



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

Weekly Report - Snowpack / Drought Monitor Update **Date: December 20, 2007**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: During the past week, abundant snow fell in the Pacific Northwest while snowpacks remained constant over other parts of the West (Figs. 1 and 1a). Between one to three feet of new snow fell in the Cascades of Oregon and Washington and central Idaho. Seasonal snowpacks are above average in Arizona, northern New Mexico, southern Colorado and southeastern Utah. Snowpacks in the Pacific Northwest have improved from well below average to below average, now ranging from 60 to 80 percent of average. Northern Nevada and the Sierras of central California continue to show well below average snowpacks as most storms tracked north of those basins.

Temperature: For the past seven days, temperatures have been generally cool in the southern half of the West, ranging from 0 to 8 degrees below normal (Fig. 2). The northern half of the West reported near normal temperatures, with the exception of northern Montana, which reported temperatures 0 to 8 degrees above average.

Precipitation: The entire West Coast and Idaho reported well-above average precipitation during the past week as powerful Pacific storms brought abundant precipitation (Fig. 3a). Scattered precipitation was reported in parts of western Colorado and southeastern Wyoming.

Precipitation on the Oregon Coast ranged from three to four inches. The Hidden Lake SNOTEL site in northern Idaho reported 3.7 inches of precipitation. 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 remain well below average (Fig. 3b).

WESTERN DROUGHT STATUS

The West: Continued snows in the San Juan Mountains of southern Colorado allowed for D0 conditions to be pushed into the foothills of eastern Colorado this week. With a good start to the snow season, several wet snows have allowed the abnormally dry areas to recover. Drought intensified in eastern Montana, with drought categories expanding to include almost all of the state. D0 was expanded through much of the eastern portions of the state while D1 and D2 categories were expanded in central Montana. Some improvements to drought were made in western Montana with improvements to D1 and D2 conditions. No other changes in the West were made, as long-term precipitation deficits are still problematic over much of the region.

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

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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, and 4b).

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.

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/cqibin/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

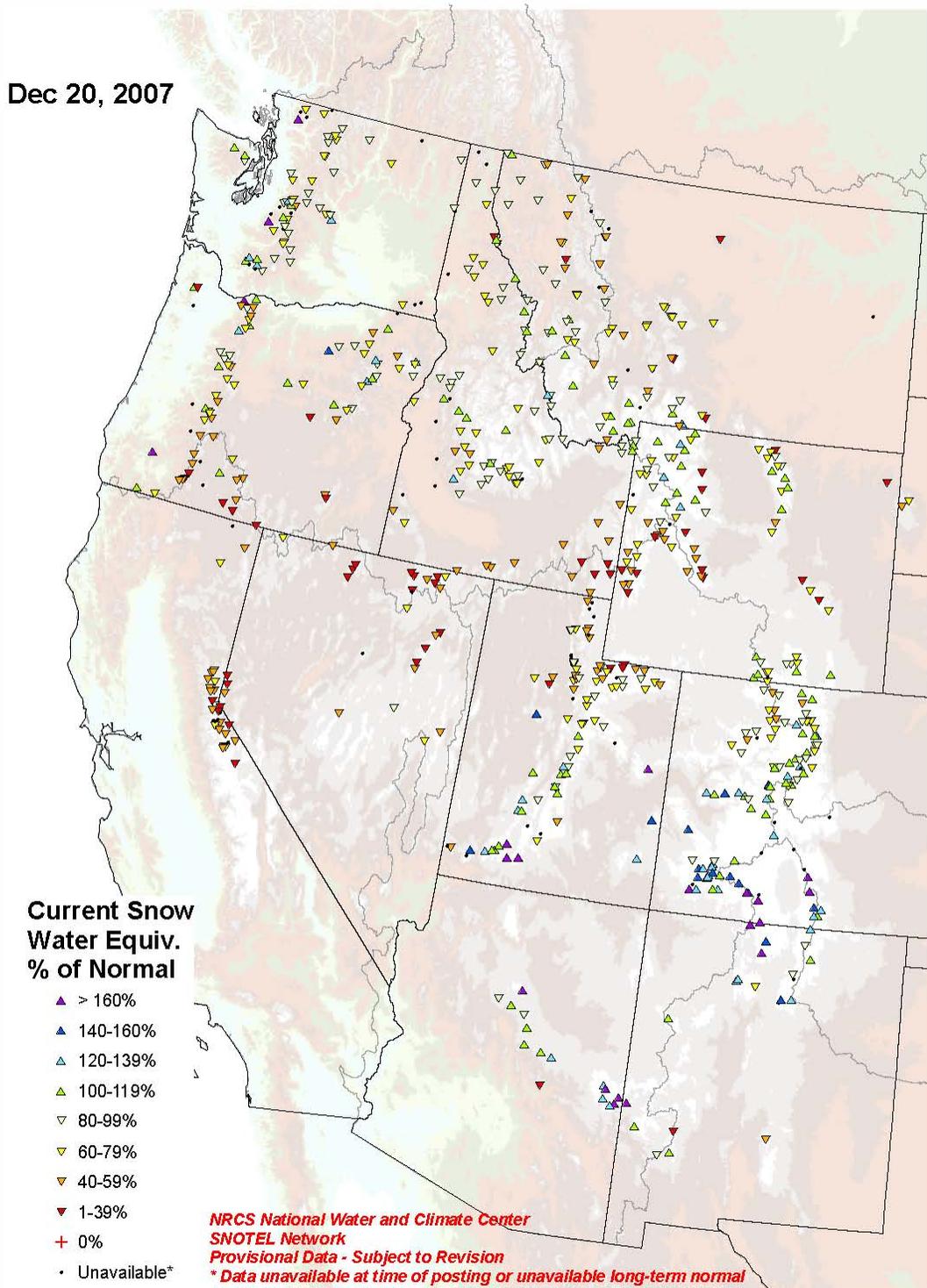


Fig. 1a. Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows few SNOTEL sites are at or above normal thus far. Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideSWEPercent.pdf>

Weekly Snowpack and Drought Monitor Update Report

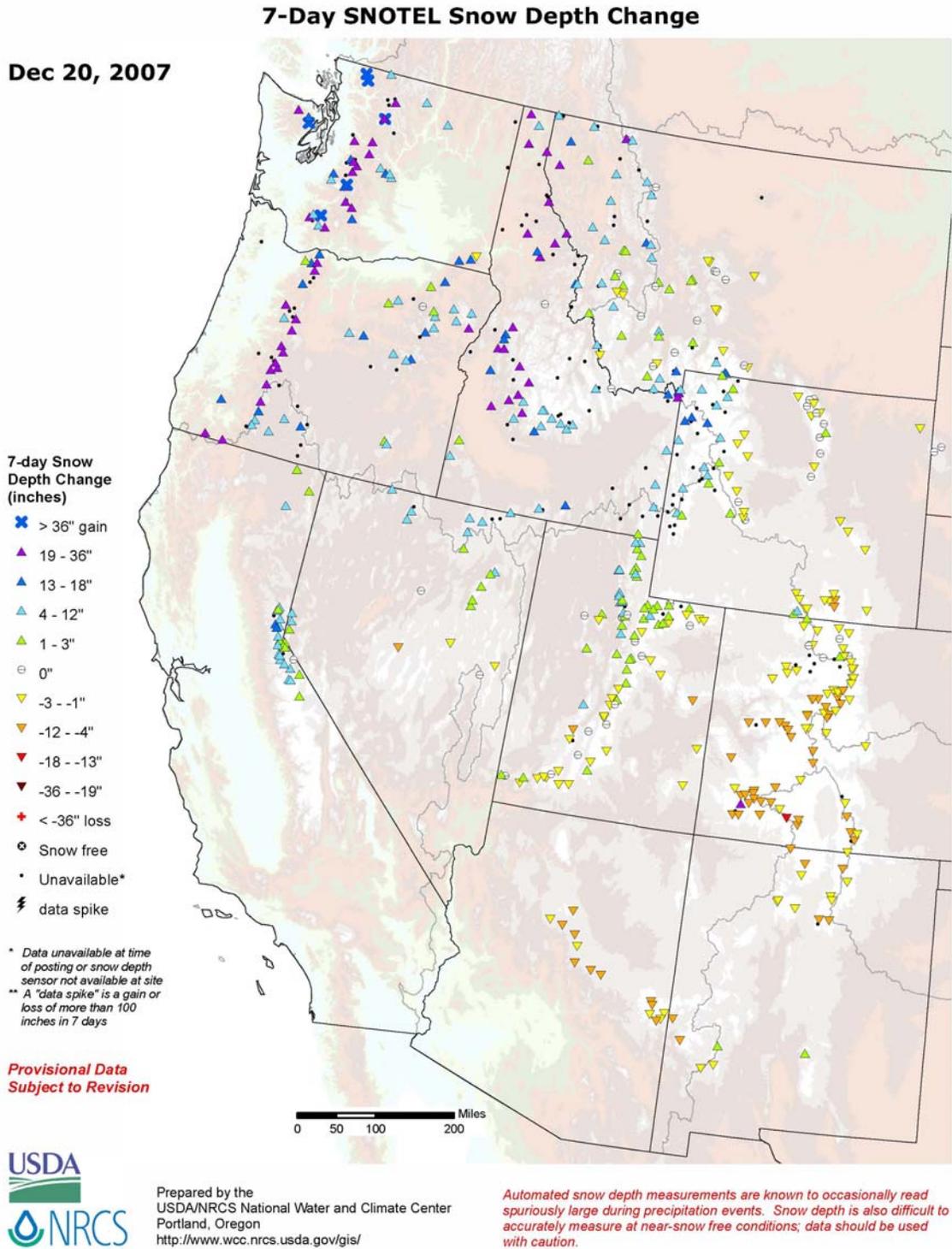


Fig. 1b. 7-day change in snow depth at SNOTEL sites.

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

Weekly Snowpack and Drought Monitor Update Report

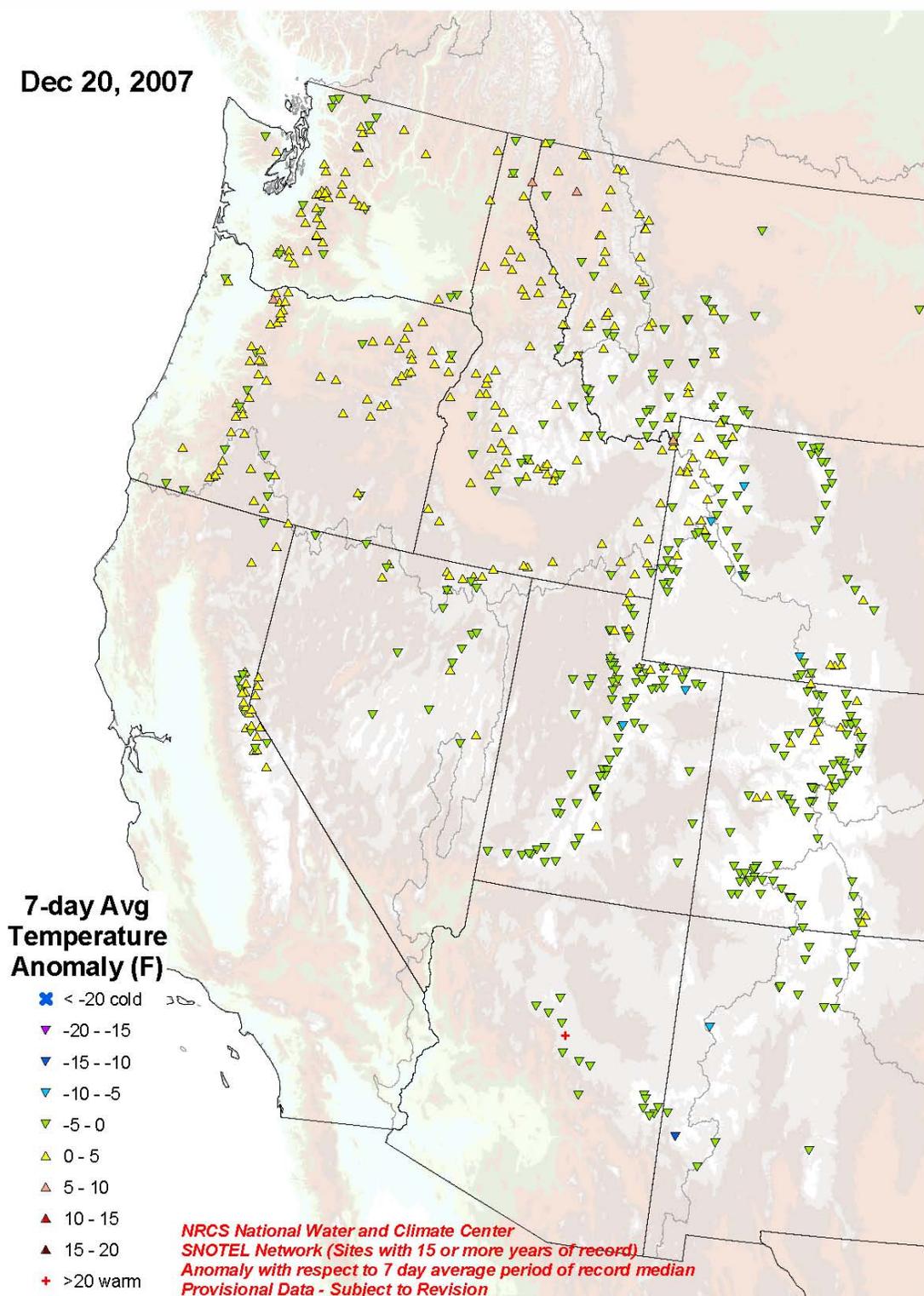
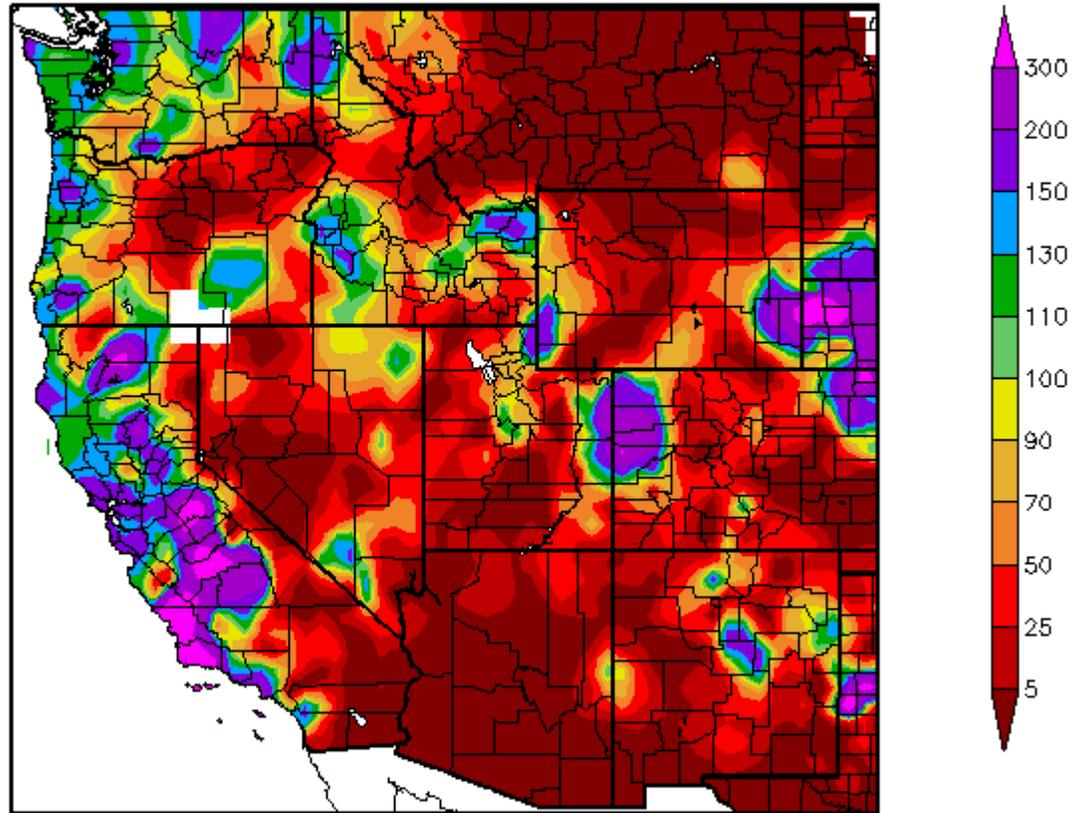


Fig. 2. SNOTEL & ACIS 7-stations daily average temperature anomaly.

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

Percent of Normal Precipitation (%)
12/13/2007 – 12/19/2007



Generated 12/20/2007 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.

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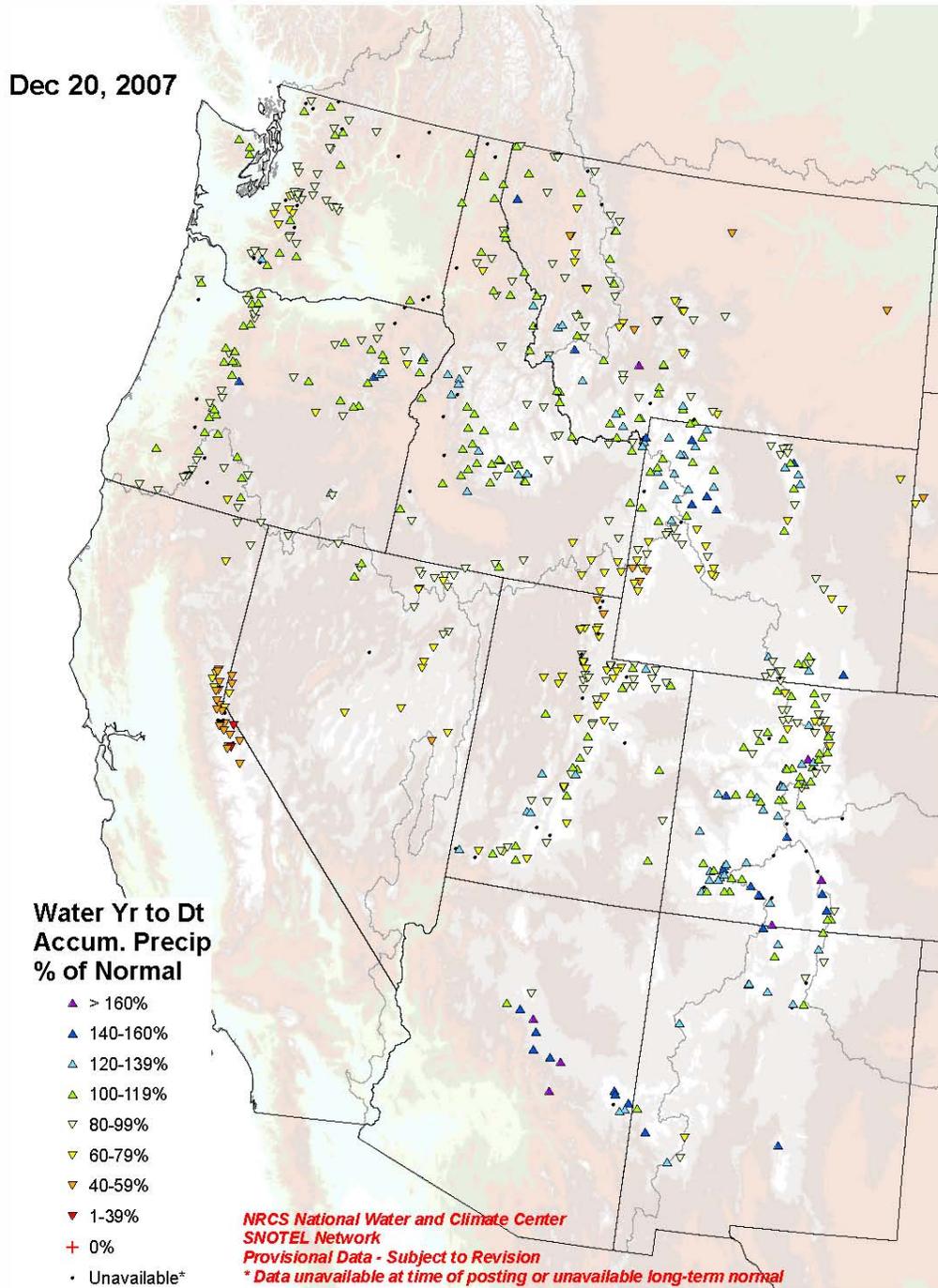
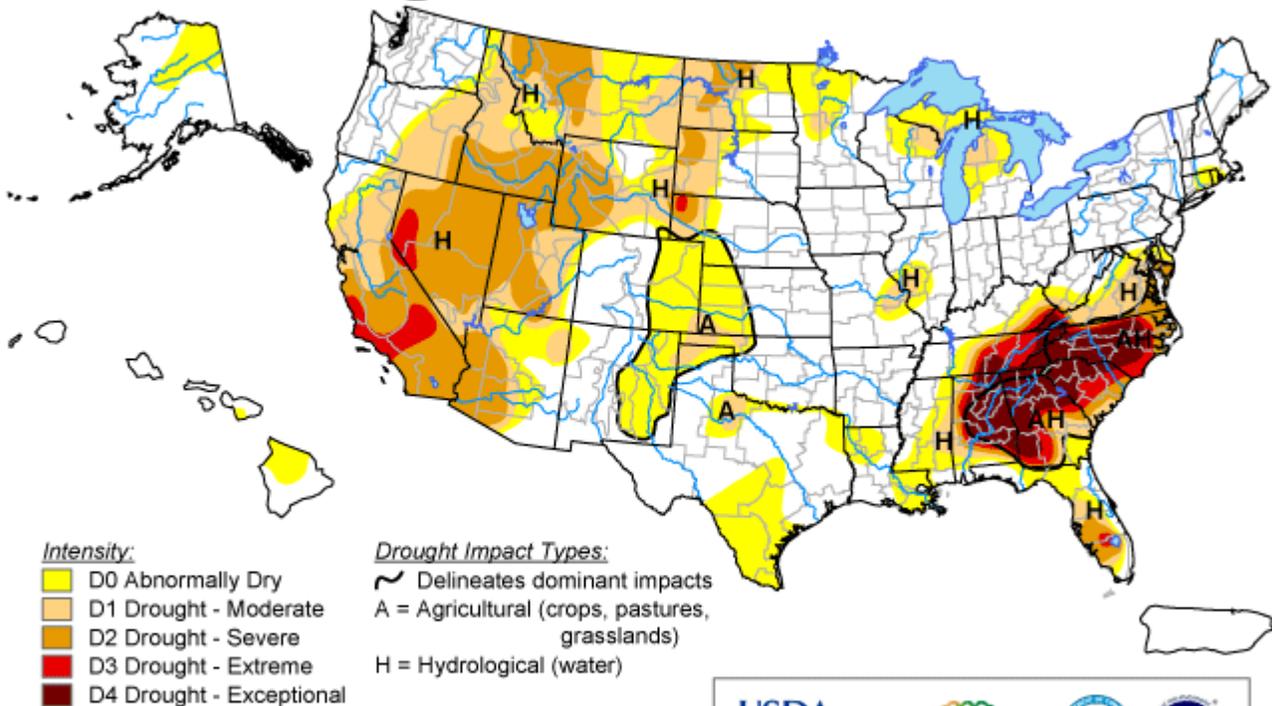


Fig 3b. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows increased percentages across much of the West excluding the Sierras since last week.

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

U.S. Drought Monitor

December 18, 2007
Valid 7 a.m. EST



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 20, 2007

Author: Brian Fuchs, National Drought Mitigation Center

Fig. 4. Current Drought Monitor weekly summary.

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

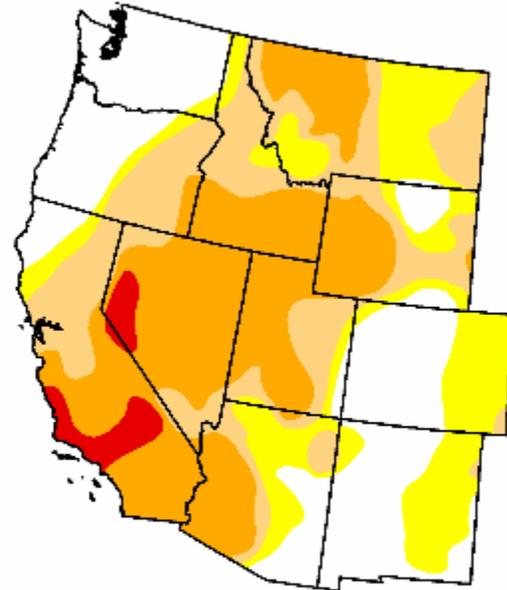
U.S. Drought Monitor

West

December 18, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	26.3	73.7	54.7	33.1	2.7	0.0
Last Week (12/11/2007 map)	27.7	72.3	54.2	32.8	2.7	0.0
3 Months Ago (09/25/2007 map)	20.3	79.7	63.0	45.4	12.4	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 (12/19/2006 map)	48.5	51.5	24.2	10.0	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>



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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

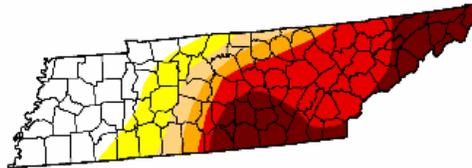
Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor
Tennessee

December 18, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.4	72.6	60.8	53.8	46.8	20.7
Last Week (12/11/2007 map)	25.6	74.4	61.8	54.0	46.8	20.7
3 Months Ago (09/25/2007 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 (12/19/2006 map)	37.3	62.7	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>



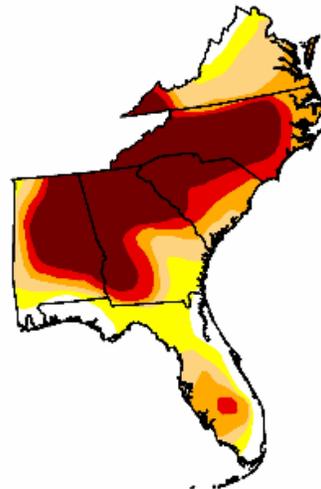
Released Thursday, December 20, 2007
Author: Brian Fuchs, National Drought Mitigation Center

U.S. Drought Monitor
Southeast

December 18, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.1	90.9	78.3	63.0	47.9	36.2
Last Week (12/11/2007 map)	8.6	91.4	79.3	63.2	47.9	36.2
3 Months Ago (09/25/2007 map)	10.4	89.6	76.7	59.0	41.0	15.5
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 (12/19/2006 map)	52.2	47.8	12.4	2.4	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

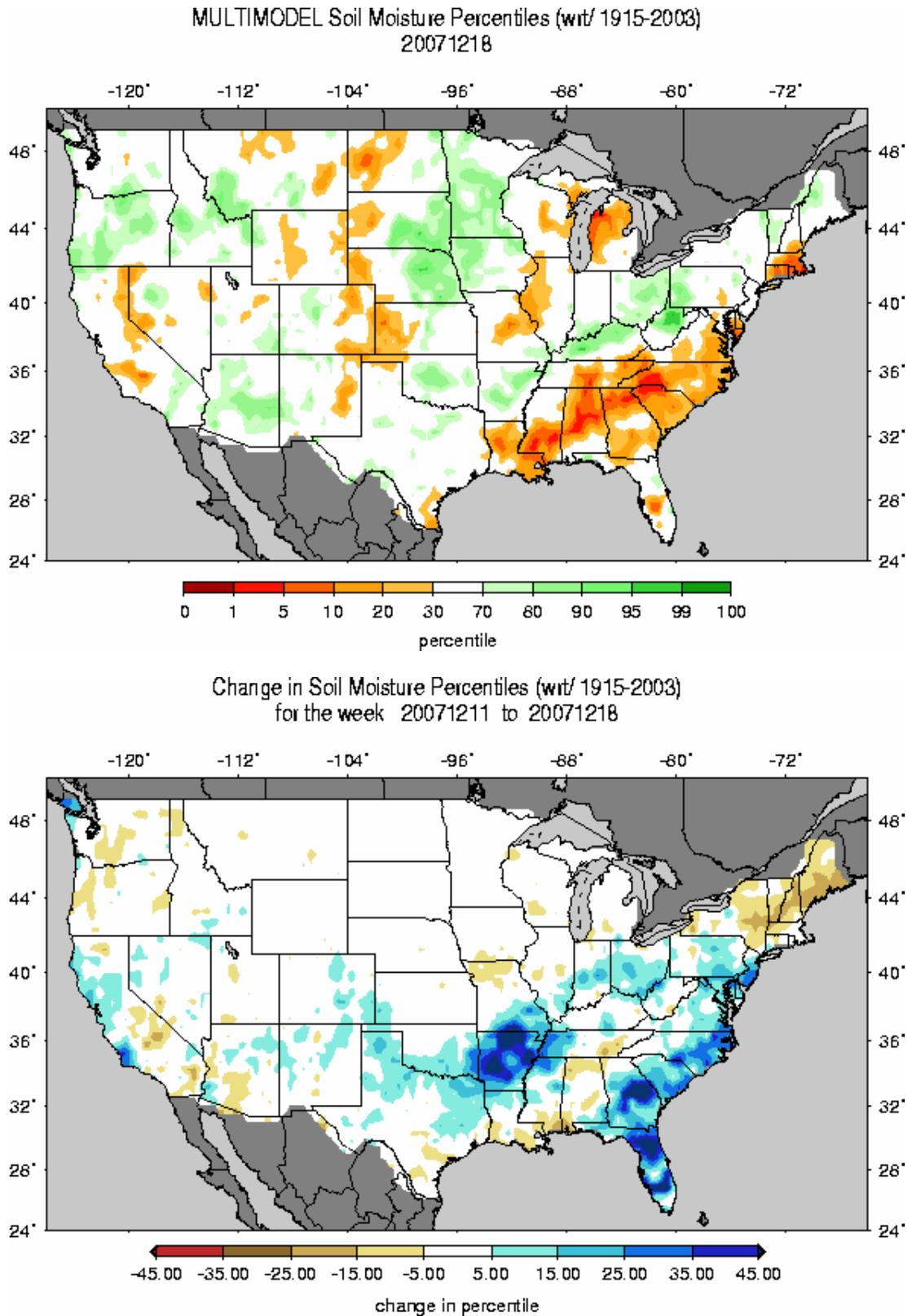
<http://drought.unl.edu/dm>



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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

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

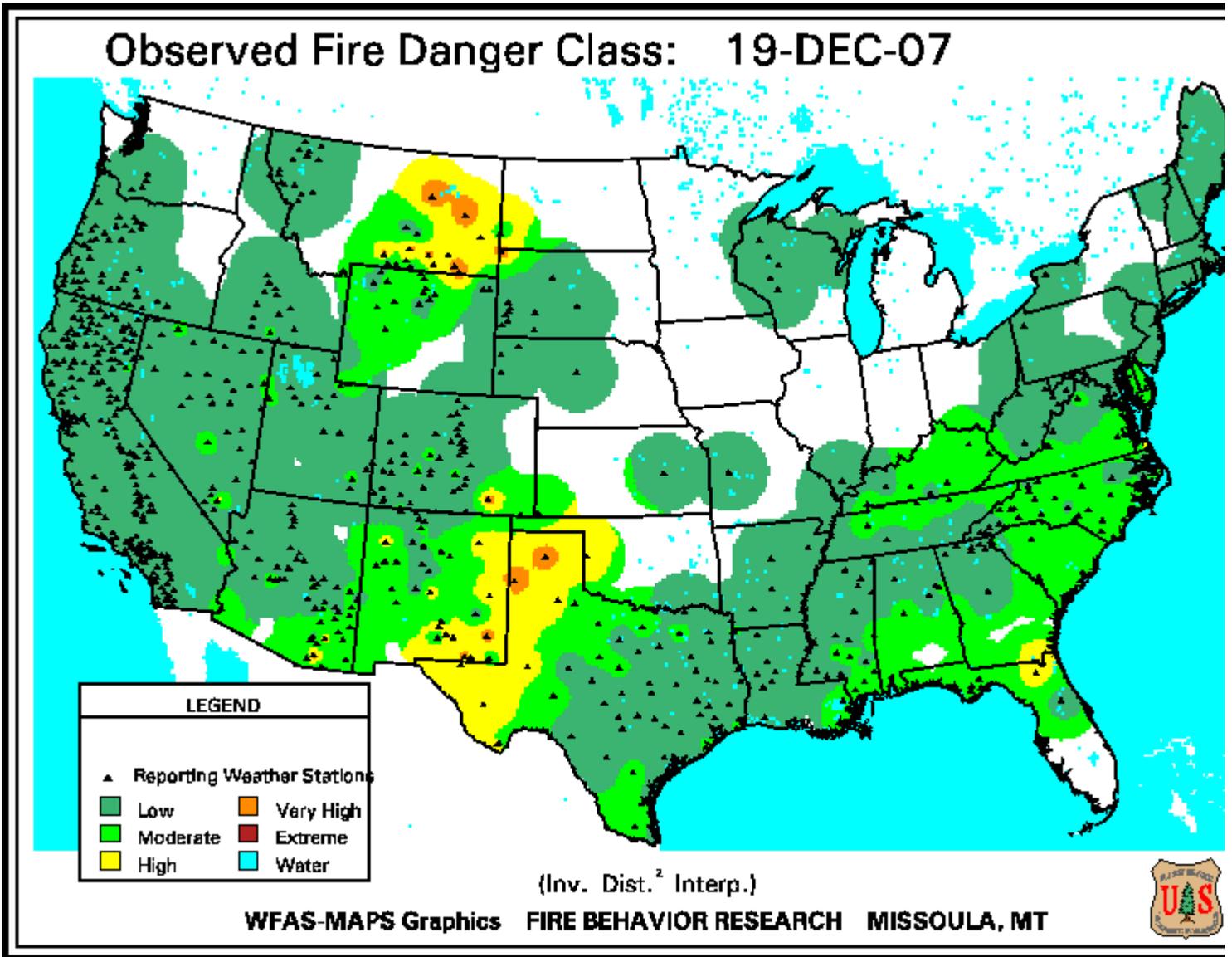
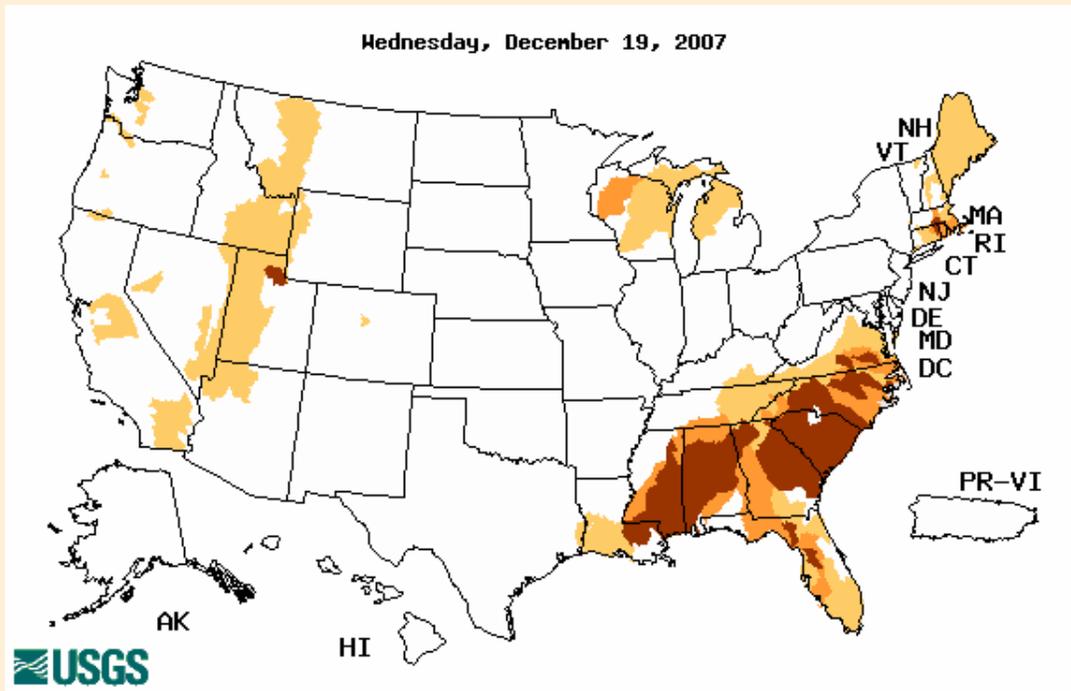


Fig. 6. Observed Fire Danger Class. Conditions have worsened over southern Georgia and northern Florida since last week. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref:

Map of below normal 7-day average streamflow compared to historical streamflow for the day of year (United States)



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>

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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 Southeast, Mid-Atlantic, and Midwest States: Rains in the region were welcomed, but did not allow for any improvements this week in the Southeast. Pasture conditions in Georgia were 71 percent poor to very poor, compared to 69 percent last week. Topsoil moisture in Georgia was also reported 69 percent short to very short throughout the state this week. The Mid-Atlantic continued to see widespread precipitation, both rain and snow. The northern tier of the Mid-Atlantic recorded precipitation amounts up to 2 inches with the latest storms. This allowed for the drought categories to be pushed farther south, with improvements to the D0, D1 and D2 regions of Kentucky, Virginia, West Virginia and Maryland. The D1 and D0 regions in Missouri and Illinois were improved further this week as a full assessment of the recent precipitation in the area was made as well as the lack of impacts being observed during the winter months.

The Northeast: A continued favorable storm track through the region brought some relief to the drought areas. In New England, the D1 was removed from Connecticut, Rhode Island, and Massachusetts, leaving a small area of D0 behind. This area is still showing lingering hydrological impacts, but the recent precipitation has allowed for the improvements.

The Plains and South: With two weeks of widespread precipitation, improvements to the drought status in Kansas, Oklahoma, Texas and Arkansas were again made this week. All of the D0 was removed from the Trans-Pecos region of Texas, while improvements to the D0 and D1 were made in the Texas Panhandle, Oklahoma and Kansas. Several weeks of ample precipitation allowed the removal of almost all the D0 in Arkansas. D0 was expanded to include the southeastern portions of Louisiana. Recent dryness along with dryness on longer time frames showed that D0 conditions were influencing the area.

The West: Continued snows in the San Juan Mountains of southern Colorado allowed for D0 conditions to be pushed into the foothills of eastern Colorado this week. With a good start to the snow season, several wet snows have allowed the abnormally dry areas to recover. Drought intensified in eastern Montana, with drought categories expanding to include almost all of the state. D0 was expanded through much of the eastern portions of the state while D1 and D2 categories were expanded in central Montana. Some improvements to drought were made in western Montana with improvements to D1 and D2 conditions. No other changes in the West were made, as long-term precipitation deficits are still problematic over much of the region.

Alaska, Hawaii, and Puerto Rico: In Hawaii, a categorical improvement to the drought categories was made. All the D1 was removed from Maui, leaving a small area of D0. No changes were made in Alaska or Puerto Rico this week.

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Looking Ahead: Over the next 5 days (December 20-24), the Rocky Mountains and locations to the east should see temperatures above normal. Temperatures will range 6-9 degrees Fahrenheit above normal over the lower Mississippi Valley, compared to 3-6 degrees Fahrenheit below normal in Colorado. Several storm systems will influence precipitation in the United States as well. The Pacific Northwest will continue to record heavy precipitation, especially along the coast. A storm system approaching the Sierra Nevada Mountains will drop several feet of snow in some locations. The northern Rocky Mountains area is also projected to record above-normal precipitation. A wide swath of precipitation is expected from the Great Lakes down to the Gulf Coast. Heaviest amounts are projected over Louisiana and Mississippi, the Upper Peninsula of Michigan and throughout New England.

The 6-10 day outlook (December 25-29) shows that above-normal temperatures should dominate much of the country, with the warmest over the northern Plains and Great Lakes. Below-normal temperatures should be expected over the West, far South, and Southeast. Above-normal precipitation should continue over the Pacific Northwest and northern California. Above-normal precipitation is also projected over the Mississippi and Ohio River valleys. Below-normal precipitation over Alaska, northern Plains, and the Southeast should be expected during this time.

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 19, 2007