



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

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**Weekly Report - Snowpack / Drought Monitor Update      Date:      December 27, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** During the past week, snowfall accumulations were up across most of the West (Fig 1). Preliminary data suggests a 5% to 10% forecast increase in spring runoff occurred this week over Utah's Uinta Mountains, northwest Colorado, and much of Wyoming's ranges (Fig. 1a). However, despite seemingly good snowfall, much of the southern half of the Rockies experienced a decrease in forecast runoff this week. Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal values over the Southern Rockies and portions of the Cascades (WA & OR) and Wasatch (UT). Below normal values persist over the Snake River Basin (WY & ID), Sierras (NV & CA), and Eastern Slope of the Rockies (MT) (Fig 1b).

**Temperature:** For the past seven days, stations daily average temperature anomaly shows below normal temperatures across much of the West with the coldest departures (-10F) over the Sierras, Wasatch, Great Basin (NV), and higher elevations of the ranges in ID and MT and greatest positive temperature departures over Montana (+10F) (Figs.2 and 2a).

**Precipitation:** Preliminary precipitation totals for the 7-day period ending 26 December shows significant precipitation across the Pacific Northwest and across Idaho, Utah, and the Central Rockies (Fig 3). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of the Rockies and Arizona ranges with near normal amounts over the Cascades. The Sierras and Northern Wasatch are currently running behind the long-term averages to date (Fig 3a).

## **WESTERN DROUGHT STATUS**

**The West:** The winter storms this week brought welcome rain and snow to many basins, with some areas receiving several inches of precipitation, but amounts were less than half an inch in most locations. The heaviest amounts of 5 to 10 inches occurred over drought-free coastal Oregon and Washington. Two to 4 inches of moisture fell in favored upslope areas of interior California, but snowpack conditions in the Sierra Nevada basins, for example, were still less than 70 percent of average for this time of year. Continued low reservoirs, below-average mountain snowpack, and long-term precipitation deficits resulted in no change to the depiction in the West.

**Author:** [Richard Heim, NOAA/National Climatic Data 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

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## Weekly Snowpack and Drought Monitor Update Report

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).

### 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/>

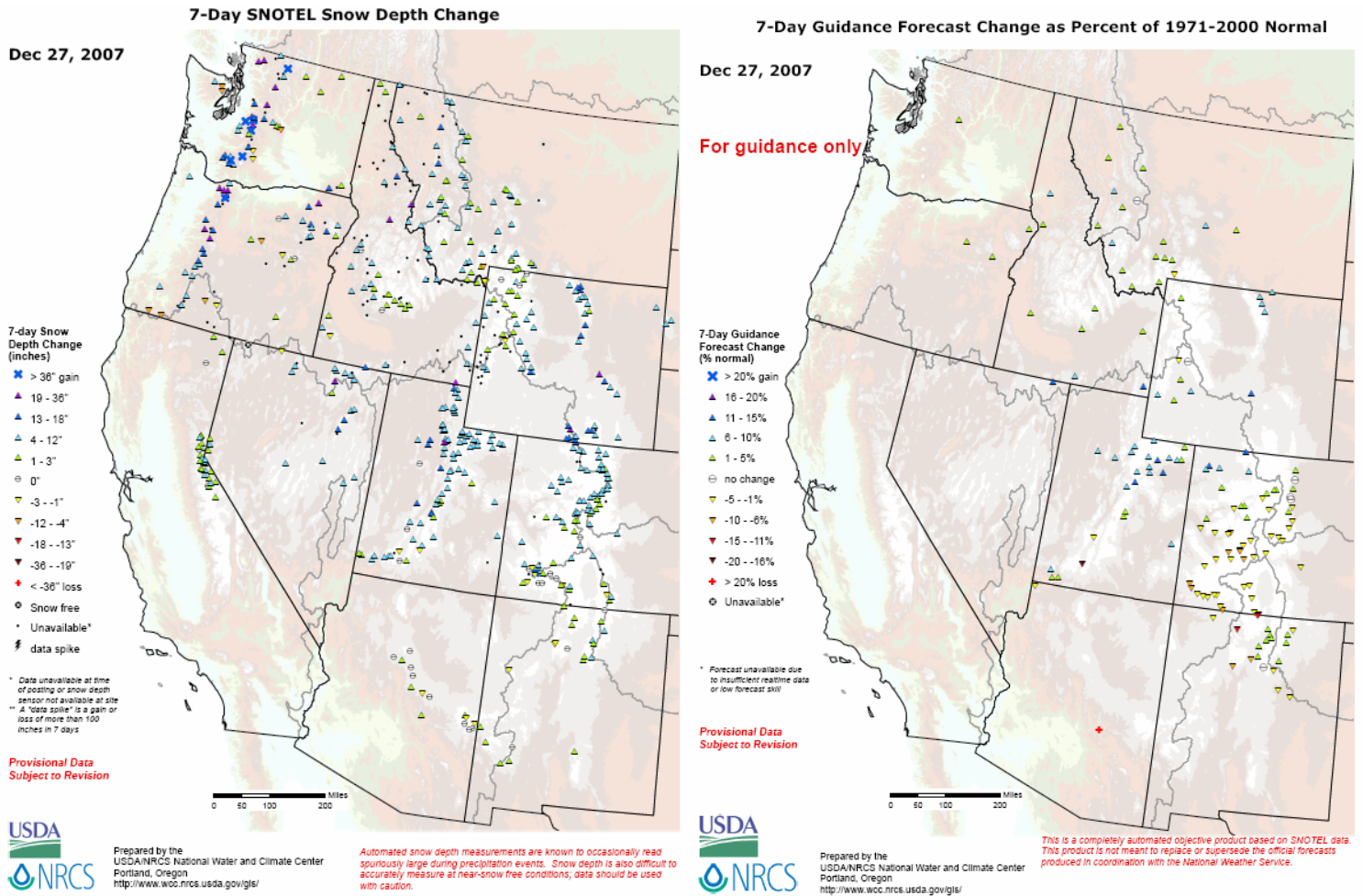
### FOR MORE INFORMATION

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. 1 and 1a.** During the past week, snowfall accumulations were up across most of the West. A preliminary 5% to 10% forecast increase in spring runoff occurred this week over Utah's Uinta Mountains, northwest Colorado, and much of Wyoming's ranges (Fig. 1a). However, despite seemingly good snowfall, much of the southern half of the Rockies experienced a decrease in forecast runoff this week.

Refs: [ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_snowdepth\\_7ddelta.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_snowdepth_7ddelta.pdf)  
[ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily\\_forecast/maps/west\\_dailyfcst\\_7daych.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily_forecast/maps/west_dailyfcst_7daych.pdf)



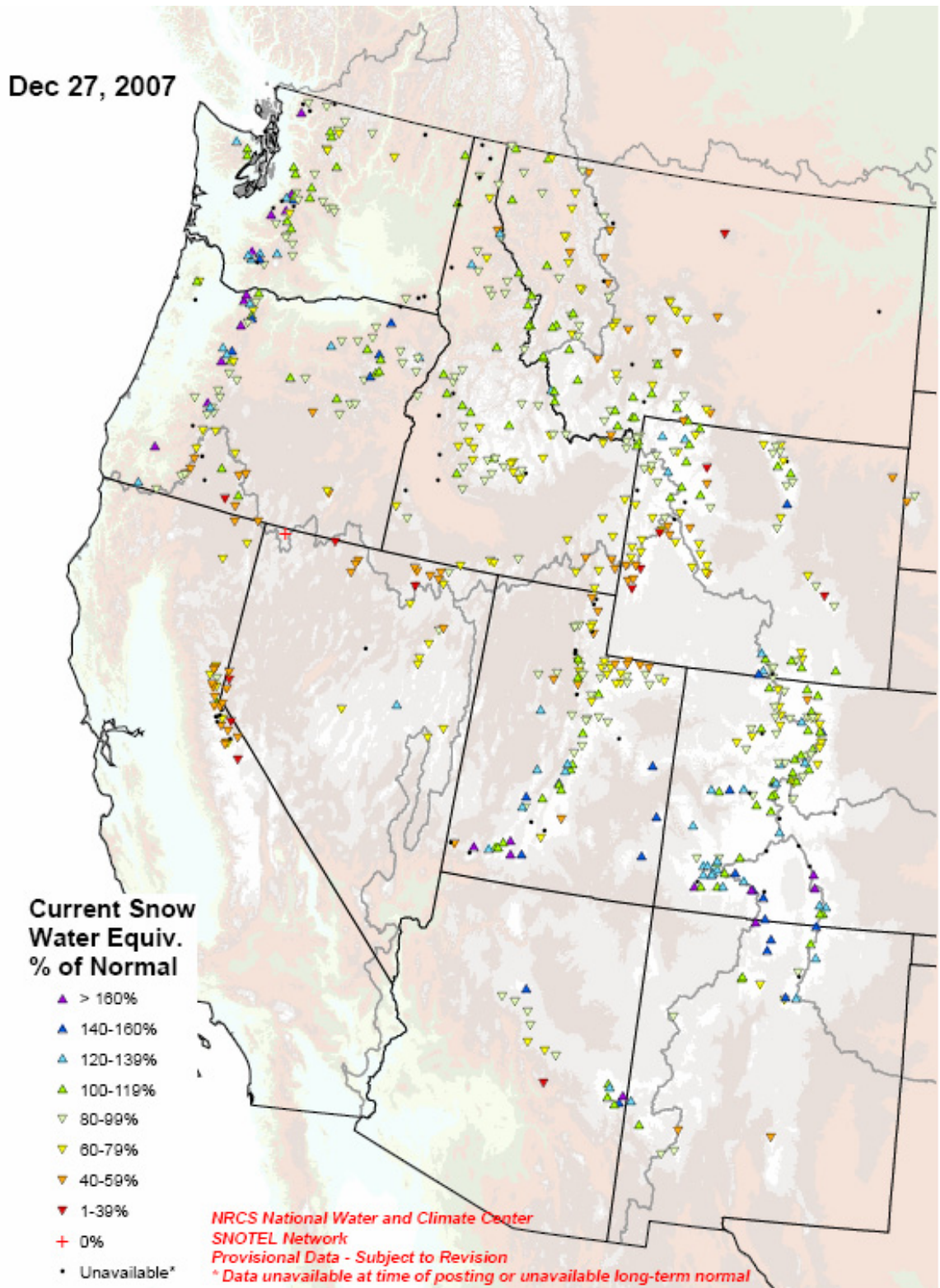


Fig. 1b. Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal values over the Southern Rockies and portions of the Cascades (WA & OR) and Wasatch (UT). Below normal values persist over the Snake River Basin WY & ID), Sierras (NV & CA), and Eastern Slope of the Rockies (MT).

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

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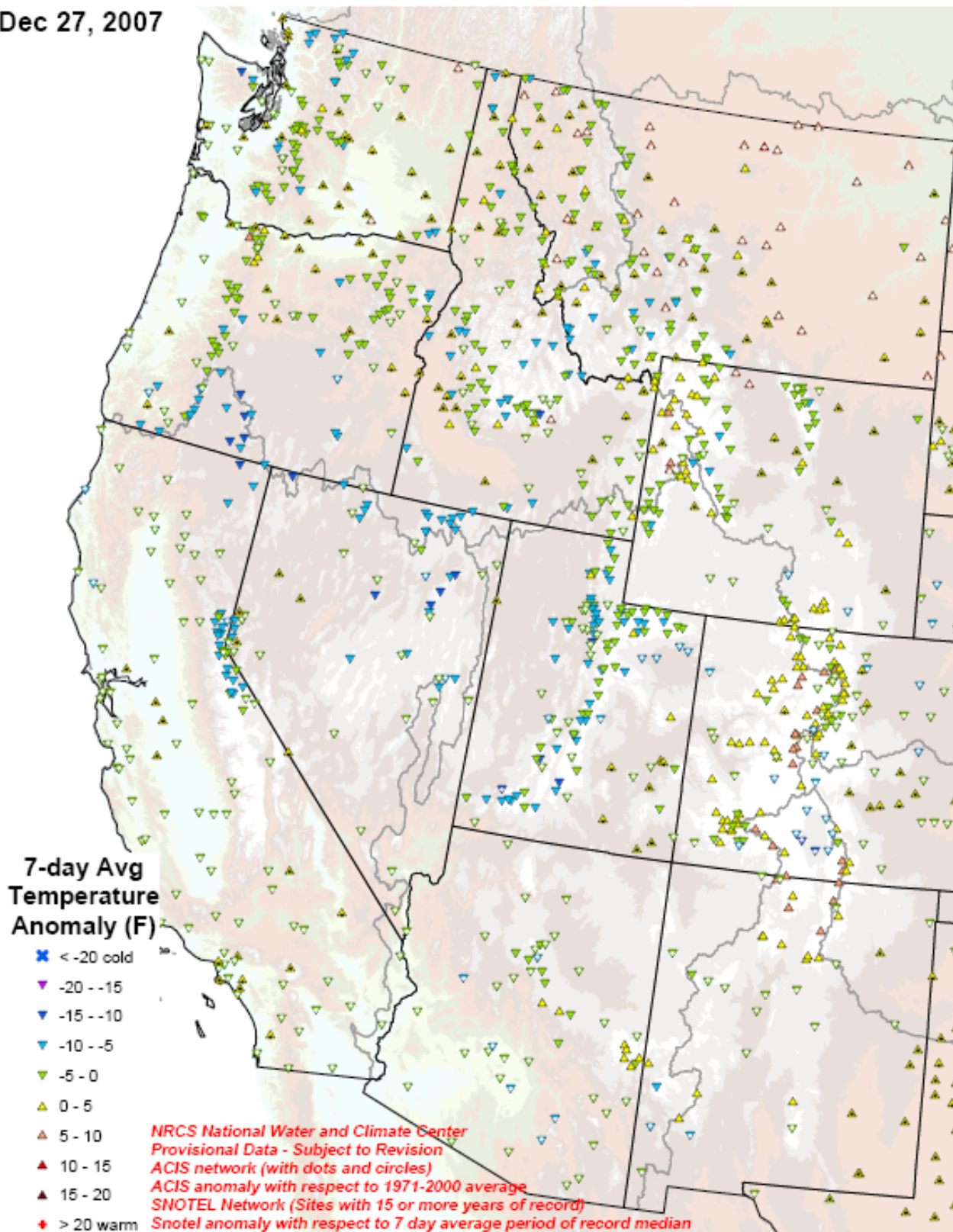
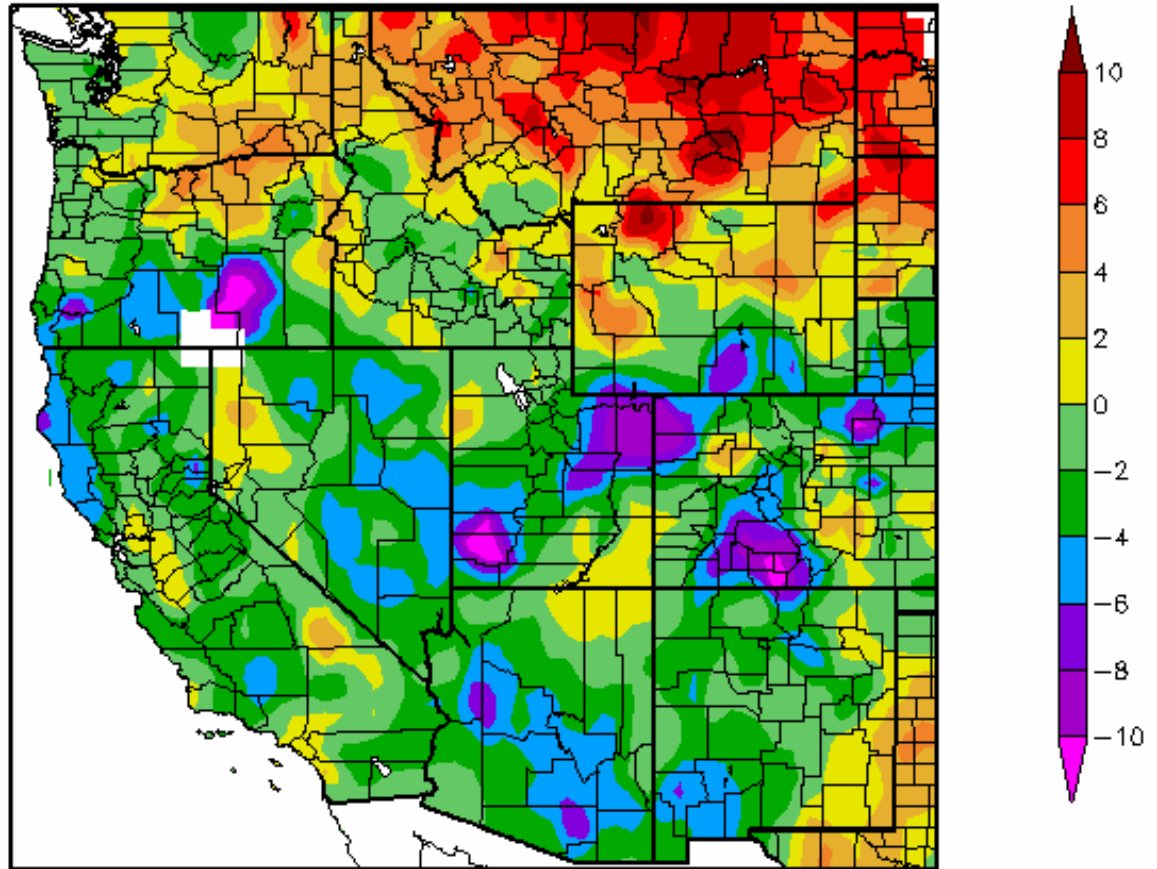


Fig. 2. SNOTEL & ACIS 7-day stations daily average temperature anomaly shows below normal temperatures across much of the West with the coldest departures (-10F) over the Sierras, Wasatch, Great Basin (NV), and higher elevations of the ranges in ID and MT.

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

Departure from Normal Temperature (F)  
12/20/2007 – 12/26/2007



Generated 12/27/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

Current Climate Summary Maps are produced daily using data from the [Applied Climate Information System \(ACIS\)](#). Stations used are from the National Weather Service Cooperative Observer Network (COOP), and the Automated Weather Data Network (ADN). All near-real-time data are considered preliminary and should be used responsibly.



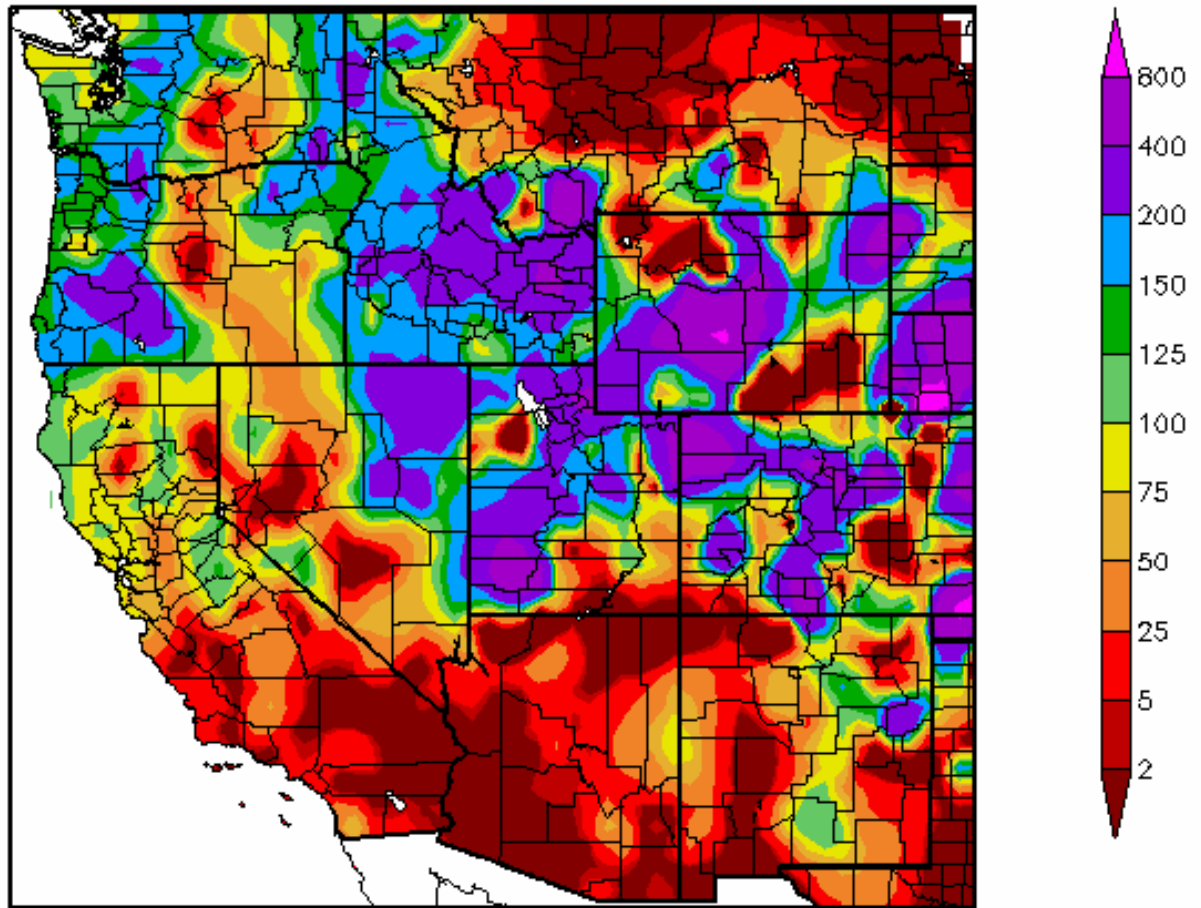
Normal refers to the 1971-2000 Climate Normal for the selected product.

**Fig. 2a. ACIS 7-day average temperature anomaly: Greatest negative temperature departures over the Uinta Mountains (-8F) and greatest positive temperature departures over Montana (+10F).**

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 (%)  
12/20/2007 – 12/26/2007



Generated 12/27/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

The Current Climate Summary Maps are produced daily using data from the Applied Climate Information System (ACIS). Stations used are from the National Weather Service Cooperative Observer Network (COOP), and the Automated Weather Data Network (AWDN). All near-real-time data are considered preliminary and should be used responsibly.

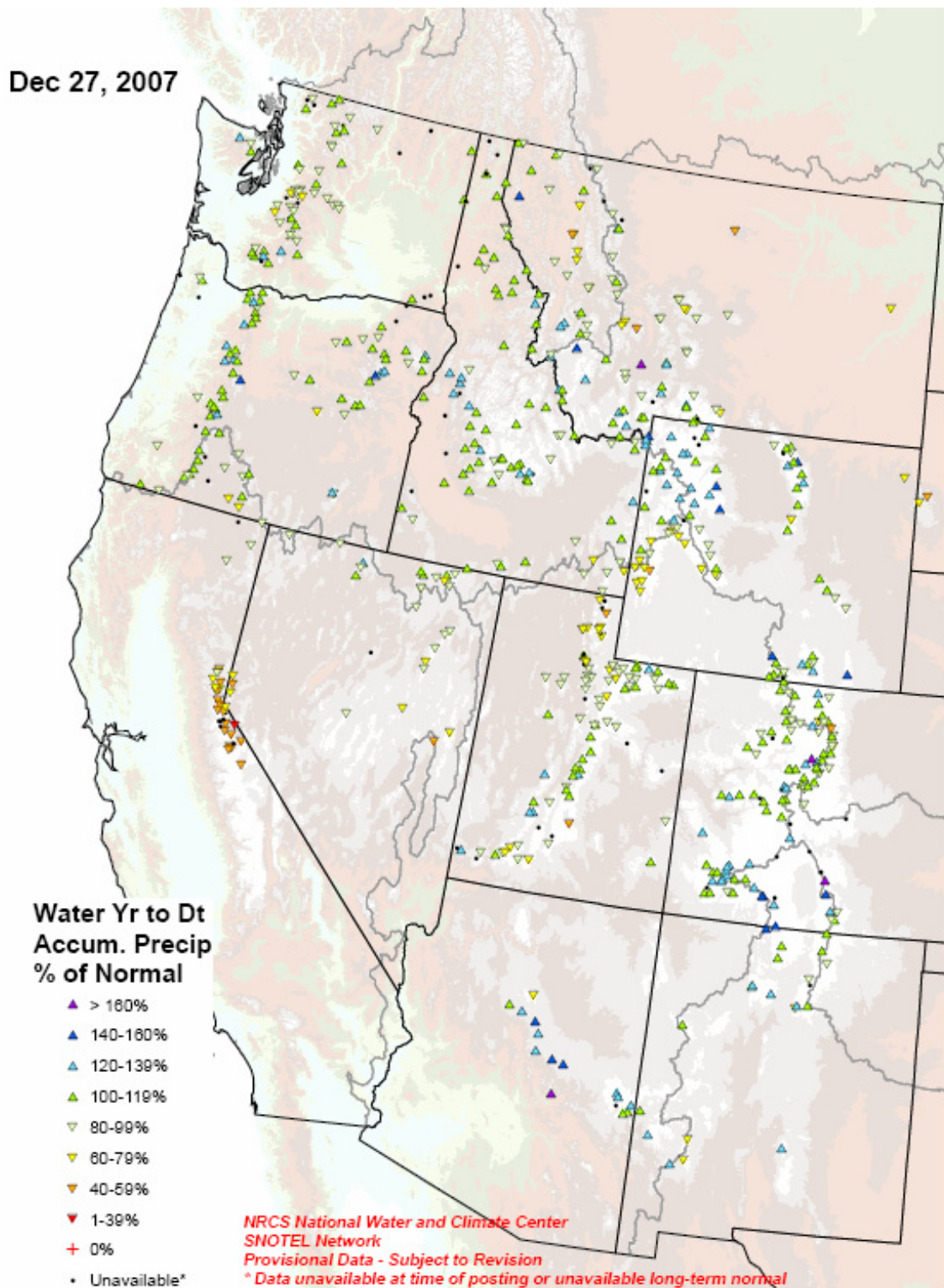


Normal refers to the 1971-2000 Climate Normal for the selected product.

**Fig. 3. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending 26 December shows significant precipitation across the Pacific Northwest and across Idaho, Utah, and the Central Rockies.**

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 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of the Rockies and Arizona ranges with near normal amounts over the Cascades. The Sierras and Northern Wasatch are currently running behind the long-term averages to date.**

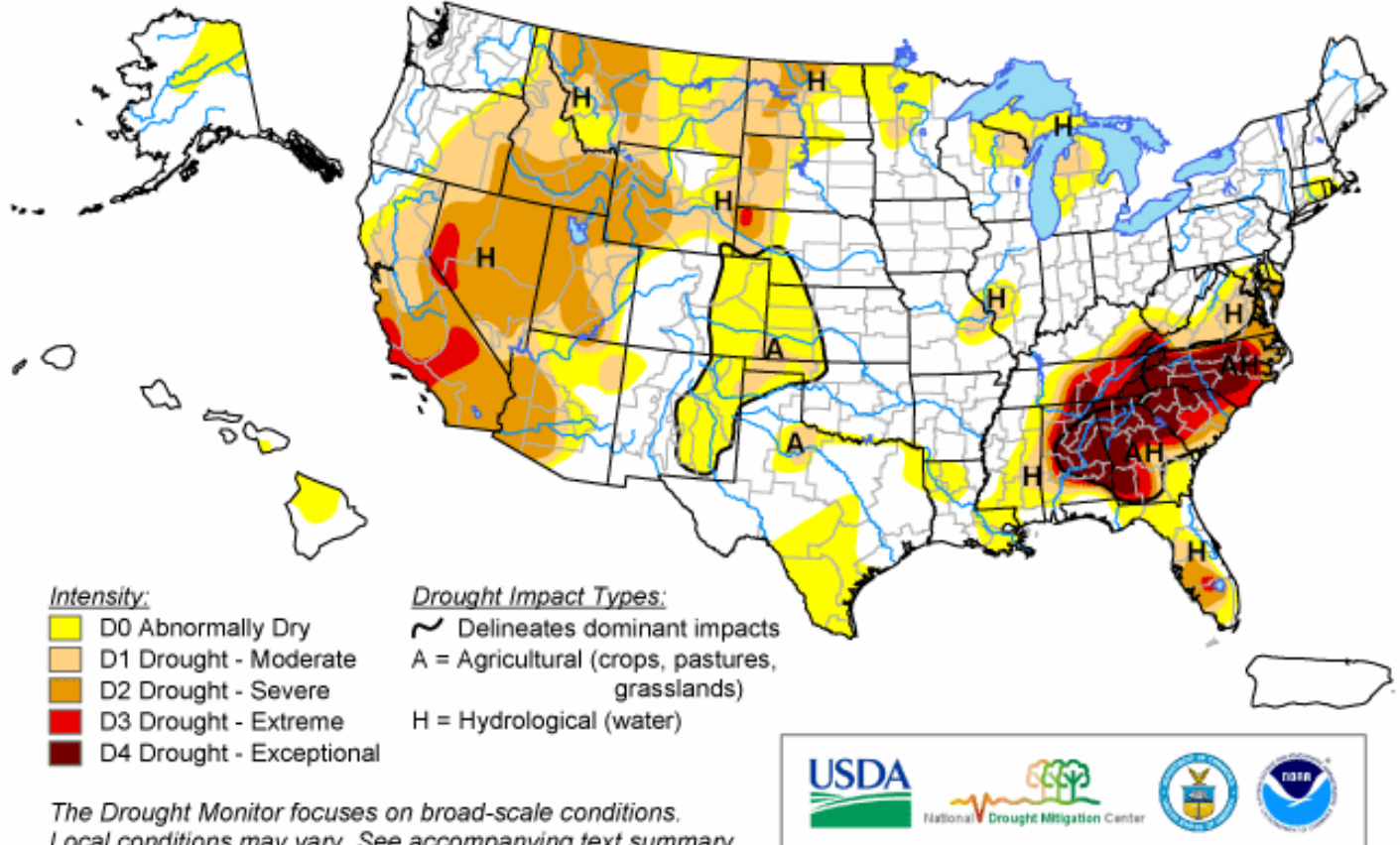
Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>



# U.S. Drought Monitor

December 25, 2007

Valid 7 a.m. EST



Released Thursday, December 27, 2007

Author: Richard Heim, NOAA/NESDIS/NCDC

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

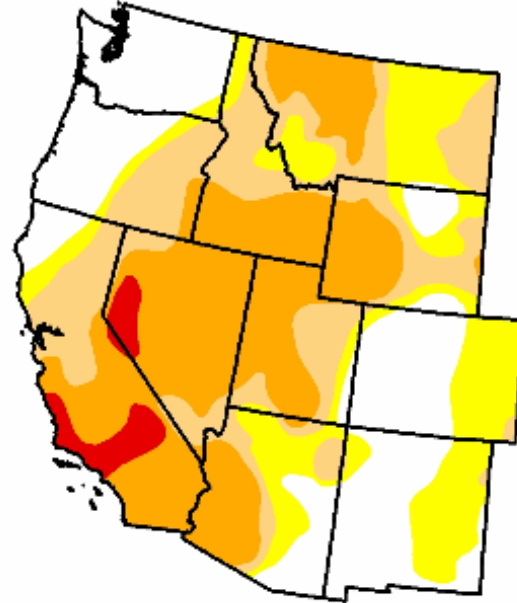
December 25, 2007

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 (12/18/2007 map)	26.3	73.7	54.7	33.1	2.7	0.0
3 Months Ago (10/02/2007 map)	22.0	78.0	62.3	44.7	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 (12/26/2006 map)	49.2	50.8	23.7	9.4	4.0	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 27, 2007

Author: Richard Heim, NOAA/NESDIS/NCDC

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

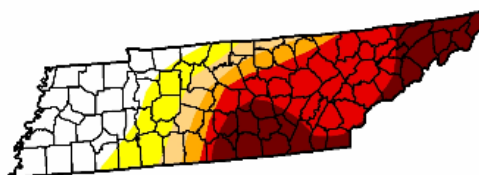
Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

# U.S. Drought Monitor

## Tennessee

December 25, 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 (12/18/2007 map)	27.4	72.6	60.8	53.8	46.8	20.7
3 Months Ago (10/02/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
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 (12/26/2006 map)	39.5	60.5	0.0	0.0	0.0	0.0



### Intensity:



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

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



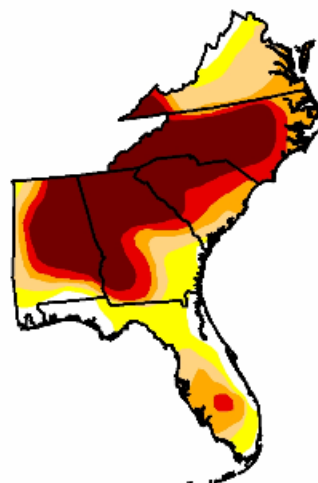
Released Thursday, December 27, 2007  
Author: Richard Heim, NOAA/NESDIS/NCDC

# U.S. Drought Monitor

## Southeast

December 25, 2007  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.0	91.0	76.9	62.3	47.8	36.2
Last Week (12/18/2007 map)	9.1	90.9	78.3	63.0	47.9	36.2
3 Months Ago (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
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 (12/26/2006 map)	52.9	47.1	11.0	2.4	0.0	0.0



### Intensity:



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

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

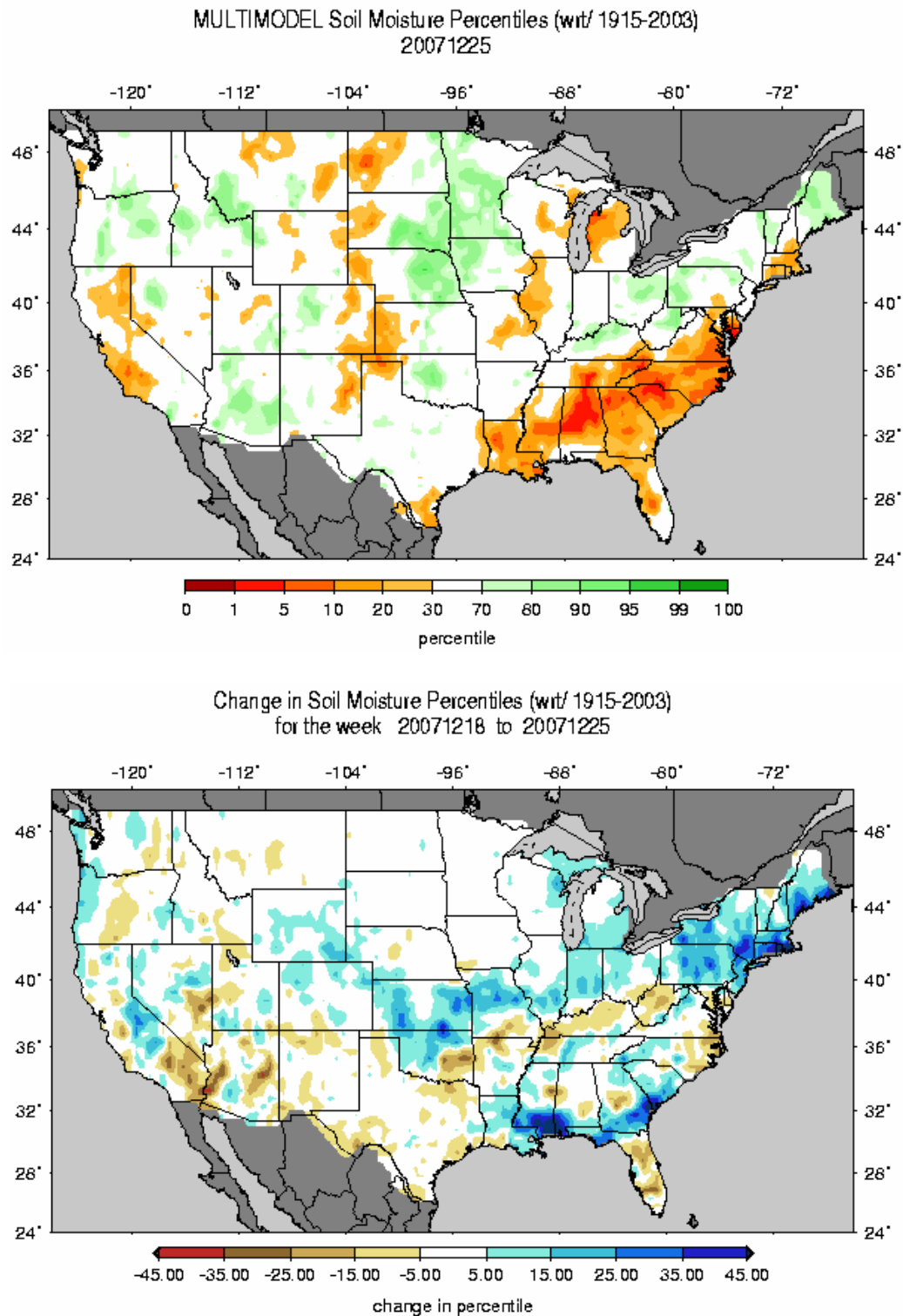


Released Thursday, December 27, 2007  
Author: Richard Heim, NOAA/NESDIS/NCDC

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 significant change in drought intensities for Tennessee and 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)



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**Figs. 5 & 5a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Note some improvement over of the Southeast, Northeast, Ohio Valley, and Central Plains and worsening over Southern California during the past week. However, the Southeast still remains exceptionally dry.**

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).

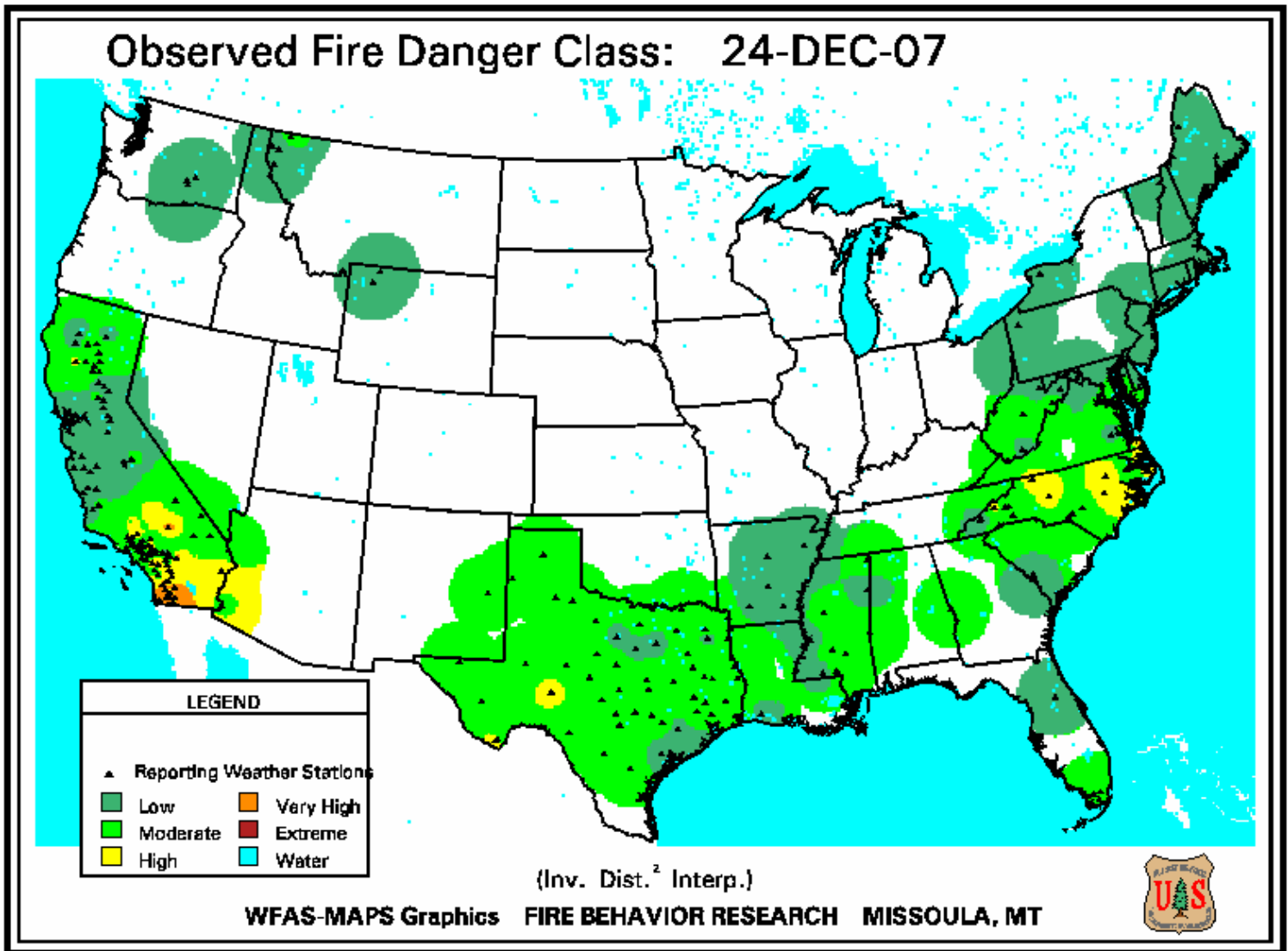
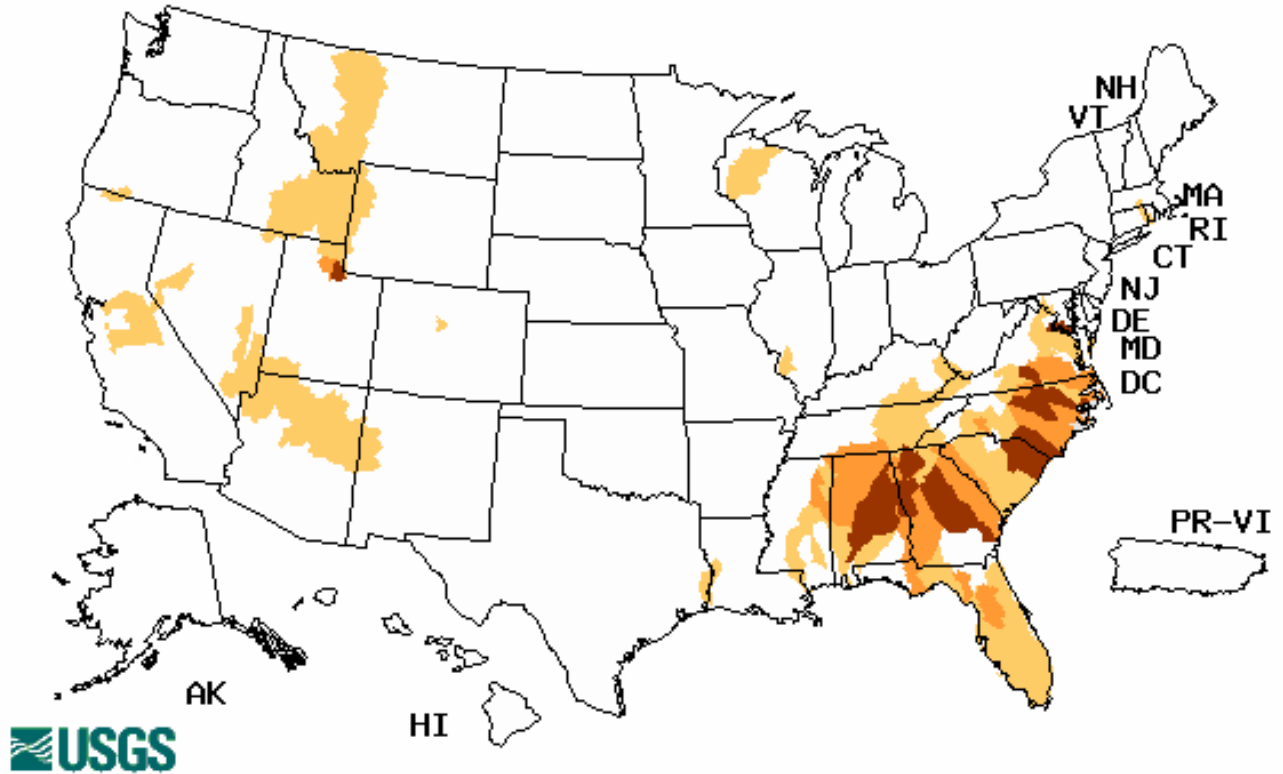


Fig. 6. Observed Fire Danger Class as of 24 December. Source: Forest Service Fire Behavior Research – Missoula, MT. Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

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Wednesday, December 26, 2007



Explanation - Percentile classes				
Low	$\leq 5$	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.

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



## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- December 25, 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/>.

A series of Pacific weather systems moved across the country during this U.S. Drought Monitor week. Some of the western and southeastern drought areas received beneficial precipitation. But, except for a few areas, amounts were not enough to alleviate long-term moisture deficits.

**The Southeast, Mid-Atlantic, and Midwest States:** A band of 2- to 4-inch rains swept across the Gulf Coast, from Mississippi to the Florida panhandle, and up across southern Georgia. D0/D1/D2 were pulled back in southeastern Alabama, with D3 slightly adjusted to reflect the areas of greatest improvement to the long-term conditions. Savannah, Georgia, received over 7 inches of rain, bringing the year-to-date totals to near normal. As a result, D0/D1/D2 retreated in the Savannah area. One to 4 inches of precipitation fell across western Tennessee and Kentucky and extreme northern Alabama, just outside the drought areas. The core drought area in the Southeast received an inch or less of rain, which was not sufficient for significant improvement.

While this is the dry season across Florida, the last 2 months have been unusually dry. Miami has received only 1.45 inches of rain since November 1, compared to a normal of 5.25 inches, or 28 percent of normal. West Palm Beach has received only 39 percent of the normal November 1-December 25 rainfall. Groundwater levels from southern Palm Beach County to interior Miami-Dade County were within the lowest 10 to 30 percent, with some in the lowest 10 percent of historical elevations. D0 expanded slightly in southern Florida, reflecting increasing rainfall deficits, increasing risk of fire danger as indicated by KBDI values, and decreasing groundwater levels.

**The Northeast:** Rain and snow were reported across the Northeast, with the heaviest amounts occurring outside the abnormally dry area in southern New England. D0 remained across parts of Connecticut, Massachusetts, and Rhode Island, reflecting lingering hydrological impacts.

**The Plains and South:** A major snowstorm snarled traffic across parts of the Plains this week. Half an inch to an inch of precipitation fell in the northern Black Hills of South Dakota, enough to shave the D2 from that area. Otherwise, precipitation amounts over the drought and abnormally dry areas were generally less than half an inch, so no other improvements were made to the depiction. No precipitation fell over southern Texas, further deepening deficits that have been growing for the last 4 months. Since this is the dry season there, lakes and reservoirs are in reasonably good shape, and minimal impacts have been reported, no degradation was made to the D0 depiction in southern Texas this week.

**The West:** The winter storms this week brought welcome rain and snow to many basins, with some areas receiving several inches of precipitation, but amounts were less than half an inch in most locations. The heaviest amounts of 5 to 10 inches occurred over drought-free coastal

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Oregon and Washington. Two to 4 inches of moisture fell in favored upslope areas of interior California, but snowpack conditions in the Sierra Nevada basins, for example, were still less than 70 percent of average for this time of year. Continued low reservoirs, below-average mountain snowpack, and long-term precipitation deficits resulted in no change to the depiction in the West.

**Alaska, Hawaii, and Puerto Rico:** The week was drier but colder than normal across most of Alaska. An inch or less of rain fell in Puerto Rico this week, but the month-to-date has been wetter than normal. The rainfall pattern over the Hawaiian Islands was mixed but mostly drier than normal. No changes were made in these areas this week.

**Looking Ahead:** The parade of Pacific weather systems will continue during the next week, bringing rain and snow to many areas of the country. An inch or more of precipitation may fall by December 31 in the northern Rockies with a few other drought areas in the West receiving up to half an inch. Heavier amounts, up to several inches in places, are forecast for the non-drought areas from northern California to western Washington. Several weather systems are forecast to bring an inch or more of precipitation to the eastern third of the country, from Louisiana to New England, while up to 3 inches may fall across parts of the core drought area in the Southeast. Temperatures are predicted to be below normal in the western U.S. and above normal in the east.

For January 2-8, drier-than-normal weather is expected for the southern half of the nation and the Great Plains, as well as Alaska, while the Pacific Northwest and Northeast should be wetter than normal. The period is expected to start out colder than normal in the southern half of the country and warmer than normal in the northern half, with the above-normal temperatures expanding to cover most of the Lower 48 States by the end of the period. Alaska is forecast to continue colder than normal.

**Author:** [Richard Heim, NOAA/National Climatic Data 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 26, 2007