

# Oklahoma Water Resources Bulletin & Summary of Current Conditions

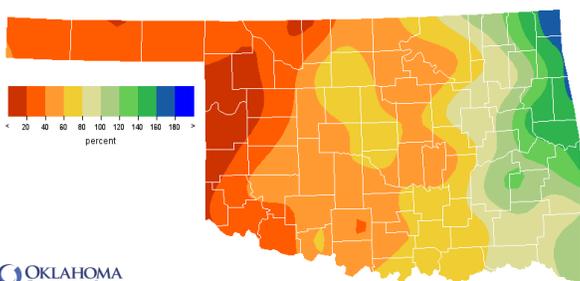


June 9, 2011

## PRECIPITATION

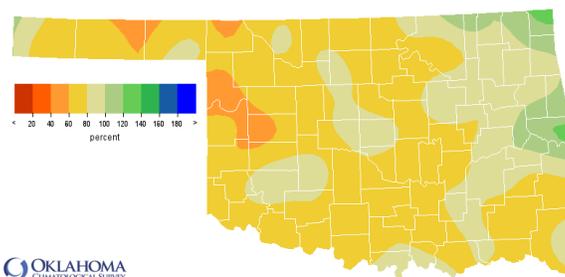
### Statewide Precipitation

CLIMATE DIVISION	Spring Growing Season March 1 – June 6, 2011				Last 365 Days June 7, 2010 – June 6, 2011			
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	RANK SINCE 1921	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	RANK SINCE 1921
Panhandle	1.78"	-5.65"	24%	1st driest	13.94"	-7.16"	66%	8th driest
North Central	4.59"	-6.55"	41%	4th driest	22.75"	-8.90"	72%	15th driest
Northeast	13.64"	-0.43"	97%	36th wettest	38.60"	-3.37"	92%	42nd wettest
West Central	3.04"	-7.63"	28%	2nd driest	18.35"	-10.74"	63%	5th driest
Central	7.68"	-5.64"	58%	8th driest	28.90"	-9.09"	76%	16th driest
East Central	17.28"	+2.00"	113%	20th wettest	42.20"	-3.89"	92%	40th driest
Southwest	4.54"	-6.20"	42%	3rd driest	23.64"	-7.16"	77%	15th driest
South Central	8.19"	-5.65"	59%	5th driest	30.54"	-10.42"	75%	13th driest
Southeast	16.98"	+0.71"	104%	33rd wettest	39.91"	-11.03"	78%	12th driest
<b>Statewide</b>	<b>8.55"</b>	<b>-3.98"</b>	<b>68%</b>	<b>12th driest</b>	<b>28.78"</b>	<b>-7.91"</b>	<b>78%</b>	<b>18th driest</b>



OKLAHOMA CLIMATOLOGICAL SURVEY  
Percentage of Normal Rainfall  
Spring 2011

Mar 1, 2011 through Jun 6, 2011  
Created 2011-06-07 10:00:48 UTC. Copyright © 2011



OKLAHOMA CLIMATOLOGICAL SURVEY  
Percentage of Normal Rainfall  
Last 365 Days

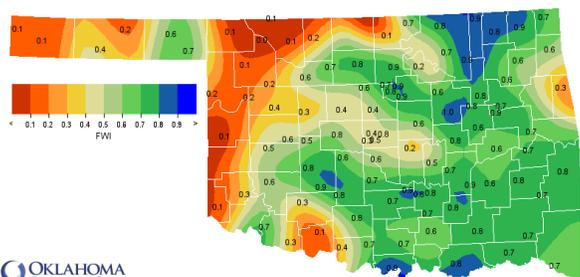
Jun 7, 2010 through Jun 6, 2011  
Created 2011-06-07 10:00:48 UTC. Copyright © 2011

## SOIL MOISTURE

### Fractional Water Index<sup>1</sup>

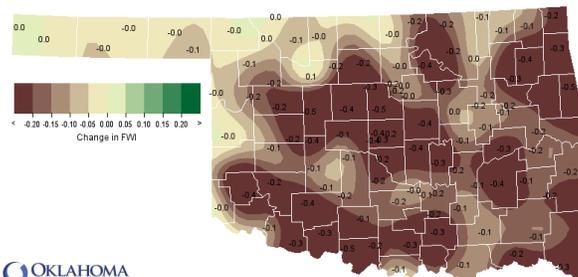
June 6, 2011

25 CM (~10 INCHES)



OKLAHOMA CLIMATOLOGICAL SURVEY  
25-cm Fractional Water Index

Jun 6, 2011  
Created 2011-06-07 10:00:48 UTC. Copyright © 2011



OKLAHOMA CLIMATOLOGICAL SURVEY  
7-Day Change in 25-cm Fractional Water Index

Jun 6, 2011  
Created 2011-06-07 10:00:48 UTC. Copyright © 2011

<sup>1</sup> 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. [1.0-0.8 = Enhanced Growth; 0.8-0.5 = Limited Growth; 0.5-0.3 = Plants Wilting; 0.3-0.1 = Plants Dying; <0.1 = Barren Soil.]

## DROUGHT INDICES

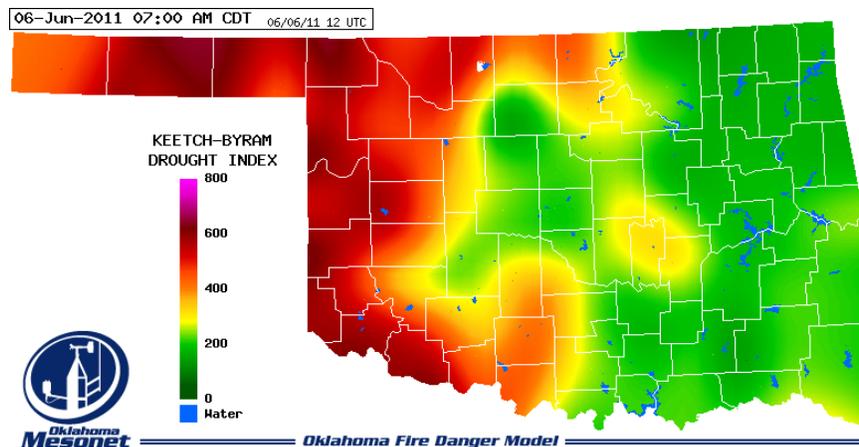
Palmer Drought Severity Index <sup>1</sup>					Standardized Precipitation Index <sup>2</sup> Through May 2011			
CLIMATE DIVISION	CURRENT STATUS 6/4/2011	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		6/4	5/7					
Northwest	SEVERE DROUGHT	-3.05	-1.86	<b>-1.19</b>	VERY DRY	EXCEPTIONALLY DRY	EXTREMELY DRY	VERY DRY
North Central	MILD DROUGHT	-1.66	-1.37	<b>-0.29</b>	MODERATELY DRY	VERY DRY	VERY DRY	MODERATELY DRY
Northeast	MOIST SPELL	1.48	0.57	<b>0.91</b>	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central	MODERATE DROUGHT	-2.76	-2.09	<b>-0.67</b>	EXTREMELY DRY	EXTREMELY DRY	VERY DRY	VERY DRY
Central	MILD DROUGHT	-1.88	-2.23	<b>0.35</b>	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL
East Central	UNUSUAL MOIST SPELL	2.29	1.91	<b>0.38</b>	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest	SEVERE DROUGHT	-3.35	-3.00	<b>-0.35</b>	EXTREMELY DRY	EXTREMELY DRY	VERY DRY	NEAR NORMAL
South Central	MODERATE DROUGHT	-2.34	-2.07	<b>-0.27</b>	EXTREMELY DRY	VERY DRY	MODERATELY DRY	MODERATELY DRY
Southeast	MOIST SPELL	1.28	1.79	<b>-0.51</b>	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY

- Six climate divisions are currently experiencing drought conditions, according to the PDSI. The Southwest and Northwest climate divisions are in severe drought.
- Six climate divisions have undergone PDSI moisture decreases since May 7.
- Six climate divisions are experiencing near long-term dry conditions, according to the SPI.

### Keetch-Byram Drought Fire Index<sup>3</sup>

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 6/6/2011
Altus	Jackson	Southwest	706
Erick	Beckham	West Central	631
Hooker	Texas	Panhandle	629

- Stations currently at or above 600 (June 6) = 6
- Stations above 600 on May 9 = 4



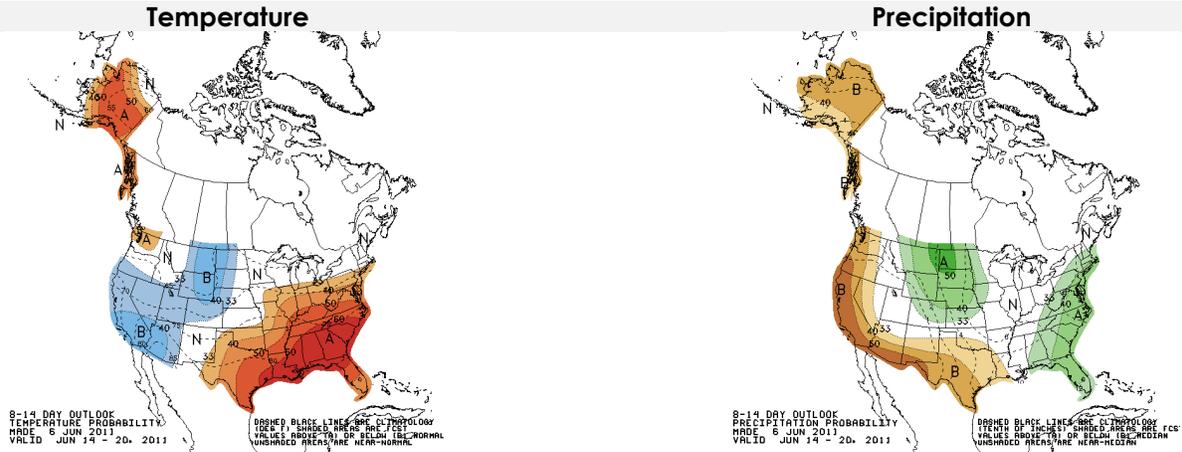
<sup>1</sup> The Palmer Drought Severity Index, the first comprehensive drought index developed in the United States, is calculated based on precipitation, temperature, and soil moisture. Though widely used by government agencies and states to trigger drought relief programs, the PDSI may underestimate or overestimate the severity of ongoing dry periods.

<sup>2</sup> 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.

<sup>3</sup> 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 June 14-20, 2011



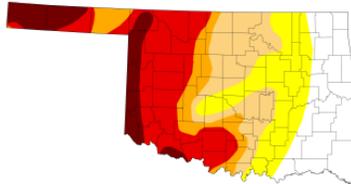
## Regional Drought Summary & Outlook

### U.S. Drought Monitor

June 7, 2011  
Valid 7 a.m. EST

#### Oklahoma

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.11	77.89	59.26	42.32	33.11	9.90
Last Week (05/31/2011 map)	32.30	67.70	55.37	41.36	30.03	9.97
3 Months Ago (03/08/2011 map)	0.02	99.98	81.75	28.58	0.00	0.00
Start of Calendar Year (12/28/2010 map)	13.82	86.18	47.90	1.50	0.00	0.00
Start of Water Year (09/28/2010 map)	66.28	33.72	4.21	0.00	0.00	0.00
One Year Ago (06/01/2010 map)	93.68	6.32	0.00	0.00	0.00	0.00



#### Intensity:

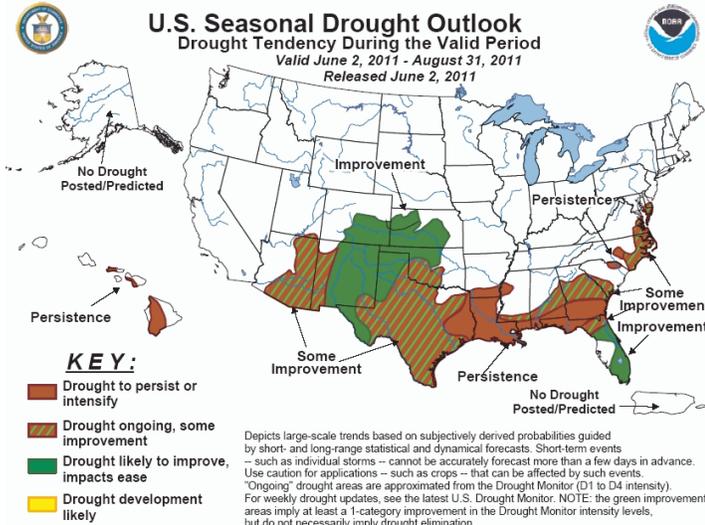
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>

USDA  
NOAA/NWS/NCEP/CPC  
Released Thursday, June 9, 2011  
Matthew Rosencrans, NOAA/NWS/NCEP/CPC

### U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period Valid June 2, 2011 - August 31, 2011 Released June 2, 2011



June 7 – The latest U.S. Drought Monitor reports that minor amounts of rain made a dent in the drought across extreme northwestern Texas and northeastern New Mexico (with one station reporting 3.2 inches and surrounding stations reporting about an inch of precipitation). The rest of Texas and Oklahoma were dry, prompting some expansion of each drought category in those two states. The hot temperatures (above 100 degrees many days, meaning anomalies of more than 10 degrees above normal) and windy conditions continue to extract moisture from the soil. The atmospheric flow pattern is expected to bring significant precipitation to the northern Great Plains, Great Lakes, and from the Mid-Atlantic states to the Northeast. Multiple storm systems are forecast to move across these regions, with the most precipitation forecast for the Middle Mississippi River Valley.

According to the latest Drought Outlook (June 2), a classic and persistent La Niña precipitation pattern has dominated the country since Autumn 2010, resulting in broad areas of drought, especially through Texas and the southern High Plains. La Niña should loosen its grip through the meteorological summer of 2011, leaving much uncertainty about how conditions will evolve by the end of August. The forecasts of improvement for the parched areas of Texas and southern High Plains were driven by the approach of a neutral to climatologically wet season which should provide some moistening. There is nothing to indicate significant drought relief during the forecast period. In fact, prior to any seasonal increase in rainfall across the southern High Plains, conditions may well get worse before they get better.

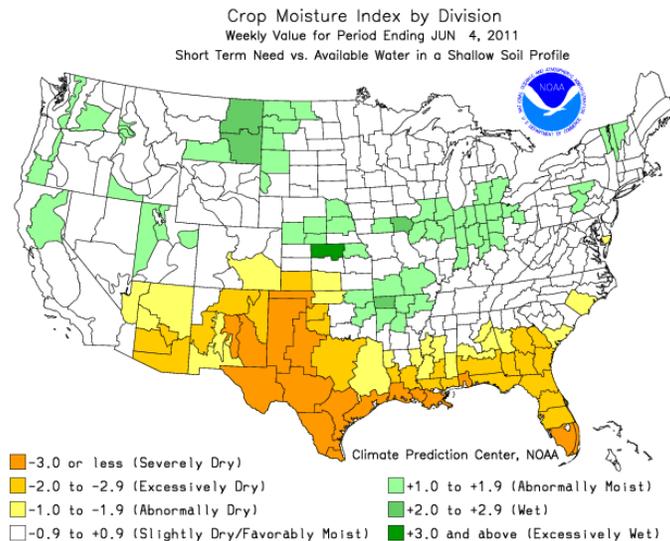
## CROP REPORT

June 6, 2011 – Oklahoma experienced mild, dry weather for the majority of last week with statewide temperatures averaging 80 degrees. Very little rainfall was recorded across the state during the week. Notably, the Boise City Mesonet received a quarter-inch of rainfall last week, ending a 250-day dry spell for the area. In addition to the warm temperatures, the latter portion of the week was windy, with wind gusts up to 31 miles per hour. Portions of the state are still experiencing drought conditions and are still in need of rainfall. Topsoil moisture conditions decreased slightly to rate mostly in the short to very short range, with subsoil moisture conditions also rating mostly in the short to very short range. The mild weather allowed for a busy week of field activities, with 6.6 days suitable for field work.

Well ahead of normal, harvest activities accelerated last week. Wheat harvested increased significantly, jumping 32 points to reach 45 percent complete by Sunday. Rye harvested reached 22 percent complete by week's end. Oats headed reached 93 percent complete and 66 percent of the crop was in the soft dough stage by Sunday. Canola in the mature stage reached 98 percent complete by week's end, up seven points from the previous week, and 50 percent of the crop had been harvested, a 32 point increase from the previous week.

Row crop planting continued to progress steadily. Corn emerged reached 91 percent complete by Sunday. Sorghum seedbed preparation increased to 93 percent complete while 63 percent was planted and 26 percent of the crop had emerged by week's end. Soybean seedbed preparation was 84 percent complete while 54 percent of the crop was planted and 33 percent had emerged by Sunday. Peanut planting was 84 percent complete by week's end and 56 percent of the crop had emerged. Cotton planted was 55 percent complete and 14 percent of the crop had emerged by Sunday. The watermelon crop was completely planted by week's end and 65 percent of the plants were running vines.

Dry conditions last week allowed farmers to continue cutting and baling hay. Conditions continued to be rated mostly in the fair to very poor range. First cuttings of alfalfa reached 88 percent complete while second cuttings reached 18 percent complete, both behind the five-year average. First cuttings of other hay reached 40 percent complete by Sunday. Pasture and range conditions were mostly in the good to fair range. Pasture grasses are showing signs of stress due to the dry conditions. Livestock conditions were rated mostly in the good to fair range.



## RESERVOIR STORAGE

- 15 reservoirs are currently operating at less than full capacity (compared to 10 four weeks ago).
- 21 reservoirs have experienced lake level decreases.

Storage in Selected Oklahoma Lakes & Reservoirs					
June 7, 2011					
Lake or Reservoir	Normal Pool Elevation (feet)	Previous Elevation 5/9/2011 (feet)	Current Elevation 6/7/2011 (feet)	Change in Elevation (feet)	Current Flood Control Storage (acre-feet)
<b>North Central</b>					
Fort Supply	2004.00	2004.29	2003.99	(0.30)	(17)
Great Salt Plains	1125.00	1125.24	1124.81	(0.43)	(1,414)
Kaw*	1013.00	1016.61	1011.02	(5.59)	(35,884)
<b>Northeast</b>					
Birch	750.50	750.24	749.88	(0.36)	(706)
Copan	710.00	710.11	710.87	0.76	3,964
Fort Gibson	554.00	557.28	559.90	2.62	125,081
Grand*	744.00	744.63	744.06	(0.57)	2,760
Hudson	619.00	622.40	619.86	(2.54)	39,038
Hulah	733.00	733.28	733.23	(0.05)	752
Keystone*	723.00	723.25	724.31	1.06	23,496
Oologah*	638.00	639.37	641.00	1.63	98,292
Skiatook	714.00	708.77	708.46	(0.31)	(54,727)
<b>West Central</b>					
Canton	1615.40	1615.47	1612.96	(2.51)	(18,460)
Foss	1642.00	1640.36	1639.78	(0.58)	(14,548)
<b>Central</b>					
Arcadia	1006.00	1006.08	1006.00	(0.08)	0
Heyburn	761.50	761.73	761.59	(0.14)	126
Thunderbird	1039.00	1035.86	1037.48	1.62	(9,016)
<b>East Central</b>					
Eufaula*	585.00	587.73	587.21	(0.52)	219,241
Tenkiller	632.00	656.46	635.24	(21.22)	42,540
<b>Southwest</b>					
Fort Cobb	1342.00	1341.56	1341.78	0.22	(818)
Lugert-Altus	1559.00	1545.19	1543.65	(1.54)	(75,148)
Tom Steed	1411.00	1407.49	1407.64	0.15	(19,837)
<b>South Central</b>					
Arbuckle	872.00	870.66	870.81	0.15	(2,753)
McGee Creek**	175.90	176.47	176.11	(0.36)	2,648
Texoma*	619.00	614.45	615.98	1.53	(227,464)
Waurika*	951.40	950.00	950.26	0.26	(11,231)
<b>Southeast</b>					
Broken Bow*	602.50	611.17	602.93	(8.24)	6,287
Hugo*	407.50	410.53	407.84	(2.69)	5,056
Pine Creek*	433.00	445.97	433.07	(12.90)	202
Sardis	599.00	601.46	598.98	(2.48)	(268)
Wister	478.00	499.72	480.15	(19.57)	14,405

\* indicates seasonal pool operation

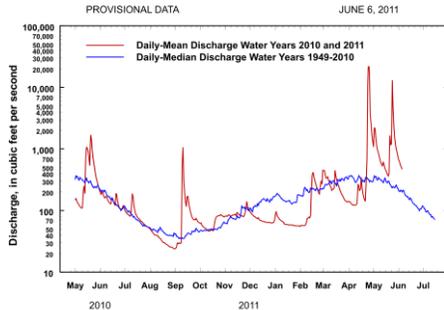
\*\* elevation in meters

negative numbers in red, parentheses

# STREAMFLOW CONDITIONS

## Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma  
 Station No. 07197000 Northeast Oklahoma  
 Drainage Area 307 square miles

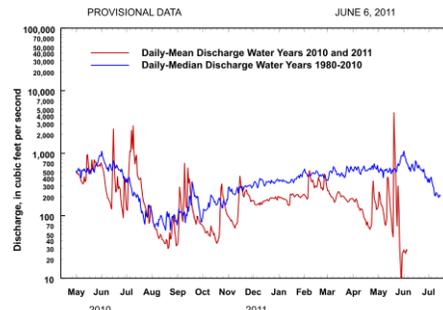


PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

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

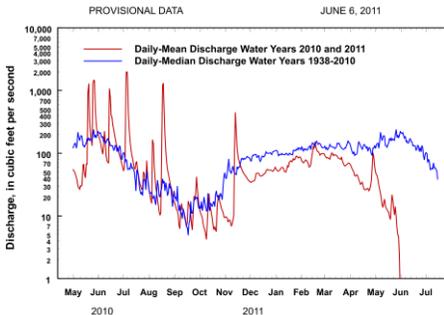


PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

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

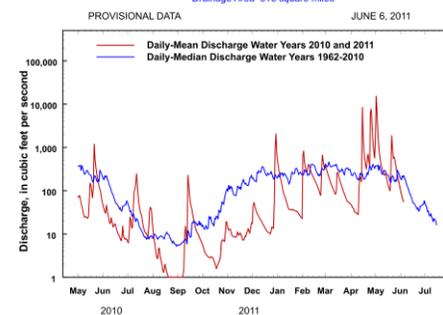


PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

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

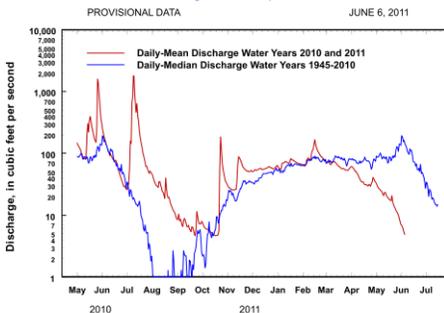


PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

Data from U.S. Geological Survey

## North Fork of the Red River near Carter

North Fork of the Red River near Carter, Oklahoma  
 Station No. 07301500 Southwest Oklahoma  
 Drainage Area 2,337 square miles

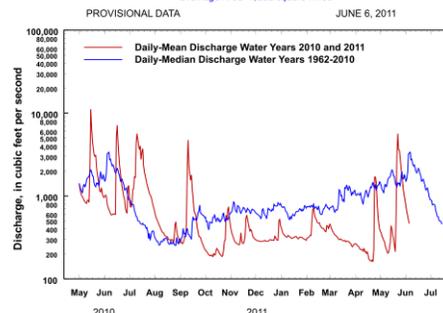


PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

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



PROVISIONAL DATA JUNE 6, 2011  
 Comparison of daily discharges for water years 2010 and 2011 and period of record

Data from U.S. Geological Survey



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. For more information, visit [www.owrb.ok.gov](http://www.owrb.ok.gov) and [www.mesonet.org](http://www.mesonet.org).