Oklahoma Water Resources Bulletin

& Summary of Current Conditions

November 30, 2005

Statewide Precipitation & General Summary

Much of Oklahoma remains very dry, especially over the past 30 days. 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 for the calendar year continues to be the Southeast climate division (18.43 inches below normal and only 60 percent of the average). The current state-averaged rainfall total is 26.69 inches—a deficit of 7.69 inches and 78 percent of normal.

Over the last 30 days (from October 29 through November 27), only meager rainfall has fallen in most areas. Eight climate divisions have received less than one-half of their expected normal rainfall over the period. Of particular, the West Central, Southwest, Central and East Central regions have all received less than 20 percent of normal precipitation. The state-averaged rainfall total for the period is only 0.76 inches—a deficit of 2.1 inches and 27 percent of normal.

Preliminary Statewide Precipitation
By Climate Division

DIVISION (#)	Calendar Year January 1— November 27, 2005			Last 30 Days October 29—November 27, 2005		
	Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal	Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal
Panhandle	18.66"	-1.63"	92%	0.68"	-0.41"	62%
North Central	26.37"	-3.77"	87%	1.00"	-1.13"	47%
Northeast	29.67"	-9.65"	75%	1.01"	-2.60"	28%
West Central	25.89"	-1.89"	93%	0.14"	-1.67"	8%
Central	28.45"	-7.25"	80%	0.39"	-2.49"	14%
East Central	29.59"	-13.09"	69%	0.82"	-3.46"	19%
Southwest	24.44"	-4.80"	84%	0.19"	-1.66"	10%
South Central	28.58"	-9.54"	75%	0.79"	-2.41"	25%
Southeast	27.93"	-18.43"	60%	1.95"	-3.09"	39%
Statewide	26.69"	-7.69"	78%	0.76"	-2.10"	27%

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 26, below), state drought conditions continue to worsen. The Southeast is now in "severe drought" while the East Central and Northeast climate divisions are in "moderate drought." In addition, South Central Oklahoma is now in the "mild drought" category. All nine Oklahoma climate divisions have undergone PDSI moisture decreases since November 5.

The latest monthly Standardized Precipitation Index (through October, below) reflects increasingly dry conditions in southern and eastern areas of Oklahoma. In particular, among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **"extremely dry" conditions are present in Southeast Oklahoma over the past 9 months**. Also, "very dry" conditions persist in Southeast and East Central Oklahoma over various time periods within the past 9 months. Considering longer periods (through six years), the Southeast climate division reports "very dry" conditions over the past 36 months as well as "moderately dry" conditions over the 15-, 24- and 30-month periods. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (November 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 continue to be of concern, especially in eastern Oklahoma. Statewide, 9 Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (6 stations had a reading above 600 on November 7). Webbers Falls, in east central Oklahoma, retains the highest KBDI value (646). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 4 (high fire danger). **On November 15, Gov. Henry issued a Burning Ban for all counties in Oklahoma.** Extended dry conditions and high winds have increased the fire danger throughout the state. Dry vegetation will ignite easily and burn with surprising intensity.

Palmer Drought Severity Index / Standardized Precipitation Index (Through October 2005)

Climate Division (#)	Current Status 11/26/2005	Value 11/26	Value 11/5	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	NEAR NORMAL	0.12	1.01	**-0.89**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	INCIPIENT MOIST SPELL	0.80	1.72	**-0.92**	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	MODERATELY WET
Northeast (3)	MODERATE DROUGHT	-2.02	-1.48	**-0.54**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.95	2.03	**-1.08**	MODERATELY WET	MODERATELY WET	NEAR NORMAL	MODERATELY WET
Central (5)	INCIPIENT DROUGHT	-0.98	-0.10	**-0.88**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MODERATE DROUGHT	-2.85	-2.55	**-0.30**	MODERATELY DRY	VERY DRY	VERY DRY	NEAR NORMAL
Southwest (7)	NEAR NORMAL	-0.13	1.05	**-1.18**	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MILD DROUGHT	-1.70	-0.35	**-1.35**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Southeast (9)	SEVERE DROUGHT	-3.25	-2.91	**-0.34**	VERY DRY	VERY DRY	EXTREMELY DRY	MODERATELY DRY

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 11/28/2005
Webbers Falls	Muskogee	East Central	646
Eufaula	McIntosh	East Central	642
McAlester	Pittsburg	East Central	641

Total stations above 600 = 9

Anticipated Impact

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.

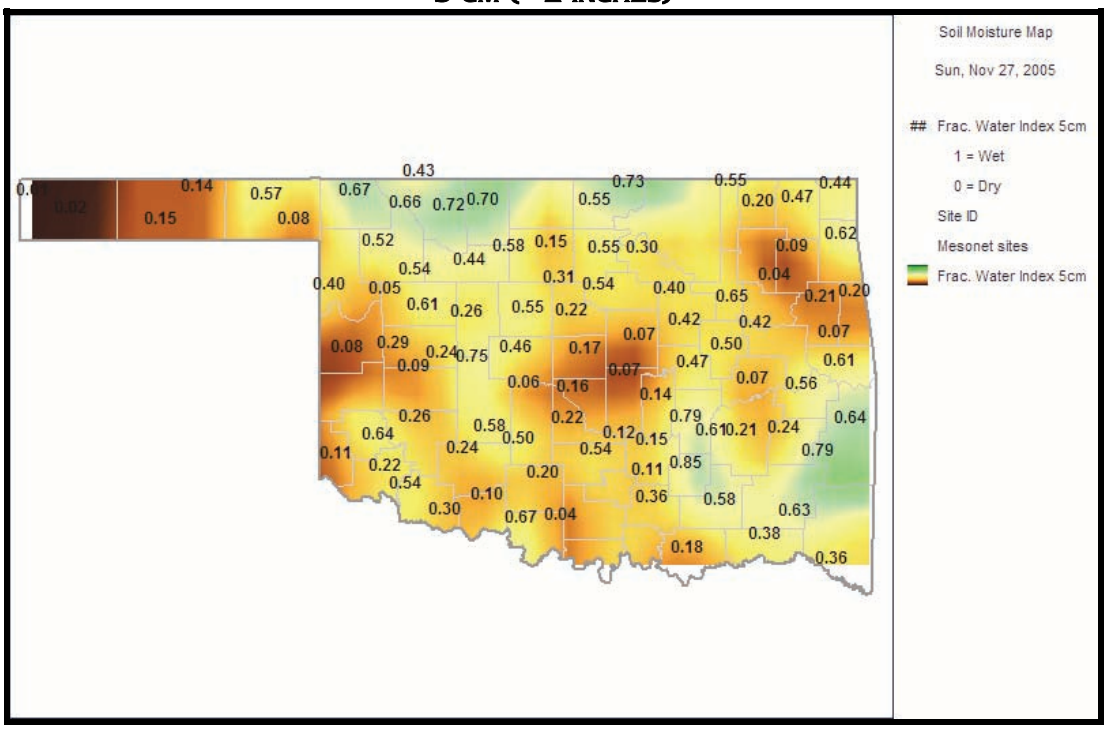
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

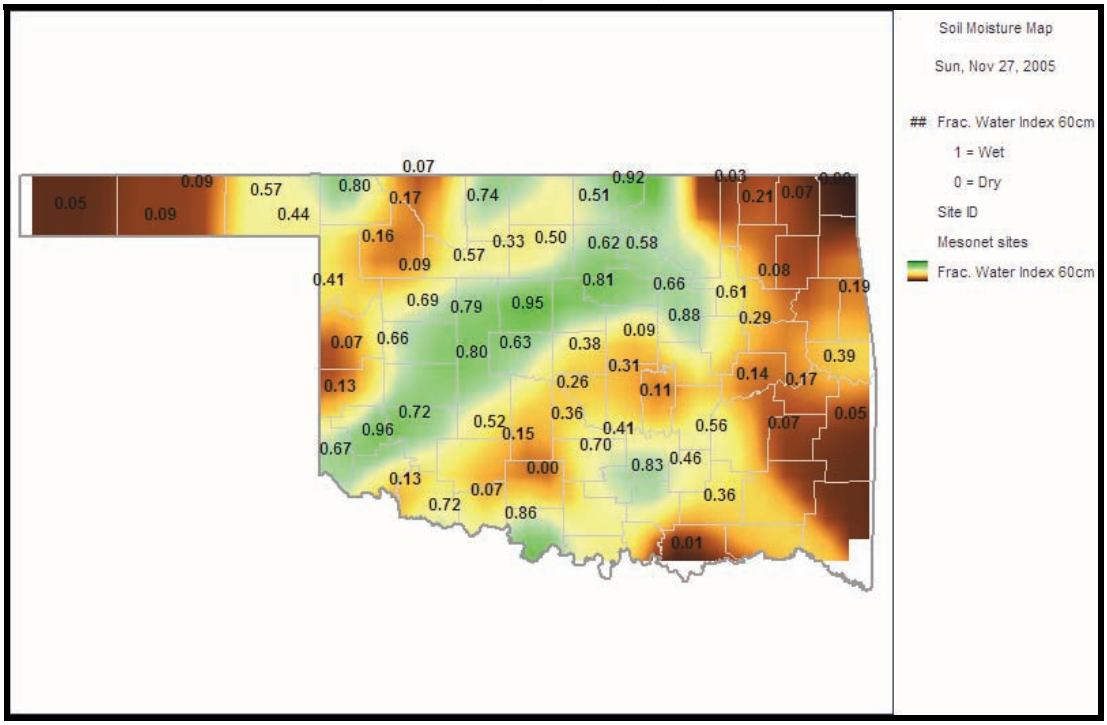
November 27, 2005

(Courtesy Oklahoma Climatological Survey)

5 cm (~2 inches)



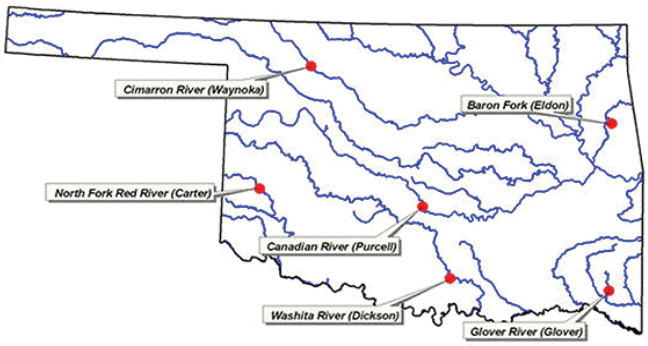
60 cm (~2 feet)



FWI Value	Soil Wetness Conditions		
1.0 – 0.8	Enhanced Growth (~Field Capacity)	0.5 – 0.3	Plants Dying
0.8 – 0.5	Limited Growth	< 0.1	Barren Soil

Streamflow Conditions

Flows in many state rivers and streams are generally below normal due to the recent dry conditions; streamflow in southern and eastern Oklahoma is of particular concern. Considering overall trends as well as current flows, the most recent data (November 22, 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) and *central* (Canadian River, McClain County) Oklahoma; **below average flow** in the *south central* (Washita River, Carter County) and *northeast* (Baron Fork, Cherokee County) regions; and **near average flow** in *southwest* (North Fork/Red River, Beckham County) and *northwest* (Cimarron River, Woods County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (December 6-12) calls for below normal precipitation. Below normal temperatures are expected for the eastern two-thirds Oklahoma while normal temperatures should prevail in the west throughout the period.

Although much uncertainty exists, a majority of the statistical and coupled model forecasts indicate that near neutral El Niño Southern Oscillation (ENSO) conditions will continue throughout the next six to nine 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

November 28 – Ninety-one percent of the state reported topsoil moisture as very short to short last week, leaving a mere 9 percent of the state reporting adequate moisture conditions. Subsoil moisture was also extremely low as three-quarters of the state was reported to be very short to short. The excessively dry conditions and the multitude of wind advisories across Oklahoma over the weekend led to a large number of native pasture acres being lost to wildfires. There were 6.5 days suitable for field work last week.

The wheat condition dropped to mostly fair over the week joining rye and oats that have remained in that category for more than three weeks now. Wheat emergence inched even closer to completion while oat emergence increased 1 point to 62 percent complete. Oats seedbeds prepared and planted struggled to progress at only 94 and 67 percent completed, respectively.

Row crop harvest continued to advance in the dry conditions. Sorghum and soybean harvest were virtually complete at 93 and 97 percent, respectively. Cotton harvest jumped 5 points to 71 percent complete. Although cotton harvest was slightly behind normal, it was 15 points ahead of this time last year.

Alfalfa conditions were rated as mostly good to fair. The sixth cutting of alfalfa reached 70 percent, with progress slowed due to the extremely dry conditions.

Pastures conditions were mostly fair to good. Statewide, hay supplies for the rest of the season remained mostly average. However, east central and southeast Oklahoma reported hay supplies at 84 and 86 percent below average, respectively.

Livestock conditions were mostly good. Livestock marketings were rated as average. Death loss of cattle was mostly light. Livestock insect activity was none to light.

Reservoir Storage

Lake storage is becoming a concern in some areas of Oklahoma, especially in the east. As of November 28, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 85.7 percent full, a 1.5 percent decrease from that recorded on November 7, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-seven reservoirs have experienced lake level decreases since that time; 28 reservoirs are currently operating at less than full capacity (compared to 28 three weeks ago). Nine reservoirs—including Lugert-Altus, only 37.3 percent full—are now below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
11/28/2005

Climate Division / *Lake or Reservoir*	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Conservation Storage*
North Central			
Fort Supply	13,900	13,644	98.2
Great Salt Plains	31,420	31,420	100.0
Kaw*	397,126	397,126	100.0
Regional Totals/Averages	**442,446**	**442,190**	**99.9**
Northeast			
Birch	19,225	14,061	73.1
Copan	39,146	32,864	84.0
Fort Gibson	365,200	358,842	98.3
Grand	1,672,000	1,484,341	88.8
Hudson	200,300	172,547	86.1
Hulah	28,115	22,042	78.4
Keystone	510,059	434,879	85.3
Oologah	573,766	533,504	93.0
Skiatook	322,700	278,016	86.2
Regional Totals/Averages	**3,730,511**	**3,331,096**	**89.3**
West Central			
Canton	111,310	106,988	96.1
Foss	165,480	153,098	92.5
Regional Totals/Averages	**276,790**	**260,086**	**94.0**
Central			
Arcadia	27,520	26,861	97.6
Heyburn	7,105	6,429	90.5
Thunderbird	119,600	104,060	87.0
Regional Totals/Averages	**154,225**	**137,350**	**89.1**
East Central			
Eufaula*	2,314,583	1,772,110	76.6
Tenkiller	654,100	515,588	78.8
Regional Totals/Averages	**2,968,683**	**2,287,698**	**77.1**
Southwest			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	49,550	37.3
Tom Steed	88,970	64,631	72.6
Regional Totals/Averages	**301,810**	**194,191**	**64.3**
South Central			
Arbuckle	72,400	70,242	97.0
McGee Creek	113,930	103,261	90.6
Texoma*	2,701,706	2,470,700	91.4
Waurika*	190,200	181,297	95.3
Regional Totals/Averages	**3,078,236**	**2,825,500**	**91.8**
Southeast			
Broken Bow*	918,070	720,874	78.5
Hugo*	184,917	125,784	68.0
Pine Creek*	53,750	46,097	85.8
Sardis	274,330	249,418	90.9
Wister	60,162	39,592	65.8
Regional Totals/Averages	**1,491,229**	**1,181,765**	**79.2**
State Totals	**12,443,930**	**10,659,876**	**85.7**

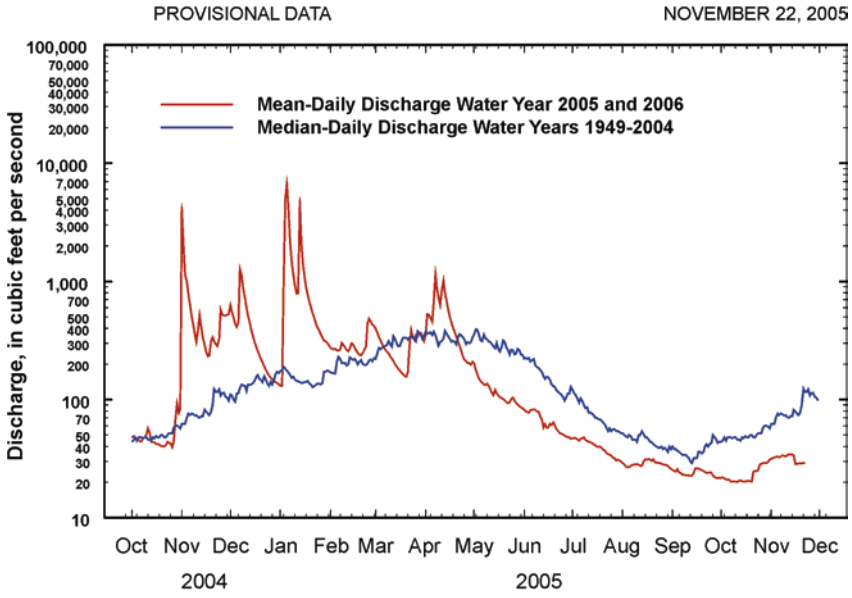
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2006 and period of record

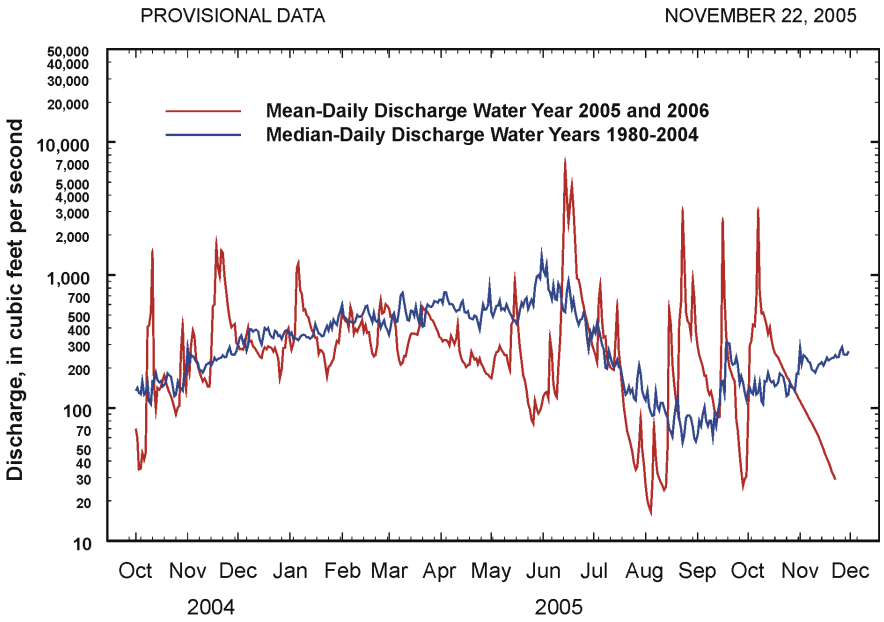
Data from U.S. Geological Survey

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 2006 and period of record

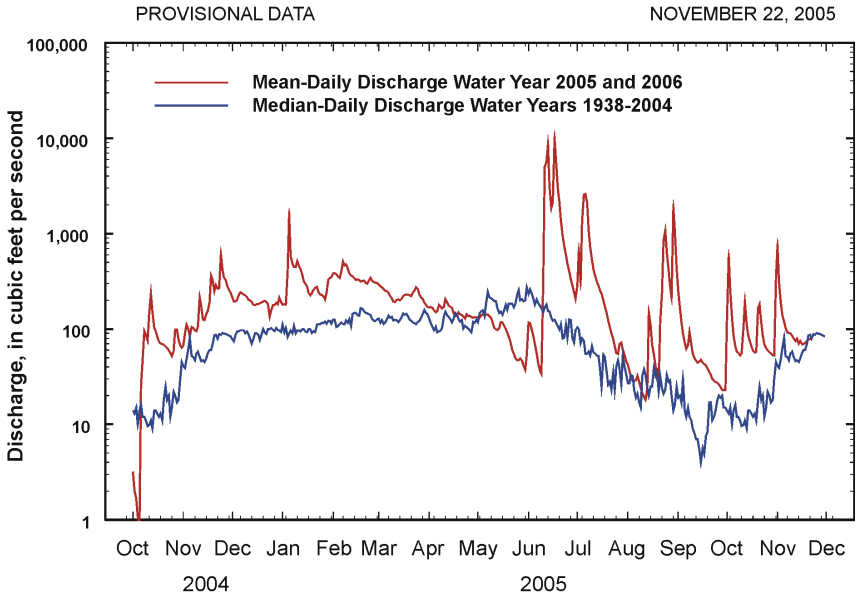
Data from U.S. Geological Survey

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 2006 and period of record

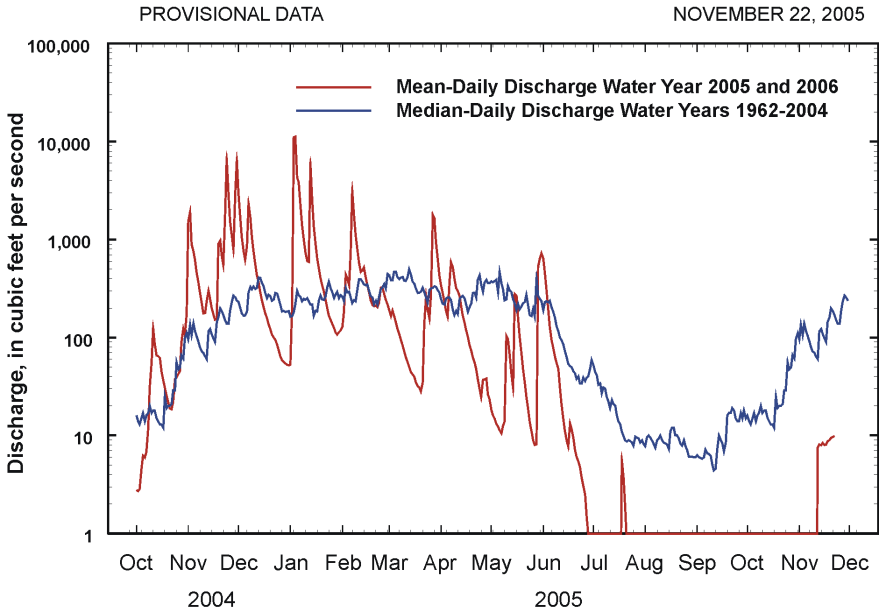
Data from U.S. Geological Survey

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 2006 and period of record

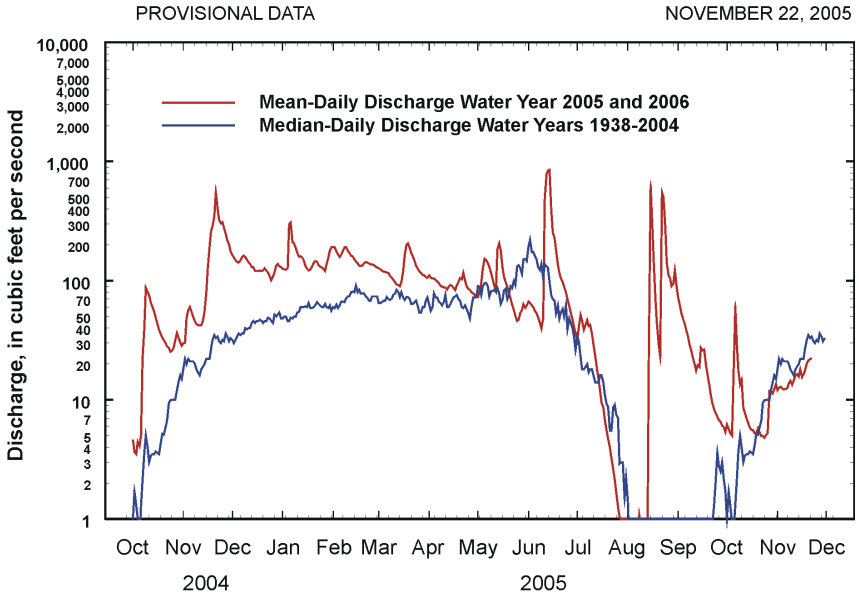
Data from U.S. Geological Survey

North Fork of the Red River near Carter

North Fork of the 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 2006 and period of record

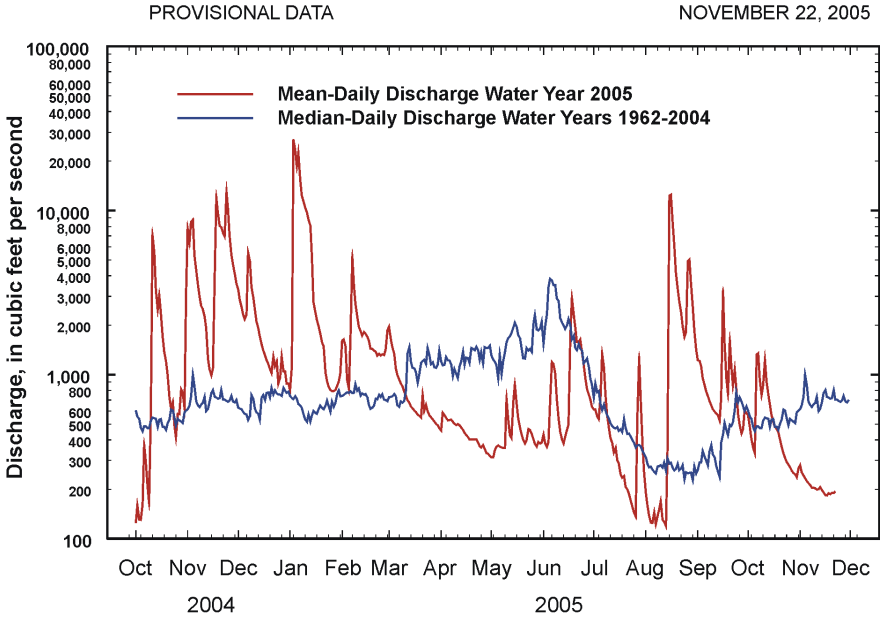
Data from U.S. Geological Survey

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 2006 and period of record

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