

Oklahoma Water Resources Bulletin & Summary of Current Conditions



FEBRUARY 13, 2002

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Rainfall deficits have declined in many areas of Oklahoma as most of the state received much-needed rainfall the past two weeks. Four climate divisions have received more than 2 inches since January 28. However, more precipitation is needed to alleviate extended dry conditions.

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 September 1, 2001 through February 11, 2002 (the current growing season) is the Northwest climate division (3.09 inches, only 55 percent of normal precipitation). In all, four regions have received 65 percent or less of their normals for the period. The current state-averaged precipitation total is 12.27 inches, 94 percent of normal for the period.

For the calendar year (January 1 through February 11), only two climate divisions report precipitation deficits. The state-averaged total is 2.64 inches (136 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	CALENDAR YEAR JANUARY 1 – FEBRUARY 11, 2002			GROWING SEASON SEPTEMBER 1, 2001 – FEBRUARY 11, 2002			RAINFALL SINCE JANUARY 28
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	0.86	0.19	128	3.09	-2.50	55	0.69
North Central (2)	1.95	0.72	158	6.39	-3.43	65	1.88
Northeast (3)	3.26	0.92	139	14.15	-2.09	87	2.75
West Central (4)	1.83	0.65	155	5.94	-3.38	64	1.71
Central (5)	3.04	1.12	159	12.64	-0.68	95	2.28
East Central (6)	2.80	-0.08	97	18.56	0.39	102	1.51
Southwest (7)	2.33	0.86	158	6.54	-3.93	62	2.00
South Central (8)	2.19	-0.24	90	18.55	3.12	120	1.29
Southeast (9)	5.76	2.04	155	24.97	4.02	119	3.70
STATE-AVERAGED	2.64	0.70	136	12.27	-0.76	94	1.97

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 (February 9, below), drought conditions have improved in all areas as a result of recent moisture. Only two regions--the North Central and West Central climate divisions (both experiencing "mild drought")--are classified in a drought category. All of Oklahoma's nine climate divisions have undergone PDSI moisture increases since January 26. The most modest increase occurred in the South Central climate division ("moist spell").

The latest monthly Standardized Precipitation Index (through January, below) indicates that long-term dryness has improved somewhat in the north and west. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), the Northwest, North Central, Northeast, and West Central climate divisions report "moderately dry" to "very dry" conditions throughout the last 6 to 12 months. In particular, the Northwest and North Central regions are "very dry" over the past 6 months. Among periods beyond one year, only the 15- and 18-month SPIs (North Central and Northeast, both "moderately dry") report dry conditions for any area of Oklahoma.

The latest Keetch-Byram Drought Index (February 11, 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 have improved. Statewide, only one station is currently above 600, generally indicative of more severe drought conditions (four stations had a reading above 600 on January 28). Goodwell, in Northwest Oklahoma (657), has the highest KBDI value, followed by Hooker (Northwest; 579) and Beaver (Northwest; 572). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). However, as of January 30, the Red Flag Fire Alert, previously in effect for 65 counties, now includes only two northwest Oklahoma counties), including Texas County, which remains in the Governor's Ban on Outdoor Burning.

Palmer Drought Severity Index					Standardized Precipitation Index Through January 2001			
CLIMATE DIVISION (#)	CURRENT STATUS 2/9/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		2/9	1/26					
Northwest (1)	INCIPIENT DROUGHT	-0.54	-2.19	1.65	NEAR NORMAL	VERY DRY	MODERATELY DRY	NEAR NORMAL
North Central (2)	MILD DROUGHT	-1.19	-3.25	2.06	NEAR NORMAL	VERY DRY	MODERATELY DRY	MODERATELY DRY
Northeast (3)	INCIPIENT DROUGHT	-0.61	-2.54	1.93	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
West Central (4)	MILD DROUGHT	-1.12	-3.03	1.91	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Central (5)	MOIST SPELL	1.11	-0.06	1.17	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MOIST SPELL	1.54	0.87	0.67	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	-0.48	-2.15	1.67	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MOIST SPELL	1.97	1.43	0.54	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	UNUSUAL MOIST SPELL	2.36	1.40	0.96	MODERATELY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET

Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 2/11/2002	ANTICIPATED IMPACT
Goodwell	Texas	Northwest	657	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.
Hooker	Texas	Northwest	579	
Beaver	Beaver	Northwest	572	
Cherokee	Alfalfa	North Central	548	

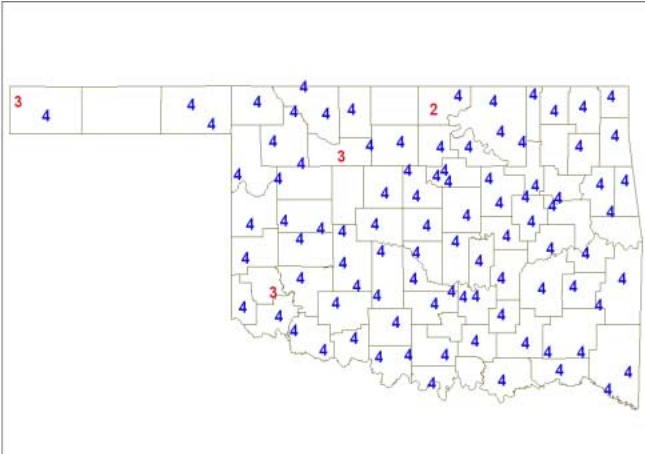
1 total station above 600

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
February 9, 2002
(courtesy Oklahoma Climatological Survey)

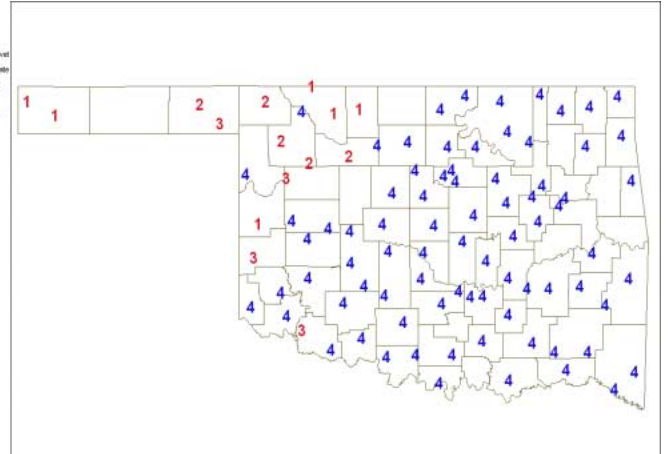
5 cm

SM, Feb 9, 2002
 0000 UTC
 ## 5cm Cat. 4 = Moist/Wet
 ## 5cm Cat. 3 = Adequate
 ## 5cm Cat. 2 = Limited
 ## 5cm Cat. 1 = Dry
 --- County borders (OK)



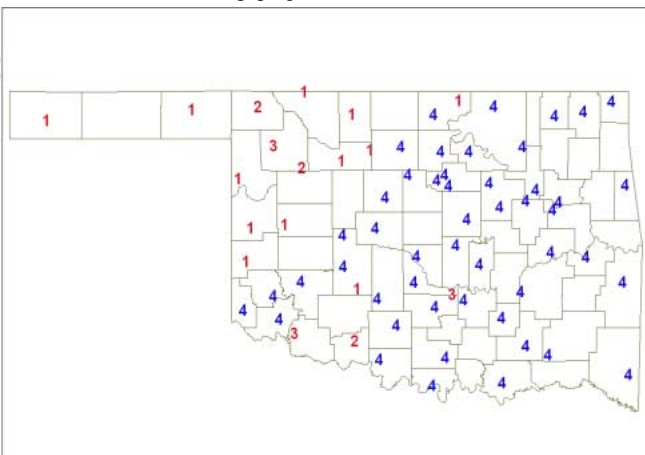
25 cm

SM, Feb 9, 2002
 0000 UTC
 ## 25cm Cat. 4 = Moist/Wet
 ## 25cm Cat. 3 = Adequate
 ## 25cm Cat. 2 = Limited
 ## 25cm Cat. 1 = Dry
 --- County borders (OK)



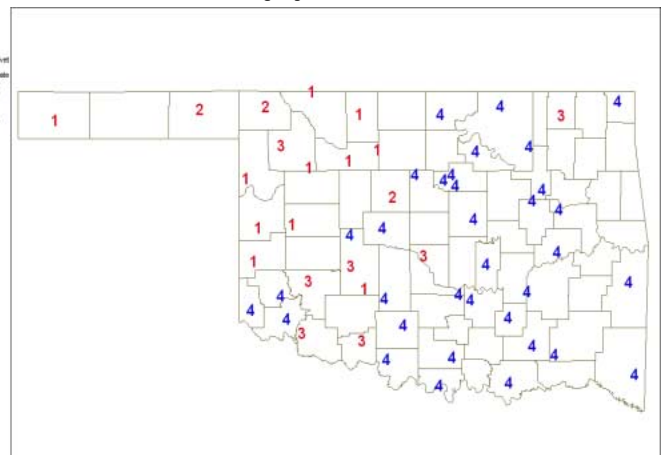
60 cm

SM, Feb 9, 2002
 0000 UTC
 ## 60cm Cat. 4 = Moist/Wet
 ## 60cm Cat. 3 = Adequate
 ## 60cm Cat. 2 = Limited
 ## 60cm Cat. 1 = Dry
 --- County borders (OK)



75 cm

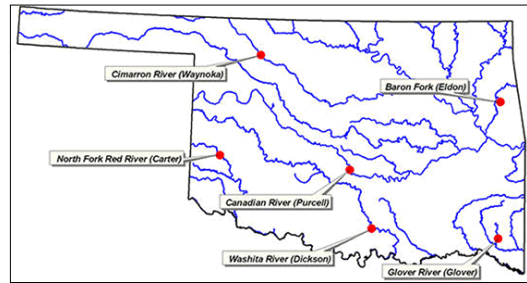
SM, Feb 9, 2002
 0000 UTC
 ## 75cm Cat. 4 = Moist/Wet
 ## 75cm Cat. 3 = Adequate
 ## 75cm Cat. 2 = Limited
 ## 75cm Cat. 1 = Dry
 --- County borders (OK)



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 are generally average across Oklahoma. Considering overall trends as well as current flows, the most recent data (February 11, 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 *south central* (Washita River, Carter County) Oklahoma; and **near average flow** in the *northwest* (Cimarron River, Woods County), *central* (Canadian River, McClain County), *southeast* (Glover River, McCurtain 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 18-24) calls for both above normal precipitation and above normal temperatures for the entire 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 and warm episode conditions are likely to develop over the next three 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

February 4 -- Mild but unusually dry conditions prevailed across most of the state during January, but an ice storm at the end of the month was disastrous for many farmers and ranchers. Western counties were hardest hit by the ice storm with widespread power outages and downed trees and fences affecting many producers. Despite the moisture from the ice, rain, and snow, counties in the western half of Oklahoma are still experiencing very dry conditions. Supplemental feeding of livestock has been heavy.

Wheat is rated in mostly fair to poor condition with only 14 percent of the crop rated in good to excellent condition. Green bugs and army worms are a problem in some southeastern fields. Rye and oats are also rated in mostly fair to poor condition. Winter wheat grazed reached 35 percent, compared with the 5-year average of 38 percent, while rye grazed was well ahead of the average at 42 percent. Some southern counties reported producers starting to prepare fields for spring planting.

Livestock were reported in fair or good condition, but many producers had to supplement their feeding. Tight hay supplies coupled with high hay prices are hurting some producers. Prospects for hay supplies for the rest of the season were rated 51 percent below average, 46 percent average, and 3 percent above average. Supplies were tightest in north central and southeast Oklahoma. Fences destroyed by falling trees allowed livestock to roam freely in some areas hit hard by the ice storm. Low pond levels have forced some producers to haul water. Range and pasture conditions vary widely across the state with northern and western counties rating most pastures in poor or very poor condition, while eastern and southeastern counties rated range and pasture in mostly fair or good condition.

Reservoir Storage

Reservoir storage levels in Oklahoma have noticeably improved. As of February 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 97.2 percent full, a 1.3 percent increase from that recorded on January 28, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only five reservoirs have experienced lake level decreases since that time, including all three in the North Central climate division. Thirteen reservoirs are currently operating at less than full capacity (compared to 17 last month); five reservoirs (including **Hula, only 38.6 percent**; and **Lugert-Altus, 42.8 percent**) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs						
<i>02/12/2002</i>						
<i>Climate Division</i>	<i>Conservation Storage</i>		<i>Present Storage</i>		<i>Percent of Storage</i>	
<i>Lake or Reservoir</i>					<i>conservation</i>	<i>flood</i>
	<i>(acre-feet)</i>		<i>(acre-feet)</i>			
North Central						
Fort Supply	13,900		13,900		100.0	0.30
Great Salt Plains	31,420		31,420		100.0	0.59
Kaw *	367,315		367,315		100.0	0.02
Regional Totals/Averages	412,635		412,635		100.0	0.30
Northeast						
Birch	19,225		15,832		82.4	0.00
Copan	43,400		32,474		74.8	0.00
Fort Gibson	365,200		365,200		100.0	0.78
Grand	1,672,000		1,594,950		95.4	0.00
Hudson	200,300		200,300		100.0	3.03
Hulah	31,160		12,039		38.6	0.00
Keystone	278,122		278,122		100.0	0.00
Oologah	552,210		552,210		100.0	0.38
Skiatook	322,700		271,675		84.2	0.00
Regional Totals/Averages	3,484,317		3,322,802		95.4	0.47
West Central						
Canton	111,310		88,331		79.4	0.00
Foss	165,480		151,436		91.5	0.00
Regional Totals/Averages	276,790		239,767		86.6	0.00
Central						
Arcadia	27,520		27,520		100.0	0.17
Heyburn	7,105		7,105		100.0	0.09
Thunderbird	119,600		119,600		100.0	2.47
Regional Totals/Averages	154,225		154,225		100.0	0.91
East Central						
Eufaula *	2,314,581		2,314,581		100.0	0.85
Tenkiller	654,100		653,314		99.9	0.00
Regional Totals/Averages	2,968,681		2,967,895		100.0	0.43
Southwest						
Fort Cobb	80,010		76,364		95.4	0.00
Lugert-Altus	132,830		56,845		42.8	0.00
Tom Steed	88,970		61,845		69.5	0.00
Regional Totals/Averages	301,810		195,054		64.6	0.00
South Central						
Arbuckle	72,400		72,400		100.0	0.98
McGee Creek	113,930		113,930		100.0	2.19
Texoma *	2,426,714		2,419,681		99.7	0.00
Waurika *	190,200		174,414		91.7	0.00
Regional Totals/Averages	2,803,244		2,780,425		99.2	0.79
Southeast						
Broken Bow *	918,070		918,070		100.0	15.53
Hugo *	158,617		158,617		100.0	3.03
Pine Creek *	53,750		53,750		100.0	9.59
Sardis	274,330		274,330		100.0	1.58
Wister	60,162		60,162		100.0	23.22
Regional Totals/Averages	1,464,929		1,464,929		100.0	10.59
State Totals	11,866,631		11,537,732		97.2	2.09

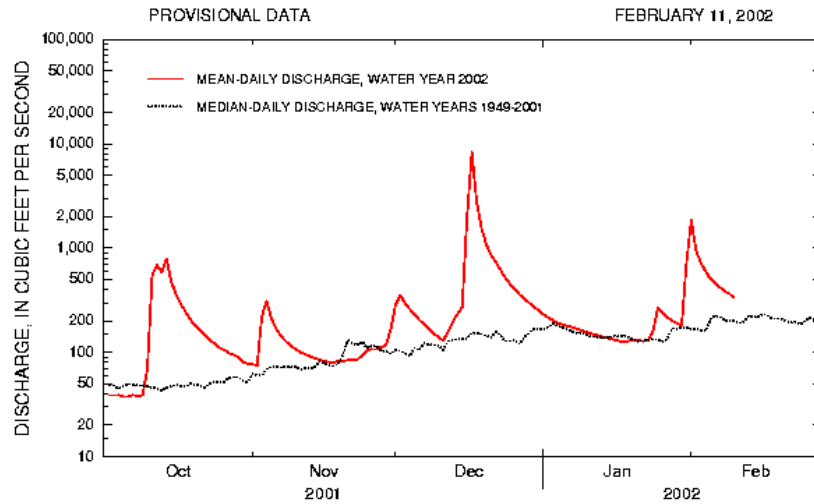
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

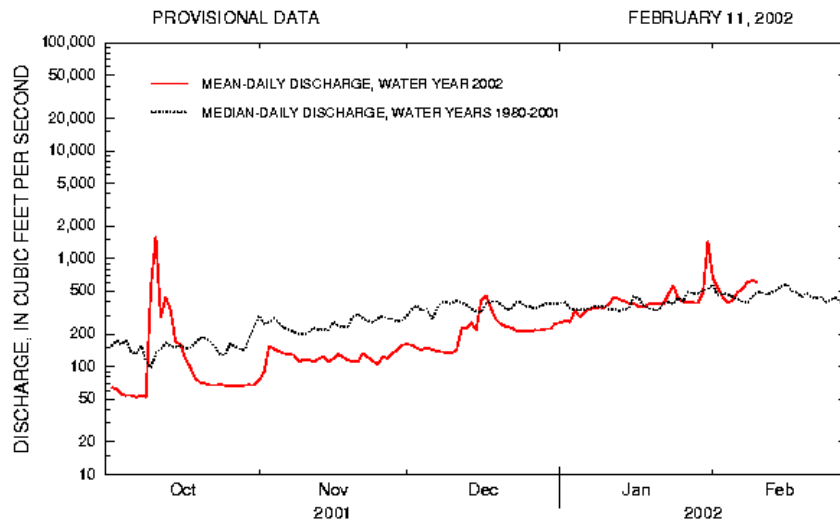
Data from U.S. Geological Survey

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

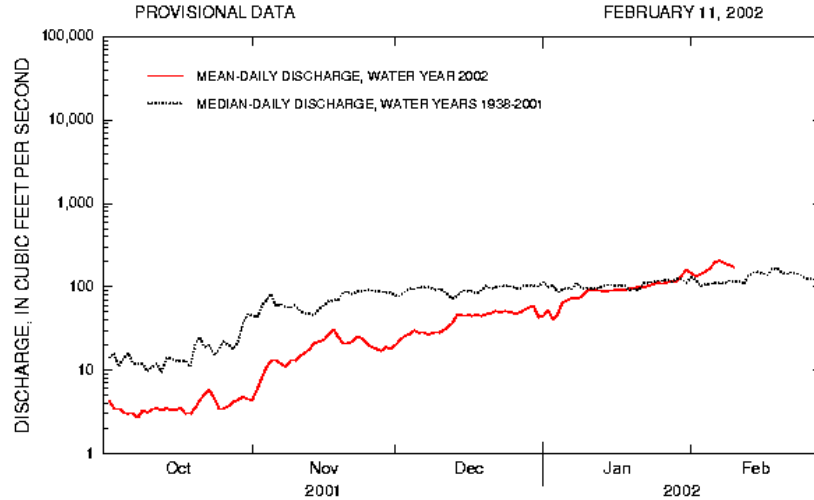
Cimarron River near Waynoka

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

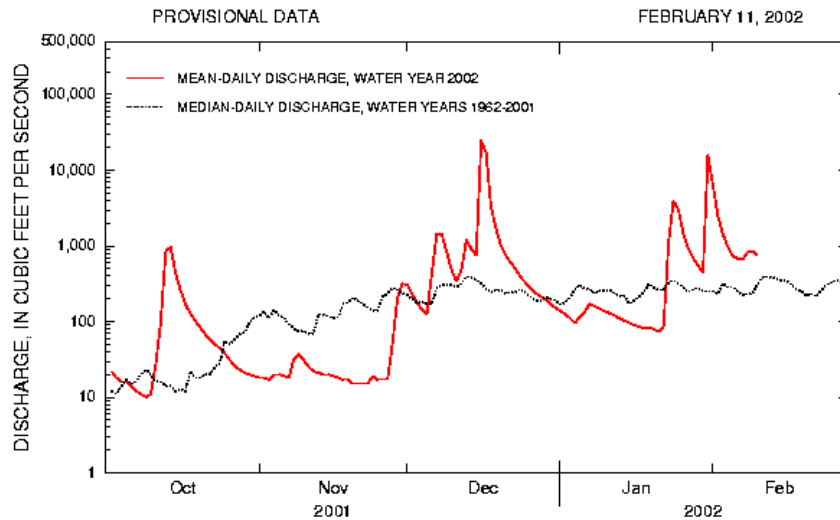
Glover River near Glover

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

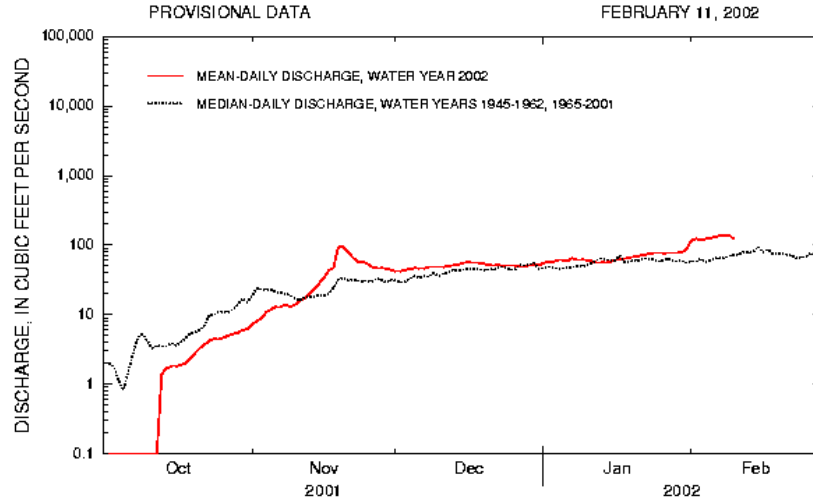
North Fork of the Red River near Carter

North Fork Red River near Carter, Oklahoma

Station No. 07301500

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

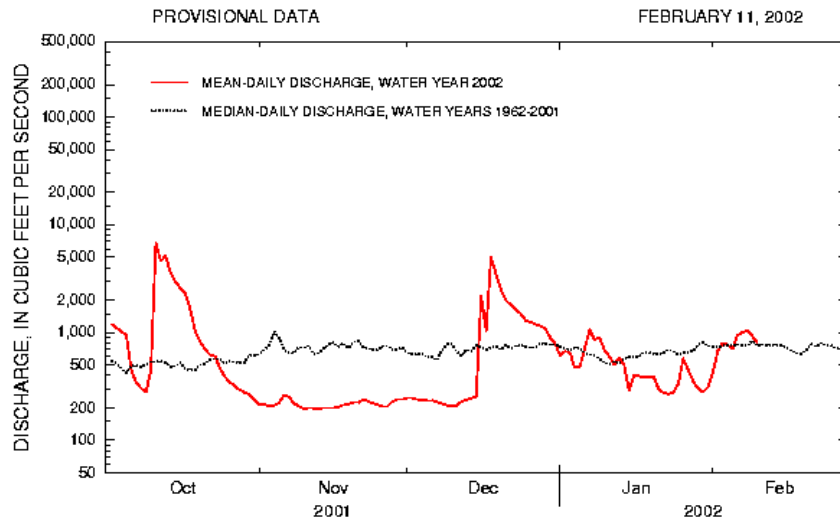
Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000

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