



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: August 9, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, temperatures ranged from +/-5°F of normal across the West at the higher SNOTEL sites (Fig. 1). This is also reflected at lower elevation (Fig. 1a).

**Precipitation:** For the past week, rain was generally absent over most of the Pacific Northwest, northwest Montana, and all of California but was significant over the Four-Corner States and portions of Wyoming (Fig. 2). This pattern is very similar to last week's percent of normal map (Fig. 2a). Despite the late start of this season's Southwest Monsoon, above normal rainfall totals are now being experienced over Arizona, southern Utah, and central Colorado (Fig. 2b). For the Water Year (began 1 October 2006), total amounts have not changed appreciably since last week except for a slight decrease over the northern Rockies (Fig. 2c).

## **WESTERN DROUGHT STATUS**

**The West:** Several changes to the drought status took place over the last week. Improvements were made in Arizona, New Mexico, and southwest Colorado. The rains over the last several weeks have eased drought conditions in these states, allowing for a shift of all categories to the west, and an elimination of D0 in portions of southern Colorado and northern New Mexico. In Idaho and Montana, conditions continued to deteriorate. D2 was expanded to include all of Idaho, with a new area of D3 added as well. Drought status in Montana also worsened, with an expansion of D1 and D2 conditions to the east and a new area of D3 added. D0 filled in most of the remaining portions of the state that were drought free. High temperatures coupled with lack of precipitation have taken a toll on the crops in Montana. In both Idaho and Montana, surface water supplies are at or approaching historic lows. **Author:** Brian Fuchs, National Drought Mitigation Center.

***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 (Fig. 3 and 3a).

## **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).

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The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve maintain and improve our natural resources and environment

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### **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 Fig. 5. Fig. 5a and Fig. 5b 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

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Aug 09, 2007

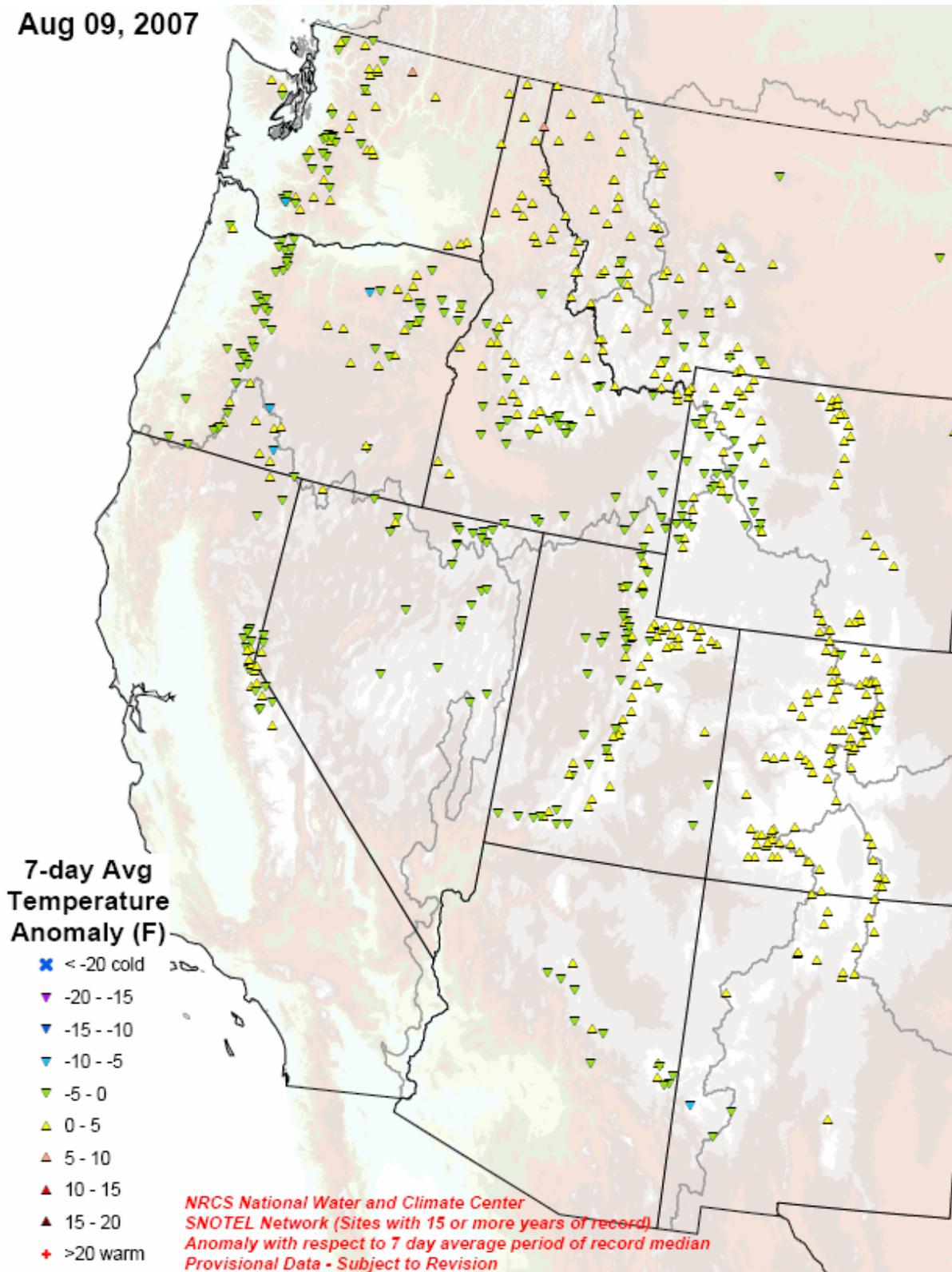
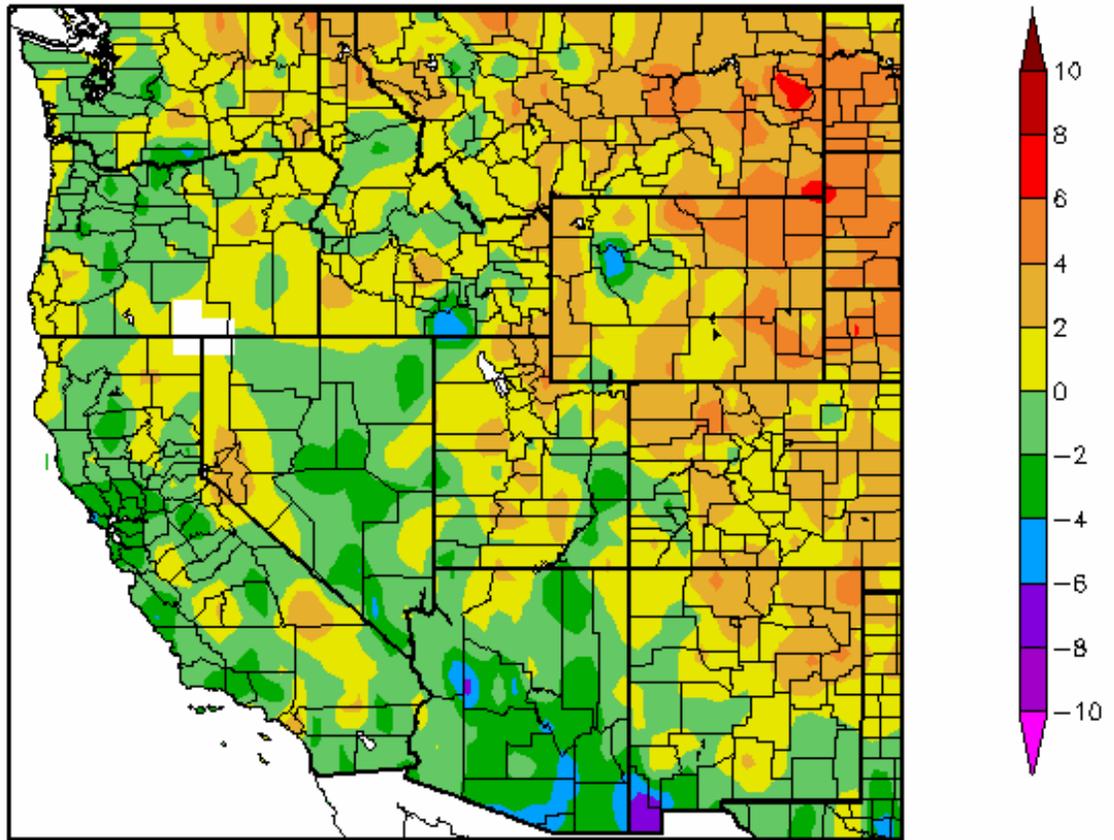


Fig. 1. SNOTEL 7-day average temperature anomaly.

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

Departure from Normal Temperature (F)  
8/2/2007 - 8/8/2007



Generated 8/9/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 1a. August 2-8, 2007 temperature departure from normal show warmer than normal temperatures over the eastern portions of the West.**

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)

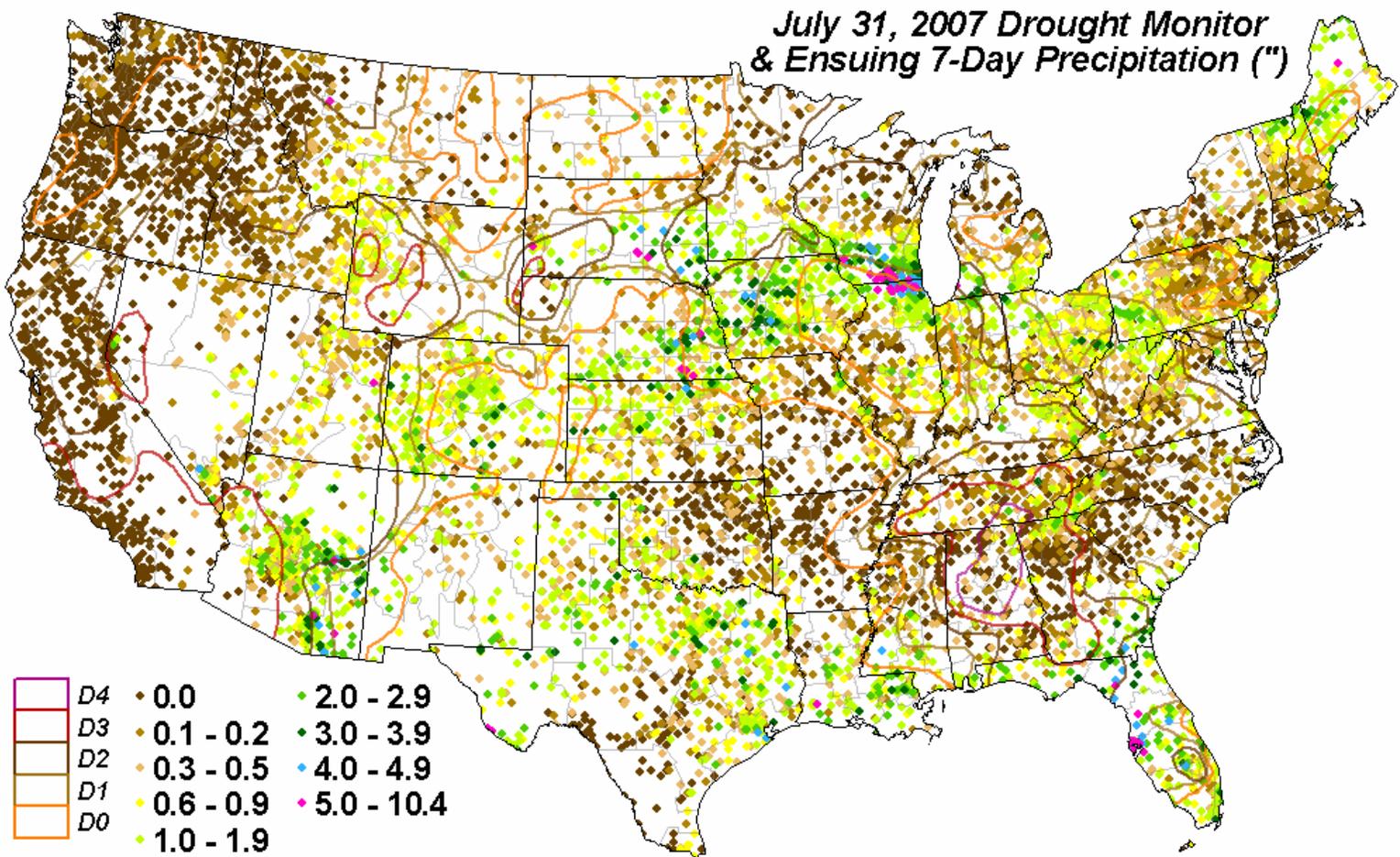
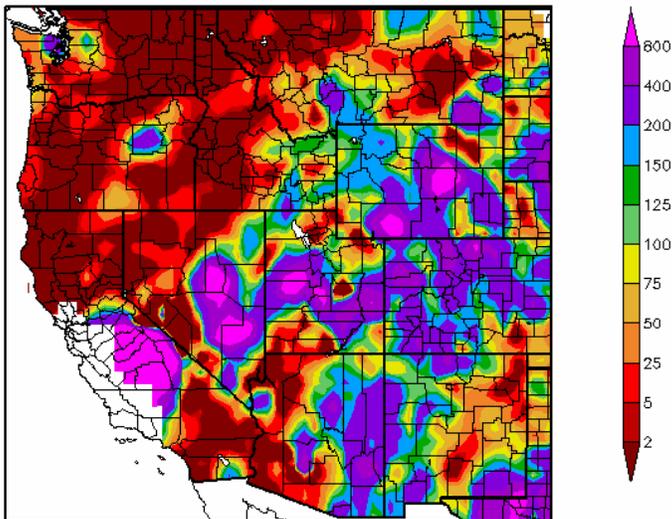


Fig. 2. Preliminary precipitation totals for the 7-day period ending 6 August 2007. Note the high precipitation totals as a result of the Southwest Monsoon over Arizona and Colorado  
Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/usdm-precip-overlay.gif>

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Percent of Normal Precipitation (%)  
8/2/2007 - 8/8/2007



**Fig. 2a. Percent of normal precipitation for the past week. Note the large area of percentages exceeding two to eight time the normal weekly amounts for this time of year.**

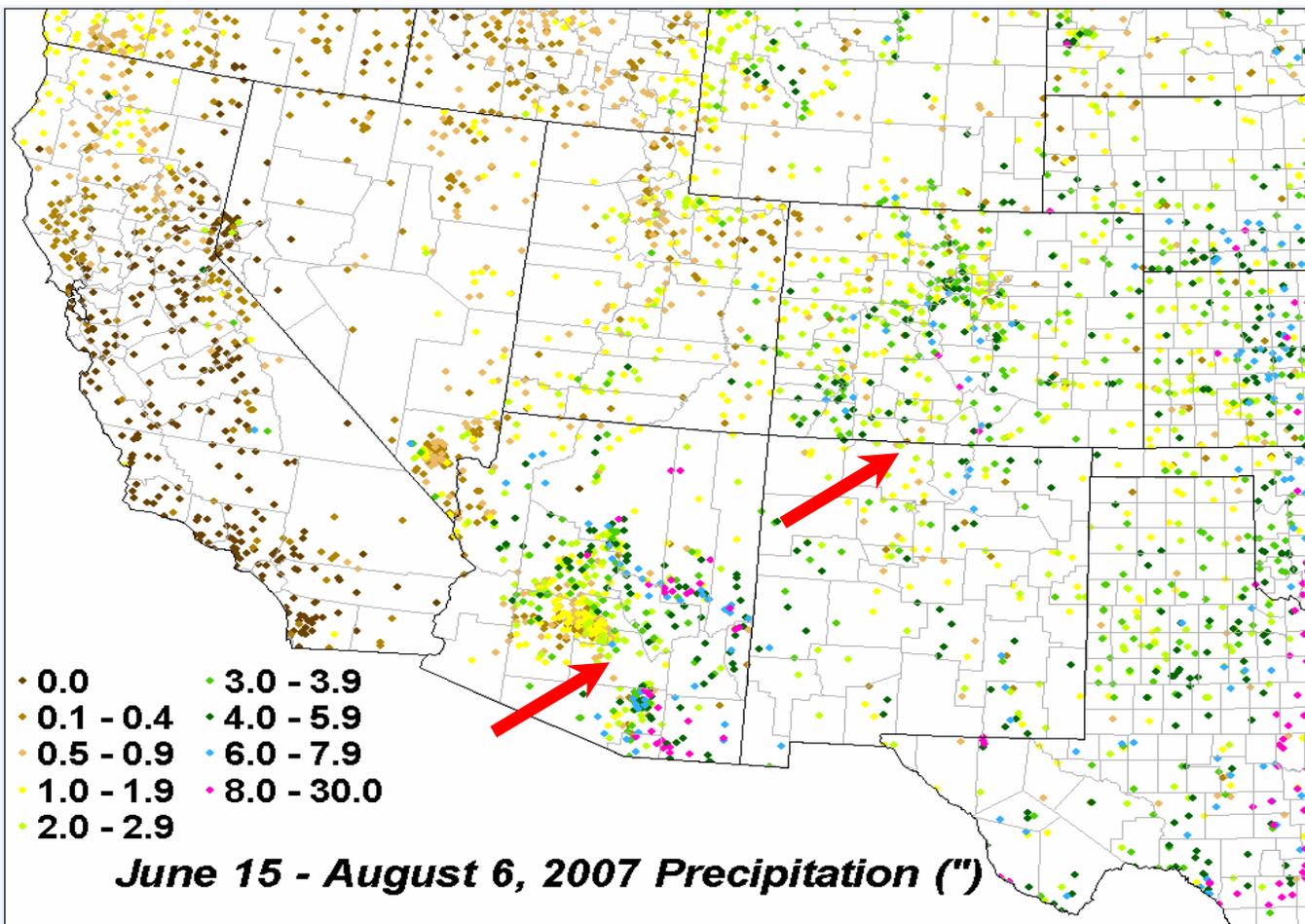
Ref:

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

Generated 8/9/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

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**Fig. 2b. Total precipitation so far for this year's SW Monsoon season. Red arrows depict influence of monsoon.**  
Courtesy of Rich Tinker, (NOAA).

# Weekly Snowpack and Drought Monitor Update Report

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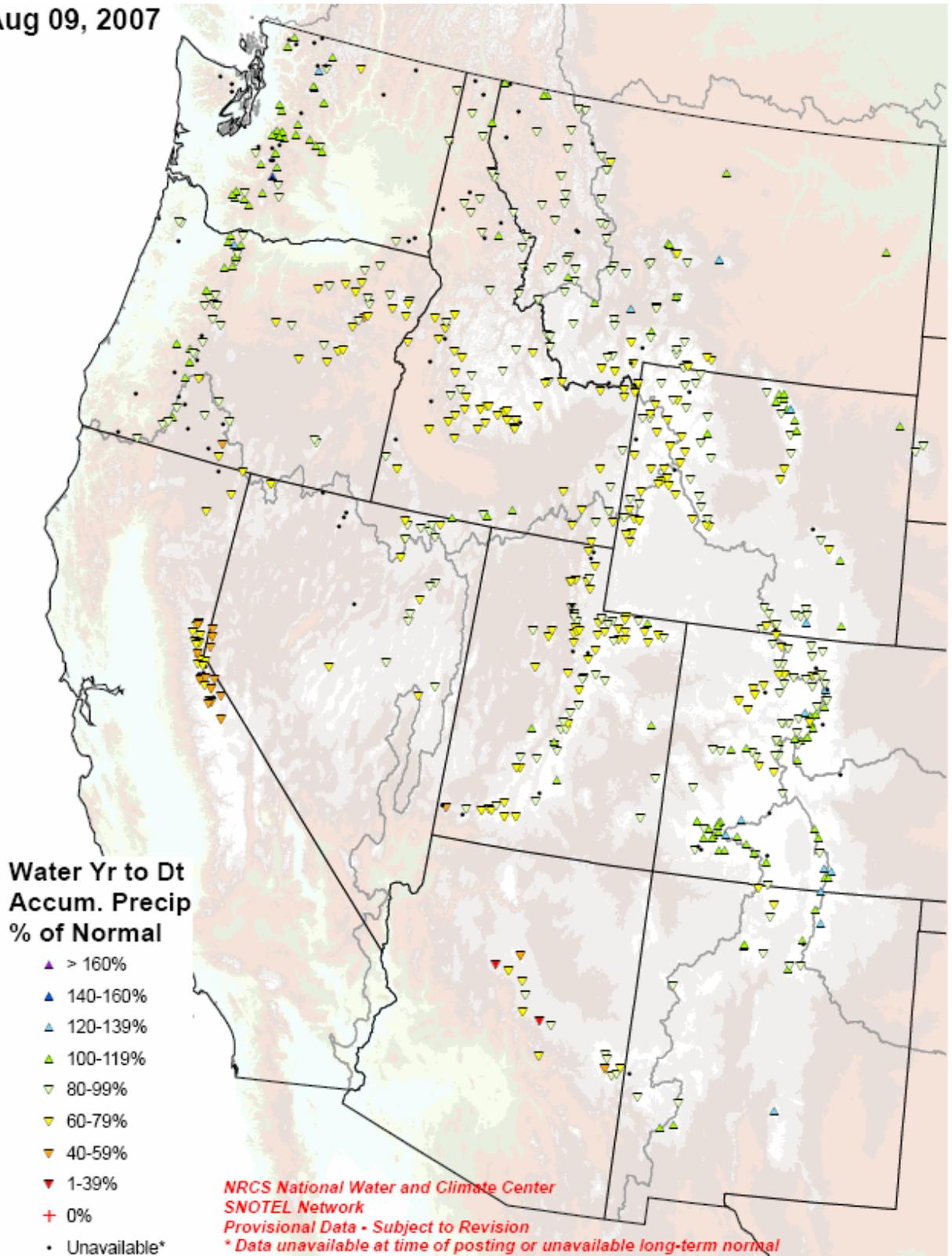
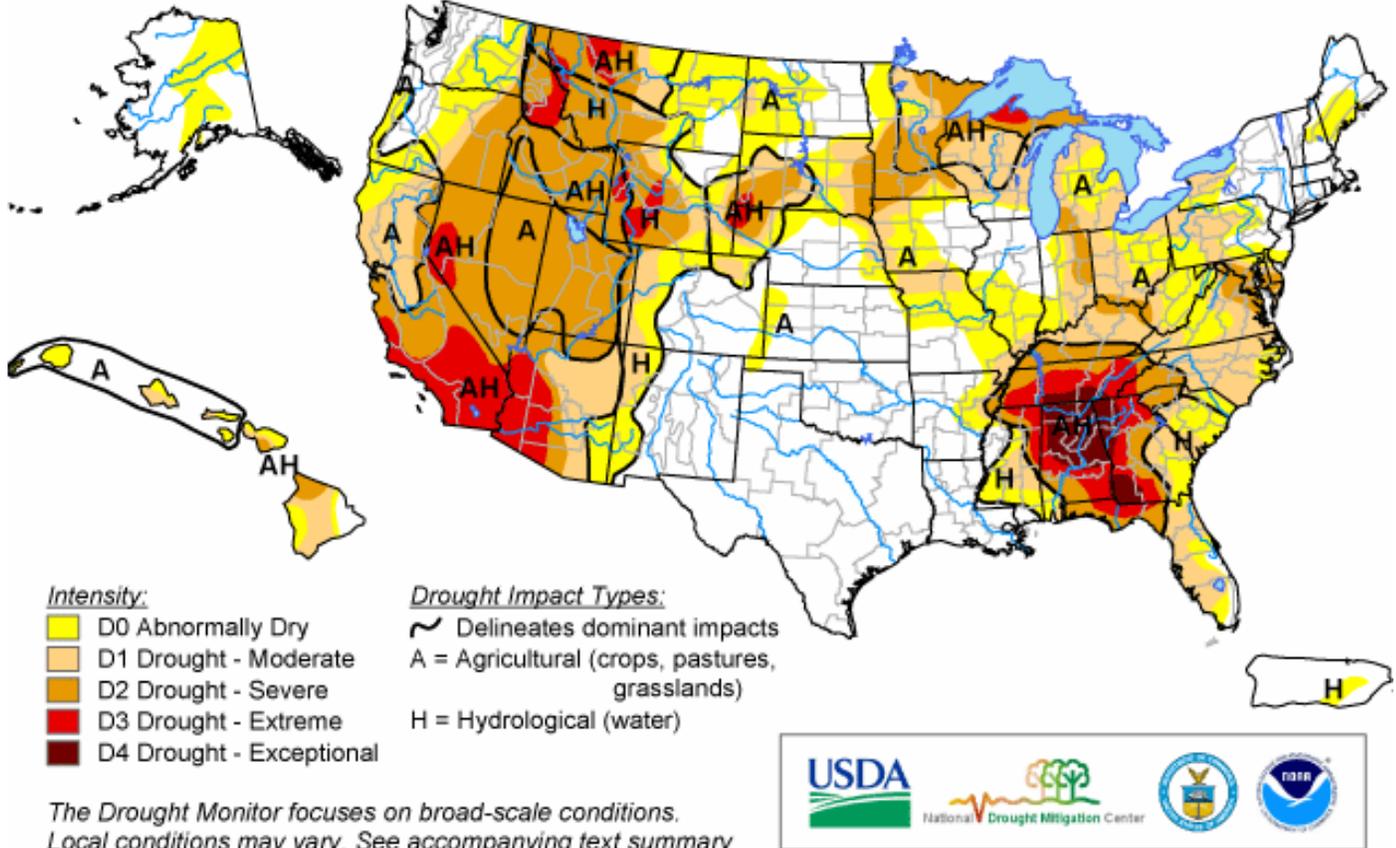


Fig. 2c. SNOTEL station water year (since October 1) precipitation as a percent of normal.  
Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>

# U.S. Drought Monitor

August 7, 2007  
Valid 8 a.m. EDT



Released Thursday, August 9, 2007

Author: Brian Fuchs, National Drought Mitigation Center

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

Fig. 3. Current Drought Monitor weekly summary.

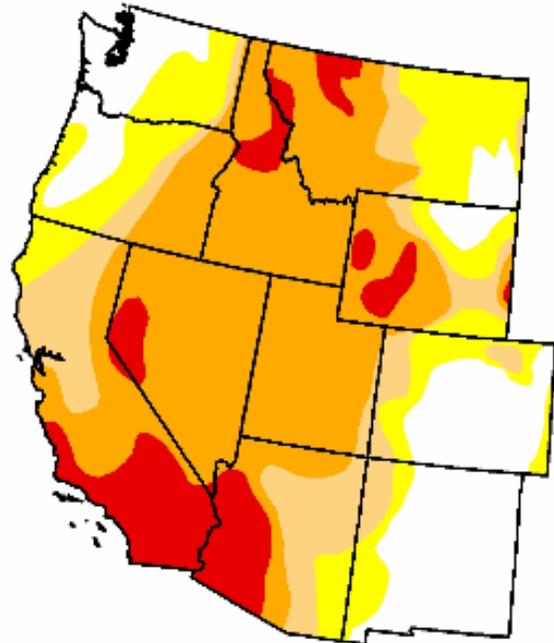
Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor West

August 7, 2007  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	19.7	80.3	63.3	49.7	11.2	0.0
Last Week (07/31/2007 map)	21.1	78.9	63.2	47.9	9.5	0.0
3 Months Ago (05/15/2007 map)	30.5	69.5	50.5	23.7	6.7	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 (08/08/2006 map)	43.8	56.2	37.6	21.1	4.0	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, August 9, 2007**  
Author: Brian Fuchs, National Drought Mitigation Center

**Fig 3a. Drought Monitor for the Western States with statistics over various time periods.**  
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)  
20070807

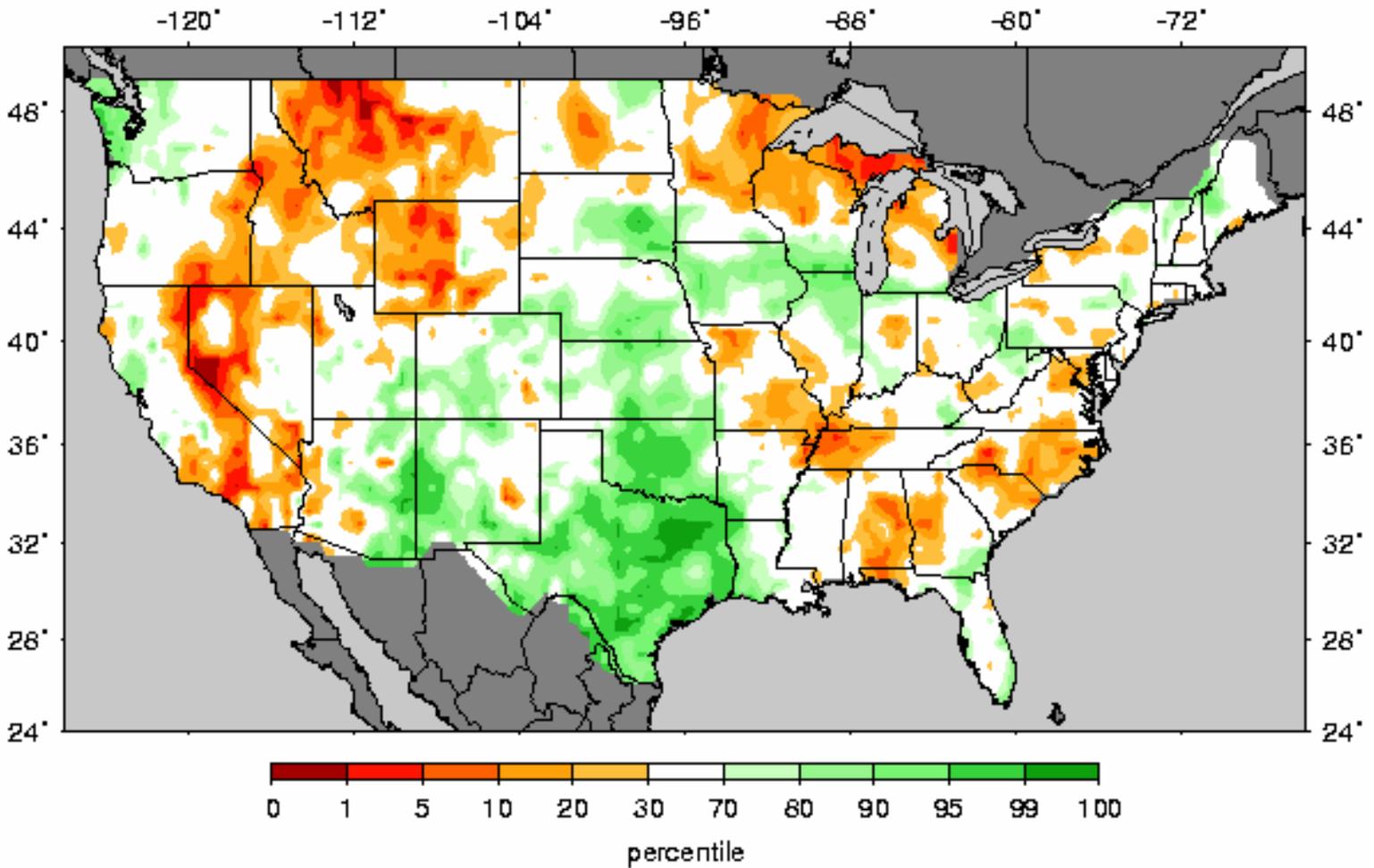


Fig. 4: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

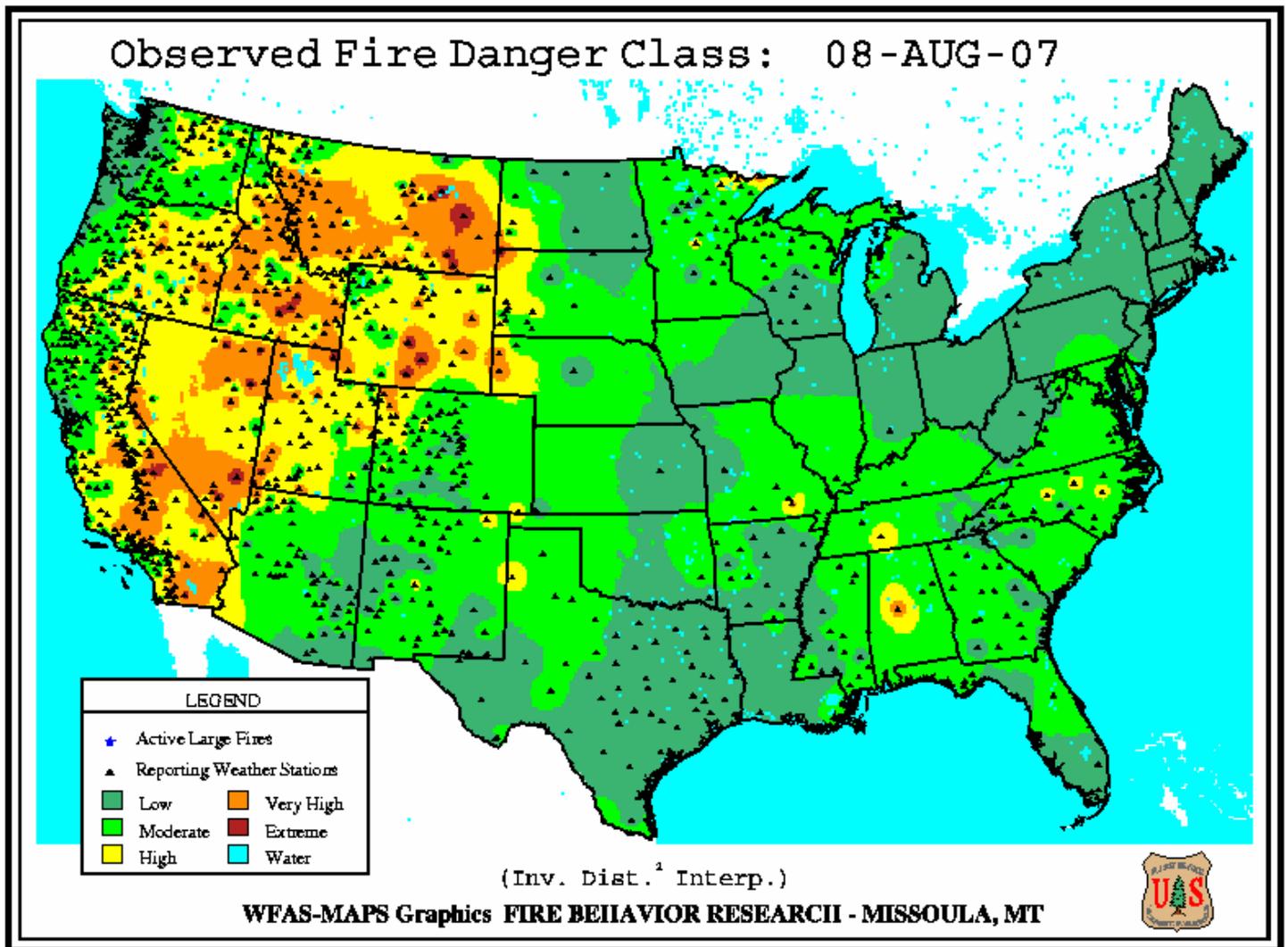


Fig. 5. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT. Note a lot of improvement over the Pacific Coast States and Nevada since last week. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

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Fig. 5a. Location of active wildfires across the West as of 8 August 2007.  
Ref: <http://geomac.usgs.gov/>



Fig 5b. Location of only significant fire over southern California.

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Wednesday, August 08, 2007

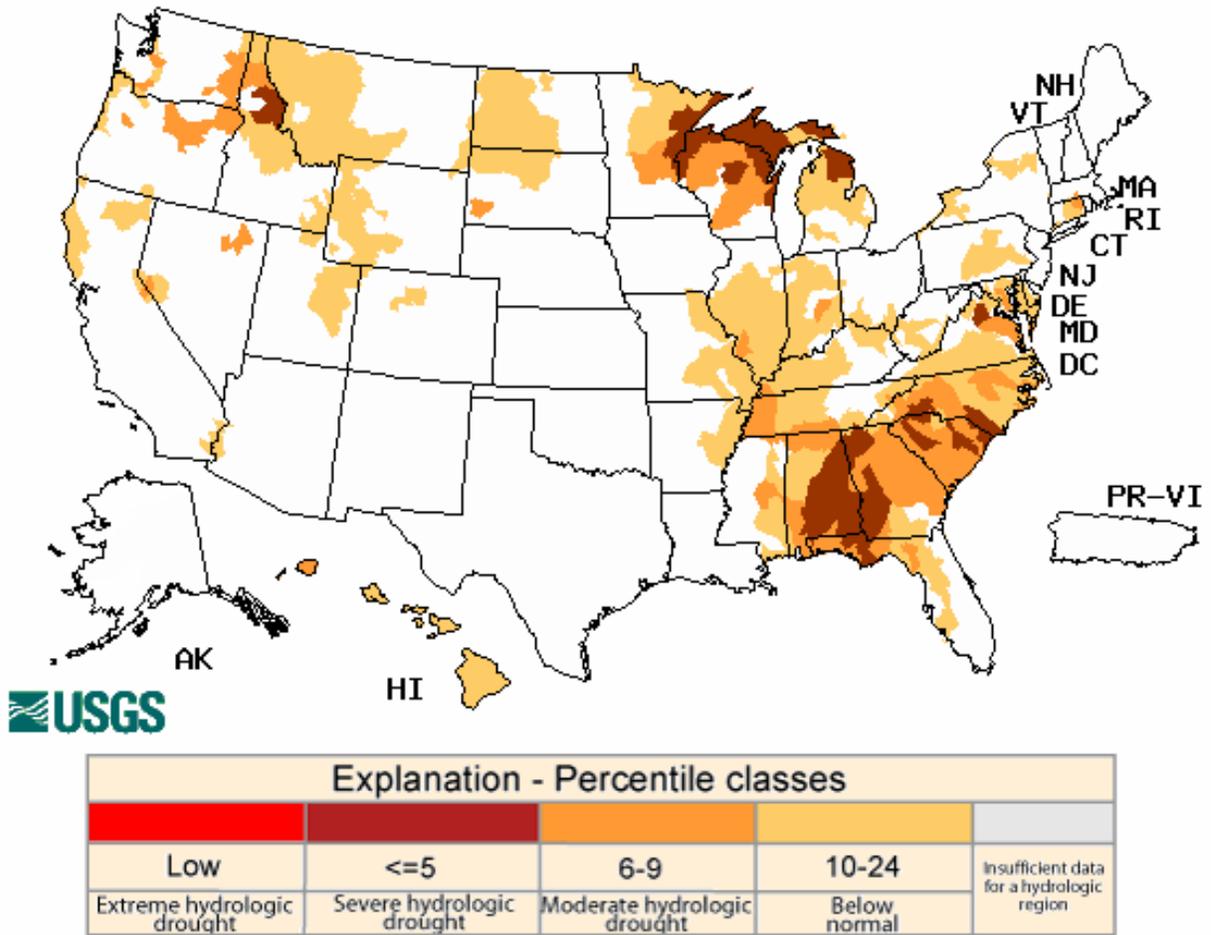


Fig. 6. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year.

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

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

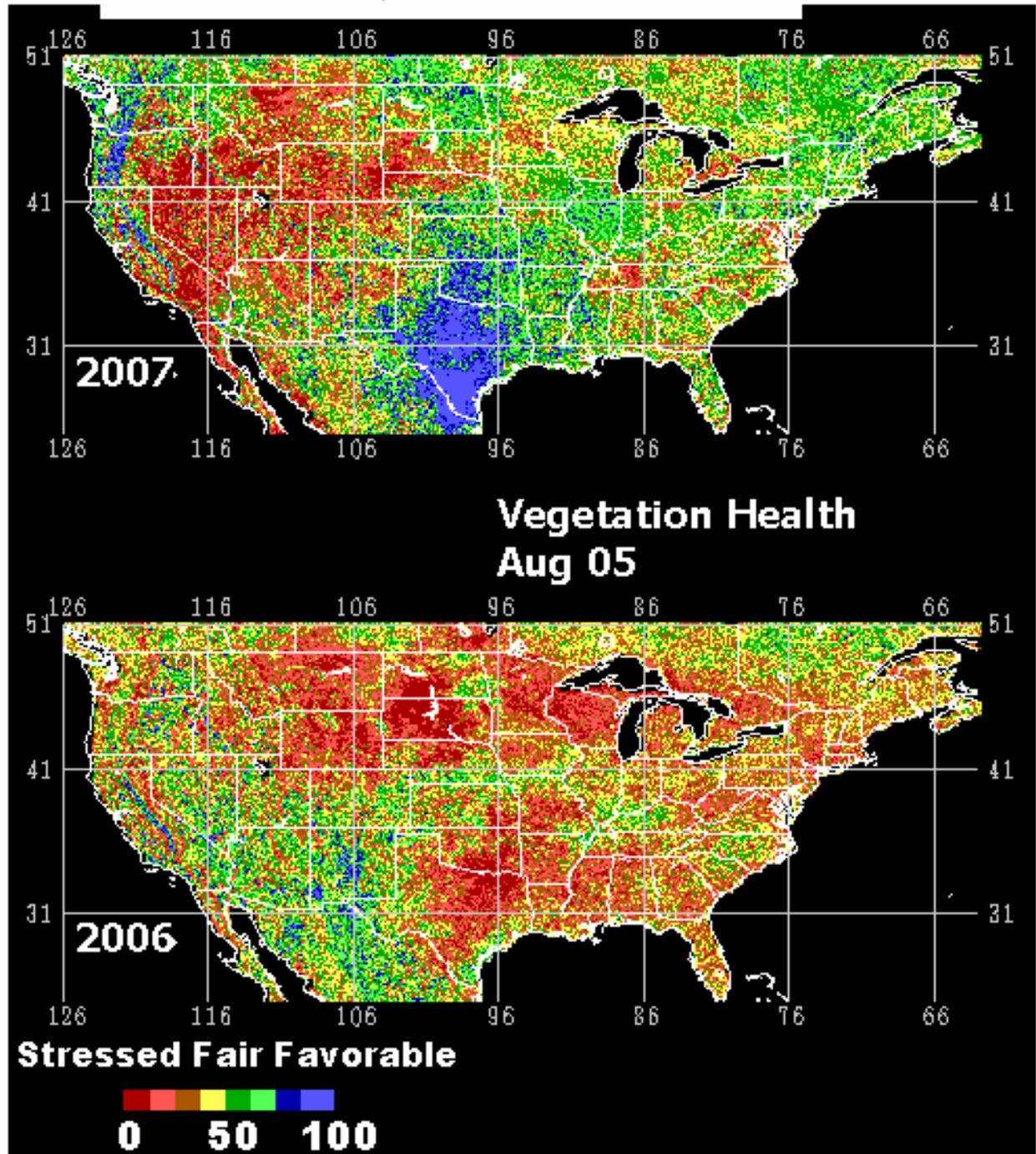
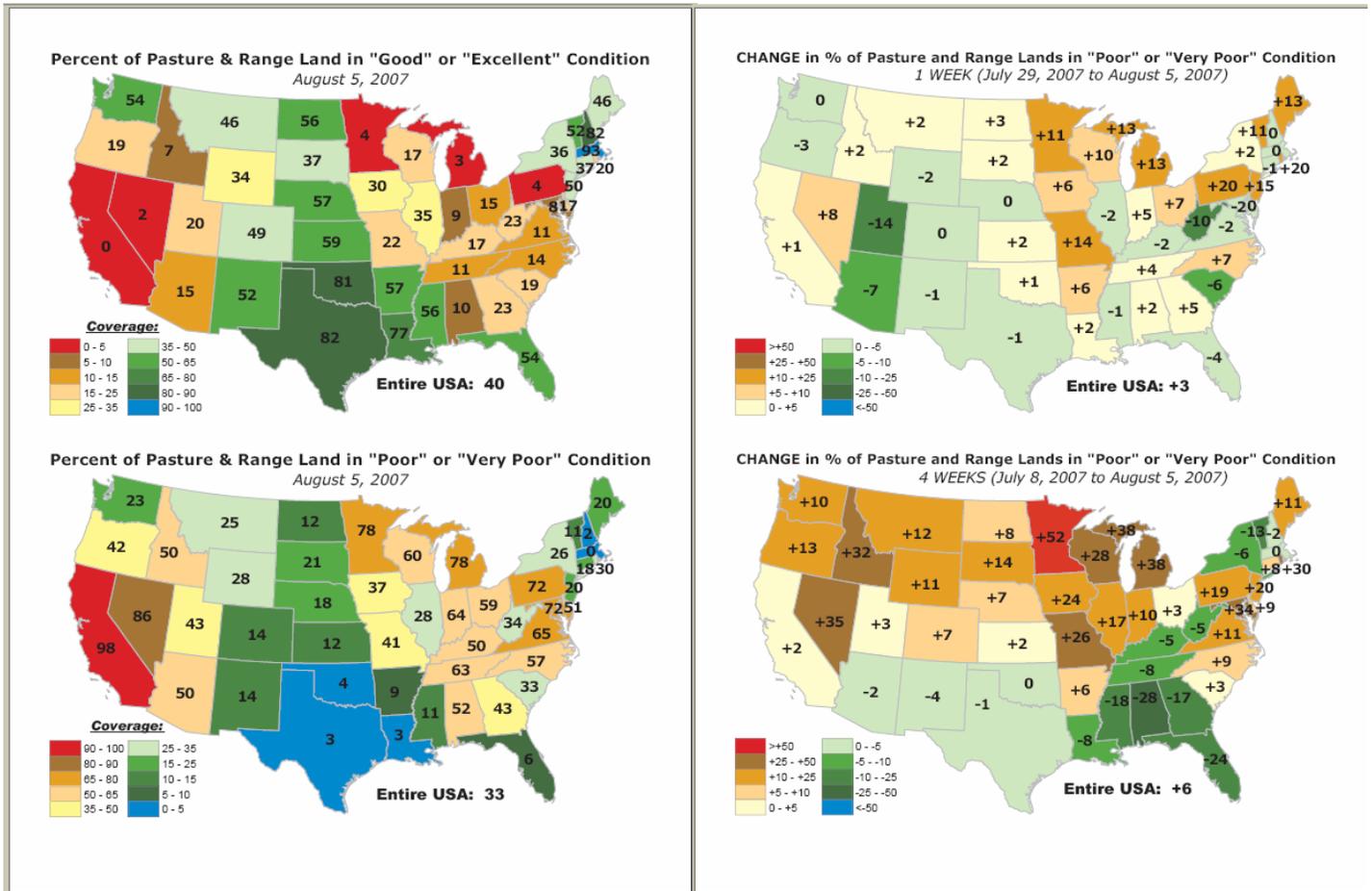


Fig. 7: This remote satellite AVHRR map shows stressed vegetation as compared to last year.

Ref: <http://www.orbit.nesdis.noaa.gov/smcd/emb/vci/usa.html>.

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**Fig. 8: Pasture and rangeland conditions for various periods. Some improvement to the poorest pasture lands have occurred Utah and Arizona due to the influence of the SW Monsoon (top right panel). Nevada and Idaho shows the largest increase in poor to very poor conditions during the past four weeks for the Western States (bottom right panel).**

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

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### National Drought Summary -- August 7, 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/>.*

Hot and dry conditions over much of the United States dominated the weather conditions this past week. As a dome of high pressure settled in over the Midwest, temperatures were 4-8°F above normal for many locations. Temperatures were also well above normal through the High Plains and northern Rocky Mountains. The coolest temperatures were observed over the Southwest and into Texas, where the monsoon season continued. Precipitation was widely scattered, with the areas north of the dome of high pressure seeing the most significant rains. Some localized amounts of greater than 5 inches were observed in parts of Wisconsin, Florida, South Dakota and Nebraska. In general, a few improvements to the drought status of some states took place, but an overall worsening of the drought continued to plague the country.

**The West:** Several changes to the drought status took place over the last week. Improvements were made in Arizona, New Mexico, and southwest Colorado. The rains over the last several weeks have eased drought conditions in these states, allowing for a shift of all categories to the west, and an elimination of D0 in portions of southern Colorado and northern New Mexico. In Idaho and Montana, conditions continued to deteriorate. D2 was expanded to include all of Idaho, with a new area of D3 added as well. Drought status in Montana also worsened, with an expansion of D1 and D2 conditions to the east and a new area of D3 added. D0 filled in most of the remaining portions of the state that were drought free. High temperatures coupled with lack of precipitation have taken a toll on the crops in Montana. In both Idaho and Montana, surface water supplies are at or approaching historic lows.

**The High Plains:** Heavy rains over portions of South Dakota and Nebraska have allowed for some improvements to the drought status in both states. In South Dakota, D2 and D1 conditions were improved over much of central and eastern portions of the state. This was the first significant rain in several weeks, which allowed for the improvements. D1 conditions were expanded over northeast South Dakota as well as northwest portions of the state. These areas continue to miss the rains, and the effect of the dryness is becoming a concern. In Nebraska, D0 was improved in the eastern portion of the state and into portions of central Nebraska as well. The northeast portion of the state continues to miss out on the precipitation, and D1 and D2 conditions were expanded into extreme northeast Nebraska this week. D3 was also expanded in western Nebraska where the long-term drought has not let up. D0 was expanded in North Dakota and a new area of D1 was introduced as well. The trend of above-normal temperatures and lack of precipitation has allowed for these changes.

**The Midwest:** Improvements to the D0 and D1 status over portions of Iowa, Wisconsin and Illinois were made in response to the recent rains bringing these areas some relief. In Minnesota, drought conditions in the northern portions of the state expanded to the east and west, respectively. Illinois had a northward expansion of the D0 and D1 conditions in the southern portions of the state. In Missouri, D0 was expanded in the central portions of the state and a new area of D1 was introduced along the border with Iowa. In southwest Missouri, D0 and D1 were expanded as well. Worsening conditions in Michigan have warranted expansion of the drought categories. In the Upper Peninsula, D2 was expanded to the east and a new area of D3 was introduced where precipitation has been less than 25 percent of normal over the last 90 days. In Lower Michigan, D0 filled in the last areas where

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there was no dryness designation and D1 was expanded north along Lake Michigan and into more of northern Michigan. In Kentucky, the D2 status was expanded farther to the west as conditions continue to be dry in this region.

**The Northeast and Mid-Atlantic:** Few changes in the drought status in the region took place this week. With warmer temperatures, the recent improvements were held in check, even with some locations recording rainfall again this week. Western New York continues to be dry. D0 and D1 conditions were expanded this week due to the dryness over the last several months. D0 conditions in Maine and New Hampshire were also shifted farther to the coast, as the rains last week missed the driest regions in general. D2 conditions in southwest West Virginia were improved.

**The Southeast:** The drought improvements due to the rains of June and July have quickly diminished this past week. With temperatures well over 100°F coupled with another dry week, the drought status over the Southeast expanded in both spatial coverage and intensity. In Alabama, all drought conditions outside of the southwest portions of the state increased in intensity. D4 was expanded to the east into Georgia and also in the northwest to include more of Tennessee. D2 and D3 were expanded to the west to include more of Mississippi. A new area of D4 was introduced into southwest Georgia and D3 conditions migrated out of Georgia and into the Florida panhandle. D2 was expanded in South Carolina. Improvements were made in southeast Georgia and into northeast Florida where consistent rains have made up precipitation deficits. In southern Florida, improvement to the drought conditions has allowed for the removal of the D2 and a shift of the D0 and D1 conditions to the west. D0 and D1 were expanded in southwest Florida as conditions continue to be dry.

**Hawaii:** Improvements to the D1 status on the Big Island were made this week. The Kona area is normal to above normal for seasonal precipitation as recent rains over the last month have allowed for the improvement.

**Looking Ahead:** Over the next 5 days (August 9-13), temperatures over the United States should continue to be well above normal as a strong ridge of high pressure will be centered over the High Plains. Temperatures are expected to be 6-9°F above normal during this time, with the greatest anomalies centered on the High Plains and Midwest. Precipitation during this time will continue to ride over the top of and around the ridge. Precipitation maxima are expected over the upper Midwest, through the Great Lakes and into New England. In front of the ridge, precipitation maxima should also be observed over portions of the Mid-Atlantic and south into Florida. The monsoonal rains should also continue over the Southwest, with Arizona, New Mexico and portions of Colorado and Utah having the potential for the most rain.

The 6-10 day outlook (August 14-18) is similar to the 5 day outlook in that a ridge of high pressure will dominate conditions over the United States. Temperatures are expected to be well above normal over much of the country and Alaska too. Precipitation chances will be slim in the areas dominated by the ridge. The best chances for above-normal precipitation will again be in the areas on the periphery of the ridge. Areas around the Great Lakes, upper New England and Florida are in the best position to see above-normal rains. Alaska is also projected to have a good chance of recording above-normal precipitation during this time frame.

**Author:** [Brian Fuchs, National Drought Mitigation Center](#)

### Dryness Categories

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

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### **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 8, 2007