



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

---

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

**Date: 2 September 2010**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** SNOTEL 7-day average temperature departures from normal map show temperatures well below normal over parts of the Pacific NW and slightly above normal over the Colorado Rockies (Fig. 1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts of Western High Plains (>+6°F) and the greatest negative departures occurred over parts of Oregon and Washington (<-6°F) (Fig. 1a).

**Precipitation:** ACIS 7-day average precipitation amounts for the period ending 1 September shows the bulk of the heaviest precipitation confined to central Montana and Washington (Fig. 2). In terms of percent of normal, unusually heavy precipitation fell over Oregon and Washington while scattered showers dominated all but central California, most of Utah, and from New Mexico to eastern Wyoming (Fig. 2a). For the 2010 Water-Year that began on 1 October 2009, Arizona, southern New Mexico, south-central Utah, central Montana, the Olympics (WA), south Oregon, and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, Northern Wasatch (UT), and central Nevada have the greatest deficits. By this late period in the Water Year, significant changes to the overall percentages on week to week bases become very unusual (Fig. 2b).

## **WESTERN DROUGHT STATUS**

**The West:** Few changes occurred in the West, where scattered showers were mostly confined to the Four Corners States and the Northwest. Through the end of August, Western wildfire activity remained fairly light. In fact, the nation's January-August tally of 2.61 million acres burned by wildfires was just under half of the 10-year average of 5.37 million acres. Furthermore, Alaska accounted for more than 40 percent (1.10 million acres) of the nation's year-to-date total. Author: Brad Rippey, U.S. Department of Agriculture.

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

### **DROUGHT IMPACTS DEFINITIONS (<http://drought.unl.edu/dm/classify.htm>)**

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, 3a and 3b).

## Weekly Snowpack and Drought Monitor Update Report

### 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/>.

### U.S. HISTORICAL STREAMFLOW

[http://water.usgs.gov/cgi-bin/waterwatch?state=us&map\\_type=dryw&web\\_type=map](http://water.usgs.gov/cgi-bin/waterwatch?state=us&map_type=dryw&web_type=map).

This map, (Fig. 5) 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.

### RANGELAND CONDITIONS

The maps in Figure 6 show the general (inferred) soil conditions by state over the past one and four weeks.

### 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://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>

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

/s/ JEFF GOEBEL  
Acting Director, Resource Inventory Division

# Weekly Snowpack and Drought Monitor Update Report

## SNOTEL (solid) 7-Day Average Temperature Anomaly (Degrees F) Sep 01, 2010

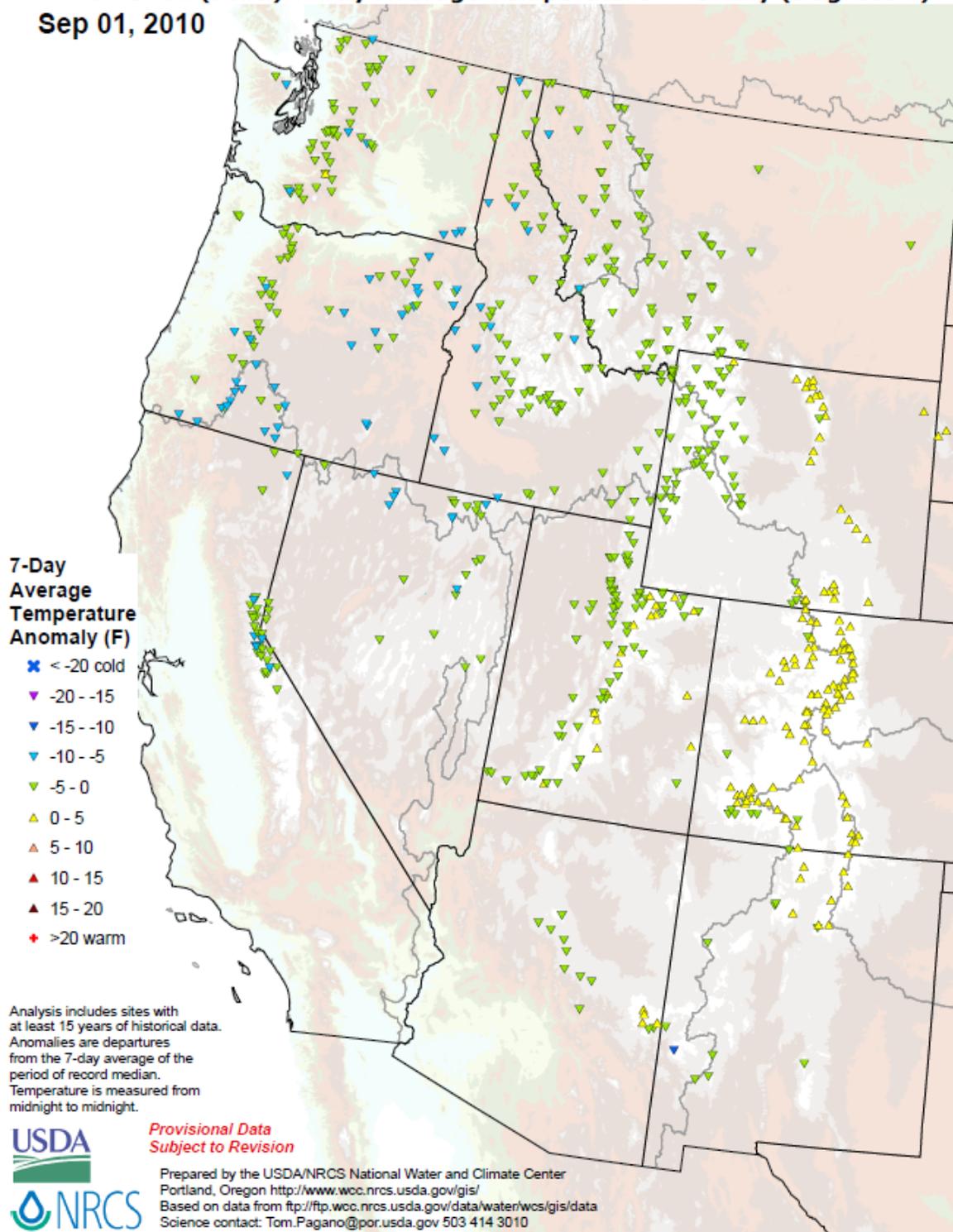
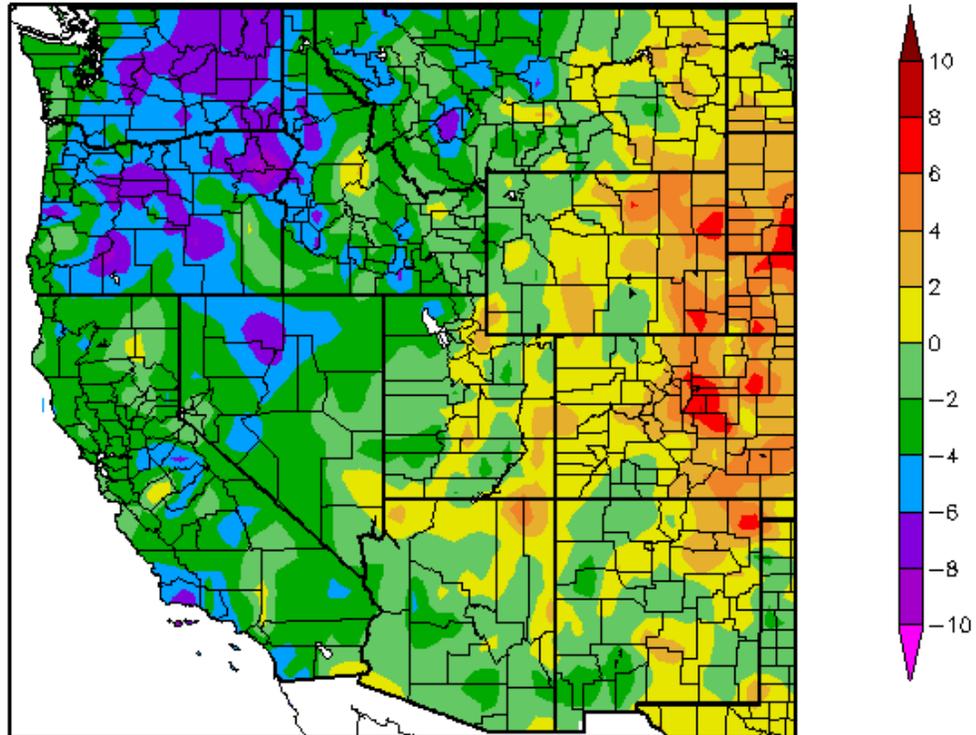


Fig. 1: SNOTEL 7-day average temperature departure from normal map shows temperatures well below normal over parts of the Pacific NW and slightly above normal over the Colorado Rockies.

## Weekly Snowpack and Drought Monitor Update Report

Ref: <http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf>

### Departure from Normal Temperature (F) 8/26/2010 – 9/1/2010



Generated 9/2/2010 at HPRCC using provisional data.

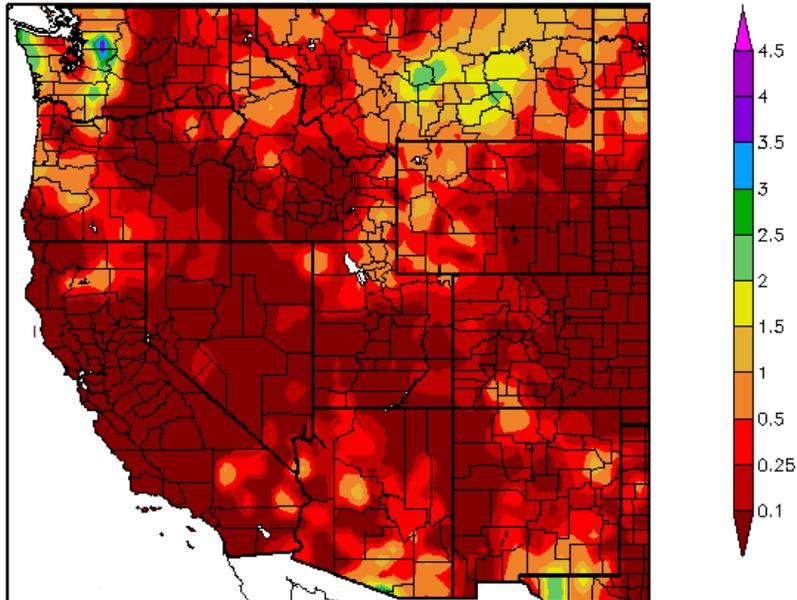
Regional Climate Centers

**Fig. 1a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures were over parts of Western High Plains (>+6°F) and the greatest negative departures occurred over parts of Oregon and Washington (<-6°F).**

Ref: [http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_daterange&daterange=7d](http://www.hprcc.unl.edu/maps/current/index.php?action=update_daterange&daterange=7d)

## Weekly Snowpack and Drought Monitor Update Report

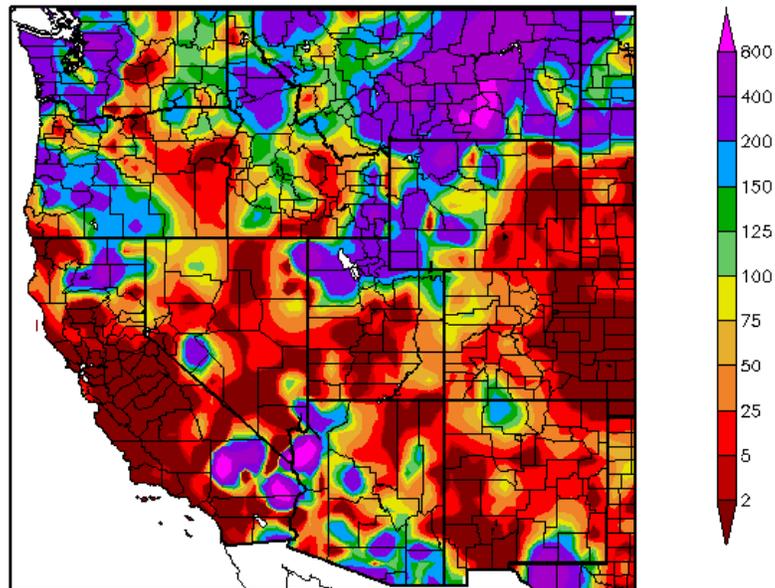
Precipitation (in)  
8/26/2010 - 9/1/2010



Generated 9/2/2010 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
8/26/2010 - 9/1/2010

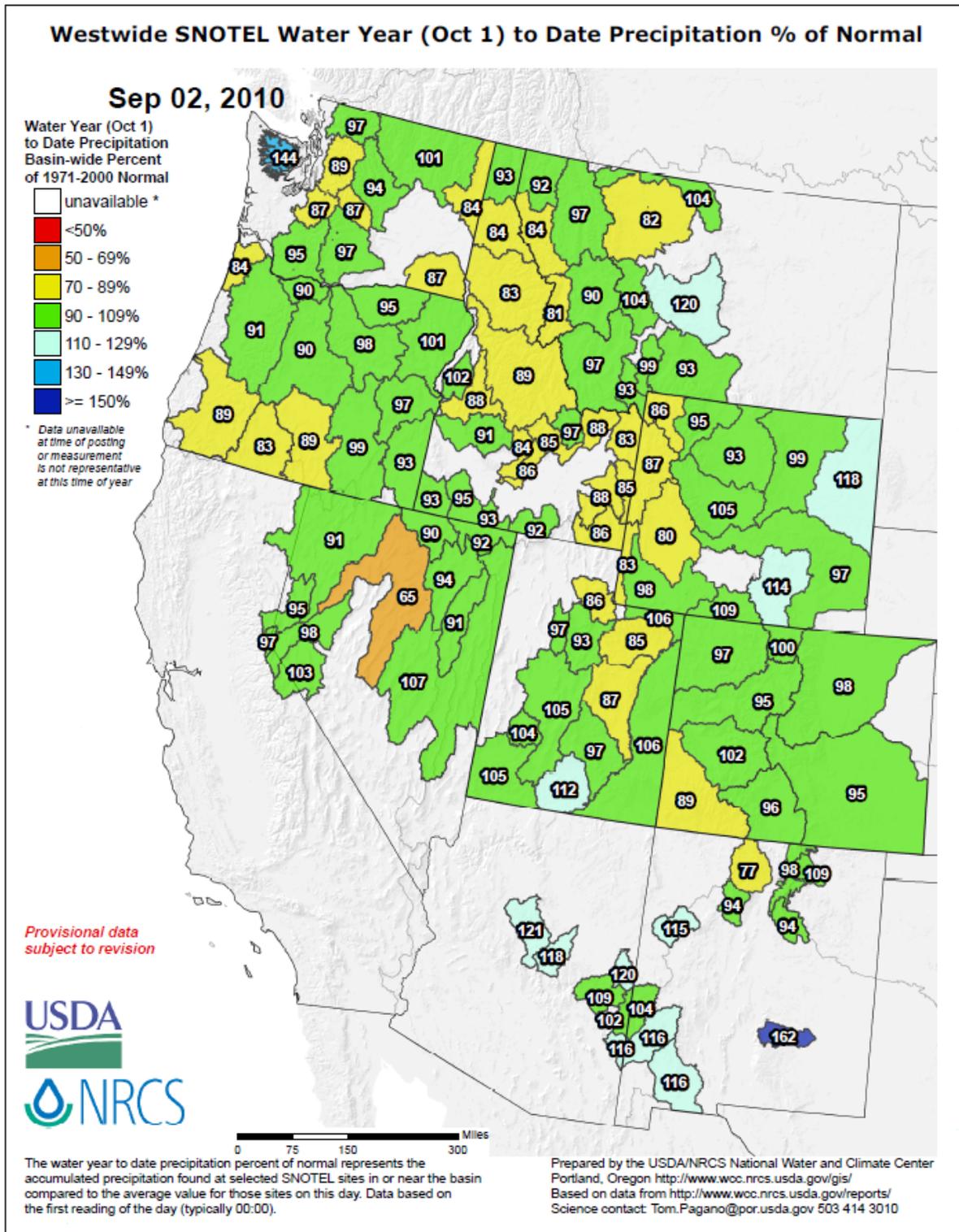


Generated 9/2/2010 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2 and 2a: ACIS 7-day average precipitation amounts for the period ending 1 September shows the bulk of the heaviest precipitation confined to central Montana and Washington (Fig. 2). In terms of percent of normal, unusually heavy precipitation fell over Oregon and Washington while scattered showers dominated all but central California, most of Utah, and from New Mexico to eastern Wyoming (Fig. 2a). Ref: <http://www.hprcc.unl.edu/maps/current/>**

## Weekly Snowpack and Drought Monitor Update Report



**Fig 2b: For the 2010 Water-Year that began on 1 October 2009, Arizona, southern New Mexico, south-central Utah, central Montana, the Olympics (WA), south Oregon, and south-central and eastern Wyoming have the largest surpluses while much of northern Idaho, Upper Snake River, Northern Wasatch (UT), and central Nevada have the greatest deficits. By this late period in the Water Year, significant changes to the overall percentages on week to week bases become very unusual.**

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

# U.S. Drought Monitor

August 31, 2010  
Valid 8 a.m. EDT

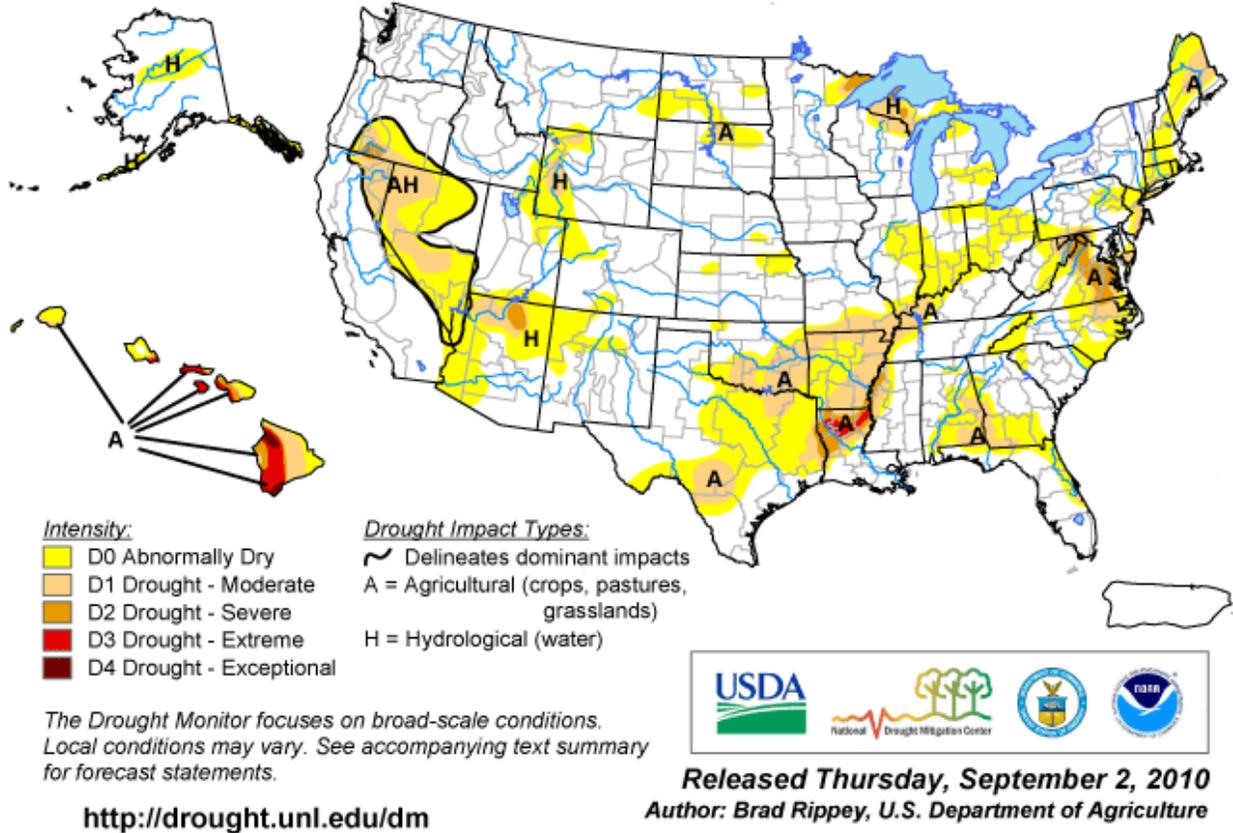


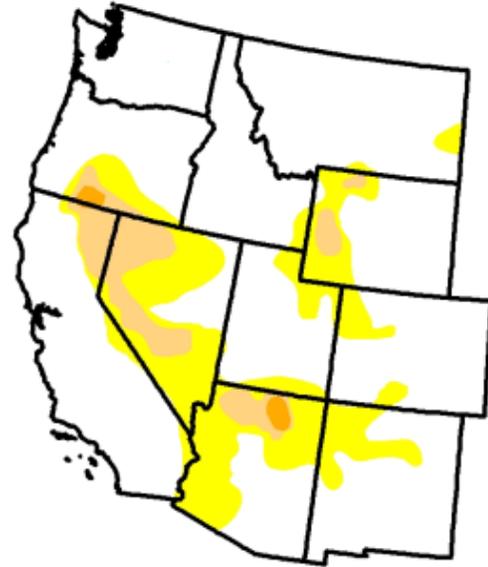
Fig. 3: Current Drought Monitor weekly summary. Hawaii is only state that has a D4 drought level. D3 levels dominate northern Louisiana. Ref: <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor West

August 31, 2010  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	74.7	25.3	6.3	0.6	0.0	0.0
Last Week (08/24/2010 map)	75.1	25.0	6.3	0.6	0.0	0.0
3 Months Ago (06/09/2010 map)	68.9	31.1	13.4	3.4	0.0	0.0
Start of Calendar Year (01/05/2010 map)	40.1	59.9	30.6	9.9	0.5	0.0
Start of Water Year (10/06/2009 map)	42.1	57.9	25.4	8.5	0.0	0.0
One Year Ago (09/01/2009 map)	49.7	50.3	22.8	8.0	0.0	0.0



*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>

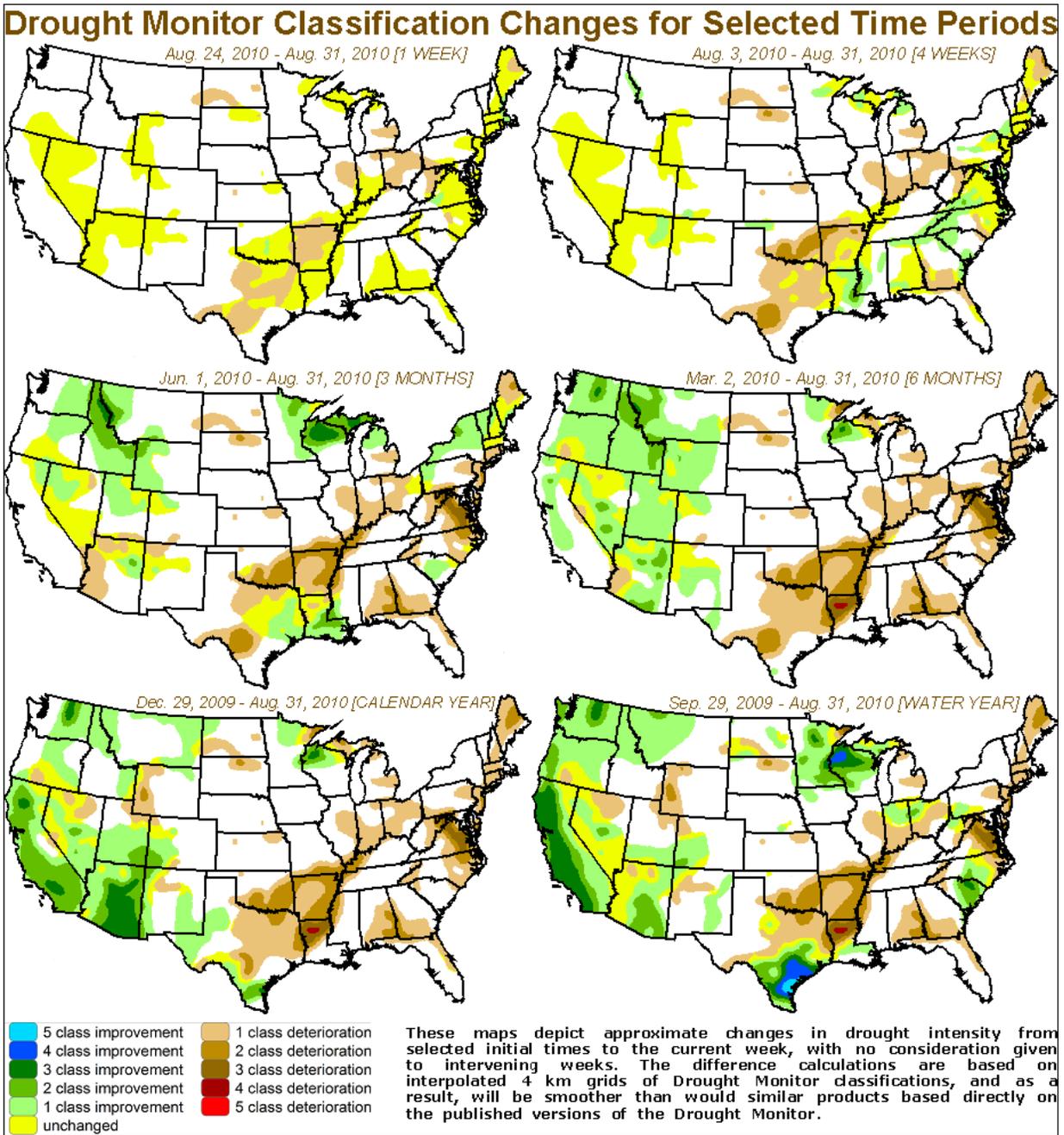


**Released Thursday, September 2, 2010**  
Author: Brad Rippey, U.S. Department of Agriculture

**Fig. 3a: Drought Monitor for the Western States with statistics over various time periods. Regionally there was little change this week.**

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

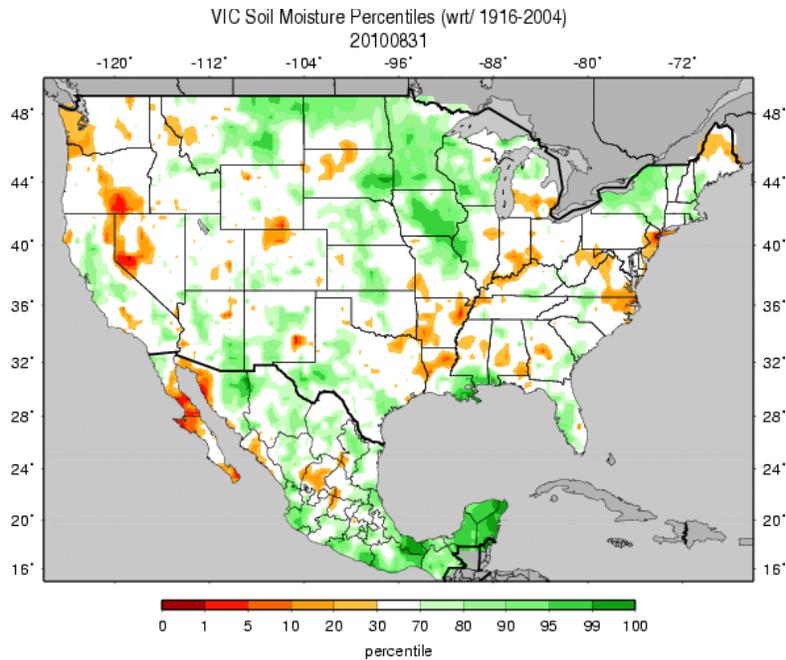
## Weekly Snowpack and Drought Monitor Update Report



**Fig. 3b: Drought Monitor Classification Changes for various time periods shows a drying trend over the past few weeks over the mid-section of the nation.**

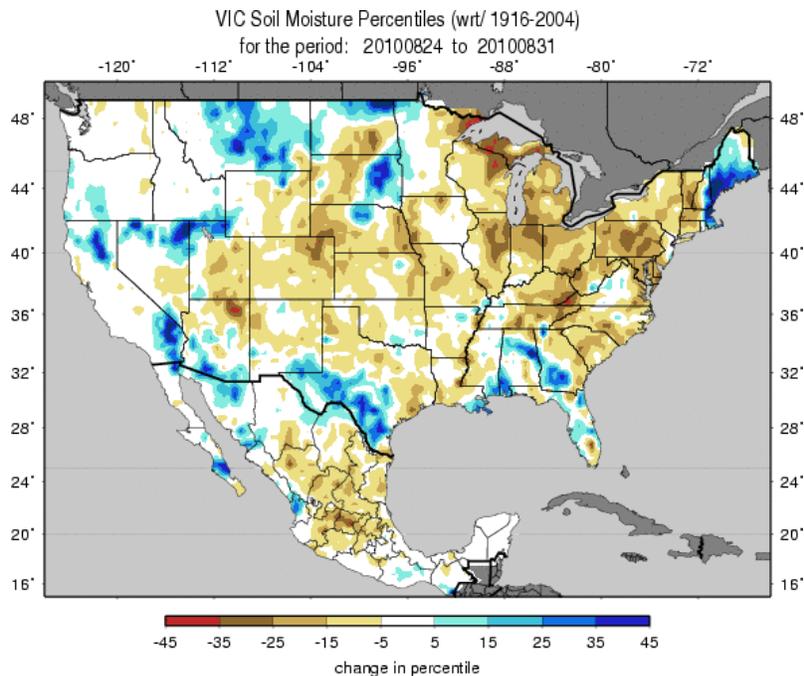
Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/dm-change-4maps.png>

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 31 August. Excessive moisture dominates over the western Great Lakes. Dry soils are scattered across the Upper Great Basin.**

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

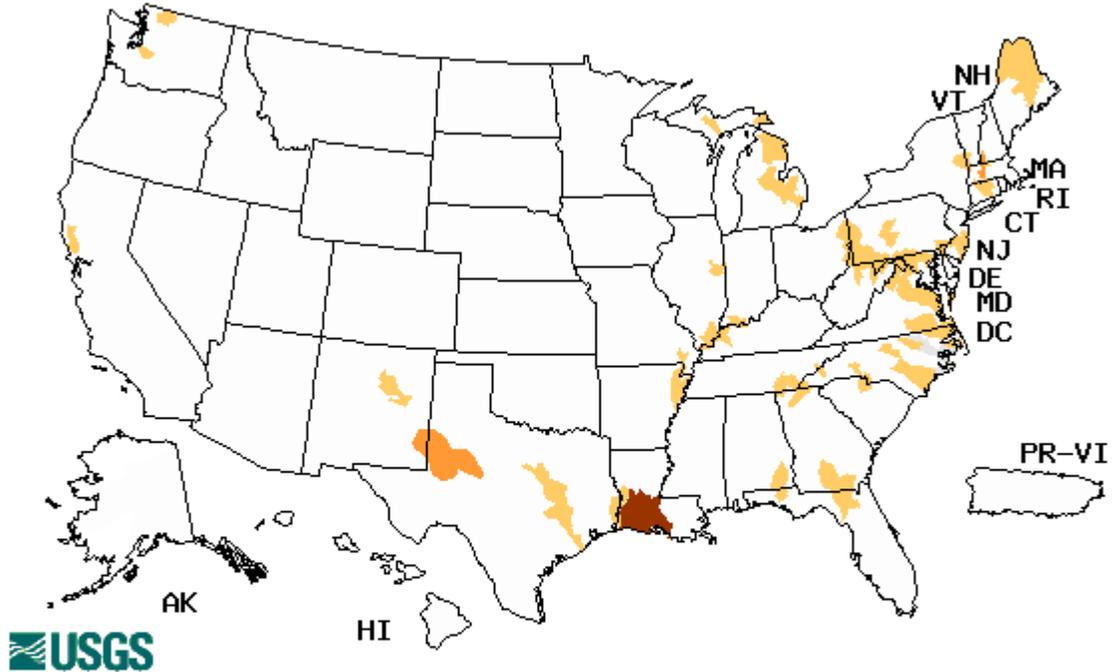


**Figs. 4b: Soil Moisture change in percentile based on 1916-2004 climatology for the week shows significant moisture over Maine, southern Texas, Montana, the Northern Great Basin, and northern and southern California. Some excessive drying is noted over the Upper Peninsula of Michigan, and much of the eastern third of the nation.**

Ref: <http://www.emc.ncep.noaa.gov/mmb/nldas/drought/> (very useful resource) and [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

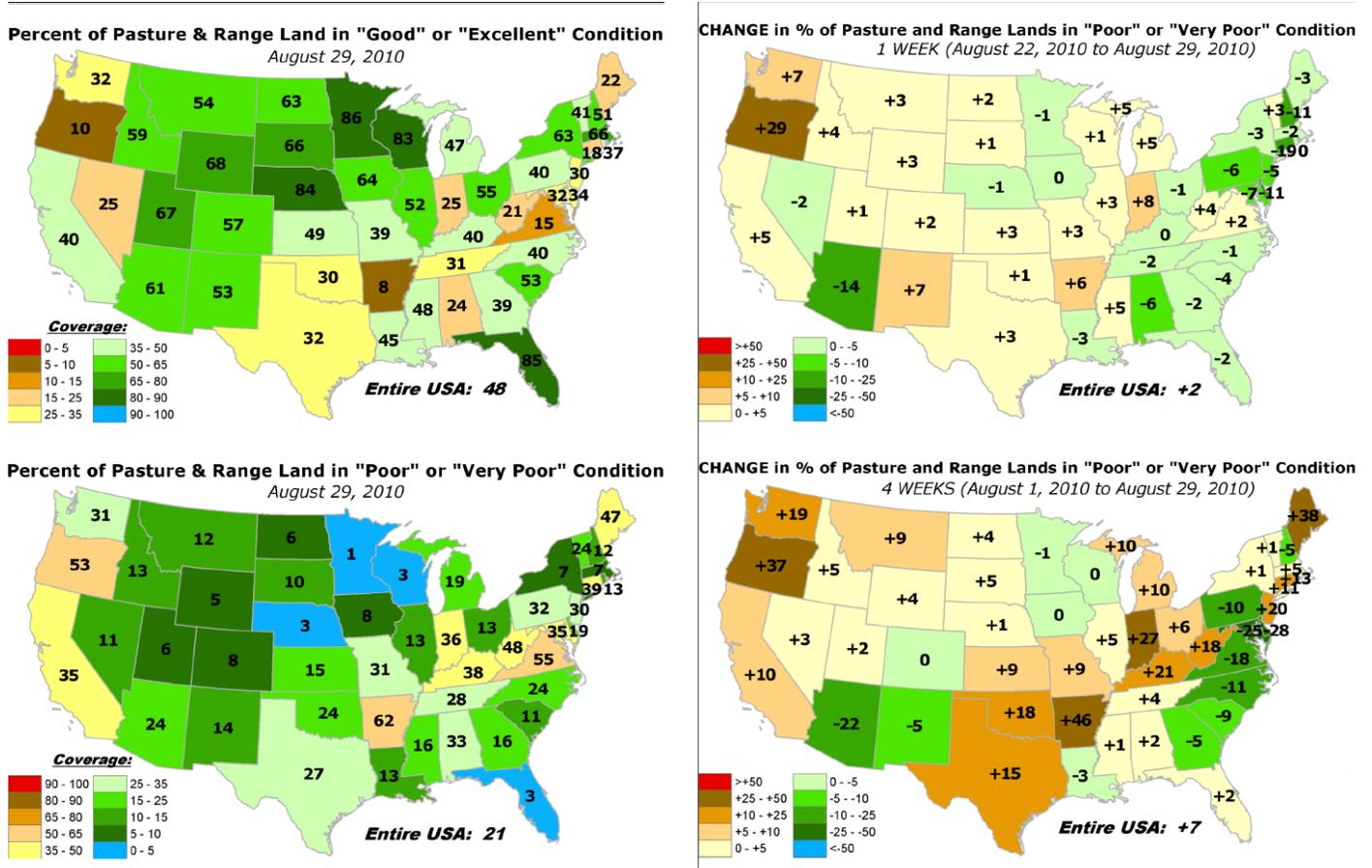
Hednesday, September 01, 2010



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. 5: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Very few regions are showing below normal flows. Southern Louisiana has the largest stream deficits flow in the U.S. this week. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

## Weekly Snowpack and Drought Monitor Update Report



**Fig. 6:** These maps show the overall pasture and rangeland conditions by state. Note that Oregon has the least amount of good or excellent condition (upper left panel) in the West and during the past week (upper right panel), conditions deteriorated the most. Arizona showed the greatest improvement.

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf>

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- August 31, 2010

*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/>.*

**The Northeast:** Heavy rain lingered along the southern New England coast through August 25. In eastern Massachusetts, the Blue Hill Observatory reported an August 22-25 total of 7.59 inches. The coverage of abnormal dryness (D0) was reduced in southern New England, but significant rain again bypassed northern Maine. As a result, moderate drought (D1) was extended northeastward in Maine to the Canadian (New Brunswick) border. Nearly half (47 percent) of Maine's pastureland was rated in very poor to poor condition on August 29, according to USDA.

**The Mid-Atlantic and the Southeast:** Only minor changes were introduced in the Southeast. A small amount of moderate drought (D1) was removed along Florida's east coast, while some abnormal dryness (D0) was re-introduced in North Carolina. Farther north, some dryness (D0) was removed from western Virginia, where rainfall locally topped 4 inches. However, severe drought (D2) remained entrenched in an area stretching from western Maryland into southeastern Virginia. According to USDA, Virginia led the Mid-Atlantic region with 55 percent of its pastureland rated very poor to poor on August 29, followed by West Virginia with 48 percent and Maryland with 35 percent. In addition, Virginia's preliminary 2010 corn yield estimate of 65 bushels per acre, if realized, will be the state's lowest since 1993 (60 bushels per acre).

**The Mid-South and the Lower Midwest:** Late-summer dryness intensified across the Mid-South, resulting in a broad expansion or development of abnormal dryness and moderate drought (D0 and D1). According to USDA, Arkansas had the nation's highest percentage of pastureland rated in very poor to poor condition—62 percent on August 29. In addition, USDA indicated that 88 percent of Arkansas' topsoil moisture was rated very short to short. Although drier-than-normal conditions promoted fieldwork, including corn and rice harvesting, late-developing crops were under increasing levels of stress. As the end of August approached, 20 to 35 percent of the soybean crop was rated in very poor to poor condition in Arkansas, Kentucky, Mississippi, Missouri, and Tennessee. Farther north, abnormal dryness (D0) significantly expanded in Illinois, Indiana, Michigan, and Ohio. More than one-third (36 percent) of Indiana's pastureland was rated in very poor to poor condition by August 29. Nearly three-quarters of the topsoil moisture was rated very short to short in both Indiana (73 percent) and Michigan (71 percent).

**The Plains:** Dry weather continued to plague Texas and neighboring areas. In fact, USDA indicated that topsoil moisture was 70 percent very short to short in Texas on August 29. Some moderate drought (D1) was introduced in south-central Texas, while abnormal dryness (D0) was expanded in central and northeastern Texas. In addition to short-term dryness, August heat played a major role in soil moisture depletion and agricultural deterioration. Austin (Camp Mabry), Texas, reported its second-hottest August on record (88.7 degrees F, or 4.2 degrees

## Weekly Snowpack and Drought Monitor Update Report

above normal), behind only the 2009 standard of 89.1 degrees F. Only a trace of rain (2.31 inches below normal) fell during the month in Austin, representing its driest August since 1957. Elsewhere in Texas, Waco tied an August record with 27 days of triple-digit heat. Waco, which experienced its hottest August since 1951, also experienced 27 August days with highs of 100 degrees F or greater in 2006. Farther north, a few other pockets of dryness (D0) were introduced or expanded in locations such as northwestern Kansas and the Dakotas.

**The West:** Few changes occurred in the West, where scattered showers were mostly confined to the Four Corners States and the Northwest. Through the end of August, Western wildfire activity remained fairly light. In fact, the nation's January-August tally of 2.61 million acres burned by wildfires was just under half of the 10-year average of 5.37 million acres. Furthermore, Alaska accounted for more than 40 percent (1.10 million acres) of the nation's year-to-date total.

**Hawaii and Alaska:** The drought depiction was unchanged in Hawaii, where drought persisted across the majority of the island chain. Mandatory water conservation measures remained in effect for Maui and Honolulu Counties. By the end of August, a wildfire on the Big Island—in the mountains southeast of Waikoloa—was still not fully contained. The fire had charred nearly 1,400 acres of brush and grass. Farther north, showers continued to fall across parts of Alaska, where the coverage of abnormal dryness (D0) was reduced slightly across the interior and the upper Aleutian Islands.

**Looking Ahead:** During the next 5 days (September 2-6), tranquil weather will prevail across the majority of the U.S. A major exception, of course, will be the interaction between Hurricane Earl and a cold front approaching the East. On the night of September 2-3, Earl will pass near, or just east of, North Carolina's Outer Banks. On September 3-4, Earl will graze coastal New England. Heavy rain and high winds will accompany Earl's passage along the immediate coast. In addition, beach erosion will be a major threat along the middle and northern Atlantic Coast. Farther west, scattered showers in advance of a cold front will stretch from the upper Midwest into the south-central U.S. on September 2. The following day, showers will advance as far east as the Appalachians before dissipating. By September 4-5, scattered showers may overspread the Northwest. The National Weather Service's 6- to 10-day outlook for September 7-11 calls for cooler-than-normal weather across the northern High Plains and much of the West, while near- to above-normal temperatures will prevail across the remainder of the U.S. Meanwhile, near- to below-normal rainfall across the majority of the nation will contrast with wetter-than-normal conditions across the nation's northern tier as far east as the Great Lakes region.

**Author:** [Brad Rippey, U.S. Department of Agriculture](#)

### 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

## Weekly Snowpack and Drought Monitor Update Report

### Drought or Dryness Types

A ... Agricultural

H ... Hydrological

Updated September 1, 2010