Oklahoma Water Resources Bulletin
& Summary of Current Conditions

JANUARY 30, 2002 — **OKLAHOMA WATER RESOURCES BOARD**

Statewide Precipitation & General Summary

Severe rainfall deficits continue throughout western Oklahoma. Much of the west, including the state's major winter wheat belt, has received less than one-half of normal rainfall since June 1, 2001. This current drought event, although with an earlier onset, is very similar to the drought of 1995-96 when Oklahoma's wheat crop was the smallest in 40 years and many livestock operations experienced forage and water supply deficiencies.

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 from September 1, 2001 through January 28, 2002 (the current growing season) are the Northwest, Southwest, West Central, and North Central climate divisions, all experiencing less than 50 percent of normal precipitation. The current state-averaged precipitation total is 10.3 inches, 84 percent of normal for the period.

For the calendar year (January 1-28, 2002), all climate divisions report precipitation deficits. The North Central and West Central regions have received only 10 and 16 percent of normal rainfall, respectively. The state-averaged total is .67 inches (59 percent of normal).

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	CALENDAR YEAR JANUARY 1 – JANUARY 28, 2002			GROWING SEASON SEPTEMBER 1, 2001 – JANUARY 28, 2002			RAINFALL SINCE JANUARY 7
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	0.17	-0.20	46	2.40	-2.89	45	0.07
North Central (2)	0.07	-0.64	10	4.51	-4.78	49	0.02
Northeast (3)	0.51	-0.95	35	11.40	-3.96	74	0.46
West Central (4)	0.11	-0.57	16	4.23	-4.60	48	0.01
Central (5)	0.76	-0.39	66	10.36	-2.20	82	0.47
East Central (6)	1.30	-0.45	74	17.05	0.03	100	1.06
Southwest (7)	0.33	-0.56	37	4.54	-5.35	46	0.09
South Central (8)	0.90	-0.54	62	17.26	2.82	119	0.35
Southeast (9)	2.05	-0.17	92	21.27	1.81	109	1.55
STATE-AVERAGED	**0.67**	**-0.46**	**59**	**10.30**	**-1.92**	**84**	**0.43**

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.state.ok.us/~owrb/features/drought.html.

Drought Indices

According to the latest Palmer Drought Severity Index (January 26, below), northern and western Oklahoma remain generally dry and drought lingers in five climate divisions. The North Central and West Central climate divisions are classified in the "severe drought" category while the Northeast, Northwest and Southwest regions are in "moderate drought." All of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since January 5. The greatest decrease occurred in the South Central climate division ("moist spell").

The latest monthly Standardized Precipitation Index (through December, below) indicates that several regions, especially the **North Central climate division** (which indicates **"extremely dry"** conditions over the last 6-month period), are experiencing long-term dryness. Among the *selected* time periods (3-, 6-, 9- and 12-month SPI's), the West Central and Northwest climate divisions also report "moderately dry" to "very dry" conditions throughout the last nine months while the Northeast is "moderately dry" over the past 6 to 12 months. Also, the Southwest is "moderately dry" over the past 6 to 9 months. Among periods beyond one year, only the 18-month SPI (North Central and Northeast, both "moderately dry") reports dry conditions for any area of Oklahoma.

The latest Keetch-Byram Drought Index (January 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 in Oklahoma remain generally good. Statewide, only four stations are currently above 600, generally indicative of more severe drought conditions (four stations also had a reading above 600 on January 8). Cherokee, in North Central Oklahoma (663), retains the highest KBDI value, followed by Goodwell (Northwest; 659) and Buffalo (Northwest; 635). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). As of January 25, the Red Flag Fire Alert has been expanded to 65 counties throughout Oklahoma (except in the eastern/southeastern tier counties), including Texas County, which remains in the Governor's Ban on Outdoor Burning. Prolonged dry and windy conditions in these counties have resulted in high to very high fire danger. Under these conditions, wildfires are easily ignited and extra precautions are recommended with all use of fire outdoors. Outdoor burning should be avoided entirely when winds exceed 20 miles per hour.

Palmer Drought Severity Index / Standardized Precipitation Index (Through December 2001)

Climate Division (#)	Current Status 1/26/2002	Value 1/26	Value 1/5	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	MODERATE DROUGHT	-2.19	-1.85	**-0.34**	MODERATELY DRY	VERY DRY	VERY DRY	NEAR NORMAL
North Central (2)	SEVERE DROUGHT	-3.25	-3.05	**-0.20**	VERY DRY	EXTREMELY DRY	VERY DRY	MODERATELY DRY
Northeast (3)	MODERATE DROUGHT	-2.54	-2.43	**-0.11**	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY
West Central (4)	SEVERE DROUGHT	-3.03	-2.75	**-0.28**	VERY DRY	VERY DRY	MODERATELY DRY	NEAR NORMAL
Central (5)	NEAR NORMAL	-0.06	0.09	**-0.15**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	INCIPIENT MOIST SPELL	0.87	1.22	**-0.35**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MODERATE DROUGHT	-2.15	-1.76	**-0.39**	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL
South Central (8)	MOIST SPELL	1.43	2.03	**-0.60**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MOIST SPELL	1.40	1.66	**-0.26**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 1/28/2002
Cherokee	Alfalfa	North Central	663
Goodwell	Texas	Northwest	659
Buffalo	Harper	Northwest	635

4 total stations above 600

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.

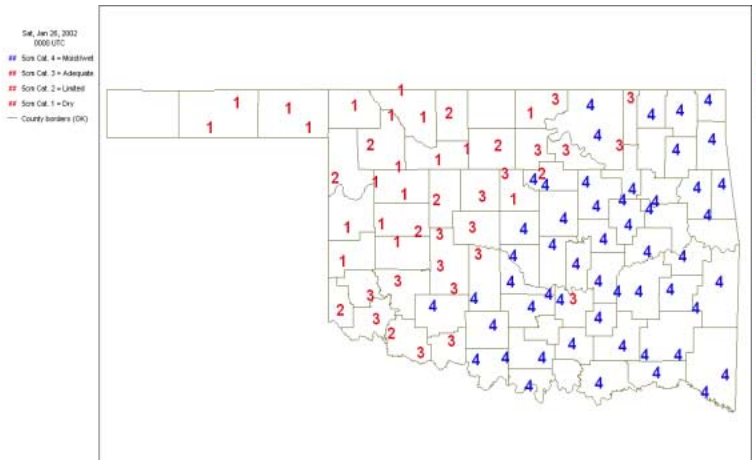
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

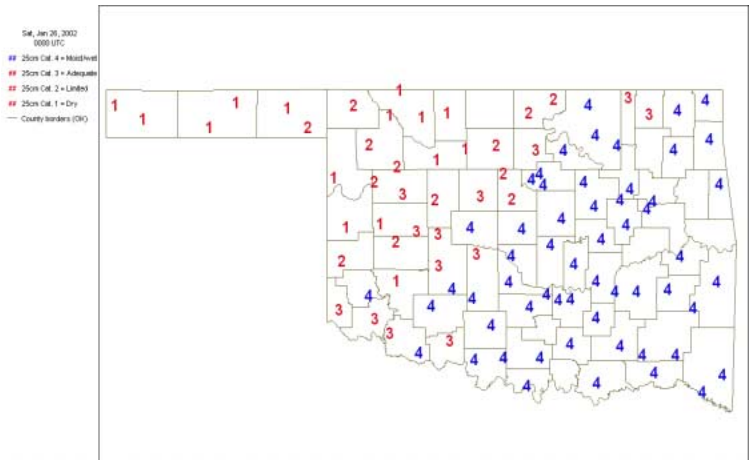
January 26, 2002

(courtesy Oklahoma Climatological Survey)

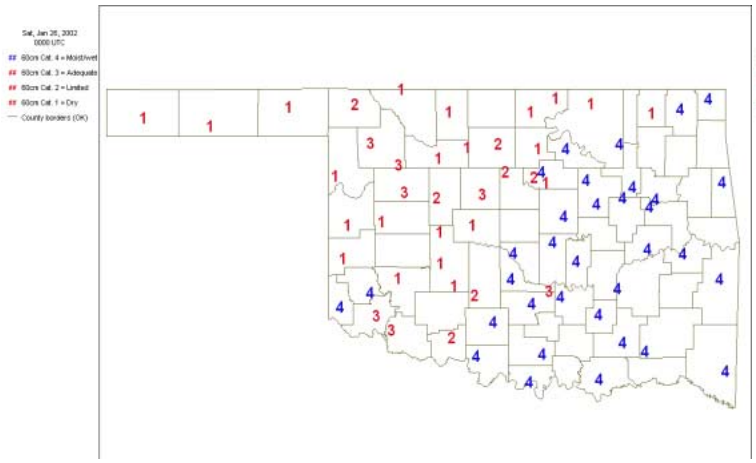
5 cm



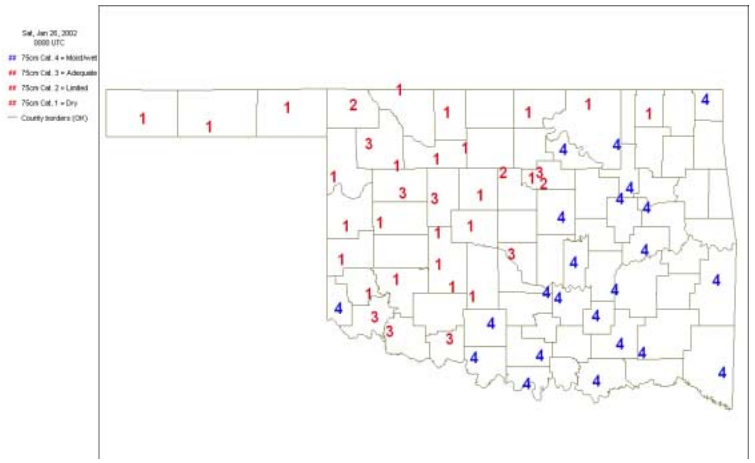
25 cm



60 cm



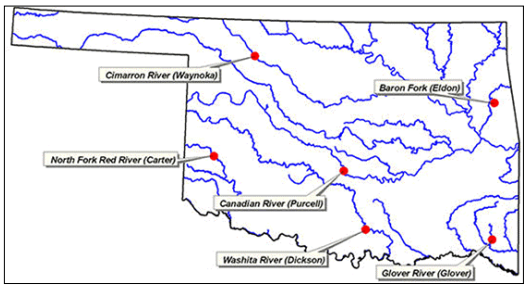
75 cm



Category Description		Depth -- Metric Conversion	
Category 4	Moist/wet	5 cm	2 inches
Category 3	Adequate	25 cm	9.8 inches
Category 2	Limited	60 cm	23.6 inches
Category 1	Dry	75 cm	29.5 inches

Streamflow Conditions

For the current water year, flows in state rivers and streams remain somewhat low to average across Oklahoma. Considering overall trends as well as current flows, the most recent data (January 28, 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, 2001 compared to long-term, normal/median daily discharges) indicate **below average flow** in *northwest* (Cimarron River, Woods County) and *south central* (Washita River, Carter County) Oklahoma; and **near average flow** in the *southeast* (Glover River, McCurtain County), *central* (Canadian River, McClain County), *southwest* (North Fork/Red River, Beckham County), and *northeast* (Baron Fork, Cherokee County).



Weather Forecast

The National Weather Service 8- to 14-day outlook (February 5-11) calls for above normal precipitation for all Oklahoma except the general Panhandle region, where normal rainfall is expected. Above normal temperatures are predicted for all of the state throughout the period.

Current models indicate that positive (warmer than normal) sub-surface temperature (SST) anomalies continue to arise in the equatorial Pacific Ocean. This warming trend is expected to continue throughout at least the next several months. The impacts that this warming, a potential El Niño event, will have on global temperature and precipitation patterns depend to a large degree on its intensity, although Climate Prediction Center officials predict it will most likely be weak or moderate. El Niños, warm water patterns that increase the chances for cooler, wetter conditions in the southern U.S. (including Oklahoma), generally occur every two to seven years.

Crop Report

January 3 -- Many areas of Oklahoma received rainfall during the month of December, improving moisture conditions somewhat. However, most of the state remained dry and more rainfall is needed in many areas. Temperatures during the month were also warmer than normal. Wheat improved some during the month, but much of the state's acreage is showing stress from lack of sufficient moisture. Adequate hay supplies during the winter feeding season remained a major concern.

Areas that received adequate rainfall during the month exhibited some wheat improvement. However, wheat fields in many other areas remain stressed from lack of precipitation. Additional moisture is needed to stimulate growth and development. Wheat conditions varied across the state. Wheat in the Panhandle and west central regions was rated in mostly poor to very poor condition. By the end of December, one-third of the state's wheat was being grazed. Wheat grazing has yet to occur in many areas due to thin or uneven stands. Some wheat has still not attained a sufficient root system to secure plants in the ground during grazing. Greenbugs were damaging fields in many areas and some producers have elected to control the populations by spraying.

Mild temperatures have kept cattle in good to fair condition. Stocker gains have been fairly good during the first part of the grazing season. In the areas short of adequate pasture for grazing, producers were increasing the amounts of hay and protein fed to livestock. The warmer than normal weather has minimized calf deaths during the late calving season. Pastures in the areas where rains were adequate have benefited from the moisture and growth of winter forages were boosted. In other areas where rainfall was minimal, pasture stress continued. Statewide, range and pasture condition was rated mostly fair or poor.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally steady. As of January 28, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 95.9 percent full, a .1 percent increase from that recorded on January 8, according to information from the U.S. Army Corps of Engineers (Tulsa District). Sixteen reservoirs have experienced lake level decreases since that time, including seven of nine in the Northeast climate division. Nineteen reservoirs are currently operating at less than full capacity (compared to 17 last month); six reservoirs (including **Hula, only 39.4 percent**; and **Lugert-Altus, 39.7 percent**) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
01/28/2002

Climate Division / *Lake or Reservoir*	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Storage* conservation	flood
North Central				
Fort Supply	13,900	13,900	100.0	0.74
Great Salt Plains	31,420	31,420	100.0	1.33
Kaw*	367,315	367,315	100.0	1.96
Regional Totals/Averages	**412,635**	**412,635**	**100.0**	**1.34**
Northeast				
Birch	19,225	13,889	72.2	0.00
Copan	43,400	31,238	72.0	0.00
Fort Gibson	365,200	364,265	99.7	0.00
Grand	1,672,000	1,535,709	91.8	0.00
Hudson	200,300	200,300	100.0	1.40
Hulah	31,160	12,284	39.4	0.00
Keystone	278,122	250,790	90.2	0.00
Oologah	552,210	541,337	98.0	0.00
Skiatook	322,700	261,348	81.0	0.00
Regional Totals/Averages	**3,484,317**	**3,211,160**	**92.2**	**0.16**
West Central				
Canton	111,310	84,922	76.3	0.00
Foss	165,480	149,291	90.2	0.00
Regional Totals/Averages	**276,790**	**234,213**	**84.6**	**0.00**
Central				
Arcadia	27,520	27,449	99.7	0.00
Heyburn	7,105	6,763	95.2	0.00
Thunderbird	119,600	118,040	98.7	0.00
Regional Totals/Averages	**154,225**	**152,252**	**98.7**	**0.00**
East Central				
Eufaula*	2,314,581	2,314,581	100.0	0.07
Tenkiller	654,100	652,790	99.8	0.00
Regional Totals/Averages	**2,968,681**	**2,967,371**	**100.0**	**0.04**
Southwest				
Fort Cobb	80,010	74,056	92.6	0.00
Lugert-Altus	132,830	52,709	39.7	0.00
Tom Steed	88,970	61,372	69.0	0.00
Regional Totals/Averages	**301,810**	**188,137**	**62.3**	**0.00**
South Central				
Arbuckle	72,400	72,400	100.0	0.78
McGee Creek	113,930	113,930	100.0	0.57
Texoma*	2,483,330	2,448,332	98.6	0.00
Waurika*	190,200	173,674	91.3	0.00
Regional Totals/Averages	**2,859,860**	**2,808,336**	**98.2**	**0.34**
Southeast				
Broken Bow*	918,070	918,070	100.0	4.50
Hugo*	165,192	165,192	100.0	4.72
Pine Creek*	53,750	53,750	100.0	5.46
Sardis	274,330	274,330	100.0	1.47
Wister	60,162	60,162	100.0	7.88
Regional Totals/Averages	**1,471,504**	**1,471,504**	**100.0**	**4.81**
State Totals	**11,929,822**	**11,445,608**	**95.9**	**1.00**

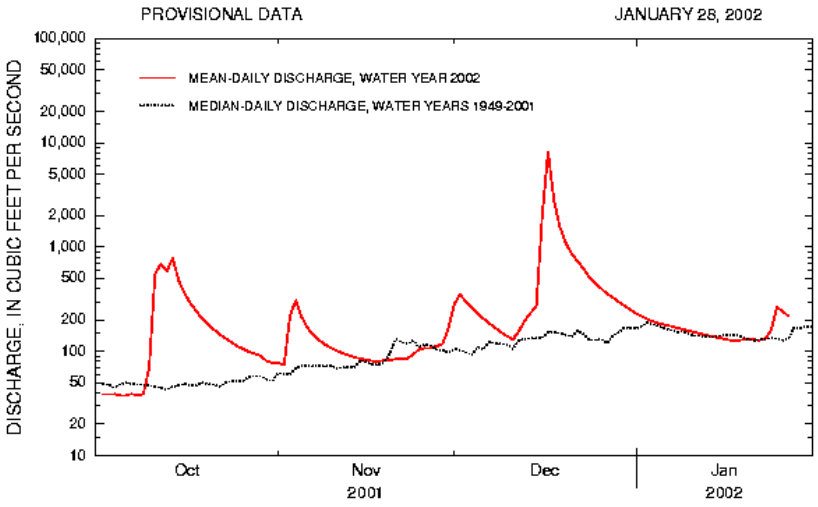
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2002
and period of record for Baron Fork at Eldon, Oklahoma.

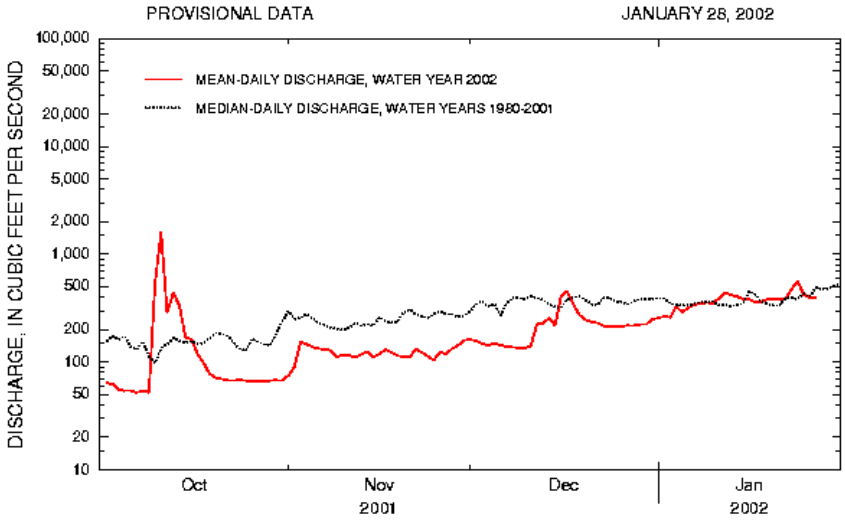
Data from U.S. Geological Survey

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 2002
and period of record for Canadian River at Purcell, Oklahoma.

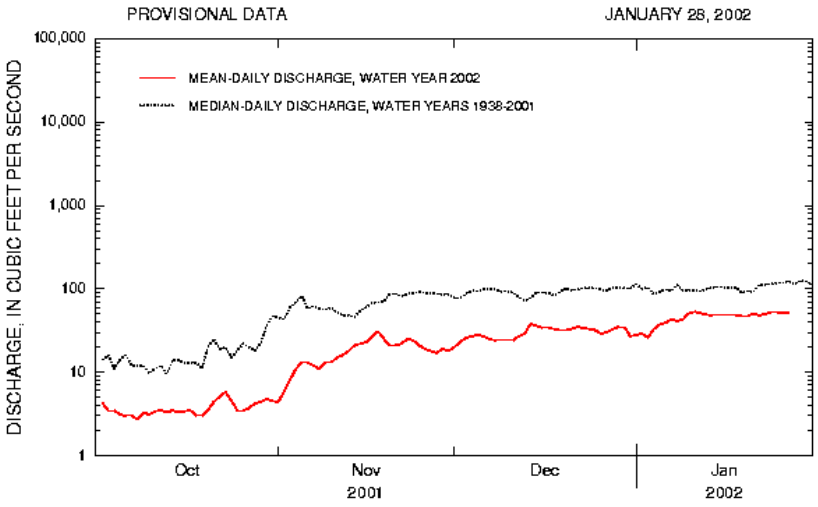
Data from U.S. Geological Survey

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 2002
and period of record for Cimarron River near Waynoka, Oklahoma.

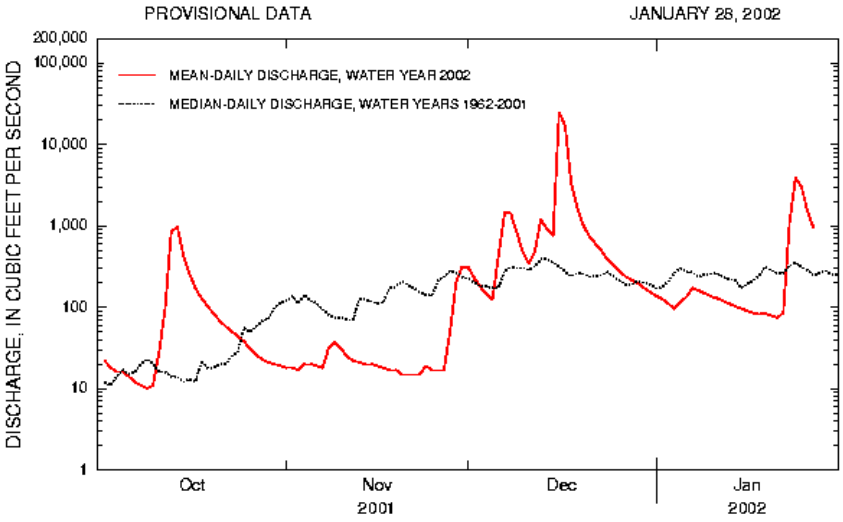
Data from U.S. Geological Survey

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 2002
and period of record for Glover River near Glover, Oklahoma.

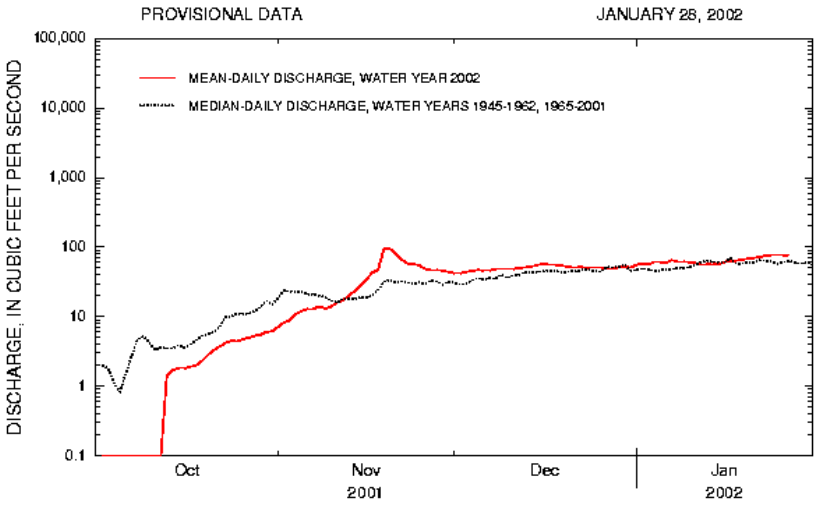
Data from U.S. Geological Survey

North Fork of the Red River near Carter

North Fork Red River near Carter, Oklahoma

Station No. 07301 500
Southwest Oklahoma

Drainage Area 2,337 square miles



Comparison of daily discharges for water year 2002
and period of record for North Fork Red River near Carter, Oklahoma.

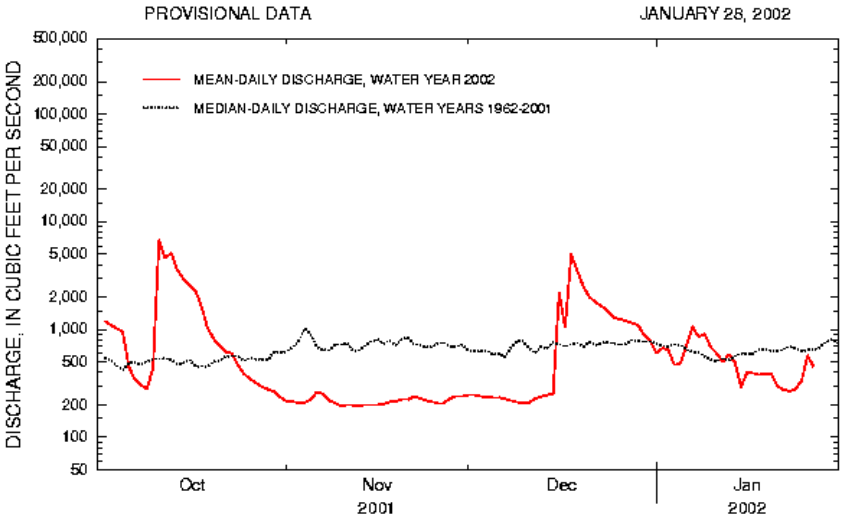
Data from U.S. Geological Survey

Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331 000
South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2002
and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey