



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: October 18, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** During the past seven days, mountain SNOTEL sites were up to 10 degrees below normal over the Sierras while parts of the Northern Rockies were up to 10 degrees above normal (Fig. 1). At lower elevation weather stations, northern California had the coolest departures while the Southern Plains had the warmest departures (Fig. 1a).

**Precipitation:** For the past week, rain and snow fell across the Central High Plains, along the western regions of California and most of Oregon. Little precipitation occurred over the Great Basin and Southwest. (Fig. 2).

## **WESTERN DROUGHT STATUS**

**The West:** Much of the west coast and Intermountain West saw a cool down last week. Rains weren't as widespread, however, with the only significant precipitation (1-2 inches) occurring in the northern coastal reaches of California and extreme southwest Oregon along with north central Colorado and extreme southeastern Wyoming. These short-term rains and longer-term wetness led to a reduction of abnormally dry (D0) in both areas. For now, conditions remain unchanged elsewhere in the West as the new water year is just getting started.

**Author:** [Mark Svoboda, 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 (Figs. 3, 3a, 3b, and 3c).

## **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

## Weekly Snowpack and Drought Monitor Update Report

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

Oct 18, 2007

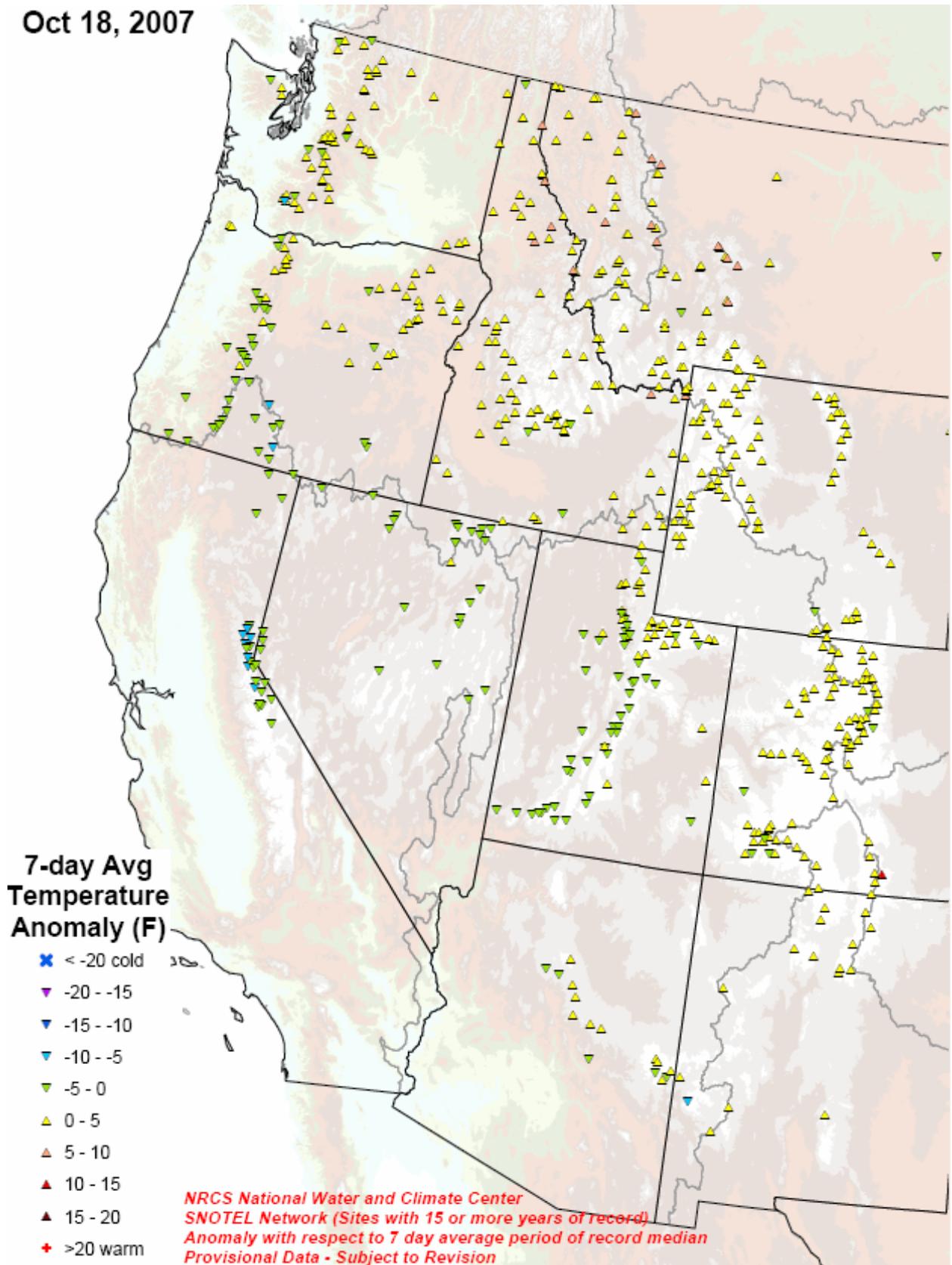
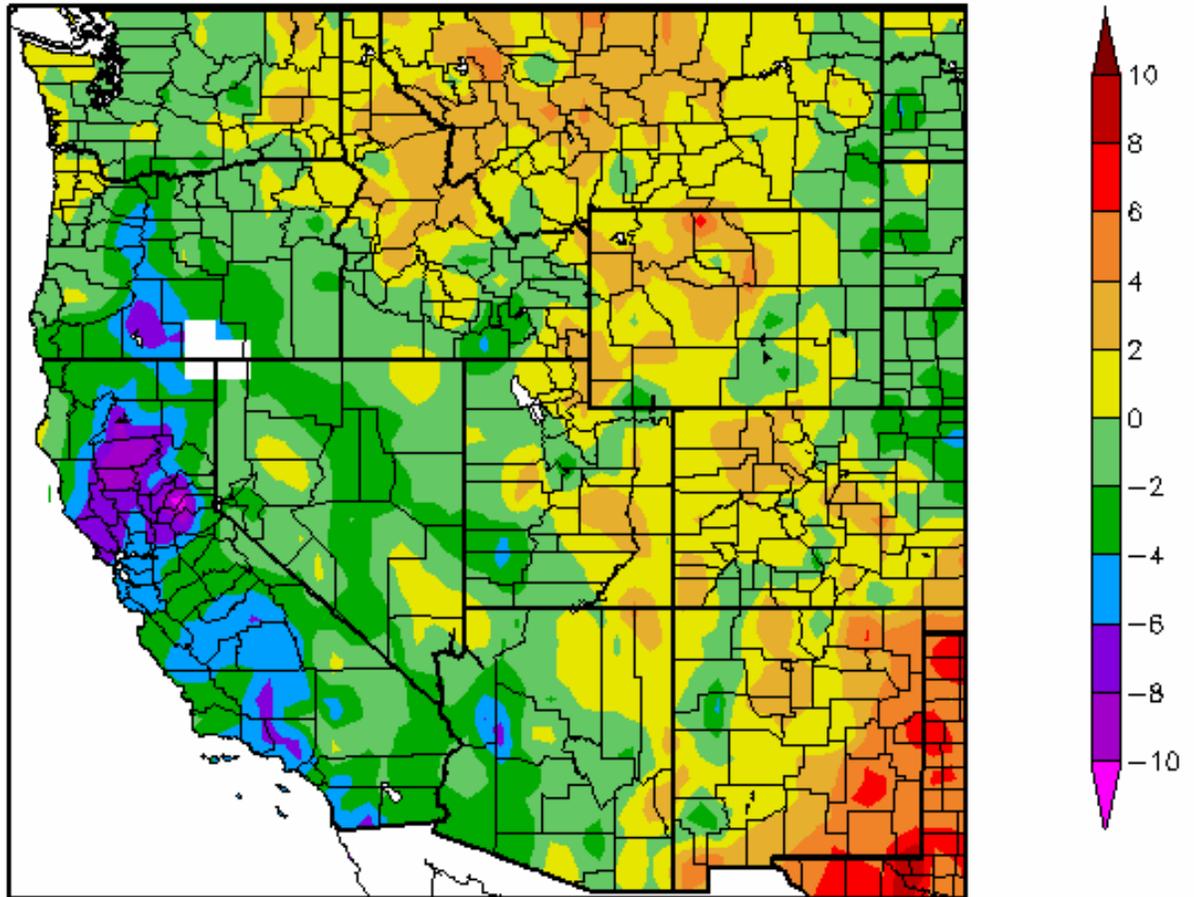


Fig. 1. SNOTEL 7-day average temperature anomaly.

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

Departure from Normal Temperature (F)  
10/11/2007 – 10/17/2007

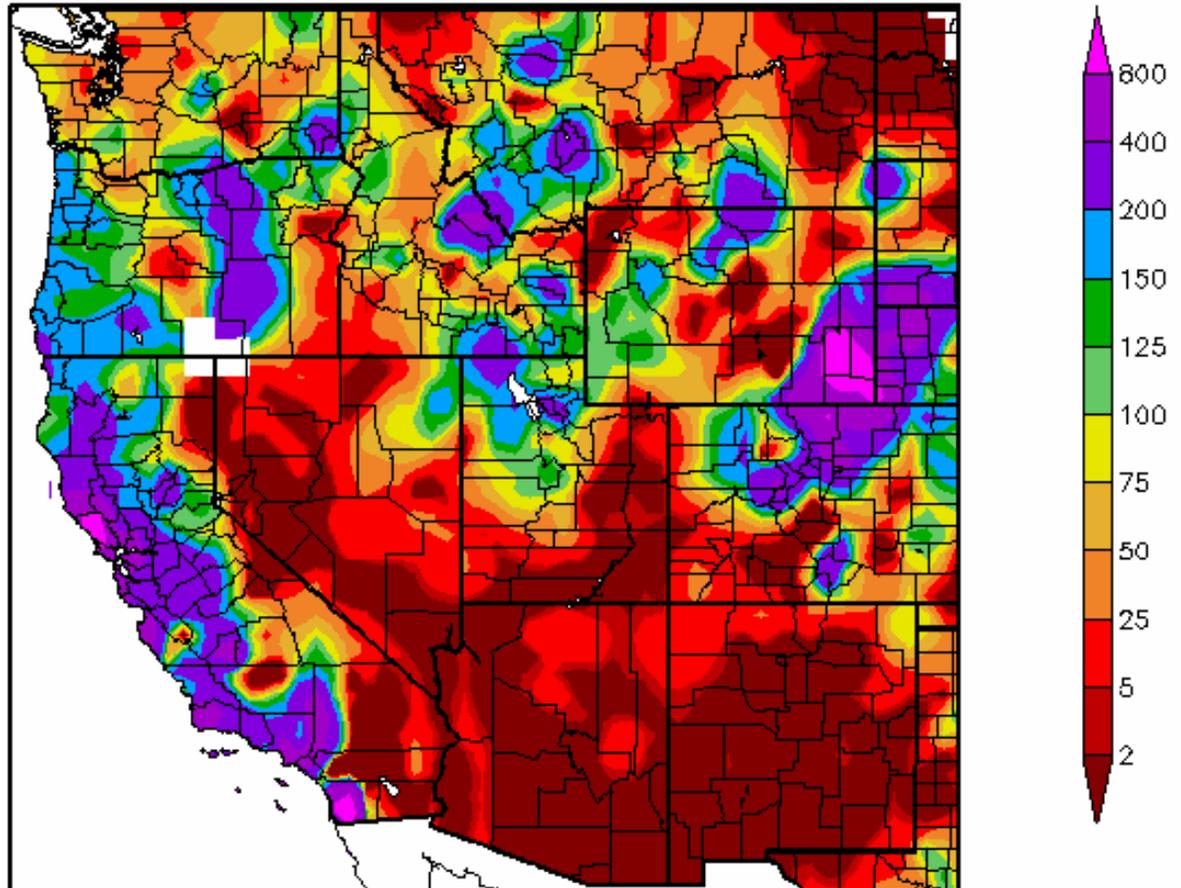


Generated 10/18/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 1a. October 11 - 17, 2007: Temperature departure from normal show warmer than normal temperatures over the Southern Plains and Rockies with coolest temperatures west of the Continental Divide. 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 (%)  
10/11/2007 – 10/17/2007



Generated 10/18/2007 at HPRCC using provisional data.

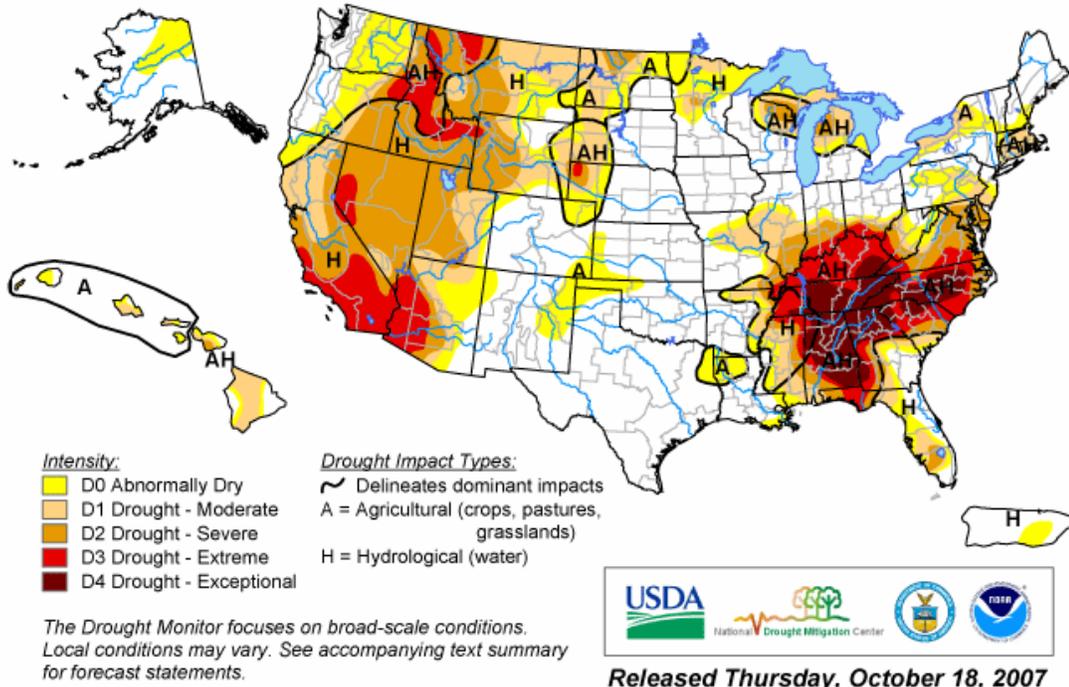
NOAA Regional Climate Centers

**Fig. 2. Preliminary precipitation totals for the 7-day period ending 17 October 2007 shows rain and snow falling across the Central High Plains, along the western regions of California and most of Oregon. Little precipitation occurred over the Great Basin and Southwest.**

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)

# U.S. Drought Monitor

October 16, 2007  
Valid 8 a.m. EDT



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

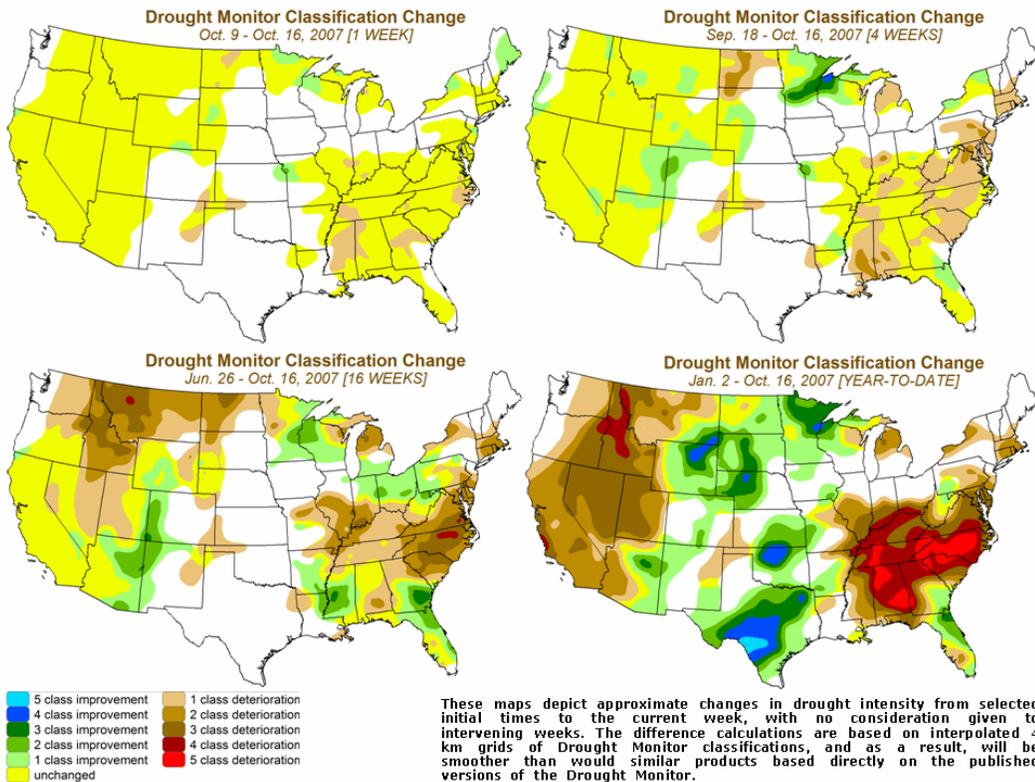


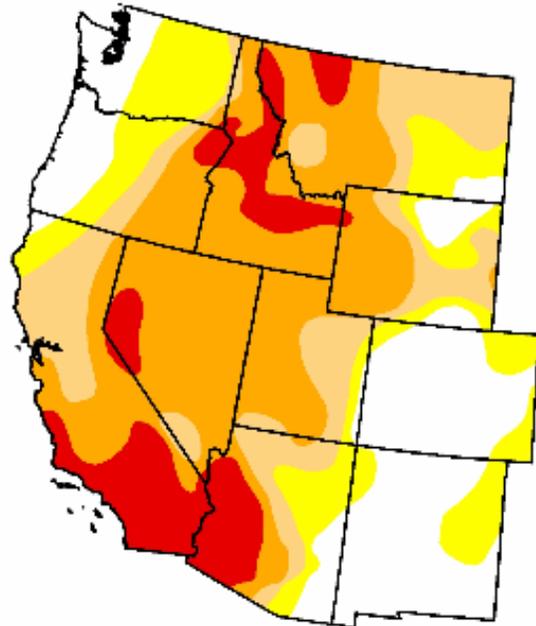
Fig. 3 and 3a. Current Drought Monitor weekly summary and classification changes over several time periods. Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor West

October 16, 2007  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

|   | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4  |
|---|------|-------|-------|-------|-------|-----|
| Current                                       | 23.2 | 76.8  | 60.9  | 44.2  | 12.1  | 0.0 |
| Last Week<br>(10/09/2007 map)                 | 23.6 | 76.4  | 60.9  | 44.3  | 12.1  | 0.0 |
| 3 Months Ago<br>(07/24/2007 map)              | 21.2 | 78.8  | 61.4  | 43.0  | 9.5   | 0.0 |
| Start of<br>Calendar Year<br>(01/02/2007 map) | 51.2 | 48.8  | 25.8  | 9.4   | 4.0   | 0.0 |
| Start of<br>Water Year<br>(10/02/2007 map)    | 22.0 | 78.0  | 62.3  | 44.7  | 12.4  | 0.0 |
| One Year Ago<br>(10/17/2006 map)              | 47.9 | 52.1  | 31.6  | 15.2  | 4.8   | 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, October 18, 2007**  
Author: Mark Svoboda, National Drought Mitigation Center

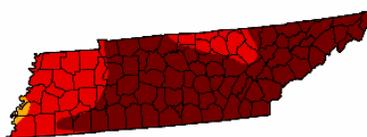
Fig. 3b. Drought Monitor for the Western States with statistics over various time periods. No significant change since last week's map. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor Tennessee

October 16, 2007  
Valid 7 a.m. EST

|   | Drought Conditions (Percent Area) |       |       |       |       |      |
|---|-----------------------------------|-------|-------|-------|-------|------|
|   | None                              | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
| Current                                       | 0.0                               | 100.0 | 100.0 | 100.0 | 99.0  | 70.5 |
| Last Week<br>(10/09/2007 map)                 | 0.0                               | 100.0 | 100.0 | 100.0 | 85.7  | 61.3 |
| 3 Months Ago<br>(07/24/2007 map)              | 0.0                               | 100.0 | 99.2  | 93.9  | 56.6  | 5.6  |
| Start of<br>Calendar Year<br>(01/02/2007 map) | 37.7                              | 62.3  | 0.0   | 0.0   | 0.0   | 0.0  |
| Start of<br>Water Year<br>(10/02/2007 map)    | 0.0                               | 100.0 | 100.0 | 100.0 | 85.7  | 61.3 |
| One Year Ago<br>(10/17/2006 map)              | 34.7                              | 65.3  | 0.0   | 0.0   | 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, October 18, 2007

Author: Mark Svoboda, National Drought Mitigation Center

## U.S. Drought Monitor Kentucky

October 16, 2007  
Valid 7 a.m. EST

|   | Drought Conditions (Percent Area) |       |       |       |       |      |
|---|-----------------------------------|-------|-------|-------|-------|------|
|   | None                              | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
| Current                                       | 0.0                               | 100.0 | 100.0 | 100.0 | 99.6  | 16.1 |
| Last Week<br>(10/09/2007 map)                 | 0.0                               | 100.0 | 100.0 | 100.0 | 99.5  | 14.7 |
| 3 Months Ago<br>(07/24/2007 map)              | 1.4                               | 98.6  | 82.3  | 55.9  | 3.7   | 0.0  |
| Start of<br>Calendar Year<br>(01/02/2007 map) | 51.5                              | 48.5  | 0.0   | 0.0   | 0.0   | 0.0  |
| Start of<br>Water Year<br>(10/02/2007 map)    | 0.0                               | 100.0 | 100.0 | 100.0 | 88.7  | 14.7 |
| One Year Ago<br>(10/17/2006 map)              | 100.0                             | 0.0   | 0.0   | 0.0   | 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>



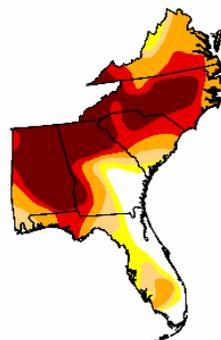
Released Thursday, October 18, 2007

Author: Mark Svoboda, National Drought Mitigation Center

## U.S. Drought Monitor Southeast

October 16, 2007  
Valid 7 a.m. EST

|   | Drought Conditions (Percent Area) |       |       |       |       |      |
|---|-----------------------------------|-------|-------|-------|-------|------|
|   | None                              | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
| Current                                       | 11.1                              | 88.9  | 81.1  | 71.3  | 51.2  | 32.6 |
| Last Week<br>(10/09/2007 map)                 | 12.8                              | 87.2  | 79.7  | 68.2  | 47.7  | 26.0 |
| 3 Months Ago<br>(07/24/2007 map)              | 2.5                               | 97.5  | 77.8  | 39.9  | 17.7  | 3.4  |
| Start of<br>Calendar Year<br>(01/02/2007 map) | 52.2                              | 47.8  | 10.2  | 1.5   | 0.0   | 0.0  |
| Start of<br>Water Year<br>(10/02/2007 map)    | 10.1                              | 89.9  | 77.9  | 63.8  | 45.2  | 24.0 |
| One Year Ago<br>(10/17/2006 map)              | 43.0                              | 57.0  | 35.6  | 0.0   | 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>



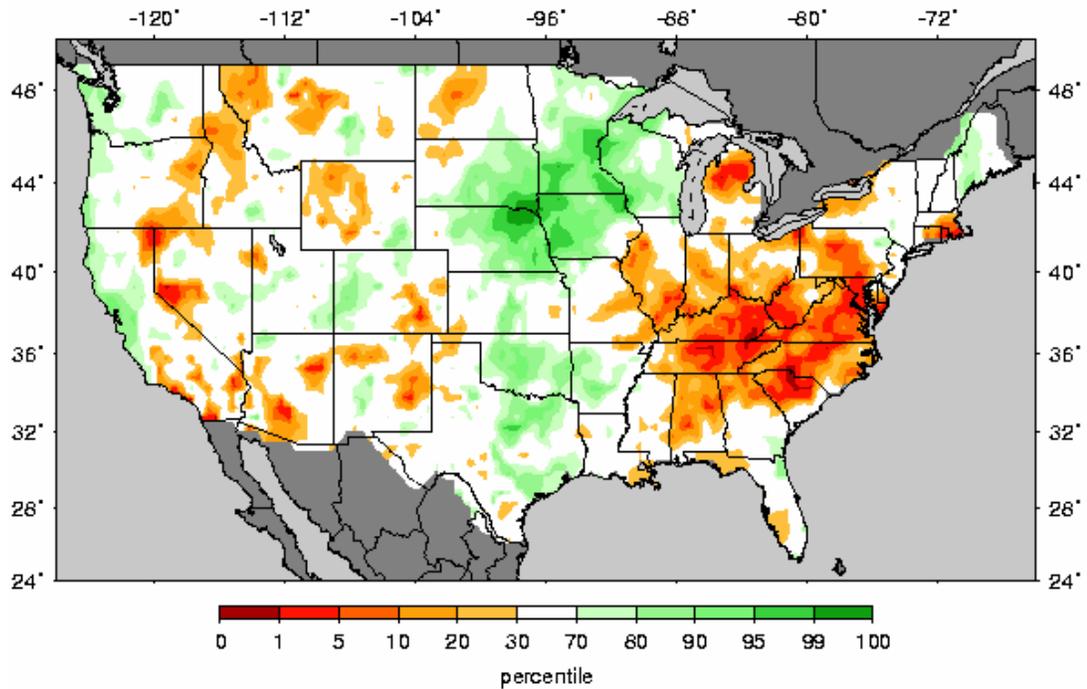
Released Thursday, October 18, 2007

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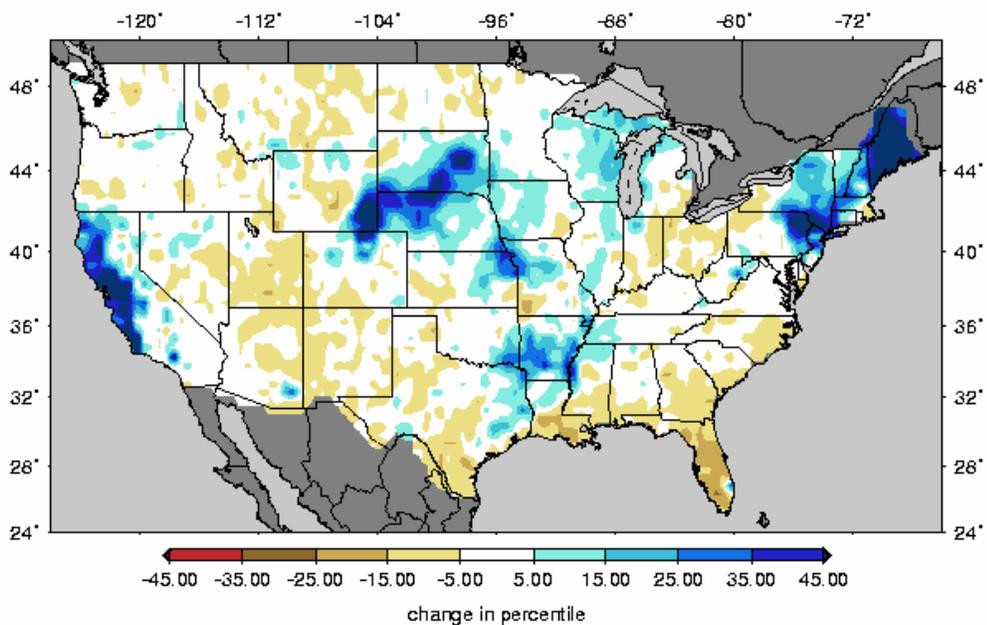
**Fig. 3c. Drought Monitor for Tennessee, Kentucky, and the Southeastern States with statistics over various time periods shows some of the severest drought conditions in the US.**

# Weekly Snowpack and Drought Monitor Update Report

Soil Moisture Percentiles (wrt/ 1915-2003)  
20071016



Change in Soil Moisture Percentiles (wrt/ 1915-2003)  
for the week 20071009 to 20071016



**Figs. 4 and 4a: Soil Moisture Ranking Percentile based on 1915-2003 climatology. Note major improvement over much of California and the Central High Plains**

Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_gnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_gnt.gif) and [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_gnt.1wk.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_gnt.1wk.gif).

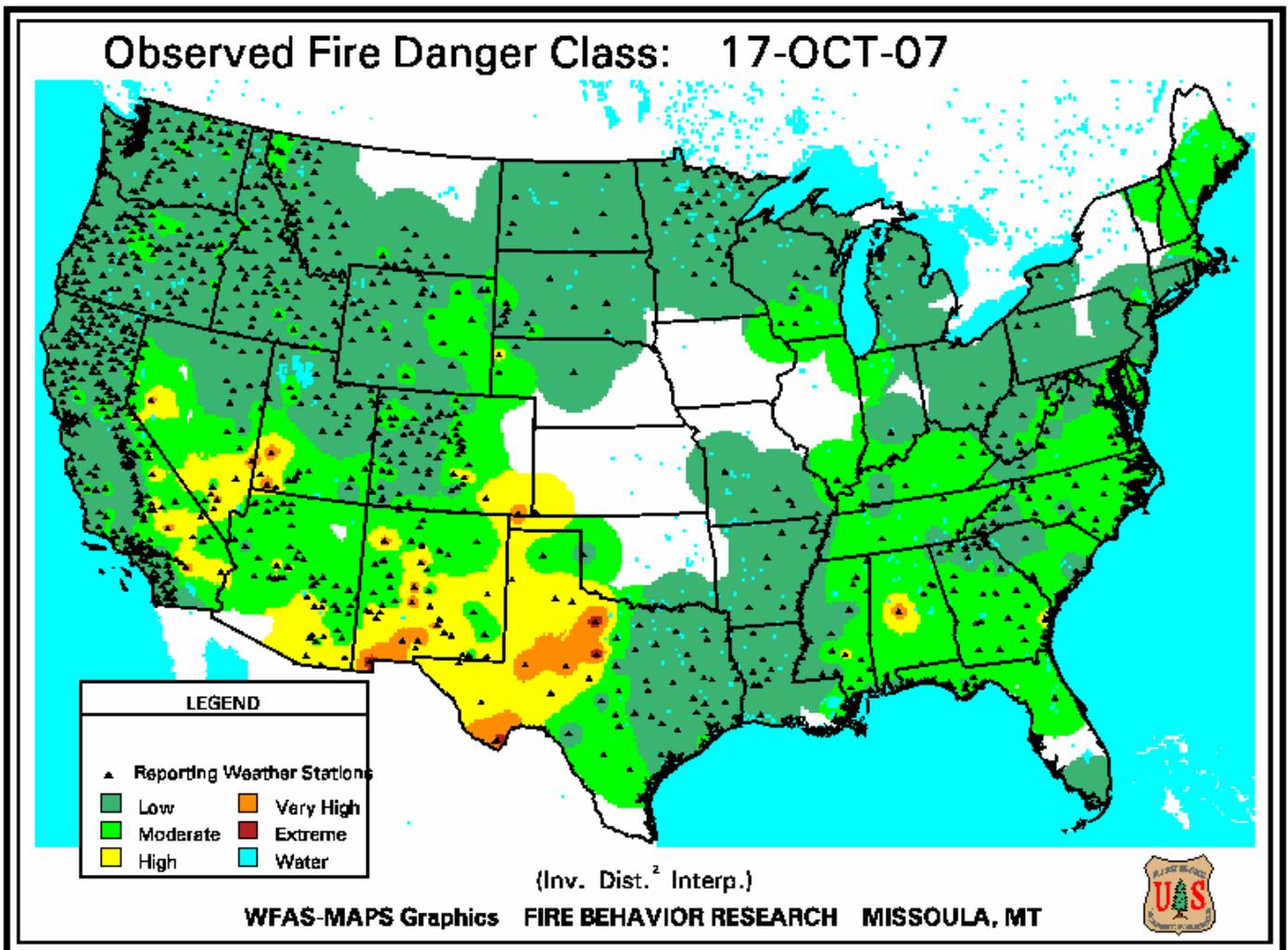


Fig. 5. Observed Fire Danger Class. Conditions have greatly improved over the Great Basin and some worsening over New Mexico since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

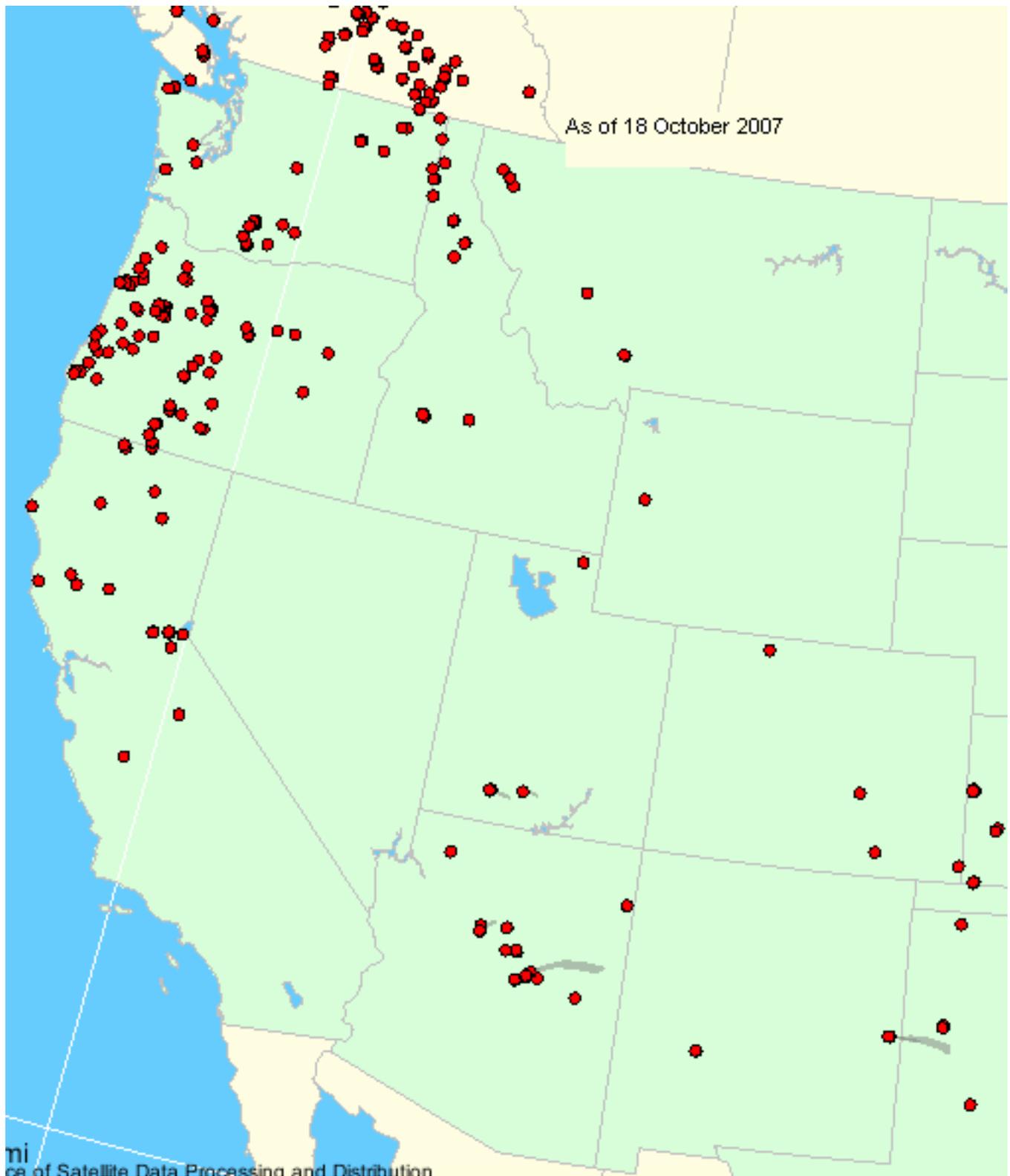


Fig. 5a. Location of active wildfires as detected from satellite across the West as of 18 October 2007. Gray areas depict smoke and blue areas depict fire potential. Ref: <http://www.firedetect.noaa.gov/viewer.htm>

Weekly Snowpack and Drought Monitor Update Report

Hednesday, October 17, 2007

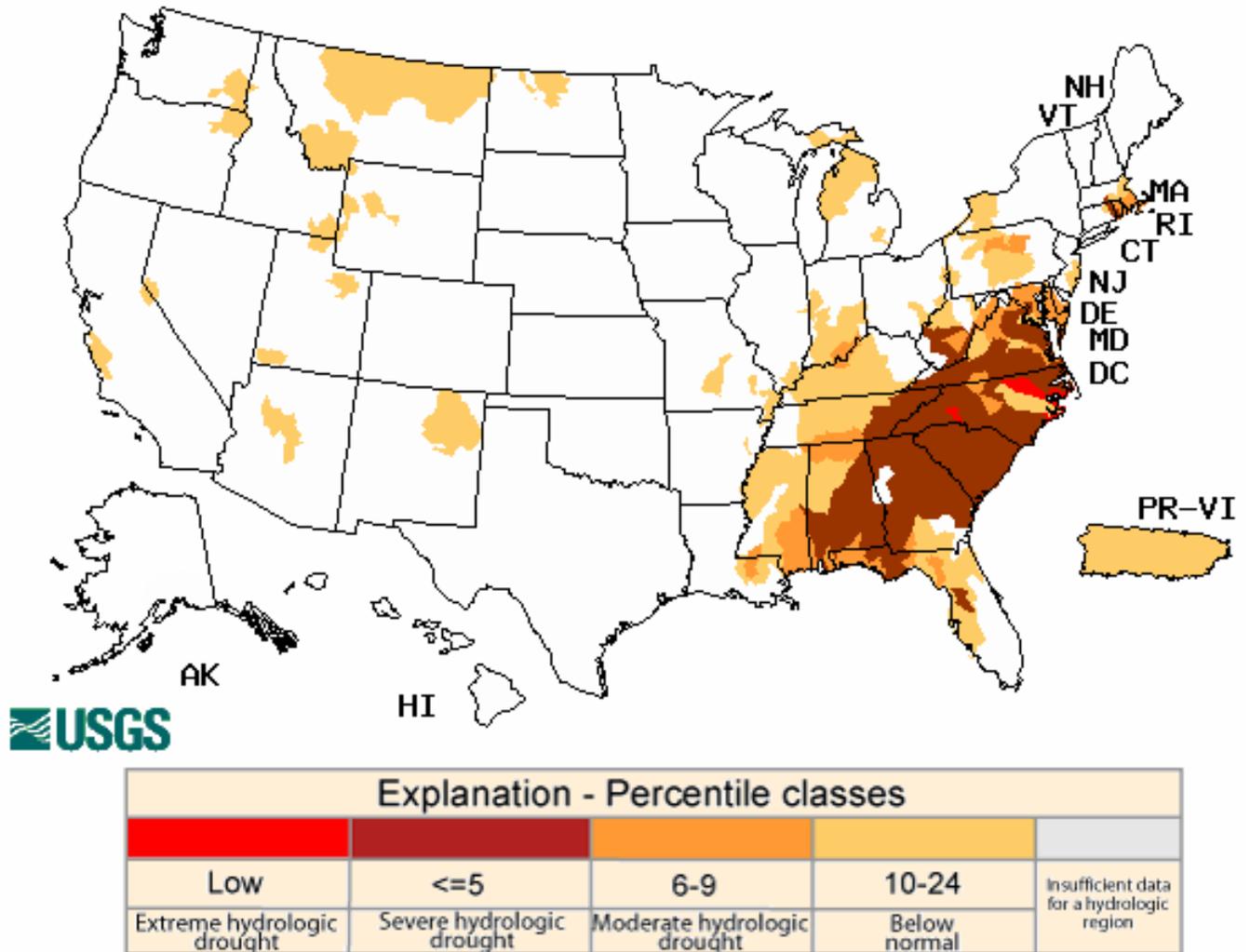
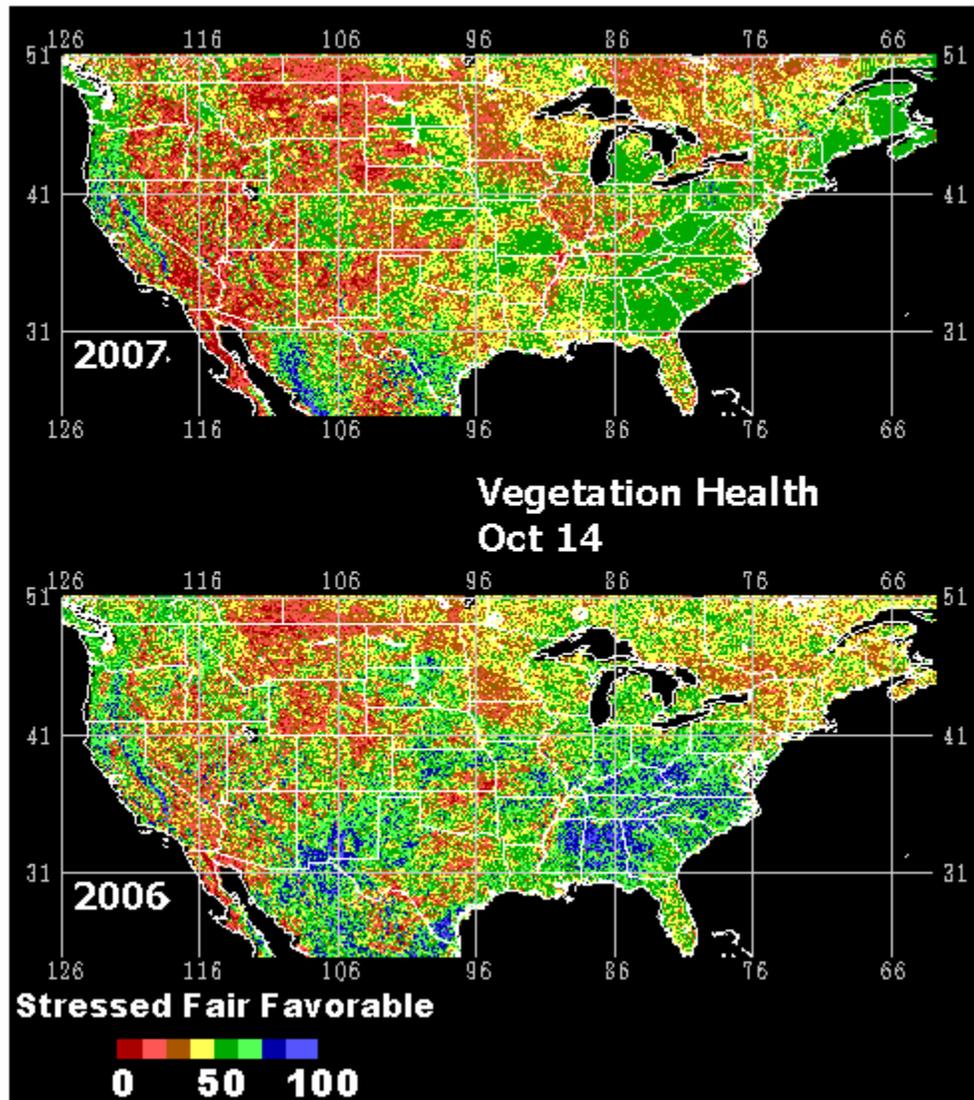


Fig. 6. This week's map shows near normal stream flows over the West but severe to extreme conditions over much of the over Southeastern and Mid-Atlantic States this week.

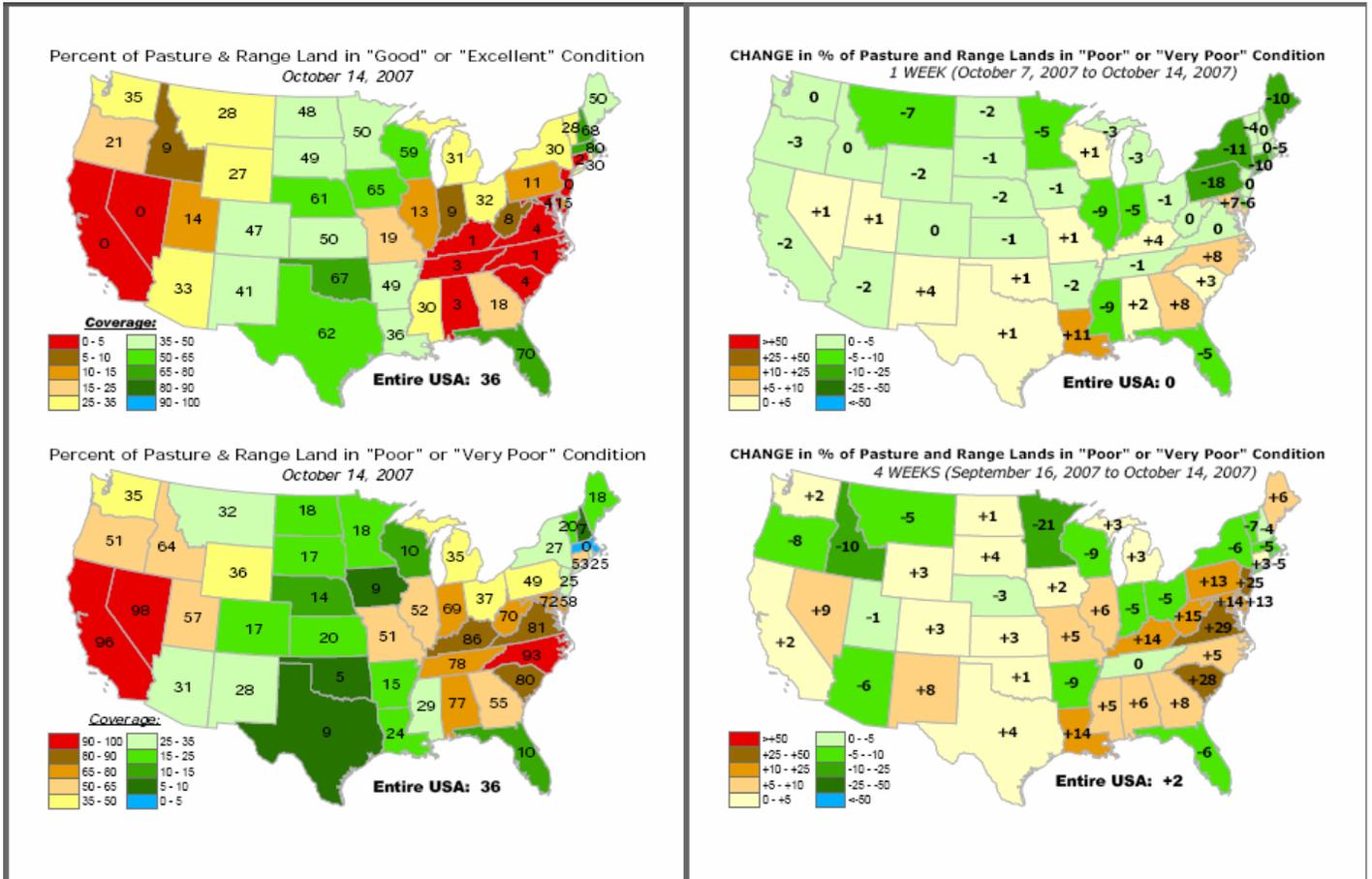
Ref: USGS <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>

**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. Note worse conditions over the Interior West (especially over the Southwestern States) as compared to last October. Note: except for irrigated land, plants in the northern regions tend to show die-off as first freeze occurs. 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 time periods are shown above. The worst conditions exist over California, Idaho, and Nevada (left panels). During the past week, Montana showed the greatest improved conditions (top right panel) and during the past four weeks Oregon, Idaho, and Arizona shows the greatest improvements while Nevada and New Mexico showed the greatest deteriorated lands (bottom right panel) over the West. 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 -- October 16, 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 West:** Much of the west coast and Intermountain West saw a cool down last week. Rains weren't as widespread, however, with the only significant precipitation (1-2 inches) occurring in the northern coastal reaches of California and extreme southwest Oregon along with north central Colorado and extreme southeastern Wyoming. These short-term rains and longer-term wetness led to a reduction of abnormally dry (D0) in both areas. For now, conditions remain unchanged elsewhere in the West as the new water year is just getting started.

**The Plains:** Temperatures were cooler across the northern Plains while the southern Plains were above normal for the week. Just like last week, good rains accompanied the cooler temps via a nice slow-moving storm system in the north, with the heavy rains leading to an eastward push of the D0 and D1 in eastern Kansas and west central Missouri as both short- and long-term periods are now in the normal range for most locations in these areas. In the south, the heat and dryness has led to a slight expansion of D0 in southeastern Colorado, southwestern Kansas, northeastern New Mexico, and the Oklahoma Panhandle. Deficits over the past 90 days are beginning to show signs of stress in soil moisture heading into the winter recharge period. Farther north in the Dakotas it is more of a mixed bag with North Dakota remaining much drier than their neighbors to the south. A slight increase in D1 and D2 is noted this week in North Dakota in particular as dryness over the past 90 days is keeping the attention of producers heading into winter. The persistent dryness across much of the winter wheat belt is something to keep an eye on as we move forward this year and into next. In South Dakota, things have been a bit better. Rains of the past week coupled with those of the past 2 to 3 months have led to a bit of erosion of the D0, D1 and D2 in the southwestern part of the state. In fact, most of the severe (D2) drought has been pushed south into the Nebraska Panhandle.

**The Upper Mississippi Valley and western Great Lakes Region:** Both of these regions enjoyed more seasonably cooler weather, although it wasn't all that wet. However, the benefits of the past 30-90 days are beginning to emerge and this has led to the removal of all D2 from Minnesota along with the removal of D1 in the Lake Superior shores north of Duluth. In addition, both D0 and D1 have been reduced along the Minnesota/Wisconsin state line and over into northwest Wisconsin. Normal or above-normal totals exist now all the way out to year-to-date. Good rains were seen in the western reaches of Michigan's Upper Peninsula and a slight reduction of D0 is noted on the map in the Keweenaw Peninsula and Huron Mountain regions. As noted periodically in our report, the Great Lakes themselves are quite low and will remain so until such time as a wetter pattern is established over the region.

**The Southeast, Mid-Atlantic, and Ohio and lower Missouri valleys:** In general, another week of warm, dry weather dominated this part of the country. Isolated storms brought relief to a relative few areas, and none were enough to improve on the situation. Many locations continue to build up their year-to-date deficits in what is turning out to be one of the driest years on record in many locales. As a result, only expansion of drought is reflected on this week's map, with D1-D4 expanding to the west, north and east. The areas of most notable expansion include

## Weekly Snowpack and Drought Monitor Update Report

Mississippi, Alabama, Georgia, and North Carolina, with more subtle deterioration noted in Tennessee and Virginia. In North Carolina, the governor has issued a statewide ban on burning and has asked citizens there to stop non-essential water use as several communities have only a few months of water supply remaining. This is also the case in some locales in northern Georgia, where the governor has also pleaded with citizens to voluntarily find other ways to conserve water besides the usual outdoor watering restrictions in place.

**The Northeast:** The Northeast went through another unseasonably warm week that was generally accompanied by plentiful rains in several places. Parts of northern New York, northeast Pennsylvania, northern New Jersey, western Massachusetts, and Connecticut, along with most of Maine, saw anywhere from 1-4 inches on the week. In general, a one-category improvement was incorporated on the map this week with a removal of D2 and reduction of D1 in northern New York and removal of most of the D0 found in Maine. The D0-D1 was also trimmed in northeastern Pennsylvania, western Massachusetts, western Connecticut, and northern New Jersey. The only expansion this week was found in western New York, where the rains missed, leading to a creeping westward of D0 and D1 along Lake Ontario's shores onto the shores of Lake Erie in extreme northwestern Pennsylvania.

**Alaska, Hawaii, and Puerto Rico:** Slow but steady improvement continues across Hawaii this week as the trade wind showers have led to reductions of D0 on the windward sides of Maui, Molokai, and Oahu. No changes were made this week in Alaska or Puerto Rico. Little or no rain fell in the D0 area in Alaska and most of the beneficial rains in Puerto Rico were just off to the east.

**Looking Ahead:** During the next 5 days (October 18-22), a continuation of very unseasonably warm (6-12 degrees above normal) temperatures is expected across the eastern half of the country with the warmest readings most likely occurring in the Northeast and Mid-Atlantic regions. Rainfall during this period looks good for the Pacific Northwest, Intermountain West, and northern Rockies. In addition, the upper Midwest, central Plains, New England states, and the Southeast in general could see some much-needed rains.

The 6-10 day outlook (October 23-27) is calling for a bit of a change in the current pattern, with likely ridging in the West leading to above-normal temperatures and below-normal precipitation across much of the West and northern Plains. The good news is that cooler weather is expected over the southern Plains, the South, Southeast, Midwest, and Mid-Atlantic. Wetter-than-normal conditions are more likely across the South, Southeast, and New England states.

In addition, the continued strengthening of La Niña conditions in the equatorial Pacific doesn't bode well for the extreme drought in the Southeast as warmer and drier winters across the southern tier states are typically expected with this cool water phase.

**Author:** [Mark Svoboda, 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.

### Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

## Weekly Snowpack and Drought Monitor Update Report

D4 ... Exceptional Drought

### **Drought or Dryness Types**

A ... Agricultural

H ... Hydrological

Updated October 17, 2007