



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: October 25, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** Although very early into this year's snowfall season, several higher locations in the Northern Cascades, and Northern and Central Rockies received some snowfall during the week although much melted by the end of this report period (Fig 1).

**Temperature:** During the past seven days, mountain SNOTEL sites were up to 5 degrees above normal over the Northern Cascades and Northern Rockies while parts of the Central Rockies were up to 10 degrees below normal (Fig.2). At lower elevation weather stations, a similar temperature pattern was observed (Fig. 2a).

**Precipitation:** For the past week, rain and snow exceeded two to four times the normal weekly total amounts from the Pacific Northwest to the Central and Northern Rockies. No precipitation fell over southern California, Arizona, New Mexico, and most of Montana (Fig. 3).

## **WESTERN DROUGHT STATUS**

**The West:** The big story, of course, is the catastrophic fires burning in southern California this past week. Extreme drought conditions over the past 1 to 2 years have played a large role in setting the stage for what we are seeing there now. To the north, good rains again fell across the coastal ranges from northwest California all the way up to the Olympic Peninsula. This continues the trend of slow recovery, with D0/D1 being pushed south and east. The rains and snows weren't limited to just the coastal areas, though, as precipitation (2-4+ inches) was a welcomed sight on the leeward side of the Cascade Range, leading to some improvement of D0, D1, and D2 conditions there. In Idaho and northeast Oregon, the good start to the water year has also led to some removal of the D3 in the central basins of the state, but longer-term water issues still leave virtually all of Idaho in severe drought (D2) at this time and D3 remains in eastern basins within the state. In Montana, rains during the past two months have provided some relief with a reduction of D2 along and east of the northern Rocky Mountains in the west and with a removal of most of the D1 in the eastern part of the state. The AH impact line in the Pacific Northwest has also been removed leaving an H designation behind as winter approaches. **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.4, 4a, 4b, and 4c).

## Weekly Snowpack and Drought Monitor Update Report

### SOIL MOISTURE

Soil moisture (Fig.5), 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. 6and 6a shows the current active wildfires across the West - <http://geomac.usgs.gov/>.

### U.S. HISTORICAL STREAMFLOW

This map, (Fig. 7) 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. 8) 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>.

### 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

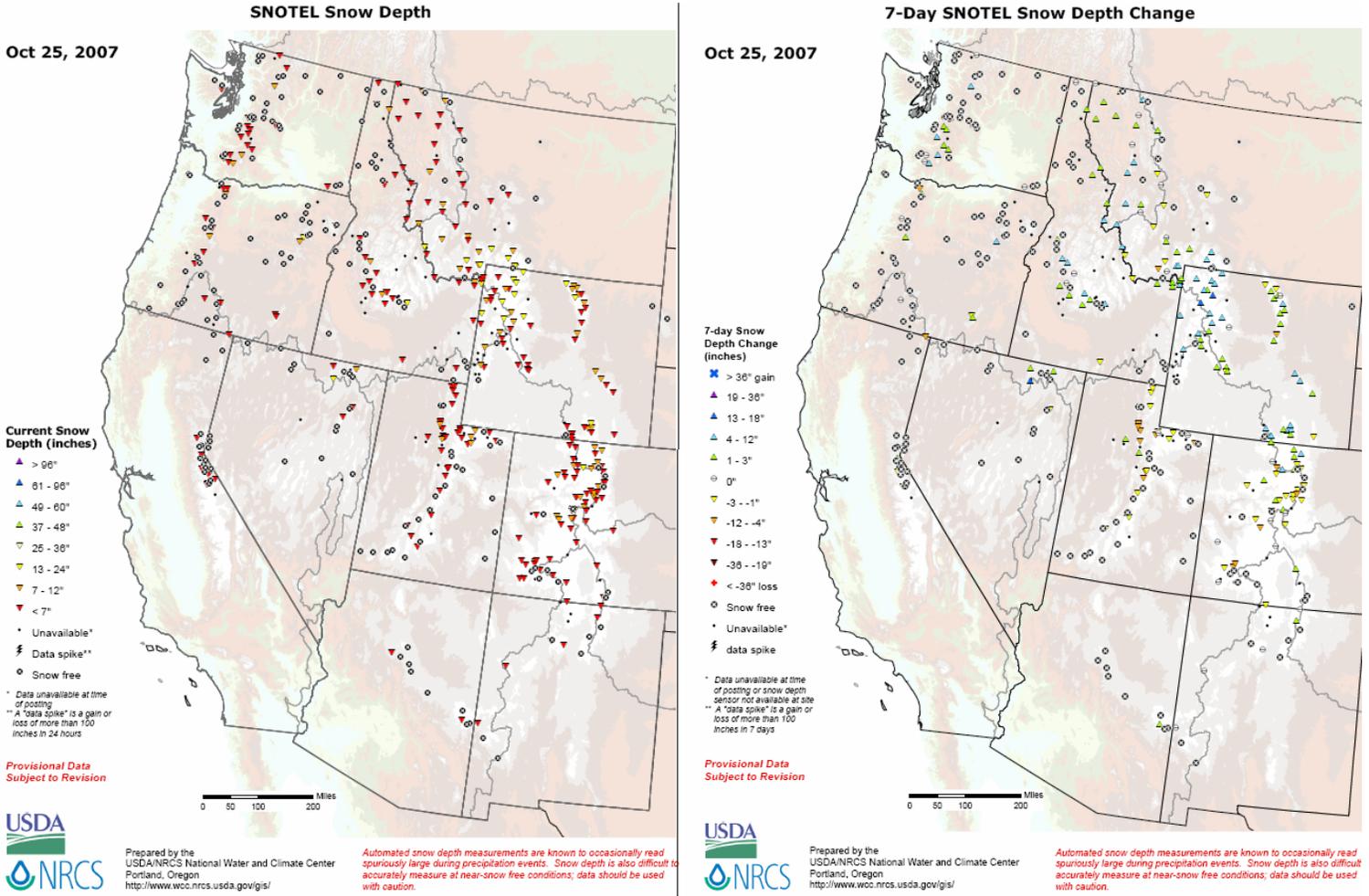
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage -

<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

# Weekly Snowpack and Drought Monitor Update Report



**Fig 1. Very early season snow depth and 7-day snow depth change across the western SNOTEL network.**

# Weekly Snowpack and Drought Monitor Update Report

Oct 25, 2007

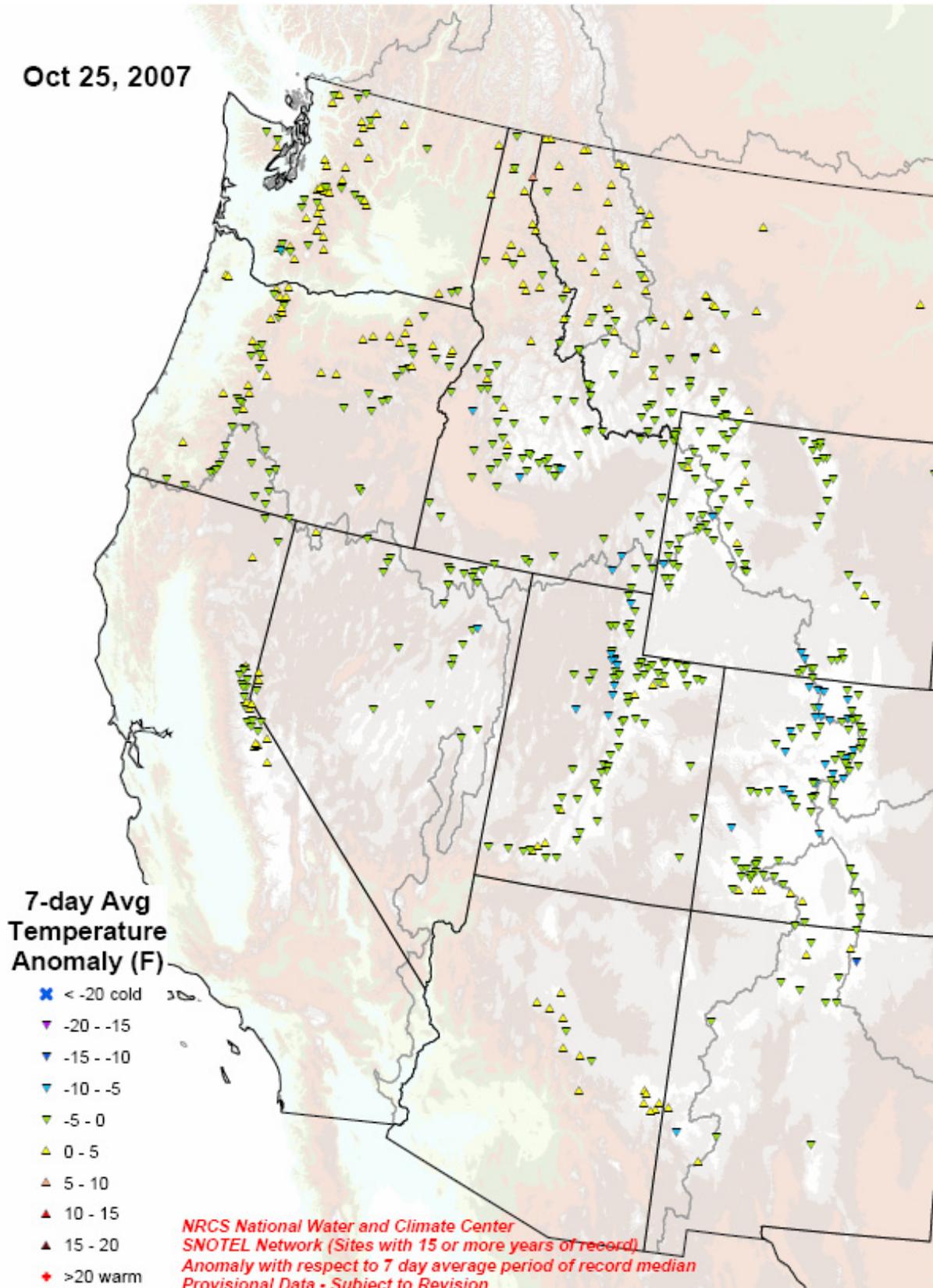
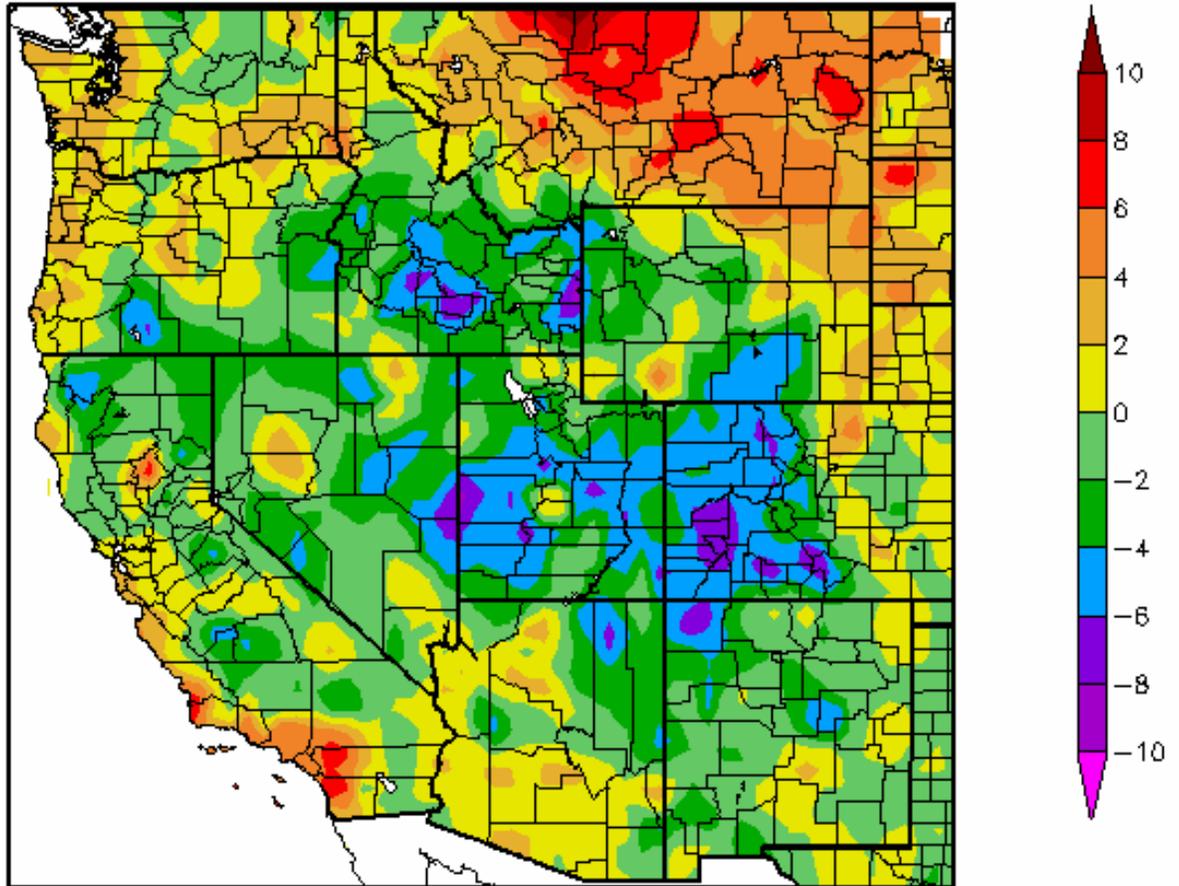


Fig.2. SNOTEL 7-day average temperature anomaly.

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

Departure from Normal Temperature (F)  
10/18/2007 - 10/24/2007



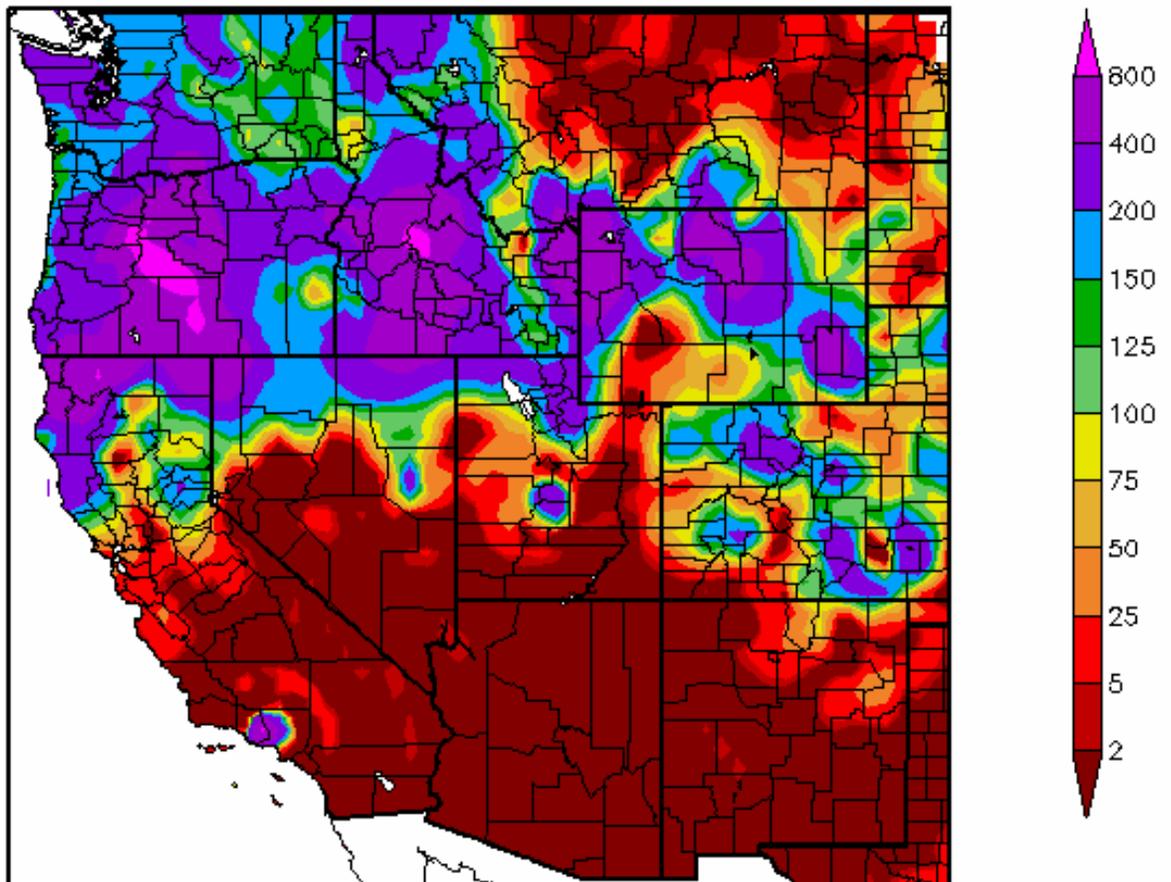
Generated 10/25/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 2a.** During the week of October 18 - 24, 2007, temperature departure from normal show warmer than normal temperatures over the Northern High Plains with coolest temperatures over Colorado, Utah, and Idaho.

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 (%)  
10/18/2007 – 10/24/2007



Generated 10/25/2007 at HPRCC using provisional data.

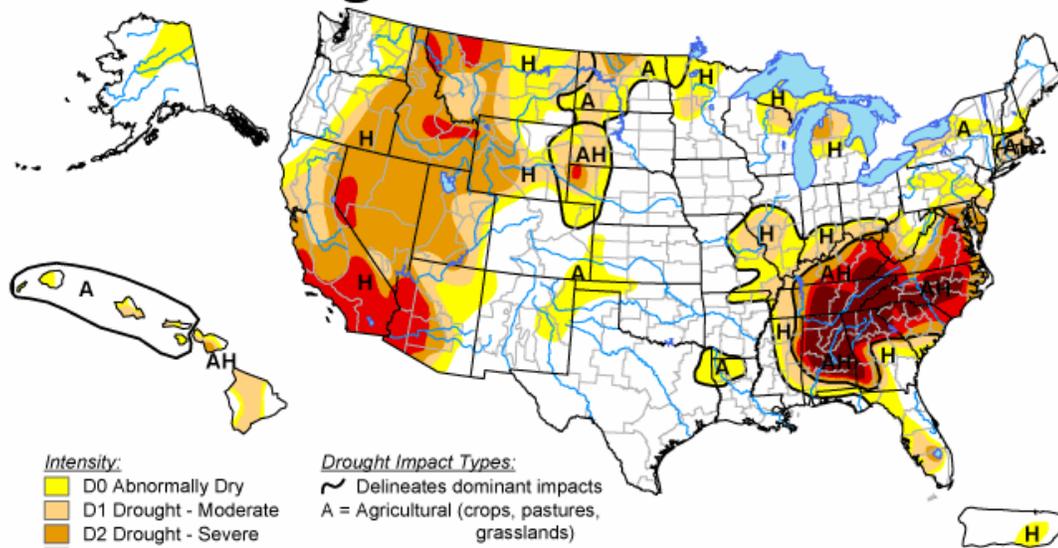
NOAA Regional Climate Centers

**Fig. 3. Preliminary precipitation totals for the 7-day period ending 24 October 2007 shows rain and snow falling across the northern half of the Western high country. Little precipitation fell over the southern Great Basin, southern California, Arizona, New Mexico, and most of Montana.**

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 23, 2007  
Valid 8 a.m. EDT



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



Released Thursday, October 25, 2007

Author: Mark Svoboda, National Drought Mitigation Center

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

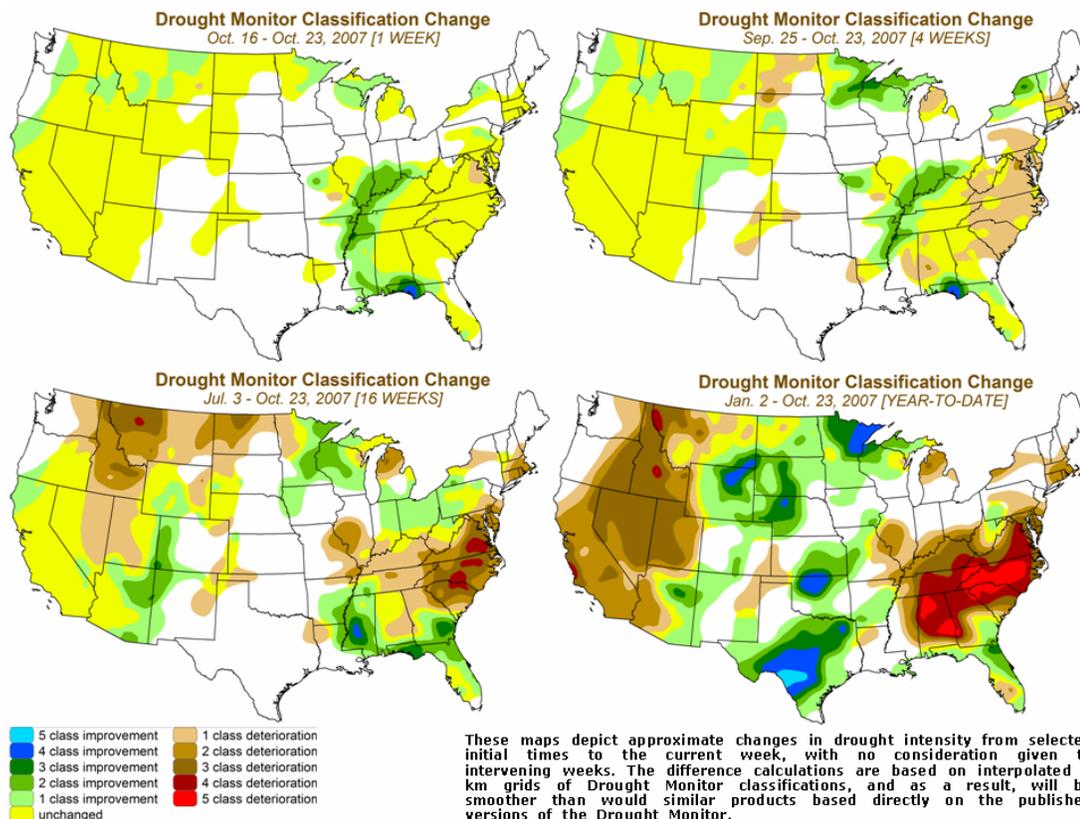


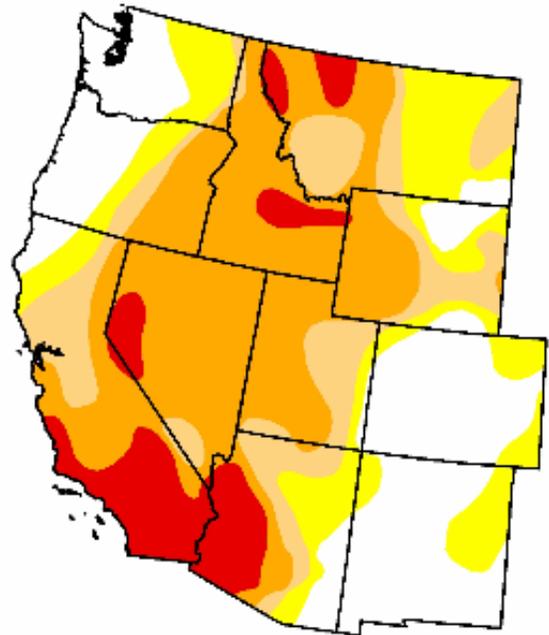
Fig. 4 and 4a. Current Drought Monitor weekly summary and classification changes over several time periods. Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor West

October 23, 2007  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	26.0	74.0	57.7	42.6	10.1	0.0
Last Week (10/16/2007 map)	23.2	76.8	60.9	44.2	12.1	0.0
3 Months Ago (07/31/2007 map)	21.1	78.9	63.2	47.9	9.5	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 (10/02/2007 map)	22.0	78.0	62.3	44.7	12.4	0.0
One Year Ago (10/24/2006 map)	47.9	52.1	30.2	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*



**Released Thursday, October 25, 2007**

*Author: Mark Svoboda, National Drought Mitigation Center*

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

**Fig. 4b. Drought Monitor for the Western States with statistics over various time periods. Note slight improvement since last week's map. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)**

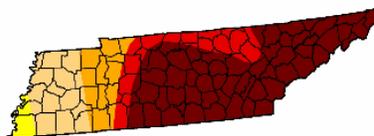
# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor Tennessee

October 23, 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	97.5	81.2	69.4	56.1
Last Week (10/16/2007 map)	0.0	100.0	100.0	100.0	99.0	70.5
3 Months Ago (07/31/2007 map)	0.0	100.0	100.0	96.4	65.0	5.9
Start of Calendar Year (01/02/2007 map)	37.7	62.3	0.0	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
One Year Ago (10/24/2006 map)	35.1	64.9	0.0	0.0	0.0	0.0



**Intensity:**

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

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



Released Thursday, October 25, 2007

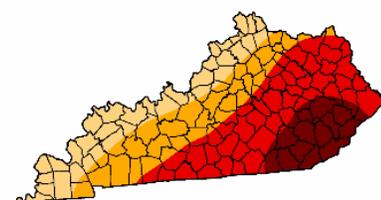
Author: Mark Svoboda, National Drought Mitigation Center

## U.S. Drought Monitor Kentucky

October 23, 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	76.0	50.1	14.2
Last Week (10/16/2007 map)	0.0	100.0	100.0	100.0	99.6	16.1
3 Months Ago (07/31/2007 map)	0.0	100.0	99.3	45.5	0.0	0.0
Start of Calendar Year (01/02/2007 map)	51.5	48.5	0.0	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	0.0	100.0	100.0	100.0	88.7	14.7
One Year Ago (10/24/2006 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 25, 2007

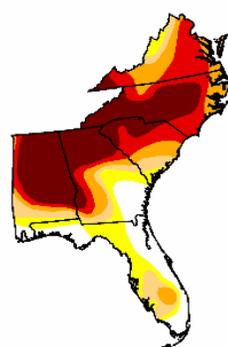
Author: Mark Svoboda, National Drought Mitigation Center

## U.S. Drought Monitor Southeast

October 23, 2007  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	13.6	86.4	73.6	64.3	50.0	31.4
Last Week (10/16/2007 map)	11.1	88.9	81.1	71.3	51.2	32.6
3 Months Ago (07/31/2007 map)	2.5	97.5	80.4	43.3	21.8	6.0
Start of Calendar Year (01/02/2007 map)	52.2	47.8	10.2	1.5	0.0	0.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (10/24/2006 map)	44.3	55.8	28.2	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>

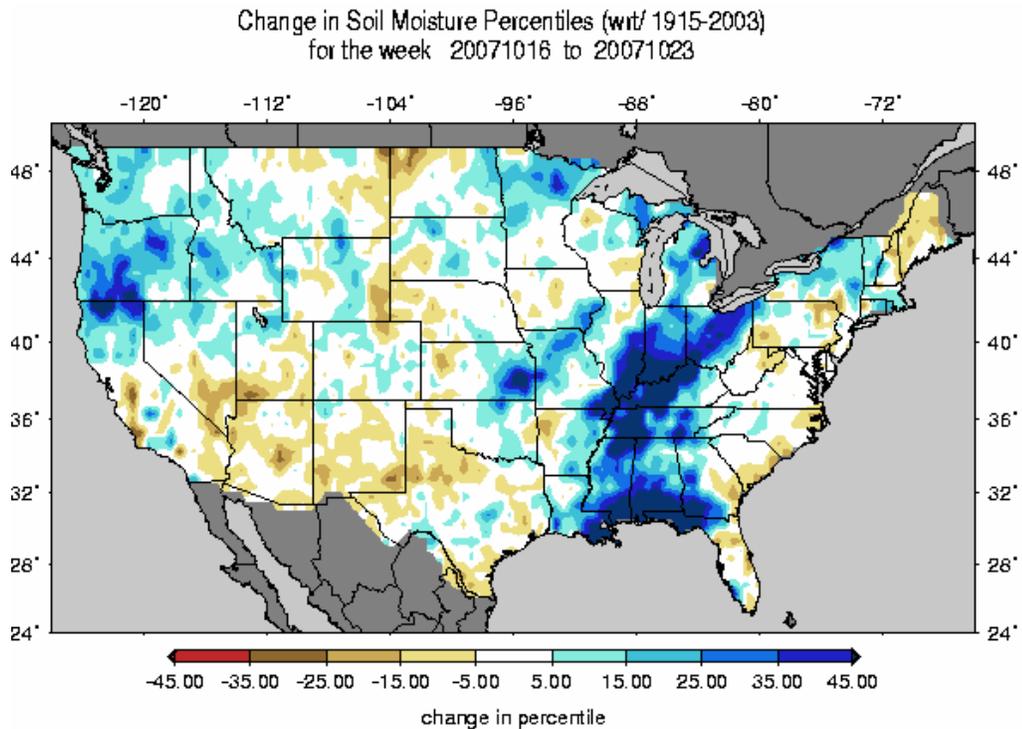
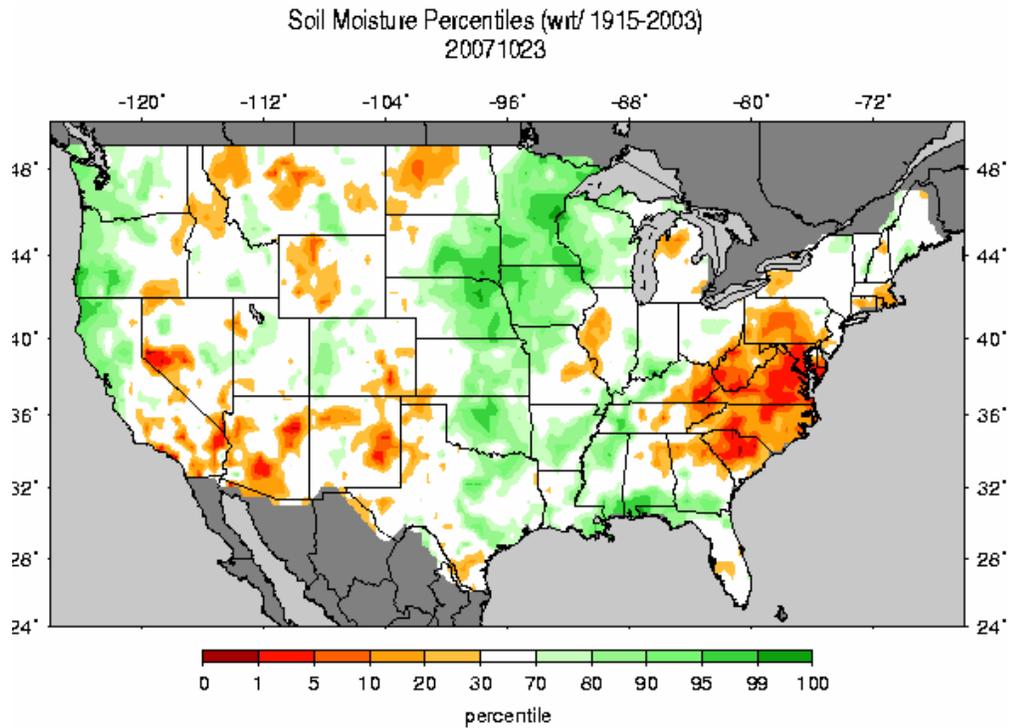


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Author: Mark Svoboda, National Drought Mitigation Center

**Fig. 4c. 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. Note some improvement in D4 for Tennessee during the past week.**

# Weekly Snowpack and Drought Monitor Update Report



**Figs. 5 and 5a: Soil Moisture Ranking Percentile based on 1915-2003 climatology. Note major improvement over much of the Pacific Northwest, Ohio Valley, and Southern Gulf States. 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) and [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.1wk.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.1wk.gif).**

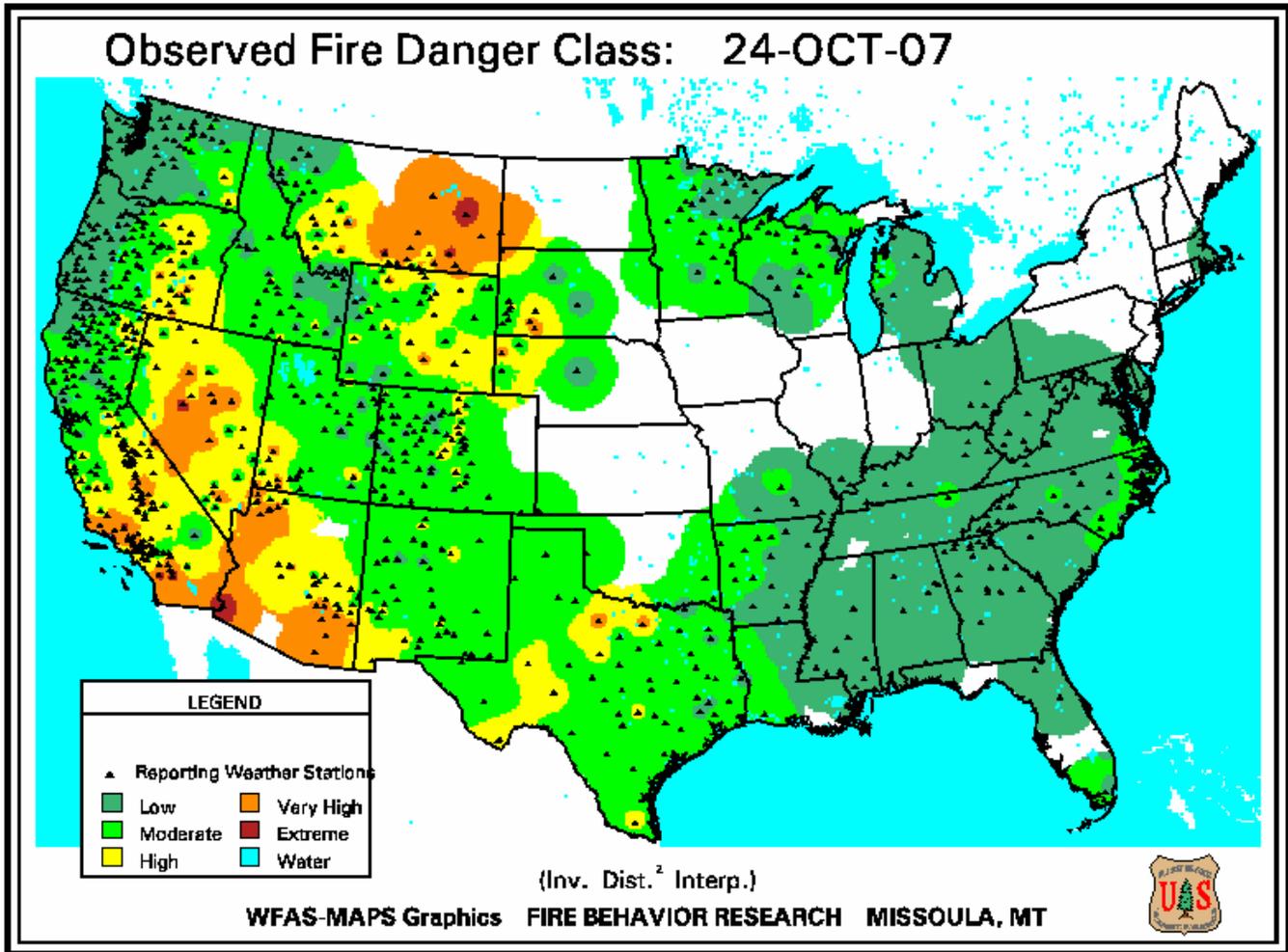


Fig.6. Observed Fire Danger Class. Conditions have greatly deteriorated over southern California and Montana prairies since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

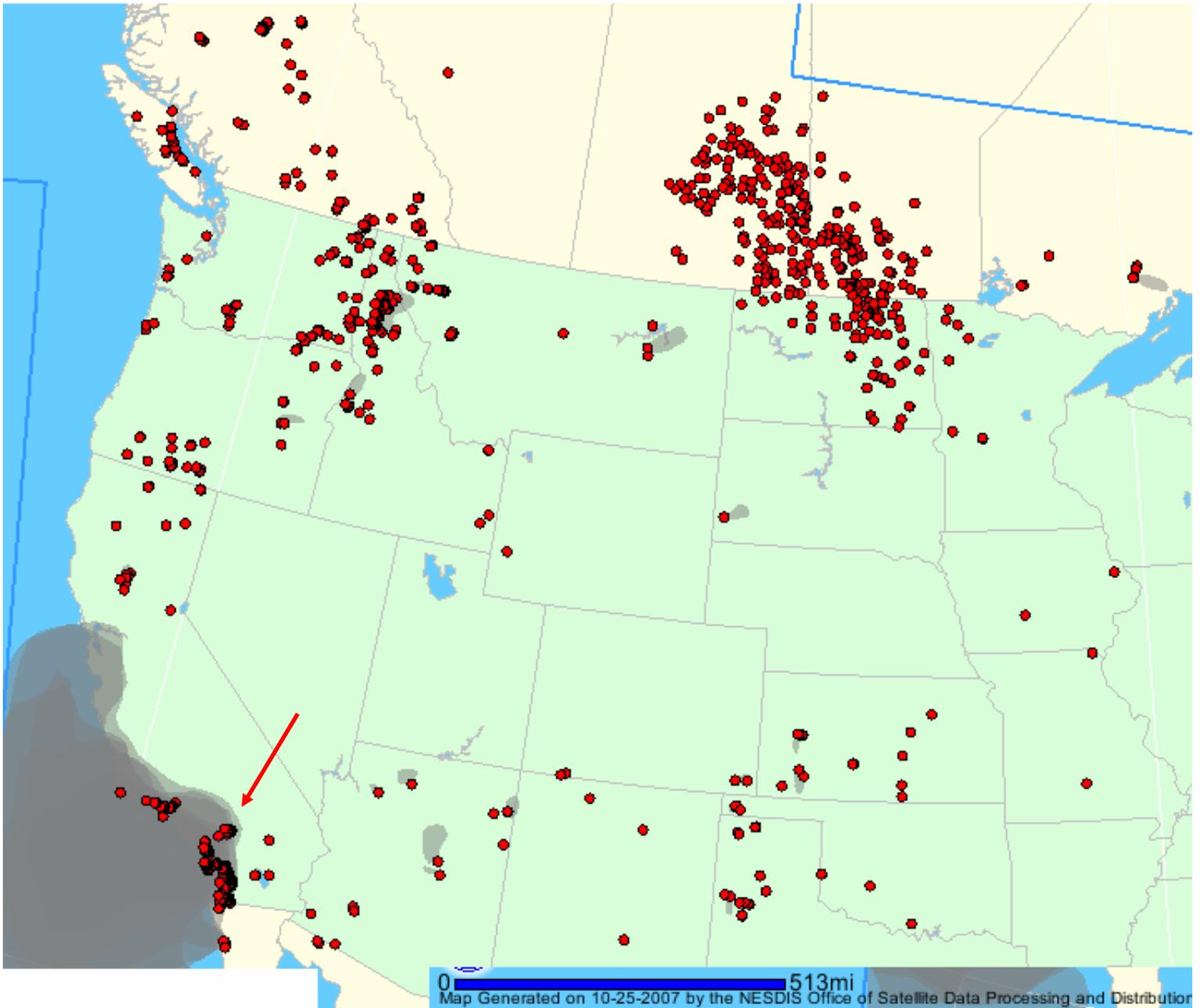


Fig. 6a. Location of active wildfires as detected from satellite across the West as of 25 October 2007. Gray areas depict smoke and blue areas depict fire potential. Note southern California fire complex and offshore smoke. Ref: <http://www.firedetect.noaa.gov/viewer.htm>

Weekly Snowpack and Drought Monitor Update Report

Wednesday, October 24, 2007

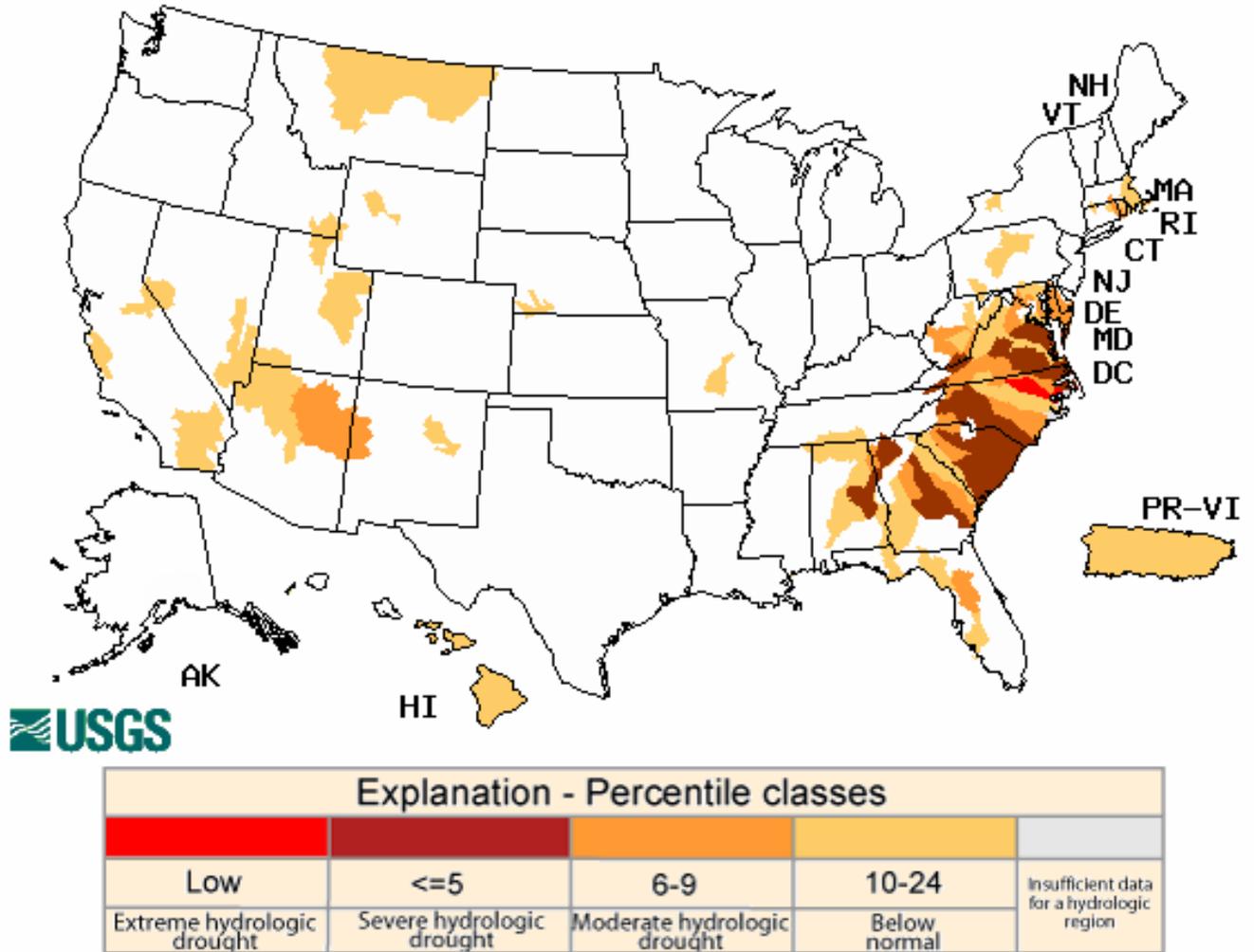
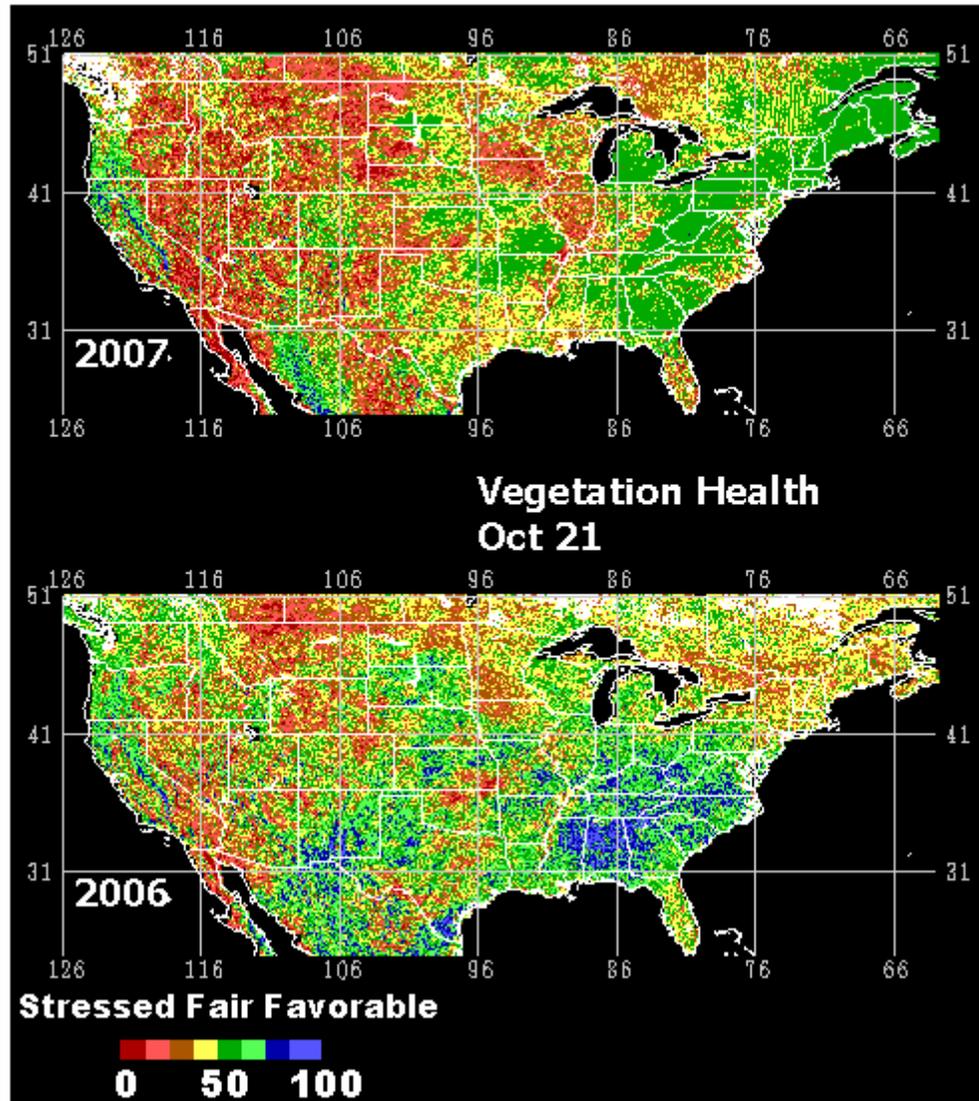


Fig. 7. This week's map shows near normal stream flows over much the West but severe to extreme conditions over the Southeastern and Mid-Atlantic States. This week's heavy precipitation over the Southeast has helped reduce the hydrologic drought somewhat.

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. 8:** 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

### National Drought Summary -- October 23, 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:** The big story, of course, is the catastrophic fires burning in southern California this past week. Extreme drought conditions over the past 1 to 2 years have played a large role in setting the stage for what we are seeing there now. To the north, good rains again fell across the coastal ranges from northwest California all the way up to the Olympic Peninsula. This continues the trend of slow recovery, with D0/D1 being pushed south and east. The rains and snows weren't limited to just the coastal areas, though, as precipitation (2-4+ inches) was a welcomed sight on the leeward side of the Cascade Range, leading to some improvement of D0, D1, and D2 conditions there. In Idaho and northeast Oregon, the good start to the water year has also led to some removal of the D3 in the central basins of the state, but longer-term water issues still leave virtually all of Idaho in severe drought (D2) at this time and D3 remains in eastern basins within the state. In Montana, rains during the past two months have provided some relief with a reduction of D2 along and east of the northern Rocky Mountains in the west and with a removal of most of the D1 in the eastern part of the state. The AH impact line in the Pacific Northwest has also been removed leaving an H designation behind as winter approaches.

**The Plains:** Seasonal weather was prevalent across most of the Plains last week. Heavier rains (2-5 inches or more) were found in northern Oklahoma and eastern Kansas, but these rains fell outside of the region's dry areas. Thus, there are no changes in this week's map.

**The Upper Mississippi Valley and western Great Lakes Region:** Temperatures were unseasonably warm last week, running some 5-15°F above normal. Precipitation was more of a mixed bag, with some areas seeing good rains and others seeing at least something in the way of the wet stuff. This recent trend of wetness over the past 60 days (150-200%+ of normal) across northern Minnesota, northern Wisconsin, and the Upper Peninsula of Michigan has led to several improvements worth noting this week. On the heels of removal of D2 last week in northern Minnesota, the D2 has been removed in central Minnesota and in northern Wisconsin and Michigan's western Upper Peninsula. In addition, D1 has been removed from northern Minnesota and D0 has receded westward off of the shores of Lake Superior. The D1 has also been removed from all but the western Upper Peninsula. In addition, the AH impact area has now been changed to H in these areas as we head into winter. Longer-term deficits still remain but are on the mend.

To the south, good rains fell across northwestern and southeastern Missouri, with little to none found in between. Improvements continue in the mid section of the state, with slight reductions in the D0/D1 found there. A slight expansion of D0 is noted in central Missouri as streamflows still lag below average. The Bootheel regions saw the heaviest rains as part of the strong storm system that worked its way across the Southeast, tapping into Gulf Moisture. Totals ranged from 3 to 5 inches, leading to a two-category reduction of drought here and leaving D0 and D1 in the storm's wake.

## Weekly Snowpack and Drought Monitor Update Report

**The Southeast, Mid-Atlantic, and Ohio and lower Missouri valleys:** Finally, some major relief in the form of a strong system that worked its way across the Southeast, tapping into good Gulf moisture and bringing a much-needed injection of ample rains to the rain-starved region. As opposed to last week when only expansion was noted, this week brings about some major improvements for parts of the region where the rains were heaviest. Along the upper Gulf Coast, rains were heaviest, with 6 to 12 inches falling from extreme southeast Louisiana across coastal Mississippi, Alabama, and the Florida Panhandle. They weren't the only ones seeing heavy rains, though, as the system brought 3 to 6 inches, or more, in places up the Mississippi Valley and into the Midwest and Ohio Valley. In general, a one- to two-category improvement was noted in western Mississippi, eastern Arkansas, western Tennessee, western and northern Kentucky, southeastern Illinois, southern Indiana, and southern Ohio. Two- and even three-category improvement is noted this week in the Florida Panhandle and extreme southern Alabama because of the heavy rains. However, the gradient here is steep between those areas that saw copious amounts of rain versus those who only saw an inch or two at best. The core area of the drought (D3/D4) remains intact across most of Alabama, Tennessee, southeastern Kentucky, northern Georgia, the Carolinas, and Virginia. In addition, the impact lines have changed this week to reflect those areas within the core (AH) and those on the perimeter who saw the heaviest rains this week (H).

In the Mid-Atlantic, persistent unseasonably warm temperatures (6-12°F above normal) and lack of rains (10-16 inch deficits/50% of norm on the year) has led to an expansion of D3 up out of southern Virginia into northern Virginia, and southern Maryland. In Delaware, the governor has issued a drought watch asking residents there to voluntarily conserve water. This follows a September request to the Secretary of Agriculture for a drought disaster declaration.

**The Northeast:** A rather spotty pattern emerged last week, bringing relief to some areas in upstate New York while leaving the status quo in New England and the Northeast. There was a slight reduction of D0/D1 in northern New York State east of Lake Ontario. Temperatures remain the big story in the region as most locales were running 10-15°F above normal on the week.

**Alaska, Hawaii, and Puerto Rico:** There was very little in the way of rains across the dry/drought-affected areas over the past week, leaving the map unchanged from last week.

**Looking Ahead:** During the next 5 days (October 25-29), above-normal temperatures should settle in across the entire West, northern Plains, and extreme northern reaches in the Northeast while unseasonably cooler weather is expected in the southern Plains and lower Mississippi Valley. Not much in the way of precipitation is expected anywhere west of the Missouri River. The best bet for heavy rains and drought relief in the near term is likely to be found along the Atlantic Seaboard and up into the Northeast.

The 6-10 day outlook (October 30-November 3) is calling for above-normal temperatures in Alaska, across California, the Intermountain West and Great Basin, and southern Rockies. Cooler-than-normal temperatures are expected from Montana eastward into North Dakota, Minnesota, Wisconsin, and the Upper Peninsula. The same is likely across most of Florida. As for precipitation, above-normal areas are likely to mirror the cooler regions in the north and across most of southern Florida as well. Below-normal precipitation is a good bet in the Pacific Northwest, Intermountain West, southern Rockies, southern Plains, middle Mississippi Valley, and up into the Ohio Valley and northern Mid-Atlantic.

**Author:** [Mark Svoboda, National Drought Mitigation Center](#)

## Weekly Snowpack and Drought Monitor Update Report

### **Dryness Categories**

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

### **Drought Intensity Categories**

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

### **Drought or Dryness Types**

A ... Agricultural

H ... Hydrological

Updated October 24, 2007