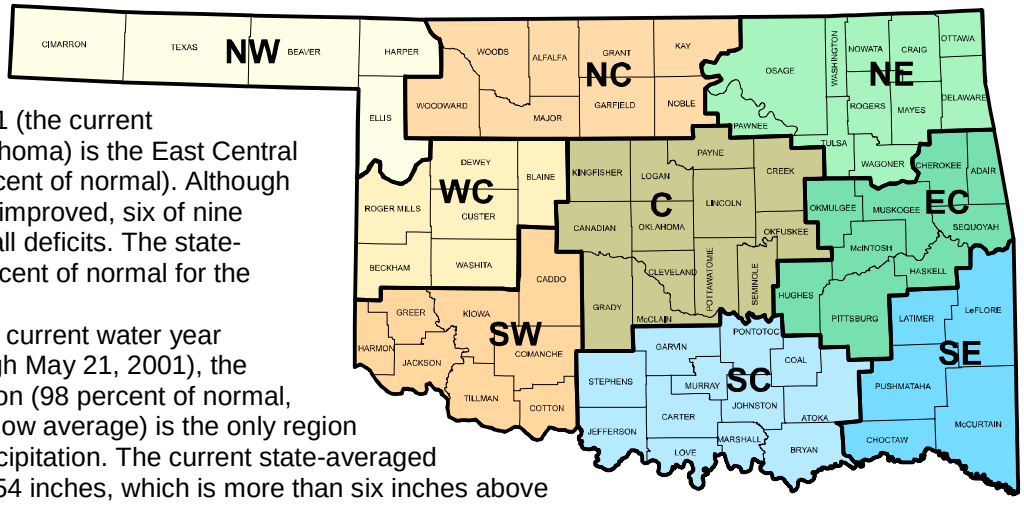
Oklahoma Water Resources Bulletin
& Summary of Current Conditions

MAY 23, 2001 **OKLAHOMA WATER RESOURCES BOARD**

Statewide Precipitation & General Summary

Typical spring-time precipitation replenished moisture supplies throughout much of Oklahoma, at least temporarily ameliorating emerging dry conditions in many areas of the state. According to preliminary Mesonet weather station data provided by the Oklahoma Climatological Survey and National Weather Service (see below), the area experiencing the lowest percent of normal rainfall from March 1 through May 21 (the current growing season in Oklahoma) is the East Central climate division (62 percent of normal). Although overall conditions have improved, six of nine regions still report rainfall deficits. The state-averaged total is 81 percent of normal for the period.



Conversely, for the current water year (October 1, 2000 through May 21, 2001), the Northeast climate division (98 percent of normal, almost one-half inch below average) is the only region without a surplus of precipitation. The current state-averaged precipitation total is 25.54 inches, which is more than six inches above average and 132 percent of normal for the period.

PRELIMINARY STATEWIDE PRECIPITATION BY CLIMATE DIVISION

(IN INCHES)

DIVISION (#)	CURRENT GROWING SEASON MARCH 1 – MAY 21, 2001			WATER YEAR OCTOBER 1, 2000 – MAY 21, 2001			RAINFALL SINCE APRIL 30
	TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	
Northwest (1)	6.80	1.92	139	14.81	5.99	168	4.30
North Central (2)	7.06	-0.07	99	20.92	6.64	146	4.59
Northeast (3)	6.65	-4.06	62	22.75	-0.46	98	3.64
West Central (4)	8.70	1.88	128	20.27	6.80	150	6.67
Central (5)	6.07	-3.25	65	25.28	5.85	130	3.82
East Central (6)	7.85	-4.31	65	31.22	4.00	115	4.72
Southwest (7)	7.43	0.14	102	24.07	9.15	161	5.60
South Central (8)	7.59	-3.02	72	32.80	10.06	144	4.18
Southeast (9)	10.30	-3.39	75	39.53	7.71	124	4.57
STATE-AVERAGED	**7.46**	**-1.74**	**81**	**25.54**	**6.20**	**132**	**4.57**

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 (May 19, below), moisture/drought conditions in Oklahoma both improved and deteriorated in various areas of the state. Four of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since April 28; the East Central ("mild drought") and Southeast ("incipient drought") climate divisions experienced the greatest decreases during the period. The Northeast region is the only other region currently experiencing drought conditions ("mild drought").

The latest monthly Standardized Precipitation Index (through April, below) indicates that only the Northeast climate division ("moderately dry," according to the 3-month SPI) is experiencing long-term dryness among the selected time periods (3-, 6-, 9- and 12-month SPI's). However, according to the 1- and 2-month SPI's, the Panhandle is the only region not experiencing dryness. In particular, the 2-month index indicates "extremely dry" conditions in the East Central climate division.

The latest Keetch-Byram Drought Index (May 21, 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 and conditions have actually improved within the last few weeks. Statewide, only one station is currently above 400, generally indicative of moderate drought conditions (no stations had readings above 400 on May 2); no other stations show KBDI readings above 300. Medford, in North Central Oklahoma, retains the highest KBDI value (427), followed by Jay (Northeast; 282) and Wister (280; Southeast). According to the Oklahoma Department of Agriculture (Forestry Services), as of April 24, Statewide Wildfire Preparedness remains at Level 2 (moderate fire danger). Conditions are generally dry and the danger of wildland fires escaping control is a concern. Caution is advised when conducting outdoor burning, particularly when high winds and low humidities are forecasted and outdoor burning should be avoided when winds exceed 20 mph.

Climate Division (#)	***Palmer Drought Severity Index***				***Standardized Precipitation Index*** *through April 2001*			
	Current Status 5/19/2001	Value 5/19	Value 4/28	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	VERY MOIST SPELL	3.71	2.40	1.31	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
North Central (2)	UNUSUAL MOIST SPELL	2.10	1.51	0.59	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.12	-0.92	-0.20	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
West Central (4)	VERY MOIST SPELL	3.20	0.81	2.39	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	INCIPIENT MOIST SPELL	0.88	0.72	0.16	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
East Central (6)	MILD DROUGHT	-1.39	-0.35	-1.04	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
Southwest (7)	VERY MOIST SPELL	3.39	1.44	1.95	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	UNUSUAL MOIST SPELL	2.04	2.11	-0.07	NEAR NORMAL	VERY WET	MODERATELY WET	NEAR NORMAL
Southeast (9)	INCIPIENT DROUGHT	-0.92	0.04	-0.96	NEAR NORMAL	VERY WET	NEAR NORMAL	NEAR NORMAL

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 5/21/2001	Anticipated Impact
Medford	Grant	North Central	427	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Jay	Delaware	Northeast	282	
Wister	LeFlore	Southeast	280	
1 station above 400				

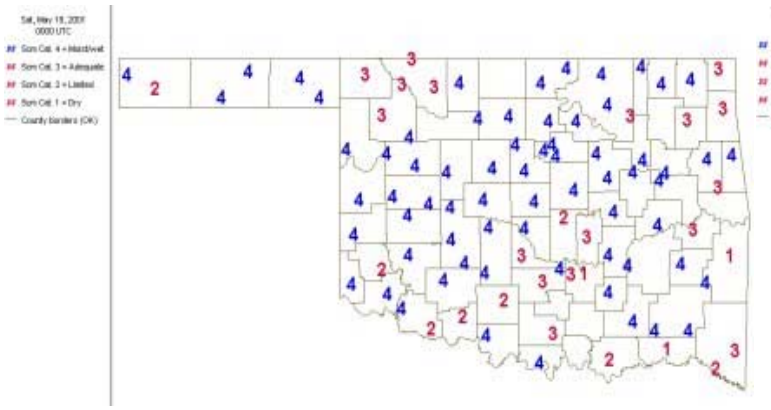
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

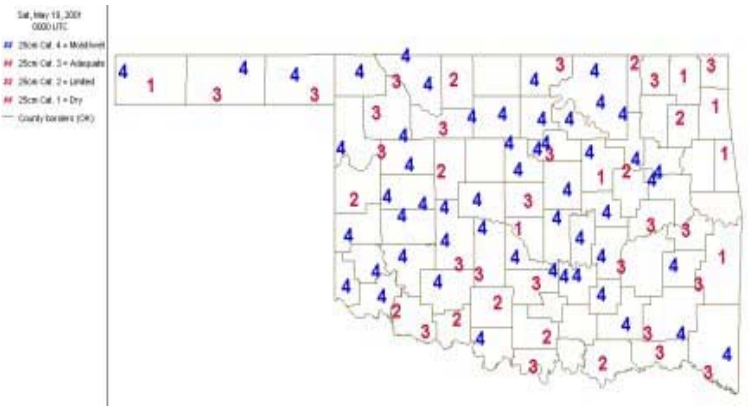
May 19, 2001

(courtesy Oklahoma Climatological Survey)

5 cm

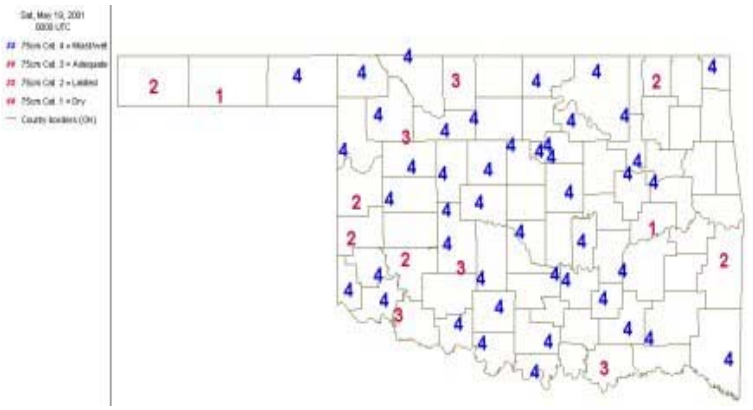


25 cm



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 (beginning October 1, 2000), flows in most state rivers and streams are generally near average, although discharges are “spiked” in many areas due to substantial runoff from recent storm events. Considering overall trends as well as current flows, the most recent data (May 21, 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, 2000 compared to long-term, normal/median daily discharges) indicate **below average flow** in *northeast* (Baron Fork in Cherokee County) and *southeast* (Glover River in McCurtain County) Oklahoma; **near average flow** in the *central* (Canadian River in McClain County) and *south central* (Washita River in Carter County) regions; and **above average flow** in the *northwest* (Cimarron River in Woods County) and *southwest* (North Fork/Red River in Beckham County).

Weather Forecast

The National Weather Service 6- to 10-day outlook (May 27-31) calls for normal precipitation for all of Oklahoma except the Panhandle, where below normal rainfall is expected. Normal temperatures are anticipated for all but the far eastern area of the state, where below normal temperatures may prevail.

Current models indicate that the persistent cold water phenomenon in the equatorial Pacific Ocean, referred to as La Niña, will gradually weaken over the next several months, with near normal or slightly above normal conditions likely during late 2001 and early 2002.

Crop Report

May 21 -- An outbreak of heavy thunderstorms inflicted Oklahoma during the latter part of the week. The series of storms produced heavy rains and hail, with flooding occurring in isolated areas. At least a dozen tornadoes were reported in the eastern half of the state, downing trees, power lines and even a few buildings. Damage from heavy straight-line winds was also a problem for many areas and some damage was reported. Rainfall for the week ranged from 2.86 inches in the southwest to .91 inch in the southeast. This precipitation was greatly needed to replenish soil moisture. Statewide topsoil and subsoil moisture levels improved from last week and were rated mostly adequate. Producers were busy planting summer crops and cutting hay until being stopped by the late-week rains. Farmers had 5.1 days suitable for fieldwork during the week.

The wheat crop continued to be highly variable but was rated in mostly fair to good condition statewide. Virtually the entire crop had headed by week's end. Wheat in the soft dough stage of development jumped 26 percentage points from last week to 50 percent. This total is behind last year but ahead of the five-year average of 42 percent. Crop insect activity was reported as mostly light to moderate across the state but armyworms were a concern in many areas. Wheat harvest is expected to begin in the next 7-10 days in the southwest. Producers continued preparation of row crop seedbeds and planting summer crops until being hindered by the eruption of storms. Future planting will be slowed or halted in the wetter areas until fields are able to dry. As of Sunday, planting and emergence of all row crops, except corn, was running ahead of the five-year average. Corn planting was 95 percent complete, slightly behind normal pace. Soybean and sorghum plantings were at 64 and 39 percent planted, respectively, while peanut and cotton planting progressed to nearly three-fourths planted. Row crop emergence advanced significantly during the week, particularly for cotton, peanuts and corn. Hay cutting was making excellent progress until being hindered by the heavy rains. The first cutting of alfalfa was 91 percent cut while other hay cutting was reported at 48 percent cut, both ahead of the five-year average. Producers also baled wheat and ryegrass hay during the week.

The recent rains should boost pasture growth in the coming weeks. Pasture conditions improved from the previous week and were rated in mostly good to fair condition statewide. Heavy armyworm infestations and the increasing appearance of grasshoppers led many producers to apply control treatments to the most heavily plagued pastures. Livestock were rated in mostly good condition. Livestock insect activity was rated mostly light to moderate, however problems with ticks and flies continued to be reported. Cattle auctions reported average marketings for the week.

Reservoir Storage

Reservoir storage in Oklahoma has improved substantially during the past few weeks and remains good throughout the state. As of May 21, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 99.1 percent full, a 1.8 percent increase from that recorded on May 1, according to information from the U.S. Army Corps of Engineers (Tulsa District). No reservoirs have experienced lake level decreases since that time (except for Texoma and Broken Bow, where levels were raised to accommodate seasonal pool operations). Only five reservoirs are operating at less than full capacity (compared to 14 early this month); no reservoirs are below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
as of May 21, 2001

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	1.23
Great Salt Plains	31,420	31,420	100.0	3.81
Kaw*	406,540	406,540	100.0	1.67
Regional Totals/Averages	**451,860**	**451,860**	**100.0**	**2.24**
NORTHEAST				
Birch	19,225	19,225	100.0	6.72
Copan	43,400	43,400	100.0	0.81
Fort Gibson	365,200	361,273	98.9	0.00
Grand	1,672,000	1,627,381	97.3	0.00
Hudson	200,300	200,300	100.0	8.86
Hulah	31,160	31,160	100.0	1.01
Keystone	278,122	278,122	100.0	1.01
Oologah	552,210	552,210	100.0	2.67
Skiatook	322,700	322,700	100.0	8.43
Regional Totals/Averages	**3,484,317**	**3,435,771**	**98.6**	**3.28**
WEST CENTRAL				
Canton	111,310	111,310	100.0	2.73
Foss	165,480	165,480	100.0	5.40
Regional Totals/Averages	**276,790**	**276,790**	**100.0**	**4.07**
CENTRAL				
Arcadia	27,520	27,520	100.0	2.83
Heyburn	7,105	7,105	100.0	1.39
Thunderbird	119,600	119,600	100.0	3.19
Regional Totals/Averages	**154,225**	**154,225**	**100.0**	**2.47**
EAST CENTRAL				
Eufaula*	2,368,223	2,329,819	98.4	0.00
Tenkiller	654,100	654,100	100.0	0.73
Regional Totals/Averages	**3,022,323**	**2,983,919**	**98.7**	**0.37**
SOUTHWEST				
Fort Cobb	80,010	80,010	100.0	6.05
Lugert-Altus	132,830	132,830	100.0	77.03
Tom Steed	88,970	85,145	95.7	0.00
Regional Totals/Averages	**301,810**	**297,985**	**98.7**	**27.69**
SOUTH CENTRAL				
Arbuckle	72,400	72,400	100.0	9.80
McGee Creek	113,930	113,930	100.0	0.85
Texoma*	2,628,914	2,628,914	100.0	2.15
Waurika*	190,200	190,200	100.0	11.08
Regional Totals/Averages	**3,005,444**	**3,005,444**	**100.0**	**5.97**
SOUTHEAST				
Broken Bow*	952,840	933,225	97.9	0.00
Hugo*	198,067	198,067	100.0	0.23
Pine Creek*	71,120	71,120	100.0	0.35
Sardis	274,330	274,330	100.0	18.56
Wister	60,162	60,162	100.0	3.10
Regional Totals/Averages	**1,556,519**	**1,536,904**	**98.7**	**4.45**
STATE TOTALS	**12,253,288**	**12,142,898**	**99.1**	**5.86**

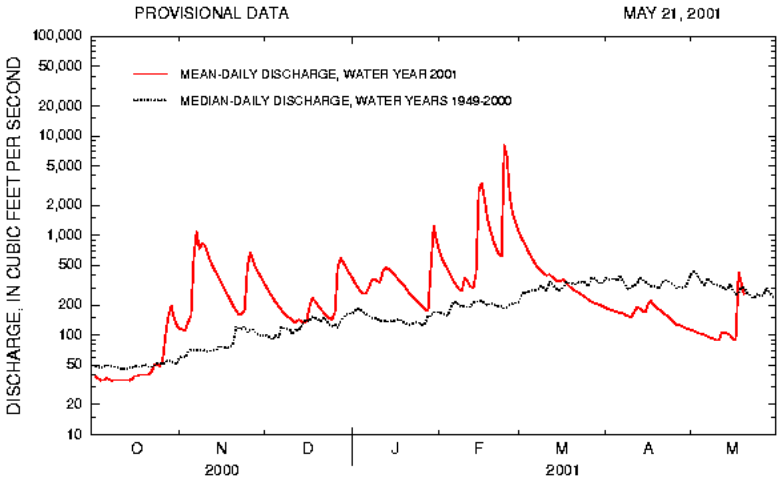
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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 2001
and period of record for Baron Fork at Eldon, Oklahoma.

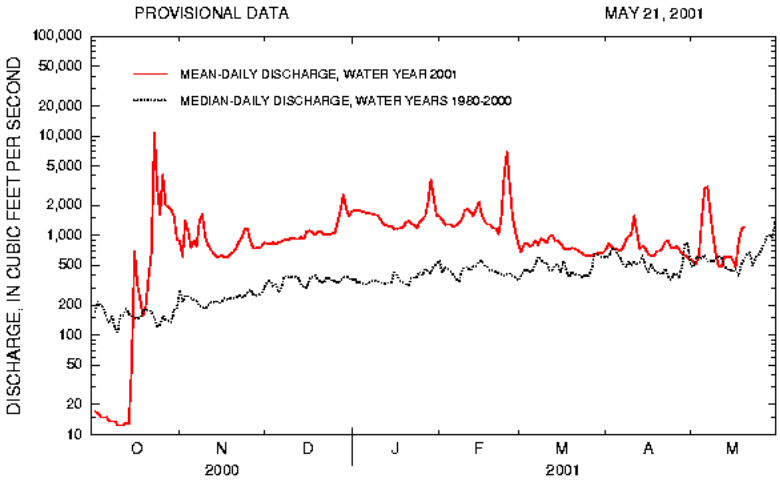
Data from U.S. Geological Survey

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 2001
and period of record for Canadian River at Purcell, Oklahoma.

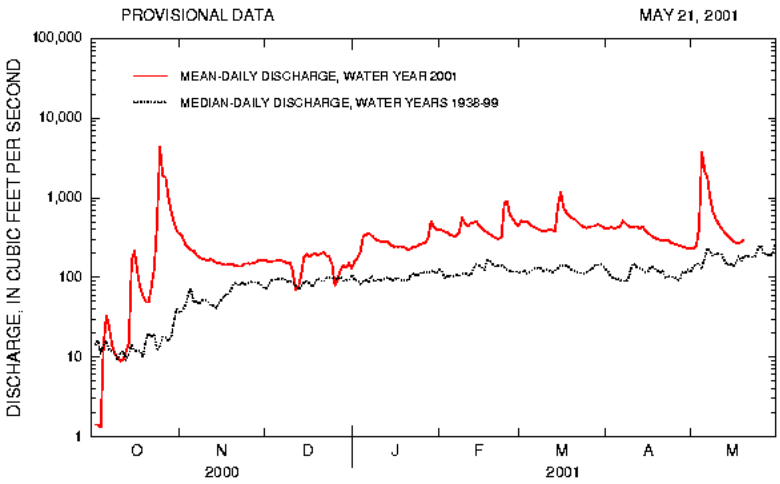
Data from U.S. Geological Survey

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 2001
and period of record for Cimarron River near Waynoka, Oklahoma.

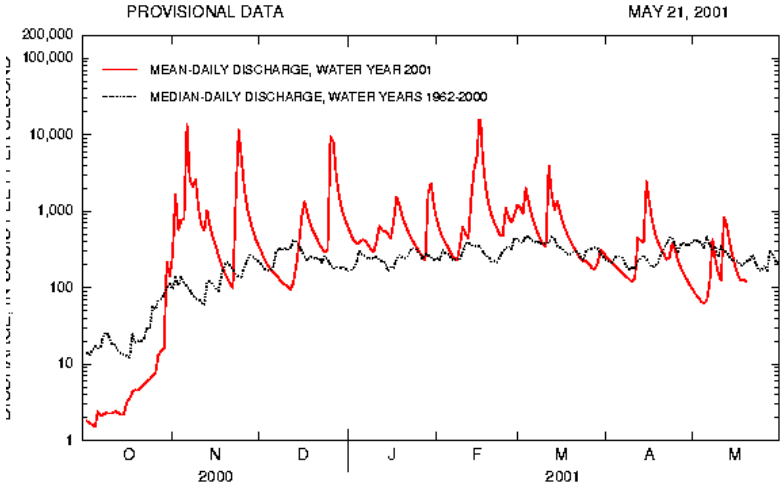
Data from U.S. Geological Survey

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 2001
and period of record for Glover River near Glover, Oklahoma.

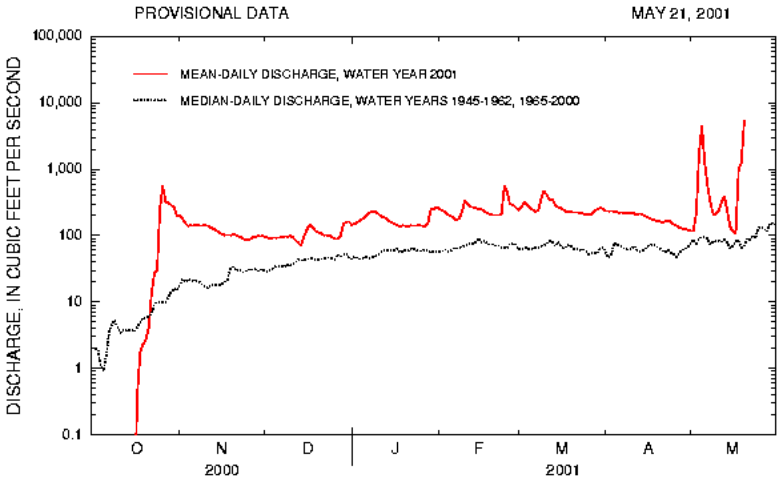
Data from U.S. Geological Survey

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 2001
and period of record for North Fork Red River near Carter, Oklahoma.

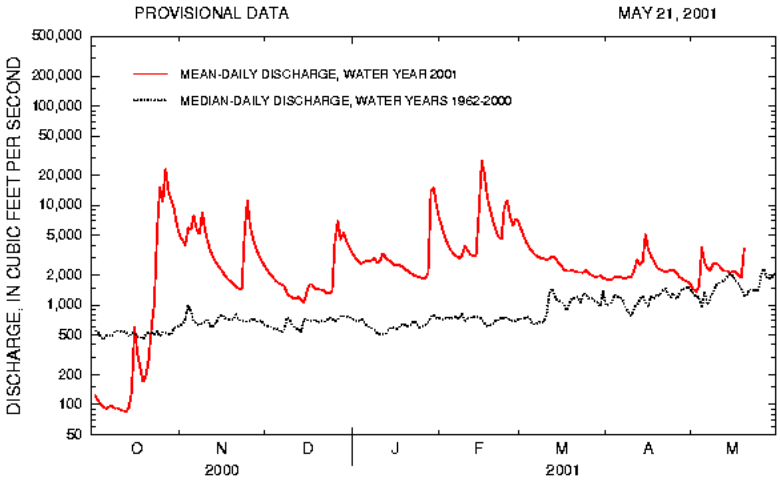
Data from U.S. Geological Survey

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 2001
and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey