



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date:**    **January 17, 2008**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** During the past week, snowfall accumulations were up across the Northern Rockies and down across the southern half of the Cascades, Sierra, Wasatch, San Juan Mountains (CO), and New Mexico - Arizona Ranges (Fig.1). A preliminary forecast decrease of ~15% in spring-summer runoff occurred this week over the Wasatch and South Rockies. Snow-water equivalent percent to date shows well above normal values over portions of the Cascades (WA & OR), Southern Rockies (CO & NM), and the mountains of AZ & NM. Below normal values exist over the eastern slope of Montana, the Great Basin (NV, ID, OR), and over much of Wyoming (Fig. 1a).

**Temperature:** For the past seven days, station daily average temperature anomaly were within +/- 5F of normal across the West with the exception of warmer departures across the eastern slope of the Northern Rockies and colder departures across the Central and Southern Rockies (Fig. 2). The greatest positive temperature departures were over Montana (>12F) and greatest negative temperature departures were over the Colorado Rockies and Utah Uinta Mountains (-12F) (Fig. 2a).

**Precipitation:** Preliminary precipitation totals for the 7-day period ending 16 January shows significant decrease in precipitation across the West. However, some snow fell over the Cascades and Coeur D'Alene Mountains (ID) (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 West. A few river basins are lower than 90% of normal over Montana, Wyoming, and scattered across Utah, Nevada, and the Sierra (Fig. 3a).

## **WESTERN DROUGHT STATUS**

**The Rockies, Intermountain West, and Far West:** Relative to the intense storminess that affected California and many nearby areas during the first week of 2008, last week was relatively quiet, though substantial precipitation was observed across several areas in the northern half of the region. Quite a few locations through this area received at least 1 inch of precipitation, with 2 to 6 inches falling on numerous sites across the northern Sierra Nevada, northeastern Oregon, and the northern half of Idaho. As a result, former D0 to D1 conditions improved by 1 category across some of the northern Intermountain West. Farther south, precipitation has been particularly sub-par in northwestern Nevada and adjacent parts of southeastern Oregon and far northeastern California since the start of the water year, leading to the expansion of D2 conditions into these areas. **Author:** [Rich Tinker, Climate Prediction Center, NOAA/NWS](#)

***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

## Weekly Snowpack and Drought Monitor Update Report

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](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

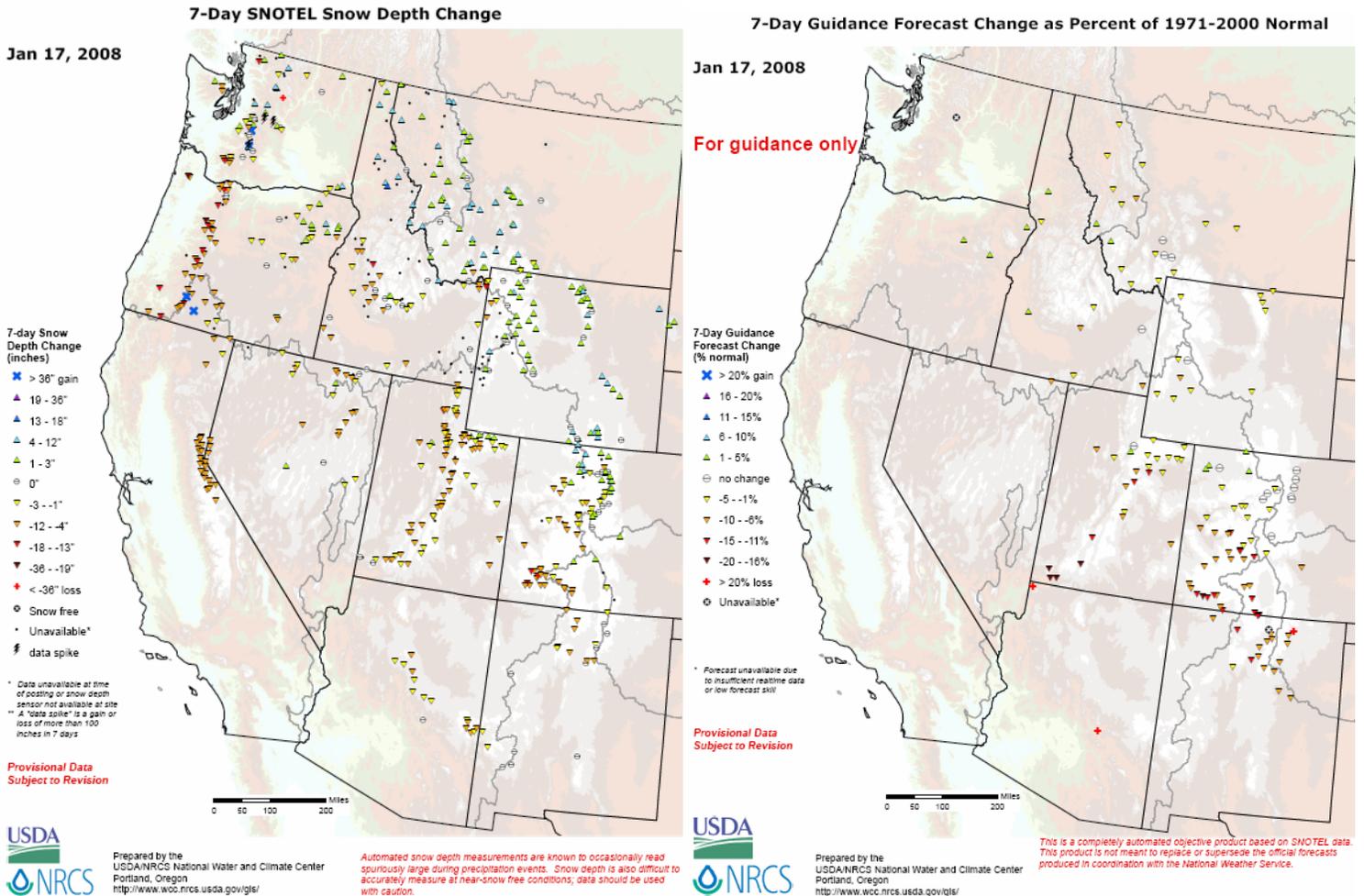
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage -

<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. During the past week, snowfall accumulations were up across the Northern Rockies and down across the southern half of the Cascades, Sierra, Wasatch, San Juan Mountains (CO), New Mexico and Arizona Ranges (left figure) . A preliminary forecast decrease of 15% in spring-summer runoff occurred this week over the Wasatch and South Rockies (right figure). Note: Forecast values for the Sierra and Cascades but are not shown.**

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)

# Weekly Snowpack and Drought Monitor Update Report

## Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

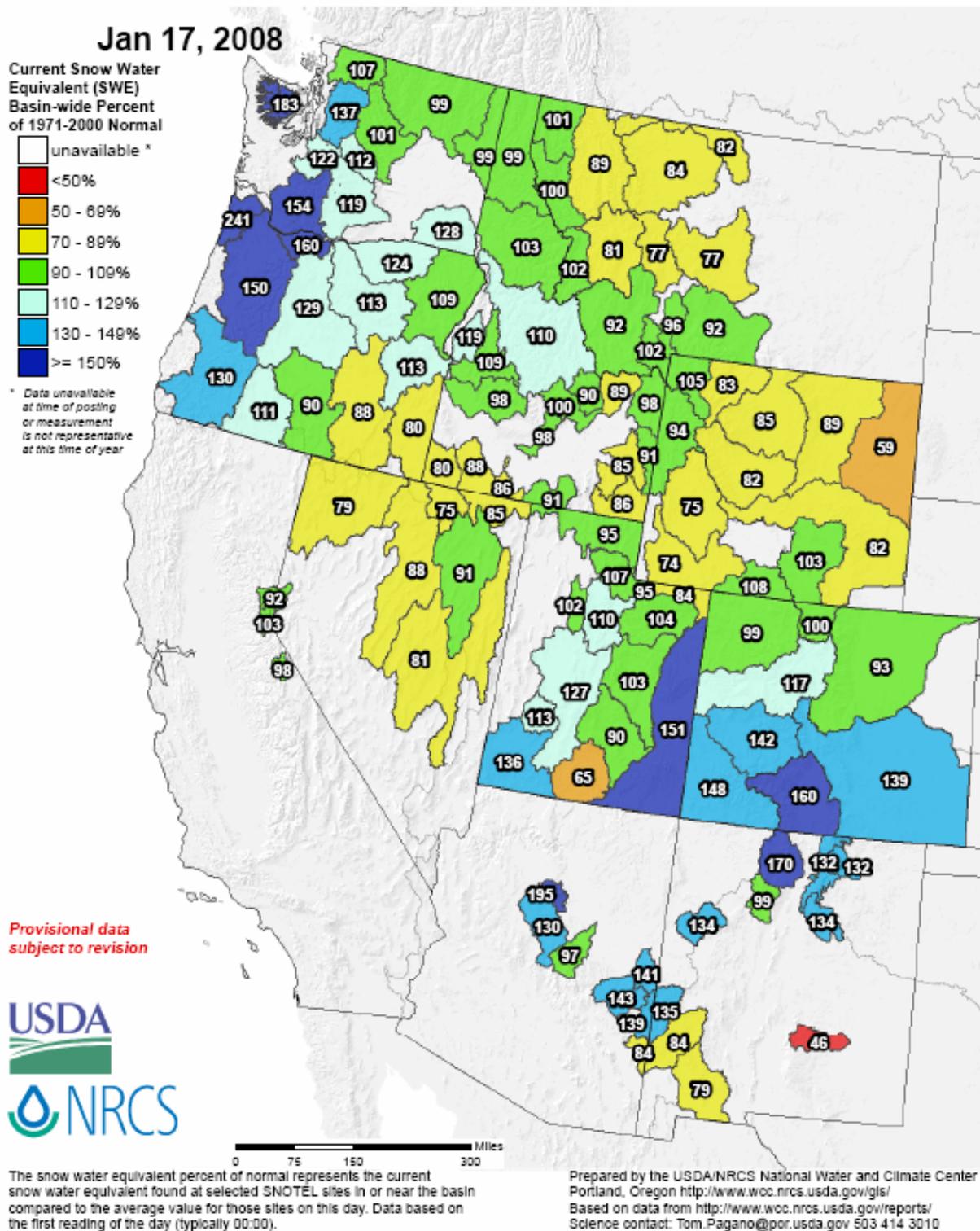


Fig. 1a. Snow-water equivalent percent to date shows well above normal values over portions of the Cascades (WA & OR), Southern Rockies (CO & NM), and the mountains of AZ & NM. Below normal values exist over the eastern slope of Montana, the Great Basin (NV, ID, OR), and over much of Wyoming.

Ref: [ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_swepctnormal\\_update.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_swepctnormal_update.pdf)

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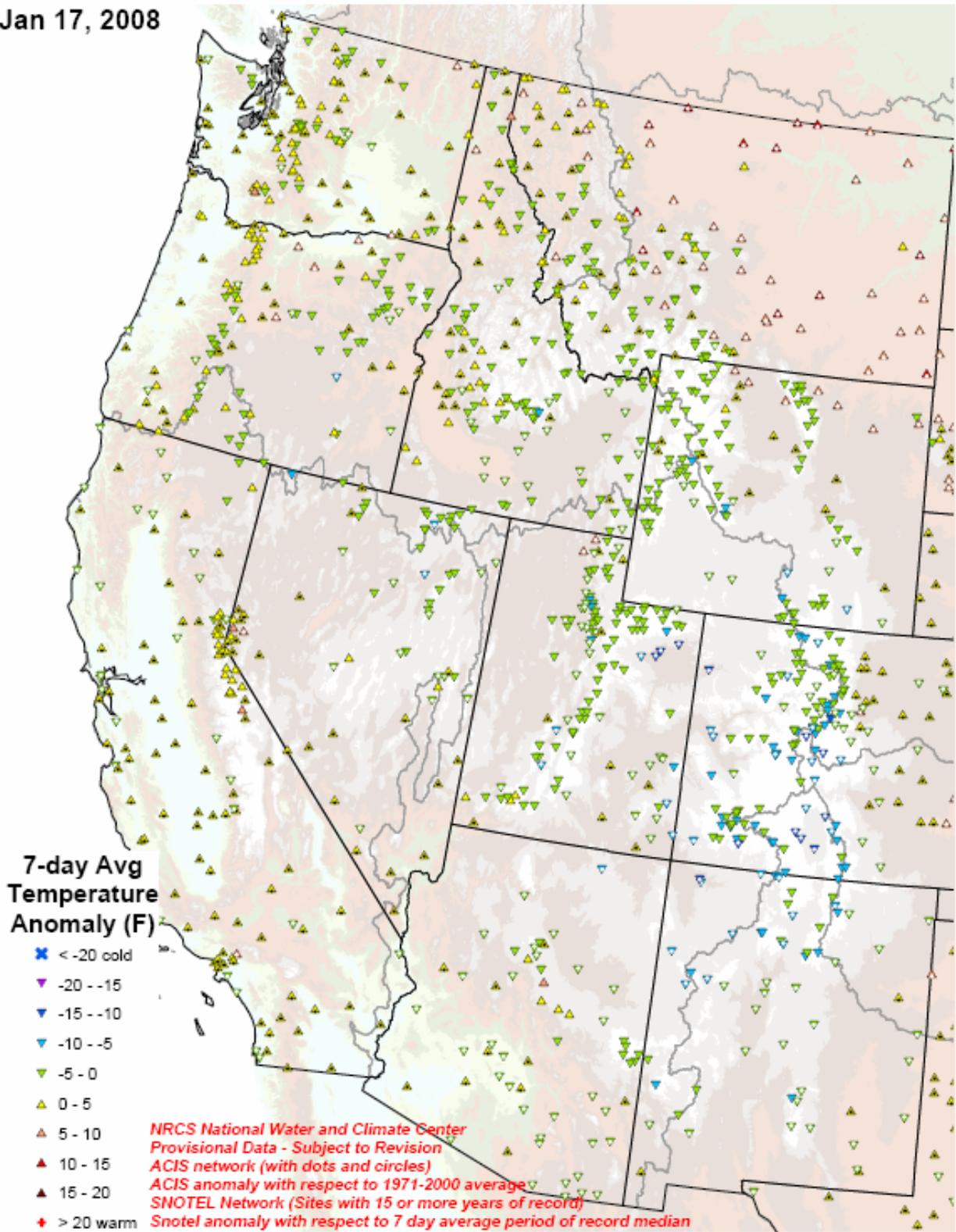
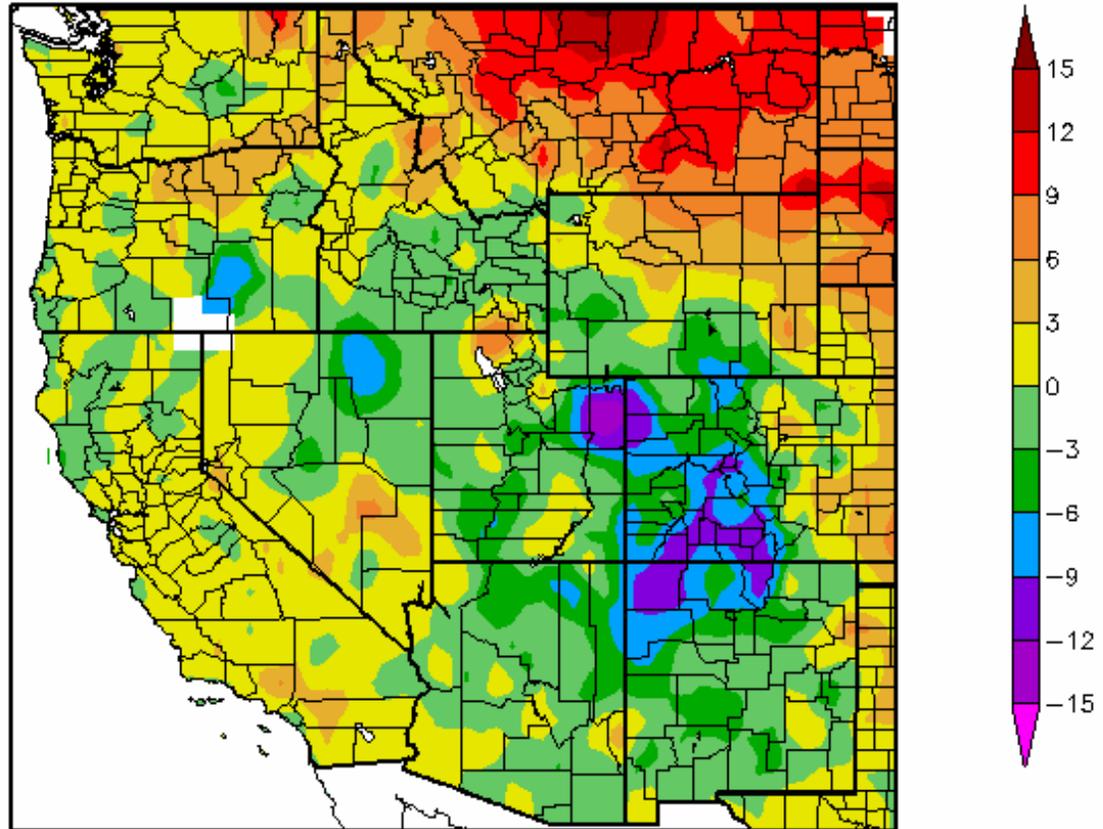


Fig. 2. SNOTEL & ACIS 7-day station daily average temperature anomaly shows within +/- 5F across the West with the exception of warmer departures across the eastern slope of the Northern Rockies and colder departures across the Central and Southern Rockies.

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

Departure from Normal Temperature (F)  
1/10/2008 – 1/16/2008



Generated 1/17/2008 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.

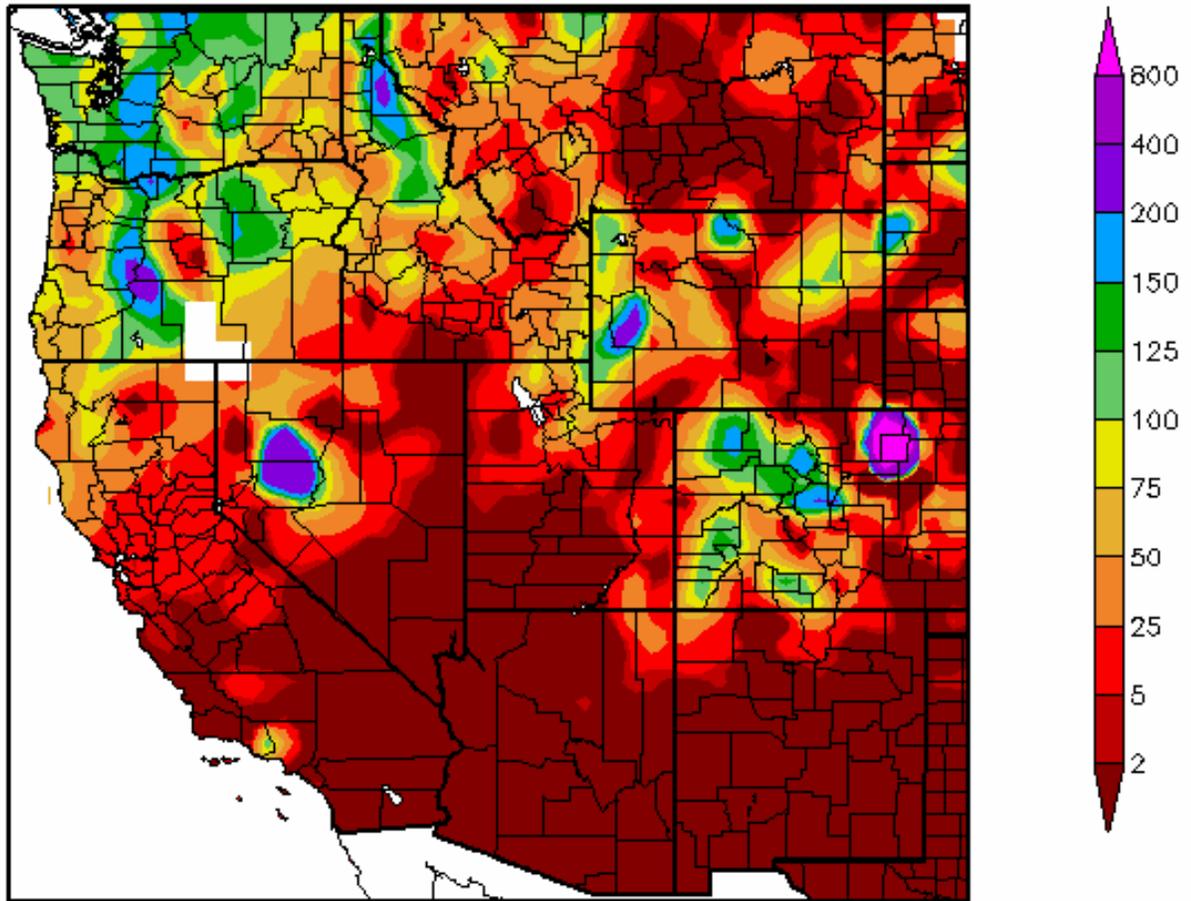
Normal refers to the 1971-2000 Climate Normal for the selected product.



**Fig. 2a. ACIS 7-day average temperature anomaly: Greatest positive temperature departures over Montana (>12F) and greatest negative temperature departures over the Colorado Rockies and Utah Uinta Mountains (-12F).**

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 (%)  
1/10/2008 – 1/16/2008



Generated 1/17/2008 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.



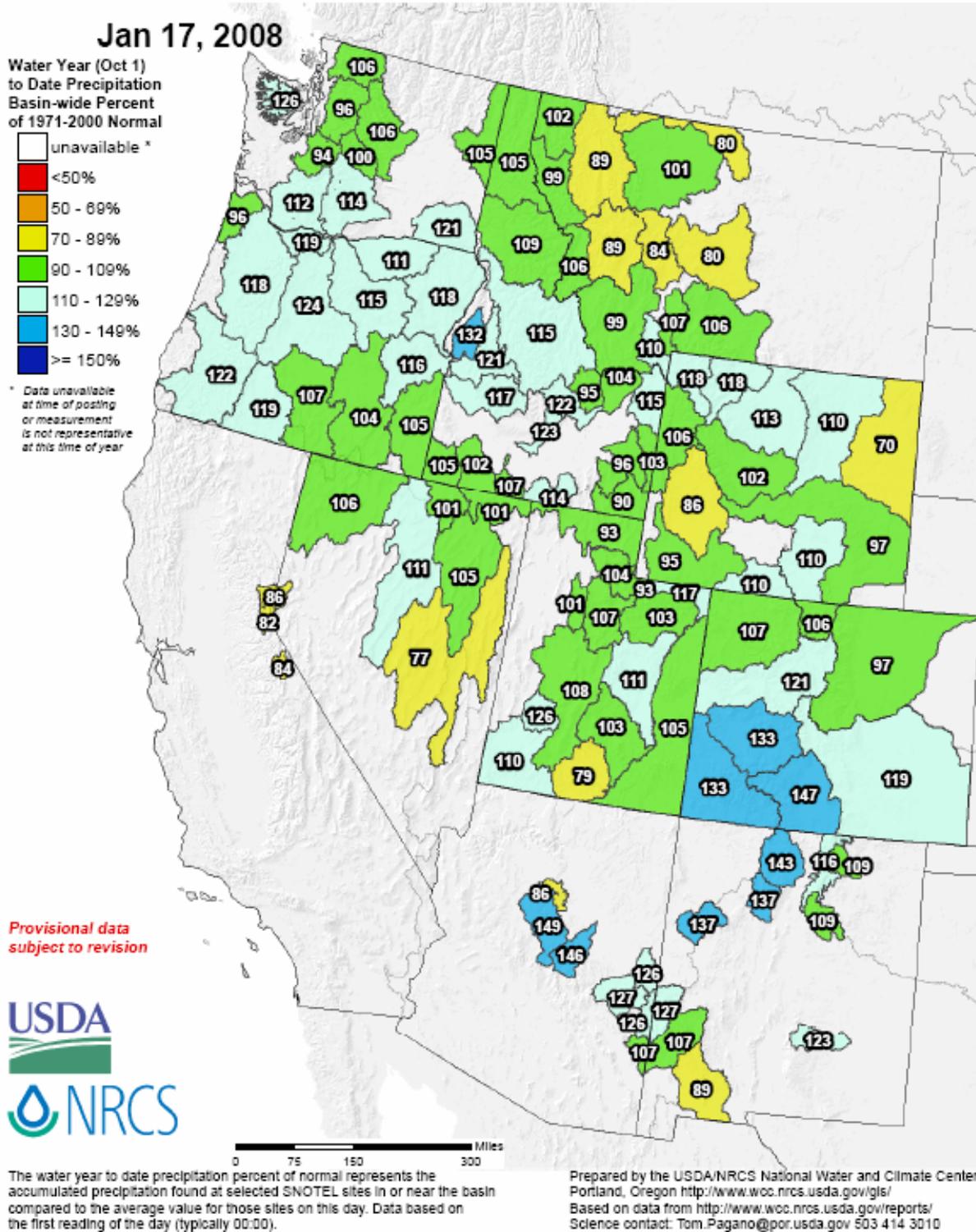
Normal refers to the 1971-2000 Climate Normal for the selected product.

**Fig. 3. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending 16 January shows significant decrease in precipitation across the West. However, some snow fell over the Cascades and Coeur D'Alene Mountains (ID).**

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

## Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

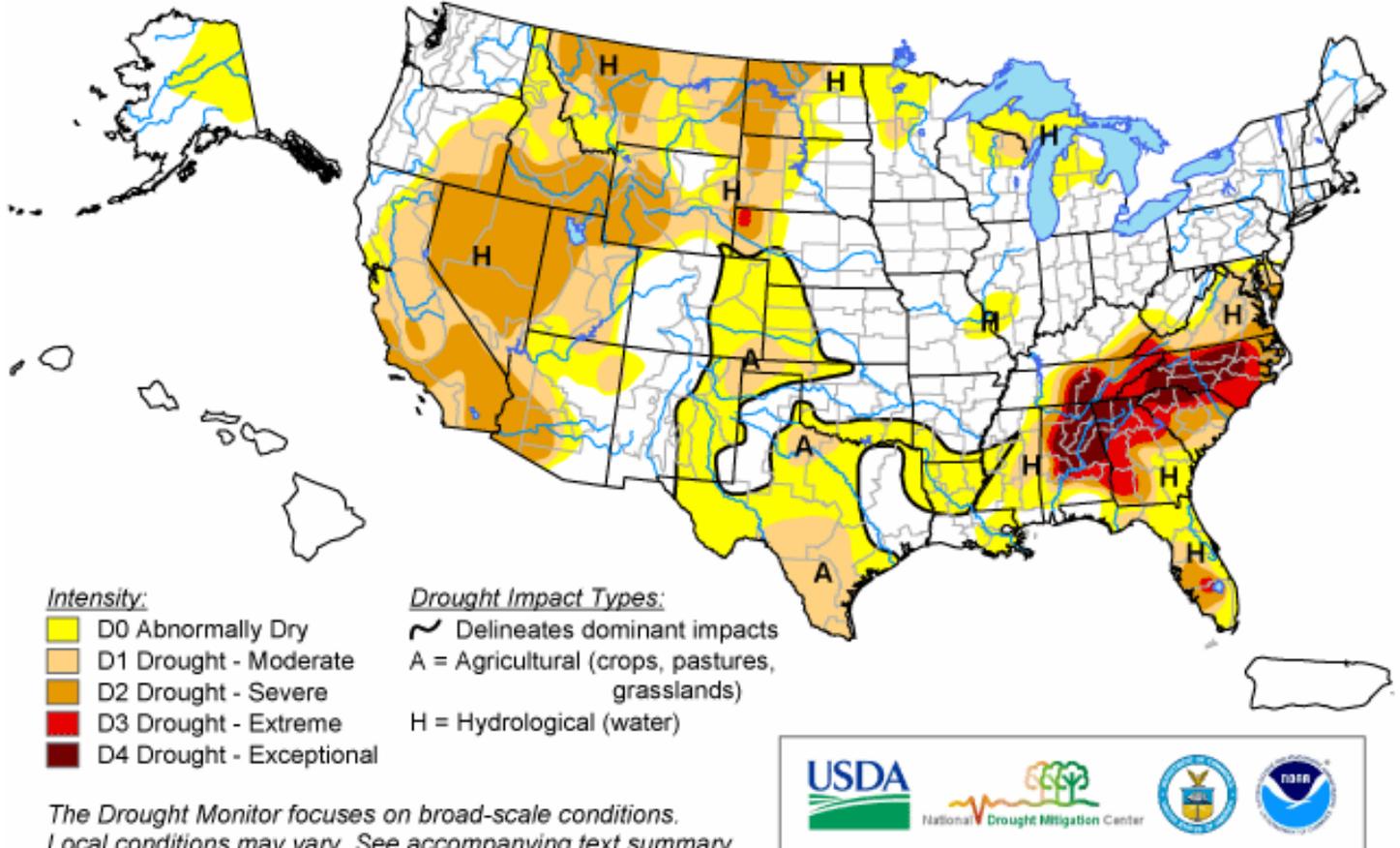


**Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of the West. A few river basins are lower than 90% of normal over Montana, Wyoming, and scattered across Utah, Nevada, and the Sierra.**

Ref: [http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_wytdprecpcnormal\\_update.pdf](http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)

# U.S. Drought Monitor

January 15, 2008  
Valid 7 a.m. EST



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

Released Thursday, January 17, 2008  
Author: Rich Tinker, Climate Prediction Center, NOAA

Fig. 4. Current Drought Monitor weekly summary.  
Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

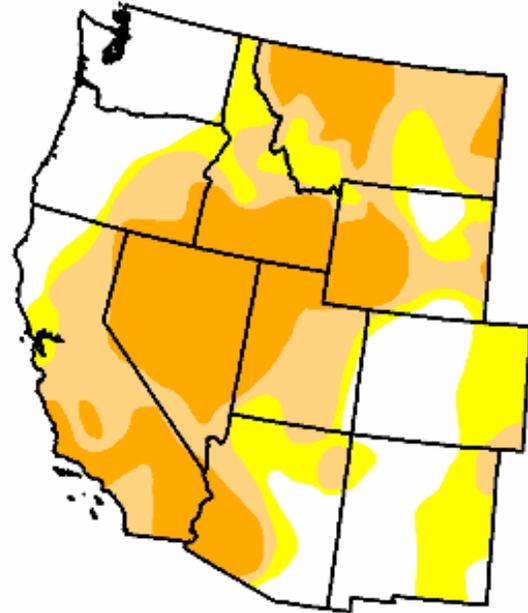
# U.S. Drought Monitor

## West

January 15, 2008  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.3	72.7	53.6	28.5	0.0	0.0
Last Week (01/08/2008 map)	26.9	73.1	54.9	26.7	0.0	0.0
3 Months Ago (10/23/2007 map)	26.0	74.0	57.7	42.6	10.1	0.0
Start of Calendar Year (01/01/2008 map)	26.3	73.7	54.7	33.1	2.7	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 (01/16/2007 map)	50.6	49.4	26.8	12.5	5.0	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, January 17, 2008**  
Author: Rich Tinker, CPC/NOAA

**Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Note no significant change since last week.**  
Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

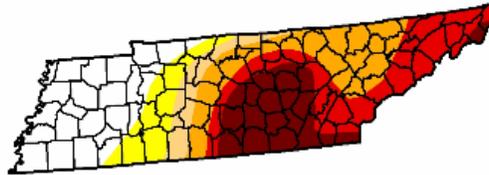
# U.S. Drought Monitor

## Tennessee

January 15, 2008  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.4	72.6	63.3	57.2	38.6	17.8
Last Week (01/08/2008 map)	27.4	72.6	63.3	57.1	49.2	28.8
3 Months Ago (10/23/2007 map)	0.0	100.0	97.5	81.2	69.4	56.1
Start of Calendar Year (01/01/2008 map)	27.4	72.6	60.8	53.8	46.8	19.9
Start of Water Year (10/02/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
One Year Ago (01/16/2007 map)	48.4	51.6	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, January 17, 2008  
Author: Rich Tinker, CPC/NOAA

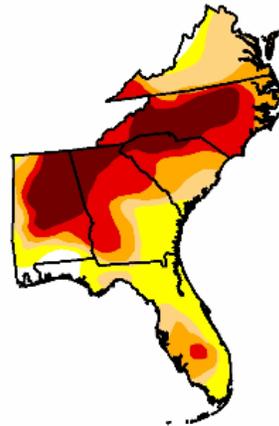
# U.S. Drought Monitor

## Southeast

January 15, 2008  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	3.9	96.1	75.9	58.5	40.4	20.2
Last Week (01/08/2008 map)	9.6	90.4	75.1	58.5	41.0	22.0
3 Months Ago (10/23/2007 map)	13.6	86.4	73.6	64.3	50.0	31.4
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (01/16/2007 map)	64.1	35.9	11.3	2.8	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

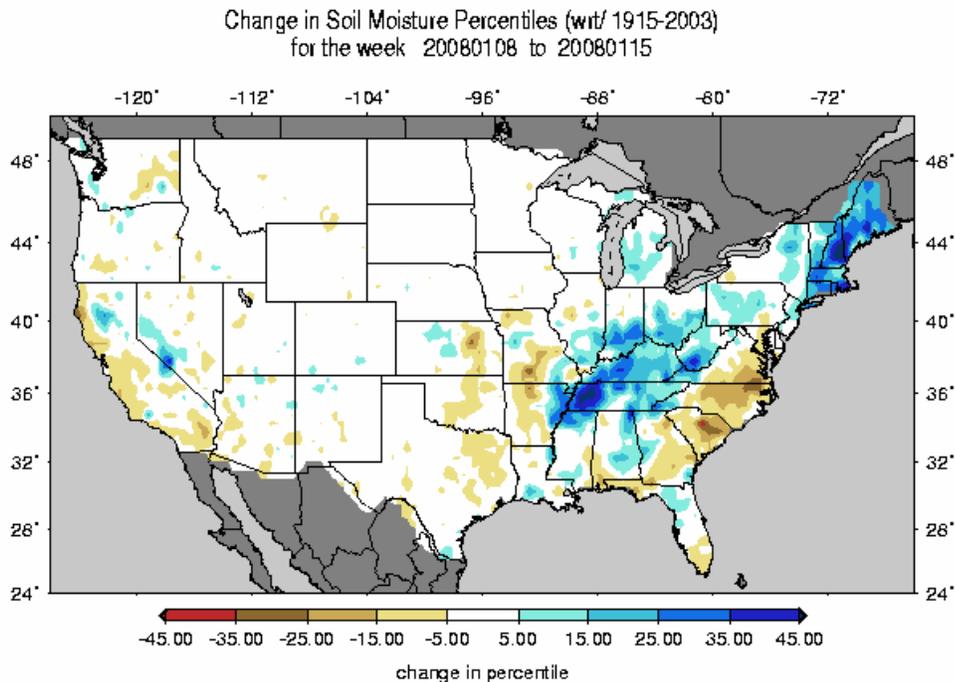
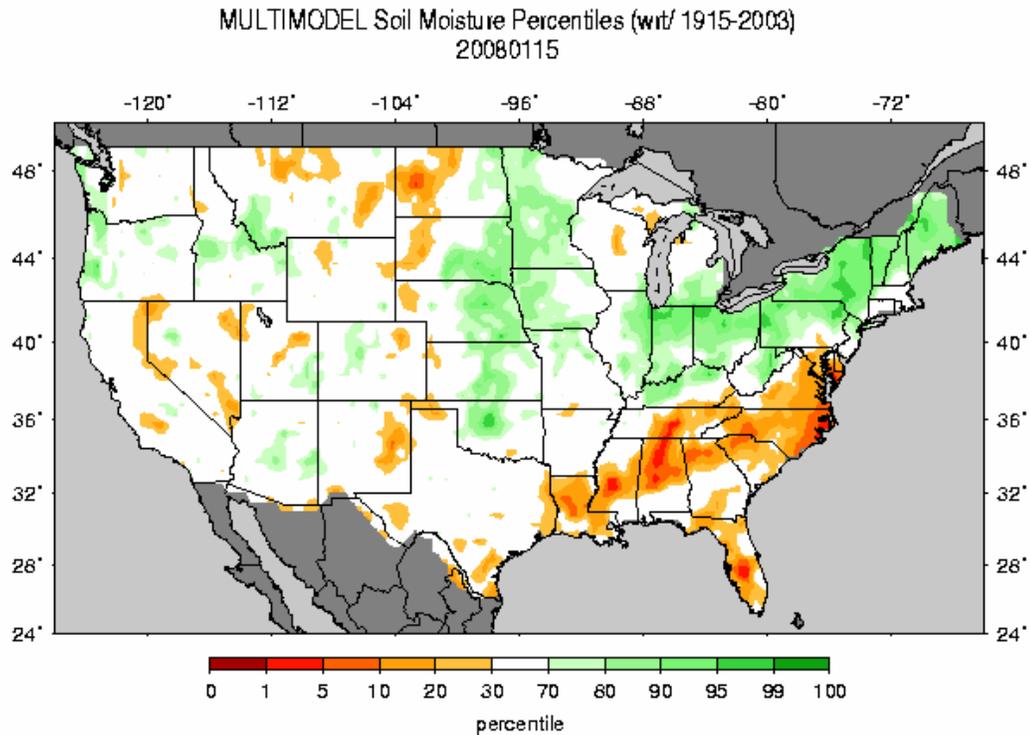
<http://drought.unl.edu/dm>



Released Thursday, January 17, 2008  
Author: Rich Tinker, CPC/NOAA

**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 some improvement in drought intensities for Tennessee but no change over the Southeast during the past week.**  
Ref: [http://www.drought.unl.edu/dm/DM\\_state.htm?TN,S](http://www.drought.unl.edu/dm/DM_state.htm?TN,S)  
[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 some worsening (drying) over of the Mid-Atlantic States and abundant moistening over the Ohio Valley to the middle Mississippi River Valley and over New England during the past week. Remark: In colder regions of the West, frozen ground suggests incorrect values or missing data.**

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).

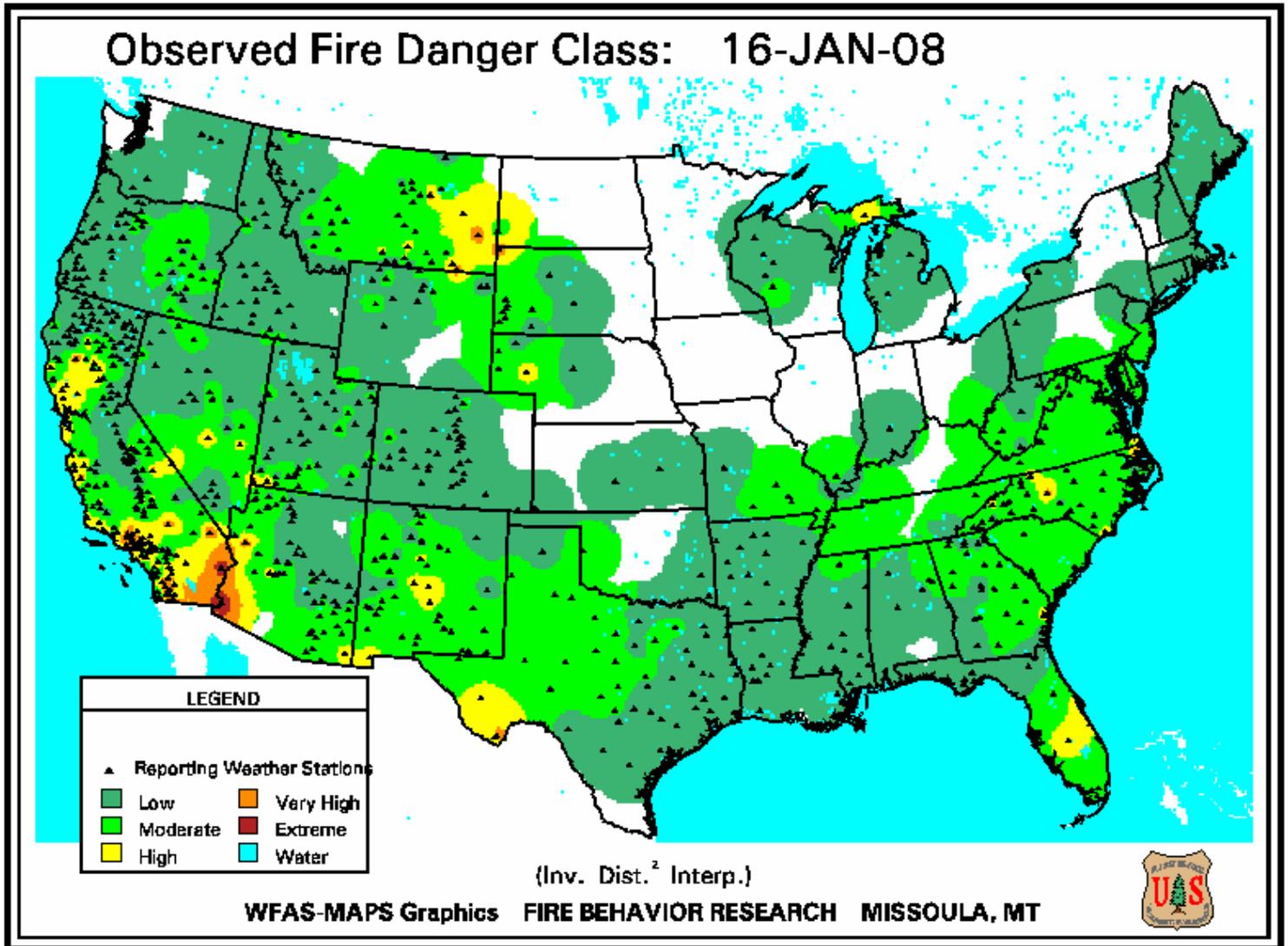
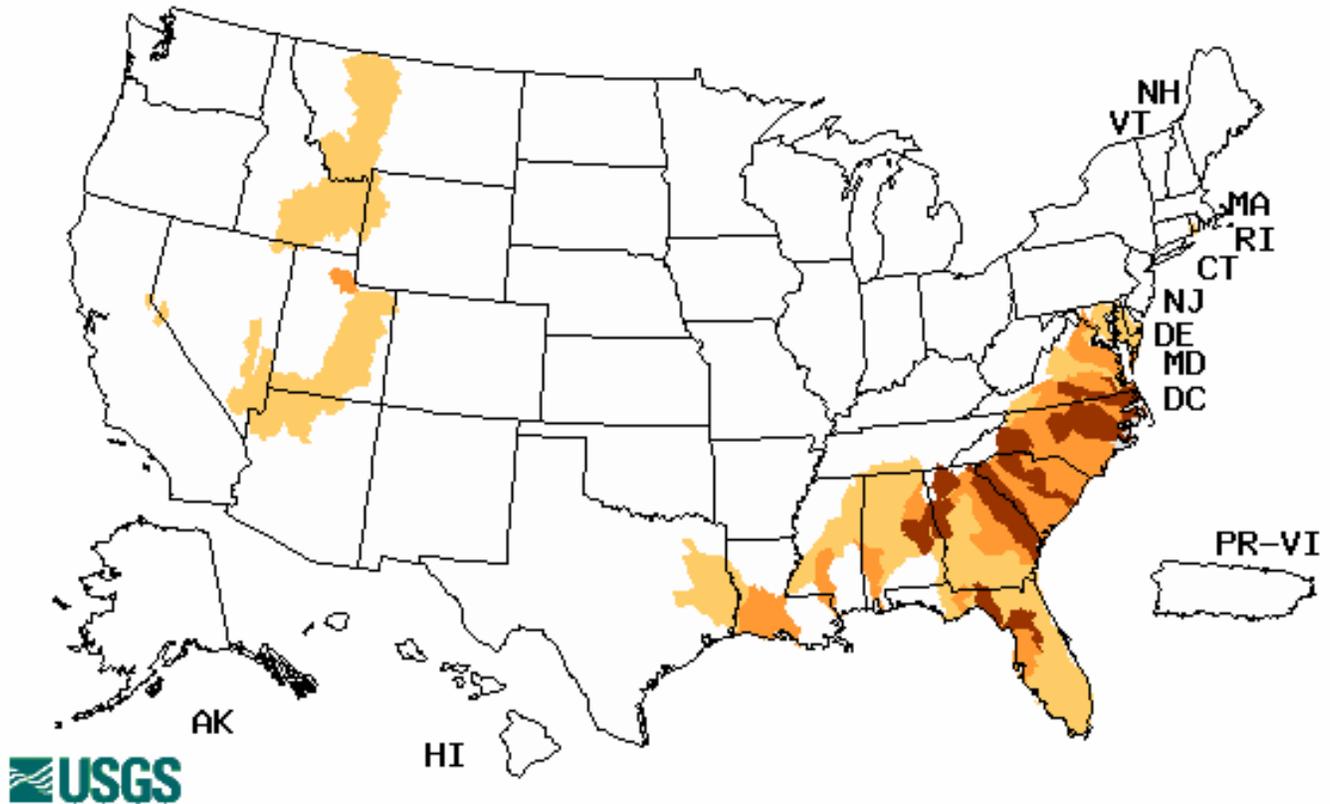


Fig. 6. Observed Fire Danger Class as of 16 January.  
Source: Forest Service Fire Behavior Research – Missoula, MT.  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)

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Hednesday, January 16, 2008



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 low stream flows over the Southeast and Mid-Atlantic States. Values over the colder regions of the West and northern states are probably missing due to river icing and freeze-up.

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

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- January 15, 2008

*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 and Mid-Atlantic:** Significant precipitation fell on many of the areas experiencing dryness and drought across the region last week, but given the magnitude and duration of the drought in much of this area, improvements that seemed substantial enough to warrant a change in the Drought Monitor depiction were relatively limited. For instance, despite 2 to 4 inches of precipitation across much of central and northern Alabama, 60-day precipitation totals remained at least 4 inches below normal at most locations, and 6-month totals more than a foot below normal were not uncommon.

Between 1 and 5 inches of precipitation fell on most locations from southern West Virginia southward and southwestward through western North Carolina, central and western South Carolina, central and northern Georgia, and most of Kentucky, Tennessee, Alabama, and Mississippi, plus adjacent Louisiana. Other areas recorded light to locally moderate amounts. As a result, D2 to D4 conditions from southern West Virginia southward to the Georgia border, including eastern Tennessee and southeastern Kentucky, generally improved by 1 classification category, as did former D0 to D1 conditions in parts of southern Mississippi and a small section of adjacent Louisiana, and former D1 to D3 conditions in south-central Alabama.

In contrast, a few areas that missed most of the precipitation saw precipitation deficits and/or impacts increase enough to warrant some deterioration in the Drought Monitor depiction. D0 and D1 conditions expanded northwestward in northern Virginia and adjacent areas while D1 and D2 conditions pushed westward in part of northeastern Mississippi and northwestern Alabama. Farther south and east, D0 and D1 conditions were introduced across the southeastern Florida Panhandle, and D0 stretched eastward to include the entire southern and eastern coastlines of Florida and Georgia. Most of these new D0 areas are 2 to locally 8 inches below normal precipitation for the last 90 days, and most of southeastern and central Florida received less than 25% of normal precipitation during the last 60 days.

**The Great Lakes Region:** For the second consecutive week, a storm system dropped 1 to 2 inches of precipitation on approximately the eastern half of the dry region covering the northern Great Lakes region. This brought an end to D1 conditions in northwestern lower Michigan and extreme northeastern Wisconsin, and some whittling away of D0 conditions in north-central lower Michigan and east-central Wisconsin. Elsewhere, D0 to D1 conditions remained intact.

**The Midwest:** With only light precipitation observed during the week, D0 conditions persisted in portions of east-central Missouri and southwestern Illinois. This area has received less than 75% of normal precipitation over the past 6 months, with some areas recording only 25% to 50% of normal during this period.

**The Plains:** The dry areas stretching from Texas and eastern New Mexico northward through the High Plains and across parts of the Dakotas and Minnesota received only light precipitation at best

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last week, keeping dryness and drought essentially unchanged though a few areas of deterioration were observed. Most significantly, a number of indicators led to the expansion of D2 westward through western North Dakota and part of eastern Montana. Elsewhere, D0 expanded slightly eastward in central South Dakota, D1 conditions grew westward into parts of southeastern Colorado and northeastern New Mexico, D0 expanded eastward slightly into east-central New Mexico and adjacent Texas, and also expanded to cover much of southern Oklahoma, southwestern Arkansas, and east-central Texas. Furthermore, D1 conditions pushed eastward along the Red River in northern Texas, and pushed northward to cover a greater portion of southern and central Texas, including the Austin, TX area. During the last 90 days, less than 25% of normal precipitation has fallen on much of central and southern Texas, the Big Bend region, and a good portion of the D1 area in northern Texas.

**The Rockies, Intermountain West, and Far West:** Relative to the intense storminess that affected California and many nearby areas during the first week of 2008, last week was relatively quiet, though substantial precipitation was observed across several areas in the northern half of the region. Quite a few locations through this area received at least 1 inch of precipitation, with 2 to 6 inches falling on numerous sites across the northern Sierra Nevada, northeastern Oregon, and the northern half of Idaho. As a result, former D0 to D1 conditions improved by 1 category across some of the northern Intermountain West. Farther south, precipitation has been particularly sub-par in northwestern Nevada and adjacent parts of southeastern Oregon and far northeastern California since the start of the water year, leading to the expansion of D2 conditions into these areas.

**Alaska:** Light precipitation, if any, fell on the D0 areas of Alaska, keeping conditions intact.

**Looking Ahead:** On January 15 – 16, 2008, a gathering storm in the Gulf of Mexico dropped moderate to heavy precipitation along the southeastern tier of Texas and parts of the central Gulf Coast. This system should intensify and move through the Eastern Seaboard, dropping moderate to heavy precipitation on many of the dry areas in the Southeast during January 16 – 20, excepting the southern half of Florida. Over an inch is forecast for most of the South Atlantic States, with 3 to 5 inches anticipated across northern Florida and southeastern Georgia. In addition, another round of moderate precipitation (0.5 to 1.5 inches) is forecast for the northern Great Lakes region during this period, with similar totals expected across parts of the Idaho Panhandle and northern Rockies. In other areas of dryness and drought across the country, less than 0.5 inch is anticipated through January 21. For the ensuing 5 days through January 26, 2008, the odds favor above normal precipitation in a band stretching across the southern tier of the nation from southern California eastward through Alabama, northern Georgia, western South Carolina, and southern Tennessee, excluding South Texas. In addition, heavier than normal precipitation is also favored across Alaska and the eastern half of Montana. In contrast, below normal precipitation seems most likely for the northwestern Great Basin, central and western Idaho, most of the northern Plains and Great Lakes region, central and southern Florida, and the northernmost reaches of the dry areas in the mid-Atlantic.

**Author:** [Rich Tinker, Climate Prediction Center, NOAA/NWS](#)

## 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 January 16, 2008