



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

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**Weekly Report - Snowpack / Drought (& Flood) Monitor Update**    **Date: 25 August 2011**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** SNOTEL and ACIS 7-day temperature anomaly shows +5°F to +10°F departures over the entire West except for cooler than average temperatures over parts of California (Fig. 1). ACIS 7-day average temperature anomalies show the greatest positive temperature departures over central-eastern Colorado (>+10°F) and the greatest negative departures over Coastal California (<-4°F) (Fig. 1a).

**Precipitation:** ACIS 7-day average precipitation amounts for the period ending yesterday shows the heaviest precipitation over the Olympic Mts. in Washington and over central New Mexico (Fig. 2). In terms of percent of normal, the precipitation in the form of widely scattered thunderstorms occurred over Arizona and New Mexico (Fig 2a). The Southwest Monsoon returned this week with locally heavy rainfall amounts. For the 2011 Water-Year that began on 1 October 2010, the greatest deficits are found over the extreme southern reaches of the Southwest. Areas with the highest values are found over the Great Basin, Cascades, Sierra, and parts of Northern and Central Rockies. The [Southwest Monsoon](#) in New Mexico is not contributing much to water deficits thus far this season (Fig. 2b).

[Flooding persists](#) along the flood plain over parts of the [Missouri River](#). Releases are expected to decrease by 40% by the end of August at Gavins Point.

**Four Corners Region:** Moderate to heavy showers (locally more than 2 inches) provided some relief from Moderate to Exceptional Drought (D1 to D4) from southeastern Colorado into southwestern New Mexico and southeastern Arizona. Drought reduction was most pronounced in southeastern Colorado and northeastern New Mexico, where rain was heaviest. In addition, updated soil moisture percentiles and Standardized Precipitation Indices (3 to 6 month) indicated much of the Extreme and Exceptional Drought had abated due to recent rainfall. Remote-sensing data (Vegetation Health Index and the VegDri Index) likewise indicated recent greening in the aforementioned areas. In contrast, short-term dryness across the High Plains of central Colorado reduced soil moisture for winter wheat planting, with D0 added to this area to account for the increasing concern. Author: Eric Luebehusen, U.S. Department of Agriculture, and Laura Edwards, Western Regional Climate Center.

***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

## Weekly Snowpack and Drought Monitor Update Report

developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 3 through 3d).

### 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>.

### For More Information

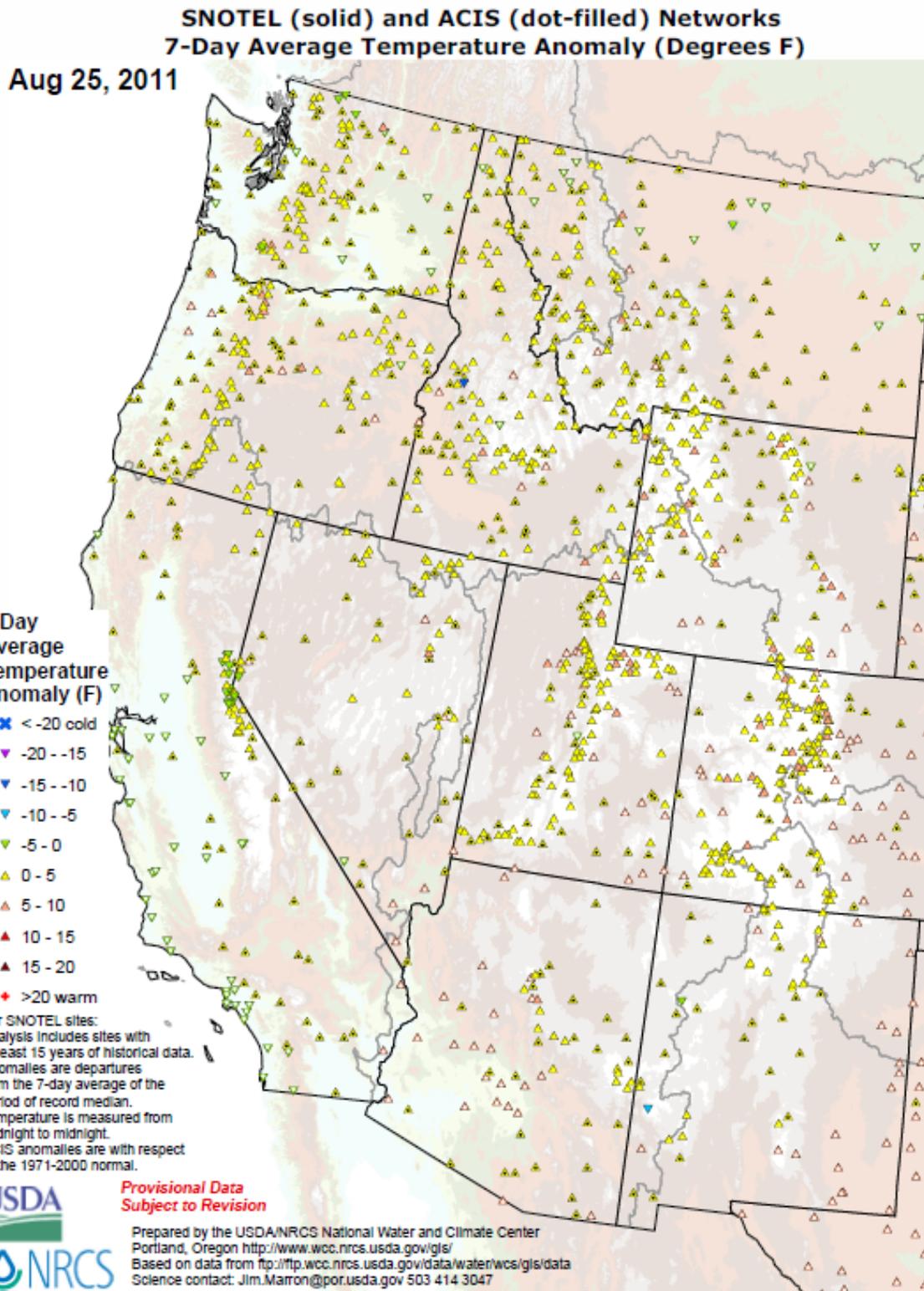
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports 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

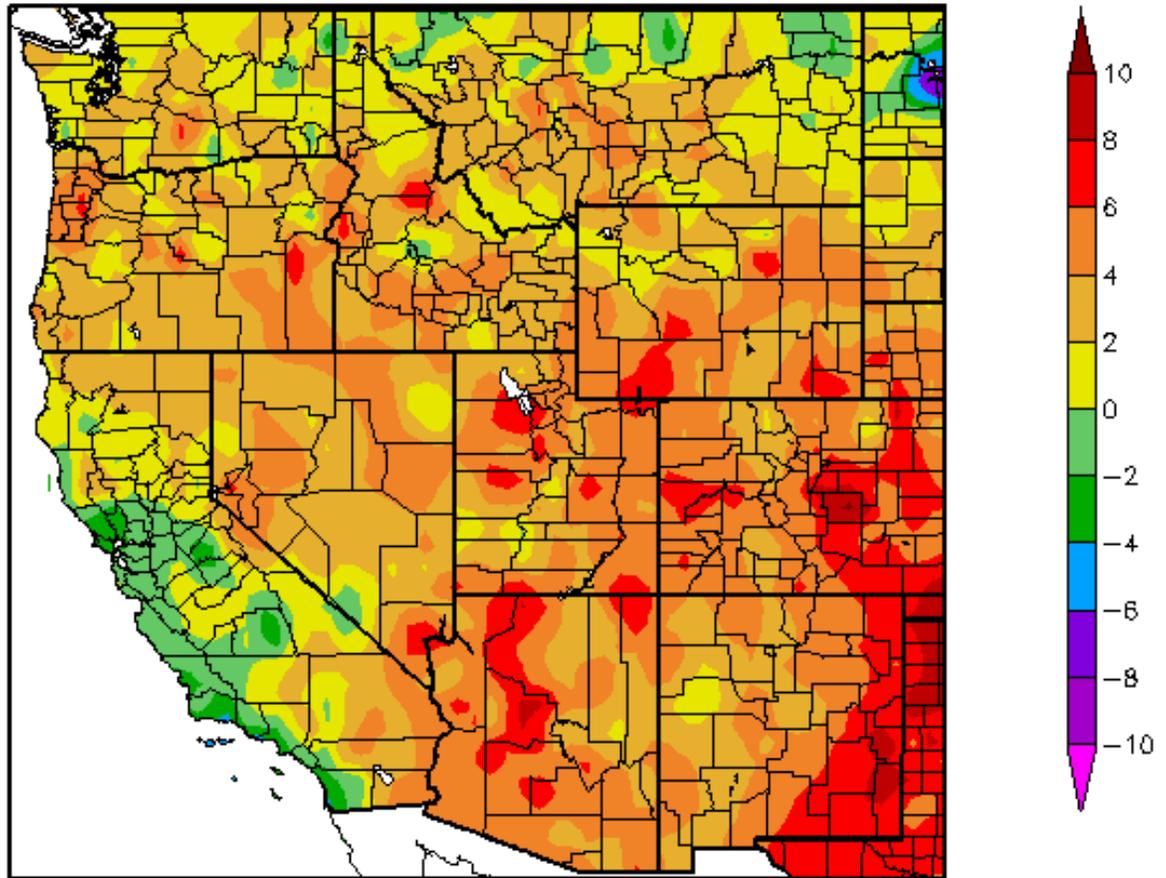
# Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: SNOTEL and ACIS 7-day temperature anomaly shows +5°F to +10°F departures over the entire West except for cooler than average temperatures over parts of California.**

Ref: <http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>

Departure from Normal Temperature (F)  
8/18/2011 – 8/24/2011



Generated 8/25/2011 at HPRCC using provisional data.

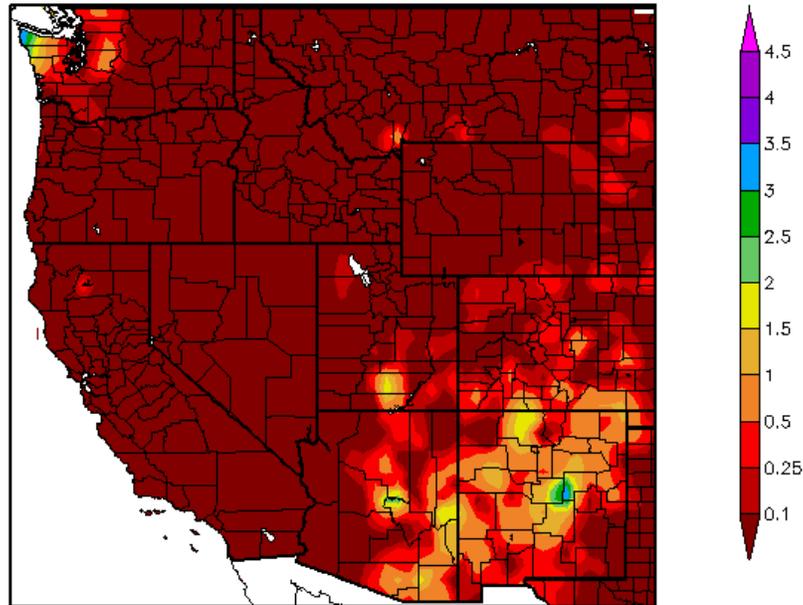
Regional Climate Centers

**Fig. 1a: ACIS 7-day average temperature anomalies show the greatest positive temperature departures over central-eastern Colorado (>+10°F) and the greatest negative departures over Coastal California (<-4°F).**

Ref: [http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_daterange&daterange=14d](http://www.hprcc.unl.edu/maps/current/index.php?action=update_daterange&daterange=14d)

## Weekly Snowpack and Drought Monitor Update Report

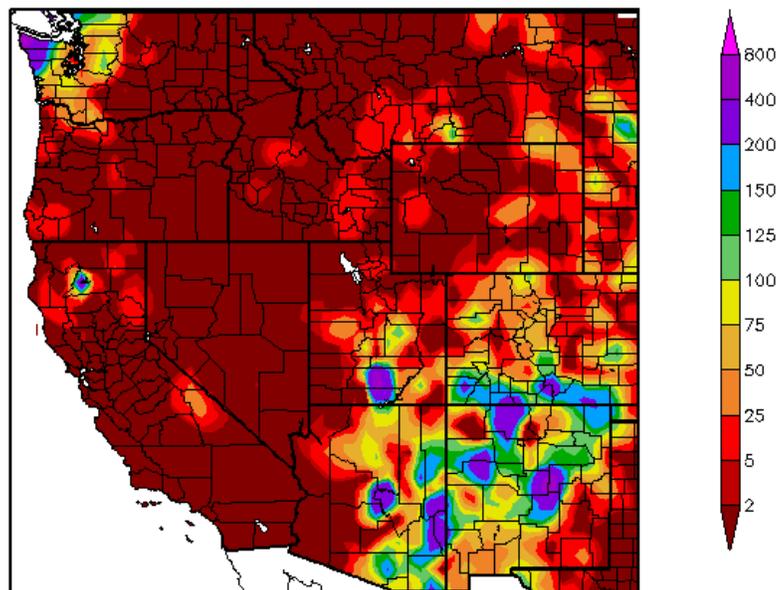
Precipitation (in)  
8/18/2011 - 8/24/2011



Generated 8/25/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
8/18/2011 - 8/24/2011



Generated 8/25/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2 and 2a: ACIS 7-day average precipitation amounts for the period ending yesterday shows the heaviest precipitation over the Olympic Mts. in Washington and over central New Mexico (Fig. 2). In terms of percent of normal, the precipitation in the form of widely scattered thunderstorms occurred over Arizona and New Mexico (Fig 2a). The Southwest Monsoon returned this week with locally heavy rainfall amounts.**

Ref: <http://www.hprcc.unl.edu/maps/current/>

Weekly Snowpack and Drought Monitor Update Report

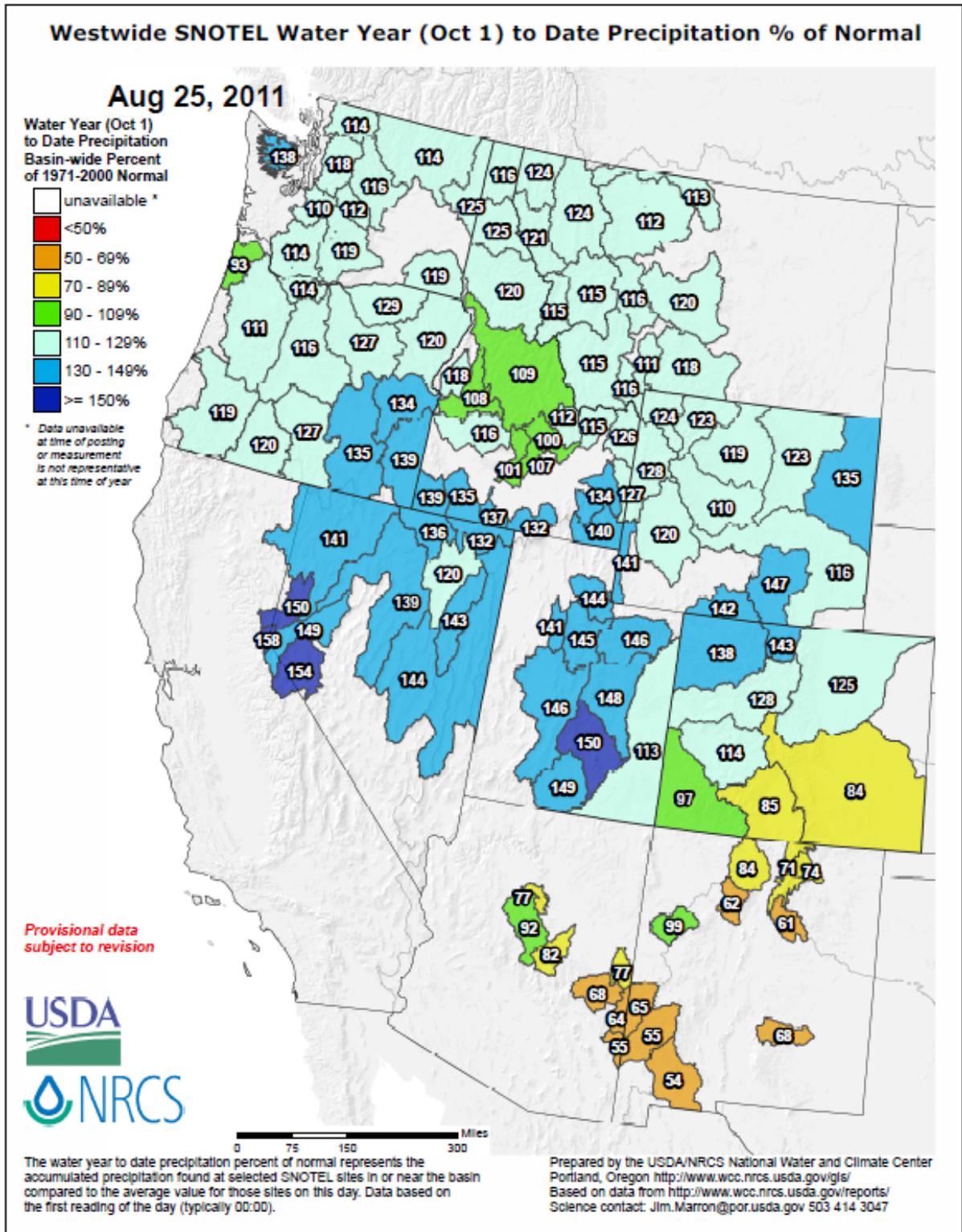


Fig 2b: For the 2011 Water-Year that began on 1 October 2010, the greatest deficits are found over the extreme southern reaches of the Southwest. Areas with the highest values are found over the Great Basin, Cascades, Sierra, and parts of Northern and Central Rockies. The [Southwest Monsoon](#) in New Mexico is not contributing much to water deficits thus far this season.

Ref: [http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west\\_wytdprecpcnormal\\_update.pdf](http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)

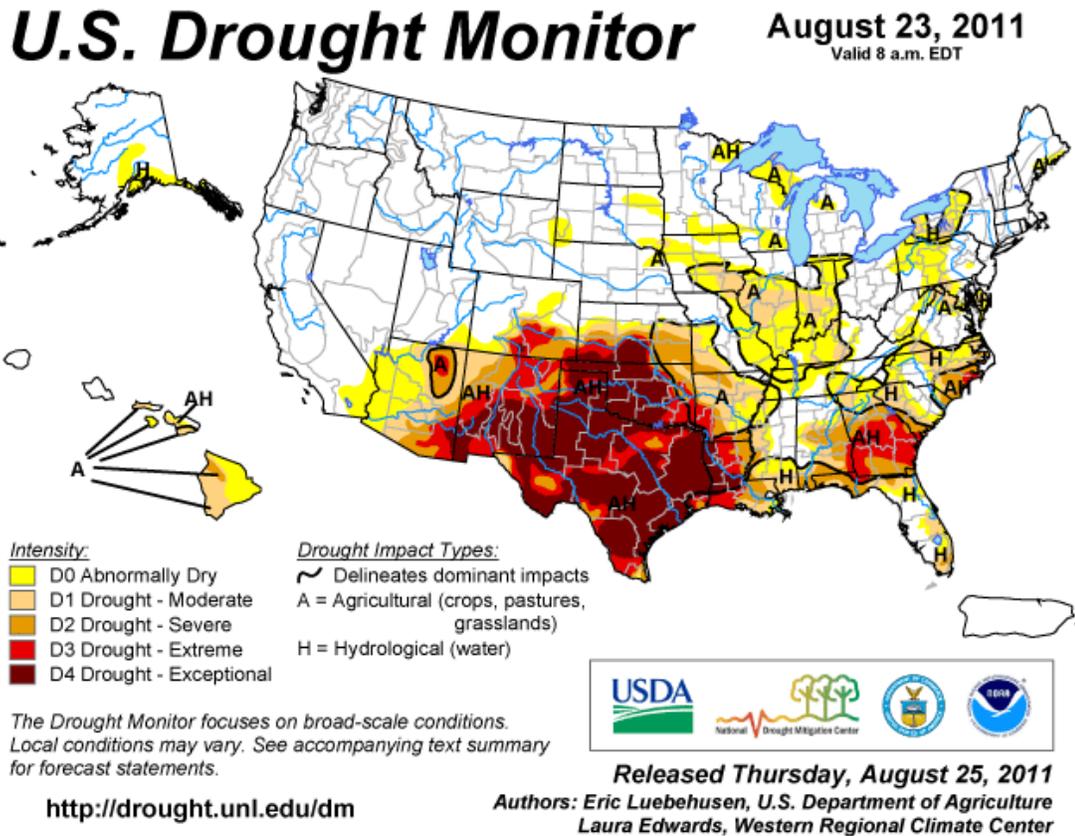


Fig. 3: Current Drought Monitor weekly summary. The exceptional D4 levels of drought are found over southeast Arizona, New Mexico, extreme southeast Colorado, Texas\*, Oklahoma, Louisiana, and Georgia. Ref: <http://www.drought.unl.edu/dm/monitor.html>

### Agriculture

Aug 15, [Kansas](#). Drought, sparse hay and water have led many ranchers to sell against the backdrop of an already small cattle herd. In addition, it will be difficult for ranchers to find enough hay to get through the winter, given that supplies are tight now.

Aug 13, [Oklahoma](#). More cattle sales, hay and water shortages. Article includes some mitigation strategies to help ranchers endure drought.

Aug 13, Clovis in [eastern New Mexico](#). Cattle sales were nearly three times as high as usual. Another concern in this area is that rain is needed within the next month to ensure enough moisture to plant winter wheat.

Aug 15, [Southern Great Plains](#). States included in this analysis are Kansas, Colorado, Nebraska, Oklahoma, Wyoming, northern New Mexico and western Missouri.

Aug 18, [Southeastern Pennsylvania](#). A dry summer led to poor crop quality and higher prices. The rain deficit was only 3 inches at the Stroud Water Research Center in West Marlborough, but much of the rain came in heavy storms and ran off rather than being absorbed into the ground.

Aug 19, [Indiana](#). The caption below the picture stated that the ears of corn were much smaller than they usually are at this time of year and blamed the reduction in size on drought.

Aug 14, [Central North Carolina](#). Drought and heat have kept the cotton from reaching its full height, tobacco plants are drying up and the sweet potatoes need water badly.

Aug 17, [Texas](#). Estimated crop and livestock losses in Texas have reached \$5.2 billion as of August 1, according to a Texas AgriLife Extension Service economist. Livestock losses amounted to \$2.1 billion and crop losses were \$3.1 billion, but will rise as the drought wears on.

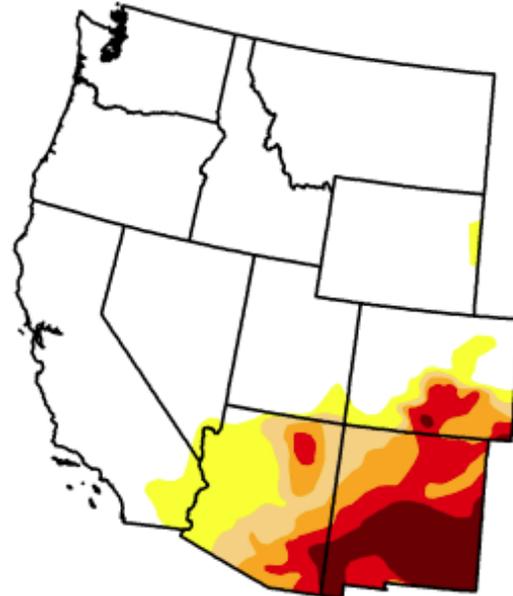
# U.S. Drought Monitor

## West

August 23, 2011  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

|   | None  | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
|---|-------|-------|-------|-------|-------|------|
| Current                                       | 74.62 | 25.38 | 18.81 | 14.75 | 9.89  | 4.70 |
| Last Week<br>(08/16/2011 map)                 | 75.03 | 24.97 | 18.93 | 15.21 | 10.62 | 4.65 |
| 3 Months Ago<br>(05/24/2011 map)              | 77.97 | 22.03 | 18.33 | 14.01 | 8.80  | 3.33 |
| Start of<br>Calendar Year<br>(12/28/2010 map) | 73.26 | 26.74 | 11.98 | 0.89  | 0.00  | 0.00 |
| Start of<br>Water Year<br>(09/28/2010 map)    | 62.50 | 37.50 | 8.14  | 0.56  | 0.00  | 0.00 |
| One Year Ago<br>(08/17/2010 map)              | 74.62 | 25.38 | 6.33  | 0.50  | 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.*



Released Thursday, August 25, 2011

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

Eric Luebehusen / Laura Edwards, USDA / Western Regional Climate Center

**Fig. 3a: Drought Monitor for the Western States with statistics over various time periods. Regionally there were no significant changes this week.**

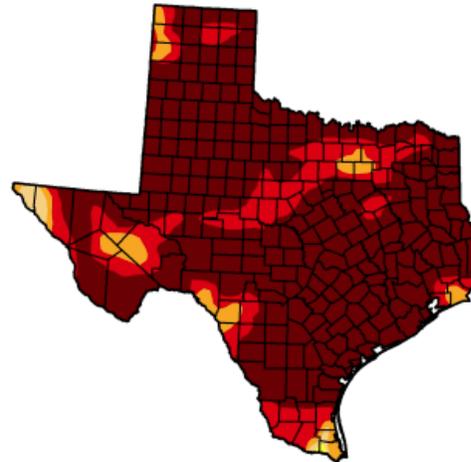
Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor Texas

August 23, 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 | 99.93 | 99.01 | 94.42 | 77.80 |
| Last Week<br>(08/16/2011 map)                 | 0.07                              | 99.93  | 99.72 | 98.36 | 92.78 | 74.50 |
| 3 Months Ago<br>(05/24/2011 map)              | 2.30                              | 97.70  | 95.77 | 91.97 | 78.49 | 43.97 |
| Start of<br>Calendar Year<br>(12/28/2010 map) | 7.89                              | 92.11  | 69.43 | 37.46 | 9.59  | 0.00  |
| Start of<br>Water Year<br>(09/28/2010 map)    | 75.57                             | 24.43  | 2.43  | 0.99  | 0.00  | 0.00  |
| One Year Ago<br>(08/17/2010 map)              | 84.98                             | 15.02  | 4.50  | 0.68  | 0.00  | 0.00  |



**Intensity:**



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Released Thursday, August 25, 2011

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

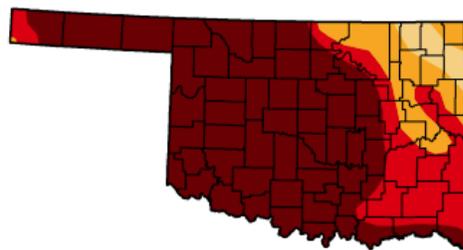
Eric Luebehusen / Laura Edwards, USDA / Western Regional Climate Center

Fig. 3b(1): Currently, 78% of [Texas](#) is experiencing “Exceptional” D4 drought. Over 94% of the state is in D3 and D4 drought! Ref: [http://www.drought.unl.edu/dm/DM\\_state.htm?TX.S](http://www.drought.unl.edu/dm/DM_state.htm?TX.S)

## U.S. Drought Monitor Oklahoma

August 23, 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 | 96.63 | 85.37 | 66.87 |
| Last Week<br>(08/16/2011 map)                 | 0.00                              | 100.00 | 100.00 | 96.35 | 85.39 | 66.84 |
| 3 Months Ago<br>(05/24/2011 map)              | 32.30                             | 67.70  | 55.37  | 41.31 | 29.09 | 10.26 |
| Start of<br>Calendar Year<br>(12/28/2010 map) | 13.82                             | 86.18  | 47.90  | 1.50  | 0.00  | 0.00  |
| Start of<br>Water Year<br>(09/28/2010 map)    | 66.28                             | 33.72  | 4.21   | 0.00  | 0.00  | 0.00  |
| One Year Ago<br>(08/17/2010 map)              | 49.57                             | 50.43  | 4.06   | 0.00  | 0.00  | 0.00  |



**Intensity:**



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



Released Thursday, August 25, 2011

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

Eric Luebehusen / Laura Edwards, USDA / Western Regional Climate Center

Fig. 3b(2) shows improving D3-D4 stats for Oklahoma. Ref: [http://droughtmonitor.unl.edu/DM\\_state.htm?OK.S](http://droughtmonitor.unl.edu/DM_state.htm?OK.S)

Weekly Snowpack and Drought Monitor Update Report

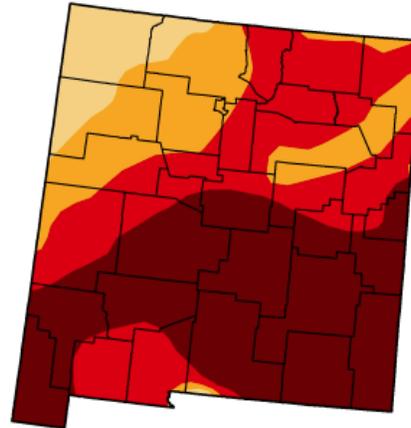
**U.S. Drought Monitor**  
New Mexico

August 23, 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 | 92.57 | 74.10 | 42.88 |
| Last Week<br>(08/16/2011 map)                 | 0.00                              | 100.00 | 100.00 | 92.66 | 77.07 | 42.39 |
| 3 Months Ago<br>(05/24/2011 map)              | 0.75                              | 99.25  | 93.98  | 87.37 | 64.82 | 31.72 |
| Start of<br>Calendar Year<br>(12/28/2010 map) | 6.16                              | 93.84  | 40.40  | 0.00  | 0.00  | 0.00  |
| Start of<br>Water Year<br>(09/28/2010 map)    | 76.66                             | 23.34  | 0.00   | 0.00  | 0.00  | 0.00  |
| One Year Ago<br>(08/17/2010 map)              | 80.04                             | 19.96  | 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.



Released Thursday, August 25, 2011

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

Eric Luebehusen / Laura Edwards, USDA / Western Regional Climate Center

Fig. 3b(3): Drought Monitor for New Mexico with statistics over various time periods. Thus far, the impacts of the [Southwest Monsoon](#) have been negligible. Ref: [http://www.drought.unl.edu/dm/DM\\_state.htm?NM.W](http://www.drought.unl.edu/dm/DM_state.htm?NM.W)

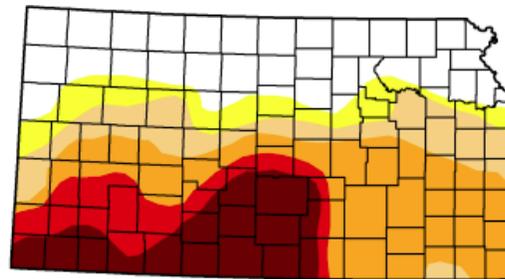
**U.S. Drought Monitor**  
Kansas

August 23, 2011  
Valid 7 a.m. EST

|   | Drought Conditions (Percent Area) |       |       |       |       |       |
|---|-----------------------------------|-------|-------|-------|-------|-------|
|   | None                              | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4    |
| Current                                       | 28.77                             | 71.23 | 62.24 | 49.07 | 23.54 | 14.55 |
| Last Week<br>(08/16/2011 map)                 | 26.90                             | 73.10 | 64.14 | 44.28 | 23.60 | 14.55 |
| 3 Months Ago<br>(05/24/2011 map)              | 23.43                             | 76.57 | 57.57 | 36.13 | 11.59 | 1.01  |
| Start of<br>Calendar Year<br>(12/28/2010 map) | 17.82                             | 82.18 | 43.85 | 3.48  | 0.00  | 0.00  |
| Start of<br>Water Year<br>(09/28/2010 map)    | 83.23                             | 16.77 | 0.00  | 0.00  | 0.00  | 0.00  |
| One Year Ago<br>(08/17/2010 map)              | 91.23                             | 8.77  | 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.



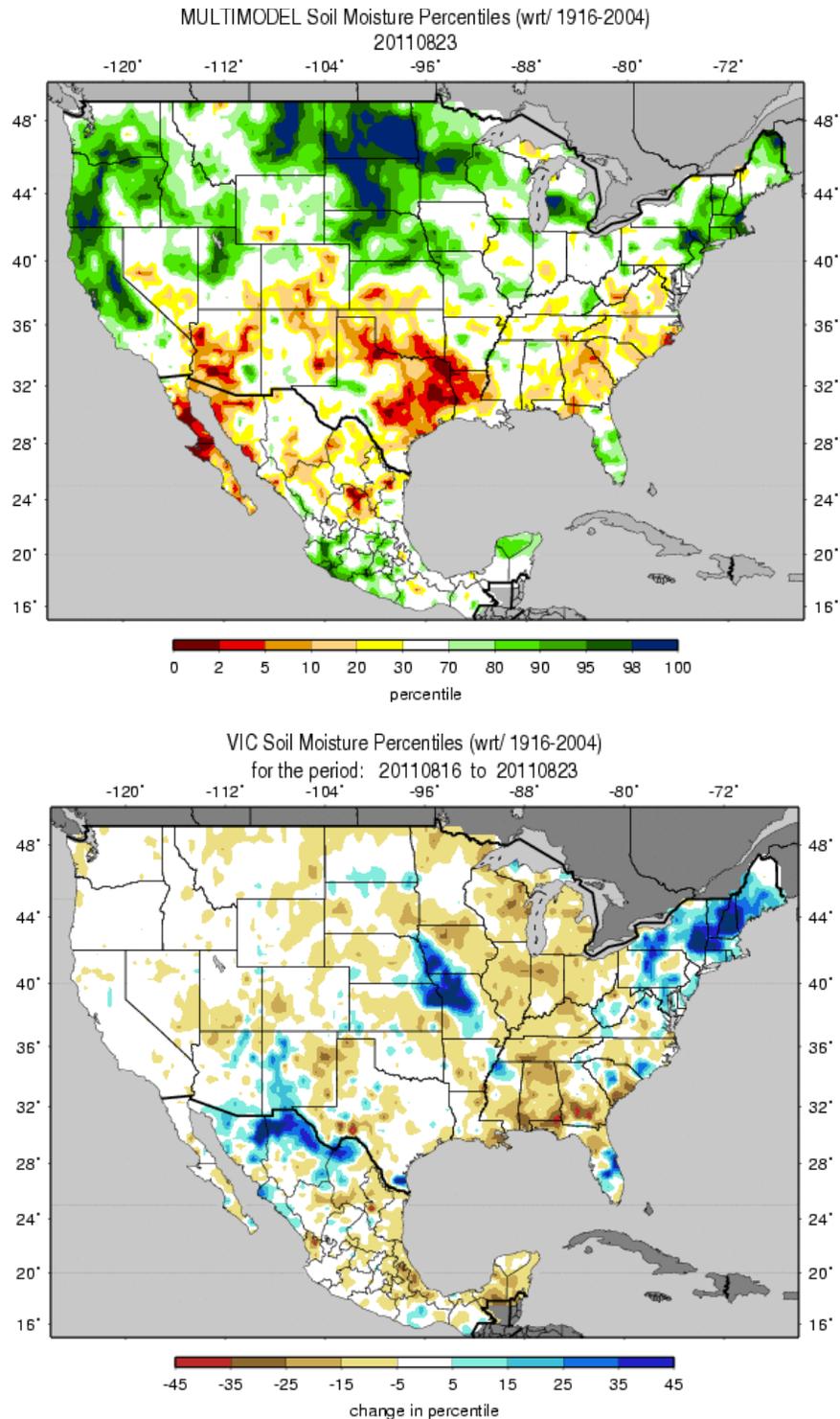
Released Thursday, August 25, 2011

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

Eric Luebehusen / Laura Edwards, USDA / Western Regional Climate Center

Fig. 3b(4): Drought Monitor for [Kansas](#) with statistics over various time periods. Ref: [http://droughtmonitor.unl.edu/DM\\_state.htm?KS\\_HP](http://droughtmonitor.unl.edu/DM_state.htm?KS_HP)

## Weekly Snowpack and Drought Monitor Update Report



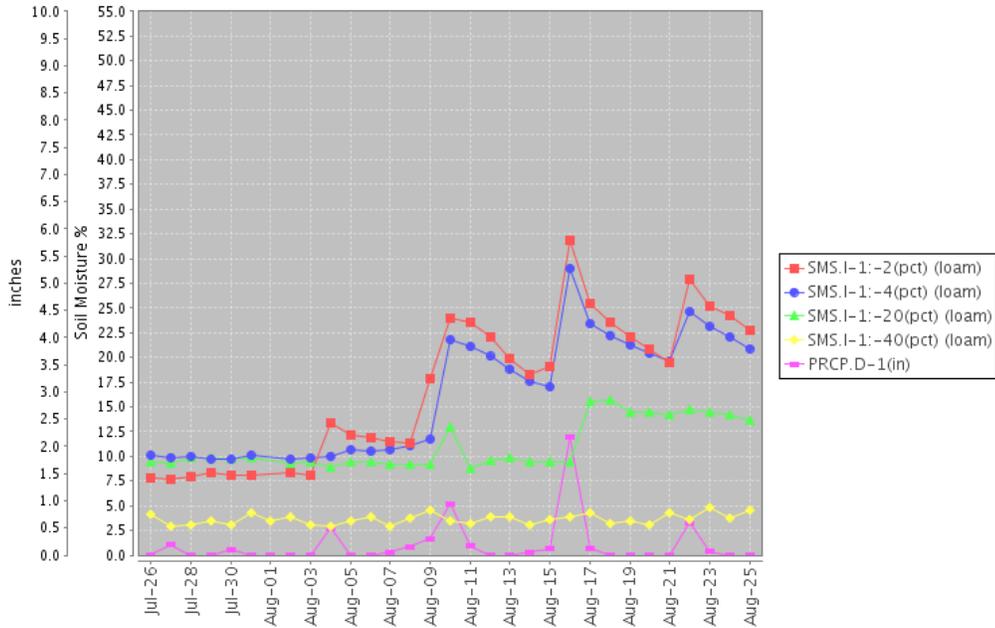
**Figs. 4a and 4b: Soil Moisture ranking in percentile as of 16 August (top) shows moist conditions over much of the Northern Tier States east of the Mississippi River with dryness over the Southern Plains. New England, the mid-Missouri River and parts of central Florida (bottom) experience increases in moisture. The Southeast and Mid-West had deteriorating drying conditions. Ref:**

[http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.multimodel.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.multimodel.sm_qnt.gif)  
[http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm\\_qnt.1wk.gif](http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_qnt.1wk.gif)

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network (SCAN)

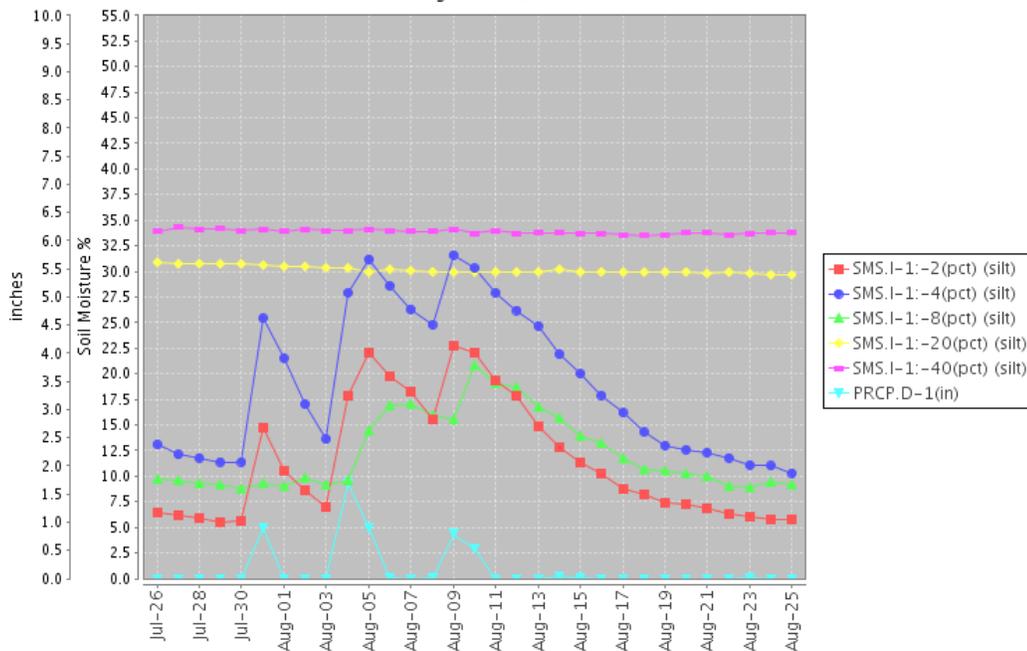
Station (2011) MONTH=2011-07-26 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Aug 25 07:48:17 PDT 2011



**Fig. 5a:** This NRCS resource shows a site in central New York with improving soil moisture as heavy rains dominated on August 10<sup>th</sup>, 16<sup>th</sup>, and 22<sup>nd</sup>.

Ref: <http://www.wcc.nrcs.usda.gov/nwcc/site?sitenum=2011&state=ny>

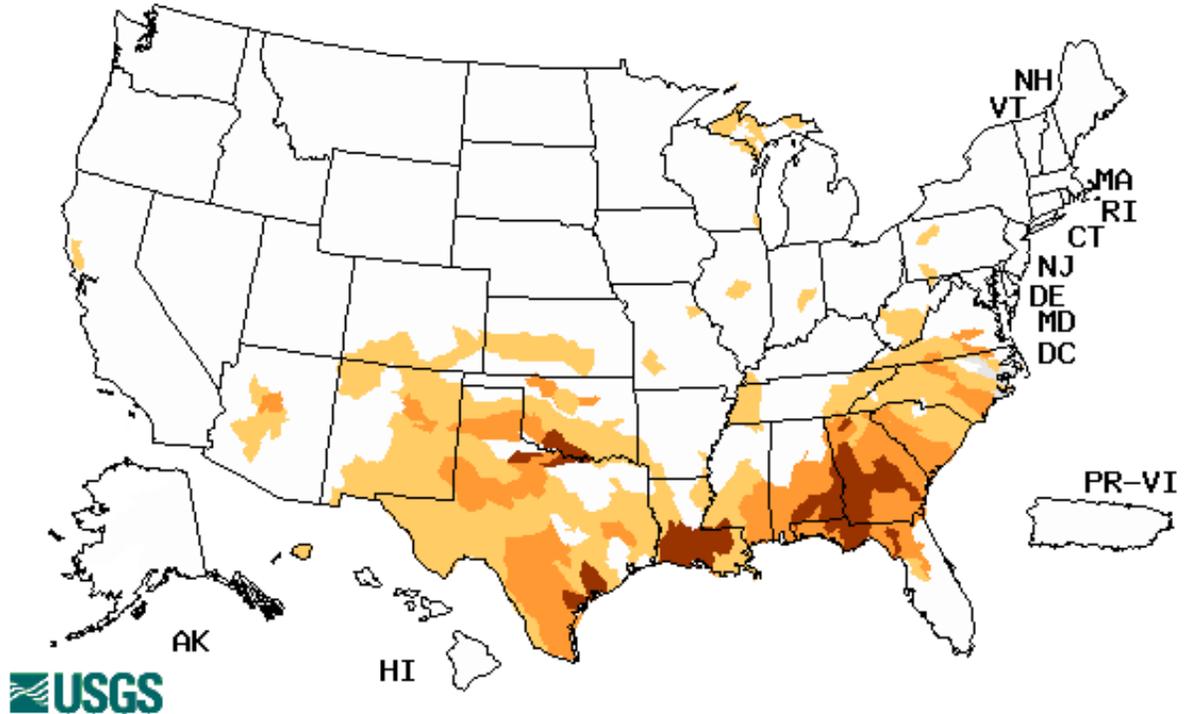
Station (2059) MONTH=2011-07-26 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Aug 25 07:51:00 PDT 2011



**Fig. 5b:** This SCAN station is located in northern Alabama shows a rapid decline in soil moisture at 8 inch depth and above. Ref: <http://www.wcc.nrcs.usda.gov/nwcc/site?sitenum=2059&state=al>

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, August 24, 2011

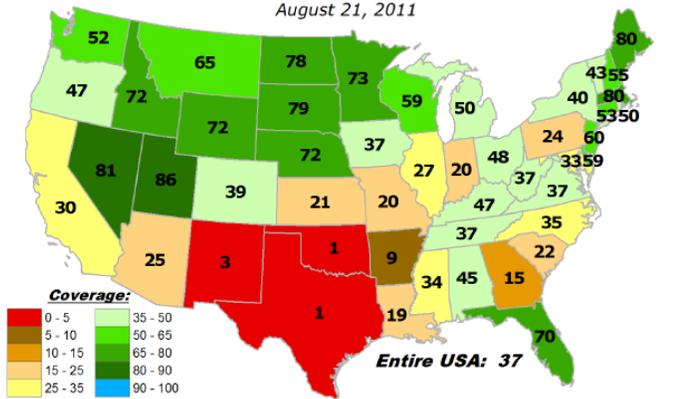


| Explanation - Percentile classes |                           |                             |              |   |
|----------------------------------|---------------------------|-----------------------------|--------------|---|
| Low                              | ≤5                        | 6-9    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

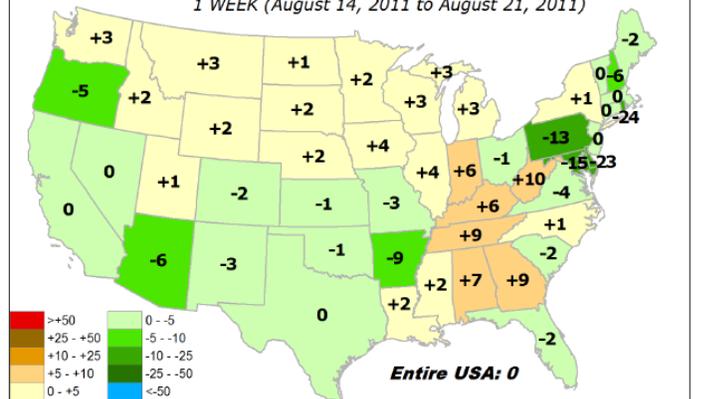
Fig. 6: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Portions of the Texas, Oklahoma, Louisiana, Alabama, Georgia, and Florida, are experiencing severe conditions. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>.

# Weekly Snowpack and Drought Monitor Update Report

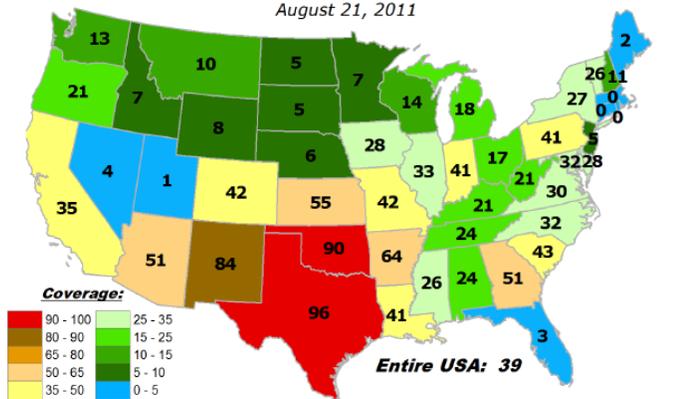
**Percent of Pasture & Range Land in "Good" or "Excellent" Condition**  
August 21, 2011



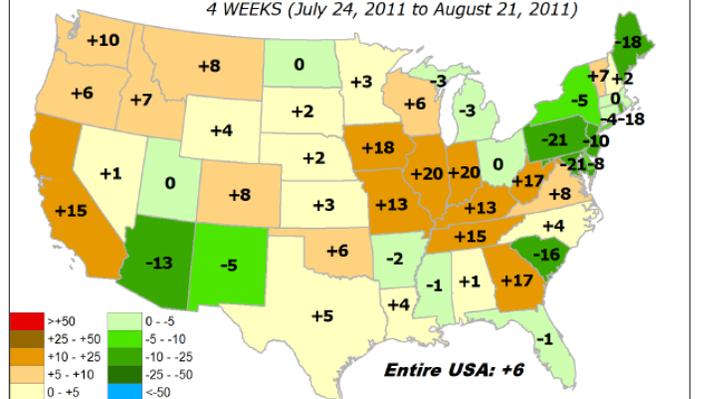
**CHANGE in % of Pasture and Range Lands in "Poor" or "Very Poor" Condition**  
1 WEEK (August 14, 2011 to August 21, 2011)



**Percent of Pasture & Range Land in "Poor" or "Very Poor" Condition**  
August 21, 2011

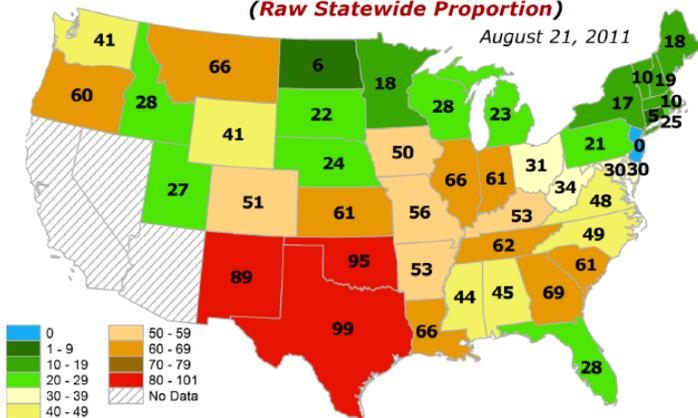


**CHANGE in % of Pasture and Range Lands in "Poor" or "Very Poor" Condition**  
4 WEEKS (July 24, 2011 to August 21, 2011)

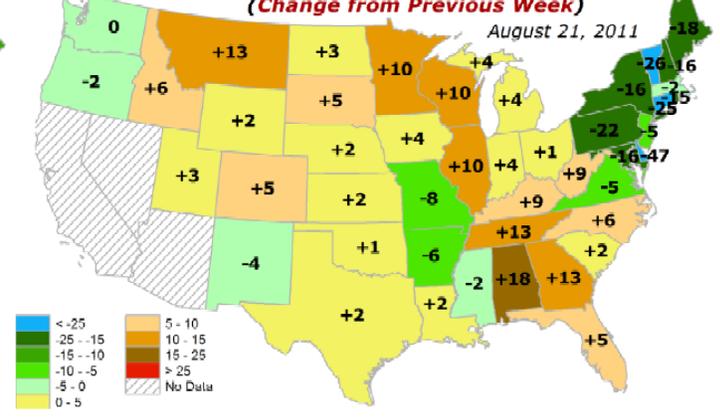


**Fig. 7: Current pasture and rangeland conditions and recent changes. For the week, Washington and Montana had the greatest worsening and Arizona and Oregon had the greatest improvement in the West (upper right map).**

**Extent of Topsoil Short or Very Short of Moisture**  
*(Raw Statewide Proportion)*



**Extent of Topsoil Short or Very Short of Moisture**  
*(Change from Previous Week)*



**Fig. 7a: Current top soil condition and changes for the past week. Clearly Texas, Oklahoma, and New Mexico have extreme soil moisture deficits.**

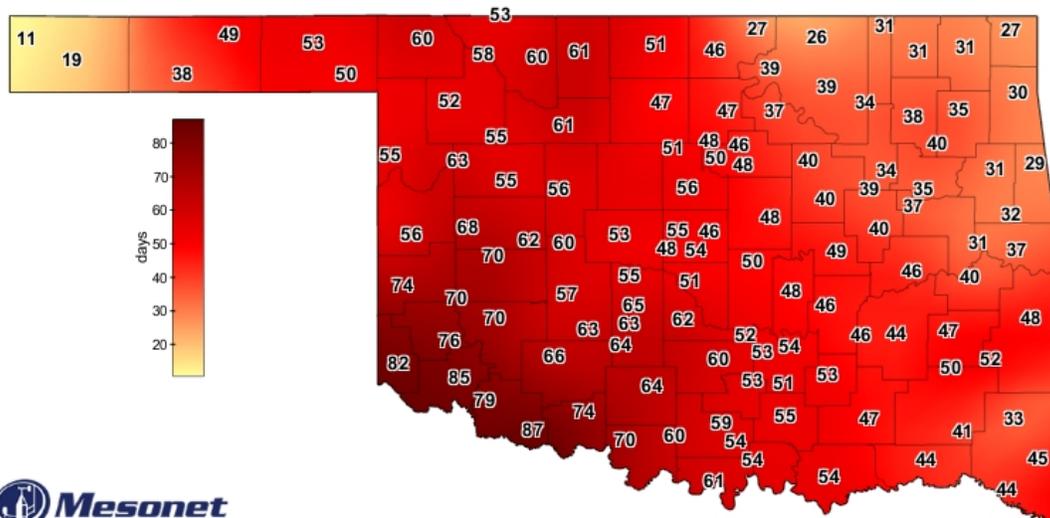
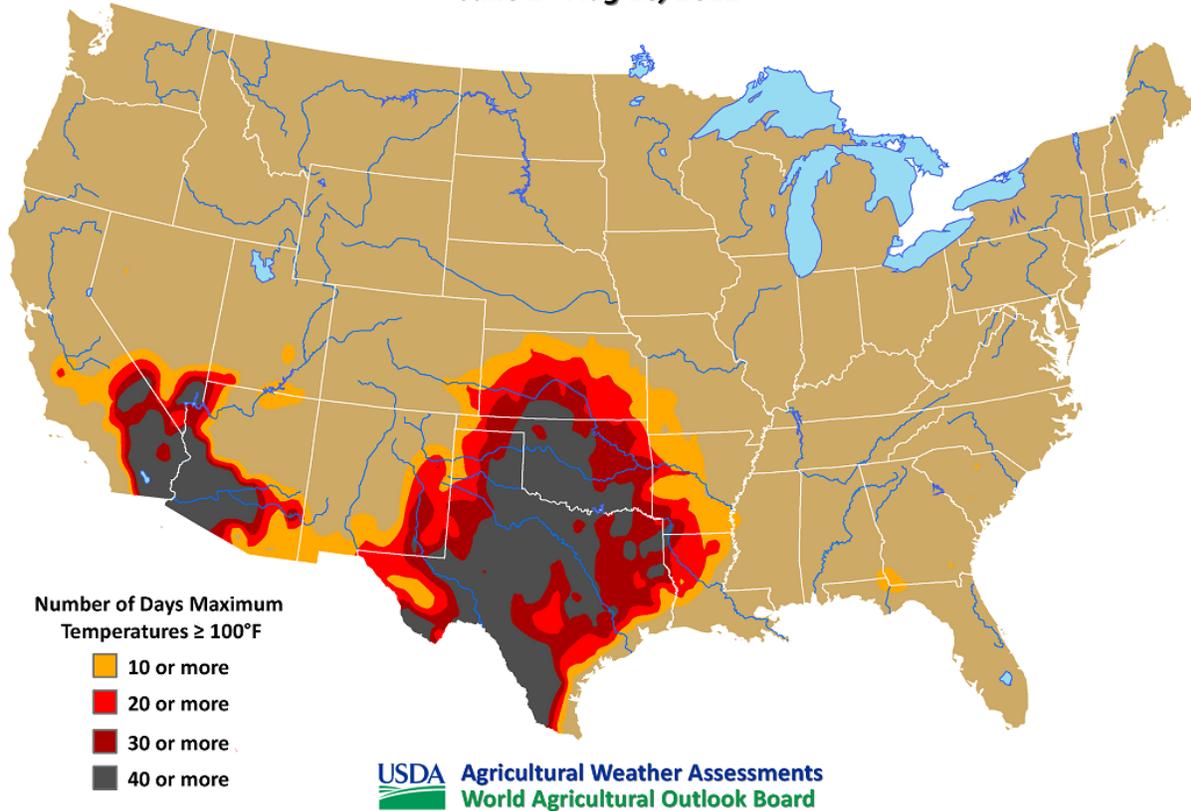
# Weekly Snowpack and Drought Monitor Update Report

Special Report: Summer Heat

## ***Prolonged Heat Plagues Portions of the U.S.***

***Number of Days Maximum Temperatures  $\geq 100^\circ\text{F}$***

***June 1 - Aug 18, 2011***

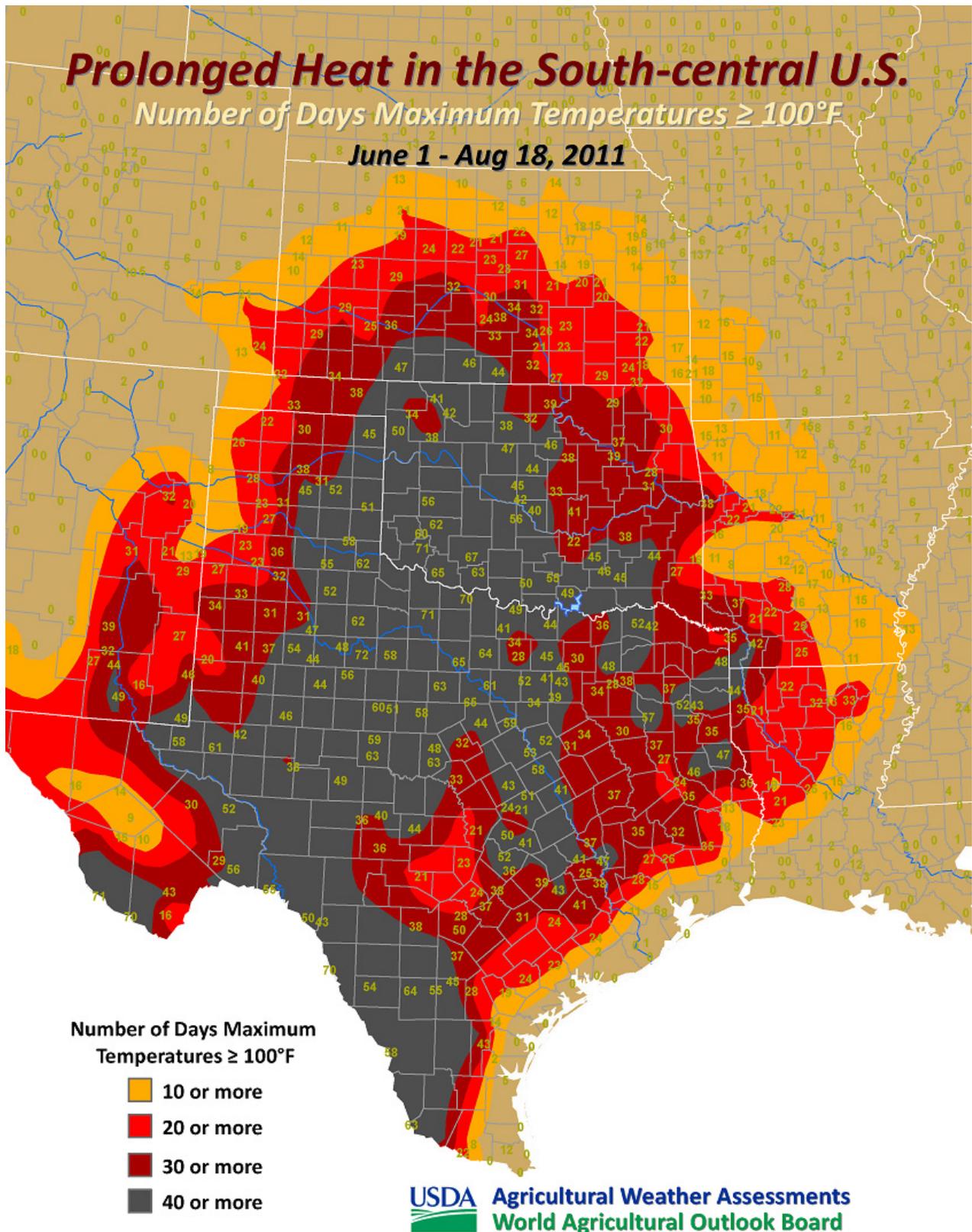


Days With High Temperatures  $\geq 100^\circ\text{F}$

Warm Season through August 22, 2011  
Created 5:25:08 AM August 23, 2011 CDT. © Copyright 2011

Courtesy: Eric D. Luebehusen, Meteorologist USDA – World Agricultural Outlook Board

# Weekly Snowpack and Drought Monitor Update Report



COOP data supplied by NOAA's CPC of the number of 100° days since June 1 (through Aug 18<sup>th</sup>)

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- August 23, 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>.

**Summary:** Locally heavy showers provided drought relief in the nation's mid-section and across the Atlantic Coast states. In contrast, increasingly hot, dry weather mitigated the benefits of recent rainfall on the southern Plains.

**Mid-Atlantic and Northeast:** For a second consecutive week, locally heavy showers further improved drought conditions across much of the region. In particular, rainfall totals in excess of 2 inches (pushing two-week totals in many areas over 5 inches) eased or eradicated lingering drought across central and eastern Maryland and adjacent portions of Delaware. Rain (0.5 to 2 inches) in western New York also provided some additional relief from Moderate Drought (D1). However, coastal portions of New England, where soil moisture percentile rankings indicated ongoing Abnormal Dryness (D0), largely missed this week's rainfall. Farther inland, 60- to 90-day precipitation continued to run less than 50 percent of normal across eastern West Virginia and western and northern Virginia, with declining streamflows and soil moisture supporting an increase of D0.

**Southeast and Mississippi River Delta:** A narrow but heavy band of rain (locally more than 5 inches) provided some additional relief from Moderate to Severe Drought (D1 and D2, respectively) along the North Carolina/South Carolina border. In Florida, widespread, locally heavy showers (2 to 5 inches) likewise supported additional improvements from drought, most notably in southern and eastern portions of the peninsula. In contrast, central and northeastern Alabama wrestled with increasingly dry conditions, with little if any rainfall over the past 30 days causing streamflows and soil moisture to decline. Consequently, drought designation was increased in these parts of the state. In southeastern Tennessee and northern Georgia, precipitation deficits continued to mount, with 90-day rainfall now standing at 25 to 50 percent of normal; therefore, Moderate Drought (D1) was introduced to reflect the precipitation shortfalls and rapidly declining soil moisture and streamflow percentile rankings. In the Delta, scattered, mostly light showers in southern portions of the region were insufficient to provide drought relief. Additionally, hot weather (highs reaching 105-108°F) in the southern Delta increased evaporative losses, and rain will be needed to soon to prevent drought conditions from worsening. Rain was somewhat heavier (locally up to 2 inches) in northern sections of Mississippi and Arkansas, resulting in small improvements in the overall drought situation.

**Ohio Valley and Midwest:** Abnormally dry conditions have persisted over the past 60 days from eastern South Dakota eastward into southern portions of Minnesota and Wisconsin as well as adjacent portions of northern Iowa and Illinois. Many areas have reported less than 50 percent of normal rainfall during this timeframe, with some locales reporting less than 25 percent of normal. Consequently, D0 was expanded across most of this region, as crop conditions continued to reflect the impacts of the drier-than-normal weather. However, a narrow band of showers and thunderstorms sliced through the middle of the new Abnormally Dry

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region, dropping locally more than an inch of rain. In Indiana, expansion of Moderate Drought (D1) was a reflection of increasing precipitation deficits over the past 60 days, with rainfall running 4 to 6 inches below seasonal norms (25-50 percent of normal). Farther south and west, moderate to heavy rain swept southeastward out of eastern Nebraska and southwestern Iowa into Missouri and northeastern Kansas. Totals exceeded 2 inches over a large area, with some locations receiving more than 5 inches. As a result, reductions in drought intensity were made in the areas of heaviest rain.

**Southern Plains:** In Texas and southern Oklahoma, above-normal temperatures (up to 11°F above normal, with highs eclipsing 105°F) and sunny skies rapidly offset the benefits of early month rainfall. Consequently, after recent localized improvements, drought intensified over many of the remaining D2 and D3 areas (Severe to Extreme Drought), with the vast majority of Texas and Oklahoma back under Exceptional Drought (D4). To point, pasture and range condition was rated 90 and 96 percent poor to very poor in Oklahoma and Texas, respectively, as of August 21. 180-day rainfall deficits exceeded 12 inches in southwestern Oklahoma and north-central Texas, and were locally in excess of 20 inches along the southeastern Texas coast. Farther north, scattered, mostly light showers offered little if any relief from Severe (D2) to Exceptional (D4) Drought from southern Kansas into southeastern Oklahoma, where daytime highs likewise rose well into the lower 100s (degrees F). Severe Drought (D2) was expanded eastward across southeastern Kansas to account for declining streamflow and soil moisture percentiles, as well as increasingly dry conditions out to 90 days (locally less than 50 percent of normal). Rain will be needed soon to ensure sufficient soil moisture for winter wheat planting and establishment.

**Northern Plains:** Despite a mostly dry week, cooler-than-normal conditions (2 to 7°F below normal) along with recent abundant rainfall kept most of the region out of drought or Abnormal Dryness (D0). The pocket of D0 in southwestern South Dakota and northeastern Wyoming remained unchanged.

**Four Corners Region:** Moderate to heavy showers (locally more than 2 inches) provided some relief from Moderate to Exceptional Drought (D1 to D4) from southeastern Colorado into southwestern New Mexico and southeastern Arizona. Drought reduction was most pronounced in southeastern Colorado and northeastern New Mexico, where rain was heaviest. In addition, updated soil moisture percentiles and Standardized Precipitation Indices (3 to 6 month) indicated much of the Extreme and Exceptional Drought had abated due to recent rainfall. Remote-sensing data (Vegetation Health Index and the VegDri Index) likewise indicated recent greening in the aforementioned areas. In contrast, short-term dryness across the High Plains of central Colorado reduced soil moisture for winter wheat planting, with D0 added to this area to account for the increasing concern.

**Alaska, Hawaii, and Puerto Rico:** In Alaska, light showers (mostly less than an inch) and near-normal temperatures were reported, with no change made to the southern Abnormally Dry (D0) area. In Hawaii, Moderate Drought (D1) was expanded eastward on the Island of Maui to reflect declining pasture conditions. There were no changes made elsewhere in Hawaii. On Puerto Rico, heavy rain from Hurricane Irene resulted in flooding, with no dryness or drought concerns likely over the upcoming weeks (or longer).

**Looking Ahead:** While interests in the eastern U.S. will closely monitor the path and intensity of Hurricane Irene, the rest of the nation will contend with mostly dry, warmer-than-normal weather. Irene's final track will determine how rain falls in drought areas from Georgia

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northward into the Mid-Atlantic and Northeast; current projections suggest most of the heavy rain will be along the coast and immediate environs. Somewhat cooler conditions will prevail in the Corn Belt, while most of the Plains, Mississippi River Delta, and Southeast will experience late-summer heat. Scattered showers are possible from the Dakotas southward into Kansas and central Oklahoma, but the rain is not expected to be heavy enough to provide much – if any – drought relief. Potentially heavy monsoon showers are possible in northern New Mexico and Colorado. The NWS 6- to 10-day outlook for August 30 – September 3 calls for drier- and warmer-than-normal conditions across much of the nation, with the greatest likelihood of heat and dryness centered over the south-central U.S. Above-normal rainfall will be confined to the northern-most Plains, while cooler-than-normal conditions will be limited to the Pacific Coast states.

**Author:** [Eric Luebehusen, U.S. Department of Agriculture, and Laura Edwards, Western Regional Climate Center](#)

### **Dryness Categories**

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**

A ... Agricultural

H ... Hydrological

*Updated August 24, 2011*