



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

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**Weekly Report - Snowpack / Drought Monitor Update      Date:      December 13, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** During the past week, abundant snowfall occurred over the Southwest, Central Rockies, Intermountain West and the Sierras of California (Figs. 1 and 1a). One to two feet of new snow fell in southern Colorado, parts of northern Utah and the high elevations of Arizona. Seasonal snowpacks are well above average in Arizona, northern Arizona, southern Colorado and southeastern Utah. Snowpacks are generally below average in the rest of the West, with much below average packs in the Pacific Northwest, central California, northern Nevada and northern Utah.

**Temperature:** For the past seven days, temperatures have been generally below normal, with the exception of New Mexico, where temperatures have been 5 to 10 degrees above average (Fig. 2).

**Precipitation:** The Southwest, Intermountain, central California and central Rockies reported significant precipitation during the past week (Fig. 3a). Snowslide Canyon in central Arizona reported 4.5 inches of precipitation in the past week. Seasonal precipitation is above average in the Southwest and near normal in most of the West with the exception of the Sierras in central California, which are well below average (Fig. 3b).

## **WESTERN DROUGHT STATUS**

**The West:** Several storm systems in the region helped to improve conditions in portions of the West. Much-needed snow and rain was observed in almost every state in the region, boosting snow totals to near normal for this time of year and improving precipitation deficits in many locations. In Arizona, D0 and D1 conditions were shifted toward the west as several inches of rain fell in the Maricopa County region. Phoenix Sky Harbor airport recorded 1.02 inches of rain for this week. In Colorado, heavy snows in the San Juan Mountains helped to edge the D0 conditions out of this region in southern portions of the state.

**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 (Figs. 4, 4a, 4b, and 4c).

## Weekly Snowpack and Drought Monitor Update Report

### SOIL MOISTURE

Soil moisture (Figs.5 and 5a), 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. 6 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).

### 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 -

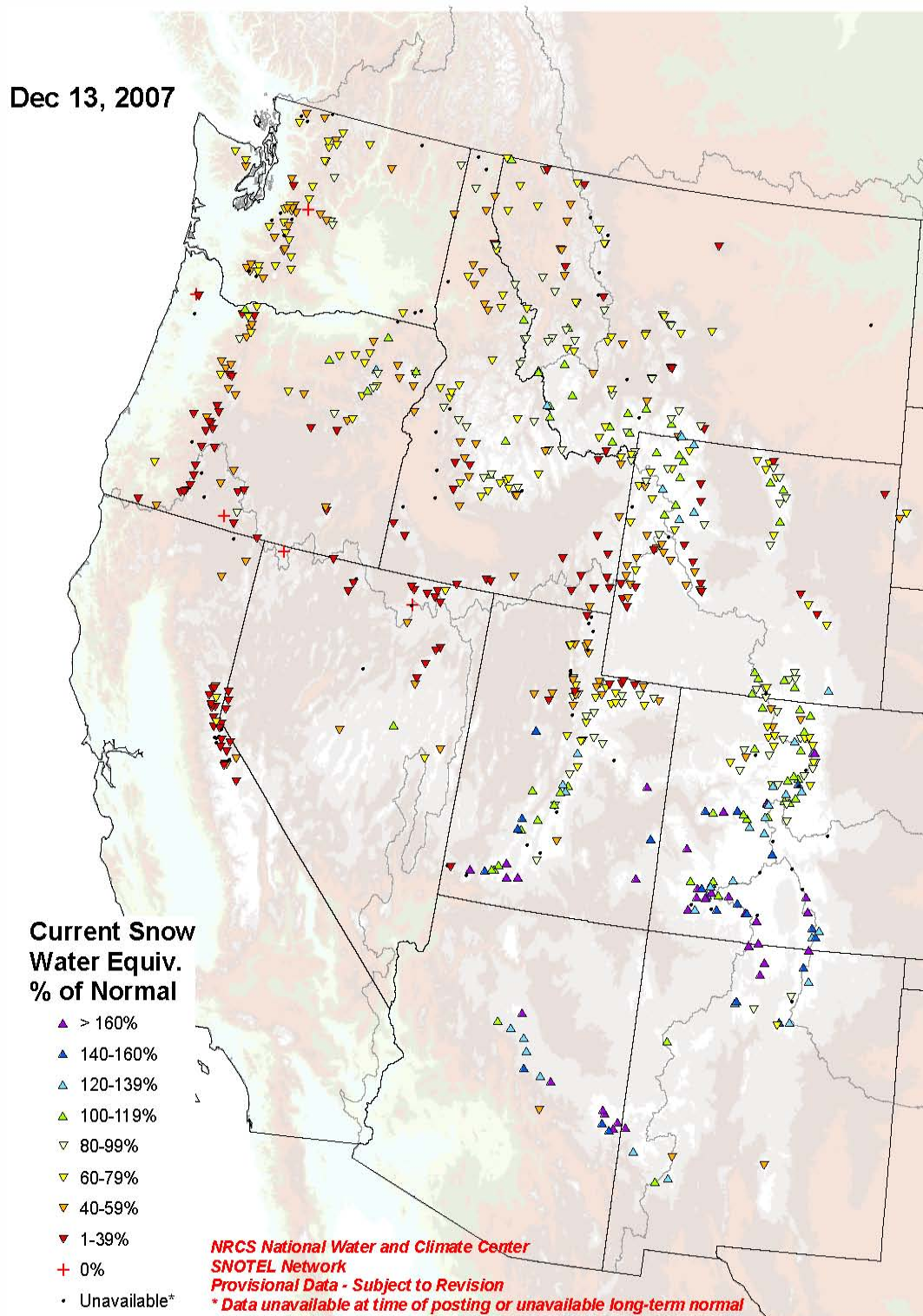
<http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>

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

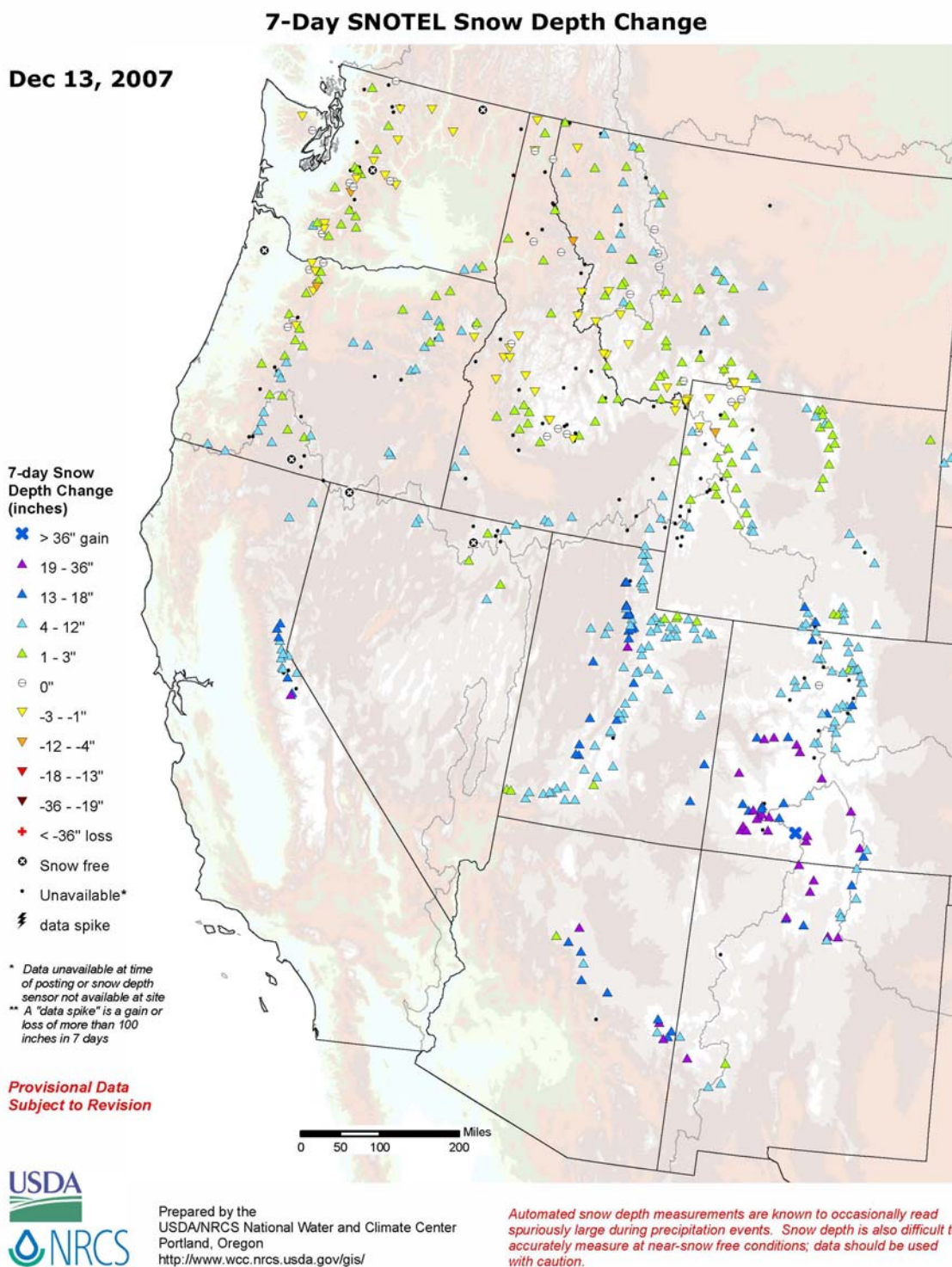
## Weekly Snowpack and Drought Monitor Update Report



**Fig. 1a. Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows few SNOTEL sites are at or above normal thus far. Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideSWEPercent.pdf>**



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**Fig. 1b. 7-day change in snow depth at SNOTEL sites.**

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

## Weekly Snowpack and Drought Monitor Update Report

Dec 13, 2007

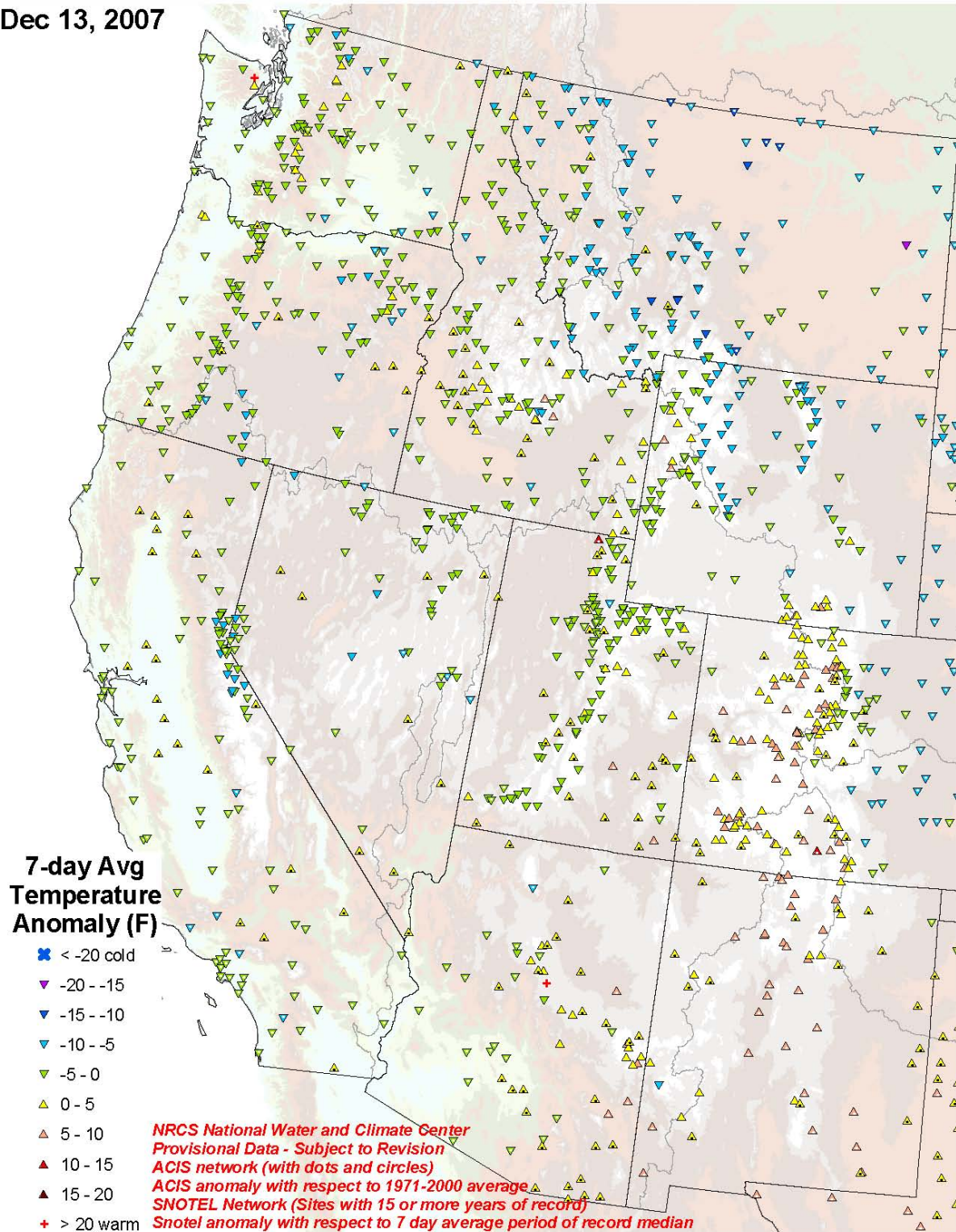
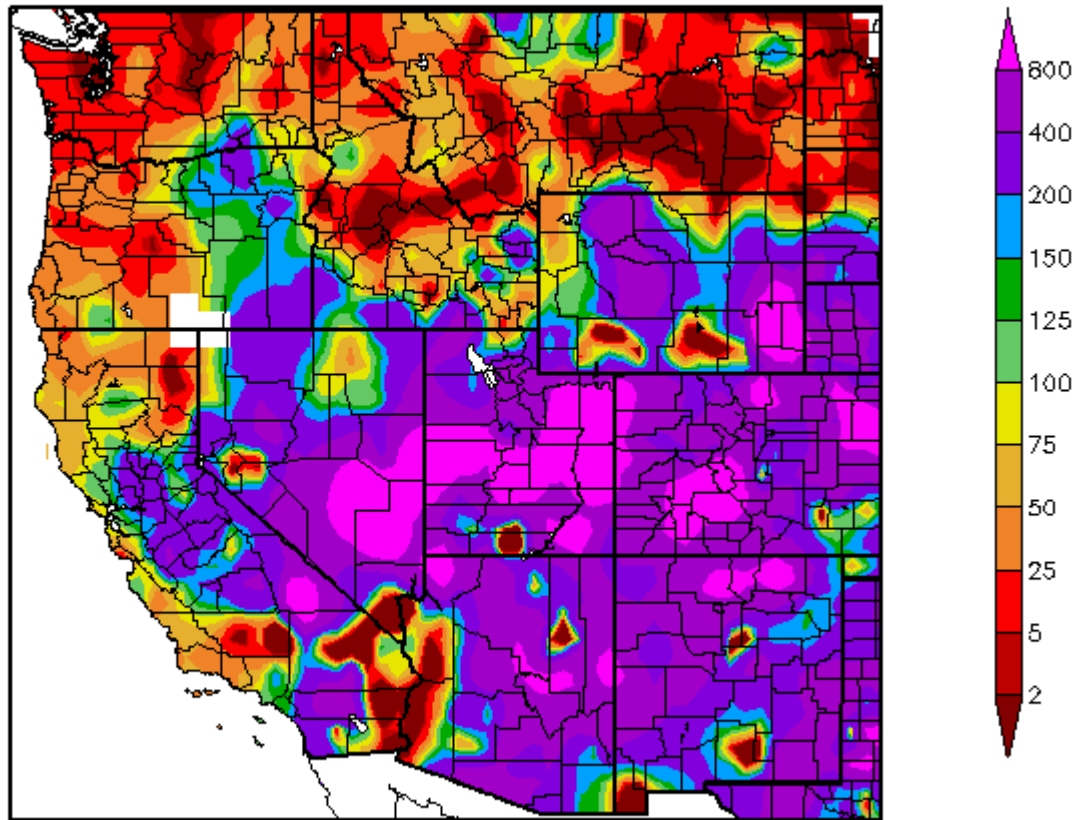


Fig. 2. SNOTEL & ACIS 7-stations daily average temperature anomaly.

Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>.

Percent of Normal Precipitation (%)  
12/6/2007 – 12/12/2007



Generated 12/13/2007 at HPRCC using provisional data.

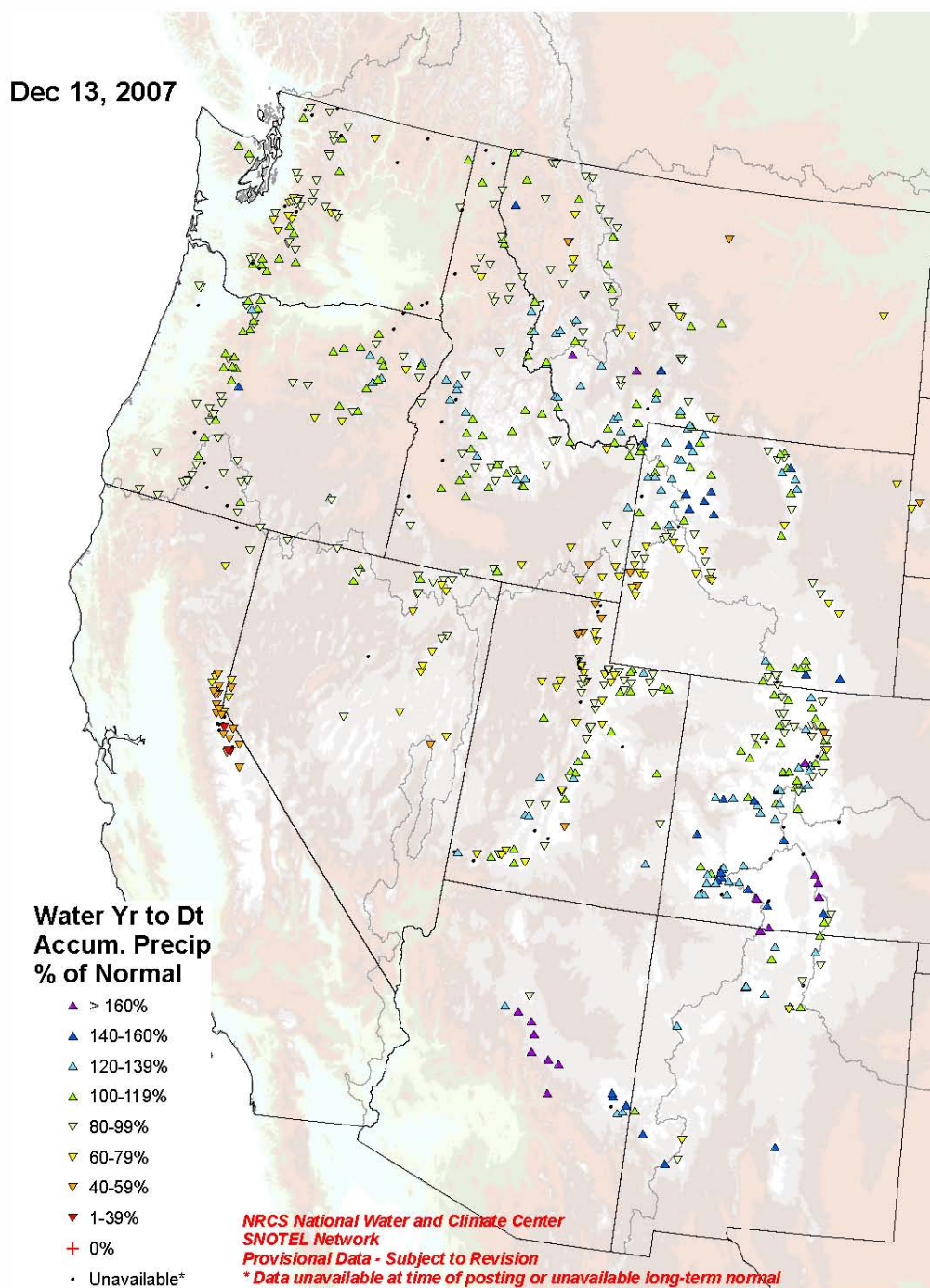
NOAA Regional Climate Centers

**Fig. 3a. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending December 12, 2007.**

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



**Fig 3b. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows increased percentages across much of the West excluding the Sierras since last week.**

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

# U.S. Drought Monitor

December 11, 2007  
Valid 7 a.m. EST

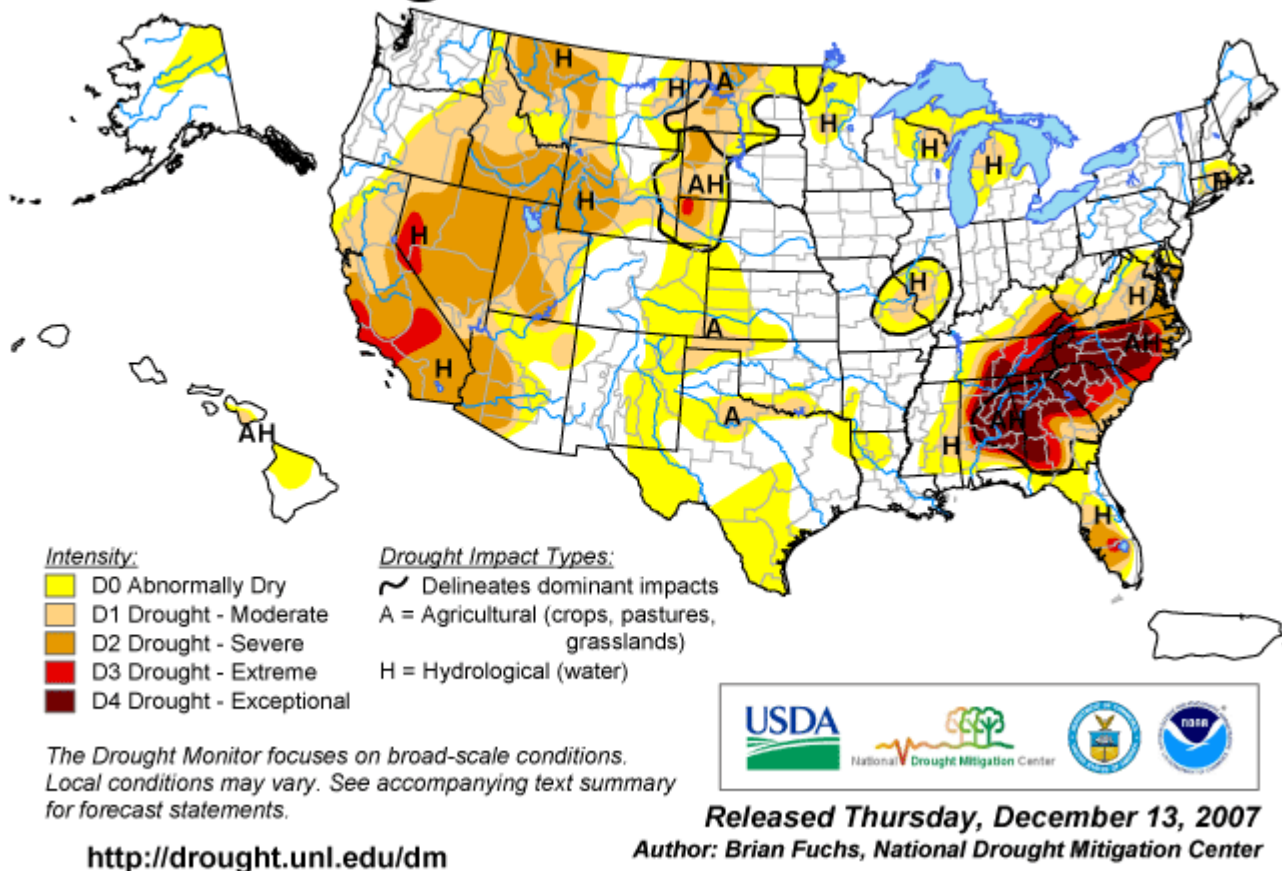


Fig. 4. Current Drought Monitor weekly summary.

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



# U.S. Drought Monitor

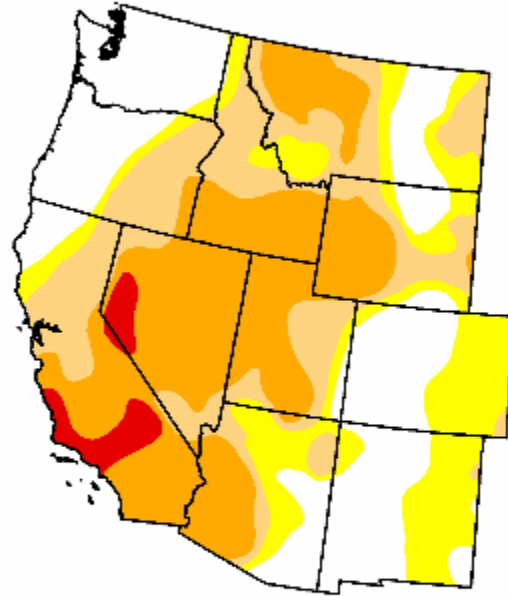
## West

December 11, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.7	72.3	54.2	32.8	2.7	0.0
Last Week (12/04/2007 map)	26.1	73.9	54.8	32.8	2.7	0.0
3 Months Ago (09/18/2007 map)	19.7	80.3	64.2	49.9	13.4	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 (12/12/2006 map)	52.4	47.6	23.7	10.6	4.1	0.0

### Intensity:

<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D0 Abnormally Dry	<span style="background-color: red; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D3 Drought - Extreme
<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D1 Drought - Moderate	<span style="background-color: darkred; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> D4 Drought - Exceptional
<span style="background-color: darkorange; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 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, December 13, 2007

Author: Brian Fuchs, National Drought Mitigation Center

Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Note some improvement in the D2-D4 intensities since last week.

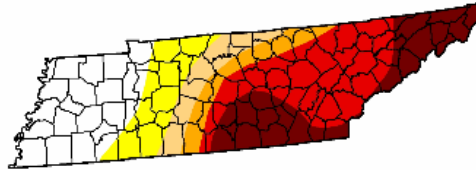
Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

# Weekly Snowpack and Drought Monitor Update Report

## U.S. Drought Monitor Tennessee

December 11, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.6	74.4	61.8	54.0	46.8	20.7
Last Week (12/04/2007 map)	25.6	74.4	61.8	54.0	46.8	16.5
3 Months Ago (09/18/2007 map)	0.0	100.0	100.0	100.0	84.7	49.8
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 (12/12/2006 map)	100.0	0.0	0.0	0.0	0.0	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>

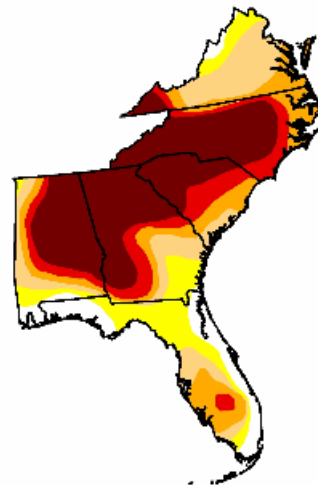


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Author: Brian Fuchs, National Drought Mitigation Center

## U.S. Drought Monitor Southeast

December 11, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.6	91.4	79.3	63.2	47.9	36.2
Last Week (12/04/2007 map)	12.3	87.7	77.9	59.7	45.2	31.5
3 Months Ago (09/18/2007 map)	8.2	91.8	76.7	58.1	41.7	15.9
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 (12/12/2006 map)	63.6	36.4	10.1	1.7	0.0	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

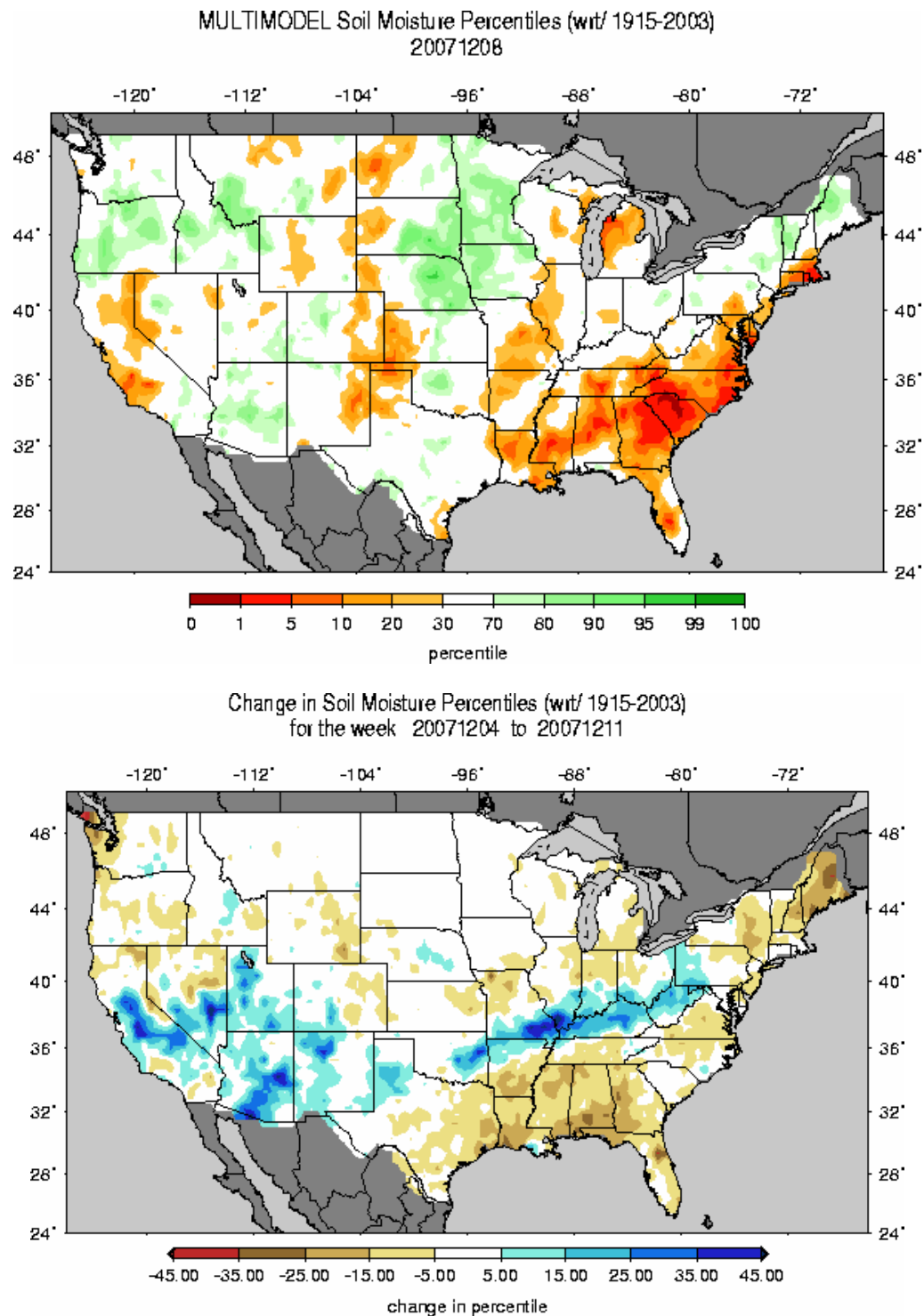
<http://drought.unl.edu/dm>



Released Thursday, December 13, 2007  
Author: Brian Fuchs, National Drought Mitigation Center

Fig. 4b. Drought Monitor for Tennessee and the Southeastern States with statistics over various time periods shows some of the severest drought conditions in the US. Note no change for Tennessee and slight worsening over the Southeast during the past week. Ref: [http://www.drought.unl.edu/dm/DM\\_southeast.htm](http://www.drought.unl.edu/dm/DM_southeast.htm)

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 5 & 5a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Note deterioration over much of the Southeast, mid-Atlantic, and New England regions, and improvement over the Northwest and Southwest during the past week although extensive flooding did occur over western Oregon and Washington.**

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



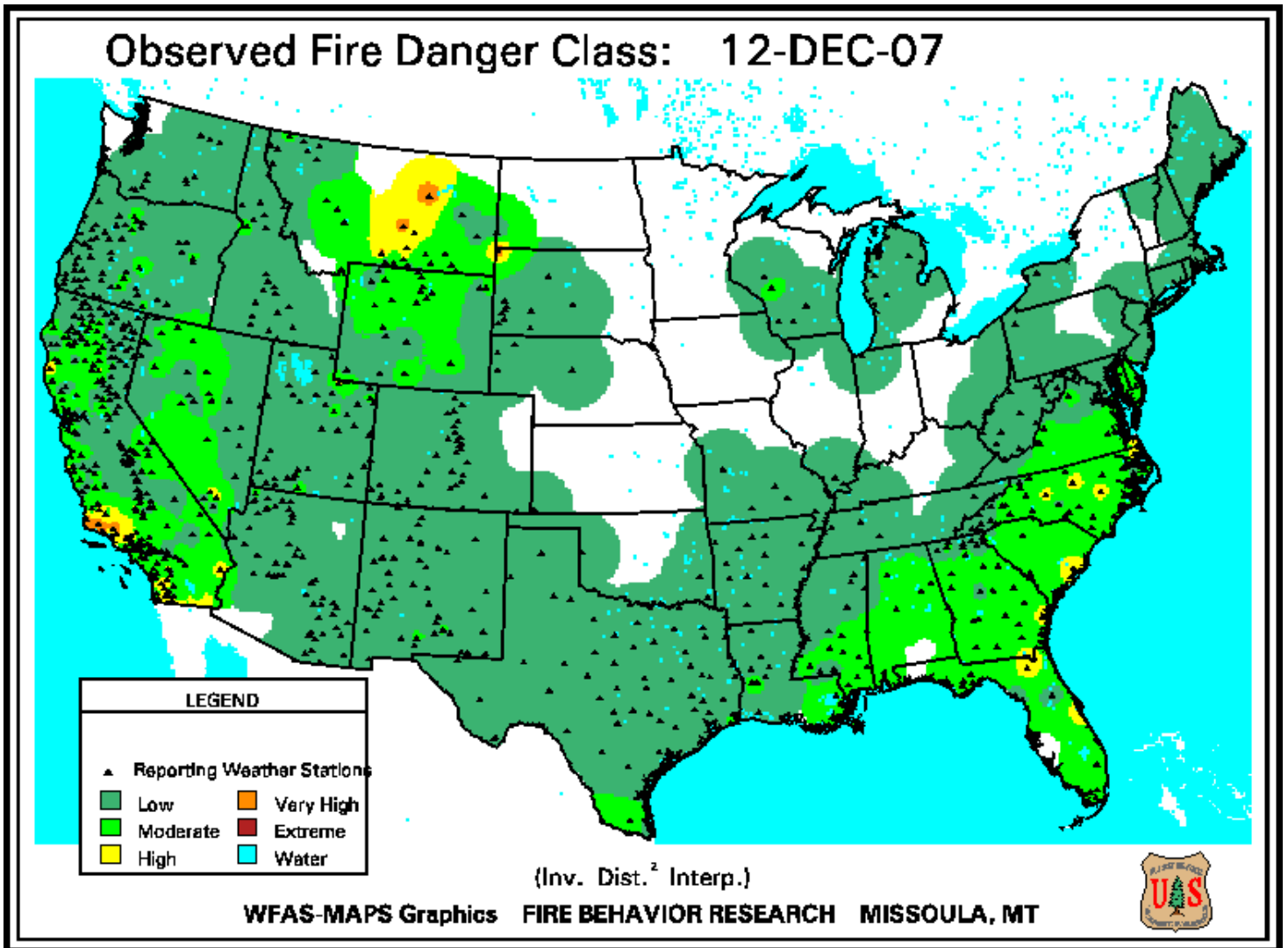
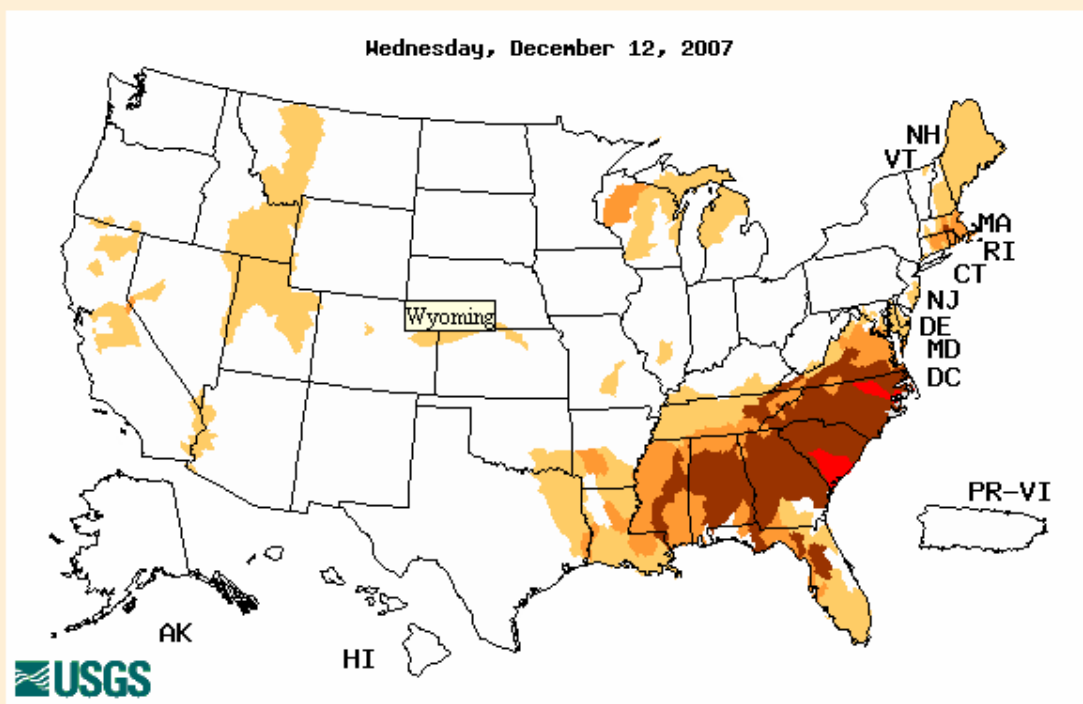


Fig. 6. Observed Fire Danger Class. Conditions have worsened over southern Georgia and northern Florida since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

## Weekly Snowpack and Drought Monitor Update Report



Choose a data retrieval option and select a state on the map

☐ State DroughtWatch, ☒ State map

Explanation - Percentile classes				
Low	<=5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

**Fig. 7.** This week's map shows continued severe to extreme conditions over portions of the Southeastern and Mid-Atlantic States but marked improvement across the West.

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

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- December 11, 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 Southeastern and Mid-Atlantic States:** A dry and warm week over much of the Southeast has led to the intensification of drought categories in the region. Many locations in the Southeast are on pace to have the all-time driest year on record, with many stations having histories back to the 1880 time period. Tuscaloosa, Alabama, is currently 30.37 inches below normal precipitation for the year. In Georgia and South Carolina, a categorical shift of all drought categories toward the south and east took place this week. In Florida, continuing impacts due to drought are being experienced throughout the central and southern portions of the state. Mandatory water restrictions are in place to help conserve water in the region. D0, D1 and D2 conditions expanded to the north to now include almost the entire Florida peninsula. D3 conditions were introduced to the north and west of the Lake Okeechobee region this week as well.

Drought conditions in North Carolina continue to worsen, with many reports of wells going dry in the state. Many locations are expected to have driest or near driest years on record throughout the state. Raleigh-Durham had the driest November on record with 0.48 inches, with records back to 1944. In the Raleigh area, there are only 3 other drier November periods, with the driest coming in 1890 and 1931 with just 0.06 inches recorded on those dates. Of the 628 water systems being tracked, 173 have mandatory water conservation measures in place, while 162 have voluntary restrictions in place. D3 and D4 conditions were expanded in North Carolina this week in response to the continued drought conditions and impacts.

Due to a series of storm systems impacting the region, the D0 and D1 conditions in Maryland and Virginia were pushed farther to the south this week.

**The Northeast and Ohio Valley:** An active weather pattern has allowed for improvements in this region. In Indiana, Pennsylvania, and New Jersey, D0 was removed completely. A categorical improvement in drought status was made in the Kentucky, West Virginia, and Ohio regions. In the last week, widespread precipitation amounts of 2 inches were recorded in many of the abnormally dry areas, allowing for the improvements.

**The Plains and Midwest:** An early winter ice storm left many residents of Oklahoma, Kansas, Missouri, Iowa and Nebraska in the dark this week. Widespread power outages along with downed trees were common through these states. The precipitation allowed for the improvement of drought status in Missouri, Illinois, Kansas, Texas, and Arkansas. These areas for the most part were abnormally dry (D0), but the D1 in Missouri and Illinois was also reduced. With the impact of this moisture not completely known at this time, further improvements may be in order as the ice melts.



## Weekly Snowpack and Drought Monitor Update Report

**The West:** Several storm systems in the region helped to improve conditions in portions of the West. Much-needed snow and rain was observed in almost every state in the region, boosting snow totals to near normal for this time of year and improving precipitation deficits in many locations. In Arizona, D0 and D1 conditions were shifted toward the west as several inches of rain fell in the Maricopa County region. Phoenix Sky Harbor airport recorded 1.02 inches of rain for this week. In Colorado, heavy snows in the San Juan Mountains helped to edge the D0 conditions out of this region in southern portions of the state.

**Alaska, Hawaii, and Puerto Rico:** Heavy rains took place in Hawaii this week, with more than 12 inches recorded in some locations. D0 was removed from Oahu and a categorical improvement was made to the drought conditions on Maui. D1 on the Big Island was also improved to D0. Alaska was dry except for along the southern coastal regions, and Puerto Rico had widespread precipitation. No changes in Alaska or Puerto Rico this week.

**Looking Ahead:** Over the next 5 days (December 13-17), temperatures are expected to remain below normal for almost the entire United States. The coldest temperatures should be over the Rocky Mountains, Central Plains, and New England, where temperatures will be 6-9 degrees Fahrenheit below normal. The exception is in the Southeast, where unseasonal warm temperatures will continue. Temperatures are projected to be 3-6 degrees Fahrenheit above normal through Florida, Georgia and the Carolinas. Precipitation is expected to be greatest over the Tennessee to Ohio River Valley regions and up into southern New England. Precipitation amounts of 3-4 inches in the Pacific Northwest and 2 inches in south Florida are also forecasted.

The 6-10 day outlook (December 18-22) is dominated by a strong trough that is projected to extend from Alaska down the west coast of the United States. Temperatures are expected to be well below normal through all of Alaska and portions of southern California. Below normal precipitation is projected for much of Alaska compared to well above normal precipitation through most the western United States. Slight ridging is expected over the Plains, Midwest and Gulf Coast with above normal temperatures. Below normal precipitation is expected over the northern Plains, with above normal precipitation in the southern Plains and into the Ohio River Valley and New England, where the storm tracks are expected to occur. Below normal precipitation will continue to hamper the drought conditions in the Southeast during this period as well.

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.

### Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

### Drought or Dryness Types

A ... Agricultural

H ... Hydrological

Updated December 12, 2007