

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



November 24, 2004

Statewide Precipitation & General Summary

Recent rainfall has resulted in a surplus of moisture throughout 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 October 23 through November 21 (the last 30 days) is the Southeast climate division (5.02 inches, a surplus of 0.03 inches, 101 percent of normal).

Five regions have received at least twice their normal precipitation for the period. The current state-averaged rainfall total is 5.54 inches, 187 percent of normal.

For the calendar year, only the Southeast climate division is below average. The state-averaged rainfall total is 36.34 inches, 107 percent of normal.



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	CALENDAR YEAR JANUARY 1—NOVEMBER 21, 2004			LAST 30 DAYS OCTOBER 23—NOVEMBER 21, 2004		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	23.10	+3.02	115	2.67	+1.50	229
North Central	33.23	+3.50	112	4.45	+2.22	200
Northeast	41.99	+3.38	109	5.65	+2.07	158
West Central	33.95	+6.51	124	5.57	+3.62	285
Central	36.72	+1.59	105	6.07	+3.04	200
East Central	43.28	+1.46	103	7.90	+3.65	186
Southwest	33.42	+4.52	116	6.32	+4.24	304
South Central	40.00	+2.50	107	6.31	+2.91	185
Southeast	41.65	-3.70	92	5.02	+0.03	101
Statewide	36.34	+2.51	107	5.54	+2.58	187

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 (November 20, below), no regions in Oklahoma are currently experiencing drought conditions. In addition, none of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since October 23. The most modest increase occurred in the Southeast climate division.

The latest monthly Standardized Precipitation Index (through October, below) indicates only some moderate long-term dryness in 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 climate division reports "moderately dry" conditions over the past 24 and 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (November 22, 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 continue to improve. 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 October 25). Idabel, in Southeast Oklahoma, has the highest KBDI value (526). 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. Rains and higher humidity have temporarily reduced fire danger across Oklahoma. However, during the dormant season, dry, grassy fuels will still ignite easily and burn with surprising intensity.

Palmer Drought Severity Index					Standardized Precipitation Index Through October 2004			
CLIMATE DIVISION (#)	CURRENT STATUS 11/20/2004	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		11/20	10/23					
Northwest (1)	VERY MOIST SPELL	3.84	2.78	1.06	MODERATELY WET	NEAR NORMAL	MODERATELY WET	MODERATELY WET
North Central (2)	VERY MOIST SPELL	3.28	2.14	1.14	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	UNUSUAL MOIST SPELL	2.23	0.88	1.35	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
West Central (4)	VERY MOIST SPELL	3.28	1.67	1.61	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	UNUSUAL MOIST SPELL	2.53	1.20	1.33	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MOIST SPELL	1.56	0.28	1.28	NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET
Southwest (7)	UNUSUAL MOIST SPELL	2.82	0.95	1.87	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
South Central (8)	UNUSUAL MOIST SPELL	2.61	1.62	0.99	NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET
Southeast (9)	MOIST SPELL	1.17	0.50	0.67	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

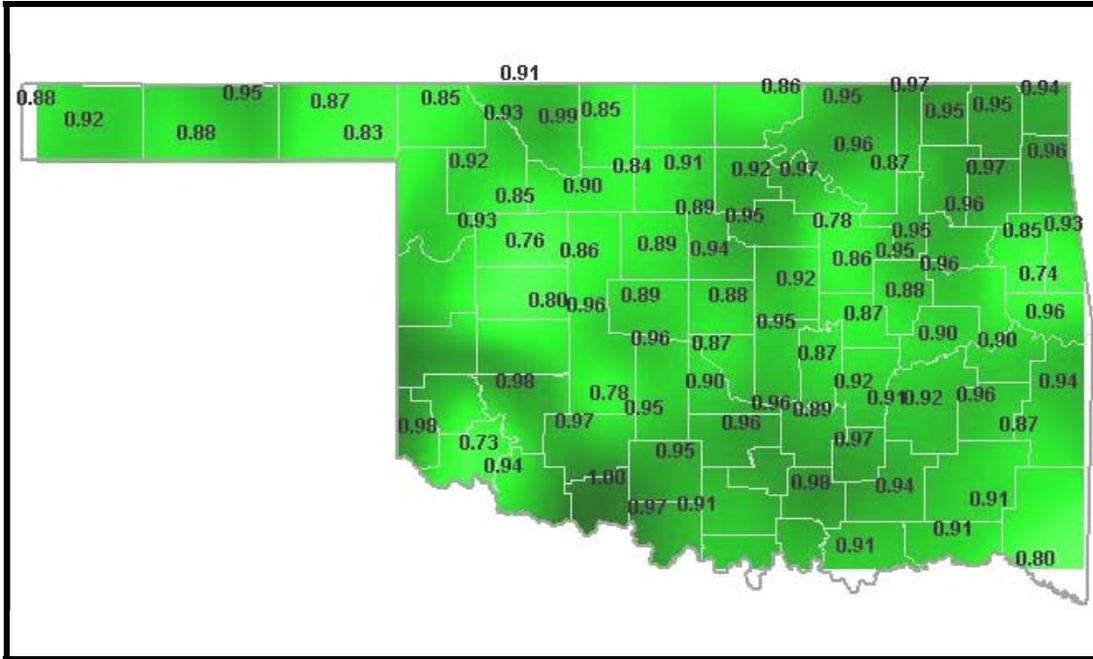
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 11/22/2004	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	526	<u>600-800</u> : often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn 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	313	
Buffalo	Harper	Northwest	185	

Total stations above 600 = 0

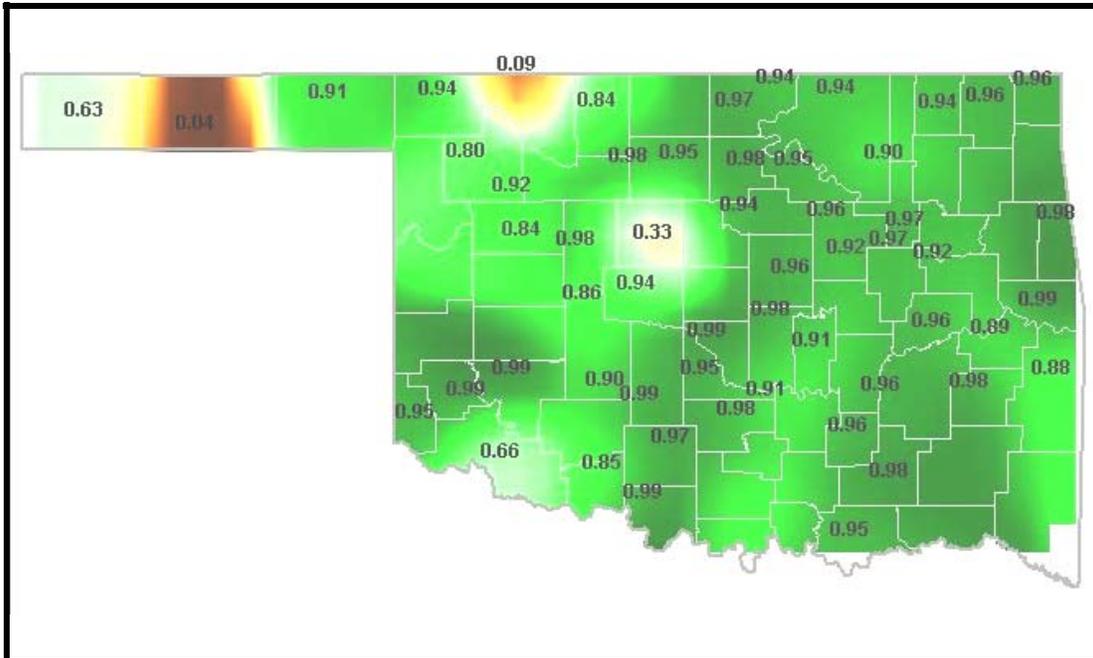
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**
November 21, 2004
(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



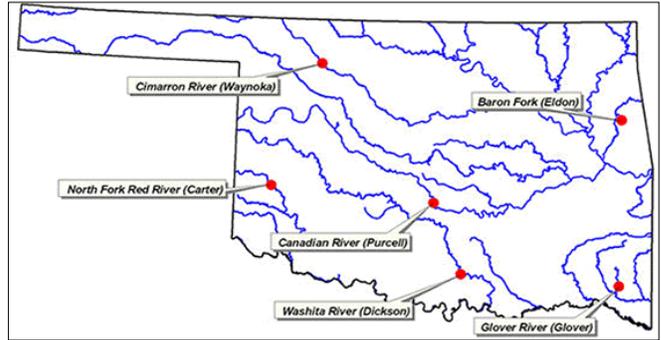
60 cm (~2 feet)



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 generally adequate. Considering overall trends as well as current flows, the most recent data (November 3, 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 *northeast* (Baron Fork, Cherokee County) Oklahoma; **near average flow** in the *south central* (Washita River, Carter County), *southeast* (Glover River, McCurtain County), and *northwest* (Cimarron River, Woods County); and **above average flow** in the *central* (Canadian River, McClain County) and *southwest* (North Fork/Red River, Beckham County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (November 30 to December 6) calls for above normal precipitation for all but northeastern Oklahoma, where normal rainfall is anticipated. Below 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 from July through October indicates 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

November 21 - Rains continued last week, leaving producers with only .6 days suitable for fieldwork. It was the third week in a row with limited days suitable for producers to work in the fields. Conditions this year were considerably wetter than last year when 56 percent of the topsoil was short or very short. This year, due to the continual rainfall last three weeks, topsoil moisture was 63 percent surplus, 36 percent adequate, and 1 percent short. Subsoil moisture was 27 percent surplus, 68 percent adequate, and 5 percent short.

Small grain planting and emergence made virtually no progress as fields were saturated. There was still about 5 percent of the wheat yet to be planted. All small grain conditions were mostly good. There were reports of yellowing of wheat due to the excessive moisture. Sunshine and dry temperatures are needed to improve small grain conditions.

Row crop activities were also limited with harvest brought almost to a stand still. Row crop progress for all crops was below last year and the five-year average. There were reports of many row crop acres ready to harvest but due to wet field conditions, producers were unable to get into the fields. Harvest of sorghum, soybeans and cotton all increased only one point to 68, 76 and 55 percent, respectively. Peanuts made a little more progress last week with 94 percent dug and 72 percent combined.

Alfalfa hay cutting was also affected by the weather and the fifth and sixth cuttings increased only one point. Hay supplies were still above average with the cold weather season beginning.

Producers were still holding many cattle back from the wheat fields due to the muddy conditions. Some producers were even pulling cattle off the wheat fields to keep small grain pasture damage to a minimum. Livestock conditions were in good to excellent condition with a light to average death loss reported. Pasture and range was in good to fair condition. Many of the stocker cattle were being turned onto the permanent pastures until the wheat pastures dry out.

Reservoir Storage

Lake storage in Oklahoma remains generally good, although lakes in the southwest continue to experience low levels. As of November 22, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.2 percent full, a 4.3 percent increase from that recorded on October 25, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only three reservoirs have experienced lake level decreases since that time and only eight reservoirs are currently operating at less than full capacity (compared to 24 last month). Two reservoirs—Lugert-Altus, only 29.2 percent full; and Tom Steed, 74.3 percent—remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs			
11/22/2004			
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*	406,540	406,540	100.0
Regional Totals/Averages	451,860	451,860	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	1,600,800	95.7
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	322,700	100.0
Regional Totals/Averages	3,710,194	3,638,994	98.1
West Central			
Canton	111,310	99,093	89.0
Foss	165,480	156,013	94.3
Regional Totals/Averages	276,790	255,106	92.2
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	78,336	97.9
Lugert-Altus	132,830	38,801	29.2
Tom Steed	88,970	66,122	74.3
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*	2,701,706	2,701,706	100.0
Waurika*	190,200	175,246	92.1
Regional Totals/Averages	3,078,236	3,063,282	99.5
Southeast			
Broken Bow*	918,070	918,070	100.0
Hugo*	184,917	176,403	95.4
Pine Creek*	53,750	53,750	100.0
Sardis	274,330	274,330	100.0
Wister	60,162	60,162	100.0
Regional Totals/Averages	1,491,229	1,482,715	99.4
State Totals	12,486,667	12,142,190	97.2

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

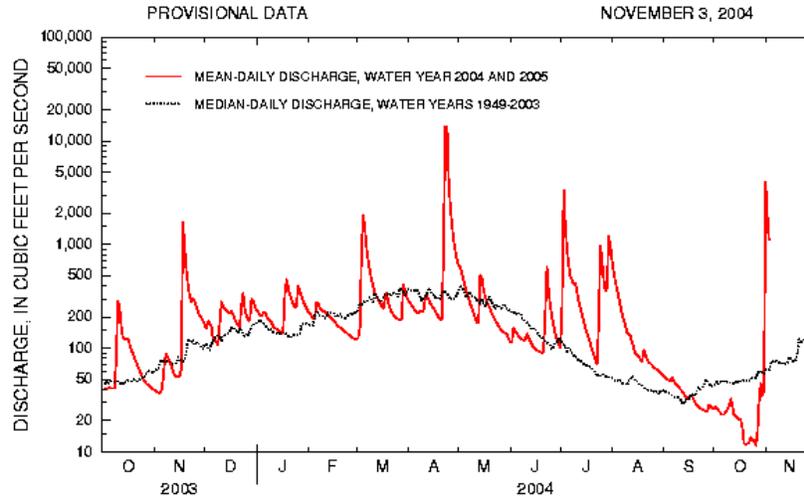
Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma

Station No. 07197000

Northeast Oklahoma

Drainage Area 307 square miles



Comparison of daily discharges for water year 2004 and 2005 and period of record for Baron Fork at Eldon, Oklahoma.

Data from U.S. Geological Survey

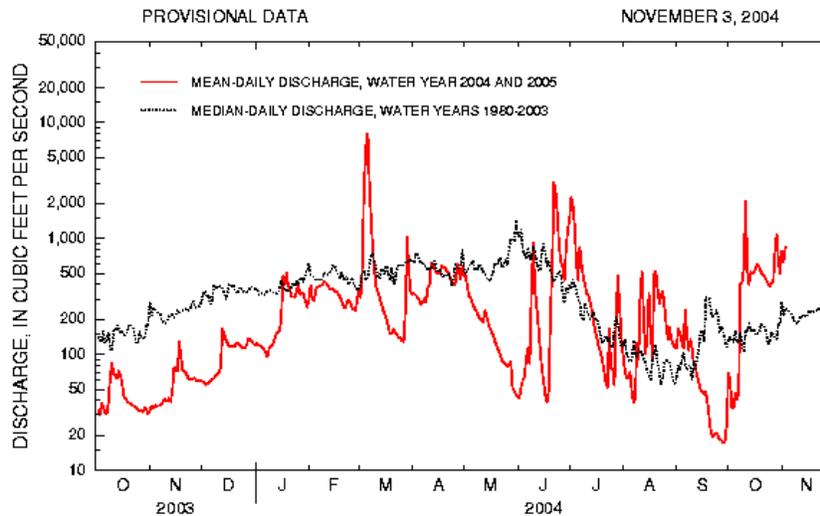
Canadian River at Purcell

Canadian River at Purcell, Oklahoma

Station No. 07229200

Central Oklahoma

Drainage Area 25,939 square miles



Comparison of daily discharges for water year 2004 and 2005 and period of record for Canadian River at Purcell, Oklahoma.

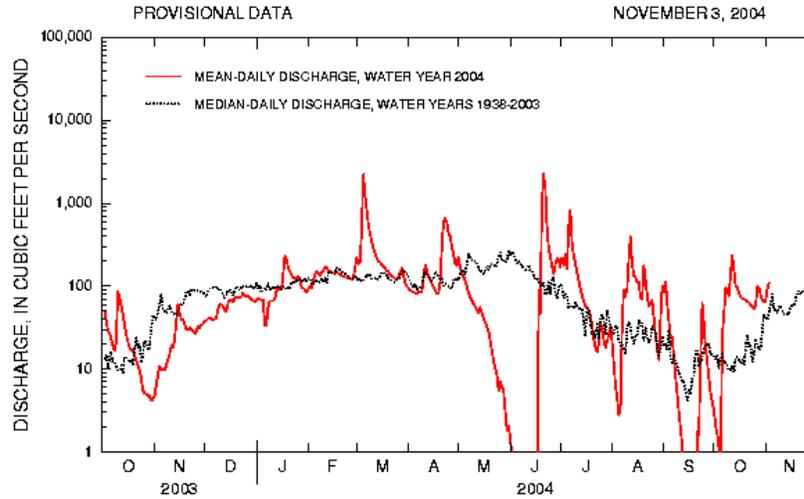
Data from U.S. Geological Survey

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 2004 and 2005 and period of record for Cimarron River near Waynoka, Oklahoma.

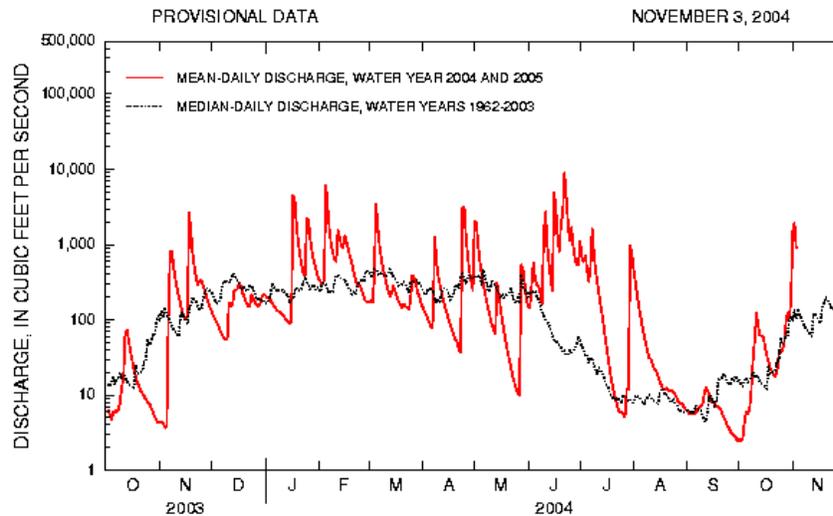
Data from U.S. Geological Survey

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 2004 and 2005 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

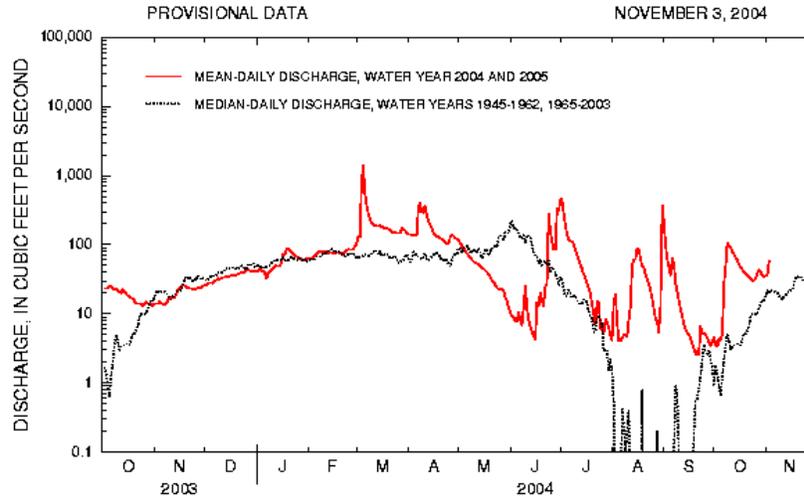
North Fork of the Red River near Carter

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 2004 and 2005 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

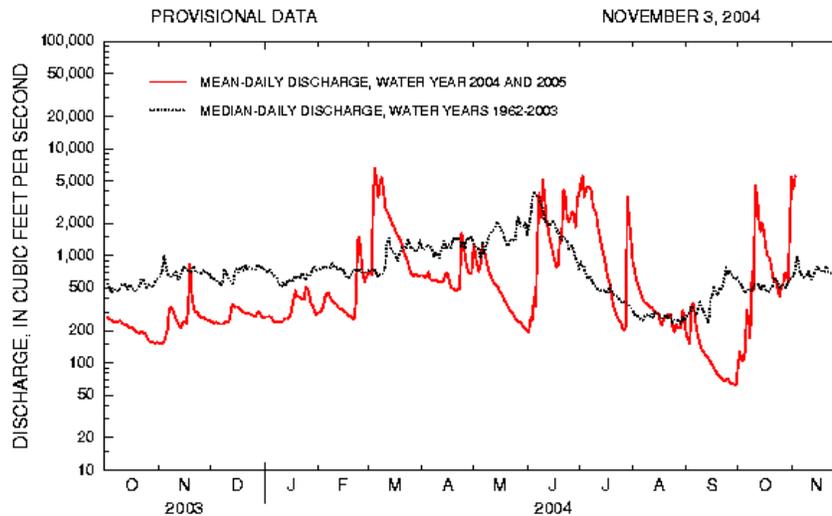
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2004 and 2005 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey