



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

---

**Weekly Report - Snowpack / Drought Monitor Update**      **Date: August 16, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, at mountain SNOTEL sites, temperatures ranged from 10°F above normal over portions of the Wyoming and Colorado Rockies to 10°F below normal over the Pacific Northwest (Cascades) (Fig. 1). At lower elevations, these extreme ranges were less (Fig. 1a).

**Precipitation:** For the past week, rain was generally light to non-existent except for scattered greater amounts across the Southwestern States and central Rockies due to some enhanced monsoonal moisture (Fig. 2). For the Water Year (began 1 October 2006), very low totals persist over the Sierra Nevada and Arizona mountains. Slightly above normal totals continue to be reflected over the Cascades, Front Range of the southern Rockies, and Bighorn Mountains of Wyoming (Fig. 2a).

## **WESTERN DROUGHT STATUS**

**The West:** Favorably cooler weather overspread the West in early August, while monsoon showers continued from the Four Corners States northeastward into parts of Wyoming. Despite the spell of cool weather, wildfires remained active and difficult to contain across the northern Rockies and northern Intermountain West. By August 15, year-to-date wildfires across the U.S. had charred 6.0 million acres of vegetation, 134 percent of the 10-year average. Many of the currently uncontained wildfires were located in western Montana and central Idaho. In the latter region, severe drought (D2) was downgraded to extreme drought (D3), due to a variety of impacts. In contrast, showers continued to chip away at dryness and drought across southeastern Arizona and neighboring areas. Despite the summer showers, many Western reservoirs remained unusually low, signaling ongoing hydrological drought. At the end of July, reservoir storage stood at 82 percent of average for this time of year in Arizona. Storage ranged from roughly two-thirds to three-quarters of average in several other Western states, including Idaho, Oregon, Utah, and Wyoming. 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 and 3a).

## Weekly Snowpack and Drought Monitor Update Report

### SOIL MOISTURE

Soil moisture (Fig. 4), 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).

### OBSERVED FIRE DANGER CLASS

The National Interagency Coordination Center provides a variety of products that describe the current wildfire status for the U.S. - <http://www.nifc.gov/information.html>. The latest Observed Fire Danger Class is shown in Figs. 5 and 5a shows the current active wildfires across the West - <http://geomac.usgs.gov/>.

### 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.  
[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).

### VEGETATION HEALTH

The images (Fig. 7) are color-coded maps of vegetation condition (health) estimated by the Vegetation and Temperature Condition Index (VT). The VT is a numerical index, which changes from 0 to 100 characterizing change in vegetation conditions from extremely poor (0) to excellent (100). Fair conditions are coded by green color (50), which changes to brown and red when conditions deteriorate and to blue when they improve.

<http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>. Associated with vegetation health are pasture and rangeland conditions (Fig. 8) as noted at:

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

### 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/>

### 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/ NOLLER HERBERT

Director, Conservation Engineering Division

Aug 16, 2007

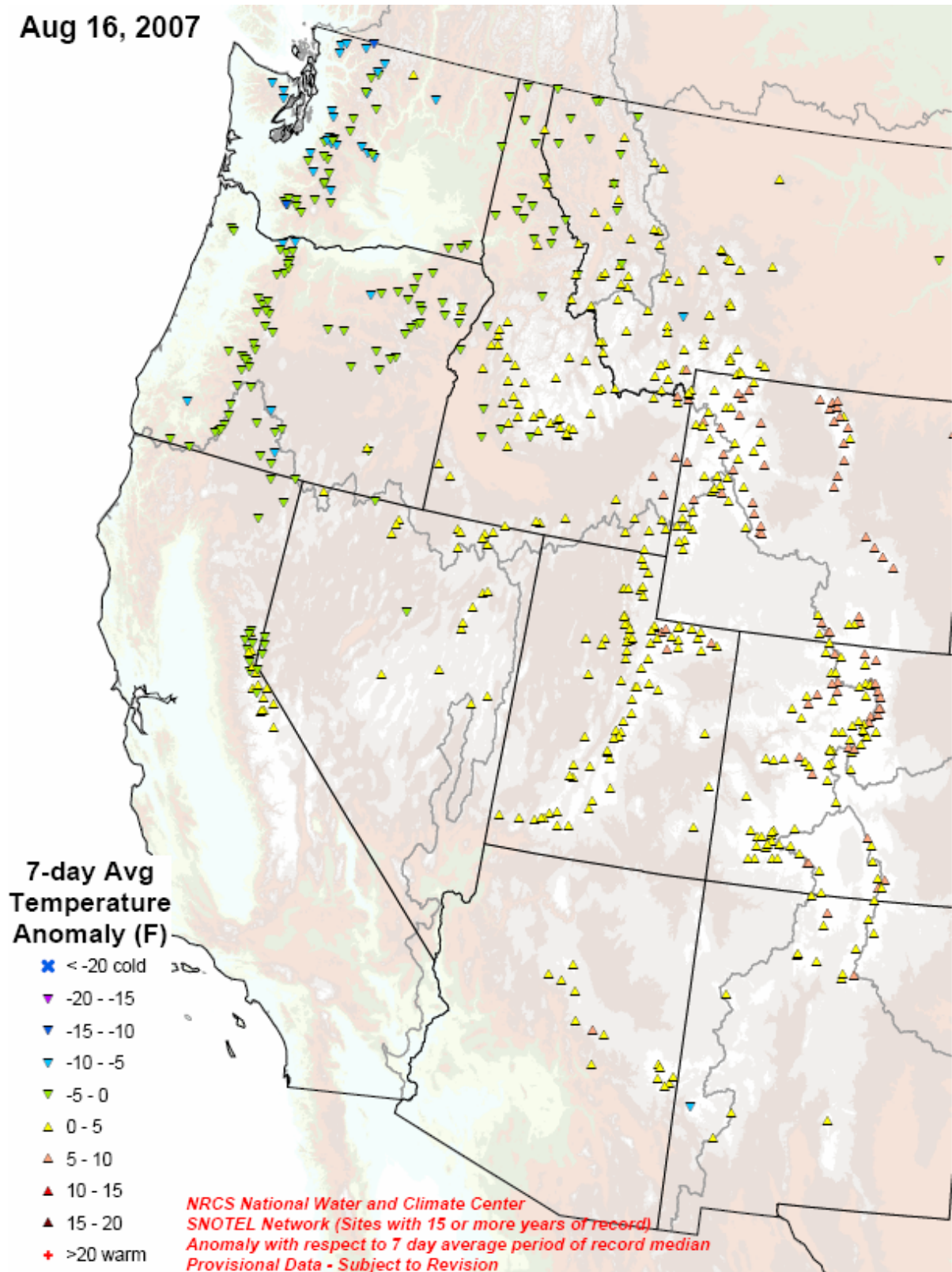
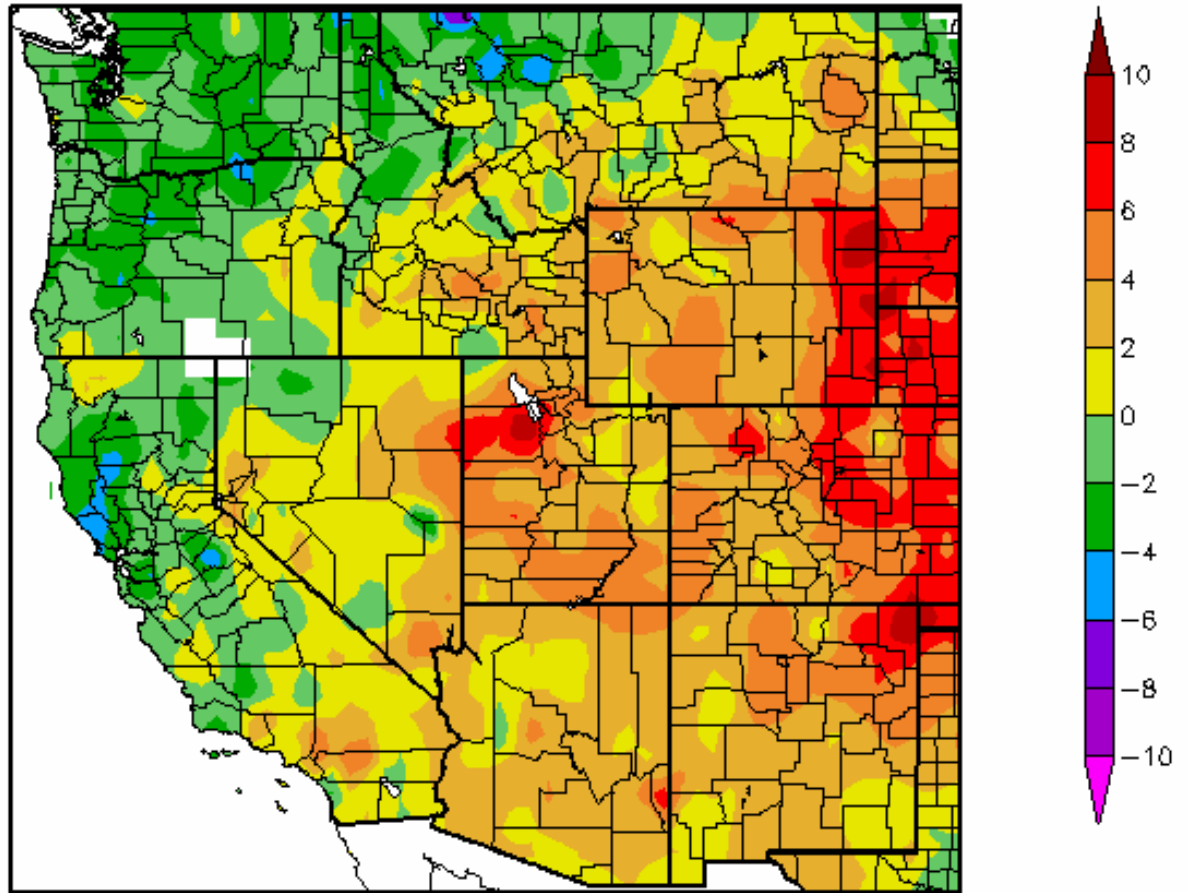


Fig. 1. SNOTEL 7-day average temperature anomaly.

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomay.pdf>

Departure from Normal Temperature (F)  
8/9/2007 – 8/15/2007



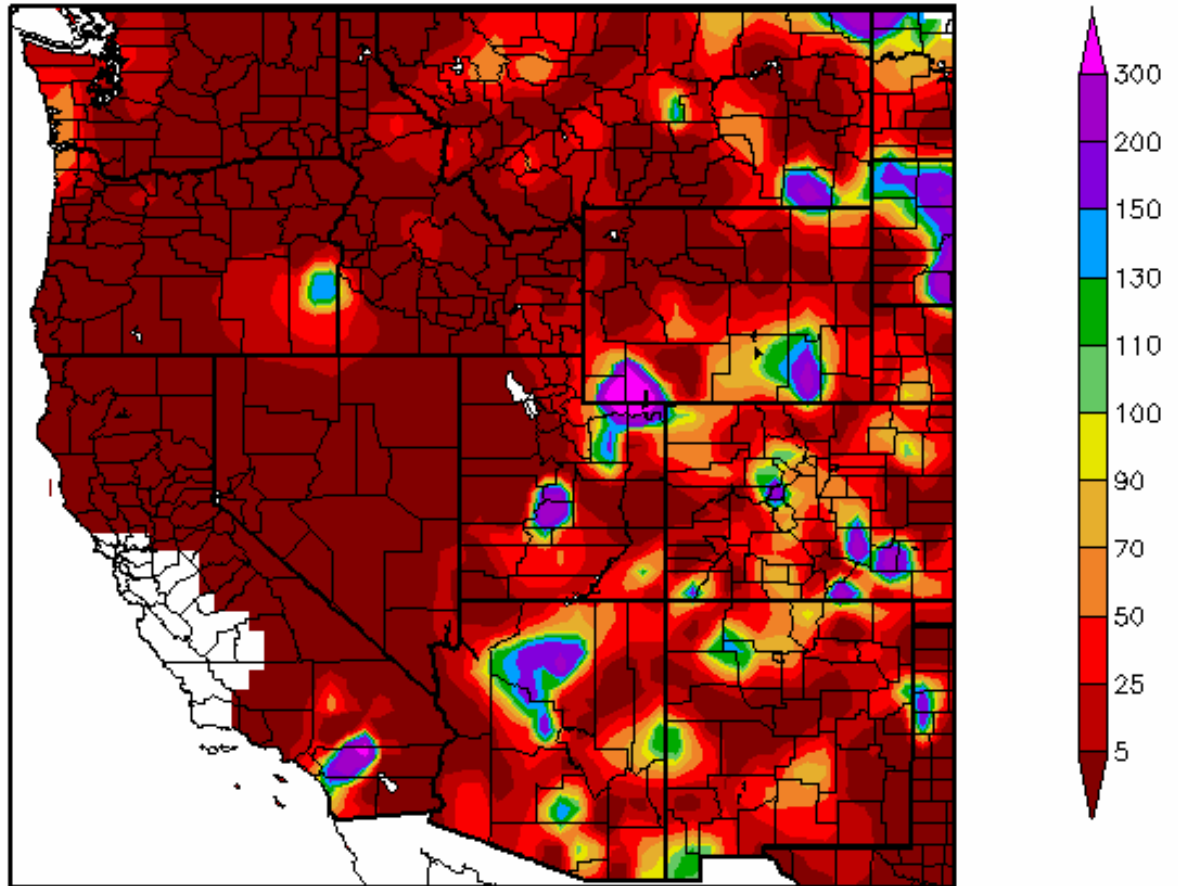
Generated 8/16/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 1a. August 9-15, 2007: Temperature departure from normal show warmer than normal temperatures over the eastern Plains.**

Ref: [http://www.hprcc.unl.edu/maps/index.php?action=update\\_region&region=WRCC](http://www.hprcc.unl.edu/maps/index.php?action=update_region&region=WRCC)

Percent of Normal Precipitation (%)  
8/9/2007 – 8/15/2007



Generated 8/16/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 2. Preliminary precipitation totals for the 7-day period ending 15 August 2007. Note some higher precipitation totals as a result of the Southwest Monsoon over Arizona through Colorado.**

Ref: [http://www.hprcc.unl.edu/maps/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm)



## Weekly Snowpack and Drought Monitor Update Report

Aug 16, 2007

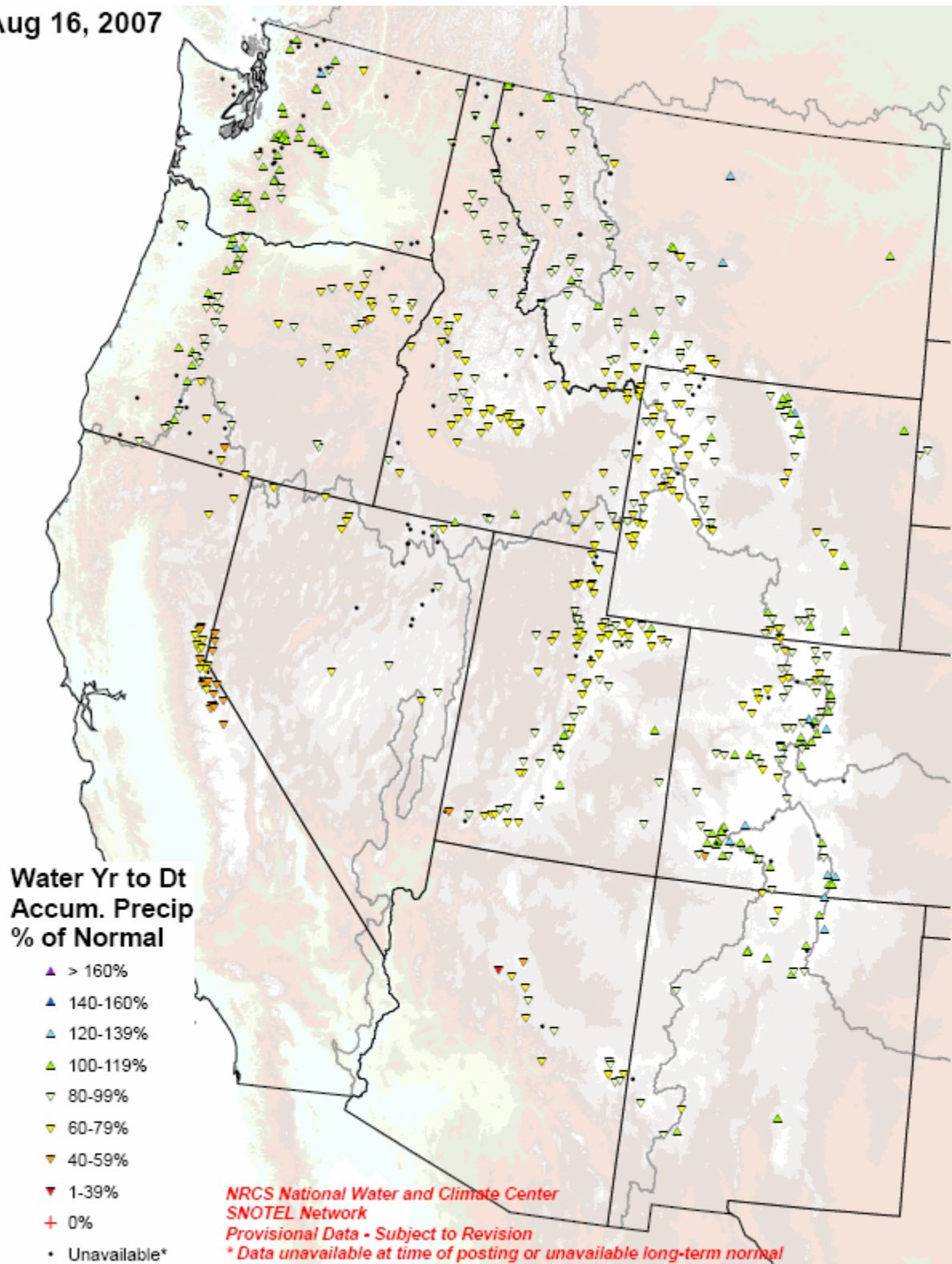


Fig. 2a. SNOTEL station water year (since October 1) precipitation as a percent of normal.

Note: No change from last week's map.

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>

# U.S. Drought Monitor

August 14, 2007  
Valid 8 a.m. EDT

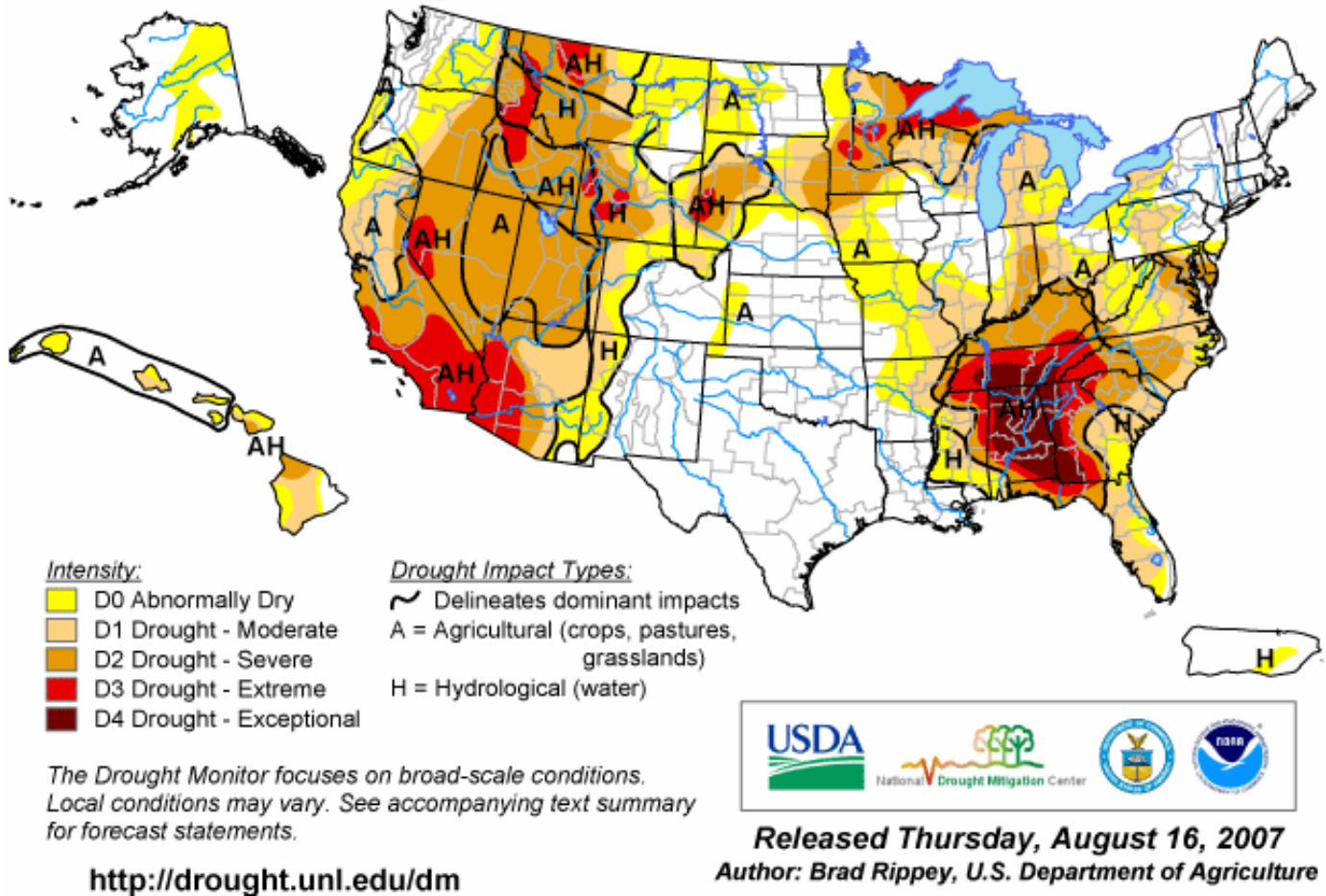


Fig. 3. Current Drought Monitor weekly summary.

Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor

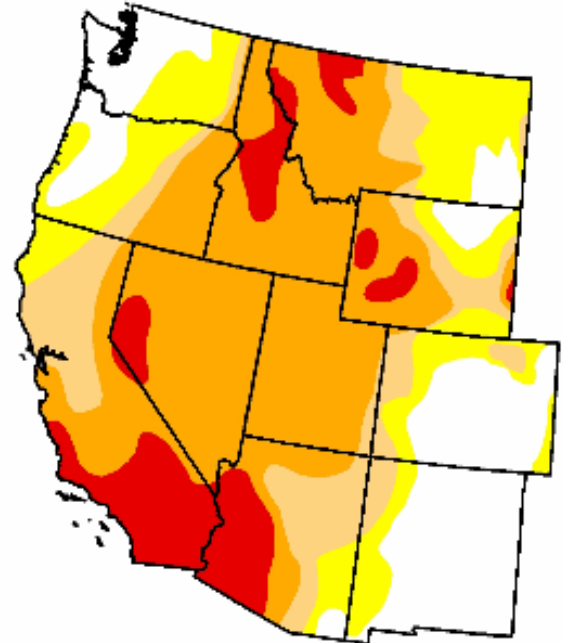
## West

August 14, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	20.0	80.0	63.0	49.6	11.6	0.0
Last Week (08/07/2007 map)	19.7	80.3	63.3	49.7	11.2	0.0
3 Months Ago (05/22/2007 map)	30.9	69.1	51.2	24.4	7.5	0.0
Start of Calendar Year (01/02/2007 map)	51.2	48.8	25.8	9.4	4.0	0.0
Start of Water Year (10/03/2006 map)	43.5	56.5	33.5	16.9	5.2	0.0
One Year Ago (08/15/2006 map)	44.7	55.3	40.4	19.7	4.8	0.0

### Intensity:

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



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, August 16, 2007  
Author: Brad Rippey, U.S. Department of Agriculture

Fig. 3a. Drought Monitor for the Western States with statistics over various time periods. No significant change since last week's map. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)



Soil Moisture Percentiles (wrt/ 1915-2003)  
20070814

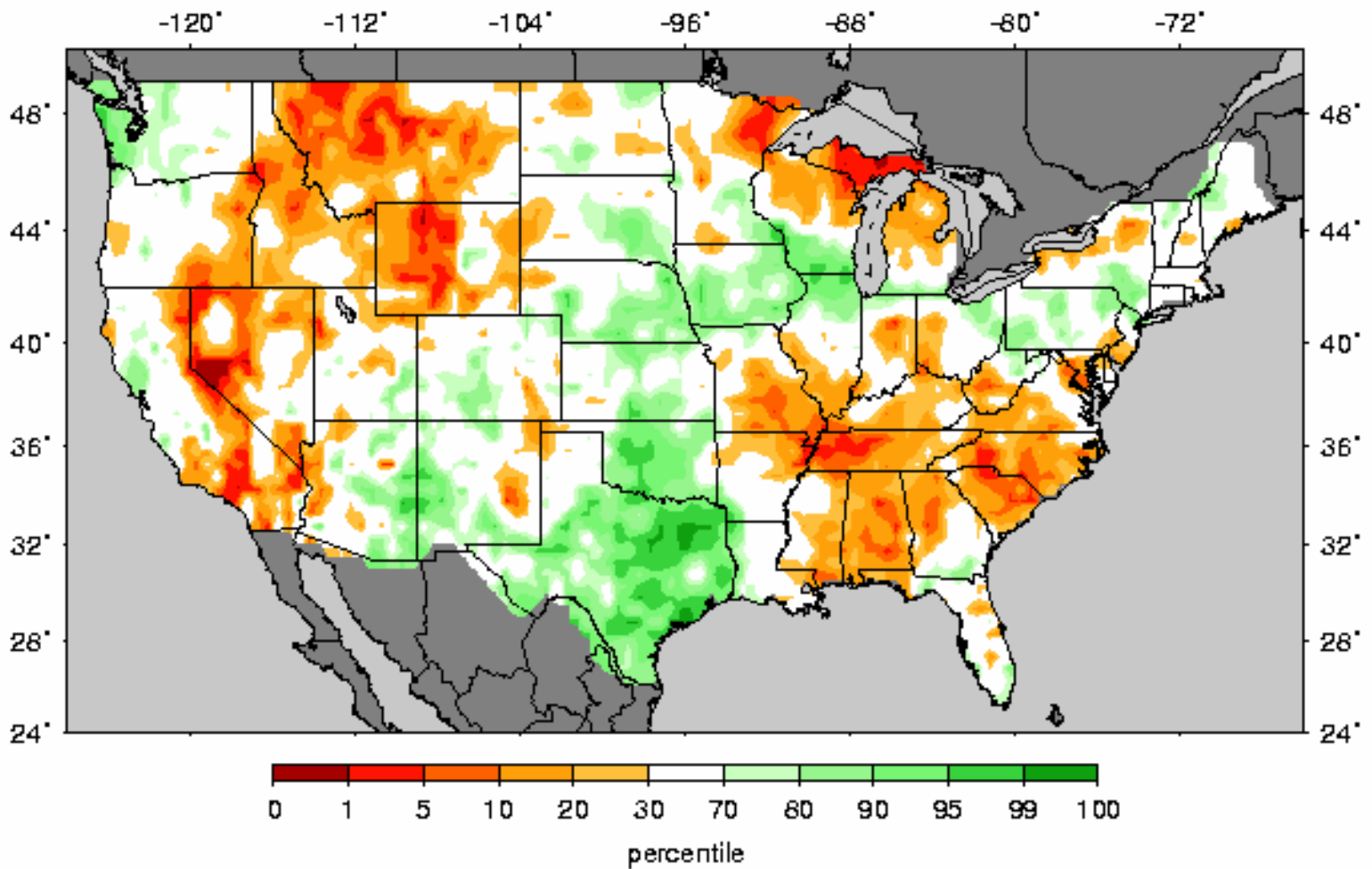


Fig. 4: Soil Moisture Ranking Percentile based on 1915-2003 climatology. Note little change from last week's map. (Source: Univ. of Washington)

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

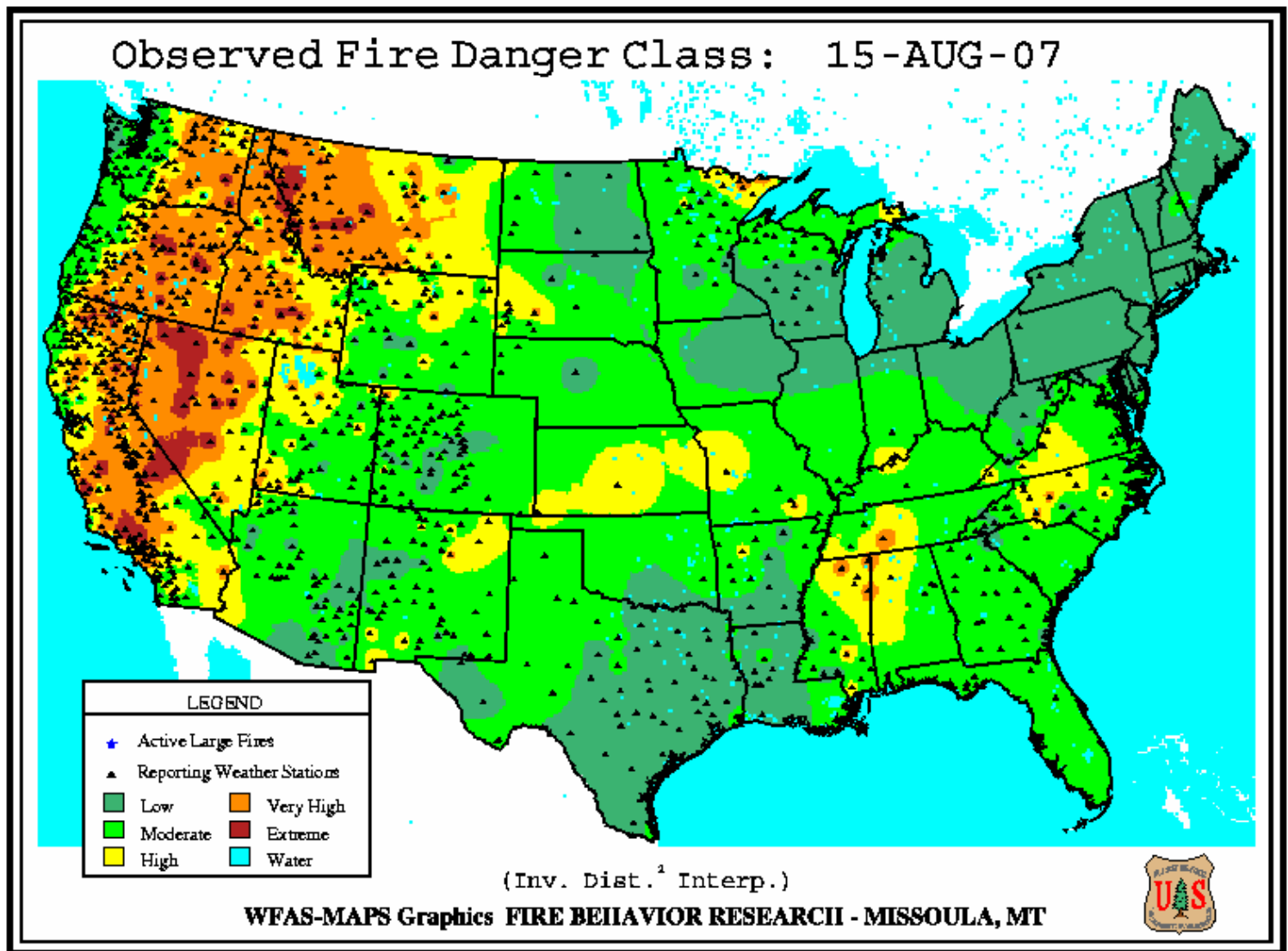
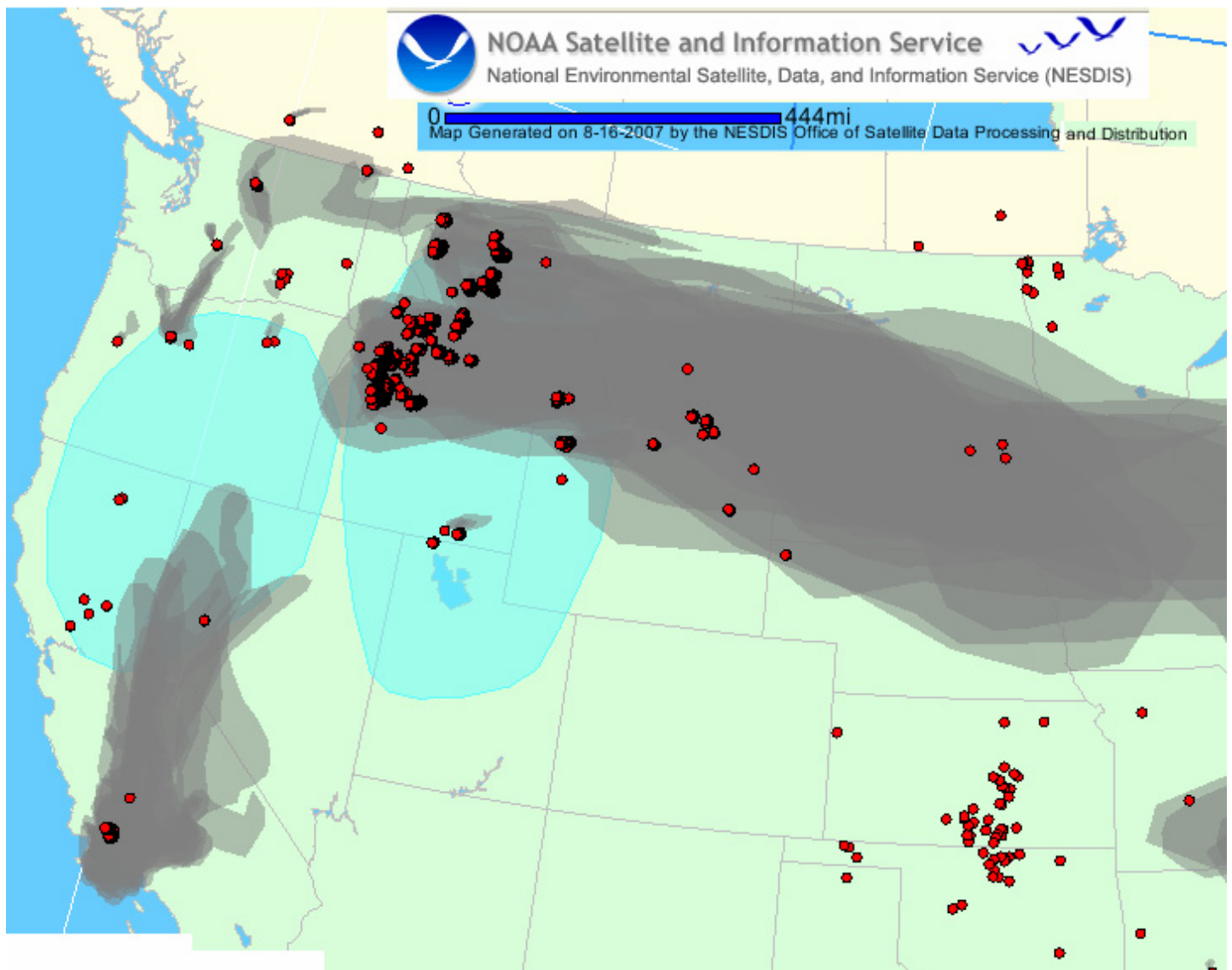


Fig. 5. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT. Conditions have worsened by one category over the West from Montana to central California since last week. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

## Weekly Snowpack and Drought Monitor Update Report

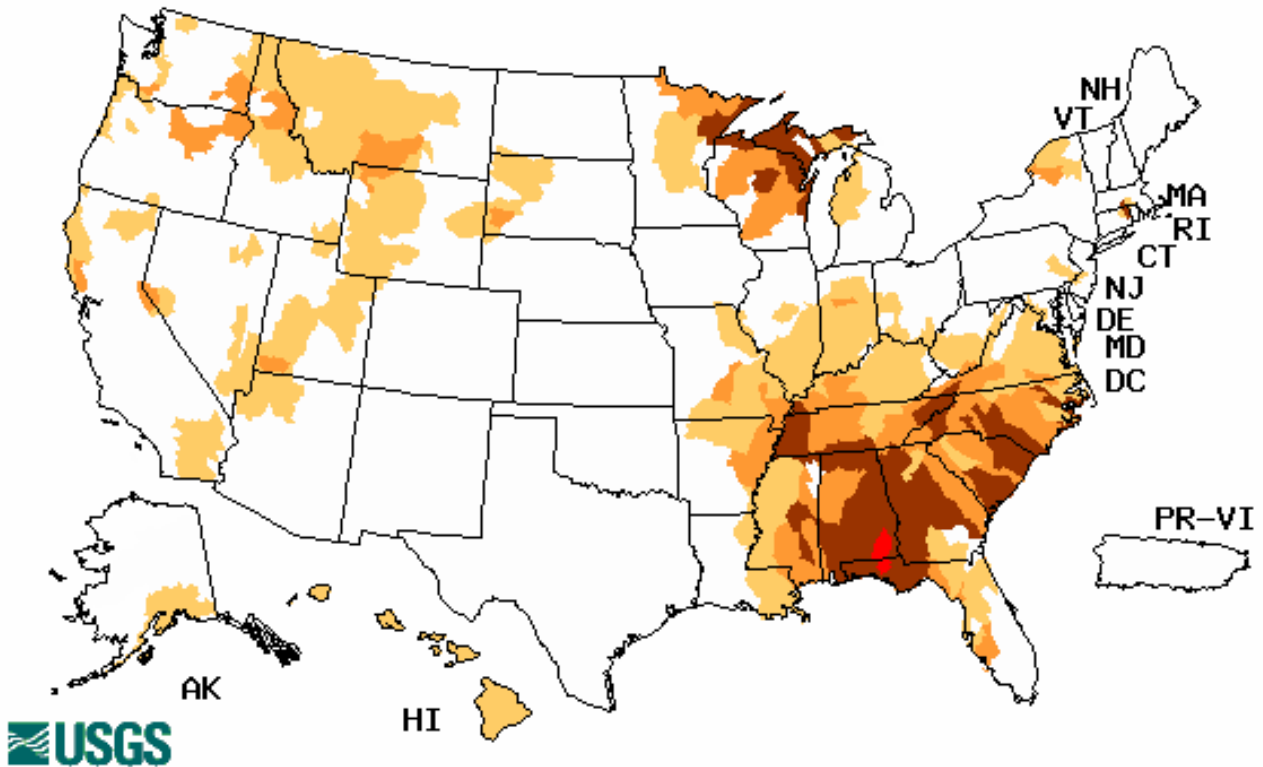


**Fig. 5a. Location of active wildfires as detected from satellite across the West as of 16 August 2007. Gray areas depict smoke and blue areas depict fire potential.**

Ref: <http://www.firedetect.noaa.gov/viewer.htm>

## Weekly Snowpack and Drought Monitor Update Report

Wednesday, August 15, 2007



Explanation - Percentile classes				
Low	$\leq 5$	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 stream flow for the day of the year.

Ref: USGS <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>



**Vegetation Health: Red - stressed, Green - fair,  
Blue - favorable, White - Cold Surface**

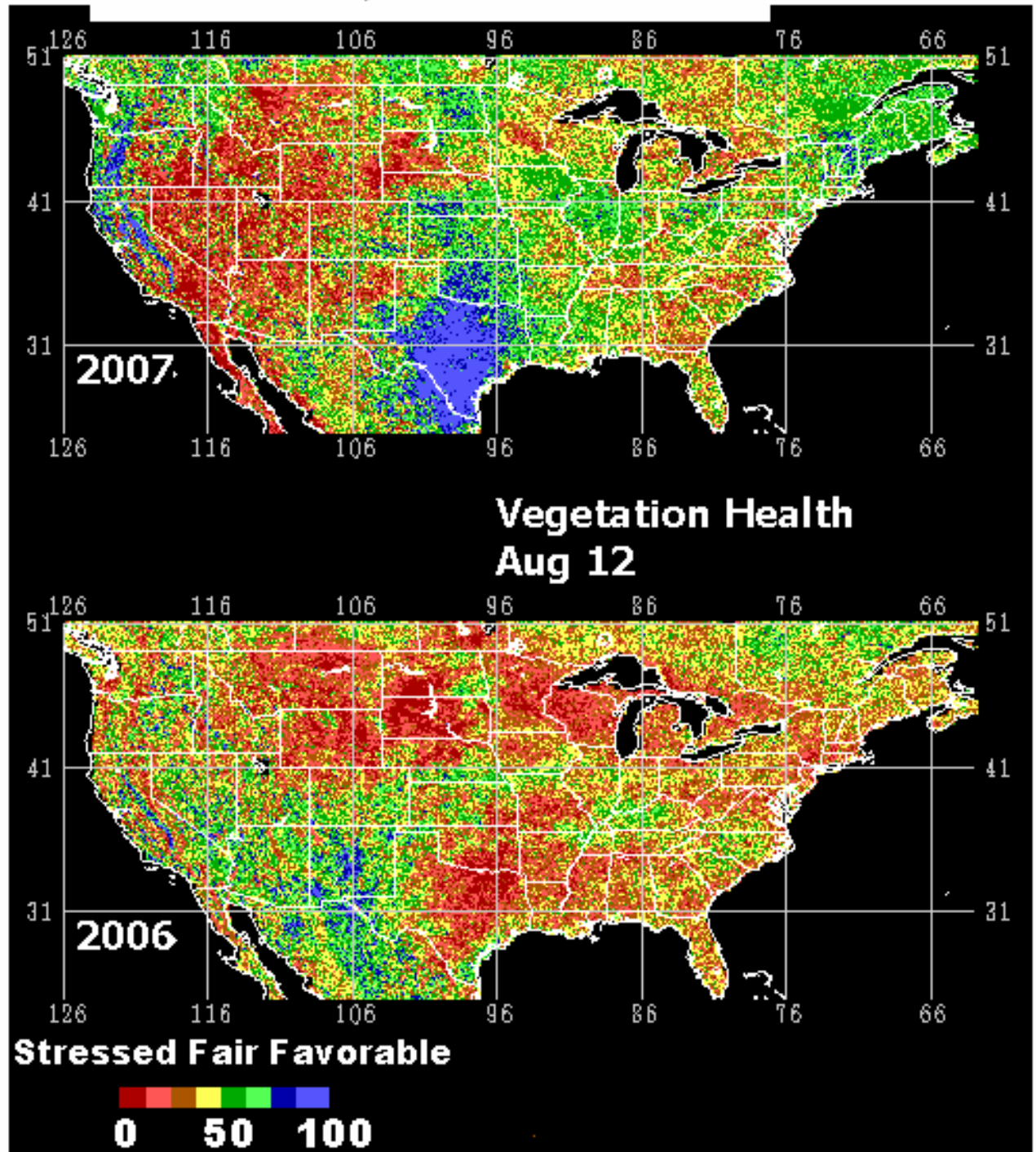
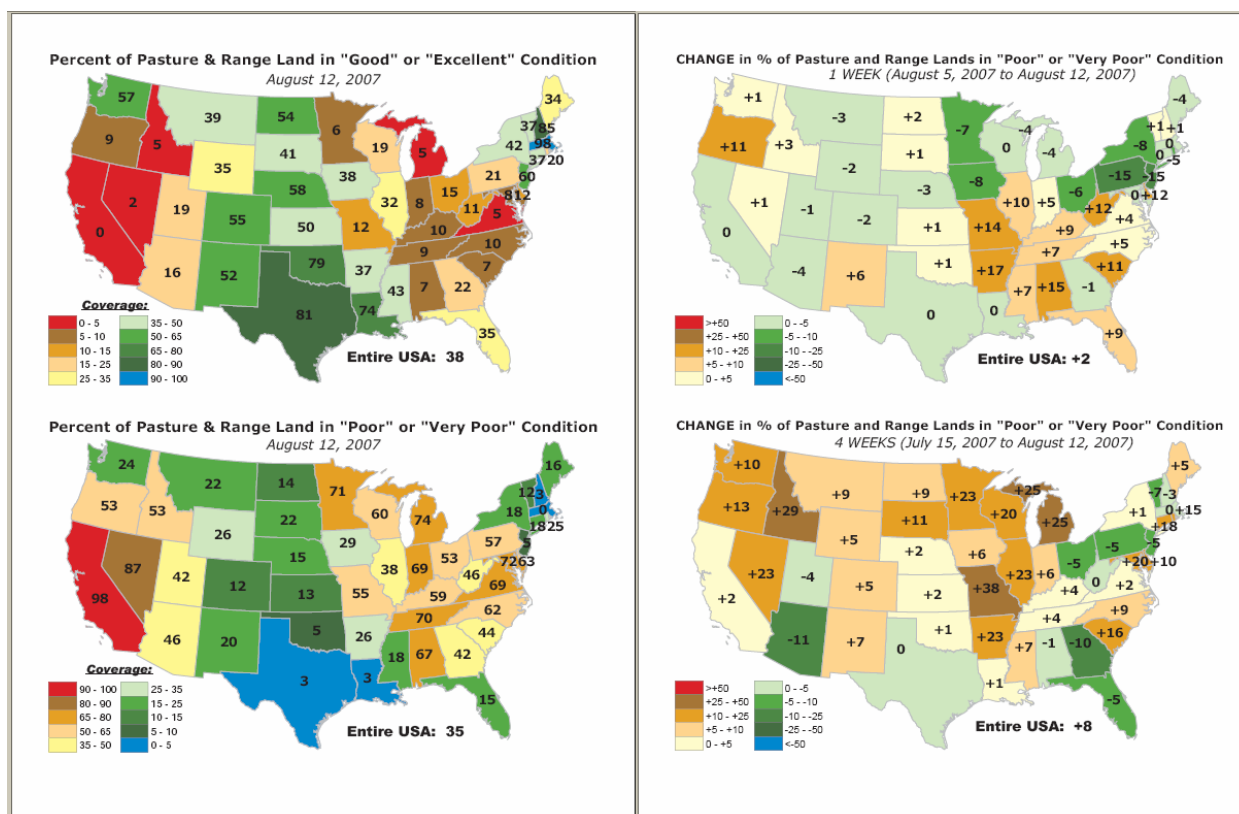


Fig. 7: This remote satellite AVHRR map shows stressed vegetation as compared to last year. Ref: <http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>.



## Weekly Snowpack and Drought Monitor Update Report



**Fig. 8: Pasture and rangeland conditions for various periods. Some worsening to the poorest pasture lands have occurred Oregon and New Mexico during the past week (top right panel). Nevada and Idaho continue shows the largest increase in poor to very poor conditions during the past four weeks for the Western States with Arizona and Utah showing the greatest improvement (bottom right panel).**

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 14, 2007

*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 East:** An historic heat wave arrived across the Southeast in early August, following relatively cool, favorably showery weather in July. Frequent temperatures near 100 degrees F were noted as far north as the southern Corn Belt, while impressive strings of triple-digit heat were reported farther south. As a result of the intense heat and minimal rainfall, along with severe stress on pastures, livestock, and immature summer crops, all categories of dryness and drought were broadly expanded across the Southeast and the lower Midwest. For example, two areas of exceptional drought were joined, leaving a continuous swath of D4 stretching from Tennessee through Alabama and western Georgia.

Montgomery, Alabama, reached or exceeded the 100-degree mark on at least 10 consecutive days (August 6-15), easily surpassing its record of 7 days established in 1881, 1954, and 1990. Farther west, Evansville, Indiana (100, 102, and 100 degrees F from August 7-9) achieved triple-digit heat for the first time since August 18, 1995. Other locations reporting their first 100-degree reading of the decade included Roanoke, Virginia, Paducah, Kentucky, and Cincinnati, Ohio (all three cities reached 100 degrees F on August 8). Roanoke, Paducah, and Cincinnati all last observed a high of 100 degrees F or greater in 1999. Even the overnight hours provided little heat relief, as locations such as Roanoke (79 degrees F on August 9); Atlanta (82 degrees F on August 8); and Wilmington, North Carolina (83 degrees F on August 9), set all-time records for their highest minimum temperature.

However, some of the most impressive heat-related records were the all-time-record highs established across the Southeast. Greenville-Spartanburg, South Carolina, tied its all-time-record high of 104 degrees F on August 8 and 9, then erased that standard with a high of 105 degrees F on August 10. Elsewhere in South Carolina, Columbia reached 105 degrees F on August 8, representing its highest reading since July 10, 1990 (also 105 degrees F). Later, however, Columbia attained 106 degrees F on August 9 and 107 degrees F on August 10. Columbia's August 10 reading tied its all-time high of 107 degrees F, previously achieved on August 21, 1983, June 27, 1954, and July 23, 24, and 29, 1952. Meanwhile, Augusta, Georgia (108 degree F on August 10), also tied its all-time record, previously set on August 21, 1983.

**The Plains and Midwest:** In contrast, an impressive band of 2- to 4-inch rainfall totals, with locally higher amounts, fell in the Midwest, especially from eastern Nebraska to Lake Erie. In fact, drought was nearly cut in two across the Midwest, with a lingering area of moderate drought (D1) arcing across the region at the Indiana-Ohio-Michigan triple point. However, parts of the upper Midwest and the upper Great Lakes region continued to miss out on the rainfall. As a result, extreme drought (D3) was introduced in parts of central Minnesota and expanded in the upper Great Lakes region. In Michigan's Upper Peninsula, May to July was the driest such period on record in Newberry (4.49 inches, or just shy of 50 percent of normal) and Ontonagon (5.10 inches, or 52 percent). From June 1, 2006, to July 31, 2007, Ontonagon's precipitation of 29.54 inches was just 73 percent of normal.

## Weekly Snowpack and Drought Monitor Update Report

**The West:** Favorably cooler weather overspread the West in early August, while monsoon showers continued from the Four Corners States northeastward into parts of Wyoming. Despite the spell of cool weather, wildfires remained active and difficult to contain across the northern Rockies and northern Intermountain West. By August 15, year-to-date wildfires across the U.S. had charred 6.0 million acres of vegetation, 134 percent of the 10-year average. Many of the currently uncontained wildfires were located in western Montana and central Idaho. In the latter region, severe drought (D2) was downgraded to extreme drought (D3), due to a variety of impacts. In contrast, showers continued to chip away at dryness and drought across southeastern Arizona and neighboring areas. Despite the summer showers, many Western reservoirs remained unusually low, signaling ongoing hydrological drought. At the end of July, reservoir storage stood at 82 percent of average for this time of year in Arizona. Storage ranged from roughly two-thirds to three-quarters of average in several other Western states, including Idaho, Oregon, Utah, and Wyoming.

**Alaska and Puerto Rico:** Conditions in Alaska and Puerto Rico did not warrant changes to the depiction of abnormal dryness (D0). Currently, dryness covers less than 30 percent of Alaska and about 10 percent of Puerto Rico.

**Hawaii:** Rapidly weakening Hurricane Flossie passed less than 100 miles south of the southern tip of the Big Island on August 14. However, effects on Hawaii's areas of dryness (D0) and drought (D1 and D2) were rather limited. On the Big Island, 24-hour rainfall totals for the period ending the morning of August 15 totaled no more than 1 to 2 inches at most reporting stations. Elsewhere, most leeward locations remained especially dry; through August 14, year-to-date rainfall totaled 2.73 inches (27 percent of normal) in Honolulu, Oahu, and 4.08 inches (34 percent) in Kahului, Maui.

**Looking Ahead:** Weather that could have an impact on drought areas in the next two weeks: 1) Tropical Storm Erin will make landfall along the lower Texas coast on August 16. Rainfall associated with Erin will not directly affect any U.S. drought areas, although the storm's remnant moisture may be drawn into a ring of showers encircling a large ridge of high pressure parked over the Southeast; 2) however, hot, mostly dry weather will persist for at least the next week in the Southeast; 3) monsoon moisture will continue to move northeastward from the Four Corners States and interact with a series of cold fronts crossing the northern Plains and the Midwest; 4) the fronts will contribute to locally heavy showers in the upper Midwestern and Great Lakes States; 5) the NWS 8- to 14-day outlook for August 23-29 calls for a return to cool weather across the central one-third of the U.S., while hot weather will persist in the East and Far West. Meanwhile, above-normal rainfall across much of the southern half of the U.S. will contrast with drier-than-normal weather across the North. Elsewhere, Hurricane Dean, currently located east of the Lesser Antilles, will soon enter the Caribbean Sea and may threaten the U.S. Gulf Coast sometime next week.

**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.

## **Weekly Snowpack and Drought Monitor Update Report**

### **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 16, 2007