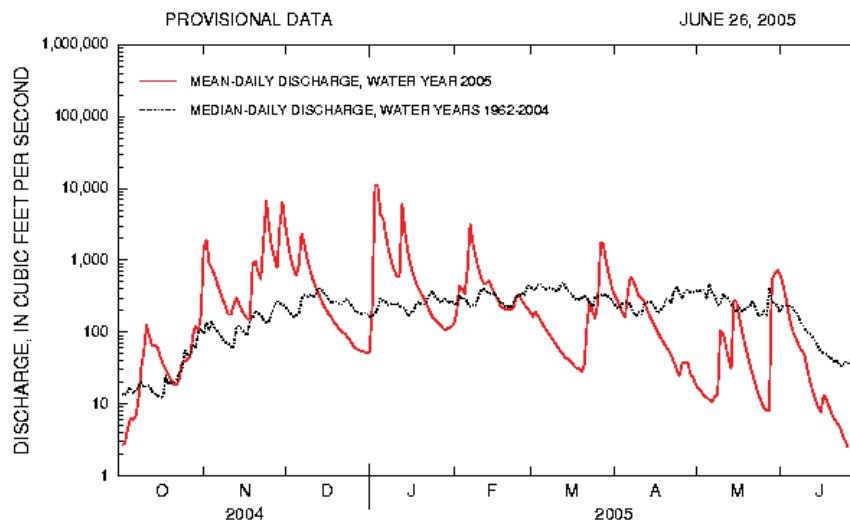
Glover River near Glover

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

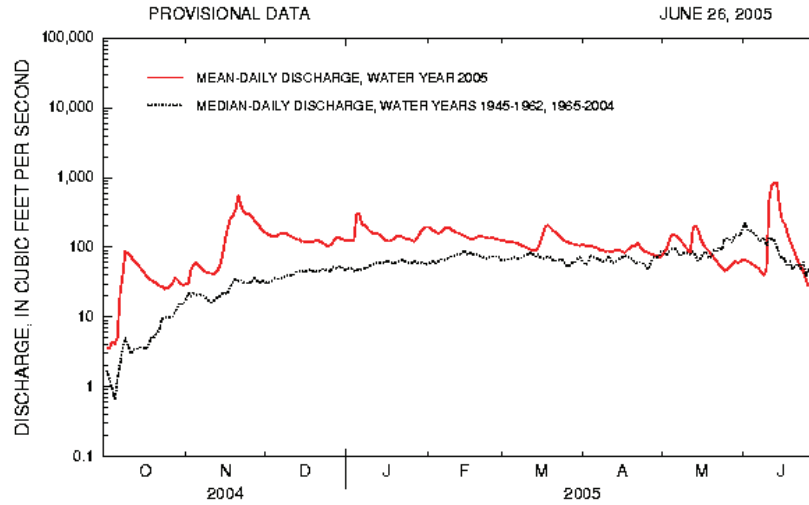
North Fork of the Red River near Carter

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

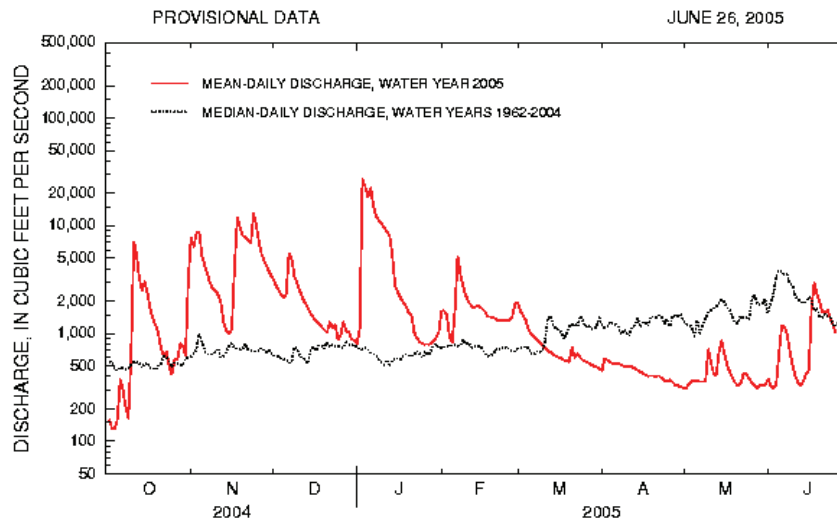
Washita River near Dickson

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