Oklahoma Water Resources Bulletin
& Summary of Current Conditions

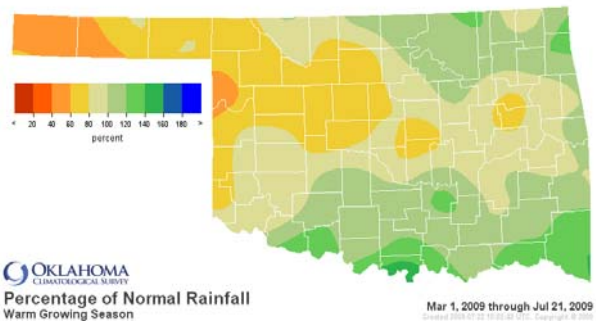
State of Oklahoma OWRB Water Resources Board the water agency

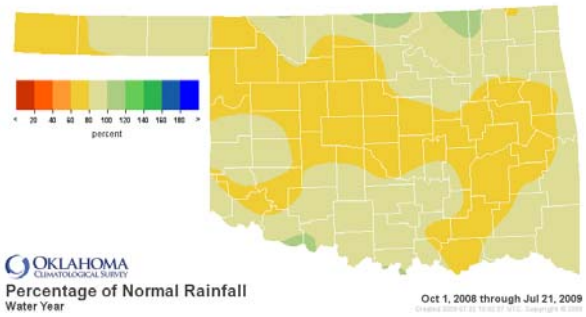
July 23, 2009

PRECIPITATION

Statewide Precipitation

Climate Division	Warm Growing Season March 1—July 21, 2009 Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal	Rank Since 1921	Water Year October 1, 2008—July 21, 2009 Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal	Rank Since 1921
Panhandle	7.11"	-4.38"	62%	11th driest	12.01"	-3.89"	76%	25th driest
North Central	13.95"	-2.37"	85%	35th driest	20.05"	-4.46"	82%	34th driest
Northeast	21.10"	+1.19"	106%	29th wettest	29.98"	-3.01"	91%	39th driest
West Central	11.69"	-3.52"	77%	21st driest	17.98"	-4.67"	79%	28th driest
Central	16.00"	-2.71"	86%	36th driest	22.35"	-8.08"	73%	21st driest
East Central	19.31"	-1.88"	91%	43rd driest	27.40"	-9.90"	73%	17th driest
Southwest	14.59"	-0.95"	94%	39th wettest	19.55"	-4.47"	81%	29th driest
South Central	22.40"	+3.13"	116%	18th wettest	27.80"	-5.46"	84%	30th driest
Southeast	26.43"	+3.98"	118%	18th wettest	36.73"	-5.77"	86%	32nd driest
Statewide	16.91"	-0.88"	95%	45th wettest	23.66"	-5.56"	81%	28th driest

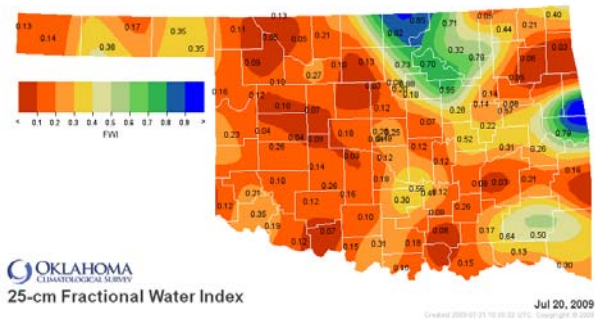


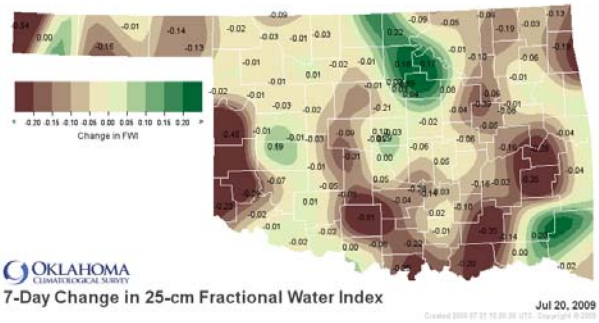


SOIL MOISTURE

Fractional Water Index[1]
July 20, 2009

25 CM (~10 INCHES)





[1] The Fractional Water Index ranges from very dry soil having a value of 0 to soil at field capacity illustrated by a value of 1. Specifically, 1.0 to 0.8 equals Enhanced Growth, 0.8 to 0.5 equals Limited Growth, 0.5 to 0.3 equals Plants Wilting, 0.3 to 0.1 equals Plants Dying, and less than 0.1 equals Barren Soil.

DROUGHT INDICES

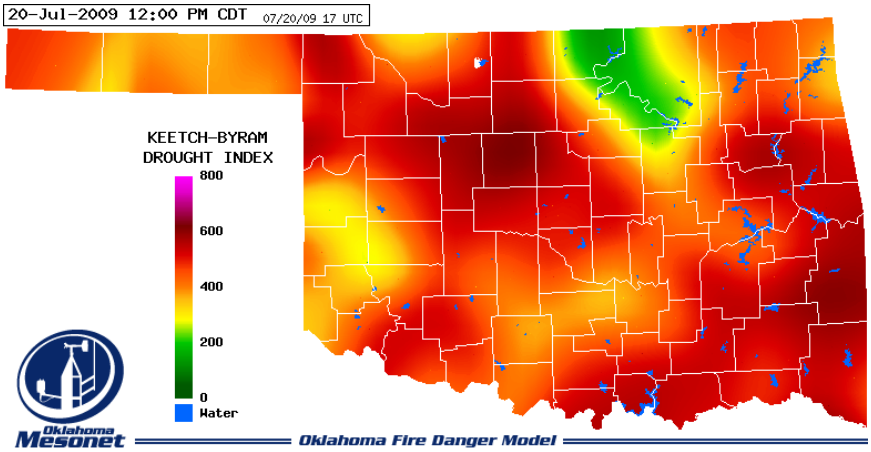
Palmer Drought Severity Index[1]					Standardized Precipitation Index[2] Through June 2009			
Climate Division	Current Status 7/18/2009	Value 7/18	Value 6/20	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest	MILD DROUGHT	-1.67	-0.79	**-0.88**	VERY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
North Central	NEAR NORMAL	0.30	1.99	**-1.69**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast	INCIPIENT DROUGHT	-0.59	1.56	**-2.15**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central	MILD DROUGHT	-1.38	-0.20	**-1.18**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central	MODERATE DROUGHT	-2.04	-1.30	**-0.74**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY
East Central	MILD DROUGHT	-1.85	-0.81	**-1.04**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Southwest	MILD DROUGHT	-1.40	-0.70	**-0.70**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central	MILD DROUGHT	-1.41	0.45	**-1.86**	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Southeast	MILD DROUGHT	-1.04	0.67	**-1.71**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL

- Seven climate divisions are currently experiencing drought conditions, according to the PDSI.
- All nine climate divisions have undergone PDSI moisture decreases since June 20.
- Four climate divisions are experiencing near long-term dry conditions, according to the SPI.

Keetch-Byram Drought Fire Index[3]

Mesonet Station	County	Climate Division	Current Value 7/20/2009
Marshall	Logan	Central	618
Talihina	LeFlore	Southeast	611
Idabel	McCurtain	Southeast	600

- Stations currently at or above 600 (July 20) = 3
- Stations above 600 on June 23 = 0

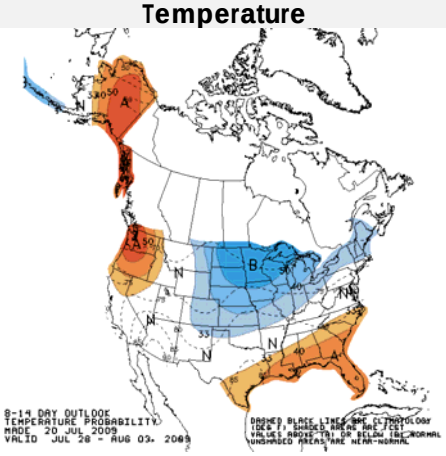


[1] The Palmer Drought Severity Index, the first comprehensive drought index developed in the United States, is calculated based on precipitation, temperature, and soil moisture. Though widely used by government agencies and states to trigger drought relief programs, the PDSI may underestimate or overestimate the severity of ongoing dry periods.
[2] The Standardized Precipitation Index, 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.
[3] The Keetch-Byram Drought Index 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. KBDI values of 600 and above are often associated with more severe drought and increased wildfire occurrence.

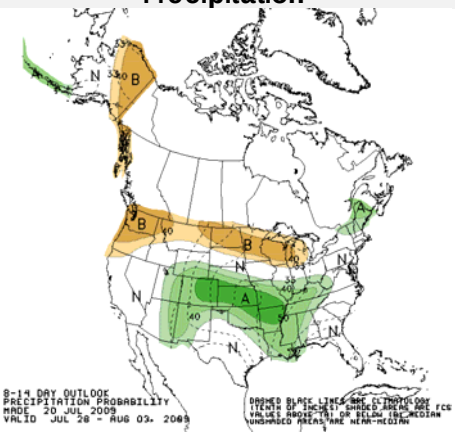
WEATHER/DROUGHT FORECAST

8- to 14-Day Outlook
July 28-August 3, 2009

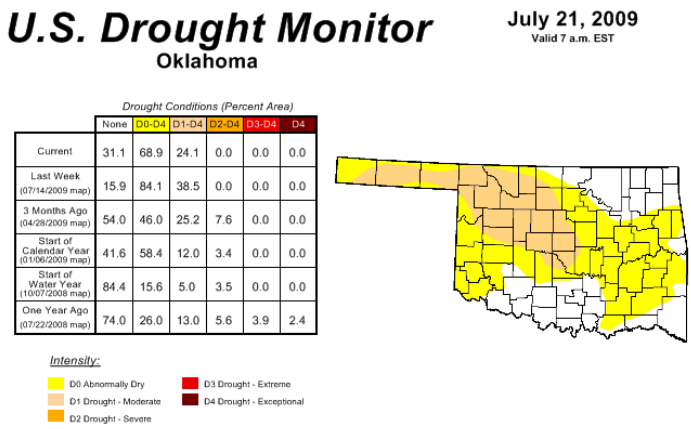
Temperature

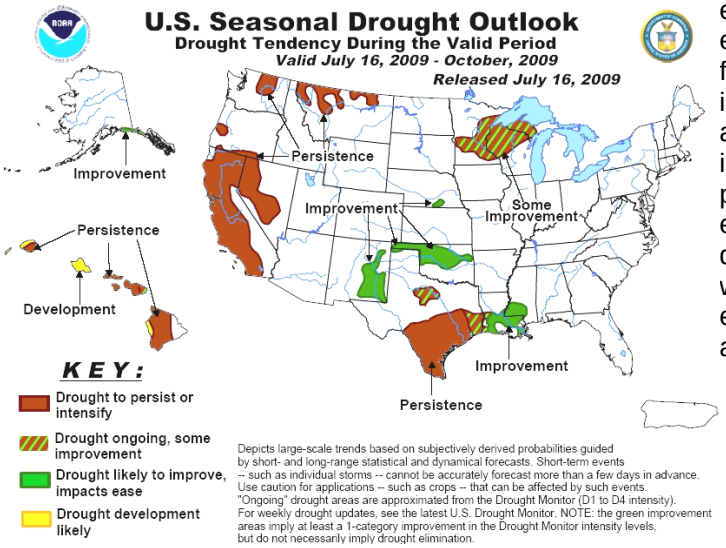


Precipitation



Regional Drought Summary & Outlook





July 21—The latest U.S. Drought Monitor reports that beneficial rain was observed from Nebraska southward into central and eastern Texas, most notably reducing drought in eastern and southern Oklahoma as well as northern and eastern Texas. Despite the widespread shower activity, pockets of dryness prevailed in west central Texas, western Oklahoma, and south central Nebraska, with very minimal improvement in drought designation. Scattered showers did little to ease Severe to Exceptional Drought (D2-D4) in southern Texas, where another week of record heat (100°F or greater) compounded the impacts of ongoing dryness. The latest satellite-derived Vegetation Health Index depicted conditions much worse than the same time last year over southern Texas, indicative of severely stressed crops and pastures. Farther north, up to an inch of rainfall eased Abnormal Dryness in North Dakota, although the moisture generally bypassed the Dakotas' D0 areas.

According to the Drought Outlook (July 16), hot temperatures combined with below normal rainfall have resulted in drought expansion across the western Gulf region while an exceptional drought continues in south Texas. Drought is forecast to persist across south Texas, but short- term improvement is likely in the lower Mississippi Valley. The arrival of El Niño could bring relief to the Texas drought later in the fall and winter. The southwest monsoon that typically peaks during August should result in improvement across eastern New Mexico. Improvement is also forecast for drought areas across southern Nebraska and Oklahoma where much-needed rainfall and cooler temperatures are expected during the remainder of July. Some improvement is also forecast across the upper Midwest.

CROP REPORT

July 20, 2009—Temperatures remained hot this past week with highs reaching triple-digits statewide. A cool front brought relief for the weekend. Thunderstorms rolled through central Oklahoma Thursday with heavy rain, high winds, and lightning causing widespread power outages. Most of Oklahoma is still in desperate need of moisture, despite sporadic rainfall in parts of the state. Drought-like conditions are taking a heavy toll on summer crop development and condition. Both topsoil and subsoil moisture conditions continued to worsen, with topsoil rated mostly in the short to very short range and subsoil rated mostly in the adequate to short range. There were 5.9 days suitable for field work.

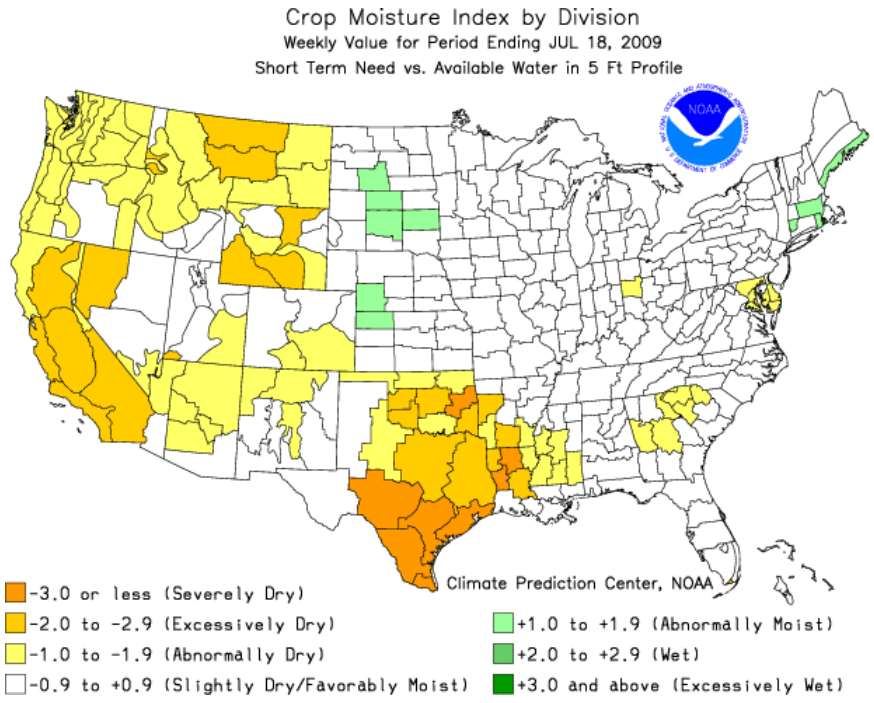
Seventy-eight percent of the state's winter wheat acres had been plowed by week's end, up three points from last week and eight points ahead of the five-year average. Three-quarters of the state's rye acres had been plowed, equal to last year and one point ahead of normal. Oats plowed reached 76 percent, up five points from the previous week and six points ahead of normal.

Excessive heat and continued dry weather have further stressed summer crops. Mid-week showers were a benefit in some areas, although most of the state is still in need of additional rainfall to revive summer crops. Nearly two-thirds of the state's corn crop was silking by week's end, up six points from last week but 11 points behind the five-year average. Thirty-four percent of the corn acres reached the dough stage of development, seven points behind normal. Corn silage harvest is underway in some areas of the state. Sorghum emerged reached 77 percent, while sorghum headed reached 12 percent, eight points behind the five-year average. Virtually all of the state's soybeans had emerged by Sunday, 11 points ahead of normal. By week's end, 38 percent of the soybeans had reached the blooming stage of development, one percentage point ahead of the five-year average. Peanuts pegging reached 63 percent, 22 points behind normal. A small portion of the state's peanut crop began setting pods by Sunday. Cotton squaring reached 66 percent, four points behind the five-year average, while a small portion of the state's cotton acres began setting bolls.

All of the state's watermelons were running by week's end, while 89 percent were setting fruit, an increase of seven points from last week but six points behind normal. Watermelons harvested reached 21 percent complete by week's end, 28 points behind normal.

Additional moisture is needed to improve the state's hay crop, as conditions continue to worsen. Both alfalfa and other hay conditions rated mostly in the good to fair range. Virtually all of the state's alfalfa received a second cutting by week's end. Third cuttings of alfalfa were 50 percent complete by Sunday, an 18 point jump from the previous week but 16 points behind normal. Producers completed the first cutting on 83 percent of other hay acres, one point behind normal. Ten percent of the state's other hay acres received a second cutting by week's end.

Extreme heat and dry weather continues to have an adverse effect on the state's pastures and range. Conditions again declined, but remained mostly in the good to fair range. Most areas are still in dire need of moisture. High temperatures continue to affect livestock, although conditions held in the mostly good to fair range. Average livestock marketings were reported last week.



RESERVOIR STORAGE

- 16 reservoirs are currently operating at less than full capacity (compared to 3 four weeks ago).
- 28 reservoirs have experienced lake level decreases.

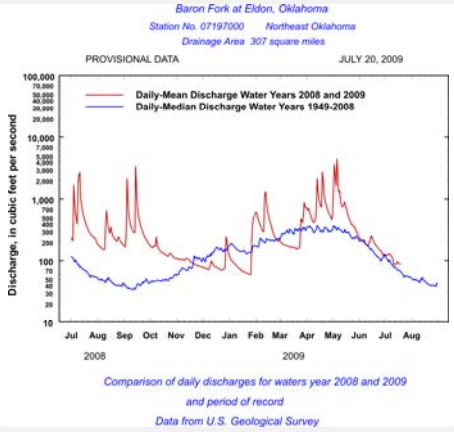
Storage in Selected Oklahoma Lakes & Reservoirs
July 21, 2009

Lake or Reservoir	Normal Pool Elevation (feet)	Previous Elevation 06/24/2009 (feet)	Current Elevation 07/21/2009 (feet)	Change in Elevation (feet)	Current Flood Control Storage (acre-feet)
North Central					
Fort Supply	2004.00	2004.04	2003.40	(0.64)	(1,023)
Great Salt Plains	1125.00	1126.50	1125.35	(1.15)	2,937
Kaw*	1011.20	1016.56	1012.37	(4.19)	21,050
Northeast					
Birch	750.50	750.94	750.96	0.02	527
Copan	710.00	710.64	710.47	(0.17)	2,667
Fort Gibson	554.00	555.20	555.37	0.17	26,700
Grand*	744.00	745.66	744.06	(1.60)	2,760
Hudson	619.00	622.64	620.03	(2.61)	11,392
Hulah	733.00	733.11	734.56	1.45	9,618
Keystone*	723.00	727.01	726.09	(0.92)	62,819
Oologah*	638.00	639.98	638.94	(1.04)	29,747
Skiatook	714.00	714.65	714.07	(0.58)	766
West Central					
Canton	1615.40	1615.41	1614.87	(0.54)	(4,169)
Foss	1642.00	1641.79	1641.30	(0.49)	(4,676)
Central					
Arcadia	1006.00	1005.94	1005.67	(0.27)	(587)
Heyburn	761.50	761.52	761.04	(0.48)	(467)
Thunderbird	1039.00	1039.21	1038.42	(0.79)	(3,480)
East Central					
Eufaula*	586.50	587.66	585.89	(1.77)	(64,826)
Tenkiller	632.00	632.46	631.38	(1.08)	(8,122)
Southwest					
Fort Cobb	1342.00	1342.40	1341.84	(0.56)	(595)
Lugert-Altus	1559.00	1555.49	1548.26	(7.23)	(56,779)
Tom Steed	1411.00	1407.94	1407.20	(0.74)	(22,246)
South Central					
Arbuckle	872.00	873.11	872.67	(0.44)	1,595
McGee Creek**	175.90	176.23	176.02	(0.21)	1,474
Texoma*	618.70	619.33	618.34	(0.99)	(25,119)
Waurika*	951.40	952.05	951.51	(0.54)	1,115
Southeast					
Broken Bow*	602.50	602.83	600.87	(1.96)	(23,652)
Hugo*	407.50	410.23	407.86	(2.37)	5,353
Pine Creek*	442.00	442.60	441.52	(1.08)	(2,246)
Sardis	599.00	599.25	598.73	(0.52)	(3,616)
Wister	478.00	478.48	477.61	(0.87)	(2,286)

** indicates seasonal pool operation* *** elevation in meters* *negative numbers in red, parentheses*

STREAMFLOW CONDITIONS

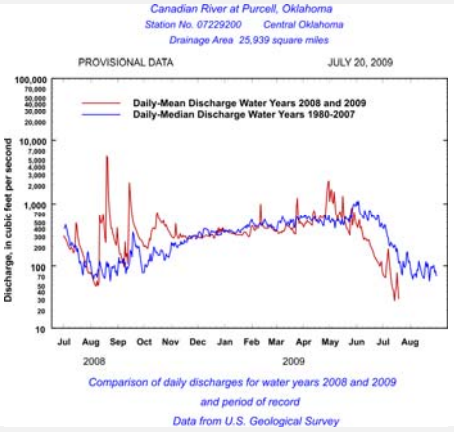
Baron Fork at Eldon



Comparison of daily discharges for waters year 2008 and 2009 and period of record

Data from U.S. Geological Survey

Canadian River at Purcell



Comparison of daily discharges for water years 2008 and 2009 and period of record

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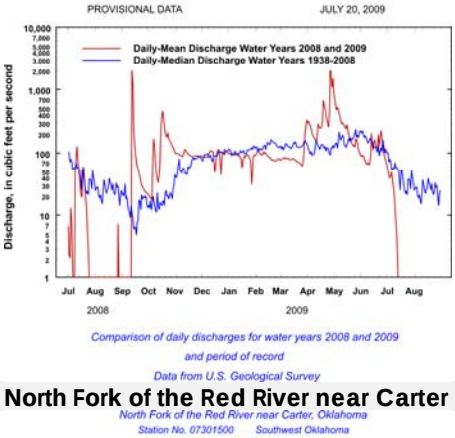
Cimarron River near Waynoka



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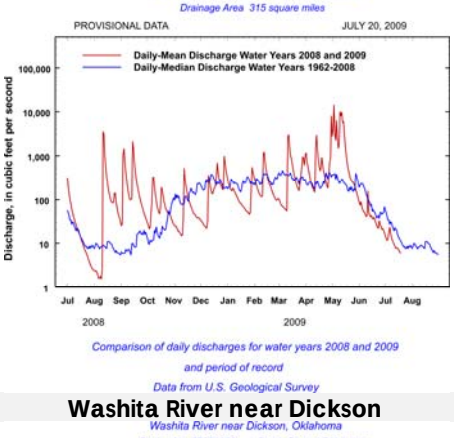
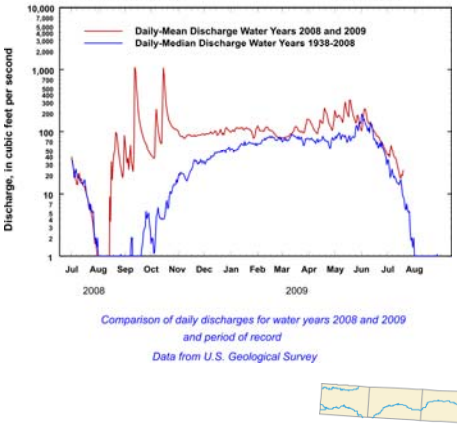
Glover River near Glover



Comparison of daily discharges for water years 2008 and 2009 and period of record

Data from U.S. Geological Survey

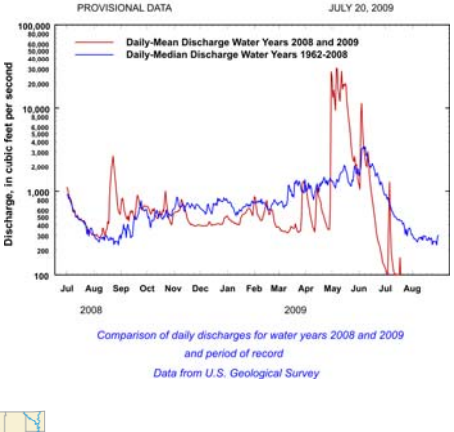
North Fork of the Red River near Carter



Comparison of daily discharges for water years 2008 and 2009 and period of record

Data from U.S. Geological Survey

Washita River near Dickson



Comparison of daily discharges for water years 2008 and 2009 and period of record

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Water Bulletin information/data courtesy of National Weather Service, Climate Prediction Center, Oklahoma Climatological Survey, State Department of Agriculture, Food, and Forestry, 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.
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