



Natural Resources Conservation Service  
P.O. Box 2890  
Washington, D.C. 20013

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**Weekly Report - Snowpack / Drought Monitor Update**

**Date: 20 October 2011**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly shows the greatest positive departures over the Great Basin and southern half of the Southwest and the greatest negative departures over the northern half of the Northern Tier States (Fig. 1). [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over western Nevada ( $>+8^{\circ}\text{F}$ ) and the greatest negative departures over parts of the Montana Rockies ( $<-6^{\circ}\text{F}$ ) (Fig. 1a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows some moisture over much of the Interior Northwest and western Wyoming (Fig. 2). In terms of percent of normal, only parts of the Northern Tier States received above normal precipitation for the week (Fig 2a). With the start of the [2012 Water-Year](#) that began on 1 October 2011, any precipitation that falls will skew the statistics since any precipitation that falls is somewhat unusual this time of year over the West. Within the next few weeks, these values will settle down to reflect the typical long-term climatology. Until then, use this product with caution (Fig. 2b).

**Weekly Summary:** Early in the period, low pressure tracked from the northeastern Gulf up the Atlantic Seaboard, producing showers and thunderstorms, some severe (tornadoes in Virginia), and moderate to heavy rains (more than 2 inches) from southern Georgia northward into New England. Meanwhile a slow-moving cold front in the Nation's midsection brought some rain to the Midwest and parts of the central and southern Plains. A Pacific system dropped light to moderate precipitation on the Northwest. As the week progressed, an upper-air low north of the Great Lakes generated windy and wet weather in the region, while weak Pacific systems tracked eastward across the northern Rockies with light precipitation. By Monday, a northward-moving disturbance in the east-central Gulf of Mexico west of Cuba was dumping heavy rain on southern Florida. Farther west, a stationary front was draped from the eastern Great Basin to the mid-Atlantic. As the period ended, additional rains were falling on parts of the Midwest, Southeast, and Northeast, while dry weather encompassed the U.S. west of the Mississippi River. Weekly temperatures generally averaged above-normal except in parts of the Northwest, central Plains, and Southeast. Moderate to heavy precipitation fell on south-central and southeastern Alaska while the interior was mostly dry, Hawaii saw light showers on the windward sides, and Puerto Rico recorded light to moderate showers throughout the island.

**Southern Rockies and Southwest:** A lull in precipitation usually occurs in the Southwest during the fall months between the end of the southwestern summer monsoon and the start of the winter rainy season. Not surprisingly, little or no precipitation fell, and temperatures averaged above normal throughout the area. But since most of this area saw a wet week during early October, no changes were made to the depiction. An exception was made in southwestern Colorado and northwestern New Mexico where new and updated information for September and early October depicted much improved conditions (surpluses at 30-, 60-, and 90-days and longer, SPIs positive). Accordingly, D0 was removed from southwestern Colorado (La Plata County), and a 1-category improvement was made in northwestern New Mexico where nearly

## Weekly Snowpack and Drought Monitor Update Report

all Navajo Nation stations reported a wet September. Author: David Miskus, NOAA/NWS/NCEP/CPC

***A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.***

### Drought Impacts Definitions

The possible impacts associated with **D4 (H, A)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (H, A)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (H, A)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (H, A)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 3 through 3b).

### Soil Moisture

Soil moisture (Figs. 4a and 4b), is simulated by the [VIC macroscale hydrologic model](#). The detailed, physically-based VIC model is driven by observed daily precipitation and temperature maxima and minima from approximately 2130 stations, selected for reporting reliably in real-time and for having records of longer than 45 years (and various other criteria). Another good resource can be found at: <http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>.

### Soil Climate Analysis Network (SCAN)

Figure 5 provides supplemental data on soil conditions (moisture and temperatures at various depths from 2 inches to 80 inches. For more information about SCAN see ([brochure](#)).

### U.S. Historical Streamflow

This map, (Fig. 6) shows the 7-day average streamflow conditions in hydrologic units of the United States and Puerto Rico for the day of year. The colors represent 7-day average streamflow percentiles based on historical streamflow for the day of the year. Thus, the map shows conditions adjusted for this time of the year. Only stations having at least 30 years of record are used. Sub-regions shaded gray indicate that insufficient data were available to compute a reliable 7-day average streamflow value. During winter months, this situation frequently arises due to ice effects. The data used to produce this map are provisional and have not been reviewed or edited. They may be subject to significant change.

### **State Activities**

State government drought activities can be tracked at the following URL: <http://drought.unl.edu/mitigate/mitigate.htm>. NRCS SS/WSF State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SS/WSF information - <http://www.wcc.nrcs.usda.gov/cgibin/bor.pl>.

Additional information describing the products available from the Drought Monitor can be found at the following URL: <http://drought.unl.edu/dm/> and <http://www.drought.gov>.

## Weekly Snowpack and Drought Monitor Update Report

### For More Information

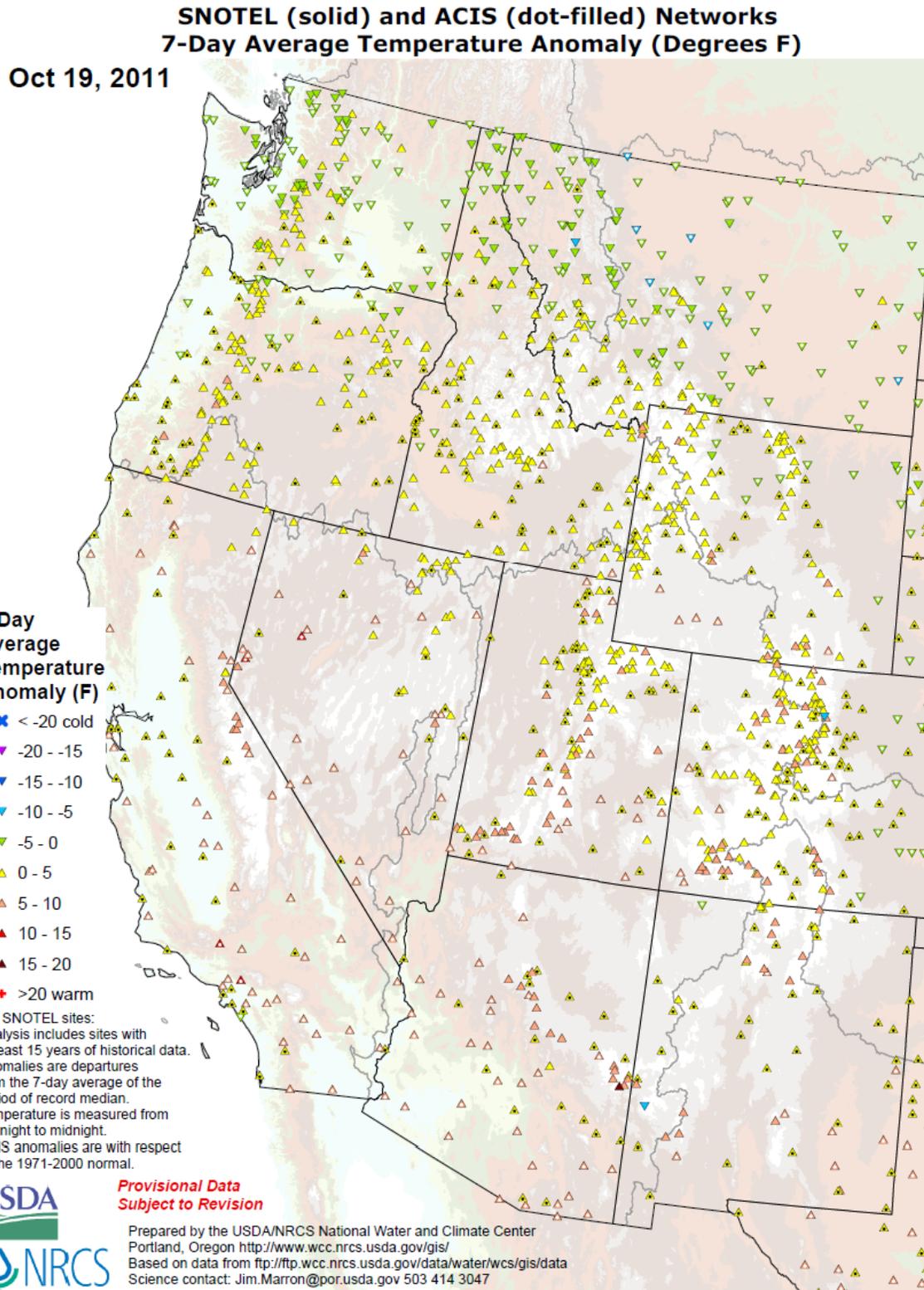
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports from 2007 are available on-line while ones from 2001-2006 can be acquired upon request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

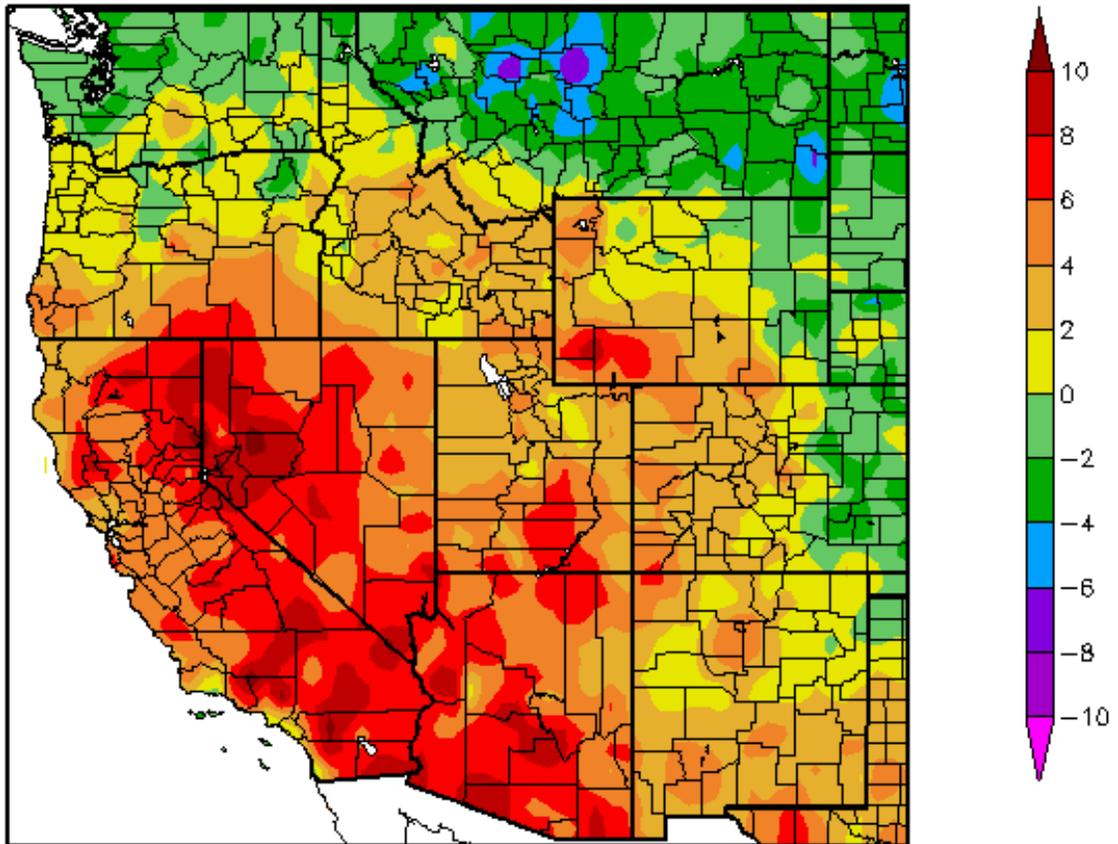
Douglas Lawrence  
Deputy Chief, Soil Survey and Resource Assessment

# Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: SNOTEL and ACIS 7-day temperature anomaly shows the greatest positive departures over the Great Basin and southern half of the Southwest and the greatest negative departures over the northern half of the Northern Tier States.**

Departure from Normal Temperature (F)  
10/13/2011 – 10/19/2011



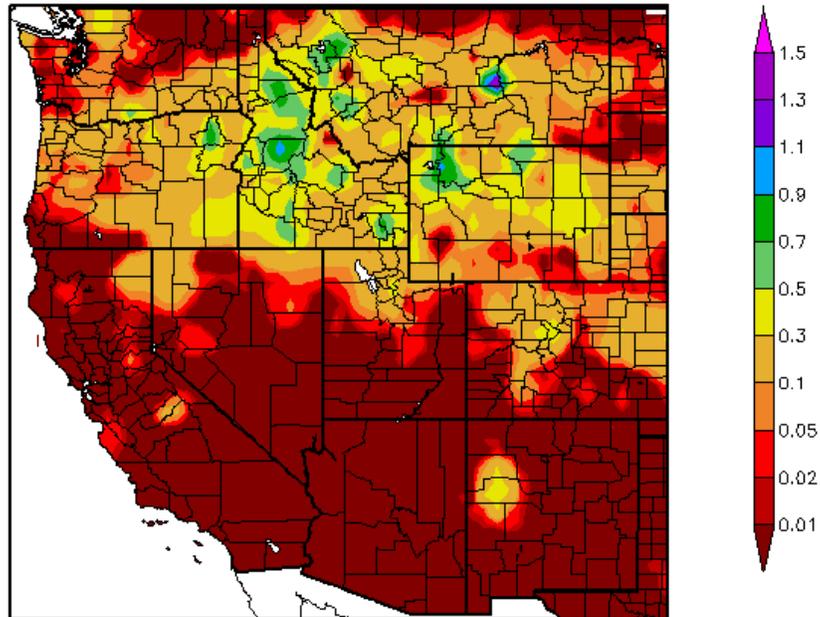
Generated 10/20/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 1a: [ACIS](#) 7-day average temperature anomalies show the greatest positive temperature departures over western Nevada ( $+8^{\circ}\text{F}$ ) and the greatest negative departures over parts of the Montana Rockies ( $-6^{\circ}\text{F}$ ).

## Weekly Snowpack and Drought Monitor Update Report

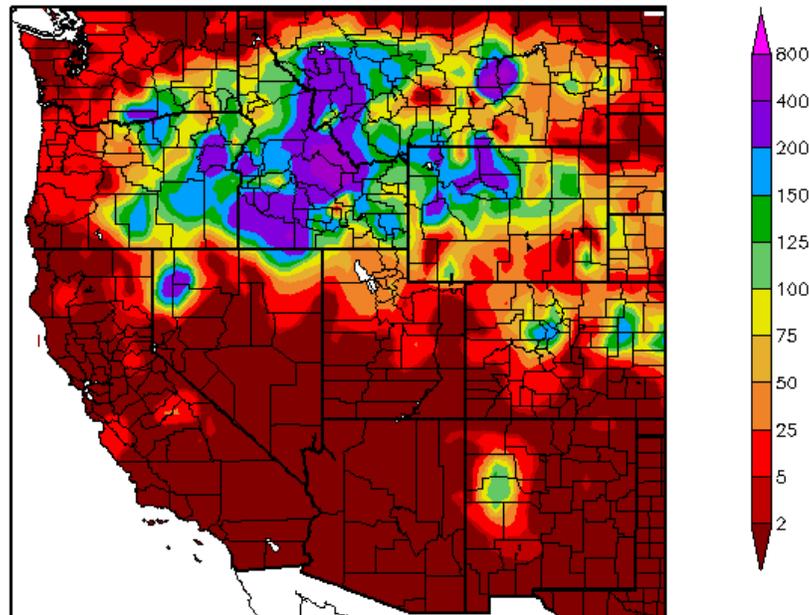
Precipitation (in)  
10/13/2011 - 10/19/2011



Generated 10/20/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
10/13/2011 - 10/19/2011

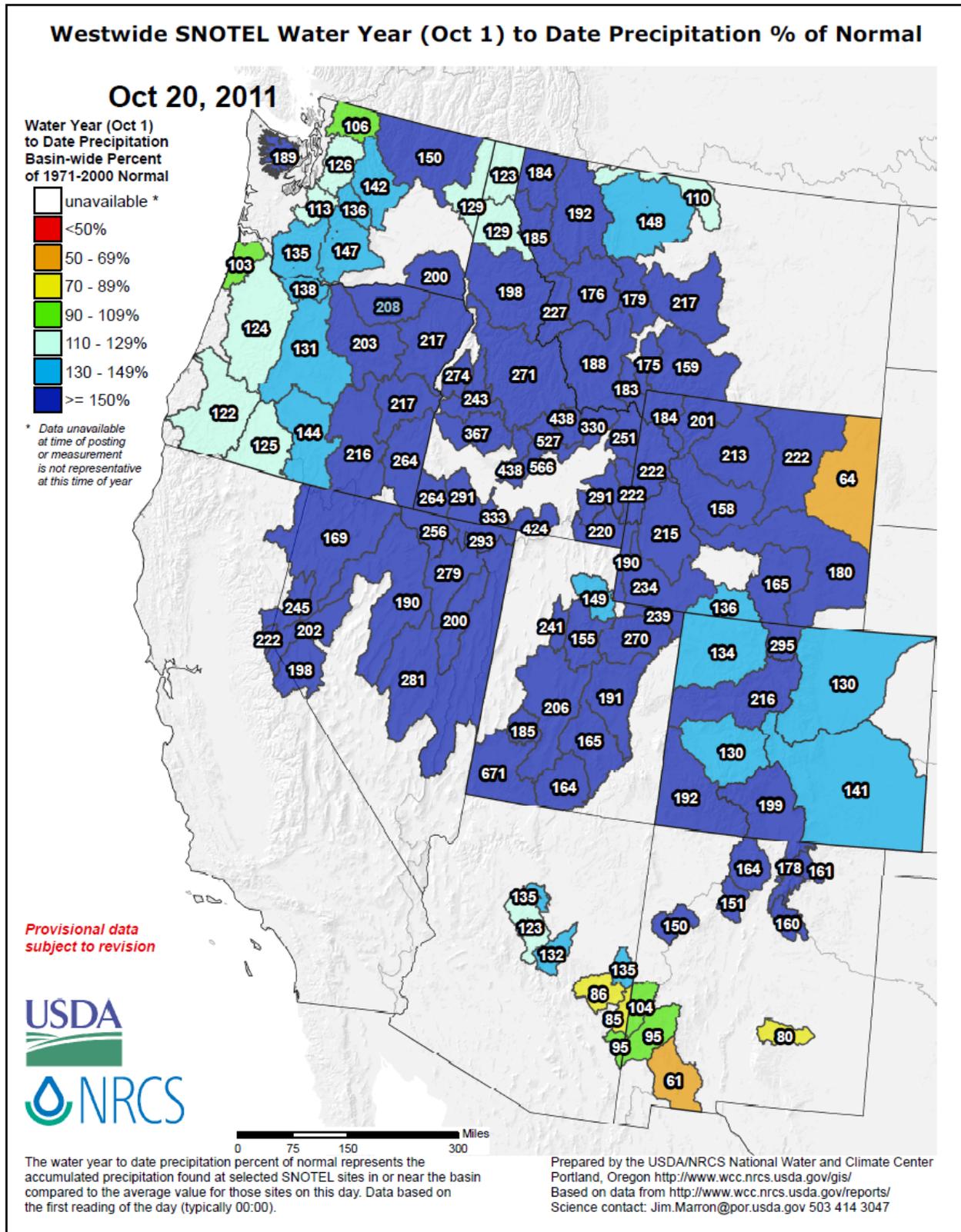


Generated 10/20/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2 and 2a:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows some moisture over much of the Interior Northwest and western Wyoming (Fig. 2). In terms of percent of normal, only parts of the Northern Tier States received above normal precipitation for the week (Fig 2a).

# Weekly Snowpack and Drought Monitor Update Report



**Fig 2b:** With the start of the [2012 Water-Year](#) that began on 1 October 2011, any precipitation that falls will skew the statistics since any precipitation that falls is somewhat unusual this time of year over the West. Within the next few weeks, these values will settle down to reflect the typical long-term climatology. Until then, use this product with caution.

# U.S. Drought Monitor

October 18, 2011  
Valid 8 a.m. EDT

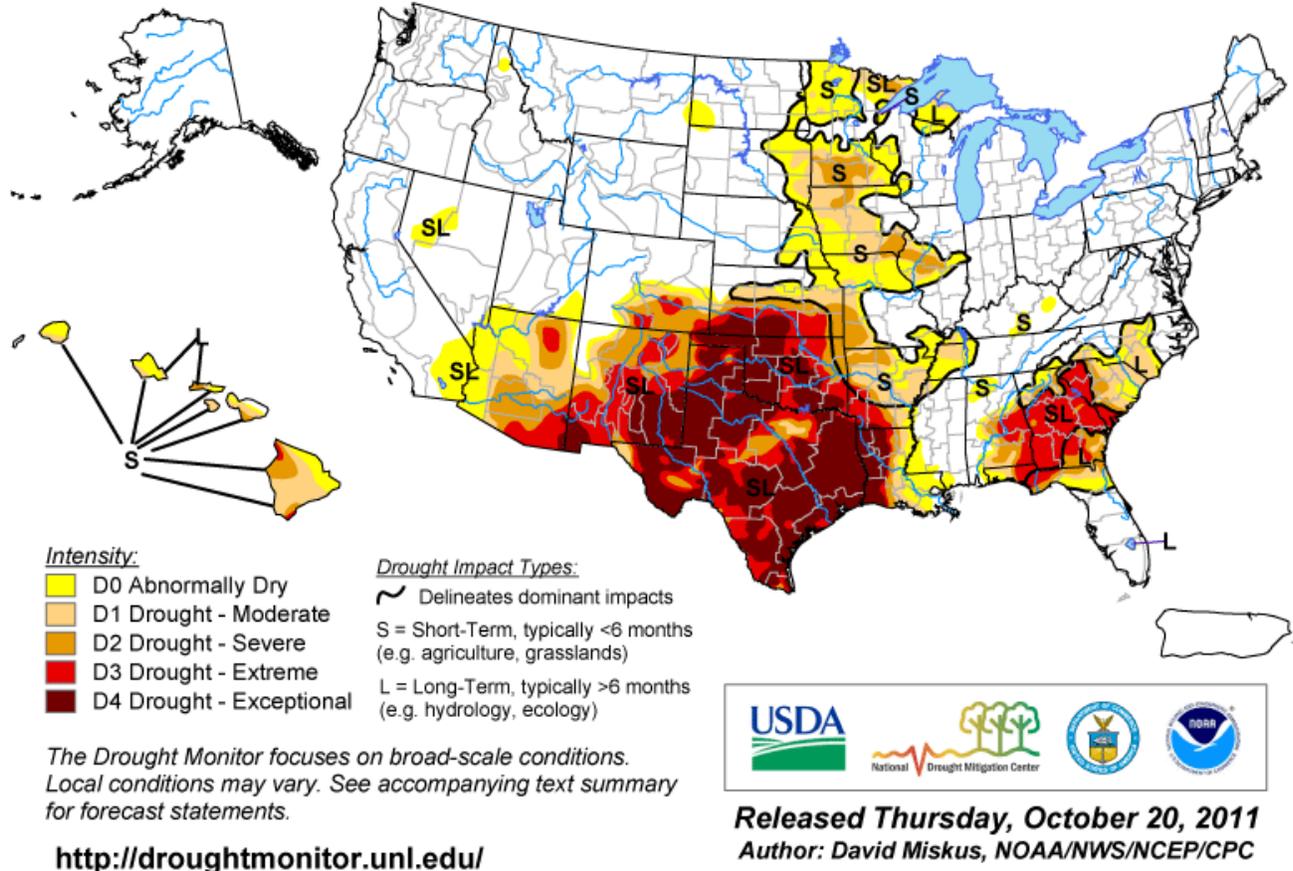


Fig. 3: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over extreme southeast Arizona, New Mexico, Texas, Oklahoma, Kansas, and western Louisiana.

## Drought Impact Reporter

### [Drought taking a toll on pecan crop](#)

Oct 10, Northern Texas. Some of the un-irrigated pecan trees died over the summer. The crop is expected to be about two-thirds of a usual crop since the pecans didn't grow as big as they usually do.

### [Texas driving its cattle north amid drought](#)

Oct 11, Texas. One rancher from Stamford (just north of Abilene) chose to ship his cattle to Nebraska at a cost of \$70,000.

### [Water-Starved Texas Rice Eroding U.S. Harvest as Prices Gain](#)

Oct 13, Texas. As the level of Lake Travis and Lake Buchanan continued to fall to 39 percent on October 12, the Lower Colorado River Authority is seeking permission to end water releases for irrigation for farmers in Wharton, Colorado and Matagorda counties beginning March 1, 2012. That doesn't bode well for the 2012 rice crop.

### [Drought leaves Panhandle lake too low to use](#)

Oct 13, Texas Panhandle. No more water is being withdrawn from Lake Meredith because the water level is too low. The Canadian River Municipal Water Authority's only other viable supply is the Ogallala Aquifer.

### [Lake Okeechobee water levels rising](#)

Oct 13, South Florida. The recent rainfall is boosting the level of Lake Okeechobee, but more is needed to replenish the lake before the start of the dry season.

### [West Palm Beach's water supply could dry up by spring](#)

Oct 11, Florida. West Palm Beach will not be allowed to continue violating its water permit by pumping water from its well field, but not replacing the pumped water with treated water.

# U.S. Drought Monitor

## West

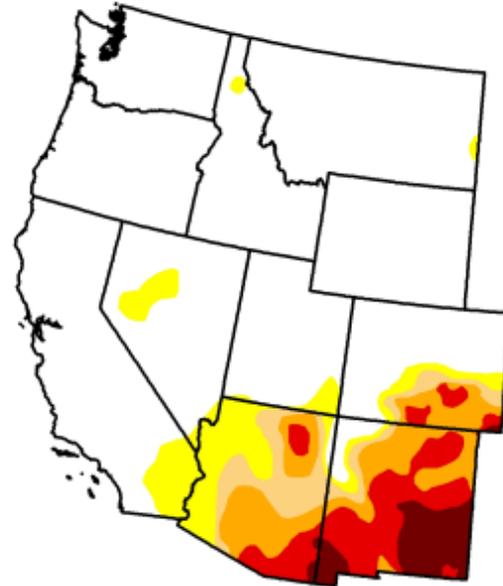
October 18, 2011  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	74.71	25.29	18.32	14.67	8.48	2.87
Last Week (10/11/2011 map)	74.02	25.98	18.63	14.79	8.48	2.87
3 Months Ago (07/19/2011 map)	74.71	25.29	19.01	15.52	11.03	5.59
Start of Calendar Year (12/28/2010 map)	73.26	26.74	11.98	0.89	0.00	0.00
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (10/12/2010 map)	62.55	37.45	5.50	0.56	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://droughtmonitor.unl.edu>



Released Thursday, October 20, 2011  
David Miskus, NOAA/NWS/NCEP/CPC

Fig. 3a: Drought Monitor for the [Western States](#) with statistics over various time periods. Regionally there was little change in drought condition this week.

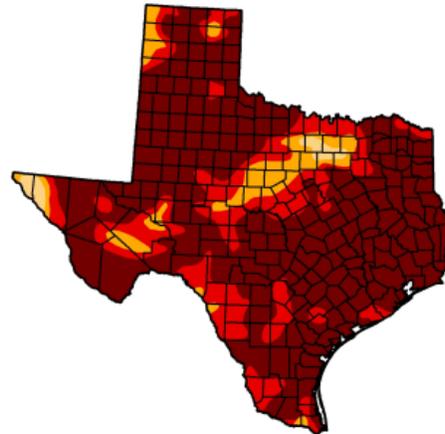
## Weekly Snowpack and Drought Monitor Update Report

# U.S. Drought Monitor

## Texas

October 18, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	98.80	91.87	72.61
Last Week (10/11/2011 map)	0.00	100.00	100.00	99.15	91.96	73.13
3 Months Ago (07/19/2011 map)	0.00	100.00	98.96	95.78	91.19	75.15
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	99.16	96.65	85.75
One Year Ago (10/12/2010 map)	72.27	27.73	3.79	1.03	0.02	0.00



**Intensity:**

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

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<http://droughtmonitor.unl.edu>



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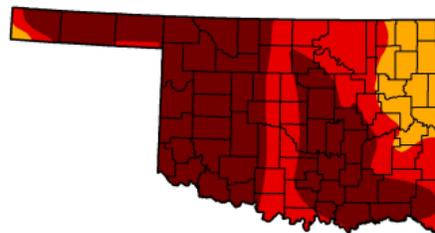
**Fig. 3b(1):** Currently, 73% of [Texas](#) is experiencing “Exceptional” D4 drought. ~92% of the state is in D3 and D4 drought! Overall, this represents little change this week.

# U.S. Drought Monitor

## Oklahoma

October 18, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	100.00	87.85	59.09
Last Week (10/11/2011 map)	0.00	100.00	100.00	100.00	80.31	59.10
3 Months Ago (07/19/2011 map)	0.00	100.00	99.99	76.84	58.04	42.93
Start of Calendar Year (12/28/2010 map)	13.82	86.18	47.90	1.50	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	100.00	78.97	66.42
One Year Ago (10/12/2010 map)	60.00	40.00	4.21	0.00	0.00	0.00



**Intensity:**

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

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**Fig. 3b(2)** Currently, over 59% of [Oklahoma](#) is experiencing “Exceptional” D4 drought. Over 87% of the state is in D3 and D4 drought! This week D3 increased by 7 percent.

# Weekly Snowpack and Drought Monitor Update Report

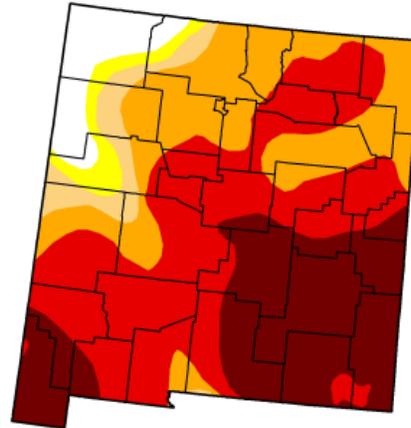
## U.S. Drought Monitor New Mexico

October 18, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	6.24	93.76	90.71	85.90	63.02	26.35
Last Week (10/11/2011 map)	2.44	97.56	93.25	87.07	63.02	26.35
3 Months Ago (07/19/2011 map)	0.00	100.00	100.00	93.24	79.00	48.10
Start of Calendar Year (12/28/2010 map)	6.16	93.84	40.40	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	96.40	88.99	69.61	35.13
One Year Ago (10/12/2010 map)	76.66	23.34	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://droughtmonitor.unl.edu>



Released Thursday, October 20, 2011  
David Miskus, NOAA/NWS/NCEP/CPC

Fig. 3b(3): **Currently**, 26% of **New Mexico** is experiencing “Exceptional” D4 drought. Over 63% of the state is in D3 and D4 drought. Overall, this represents little change this week.

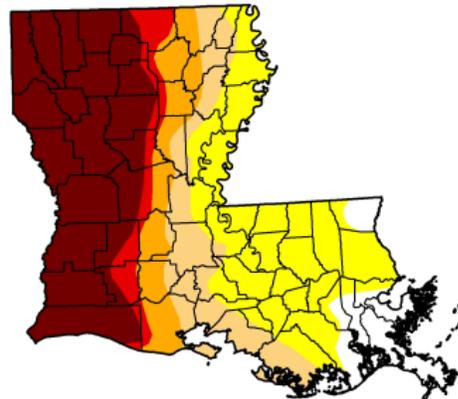
## U.S. Drought Monitor Louisiana

October 18, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	7.24	92.76	64.41	50.49	40.63	35.36
Last Week (10/11/2011 map)	7.24	92.76	61.04	41.81	36.14	24.20
3 Months Ago (07/19/2011 map)	0.00	100.00	100.00	100.00	86.18	41.78
Start of Calendar Year (12/28/2010 map)	0.00	100.00	87.22	59.72	40.99	0.00
Start of Water Year (09/27/2011 map)	45.37	54.63	44.43	35.94	27.14	16.37
One Year Ago (10/12/2010 map)	6.43	93.57	81.90	55.14	20.36	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://droughtmonitor.unl.edu>



Released Thursday, October 20, 2011  
David Miskus, NOAA/NWS/NCEP/CPC

Fig. 3b(4): **Currently**, 35% of **Louisiana** is experiencing “Exceptional” D4 drought. Over 40% of the state is in D3 and D4 drought. Overall, this represents an 11 percent increase in D4 this week.

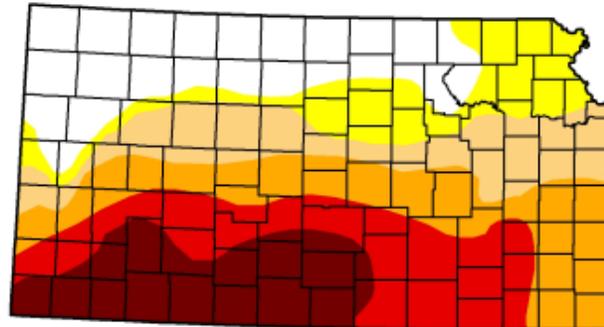
# U.S. Drought Monitor

## Kansas

October 18, 2011  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	21.88	78.12	65.51	50.55	32.50	15.16
Last Week (10/11/2011 map)	20.75	79.25	65.80	49.58	25.96	15.16
3 Months Ago (07/19/2011 map)	33.86	66.14	48.63	34.36	17.08	8.66
Start of Calendar Year (12/28/2010 map)	17.82	82.18	43.85	3.48	0.00	0.00
Start of Water Year (09/27/2011 map)	16.39	83.61	66.03	48.78	28.54	17.63
One Year Ago (10/12/2010 map)	83.23	16.77	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.

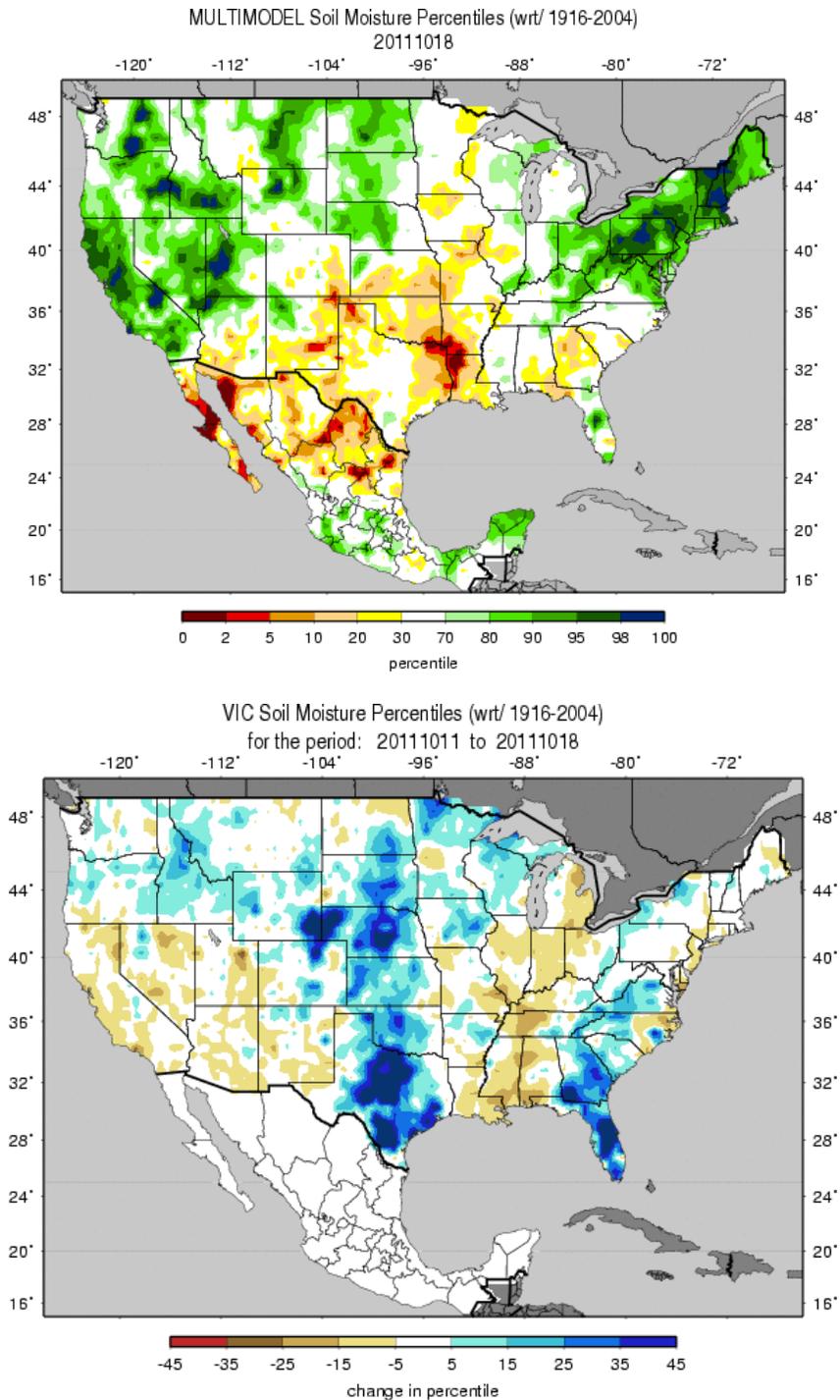
<http://droughtmonitor.unl.edu>



Released Thursday, October 20, 2011  
David Miskus, NOAA/NWS/NCEP/CPC

Fig. 3b(5): Currently, 15% of Kansas is experiencing “Exceptional” D4 drought ~32.5% of the state is in D3 and D4 drought. Overall, this represents a 6percent increase in D3 this week.

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 4a and 4b:** Soil Moisture ranking in [percentile](#) as of 18 October (top) shows moist conditions continuing over of New England while the Western States (excluding the Southwest) and Northern Plains added some moisture. [During the week](#), significant increases in moisture are noted over much of the Plains and the Southeast while a drying trend is seen over the Lower Mississippi River and Ohio Valleys.

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network (SCAN)

Station (209) MONTH=2011-09-20 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Oct 20 06:45:19 PDT 2011

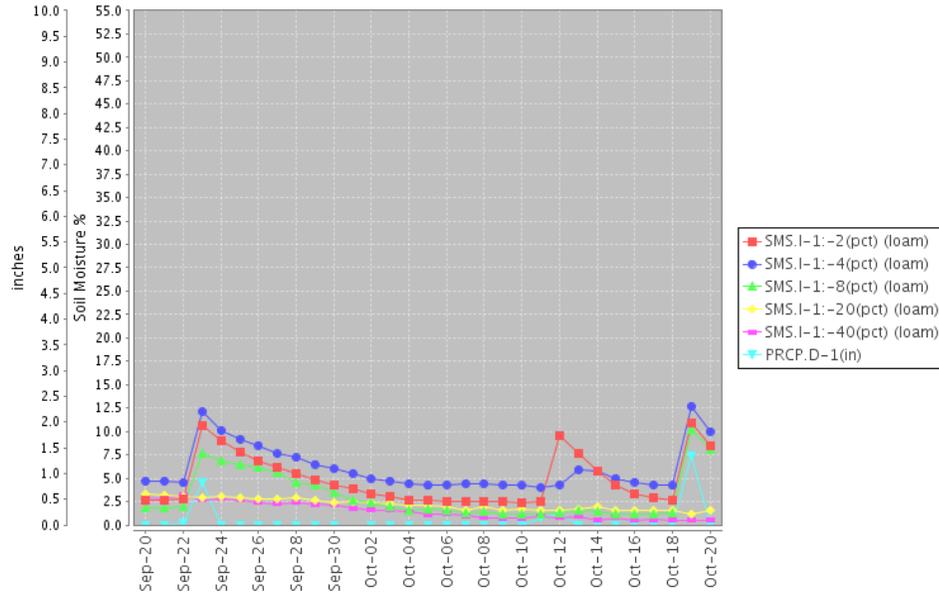


Fig. 5a: This NRCS resource shows a site in the [Panhandle of Florida](#) with moistening soil due to recent rains.

Station (2082) MONTH=2011-09-20 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Oct 20 06:47:11 PDT 2011

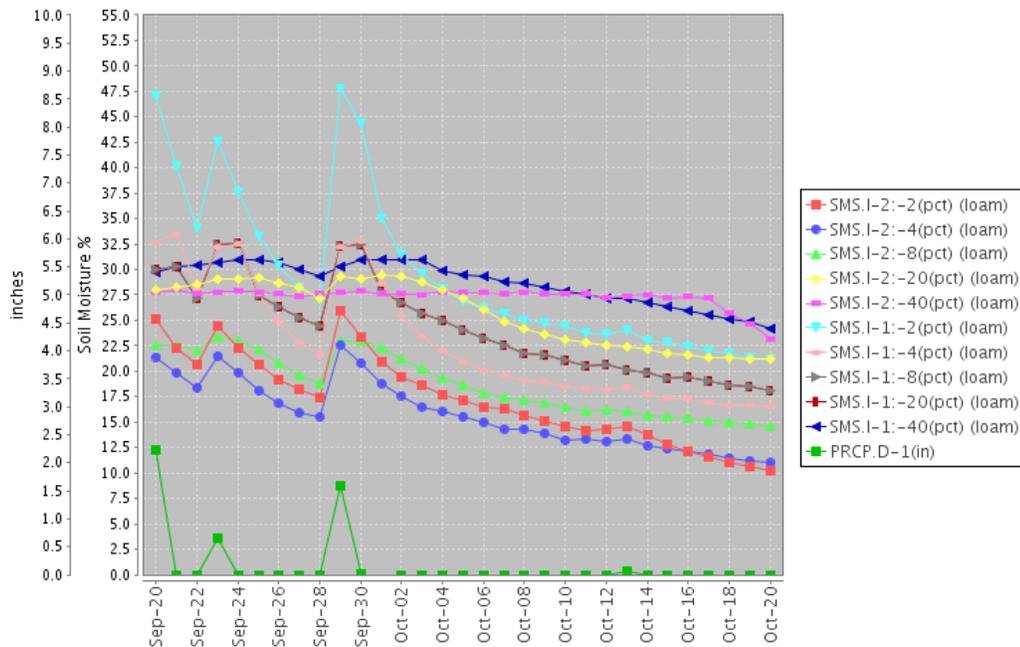
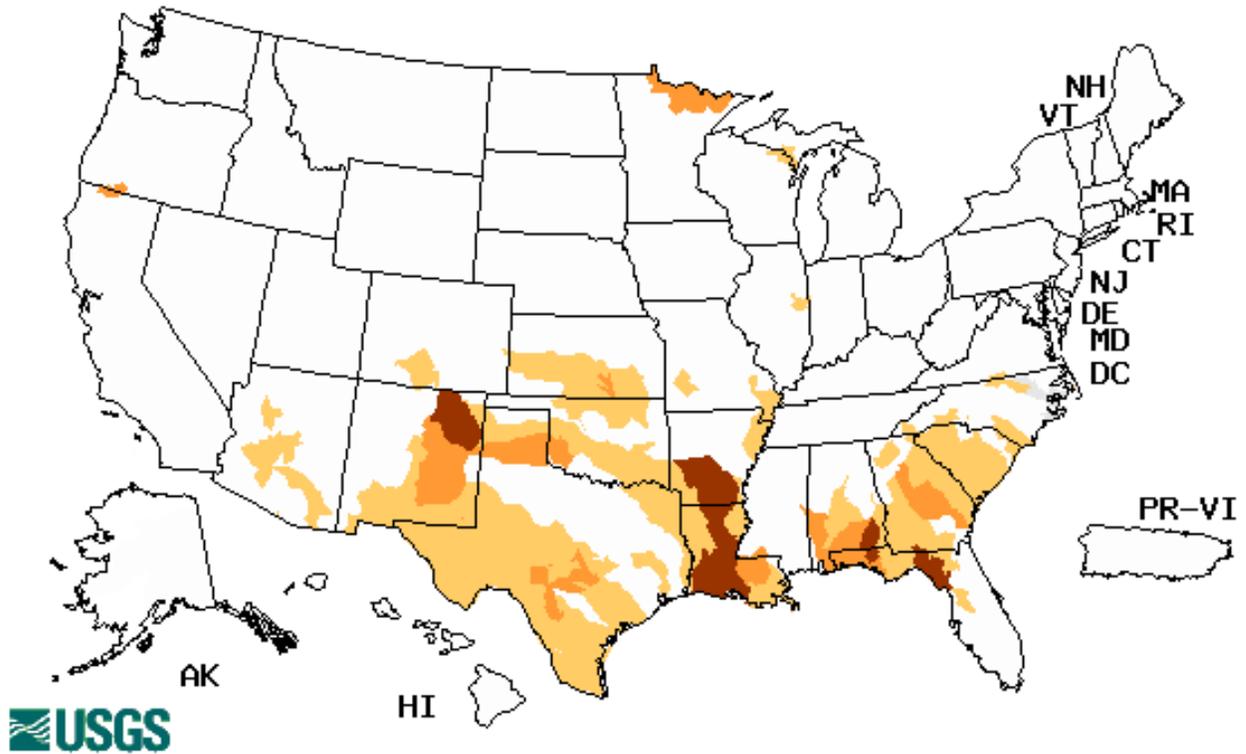


Fig. 5b: This SCAN station is located in [southern Mississippi](#) shows drying soil in the top layers since late September.

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, October 19, 2011



Explanation - Percentile classes				
Low	≤5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

Fig. 6: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. Severe conditions continue over parts of northern Florida, southern Alabama, Louisiana, Arkansas, and northeast New Mexico.

# Weekly Snowpack and Drought Monitor Update Report

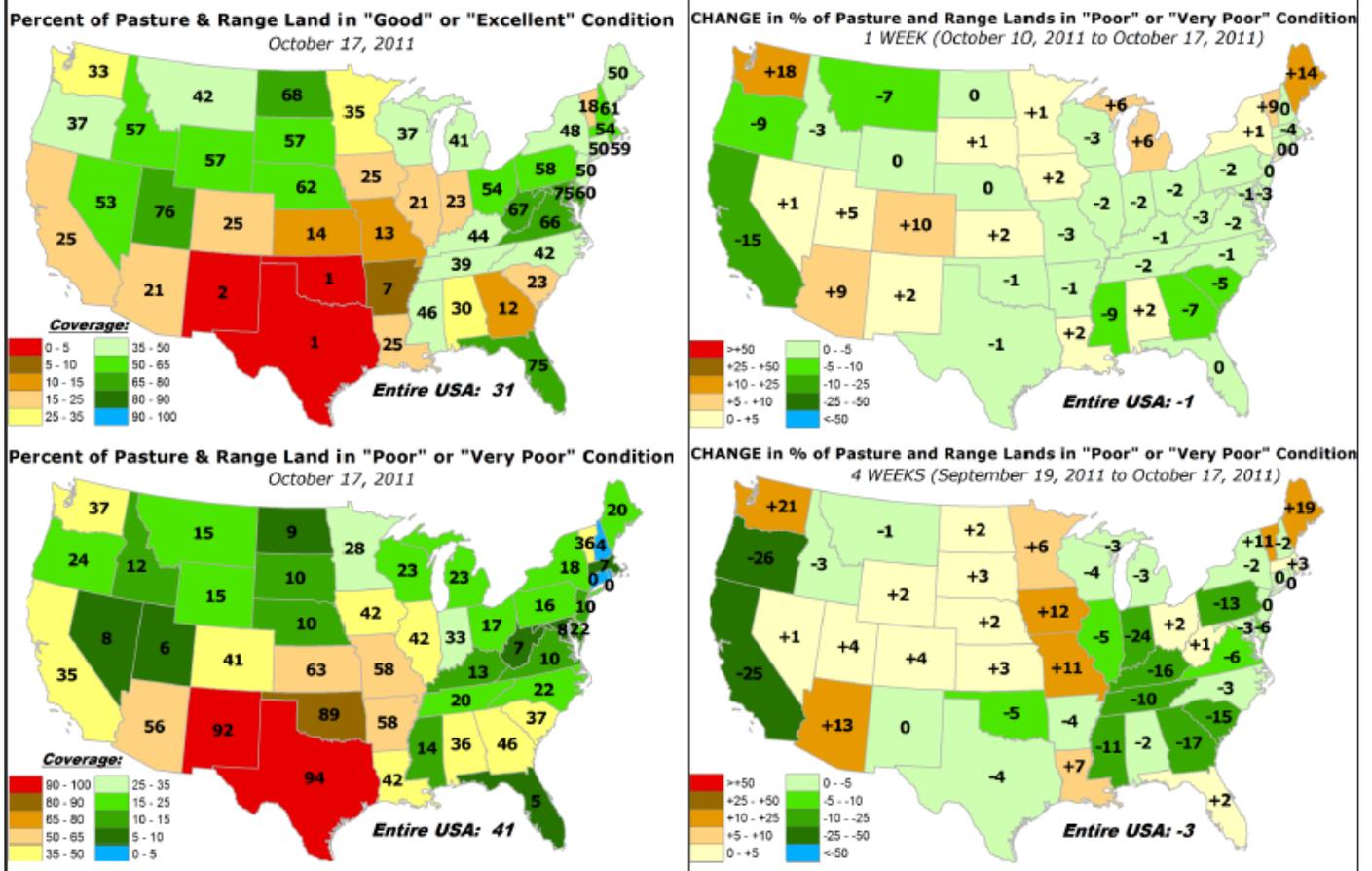


Fig. 7: [Current pasture and rangeland conditions](#) and recent changes. For the week, Washington had the greatest worsening and California and Oregon had the greatest improvement in the West (upper right map).

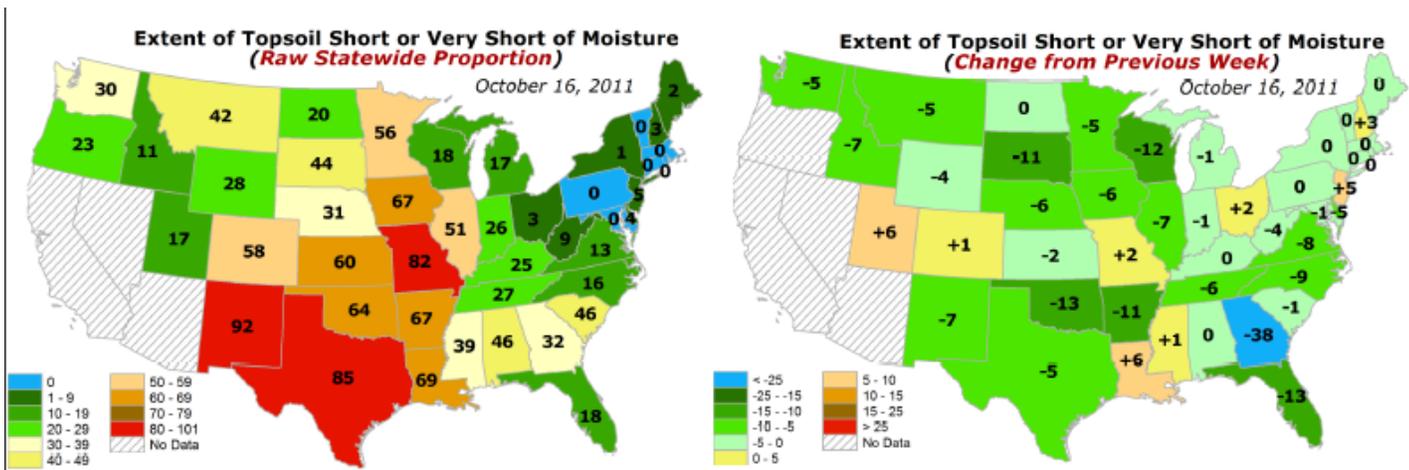


Fig. 7a: [Current top soil](#) condition and changes for the past week. Clearly Texas, Arkansas, and New Mexico have extreme soil moisture deficits.

## Weekly Snowpack and Drought Monitor Update Report

### Special Report: Record Heat

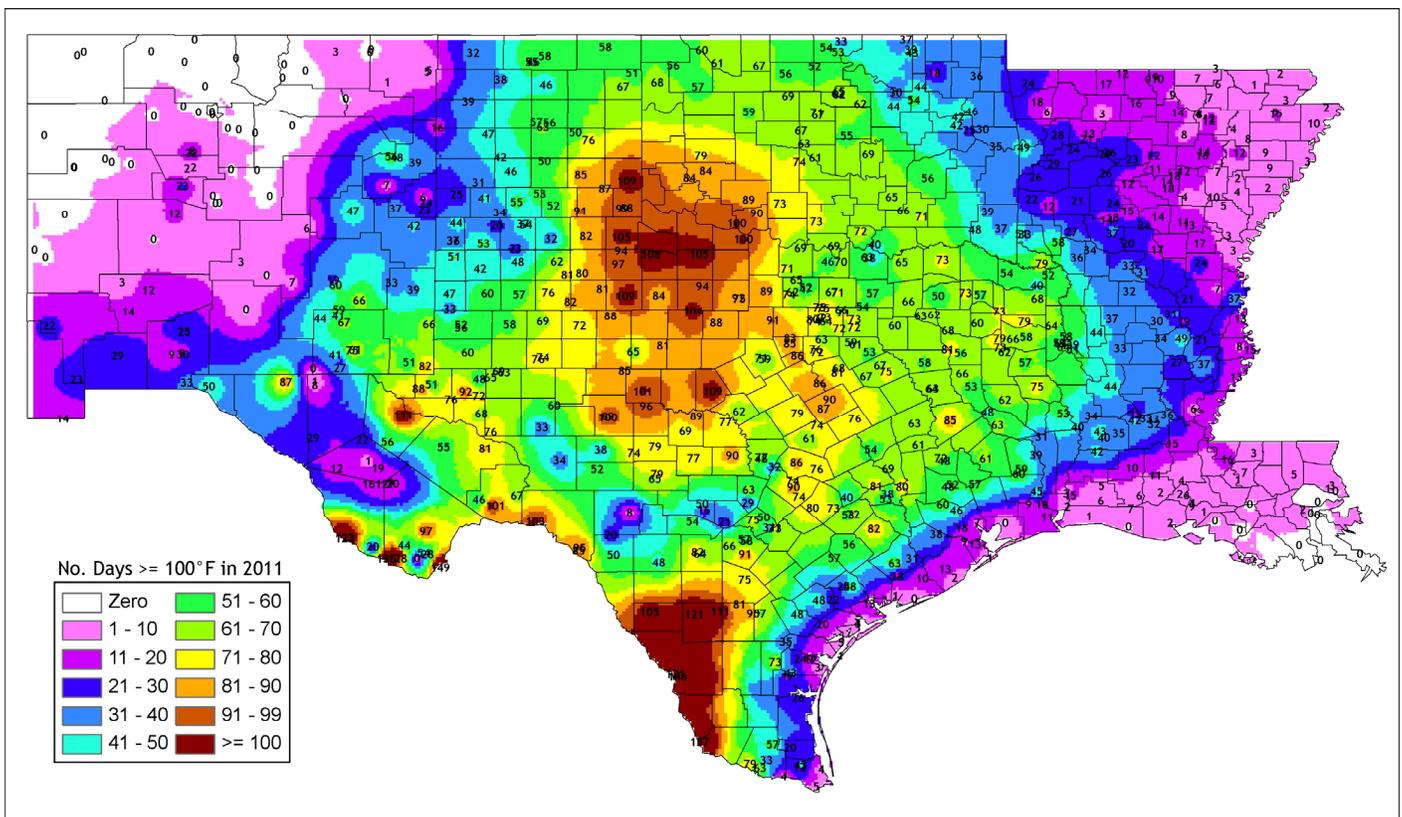
Here are the Texas Top Ten, with the statistics from 2010 included for comparison:

	<u>2011</u>	<u>2010</u>	<u>Station</u>
1	149	117	Rio Grande Village
2	146	69	Laredo AFB (Laredo 2 had 121 in 2011 and 55 in 2010)
3	137	54	Falcon Dam
4	136	106	Lajitas
5	122	96	Presidio 2
6	121	31	Cotulla La Salle Co. Airport
7	111	65	Pecos Muni Airport
8	109	14	Aspermont
9	109	35	Wellington
10	109	42	Brownwood 2ENE

The year 2011 seems to have been hotter than 2010 in Texas. Aspermont had 95 more 100 degree days in 2011 than in 2010. Along similar lines and in a similar area, Jayton had two 100 degree days in 2010 and 81 in 2011. Houston Sugarland had no such days in 2010 and 38 in 2011.

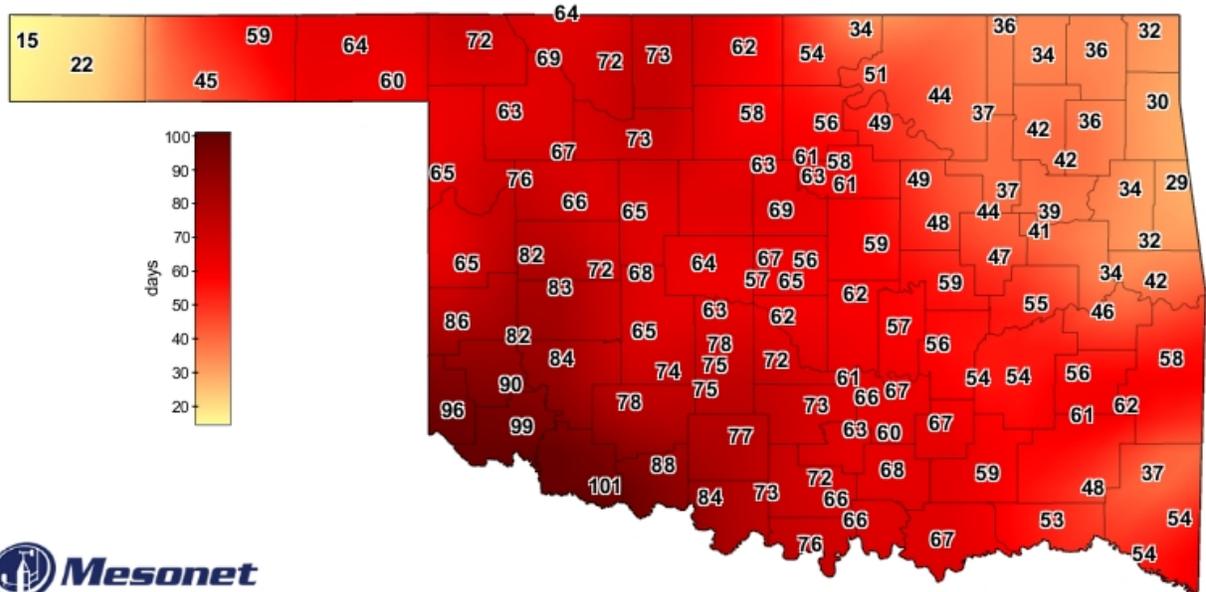
At the other end of the scale, precisely four Texas stations missed out on all the triple-digit fun. Two were along the coast (Anahuac and Matagorda 2), while two were above 5000' elevation (Chisos Basin and Dog Canyon).

One final bit of Texas trivia: The station with the most 100 degree days is 22 miles (and 3400 vertical feet) from one of the stations with zero 100 degree days.



Courtesy: John W. Nielsen-Gammon, Professor and Texas State Climatologist

## Weekly Snowpack and Drought Monitor Update Report



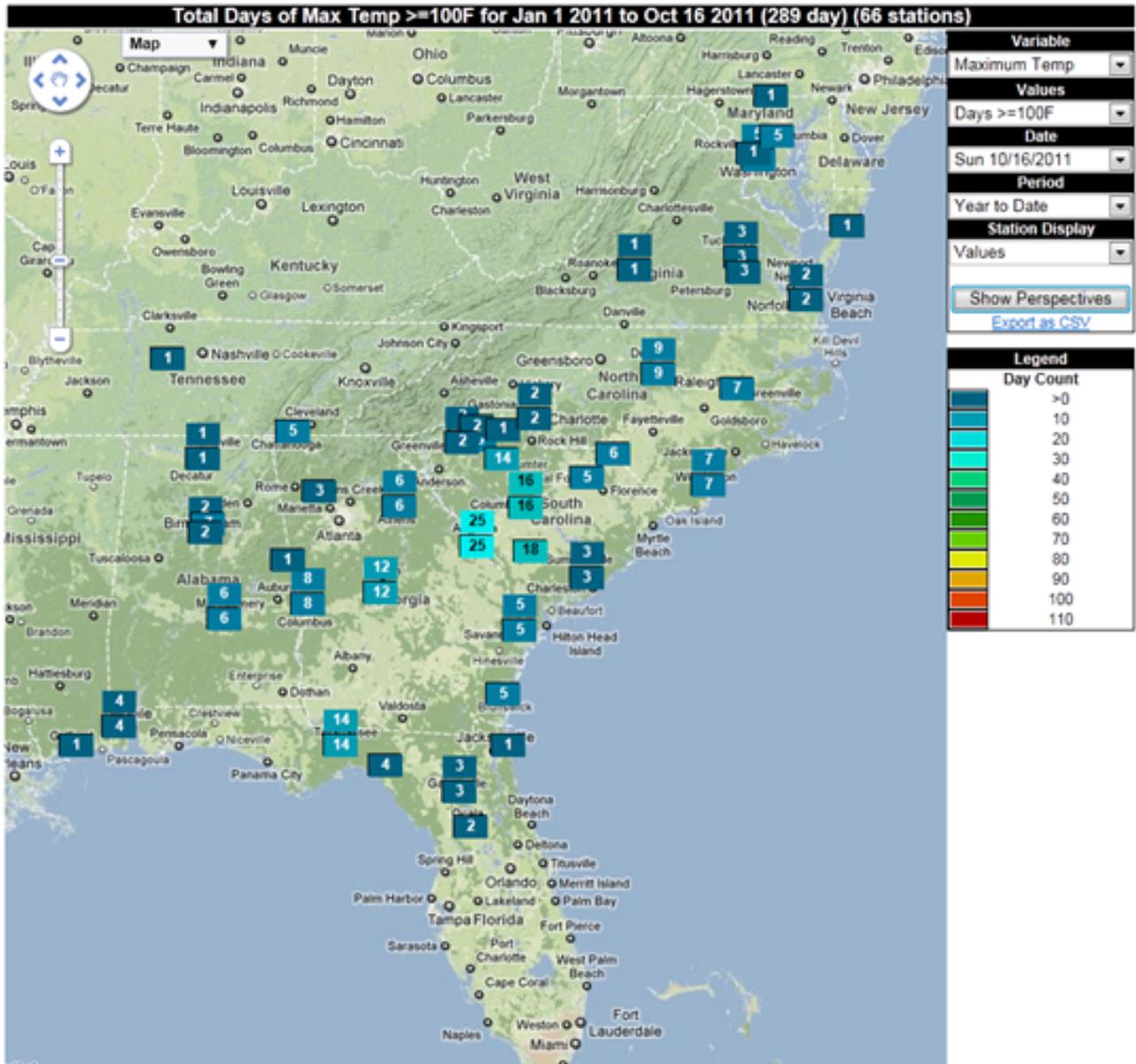
Days With High Temperatures  $\geq 100$  °F

Warm Season through October 16, 2011  
Created 5:25:06 AM October 17, 2011 CDT. © Copyright 2011

Here is an Oklahoma Mesonet map of 100 degree days. We have a multitude of stations that topped the all-time Oklahoma record for days above 100 degrees (86 from Hollis in 1956).

Courtesy: Gary McManus [gmcmamus@mesonet.org]

## Weekly Snowpack and Drought Monitor Update Report



Courtesy: William Schmitz, Service Climatologist/Meteorologist, UNC-Chapel Hill Geography, Department, Southeast Regional Climate Center

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- October 18, 2011

*The discussion in the Looking Ahead section is simply a description of what the official national guidance from the National Weather Service (NWS) National Centers for Environmental Prediction is depicting for current areas of dryness and drought. The NWS forecast products utilized include the HPC 5-day QPF and 5-day Mean Temperature progs, the 6-10 Day Outlooks of Temperature and Precipitation Probability, and the 8-14 Day Outlooks of Temperature and Precipitation Probability, valid as of late Wednesday afternoon of the USDM release week. The NWS forecast web page used for this section is: <http://www.cpc.ncep.noaa.gov/products/forecasts/>.*

**Weekly Summary:** Early in the period, low pressure tracked from the northeastern Gulf up the Atlantic Seaboard, producing showers and thunderstorms, some severe (tornadoes in Virginia), and moderate to heavy rains (more than 2 inches) from southern Georgia northward into New England. Meanwhile a slow-moving cold front in the Nation's midsection brought some rain to the Midwest and parts of the central and southern Plains. A Pacific system dropped light to moderate precipitation on the Northwest. As the week progressed, an upper-air low north of the Great Lakes generated windy and wet weather in the region, while weak Pacific systems tracked eastward across the northern Rockies with light precipitation. By Monday, a northward-moving disturbance in the east-central Gulf of Mexico west of Cuba was dumping heavy rain on southern Florida. Farther west, a stationary front was draped from the eastern Great Basin to the mid-Atlantic. As the period ended, additional rains were falling on parts of the Midwest, Southeast, and Northeast, while dry weather encompassed the U.S. west of the Mississippi River. Weekly temperatures generally averaged above-normal except in parts of the Northwest, central Plains, and Southeast. Moderate to heavy precipitation fell on south-central and southeastern Alaska while the interior was mostly dry, Hawaii saw light showers on the windward sides, and Puerto Rico recorded light to moderate showers throughout the island.

**Northeast and Mid-Atlantic:** Widespread showers and thunderstorms soaked much of the mid-Atlantic and New England with 2 or more inches of rain last week, effectively eliminating the three small areas of D0(S) in western New York and southeastern West Virginia. None of the drought products or indices depicted any areas of dryness, and nearly all of the short and medium-term AHPS precipitation anomalies were either surpluses or close to normal. The few remaining minor deficit areas were too small to be depicted on the map. Farther south, heavy rains in south-central Virginia improved conditions by a category, effectively removing D0 and D1 out of the state.

**Southeast:** Heavy tropical showers and thunderstorms from a disturbance in the east-central Gulf of Mexico and a stationary front focused heavy rains on southern Florida, removing the lingering D0(L) there. Key West received a 3-day total (October 15-17) of 10.35 inches, including an 18-hour amount of 7.24 inches. D0(L) was kept around Lake Okeechobee as it remained below the Water Shortage Management level, although it has steadily risen (a foot this past week) due to the heavy rains in the Kissimmee River basin ten days ago. Farther north, light to moderate rains (0.5 to 2 inches) fell on much of northern Georgia, the western Carolinas, southern Appalachians, and eastern Tennessee, with some embedded heavier bands of thunderstorms (2 to 5 inches) in southeastern and east-central Georgia, and from central North Carolina into Virginia. Accordingly, a 1-category trimming of the D0 and D1 areas along the western and northern drought boundary was made where the rains exceeded 1.5 inches, in the larger bands of heavy thunderstorms, and D0(S) was erased in southeastern Tennessee. Even with the rain, USGS 7-day averaged stream flows (as of Oct. 18) still

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remained in the lower tenth percentile across many areas of the northern Florida Panhandle, Georgia, South Carolina, and central North Carolina.

In contrast, much of Alabama and the Florida Panhandle missed this week's rain, and also missed out on Tropical Storm Lee's soaking rains. As a result, short and medium-term deficits have accumulated (4 to 7 inches at 90-days, and 7 to 11 inches in parts of the Florida Panhandle). As a result, a general westward creep of D0-D3 was made into southeastern Alabama. Farther north, a serious short-term dry spell (past 30 days) has enveloped northwestern Alabama (under an inch of rain, or less than 25 percent of normal), and D0(S) was introduced. Similarly in Louisiana and southern Arkansas, little or no precipitation and above-normal temperatures continued the slow eastward crawl of drought in the states. As deficits continued to accumulate, a general 1-category degradation of the D0-D4 areas were made in Louisiana and southern Arkansas at about the size of a county or parish. In contrast, 1.5 to 2.5 inches of rain fell on northern Arkansas, providing some relief to former D0 and D1 areas.

**Northern Plains and Midwest:** A widespread area of 1 to 2 inches of rain fell on much of the Midwest, stretching from southern Missouri northward into the upper Great Lakes region. The heaviest rains fell on the southern and eastern sections of the drought areas, while the western sections saw much lower amounts (less than 0.5 inches). Since the drought areas were mostly short-term deficiencies (past 90-days or less), these rains were beneficial in easing the accumulated deficits. Accordingly, where more than 1.5 inches fell, a 1-category improvement was made, and included most of northeastern Missouri, Illinois, eastern Iowa, southern and northern Wisconsin, northern Indiana, the Upper Peninsula (UP) and northern lower Michigan, and northeastern Minnesota. In central Illinois, D2 remained in Macon County because of water restrictions at Decatur. In southern Missouri, a band of heavy rain (2 to 4 inches) improved conditions by a category, but in southwestern Missouri (1 to 2 inches), the rains were not enough to compensate for impacts made by this summer's extreme heat and dryness, and D2 remained. The Impact Types were modified in the UP of Michigan (L) and northern Minnesota (SL) based upon the blends and various AHPS and SPI periods. Farther west, the D0 area in southwestern North Dakota was expanded to account for short topsoil moisture due to subnormal precipitation the past 60-days, above-normal temperatures, and windy conditions. Fortunately, these conditions are beneficial for farmers to harvest their crops.

**Central and Southern Plains:** As we hit the third week of October, precipitation normally begins to decrease in the High Plains (e.g. eastern New Mexico, western parts of Texas, Oklahoma, and Kansas), and continues into the winter months. As a result, it is uncommon that widespread, precipitation-drenching storms would occur and alleviate any drought conditions. With that said, however, any precipitation deficits that would accumulate during dry periods would be small, and temperatures and evaporation would typically be much lower than the summer. This week saw mostly dry weather in the southern and central High Plains and near to above-normal temperatures. Farther east, showers and thunderstorms developed and dropped some light to moderate amounts (1 to 2 inches) on north-central Kansas, extreme eastern Oklahoma, and northeastern Texas. Based upon the Texas SPI blends, October rainfall was enough to make a 1-category improvement in portions of the northeastern Texas counties of Tarrant, Parker, Denton, and Wise. The rains that fell farther to the southeast were not enough to overcome this summer's record heat and long-term drought, and status-quo prevailed. In northwestern Kansas, a re-evaluation of various high-resolution precipitation products depicted a surplus at several time scales (30-, 90-, 180-days), resulting in improvement and removal of drought and dryness there.

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Farther north, a 1-category deterioration was made in east-central and southeastern Kansas and northeastern Oklahoma where little or no rain fell this week and where mid-September and early October rains had missed. Similar to Texas, the record heat in Oklahoma and southern Kansas also exacerbated the effects and impacts of the drought. In Oklahoma, changes to the major reservoirs over the past month were: Grand Lake 0 percent change, 10 percent since March 18; Eufaula 2 percent decline, 3 percent since March 18; Texoma 5 percent decline, 30 percent since March 18. Since Grand was in flood control back in March, it currently sits at 100 percent of capacity, but Texoma and Eufaula were not and are now at 66 and 74 percent, respectively.

**Southern Rockies and Southwest:** A lull in precipitation usually occurs in the Southwest during the fall months between the end of the southwestern summer monsoon and the start of the winter rainy season. Not surprisingly, little or no precipitation fell, and temperatures averaged above normal throughout the area. But since most of this area saw a wet week during early October, no changes were made to the depiction. An exception was made in southwestern Colorado and northwestern New Mexico where new and updated information for September and early October depicted much improved conditions (surpluses at 30-, 60-, and 90-days and longer, SPIs positive). Accordingly, D0 was removed from southwestern Colorado (La Plata County), and a 1-category improvement was made in northwestern New Mexico where nearly all Navajo Nation stations reported a wet September.

**Hawaii:** Light to moderate (0.25 to 1 inches, a few 1 to 3 inch totals) daily showers were mostly limited to the windward sides of Kauai, Oahu, Maui, and the Big Island, occurring mainly during the weekend. Little or no rain fell on the leeward locations. Dryness during September has basically continued into October, with additional impacts developing. In eastern Oahu, D1(L) was added due to mandatory restrictions (10 percent cutback) on irrigation water use at Waimanalo Reservoir as of October 17. Water levels have fallen from 60 feet early in the year to 28 feet this week. In western Molokai where D2(L) was introduced, users of irrigated water at Kualapuu Reservoir are on a mandatory 30 percent cutback and the water levels have slowly but steadily declined over the past several months. On the Big Island, growing short-term deficits called for a D1(S) expansion eastward into the central third of the island.

**Looking Ahead:** During the next 5 days (October 20-24), relatively tranquil weather will envelop most of the lower 48 States once the current storm systems in the Midwest and Northeast move out by early Friday. Expect the largest totals (1 to 3 inches) in the northeastern quarter of the U.S., especially Michigan and coastal New England. 5-day temperatures should be above-normal in the western half of the Nation and in northern New England, while subnormal readings cover the Midwest, mid-Atlantic, and Southeast.

The CPC 6-10 day outlook (October 25-29) calls for an amplified ridge over the West Coast with a trough over the East. This translates to favorable odds of above-normal precipitation in the Northeast, southern Florida, and the central Rockies, with subnormal precipitation in the West, the Great Plains, and across the southern tier of States. Above-normal temperatures are forecast for the Far West, with subnormal readings predicted for much of the Nation east of the Rockies, especially in the South.

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### Dryness Categories

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D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought, or for areas recovering from drought.

### Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

### Drought or Dryness Types

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)

L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

*Updated October 19, 2011*

*Note:*

The monthly update of the NOAA Climate Prediction Center **Seasonal Outlook** has just been released.