

# Oklahoma Water Resources Bulletin & Summary of Current Conditions

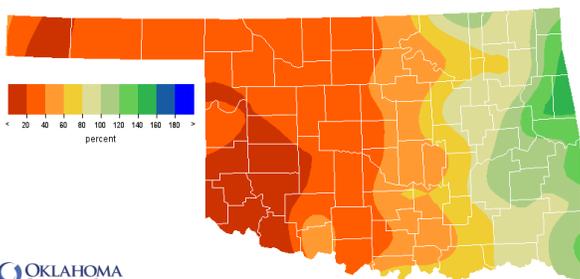


May 12, 2011

## PRECIPITATION

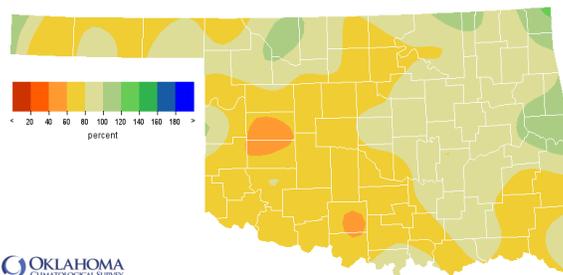
### Statewide Precipitation

CLIMATE DIVISION	Last 120 Days January 10 – May 9, 2011				Last 365 Days May 10, 2010 – May 9, 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	1.44"	-4.03"	26%	6th driest	16.51"	-4.59"	78%	23rd driest
North Central	3.07"	-5.82"	35%	5th driest	26.43"	-5.22"	83%	30th driest
Northeast	10.63"	-1.72"	86%	42nd driest	38.71"	-3.26"	92%	44th wettest
West Central	1.56"	-6.62"	19%	2nd driest	19.07"	-10.02"	66%	6th driest
Central	4.67"	-6.57"	42%	6th driest	29.30"	-8.69"	77%	17th driest
East Central	15.06"	+0.99"	107%	23rd wettest	43.00"	-3.09"	93%	43rd driest
Southwest	1.81"	-6.65"	21%	1st driest	21.98"	-8.82"	71%	12th driest
South Central	6.44"	-6.05"	52%	3rd driest	31.14"	-9.82"	76%	14th driest
Southeast	16.18"	+0.23"	101%	44th wettest	40.13"	-10.81"	79%	13th driest
<b>Statewide</b>	<b>6.62"</b>	<b>-4.15"</b>	<b>61%</b>	<b>10th driest</b>	<b>29.65"</b>	<b>-7.04"</b>	<b>81%</b>	<b>16th driest</b>



OKLAHOMA CLIMATOLOGICAL SURVEY  
Percentage of Normal Rainfall  
Last 120 Days

Jan 10, 2011 through May 9, 2011  
Created 2011-05-10 10:00:08 UTC. Copyright © 2011



OKLAHOMA CLIMATOLOGICAL SURVEY  
Percentage of Normal Rainfall  
Last 365 Days

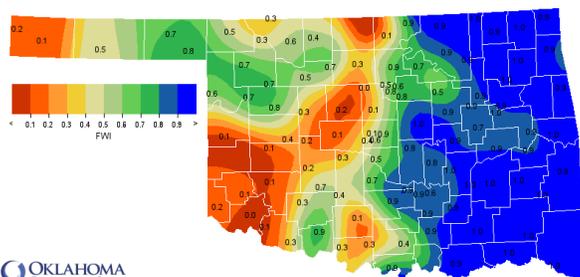
May 10, 2010 through May 9, 2011  
Created 2011-05-10 10:00:42 UTC. Copyright © 2011

## SOIL MOISTURE

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

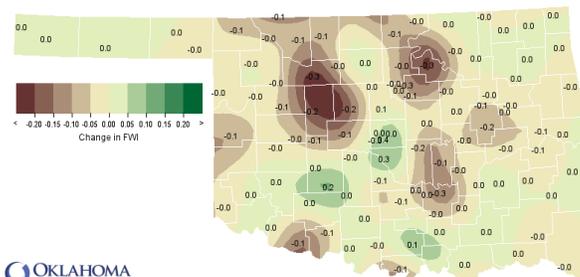
May 9, 2011

25 CM (~10 INCHES)



OKLAHOMA CLIMATOLOGICAL SURVEY  
25-cm Fractional Water Index

May 9, 2011  
Created 2011-05-10 10:00:08 UTC. Copyright © 2011



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

May 9, 2011  
Created 2011-05-10 10:00:42 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.]

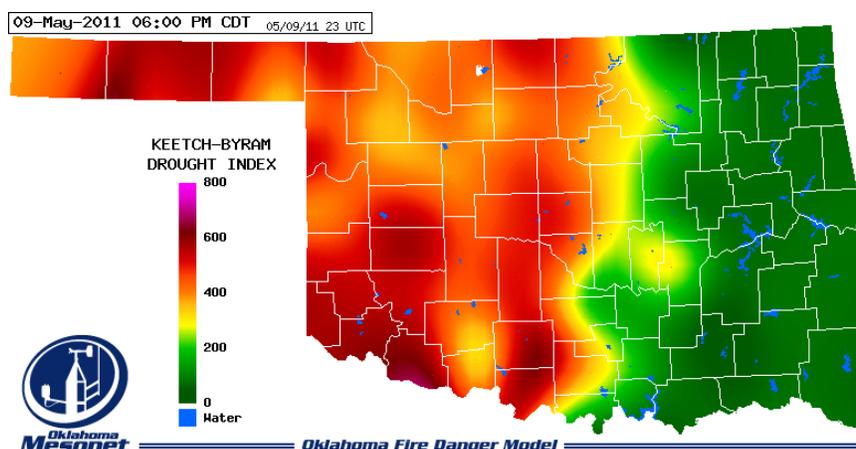
## DROUGHT INDICES

Palmer Drought Severity Index <sup>1</sup>					Standardized Precipitation Index <sup>2</sup> Through April 2011			
CLIMATE DIVISION	CURRENT STATUS 5/7/2011	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		5/7	4/9					
Northwest	MILD DROUGHT	-1.86	-1.37	-0.49	VERY DRY	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
North Central	MILD DROUGHT	-1.37	-0.91	-0.46	MODERATELY DRY	MODERATELY DRY	MODERATELY DRY	NEAR NORMAL
Northeast	INCIPIENT MOIST SPELL	0.57	-1.11	1.68	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central	MODERATE DROUGHT	-2.09	-1.44	-0.65	EXTREMELY DRY	VERY DRY	VERY DRY	MODERATELY DRY
Central	MODERATE DROUGHT	-2.23	-2.53	0.30	MODERATELY DRY	VERY DRY	VERY DRY	MODERATELY DRY
East Central	MOIST SPELL	1.91	-1.69	3.60	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Southwest	SEVERE DROUGHT	-3.00	-2.30	-0.70	EXTREMELY DRY	EXTREMELY DRY	VERY DRY	MODERATELY DRY
South Central	MODERATE DROUGHT	-2.07	-2.43	0.36	EXTREMELY DRY	EXTREMELY DRY	VERY DRY	MODERATELY DRY
Southeast	MOIST SPELL	1.79	-3.05	4.84	NEAR NORMAL	VERY DRY	VERY DRY	VERY DRY

- Six climate divisions are currently experiencing drought conditions, according to the PDSI.
- Four climate divisions have undergone PDSI moisture decreases since April 9.
- Eight 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 5/9/2011	
Grandfield	Tillman	Southwest	679	<ul style="list-style-type: none"> <li>• Stations currently at or above 600 (May 9) = 4</li> <li>• Stations above 600 on April 11 = 3</li> </ul>
Altus	Jackson	Southwest	642	
Ringling	Jefferson	South Central	604	



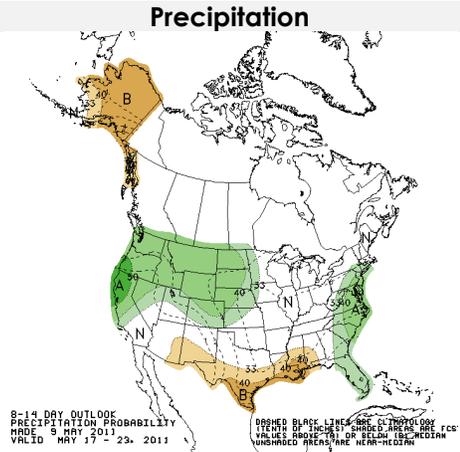
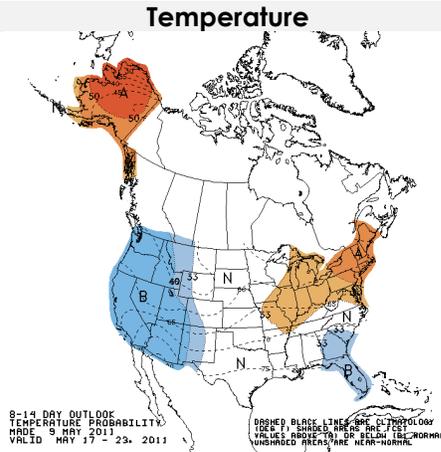
<sup>1</sup> The Palmer Drought Severity Index, the first comprehensive drought index developed in the United States, is calculated based on precipitation, temperature, and soil moisture. Though widely used by government agencies and states to trigger drought relief programs, the PDSI may underestimate 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 May 17-23, 2011

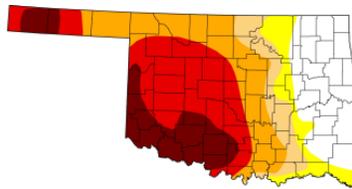


## Regional Drought Summary & Outlook

### U.S. Drought Monitor Oklahoma

May 10, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.11	77.89	69.69	61.23	40.19	15.14
Last Week (05/03/2011 map)	24.44	75.56	69.37	55.77	37.52	5.39
3 Months Ago (02/08/2011 map)	0.08	99.92	57.88	5.55	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 (05/04/2010 map)	92.99	7.01	0.00	0.00	0.00	0.00



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

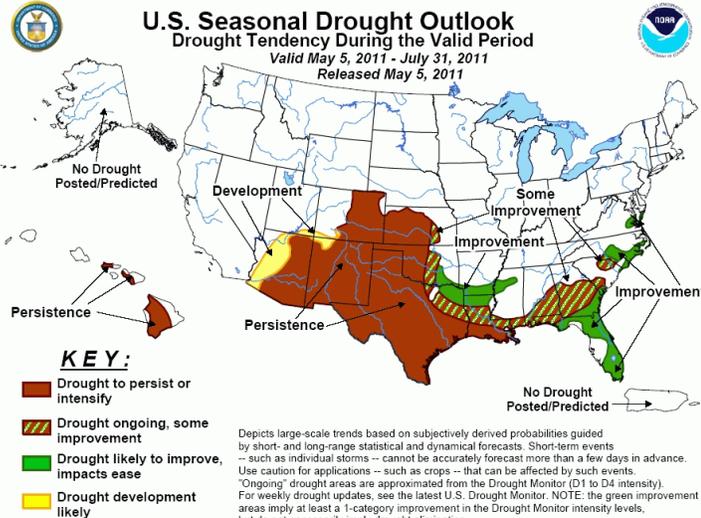
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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



Released Thursday, May 12, 2011  
Rich Tinker, NOAA/NWS/NCEP/CPC

### U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period Valid May 5, 2011 - July 31, 2011 Released May 5, 2011



May 10 – The latest U.S. Drought Monitor reports that drought intensified in the central and southern Plains. Some improvement was introduced in northeastern Texas and immediately adjacent sections of Oklahoma and Louisiana. D1 to D2 conditions expanded northward and eastward in Kansas, but conditions were much worse farther south, where D4 conditions dramatically expanded across southwestern Oklahoma, large parts of Texas, and southeastern New Mexico. Precipitation over the last 90 days was 8 to 12 inches below normal throughout southeastern and east-central Texas, and in parts of southeastern New Mexico, no measurable precipitation has been recorded for the last 3 to (in a few isolated spots) 6 months. The drought has brought a variety of serious impacts to much of the region. Water supplies are declining, and in a few areas water restrictions have been imposed, across the southwestern half of Texas and southeastern Oklahoma. Fire danger has been extremely high for repeated and extended periods in areas from south-central New Mexico and the Big Bend of Texas northeastward, occasionally reaching as far as southwestern Kansas, adjacent Colorado, and the western Oklahoma Panhandle. In addition, agriculture has been seriously affected. In Texas, 76 percent of the winter wheat crop was in poor or very poor condition. About 79 percent of pastures and rangelands were in poor or very poor condition across much of the region.

According to the latest Drought Outlook (May 5), extreme to exceptional drought persisted and expanded across the Southwest, southern Plains, and lower Mississippi Valley, worsening particularly across portions of northern and western Texas, southern New Mexico, and the Oklahoma Panhandle region. Drought persistence is expected west of a line from southern Texas through central Kansas. Further drought development is forecast across western Arizona and the four corners region. Drought improvement is forecast across southeastern Oklahoma and northeastern Texas eastward through northern Mississippi as monthly tools indicate continued wetness.

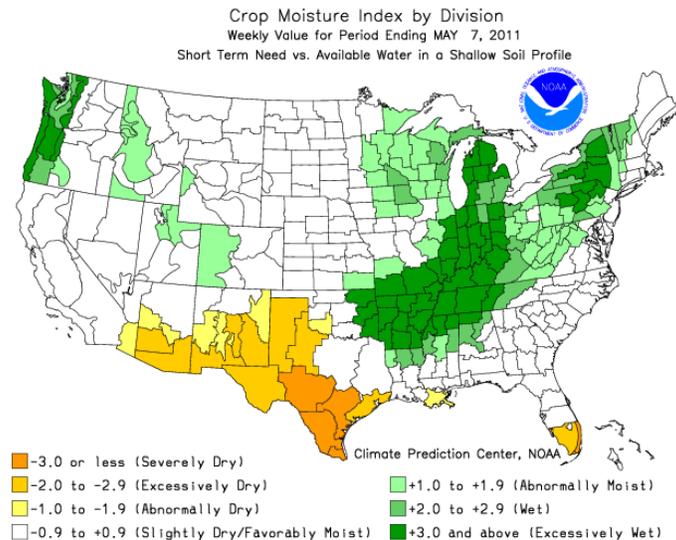
## CROP REPORT

May 9, 2011 – Oklahoma experienced a mixture of weather over the past week. Temperatures were cooler and resulted in a frost advisory being issued for western and central Oklahoma on Monday and Tuesday. Average temperatures were in the sixties with temperatures ranging from 26 to 108 degrees. The recorded temperature of 108 in Altus on Sunday, May 8, marked a new record in Oklahoma, surpassing the previous record of 107 degrees, recorded on May 2, 1992. Oklahoma received minimal rainfall during the past week although a flood warning remained in effect for southeast Oklahoma while minor flooding took place along the Kiamichi River near Antlers. The latter portion of the week brought windy conditions with wind gusts over 30 mph. Along with windy conditions came fire danger in the western part of the state and the Panhandle. The windy conditions coupled with the lack of rainfall in western and southwestern Oklahoma are resulting in exceptionally bad drought conditions. Topsoil and subsoil moisture conditions declined from the previous week and were both rated mostly very short with only two and three percent rated surplus, respectively. There were 5.8 days suitable for field work.

Condition ratings continue to be rated mostly poor to very poor for all small grains. The lack of rainfall and high temperatures in the western part of the State continued to be a problem for wheat producers. Wheat headed reached 93 percent complete, five points ahead of the five-year average and 33 percent of wheat was in the soft dough stage by Sunday. Rye in the soft dough stage of development reached 56 percent complete by week's end, a 41 point increase from the previous week. Oats jointing was 82 percent complete by week's end and 36 percent had headed. Canola in the mature stage reached 54 percent complete by Sunday, up 14 points from the previous week.

Lack of moisture hindered some row crop planting last week. Corn planted reached 89 percent complete and 38 percent of the crop had emerged by Sunday. Sorghum seedbed preparation reached 82 percent complete and 13 percent was planted by week's end. Soybean seedbed preparation was 64 percent complete and 14 percent was planted by Sunday. Peanut seedbeds prepared reached 88 percent complete and 32 percent were planted by week's end, up 26 points from the previous week and ten points ahead of normal. Cotton seedbed preparation was 75 percent complete by Sunday, 13 points behind normal, with 12 percent of the crop planted.

Plantings of the 2011 watermelon crop were 91 percent complete by week's end, 38 points ahead of normal.



## RESERVOIR STORAGE

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

Storage in Selected Oklahoma Lakes & Reservoirs					
May 9, 2011					
Lake or Reservoir	Normal Pool Elevation <small>(feet)</small>	Previous Elevation 4/11/2011 <small>(feet)</small>	Current Elevation 5/9/2011 <small>(feet)</small>	Change in Elevation <small>(feet)</small>	Current Flood Control Storage <small>(acre-feet)</small>
<b>North Central</b>					
Fort Supply	2004.00	2004.33	2004.29	(0.04)	544
Great Salt Plains	1125.00	1125.39	1125.24	(0.15)	2,014
Kaw*	1010.00	1010.15	1016.61	6.46	124,162
<b>Northeast</b>					
Birch	750.50	748.96	750.24	1.28	(298)
Copan	710.00	710.34	710.11	(0.23)	501
Fort Gibson	554.00	554.33	557.28	2.95	66,249
Grand*	742.50	741.96	744.63	2.67	94,514
Hudson	619.00	619.80	622.40	2.60	39,038
Hulah	733.00	733.13	733.28	0.15	916
Keystone*	723.00	721.20	723.25	2.05	4,224
Oologah*	638.00	638.18	639.37	1.19	43,791
Skiatook	714.00	708.99	708.77	(0.22)	(51,876)
<b>West Central</b>					
Canton	1615.40	1615.43	1615.47	0.04	555
Foss	1642.00	1640.79	1640.36	(0.43)	(10,827)
<b>Central</b>					
Arcadia	1006.00	1005.94	1006.08	0.14	149
Heyburn	761.50	761.48	761.73	0.25	322
Thunderbird	1039.00	1035.89	1035.86	(0.03)	(18,070)
<b>East Central</b>					
Eufaula*	585.00	581.58	587.73	6.15	273,716
Tenkiller	632.00	629.70	656.46	26.76	372,888
<b>Southwest</b>					
Fort Cobb	1342.00	1341.90	1341.56	(0.34)	(1,637)
Lugert-Altus	1559.00	1545.29	1545.19	(0.10)	(69,369)
Tom Steed	1411.00	1408.13	1407.49	(0.64)	(20,658)
<b>South Central</b>					
Arbuckle	872.00	870.96	870.66	(0.30)	(3,095)
McGee Creek**	175.90	175.31	176.47	1.16	7,347
Texoma*	616.00	613.69	614.45	0.76	(111,311)
Waurika*	951.40	950.20	950.00	(0.20)	(13,752)
<b>Southeast</b>					
Broken Bow*	601.40	591.66	611.17	19.51	148,154
Hugo*	406.60	404.90	410.53	5.63	61,957
Pine Creek*	433.00	432.87	445.97	13.10	53,326
Sardis	599.00	597.43	601.46	4.03	34,956
Wister	478.00	478.47	499.72	21.25	297,414

\* indicates seasonal pool operation

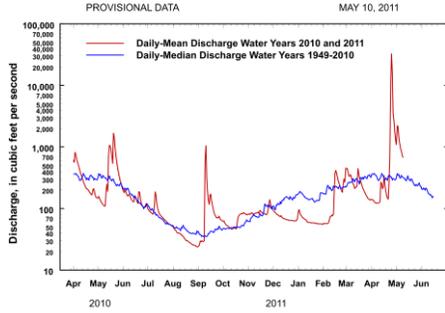
\*\* elevation in meters

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

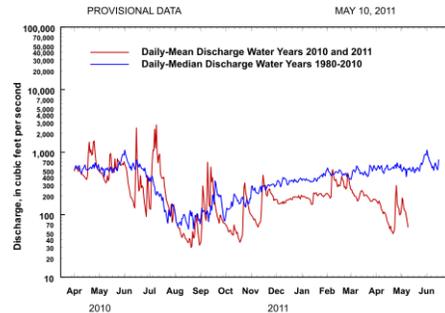


PROVISIONAL DATA MAY 10, 2011  
Comparison of daily discharges for water years 2010 and 2011 and period of record

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

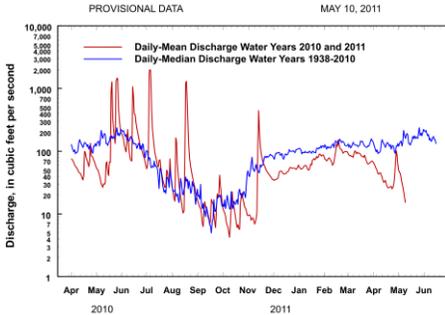


PROVISIONAL DATA MAY 10, 2011  
Comparison of daily discharges for water years 2010 and 2011 and period of record

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

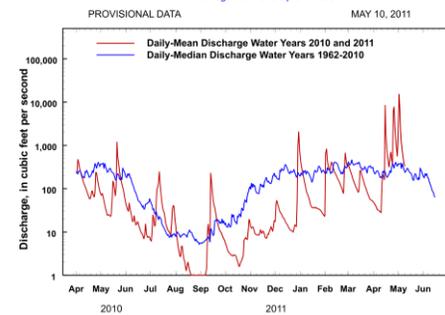


PROVISIONAL DATA MAY 10, 2011  
Comparison of daily discharges for water years 2010 and 2011 and period of record

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

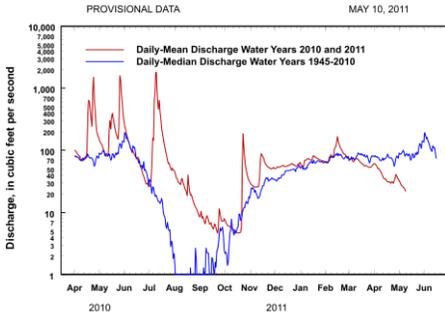


PROVISIONAL DATA MAY 10, 2011  
Comparison of daily discharges for water years 2010 and 2011 and period of record

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

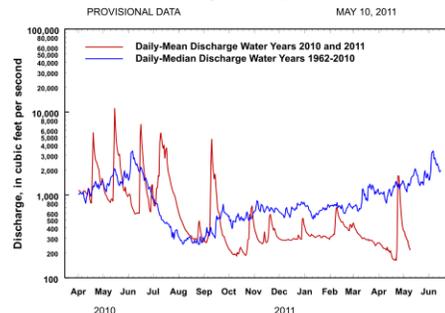


PROVISIONAL DATA MAY 10, 2011  
Comparison of daily discharges for water years 2010 and 2011 and period of record

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 MAY 10, 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).