

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



JANUARY 8, 2003

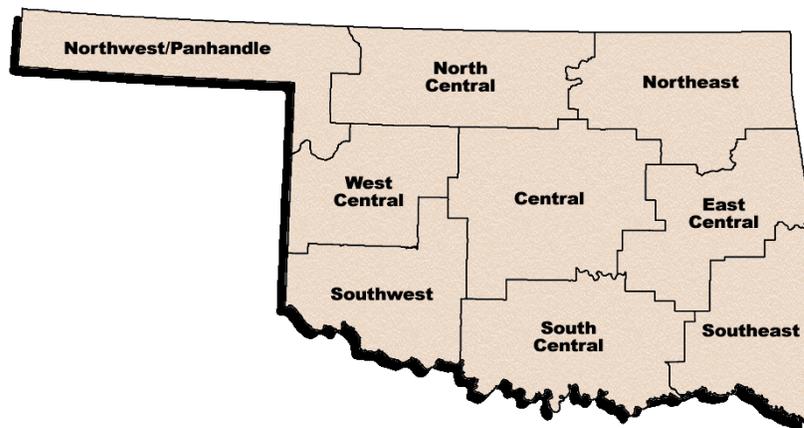
OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Although some eastern areas remain somewhat dry, most of Oklahoma appears to have largely recovered from last year's drought episode.

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 through January 6 (the current growing season), is the Northeast climate division (8.95 inches, 61 percent of normal precipitation). The East Central region is also somewhat dry, receiving 10.53 inches of precipitation (62 percent of normal) during the period. The current state-averaged rainfall total is 11.15 inches, 91 percent of normal.

For the current calendar year (January 1, 2002 through January 6, 2003), the East Central, Northwest and Northeast regions report 84, 85 and 86 percent of normal precipitation, respectively. Only one region (North Central) does not report a precipitation deficit over the period. The state-averaged rainfall total is 34.5 inches (93 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	COOL GROWING SEASON SEPTEMBER 1, 2002—JANUARY 6, 2003			CALENDAR YEAR JANUARY 1, 2002—JANUARY 6, 2003			RAINFALL SINCE DECEMBER 8
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	7.09	+1.86	136	18.11	-3.09	85	0.37
North Central (2)	11.85	+2.50	127	33.09	+1.26	104	0.61
Northeast (3)	8.95	-5.67	61	36.55	-5.73	86	1.49
West Central (4)	10.86	+2.23	126	28.00	-1.26	96	0.79
Central (5)	12.16	-0.69	95	35.82	-2.44	94	1.32
East Central (6)	10.53	-6.39	62	38.84	-7.66	84	3.45
Southwest (7)	11.51	+1.83	119	29.20	-1.81	94	1.47
South Central (8)	13.05	-1.53	89	40.54	-0.79	98	2.97
Southeast (9)	14.72	-4.49	77	51.04	-0.44	99	4.60
STATE-AVERAGED	11.15	-1.16	91	34.50	-2.47	93	1.84

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>.

Drought Indices

According to the latest Palmer Drought Severity Index (January 4, below), drought conditions have largely vanished throughout most of Oklahoma. No climate divisions are currently classified in drought. Only three of Oklahoma's nine climate divisions have undergone PDSI moisture decreases (through minor) since December 7. The greatest decrease occurred in the Northwest climate division.

The latest monthly Standardized Precipitation Index (through November, below) indicates general long-term dryness in east central and northwest Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), the East Central climate division reports "very dry" conditions throughout the last 3-month period and "moderately dry" conditions over the past 6 months. Also, the Northeast region is "moderately dry" over the last 3 months. Considering longer periods (through six years), the Northwest, Northeast, and Southwest indicate dry conditions at various times over the past 18, 24, and 30 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (January 6, 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 remain very good. Statewide, no Mesonet stations are currently above 600, generally indicative of more severe drought conditions (no stations had a reading above 600 on December 9). Hooker, in Northwest Oklahoma (352), and Miami (Northeast; 465) have the highest KBDI values, followed by Vinita (Northeast; 339). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 1 (low fire danger). Recent moisture has temporarily reduced fire danger across the state. However, the beneficial effects of the snow and rain will quickly diminish with brisk southerly winds and unusually warm temperatures. Winter dormancy causes grassy wildland fuels to be very susceptible to high fire danger whenever conditions are dry and windy. Outdoor burning should be avoided when winds exceed 20 mph.

Palmer Drought Severity Index					Standardized Precipitation Index Through November 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 1/4/2003	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		1/4	12/7					
Northwest (1)	MOIST SPELL	1.73	2.24	-0.51	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.71	2.72	-0.01	MODERATELY WET	VERY WET	MODERATELY WET	NEAR NORMAL
Northeast (3)	INCIPIENT DROUGHT	-0.75	-1.25	0.50	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.77	1.78	-0.01	VERY WET	MODERATELY WET	NEAR NORMAL	NEAR NORMAL
Central (5)	MOIST SPELL	1.51	1.20	0.31	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	0.21	-1.16	1.37	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	MOIST SPELL	1.77	1.55	0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	UNUSUAL MOIST SPELL	2.31	0.80	1.51	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	INCIPIENT MOIST SPELL	0.66	0.25	0.41	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET

Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 1/6/2003	ANTICIPATED IMPACT
Hooker	Texas	Northwest	352	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.
Miami	Ottawa	Northeast	352	
Vinita	Craig	Northeast	339	

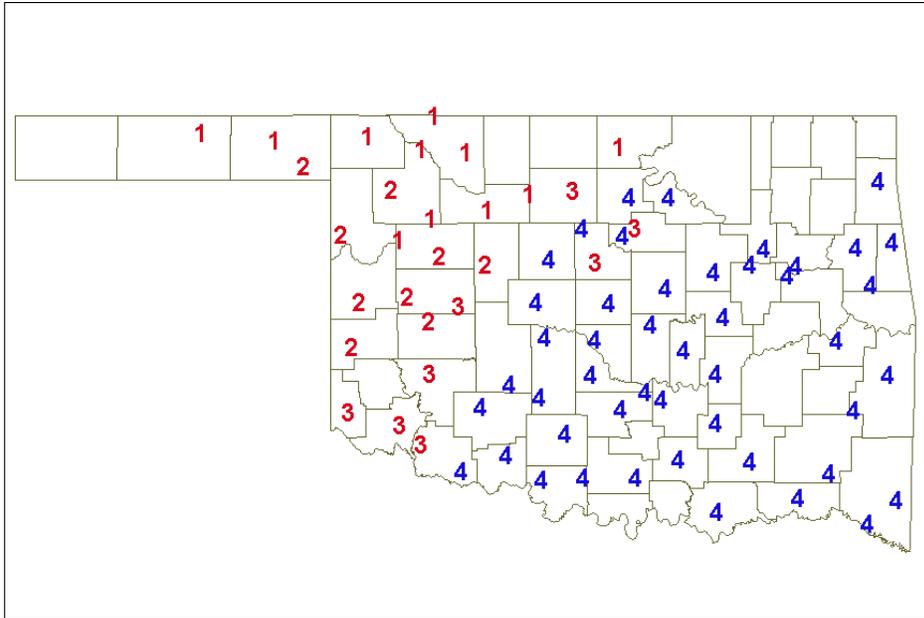
Total stations above 600 = 0

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
January 5, 2003
 (Courtesy Oklahoma Climatological Survey)

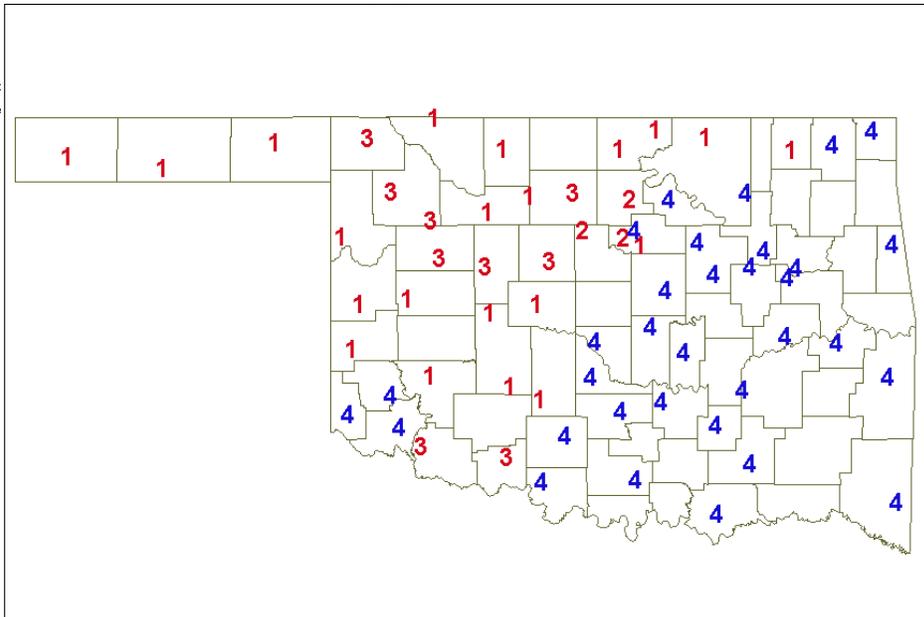
5 cm

Sat, Jan 5, 2002
 0000 UTC
 ## 5cm Cat. 4 = Moist/wet
 ## 5cm Cat. 3 = Adequate
 ## 5cm Cat. 2 = Limited
 ## 5cm Cat. 1 = Dry
 — County borders (OK)



60 cm

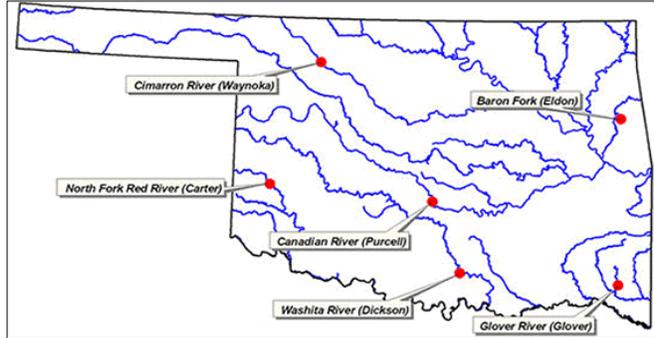
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Category Description		Depth -- Metric Conversion
Category 4	Moist/wet	5 cm = 2 inches
Category 3	Adequate	*corresponds to the approximate depth of grass roots
Category 2	Limited	60 cm = 23.6 inches
Category 1	Dry	*corresponds to the approximate root depth of the majority of Oklahoma crops

Streamflow Conditions

For the current water year, flows in state rivers and streams are generally near or above normal. Considering overall trends as well as current flows, the most recent data (January 7, 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 **near average flow** in *northeast* (Baron Fork, Cherokee County), *southeast* (Glover River, McCurtain County), and *central* (Canadian River, McClain County) Oklahoma; and **above average flow** in the *southwest* (North Fork/Red River, Beckham County), *south central* (Washita River, Carter County), and *northwest* (Cimarron River, Woods County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (January 14-20) calls for normal precipitation for the greater portion of Oklahoma. Below normal temperatures are expected to prevail except in the far west Panhandle region, where normal temperatures are forecasted throughout the period.

Models continue to indicate that relatively weak El Niño conditions (especially compared to the very strong 1997-98 El Niño) will continue through May 2003. 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

December 31 - Cold temperature and freezing weather occurred throughout the state at the beginning and end of December. Most areas remained wet during the entire month with the south central, east central, and southeast regions all accumulating more than four inches of precipitation. Western counties received much snow and ice conditions, which should help replenish subsoil moisture in those areas. Supplement feeding was active across most of the state.

Wheat condition at the end of December was rated 24 percent fair, 50 percent good, and 22 percent excellent, a considerable improvement from the previous year. Rye and oats were rated in mostly good to fair condition. Winter wheat grazed reached 48 percent (compared with the five-year average of 35 percent) while rye grazed was well above average at 60 percent. Areas that received adequate to surplus rainfall during the month exhibited improved conditions.

Livestock were rated in mostly good condition. Most producers are feeding hay but not to the extent as in past years. Prospects for hay supplies in most of Oklahoma are adequate for the remainder of the season. In south central and southeast Oklahoma, cattle are showing signs of stress related to the weather and short pasture. Wheat pasture in areas where rains were adequate to surplus benefited from the moisture and forage growth has improved. Native pasture was rated in good to fair condition statewide. The wet and muddy conditions during the month hampered cattle grazing and feeding operations.

Reservoir Storage

Reservoir storage levels in Oklahoma are in generally good condition. As of January 6, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 96.1 percent full, a 4 percent increase from that recorded on December 9, according to information from the U.S. Army Corps of Engineers (Tulsa District). Only five reservoirs have experienced lake level decreases since that time. Sixteen reservoirs are currently operating at less than full capacity (compared to 23 one month ago). Three reservoirs (including **Lugert-Altus, only 29.9 percent**; and Tom Steed, 59.3 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs						
<i>01/06/2003</i>						
Climate Division	Conservation Storage		Present Storage		Percent of Storage	
Lake or Reservoir						
	(acre-feet)		(acre-feet)		conservation	flood
North Central						
Fort Supply	13,900		13,900		100.0	0.80
Great Salt Plains	31,420		31,420		100.0	1.64
Kaw*	442,080		442,080		100.0	0.83
Regional Totals/Averages	487,400		487,400		100.0	1.09
Northeast						
Birch	19,225		14,752		76.7	0.00
Copan	43,400		41,666		96.0	0.00
Fort Gibson	365,200		365,200		100.0	0.86
Grand	1,672,000		1,528,400		91.4	0.00
Hudson	200,300		194,731		97.2	0.00
Hulah	25,100		25,100		100.0	0.49
Keystone	510,059		507,869		99.6	0.49
Oologah	552,210		525,025		95.1	0.00
Skiatook	322,700		265,792		82.4	0.00
Regional Totals/Averages	3,710,194		3,468,535		93.5	0.20
West Central						
Canton	111,310		111,310		100.0	0.21
Foss	165,480		164,612		99.5	0.00
Regional Totals/Averages	276,790		275,922		99.7	0.11
Central						
Arcadia	27,520		27,520		100.0	0.17
Heyburn	7,105		6,903		97.2	0.00
Thunderbird	119,600		112,266		93.9	0.00
Regional Totals/Averages	154,225		146,689		95.1	0.06
East Central						
Eufaula*	2,314,583		2,248,152		97.1	0.00
Tenkiller	654,100		628,331		96.1	0.00
Regional Totals/Averages	2,968,683		2,876,483		96.9	0.00
Southwest						
Fort Cobb	80,010		80,010		100.0	1.71
Lugert-Altus	132,830		39,738		29.9	0.00
Tom Steed	88,970		52,728		59.3	0.00
Regional Totals/Averages	301,810		172,476		57.1	0.57
South Central						
Arbuckle	72,400		72,400		100.0	5.55
McGee Creek	113,930		113,930		100.0	4.02
Texoma*	2,564,210		2,564,210		100.0	2.73
Waurika*	190,200		186,348		98.0	0.00
Regional Totals/Averages	2,940,740		2,936,888		99.9	3.08
Southeast						
Broken Bow*	918,070		911,122		99.2	0.00
Hugo*	184,917		184,917		100.0	2.40
Pine Creek*	53,750		53,750		100.0	1.37
Sardis	274,330		274,330		100.0	3.39
Wister	60,162		60,162		100.0	8.55
Regional Totals/Averages	1,491,229		1,484,281		99.5	3.14
State Totals	12,331,071		11,848,674		96.1	1.14
* indicates seasonal pool operation; actual storage figures/percentages may vary.						

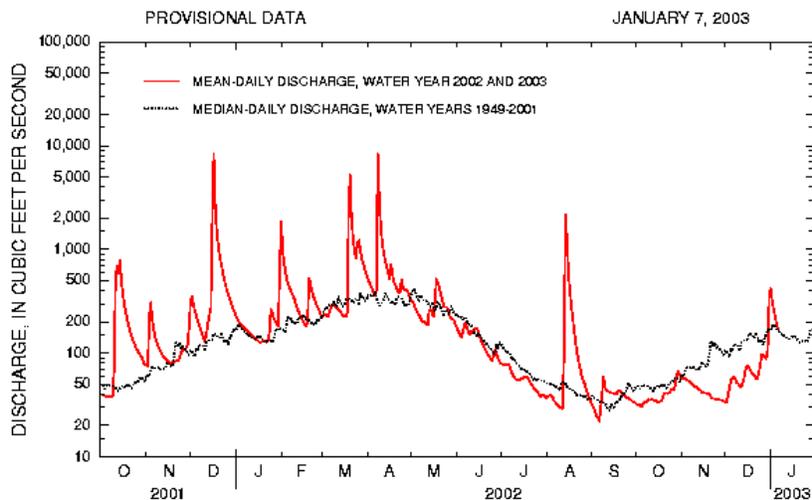
Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma

Station No. 07197000

Northeast Oklahoma

Drainage Area 307 square miles



Comparison of daily discharges for water year 2002 and 2003 and period of record for Baron Fork at Eldon, Oklahoma.

Data from U.S. Geological Survey

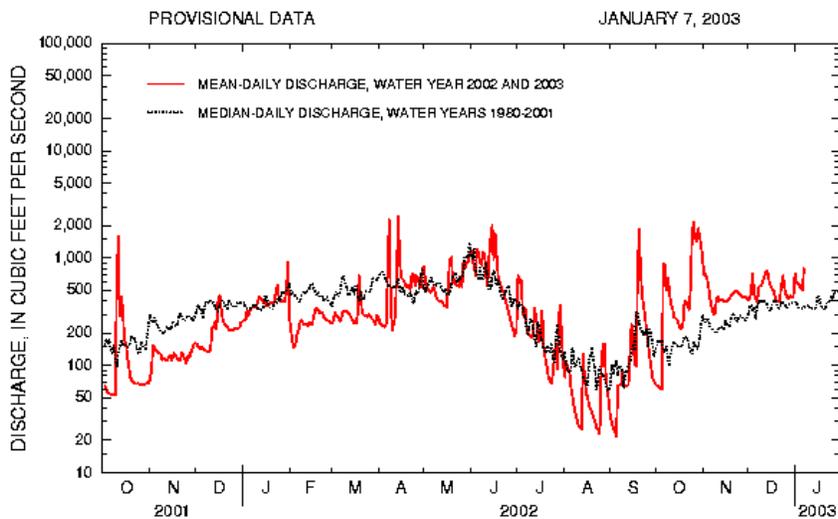
Canadian River at Purcell

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 2003 and period of record for Canadian River at Purcell, Oklahoma.

Data from U.S. Geological Survey

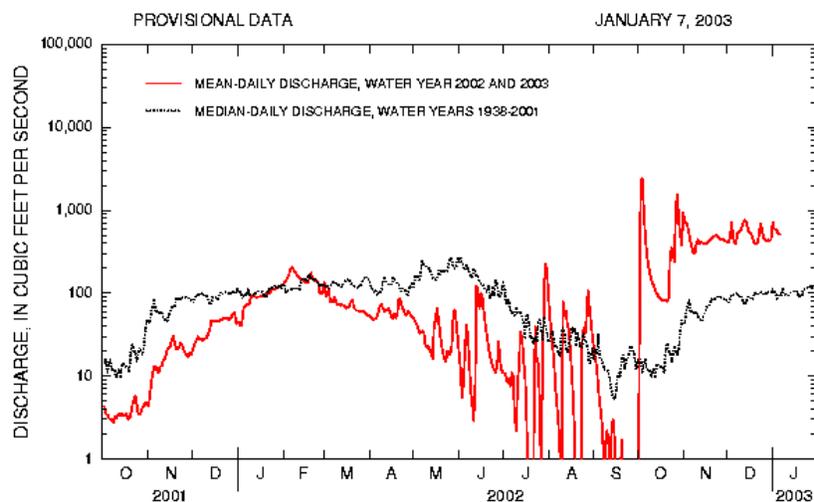
Cimarron River near Waynoka

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 2003 and period of record for Cimarron River near Waynoka, Oklahoma.

Data from U.S. Geological Survey

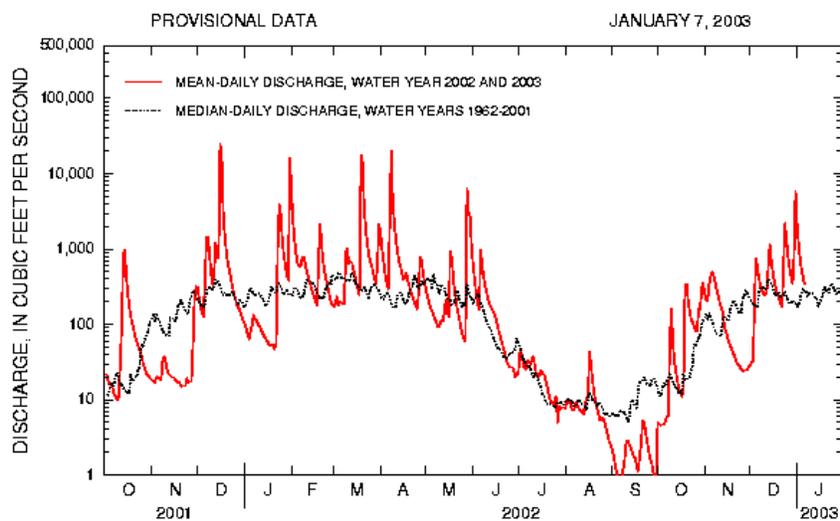
Glover River near Glover

Glover River near Glover, Oklahoma

Station No. 07337900

Southeast Oklahoma

Drainage Area 315 square miles



Comparison of daily discharges for water year 2002 and 2003 and period of record for Glover River near Glover, Oklahoma.

Data from U.S. Geological Survey

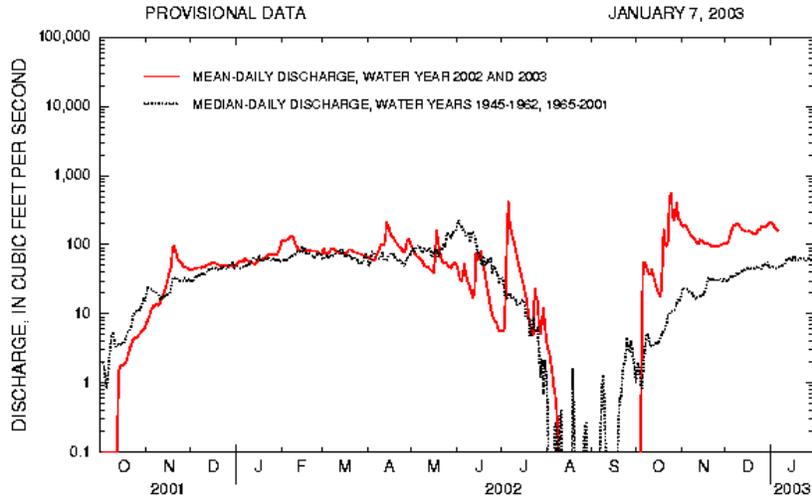
North Fork of the Red River near Carter

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 2003 and period of record for North Fork Red River near Carter, Oklahoma.

Data from U.S. Geological Survey

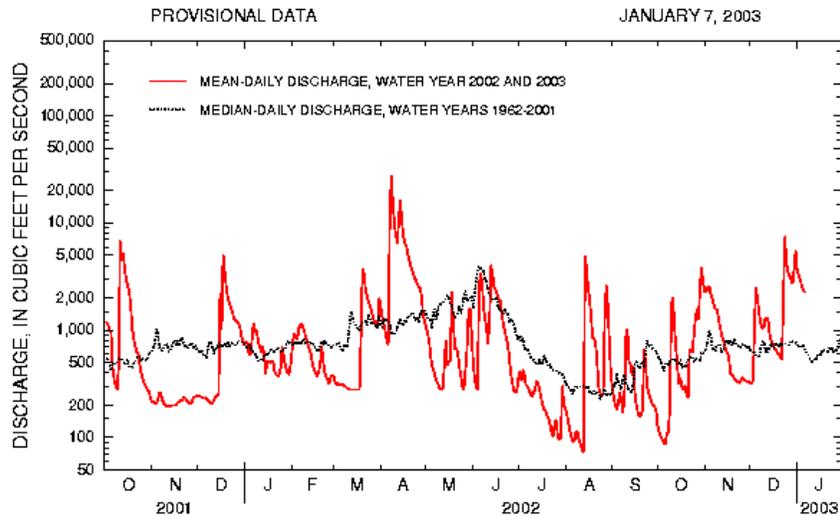
Washita River near Dickson

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 2003 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey