

# Oklahoma Water Resources Bulletin

## & Summary of Current Conditions

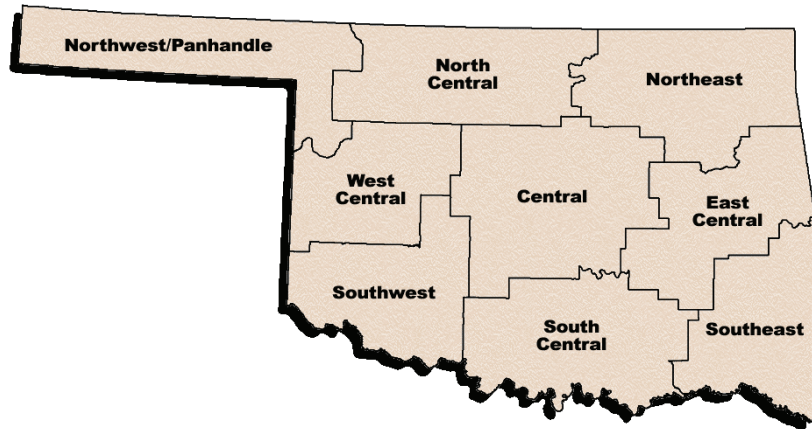


January 4, 2006

### Statewide Precipitation & General Summary

Much of Oklahoma remains very 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 for the extended calendar year continues to be the Southeast climate division (22.95 inches below normal and only 55 percent of the average). The current state-averaged rainfall total is 26.93 inches—a deficit of 9.85 inches and 73 percent of normal.

Over the last 30 days (from December 4 through January 2), the state has experienced very little rainfall. Seven climate divisions have received 18 percent or less of their expected normal rainfall over the period. The state-averaged rainfall total for the period is only 0.24 inches—a deficit of 1.68 inches and 12 percent of normal.



**Preliminary Statewide Precipitation  
By CLIMATE DIVISION**

DIVISION (#)	Calendar Year JANUARY 1, 2005—JANUARY 2, 2006			LAST 30 DAYS DECEMBER 4, 2005—JANUARY 2, 2006		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	18.82	-2.31	89	0.15	-0.51	23
North Central	26.60	-5.11	84	0.22	-1.01	18
Northeast	30.07	-12.00	71	0.40	-1.76	18
West Central	26.18	-2.97	90	0.29	-0.80	27
Central	28.62	-9.46	75	0.17	-1.73	9
East Central	29.86	-16.36	65	0.28	-2.55	10
Southwest	24.62	-6.25	80	0.18	-1.14	13
South Central	28.83	-12.25	70	0.26	-2.15	11
Southeast	28.17	-22.95	55	0.23	-3.63	6
<b>Statewide</b>	<b>26.93</b>	<b>-9.85</b>	<b>73</b>	<b>0.24</b>	<b>-1.68</b>	<b>12</b>

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 (December 31, below), state drought conditions continue to worsen. Both the Southeast and East Central climate divisions remain in “severe drought” while the Northeast and South Central regions are in “moderate drought.” In addition, Central and Southwest Oklahoma are in the “mild drought” category. All of Oklahoma’s nine climate divisions have undergone PDSI moisture decreases since December 17.

The latest monthly Standardized Precipitation Index (through November, below) reflects increasingly dry conditions throughout much of Oklahoma, especially in the east. In particular, among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **“extremely dry” conditions are present in East Central (3- and 6-month periods) and Southeast (6, 9 and 12 months) Oklahoma.** “Very dry” conditions also persist in those regions as well as in the Northeast, Central, and South Central climate divisions over various time periods within the past 12 months. Considering longer periods (through six years), the Southeast and East Central climate divisions report long-term “very dry” and “moderately dry” conditions over multiple time periods during the past 48 months. [SPI updates are available around the 10<sup>th</sup> of each month.]

The latest Keetch-Byram Drought Index (January 3, 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, 8 Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (9 stations had a reading above 600 on December 21). Webbers Falls, in east central Oklahoma, retains the highest KBDI value (655). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness remains at Level 4 (high fire danger). **Gov. Henry’s Burning Ban continues 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. Due to unusually dry conditions, more than 360,000 acres have burned in Oklahoma in the past two months and more than 200 homes and businesses have been destroyed.

Palmer Drought Severity Index					Standardized Precipitation Index Through November 2005			
CLIMATE DIVISION (#)	CURRENT STATUS 12/31/2005	VALUE 12/31 12/17		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	NEAR NORMAL	0.06	0.60	-0.54	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	NEAR NORMAL	-0.17	0.45	-0.62	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MODERATE DROUGHT	-2.39	-2.19	-0.20	VERY DRY	NEAR NORMAL	VERY DRY	MODERATELY DRY
West Central (4)	NEAR NORMAL	-0.30	0.21	-0.51	NEAR NORMAL	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Central (5)	MILD DROUGHT	-1.45	-1.19	-0.26	VERY DRY	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
East Central (6)	SEVERE DROUGHT	-3.35	-3.13	-0.22	EXTREMELY DRY	VERY DRY	EXTREMELY DRY	VERY DRY
Southwest (7)	MILD DROUGHT	-1.18	-0.66	-0.52	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MODERATE DROUGHT	-2.21	-1.93	-0.28	VERY DRY	NEAR NORMAL	VERY DRY	MODERATELY DRY
Southeast (9)	SEVERE DROUGHT	-3.90	-3.58	-0.32	VERY DRY	EXTREMELY DRY	EXTREMELY DRY	EXTREMELY DRY

### Keetch-Byram DROUGHT FIRE INDEX

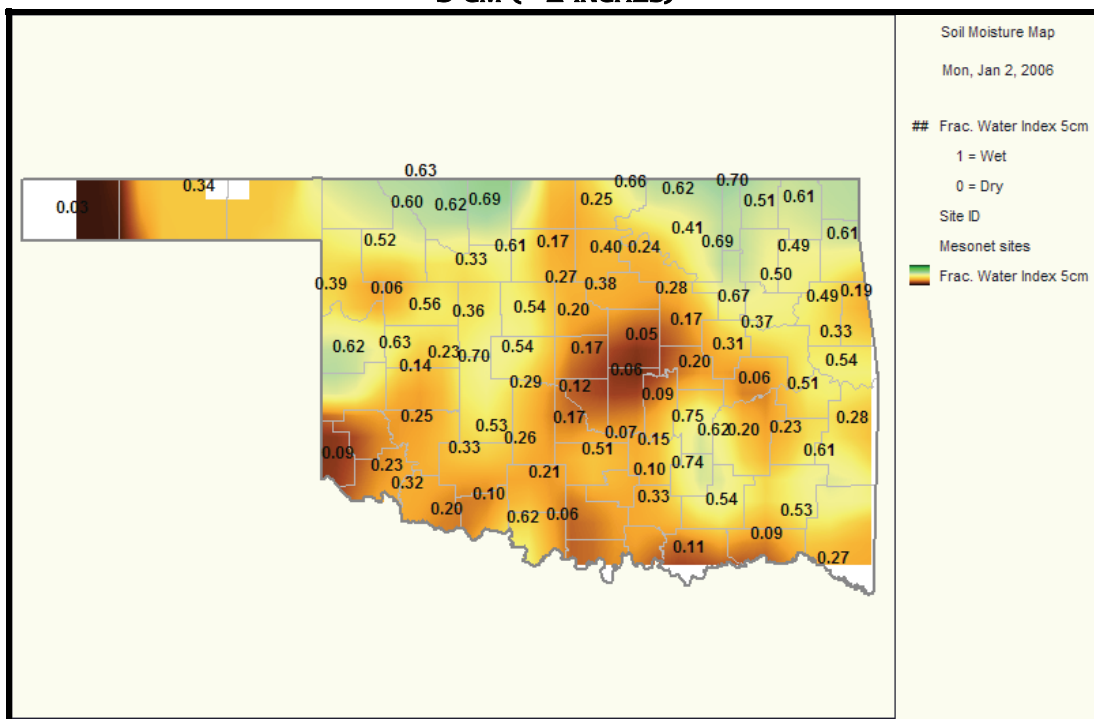
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 1/3/2006	ANTICIPATED IMPACT
Webbers Falls	Muskogee	East Central	655	<b>600-800:</b> often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively. <b>400-600:</b> lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Eufaula	McIntosh	East Central	653	
McAlester	Pittsburg	East Central	653	

Total stations above 600 = 8

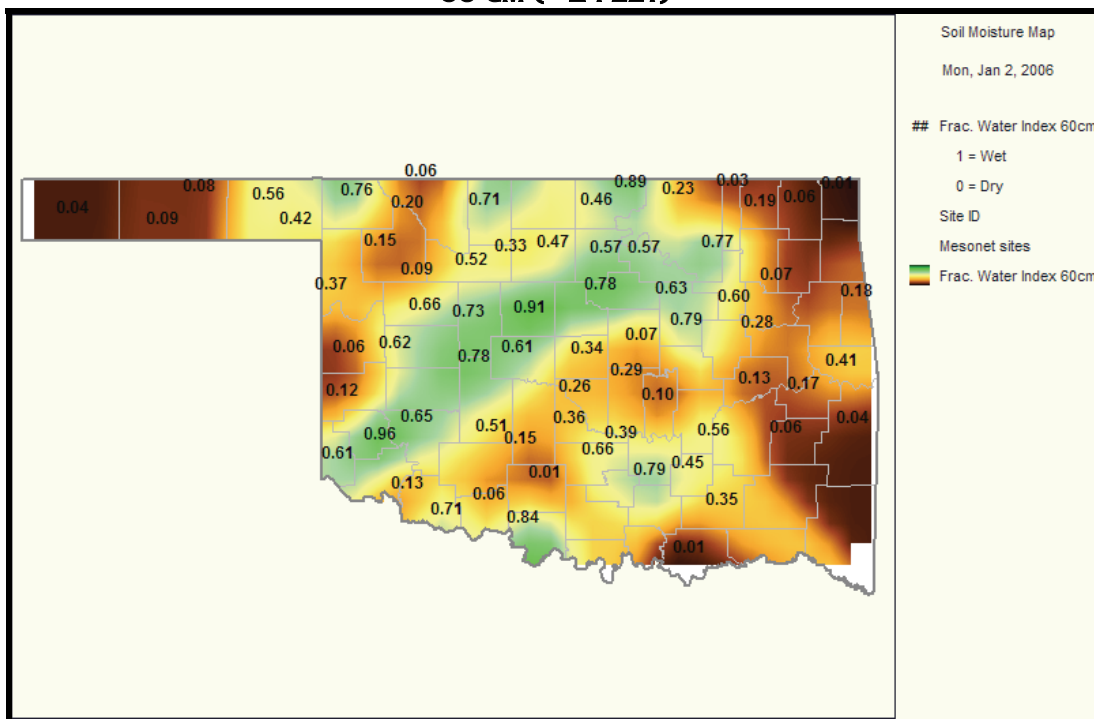
*The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**  
January 2, 2006  
(Courtesy Oklahoma Climatological Survey)

**5 CM (~2 INCHES)**



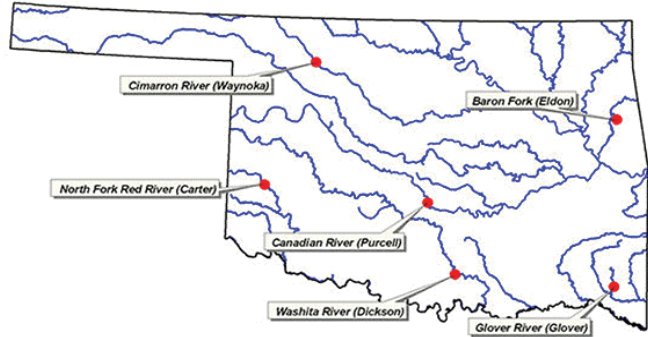
**60 CM (~2 FEET)**



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 remain generally below normal due to the recent dry conditions. Considering overall trends as well as current flows, the most recent data (January 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, 2004, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *southeast* (Glover River, McCurtain County) and *northeast* (Baron Fork, Cherokee County) Oklahoma; **below average flow** in the *south central* (Washita River, Carter County) and *central* (Canadian River, McClain 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 (January 11-17) calls for below normal precipitation and above normal temperatures for all of Oklahoma.

Although much uncertainty exists, a majority of the statistical and coupled model forecasts indicate either continuation of near neutral El Niño Southern Oscillation (ENSO) conditions or development of weak La Niña conditions in the near future. El Niños, warm water patterns that increase the chances for cooler, wetter conditions in the southern U.S. (including Oklahoma), occur about every two to seven years. La Niña is a cold-water phenomenon that is generally believed to cause drier conditions throughout the western U.S.

### Crop Report

January 3 – Lack of rain, above normal temperatures, and high winds during December caused moisture supplies to plummet. Ponds were drying up due to the lack of rain. This, combined with poor wheat pasture conditions, was forcing some producers to sell some of their cattle. Wildfires caused by the drought conditions were also taking a toll on pastures, hay supplies and livestock. Ninety-seven percent of Oklahoma reported topsoil moisture as very short to short last week, leaving only 3 percent of the state reporting adequate moisture conditions. Subsoil moisture was 9 percent adequate, 25 percent short and 66 percent very short.

The extreme dry weather has made a negative impact on small grains. The continued dry weather and high winds have further delayed any new growth on wheat and rye pastures. Although 53 percent of the wheat ranged from fair to good condition, just under half of the wheat was in very poor to poor condition. This was a 29 point drop since the last condition report on November 28. Oats and rye took similar drops with 79 percent of the oats and 51 percent of the rye being in very poor to poor condition. Winter wheat grazed was at 29 percent, down significantly from last year at 50 percent and slightly below the five-year average at 31 percent. Rye grazed was at 58 percent, up from the normal of 44 percent, but down from last year at 65 percent.

Pastures dropped to mostly fair to poor condition due to the unseasonably warm temperatures and limited rainfall. Preliminary reports indicate that nearly 300,000 acres have burned since November 1, 2005. Livestock grazing on wheat pastures has been limited in some areas due to lack of forage growth and not having rooted-down plants. Pasture and range conditions were at 1 percent excellent, 14 percent good, 31 percent fair, 28 percent poor and 26 percent very poor.

Livestock conditions also deteriorated from 82 percent good on November 28 to 19 percent good on December 31. They were still in mostly fair condition. Forage supplies for cattle have been depleted in many pastures due to the lack of any regrowth. Fewer cattle were grazing on small grain pastures due to the decline of wheat conditions. The death loss of cattle was light to average. Hay supplies were rated as mostly average.

### Reservoir Storage

Lake storage continues to be of concern in many areas of Oklahoma, especially in the east. As of January 3, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 84.6 percent full, a 0.1 percent increase from that recorded on December 19, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-one reservoirs have experienced lake level decreases since that time; 27 reservoirs are currently operating at less than full capacity (compared to 28 two weeks ago). Thirteen reservoirs—including Lugert-Altus, only 38.5 percent full—are now below 80 percent capacity.

<b>Storage in Selected Oklahoma Lakes &amp; Reservoirs</b>			
<b>01/03/2006</b>			
<b>Climate Division</b>	<b>Conservation Storage (acre-feet)</b>	<b>Present Storage (acre-feet)</b>	<b>Percent of Conservation Storage</b>
<b>Lake or Reservoir</b>			
<b>North Central</b>			
Fort Supply	13,900	13,474	96.9
Great Salt Plains	31,420	31,420	100.0
Kaw*	448,531	448,531	100.0
<b>Regional Totals/Averages</b>	<b>493,851</b>	<b>493,425</b>	<b>99.9</b>
<b>Northeast</b>			
Birch	19,225	13,572	70.6
Copan	45,983	33,271	72.4
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,494,000	89.4
Hudson	200,300	159,610	79.7
Hulah	34,896	21,286	61.0
Keystone	510,059	405,231	79.4
Oologah	616,690	531,378	86.2
Skiatook	322,700	268,274	83.1
<b>Regional Totals/Averages</b>	<b>3,787,053</b>	<b>3,291,822</b>	<b>86.9</b>
<b>West Central</b>			
Canton	111,310	100,950	90.7
Foss	165,480	151,941	91.8
<b>Regional Totals/Averages</b>	<b>276,790</b>	<b>252,891</b>	<b>91.4</b>
<b>Central</b>			
Arcadia	27,520	26,808	97.4
Heyburn	7,105	6,208	87.4
Thunderbird	119,600	101,365	84.8
<b>Regional Totals/Averages</b>	<b>154,225</b>	<b>134,381</b>	<b>87.1</b>
<b>East Central</b>			
Eufaula*	2,314,583	1,721,474	74.4
Tenkiller	654,100	510,901	78.1
<b>Regional Totals/Averages</b>	<b>2,968,683</b>	<b>2,232,375</b>	<b>75.2</b>
<b>Southwest</b>			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	51,114	38.5
Tom Steed	88,970	62,318	70.0
<b>Regional Totals/Averages</b>	<b>301,810</b>	<b>193,442</b>	<b>64.1</b>
<b>South Central</b>			
Arbuckle	72,400	69,122	95.5
McGee Creek	113,930	101,446	89.0
Texoma*	2,511,223	2,353,574	93.7
Waurika*	190,200	176,739	92.9
<b>Regional Totals/Averages</b>	<b>2,887,753</b>	<b>2,700,881</b>	<b>93.5</b>
<b>Southeast</b>			
Broken Bow*	918,070	705,785	76.9
Hugo*	184,917	121,820	65.9
Pine Creek*	53,750	41,614	77.4
Sardis	274,330	246,246	89.8
Wister	60,162	37,134	61.7
<b>Regional Totals/Averages</b>	<b>1,491,229</b>	<b>1,152,599</b>	<b>77.3</b>
<b>State Totals</b>	<b>12,361,394</b>	<b>10,451,816</b>	<b>84.6</b>

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

**Baron Fork at Eldon**

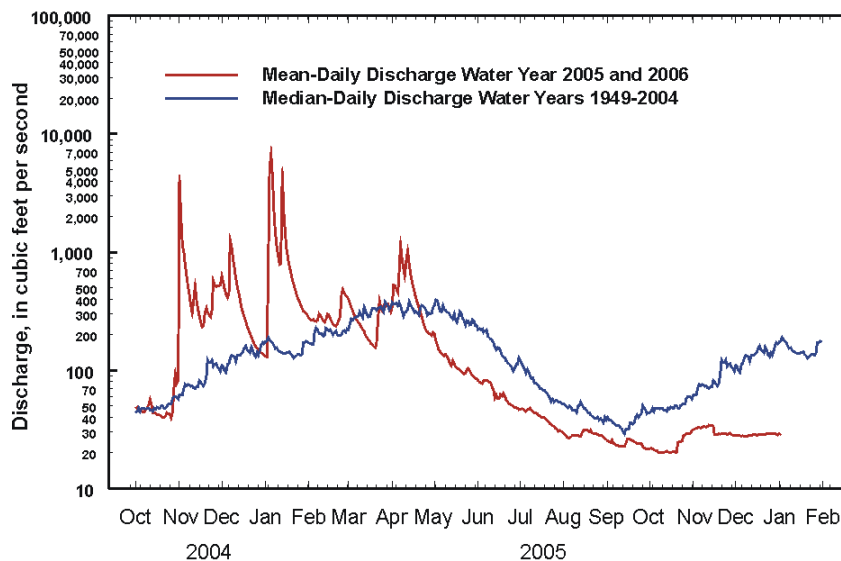
*Baron Fork at Eldon, Oklahoma*

Station No. 07197000 Northeast Oklahoma

Drainage Area 307 square miles

PROVISIONAL DATA

JANUARY 03, 2006



*Comparison of daily discharges for water year 2005 and 2006 and period of record*

*Data from U.S. Geological Survey*

**Canadian River at Purcell**

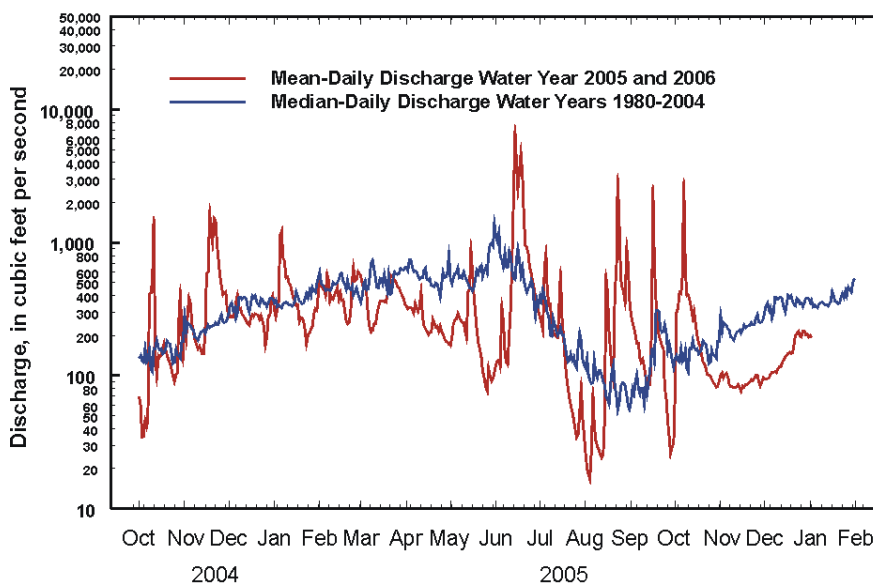
*Canadian River at Purcell, Oklahoma*

Station No. 07229200 Central Oklahoma

Drainage Area 25,939 square miles

PROVISIONAL DATA

JANUARY 03, 2006



*Comparison of daily discharges for water year 2005 and 2006 and period of record*

*Data from U.S. Geological Survey*

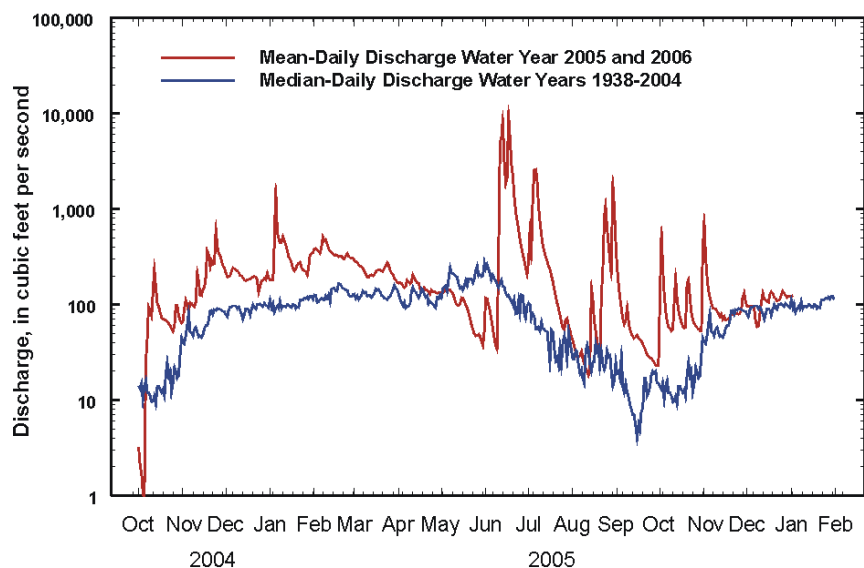


### Cimarron River near Waynoka

*Cimarron River near Waynoka, Oklahoma*  
 Station No. 07158000 Northwest Oklahoma  
 Drainage Area 13,334 square miles

PROVISIONAL DATA

JANUARY 03, 2006



*Comparison of daily discharges for water year 2005 and 2006 and period of record*

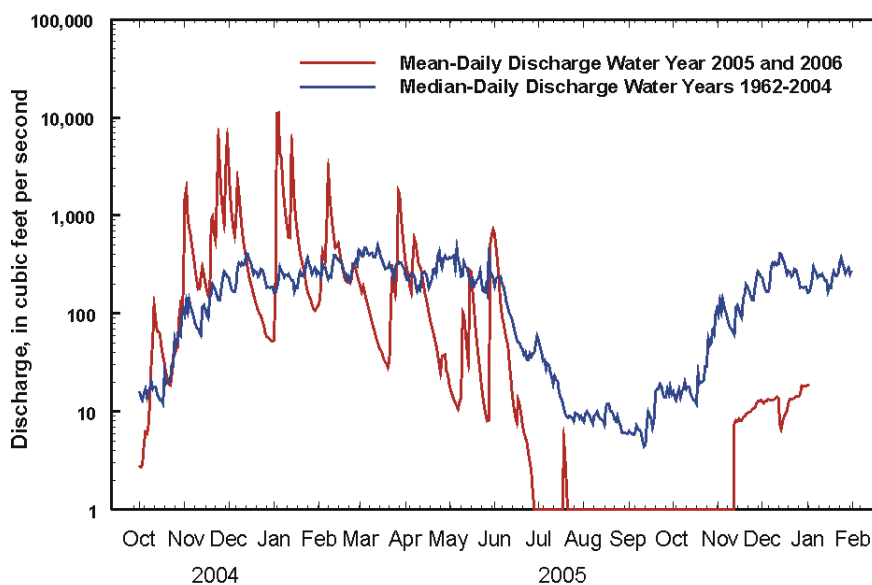
*Data from U.S. Geological Survey*

### Glover River near Glover

*Glover River near Glover, Oklahoma*  
 Station No. 07337900 Southeast Oklahoma  
 Drainage Area 315 square miles

PROVISIONAL DATA

JANUARY 03, 2006



*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

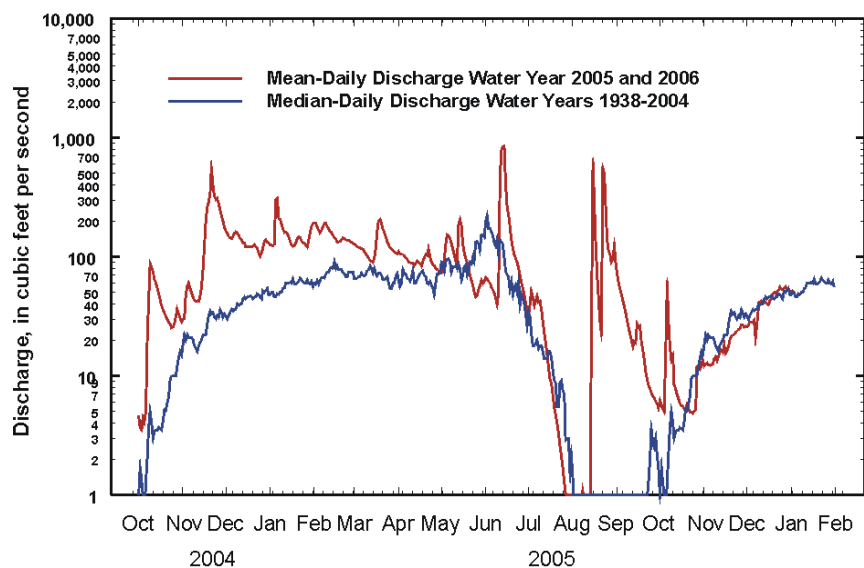
North Fork of the Red River near Carter, Oklahoma

Station No. 07301500 Southwest Oklahoma

Drainage Area 2,337 square miles

PROVISIONAL DATA

JANUARY 03, 2006



Comparison of daily discharges for water year 2005 and 2006 and period of record

Data from U.S. Geological Survey

### Washita River near Dickson

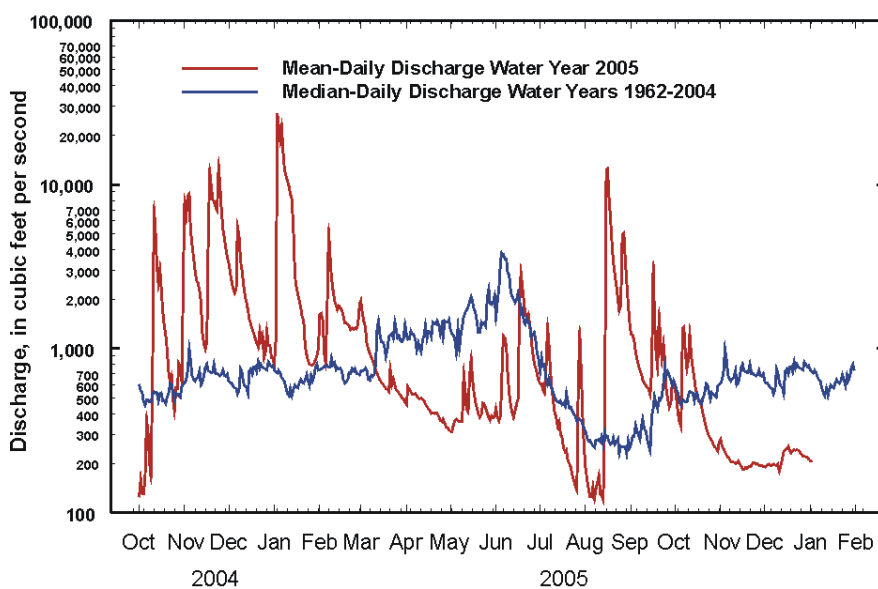
Washita River near Dickson, Oklahoma

Station No. 07331000 South-Central Oklahoma

Drainage Area 7,202 square miles

PROVISIONAL DATA

JANUARY 03, 2005



Comparison of daily discharges for water year 2005 and 2006 and period of record

Data from U.S. Geological Survey