



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

Weekly Report - Snowpack / Drought Monitor Update **Date:** **January 3, 2008**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: During the past week, snowfall accumulations were up across the Cascades and portions of the Rockies (Fig. 1). A preliminary 5% forecast increase in spring runoff occurred this week over the Rockies except up to 20% of parts of the northern New Mexico Rockies (Fig. 1a). Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows well above normal values over portions of the Cascades (WA & OR) and Southern Rockies. Well below normal values exist over the Sierras (NV & CA) and upper Snake River (ID, WY). Most other locales are within 20% of normal.

Temperature: For the past seven days, daily average temperature anomaly shows below normal temperatures across much of the West with the coldest departures (-15F) over the Central Rockies and Utah Ranges (Figs. 2 and 2a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 2 January shows significant precipitation across Colorado. Lesser amounts occurred over the Pacific NW. However, little rain or snow fell over the Southwest and Northern Plains (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 (except northern Montana) and the Arizona ranges with near normal amounts over the Cascades and Central-Southern Wasatch (UT). The Sierras, Northern Wasatch, Uinta (UT), and Southern Salt River (WY) Ranges are currently running behind the long-term averages to date (Fig. 3a).

WESTERN DROUGHT STATUS

The West: Like last week, winter storms this week brought welcome rain and snow to many basins. A few areas in the northern Rockies received an inch or more of moisture, but amounts were generally less than an inch with most areas less than half an inch. The heaviest amounts of 5 inches or more, again, occurred over the drought-free parts of Oregon and Washington. 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 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

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve maintain and improve our natural resources and environment

Weekly Snowpack and Drought Monitor Update Report

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

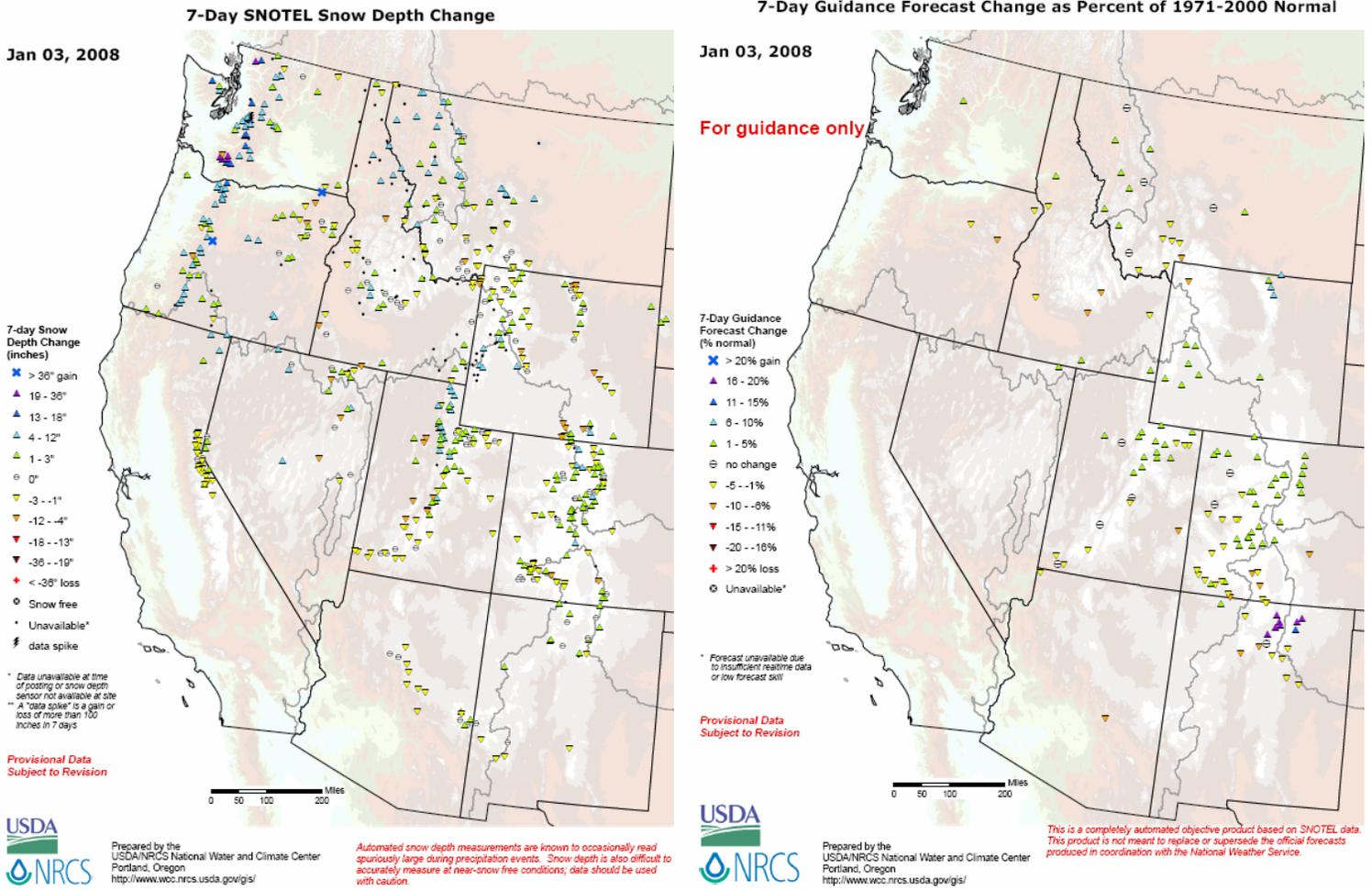


Fig. 1 and 1a. During the past week, snowfall accumulations were up across the Cascades and portions of the Rockies (Fig 1). A preliminary 5% forecast increase in spring runoff occurred this week over the Rockies except up to 20% of parts of the northern New Mexico Rockies (Fig. 1a).

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/daily_forecast/maps/west_dailyfcst_7daych.pdf

Weekly Snowpack and Drought Monitor Update Report

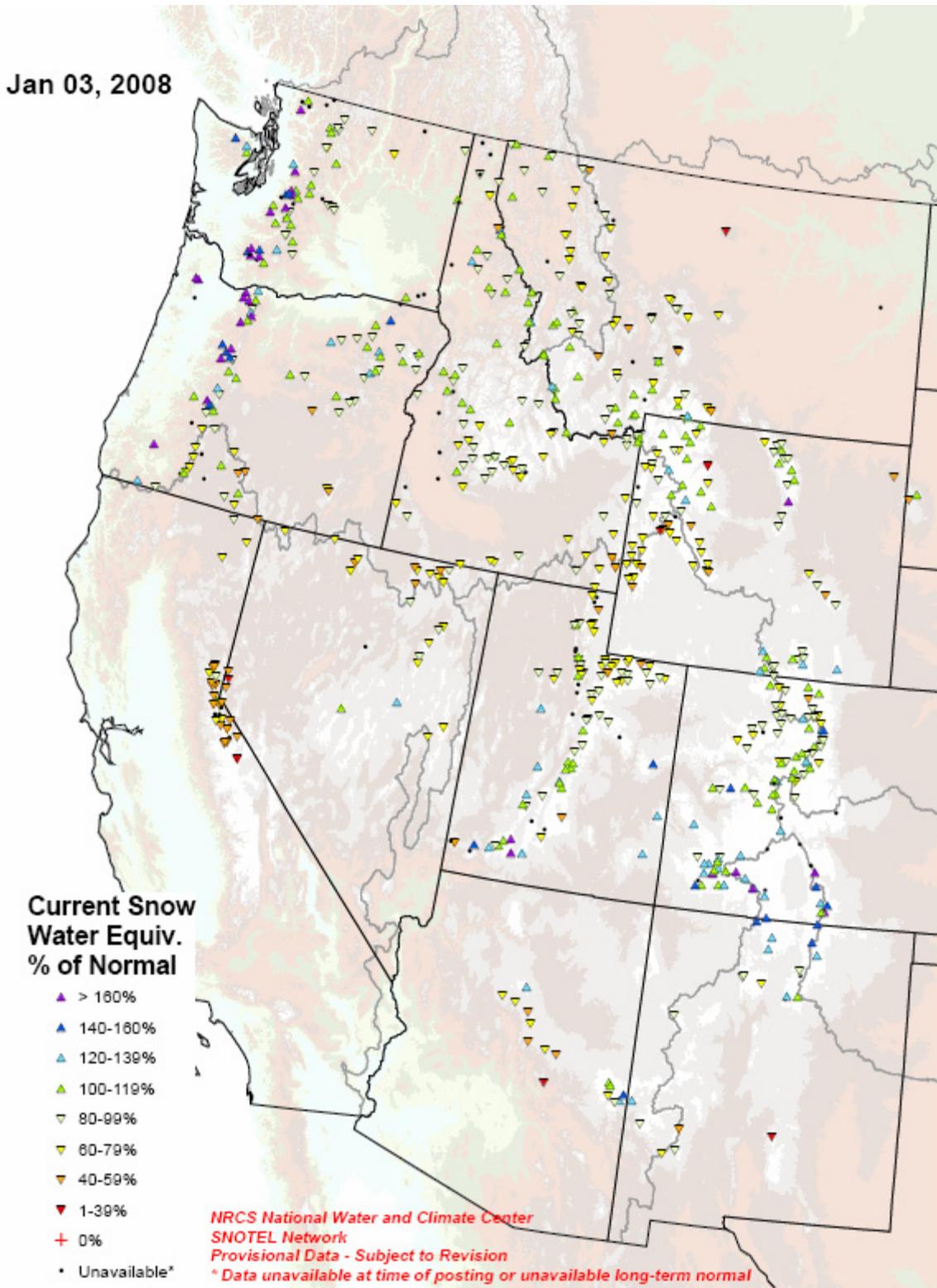


Fig. 1b. Seasonal snow-water equivalent percent of normal for the 2008 Water Year that began on October 1, 2007 shows well above normal values over portions of the Cascades (WA & OR) and Southern Rockies. Well below normal values exist over the Sierras (NV & CA) and upper Snake River (ID, WY). Most other locales are within 20% of normal.

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

Jan 03, 2008

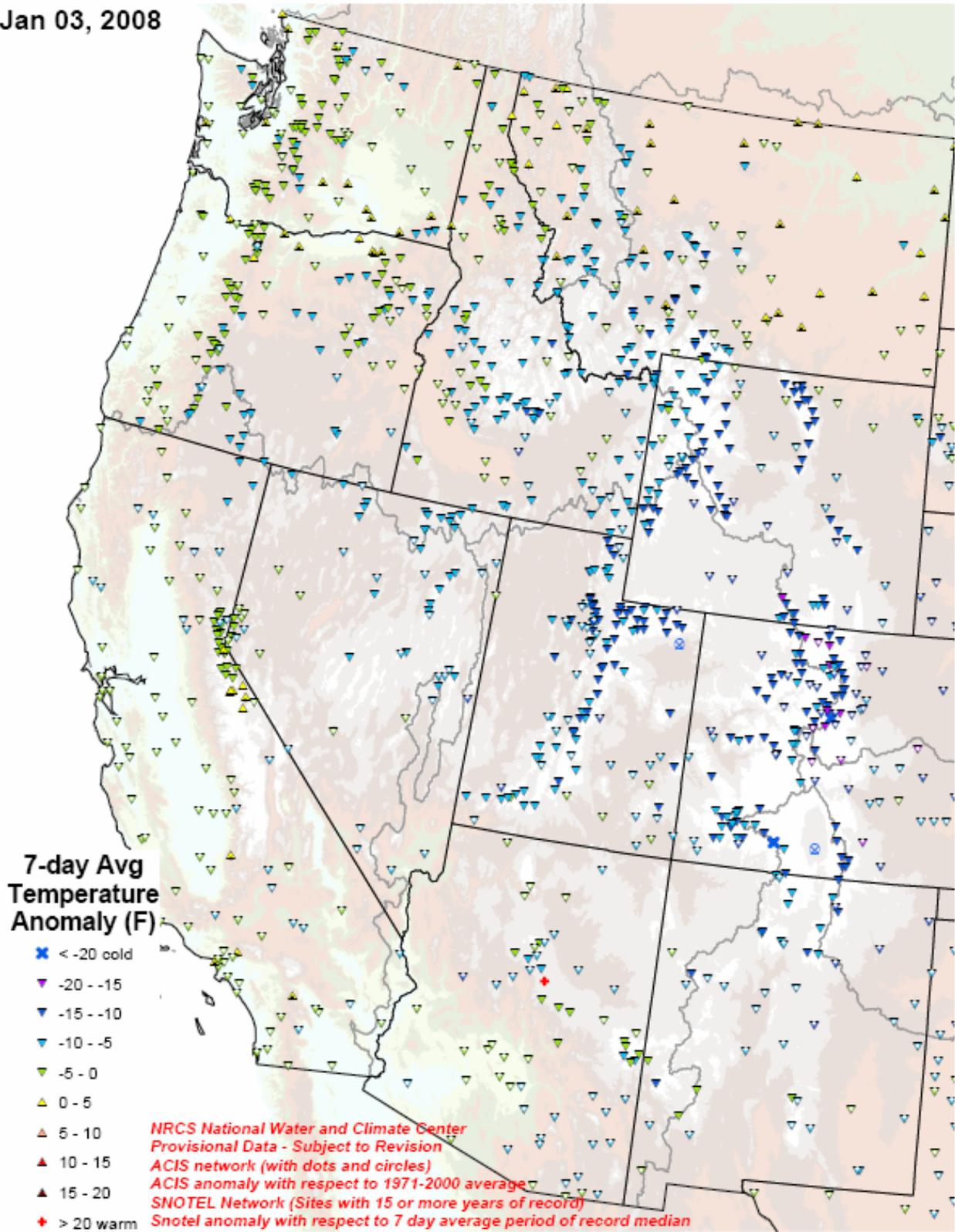
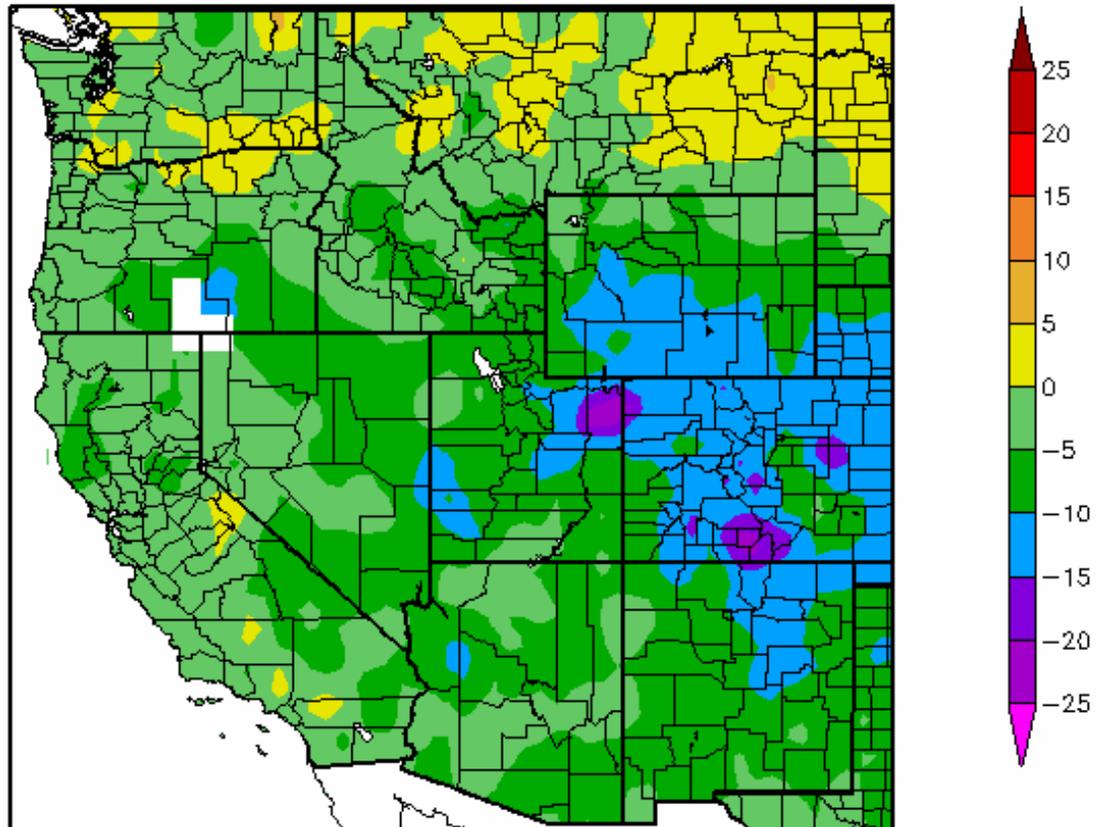


Fig. 2. SNOTEL & ACIS 7-day station daily average temperature anomaly shows below normal temperatures across much of the West with the coldest departures (-15F) over the Central Rockies and Utah Ranges.

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

Departure from Normal Temperature (F)
12/27/2007 - 1/2/2008



Generated 1/3/2008 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.

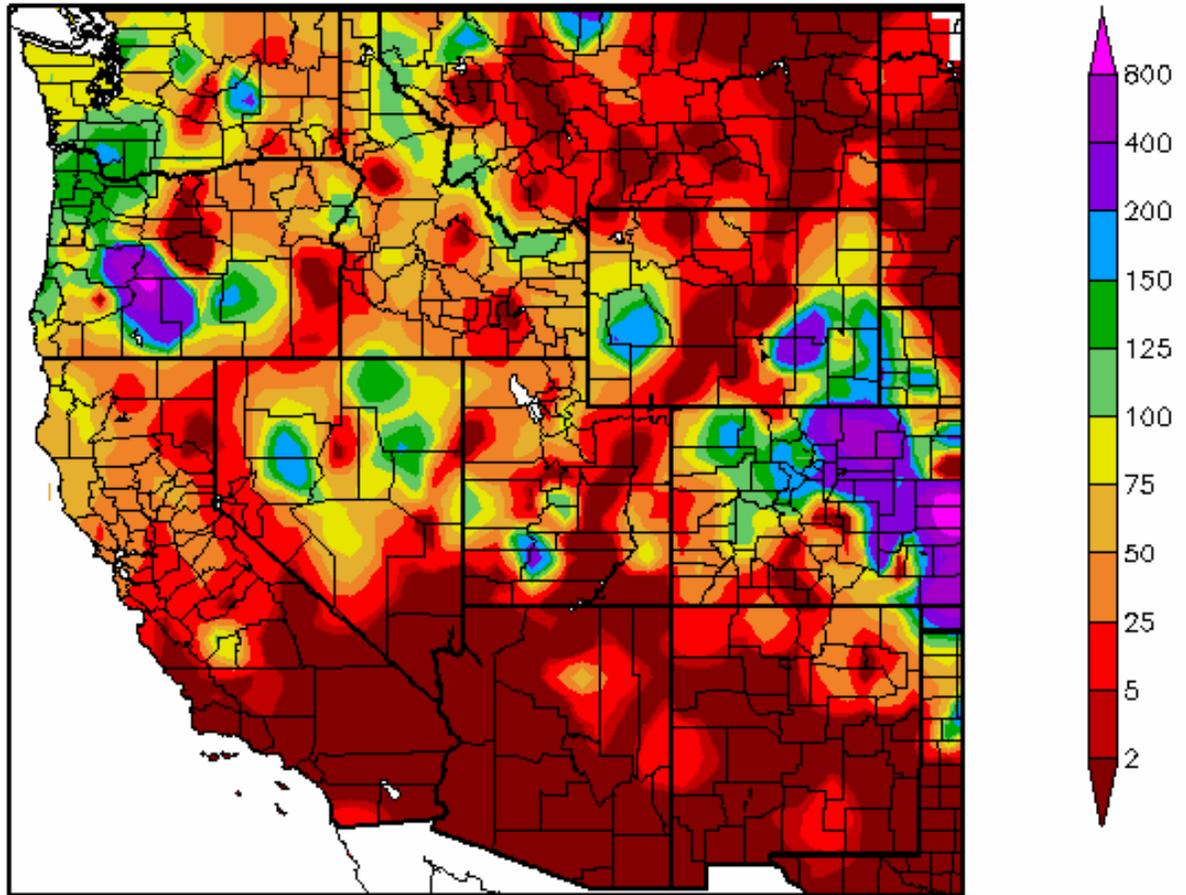
Normal refers to the 1971-2000 Climate Normal for the selected product.



Fig. 2a. ACIS 7-day average temperature anomaly: Greatest negative temperature departures over southern Colorado (>-20F) and greatest positive temperature departures over Montana (+5F).

Ref: http://www.hprcc.unl.edu/maps/index.php?action=update_region®ion=WRCC.

Percent of Normal Precipitation (%)
12/27/2007 - 1/2/2008



Generated 1/3/2008 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 2 January shows significant precipitation across Colorado. Lesser amounts occurred over the Pacific NW. However, little rain or snow fell over the Southwest and Northern Plains.

Ref: http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm.

Weekly Snowpack and Drought Monitor Update Report

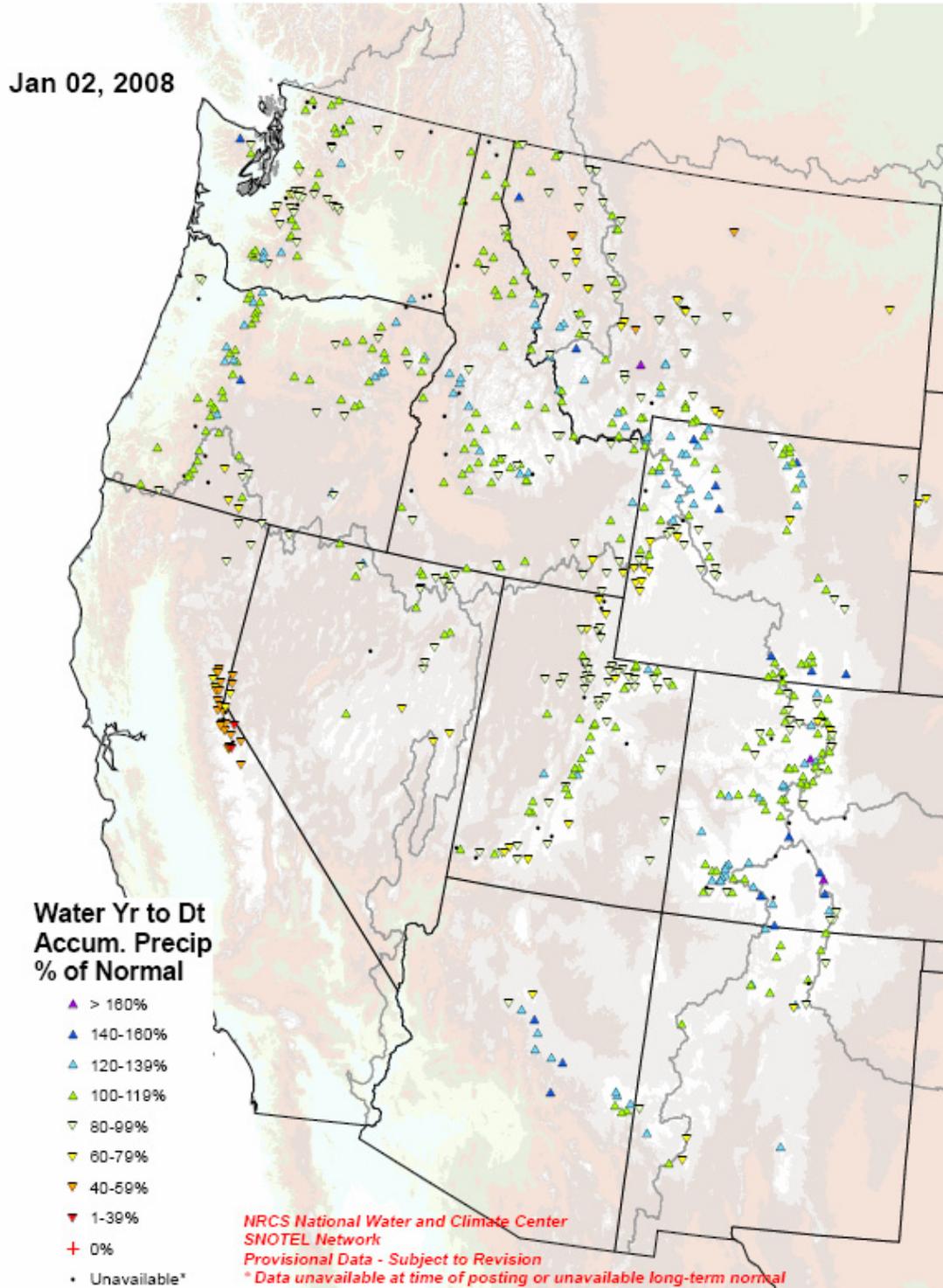
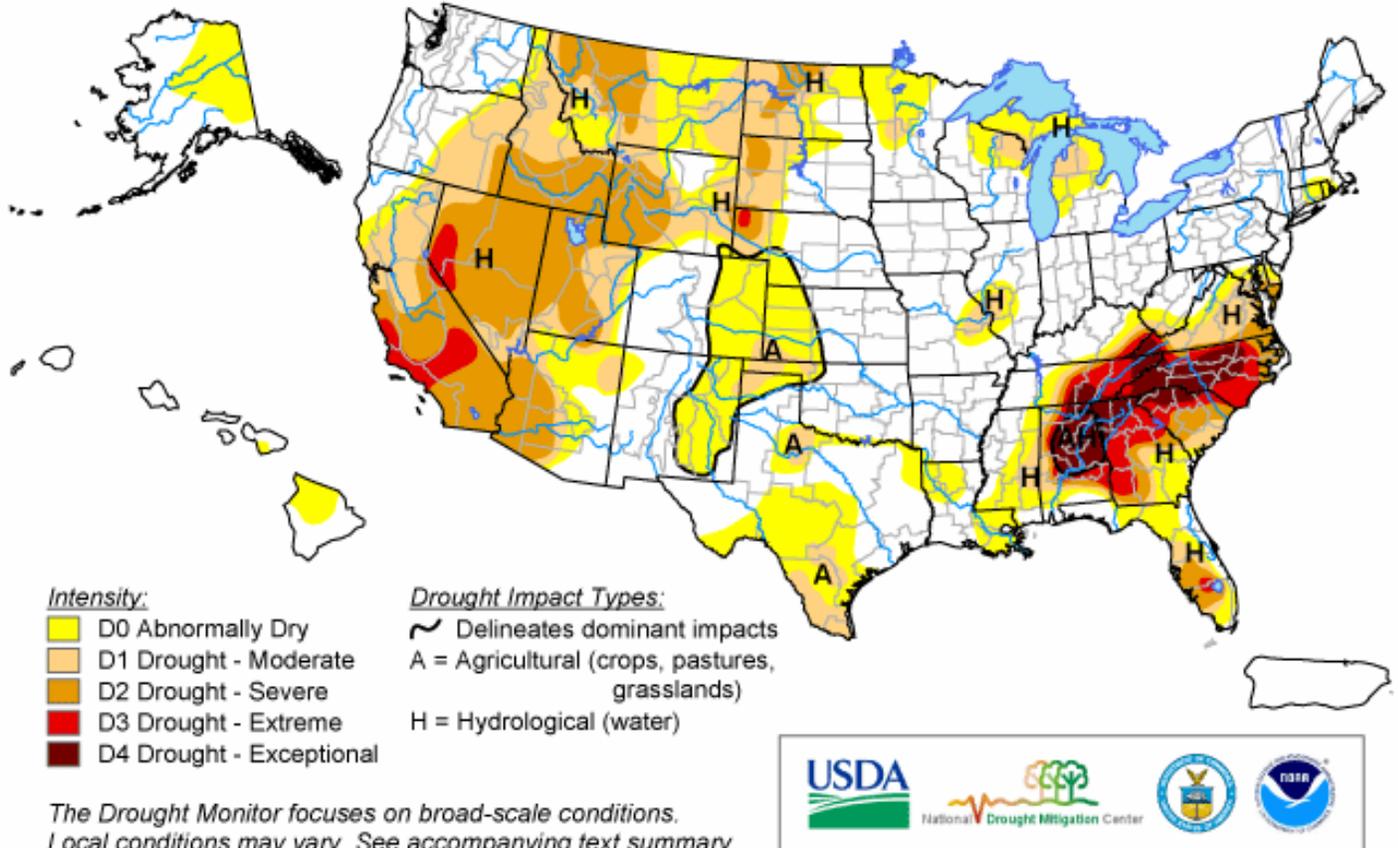


Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of the Rockies (except northern Montana) and the Arizona ranges with near normal amounts over the Cascades and Central-Southern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

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

U.S. Drought Monitor

January 1, 2008
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, January 3, 2008
Author: Richard Heim, NOAA/NESDIS/NCDC

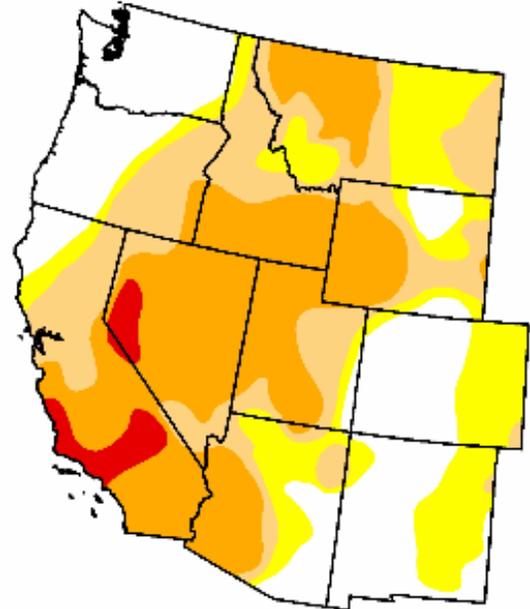
Fig. 4. Current Drought Monitor weekly summary.
Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

U.S. Drought Monitor West

January 1, 2008
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 (12/25/2007 map)	26.3	73.7	54.7	33.1	2.7	0.0
3 Months Ago (10/09/2007 map)	23.6	76.4	60.9	44.3	12.1	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 (01/02/2007 map)	51.2	48.8	25.8	9.4	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>



Released Thursday, January 3, 2008
Author: Richard Heim, NOAA/NESDIS/NCDC

Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Note that there were no changes in intensities since last week.

Ref: http://www.drought.unl.edu/dm/DM_west.htm

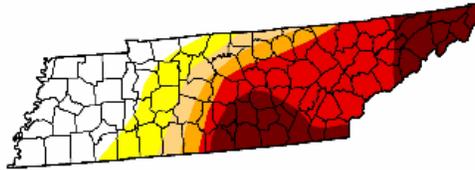
Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor
Tennessee

January 1, 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	60.8	53.8	46.8	19.9
Last Week (12/25/2007 map)	27.4	72.6	60.8	53.8	46.8	20.7
3 Months Ago (10/09/2007 map)	0.0	100.0	100.0	100.0	85.7	61.3
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 (01/02/2007 map)	37.7	62.3	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>



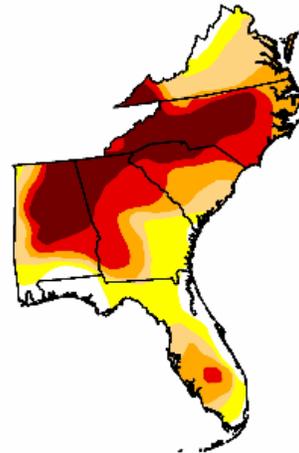
Released Thursday, January 3, 2008
Author: Richard Heim, NOAA/NESDIS/NCDC

U.S. Drought Monitor
Southeast

January 1, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.6	90.4	74.3	58.5	41.0	22.0
Last Week (12/25/2007 map)	9.0	91.0	76.9	62.3	47.8	36.2
3 Months Ago (10/09/2007 map)	12.8	87.2	79.7	68.2	47.7	26.0
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 (01/02/2007 map)	52.2	47.8	10.2	1.5	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>



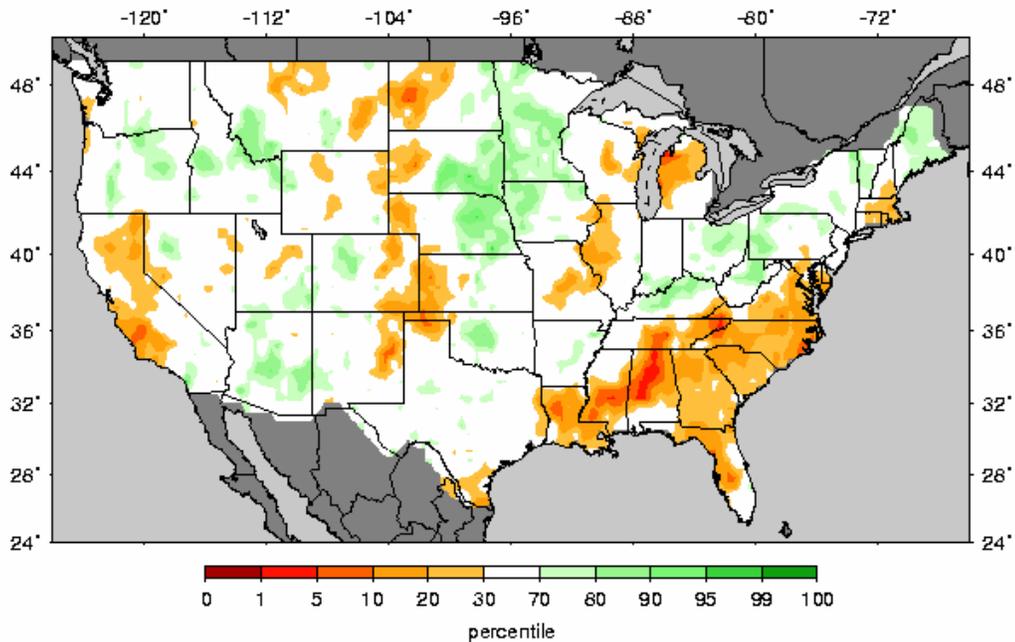
Released Thursday, January 3, 2008
Author: Richard Heim, NOAA/NESDIS/NCDC

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 but some improvements over the Southeast during the past week.

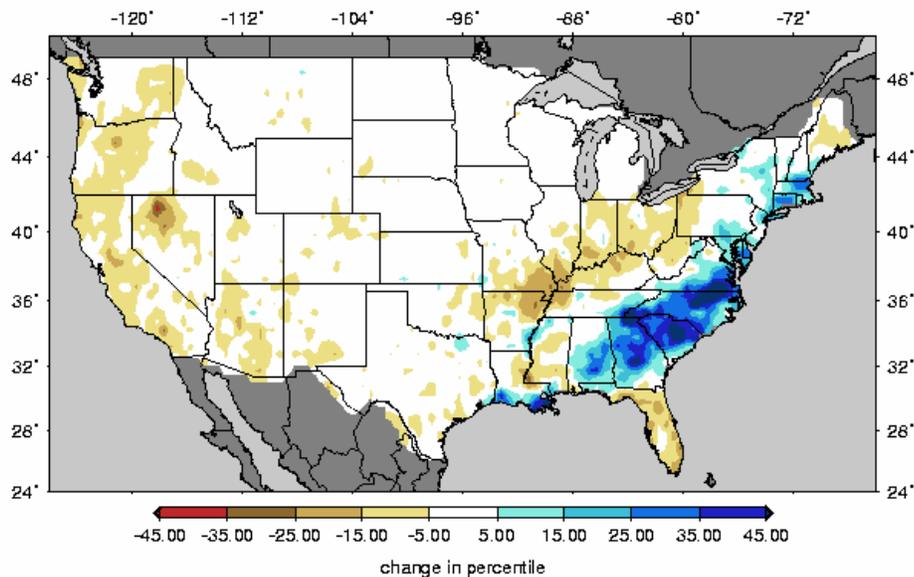
Ref: http://www.drought.unl.edu/dm/DM_state.htm?TN,S
http://www.drought.unl.edu/dm/DM_southeast.htm

Weekly Snowpack and Drought Monitor Update Report

MULTIMODEL Soil Moisture Percentiles (wrt/ 1915-2003)
20071230



Change in Soil Moisture Percentiles (wrt/ 1915-2003)
for the week 20071225 to 20080101



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 and Mid-Atlantic States and worsening over the lower Mississippi Valley and Ohio Valley during the past week. However, the Southeast still remains very dry.

Ref: 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.

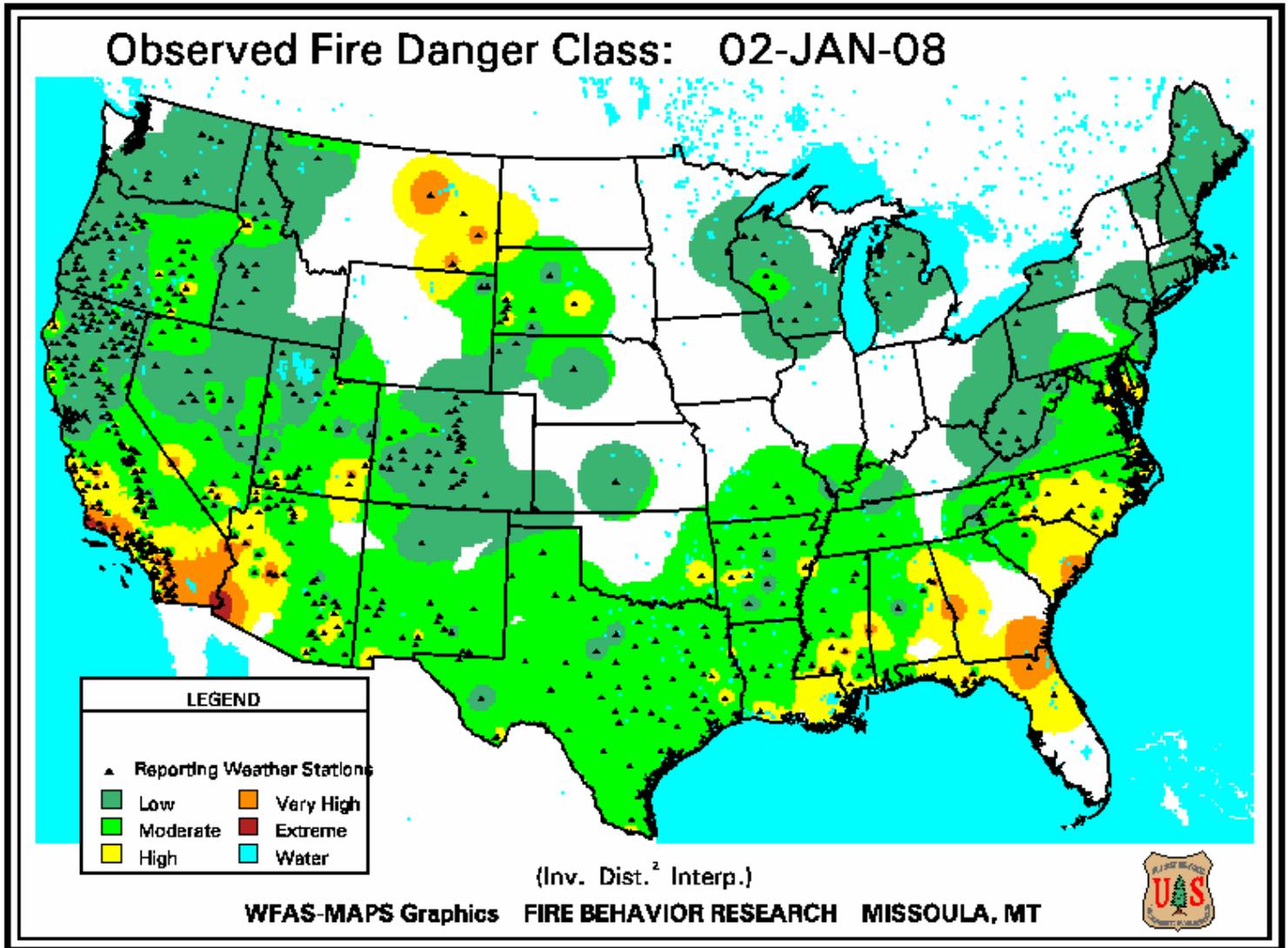
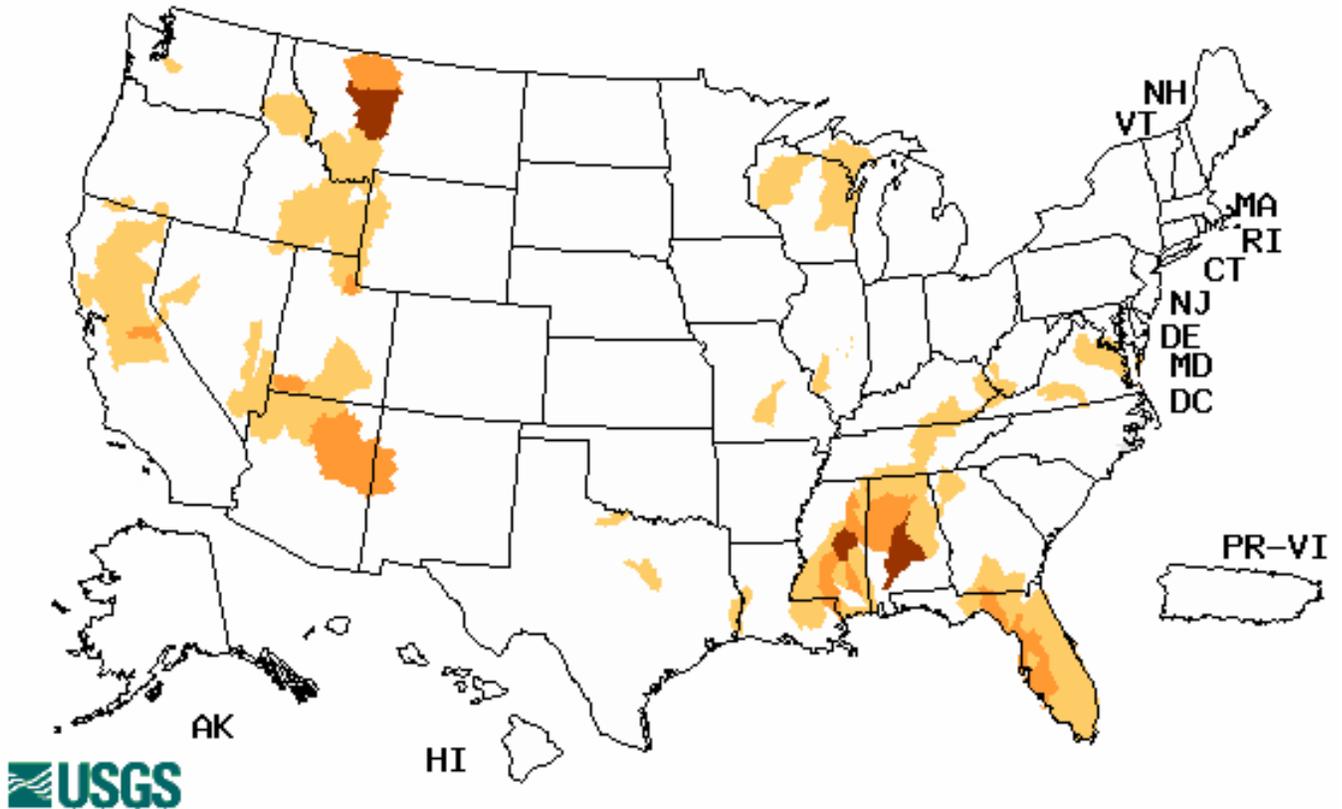


Fig. 6. Observed Fire Danger Class as of 2 January.
Source: Forest Service Fire Behavior Research – Missoula, MT.
Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

Weekly Snowpack and Drought Monitor Update Report

Wednesday, January 02, 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 significant improvement over much of Southeastern and Mid-Atlantic States since last week.

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

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- January 1, 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/>.

A series of upper-level troughs moved across the nation during this U.S. Drought Monitor week, generating weather systems that brought rain and snow to many areas. Three major systems brought beneficial rain to the Southeast. Drought expanded in a few parts of the northern and southern Plains as dryness persisted.

The Southeast, Mid-Atlantic, and Midwest States: Two to 4 inches of rain fell in a huge band from southern Mississippi to eastern Virginia, bringing short-term relief to the Southeast drought areas. Locally more than 4 inches were reported in parts of southern Alabama and Georgia, but the needed rains largely missed central and northern Alabama. While beneficial, the rain was not sufficient to ease long-term deficits. Tuscaloosa, AL, had a deficit of 31.02 inches for 2007 through December 30, or 46 percent of normal. Anniston, AL, was down 29.39 inches for the year, or 43 percent of normal, and Huntsville was down 28.68 (50 percent of normal), resulting in the driest year on record. Year-to-date deficits for 2007 were still 20 inches or more across most of Alabama, southern Tennessee, northwest Georgia, and parts of the Carolinas, and 12 inches or more across most of the Carolinas, Tennessee, and Mississippi, in spite of the recent rains. Greenville-Spartanburg, SC, had the driest year on record with 31.08 inches of precipitation. The week's rains benefited local water supplies in the region, with several reservoirs rising a foot or more in North Carolina, but it was not enough to ease water restrictions. The increase at Falls Lake, north of Raleigh, added 2 weeks to the city's dwindling water supply, but the lake was still 8 feet below normal. The two main water supplies for Durham now provide a water supply to 60 days, but Lake Michie was still almost 18 feet below capacity and Little River more than 24 feet below.

D4 and D3 were contracted in the Carolinas, Georgia, and Alabama, and D2 and D1 were pulled back in South Carolina, Georgia, Alabama, and Kentucky. D0 was sliced in Alabama and Kentucky, and D2 was dented in eastern Virginia. The rain increased soil moisture and was very beneficial to agriculture, so generally the AH impacts designation was removed from areas receiving 2 inches or more. This resulted in a contraction of the AH impacts area to basically central and northern Alabama.

The Northeast: Precipitation occurred across the Northeast D0 area, but amounts were generally an inch or less and not sufficient to erase longer-term deficits. D0 remained across parts of Connecticut, Massachusetts, and Rhode Island, reflecting lingering hydrological impacts.

The Plains and South: Half an inch or more of precipitation fell over a few areas of the central Plains. The snowfall over eastern Colorado was welcomed, but it was not enough to erase longer-term deficits. D1 was expanded slightly in north central South Dakota to reflect growing deficits. Two areas of D1 were added to southern Texas where precipitation for the last 4

Weekly Snowpack and Drought Monitor Update Report

months hovered around the 25 percent-of-normal mark or less, and D0 expanded westward in southern Texas. The south Texas dryness, aided by windy conditions and above-normal temperatures, threatens the emergence of recently planted wheat and has increased the risk of wildfires.

The West: Like last week, winter storms this week brought welcome rain and snow to many basins. A few areas in the northern Rockies received an inch or more of moisture, but amounts were generally less than an inch with most areas less than half an inch. The heaviest amounts of 5 inches or more, again, occurred over the drought-free parts of Oregon and Washington. 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 than normal across most locations in the southern half of Alaska. D0 expanded into the interior southeast where mountain snowpack and 90-day precipitation continued below normal. An inch or less of rain fell across most of Puerto Rico this week, but December monthly totals were wetter than normal. The rainfall pattern over the Hawaiian Islands was mixed this week, but, like Puerto Rico, for the month of December it was wetter than normal. No changes were made in these areas this week.

Looking Ahead: For the period January 3-7, a strong upper-level trough will bring a series of Pacific weather systems into the western U.S. Precipitation amounts of an inch or more are expected over much of the Rockies and Arizona highlands, with several inches of moisture over California and the western half of Oregon and Washington (amounting to several feet of new snow in the higher elevations). Half an inch to an inch of precipitation is forecast for the intermountain basin. It will be mostly quiet across the rest of the country with only the Great Lakes and southeast Florida expecting a few tenths of an inch of precipitation. A cold front and low pressure system may bring precipitation to the Mississippi Valley by the end of this period. Temperatures should average near to above normal for most of the country, but slightly cooler than average along the east and west coasts.

For January 8-15, above-normal precipitation is expected from the Southwest to the Great Lakes, while the Gulf to mid-Atlantic coasts are forecast to average drier than normal. The period should start out wet in the Pacific Northwest but dry out later. Generally dry conditions are expected to continue across much of Alaska. Warmer-than-normal temperatures are forecast east of the Rockies, while conditions should average colder than normal in the Far West and across Alaska.

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

Weekly Snowpack and Drought Monitor Update Report

A ... Agricultural
H ... Hydrological

Updated January 2, 2008