



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

Weekly Report - Snowpack / Drought Monitor Update **Date:** **February 8, 2007**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snowpack: For the 2007 Water Year (WY), snow water-equivalent (SWE) values continue to decrease over much of the West after a fairly dry week. Only portions of the Northern Cascades and Colorado and New Mexico Front Ranges show surpluses (above the long term average) (Fig. 1.). Montana's SWE totals show that most of the state has below normal snowpack (Fig. 1a.). Nearly all SNOTEL sites lost snow cover this week. Common depth decreases ranged up to a foot over the Cascades, Southern and Central Rockies, Arizona, and Utah (Fig. 1b.).

Temperature: During the past seven days, temperatures east of the Continental Divide were up to 5°F below normal; the Western Slope of the Rockies up to 5°F above normal; and generally 10°F above normal over the Pacific Northwest, Sierra Nevada, and Intermountain West ranges (Fig. 2.).

Precipitation: During this report period, precipitation (rain and snow) was confined to central Montana, north central Wyoming, and the Southern and Central Rockies. Elsewhere, high pressure dominated resulting in little if any precipitation (Fig. 3.). For the Water Year, all but the Cascades, Montana Rockies, northern Idaho and New Mexico, and portions of Colorado have experienced above normal moisture (Fig. 3a.). Note that comparing Fig. 1 (WY SWE) to Fig. 3a, the differences are likely caused by either a large percent of snow that already melted or fell as rain.

WESTERN DROUGHT STATUS

The West and Rocky Mountains: Most of the West remained dry last week, although some spotty rains on the order of an inch or so were reported across parts of the Southwest in Arizona and New Mexico. The rains were not enough, however, to stave off expansion of D2 in western and southwestern Arizona where Water Year-to-date totals are running 25-50% of normal. Lack of snow in northern Nevada and across most of western and southern Utah has led to an expansion of D0 in these states where snow water equivalent readings are generally below 50% of normal. New Mexico, on the other hand, has fared much better (buoyed by a much better monsoon season than Arizona) and is marked by some reduction of D0 in the northwestern reaches of the state in and around the Zuni and San Mateo Mountain ranges.

In California, the Sierras remain an area to watch as Water Year precipitation is running well below 50% of normal (8- to 16-inch deficits) and snow water equivalent readings in the upper elevations (according to USDA/NRCS SNOTEL data) are tracking below 40% of normal as of February 6. The drought picture remains steady this week in California as a result of adequate storage at this time and a general lack of impacts, but the odds of receiving enough precipitation to get back to normal are not good in the Sierras, and the impacts will soon follow if the dryness continues (Figs. 4 and 4a).

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A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.

DROUGHT IMPACTS DEFINITIONS (<http://drought.unl.edu/dm/classify.htm>)

The possible impacts associated with **D4 (H, A)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (H, A)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (H, A)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (H, A)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Fig. 4).

SOIL MOISTURE

Soil moisture (Fig. 5) is estimated by a one-layer hydrological model ([Huang et al., 1996](#), [van den Dool et al., 2003](#)). The model takes observed precipitation and temperature and calculates soil moisture, evaporation and runoff. The potential evaporation is estimated from observed temperature. Reference: <http://www.cpc.ncep.noaa.gov/soilmst/img/curr.w.rank.daily.gif>.

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 Fig. 6.

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. Subregions 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/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/ DANIEL MEYER

Acting Director, Conservation Engineering Division

Weekly Snowpack and Drought Monitor Update Report

Feb 08, 2007

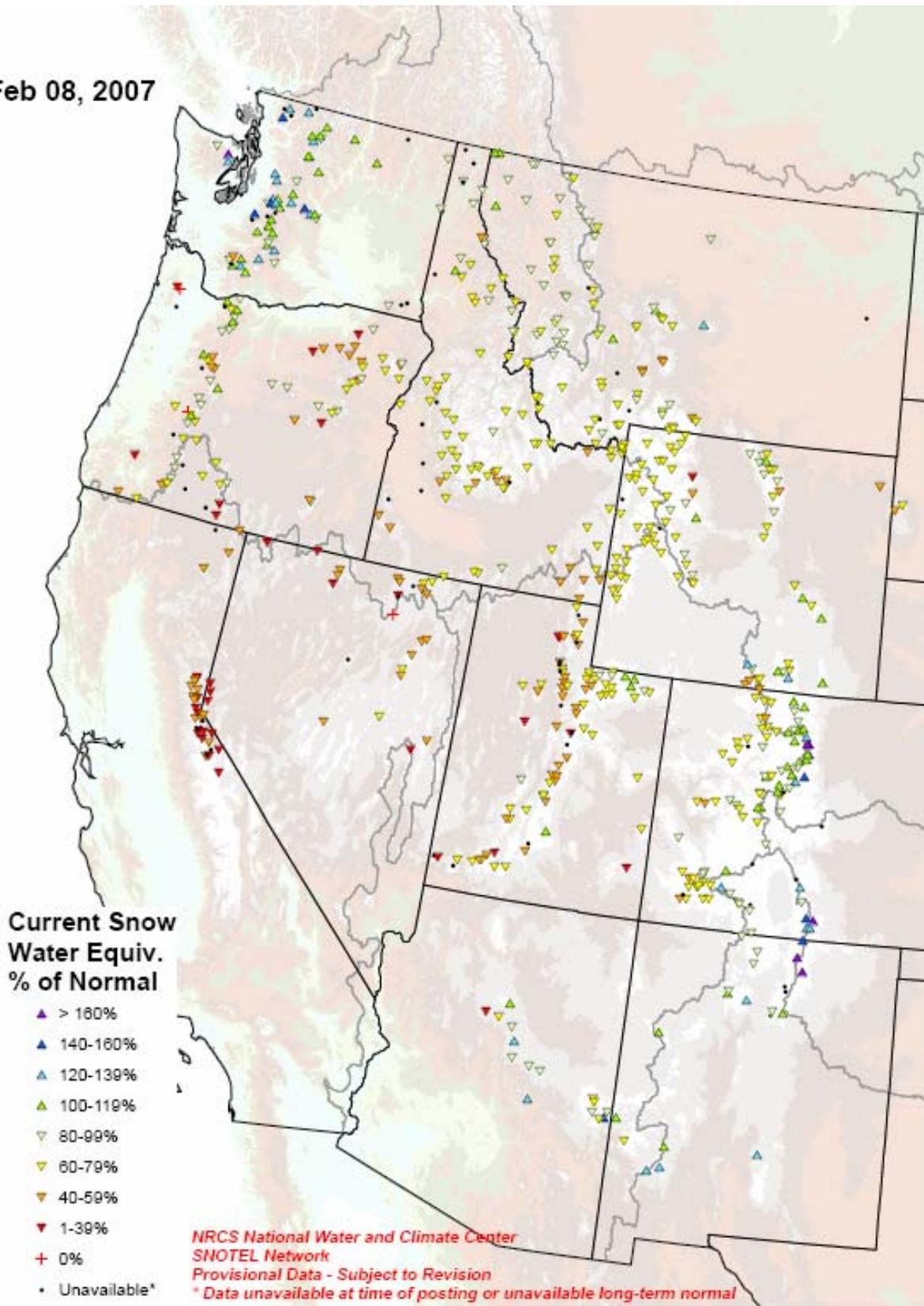
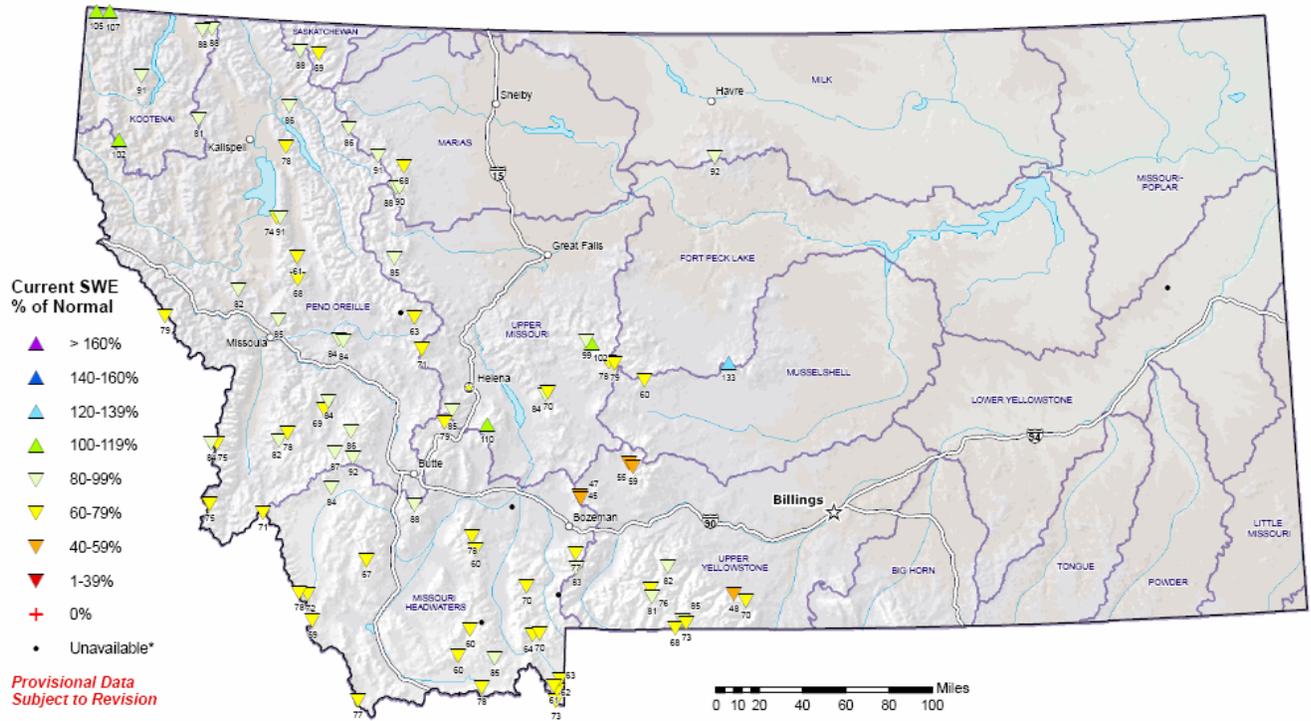


Fig. 1: Snow Water-Equivalent as a percent of normal for Water Year 2007.

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Montana SNOTEL Snow Water Equivalent (SWE) % of Normal

Feb 08, 2007



Prepared by the
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov/gis/>

** Data unavailable at time of posting or unavailable long-term normal.*

Fig. 1a. Current SNOTEL SWE percent of normal for Water Year 2007 over Montana.
http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/mt_swepctnormal.pdf

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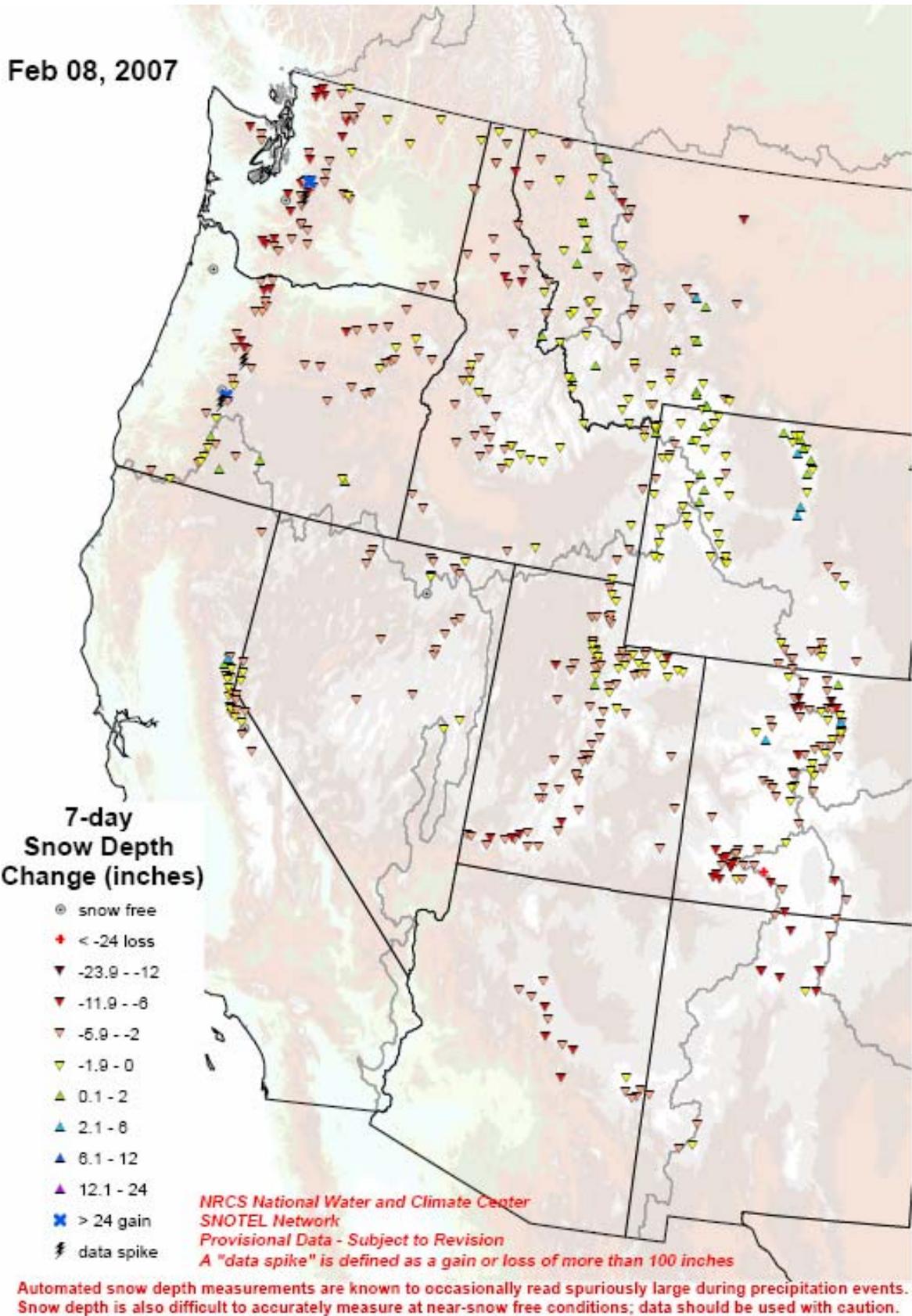


Fig. 1b. SNOTEL 7-day snow depth change.

Feb 08, 2007

**7-day Avg
Temperature
Anomaly (F)**

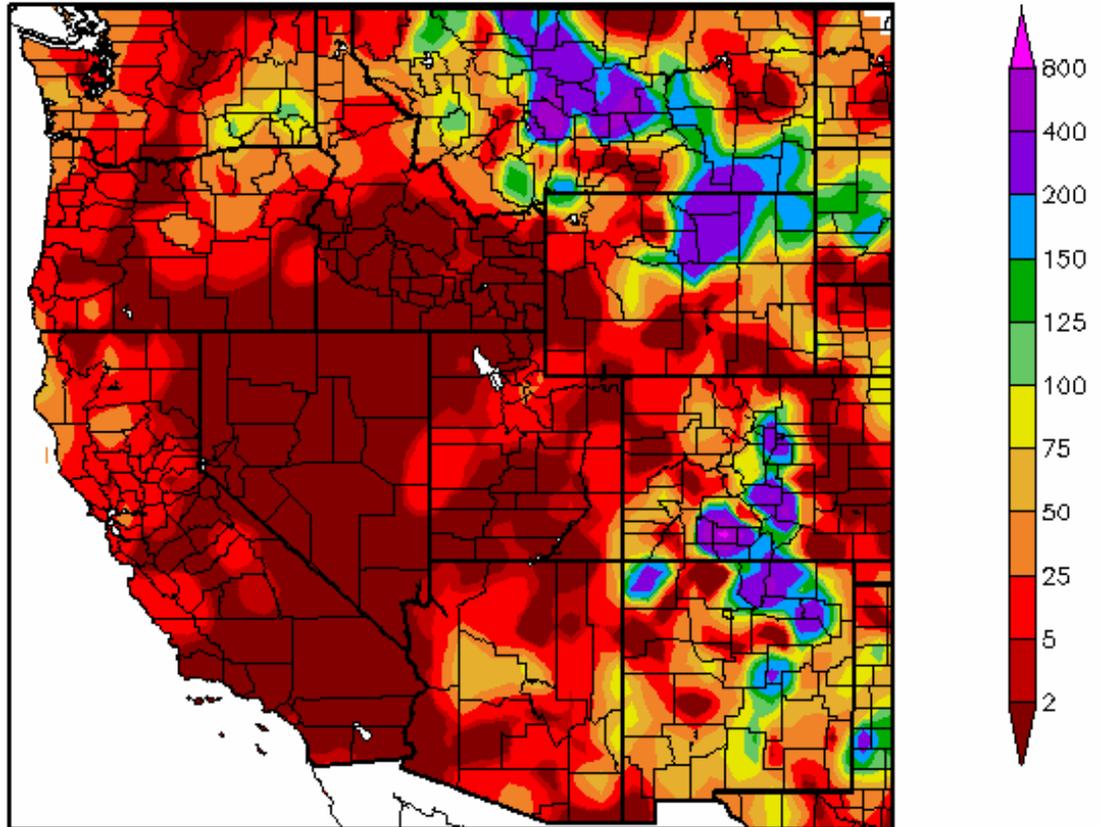
- ✘ < -20 cold
- ▼ -20 -- -15
- ▼ -15 -- -10
- ▼ -10 -- -5
- ▼ -5 - 0
- ▲ 0 - 5
- ▲ 5 - 10
- ▲ 10 - 15
- ▲ 15 - 20
- ◆ >20 warm

*NRCS National Water and Climate Center
SNOTEL Network (Sites with 15 or more years of record)
Anomaly with respect to 7 day average period of record median
Provisional Data - Subject to Revision*

Fig. 2. SNOTEL 7-day average temperature anomaly.

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Percent of Normal Precipitation (%)
2/1/2007 – 2/7/2007



Generated 2/8/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 3. ACIS percent of normal precipitation for the past 7 days over the Western US.

Weekly Snowpack and Drought Monitor Update Report

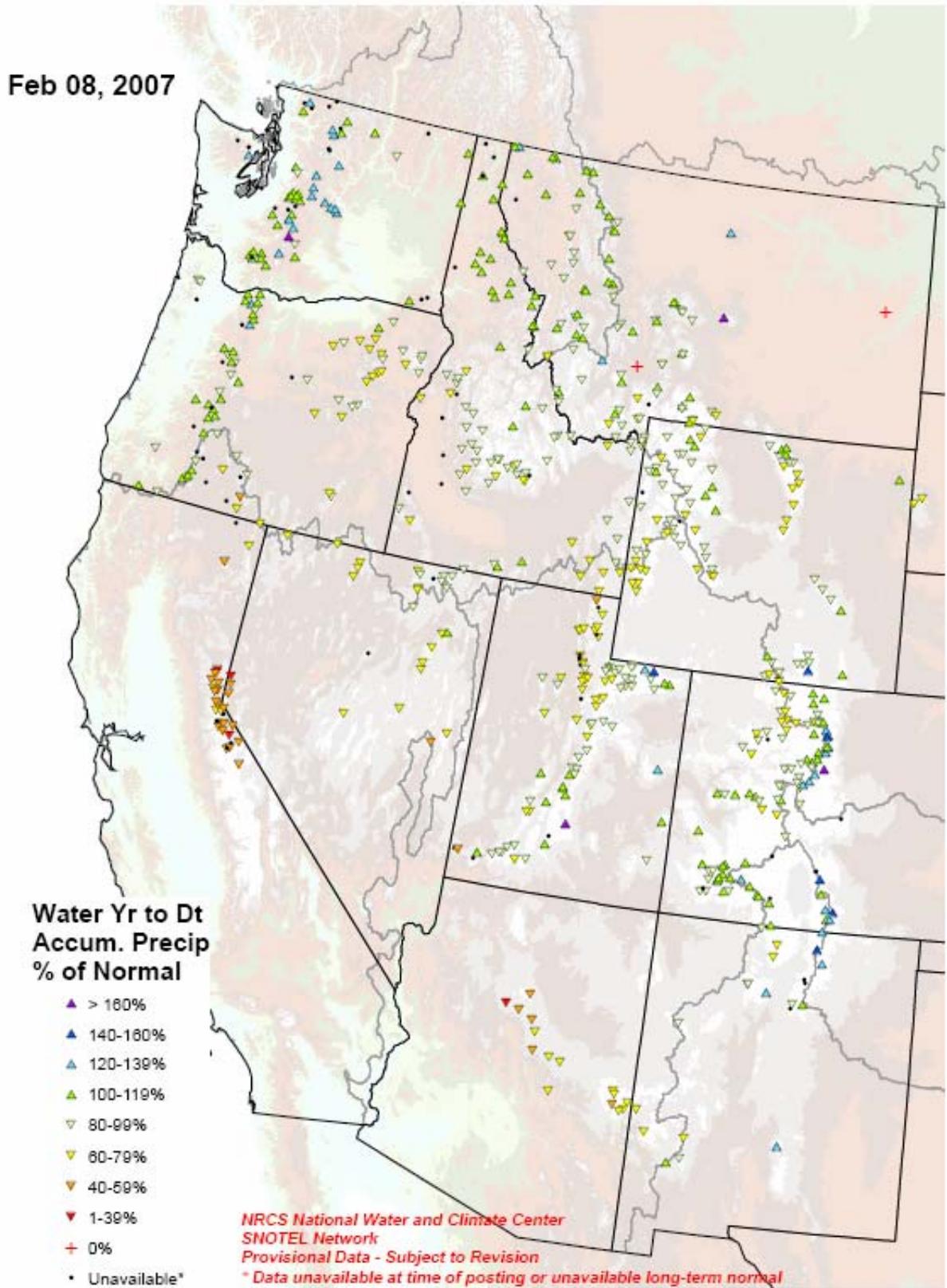
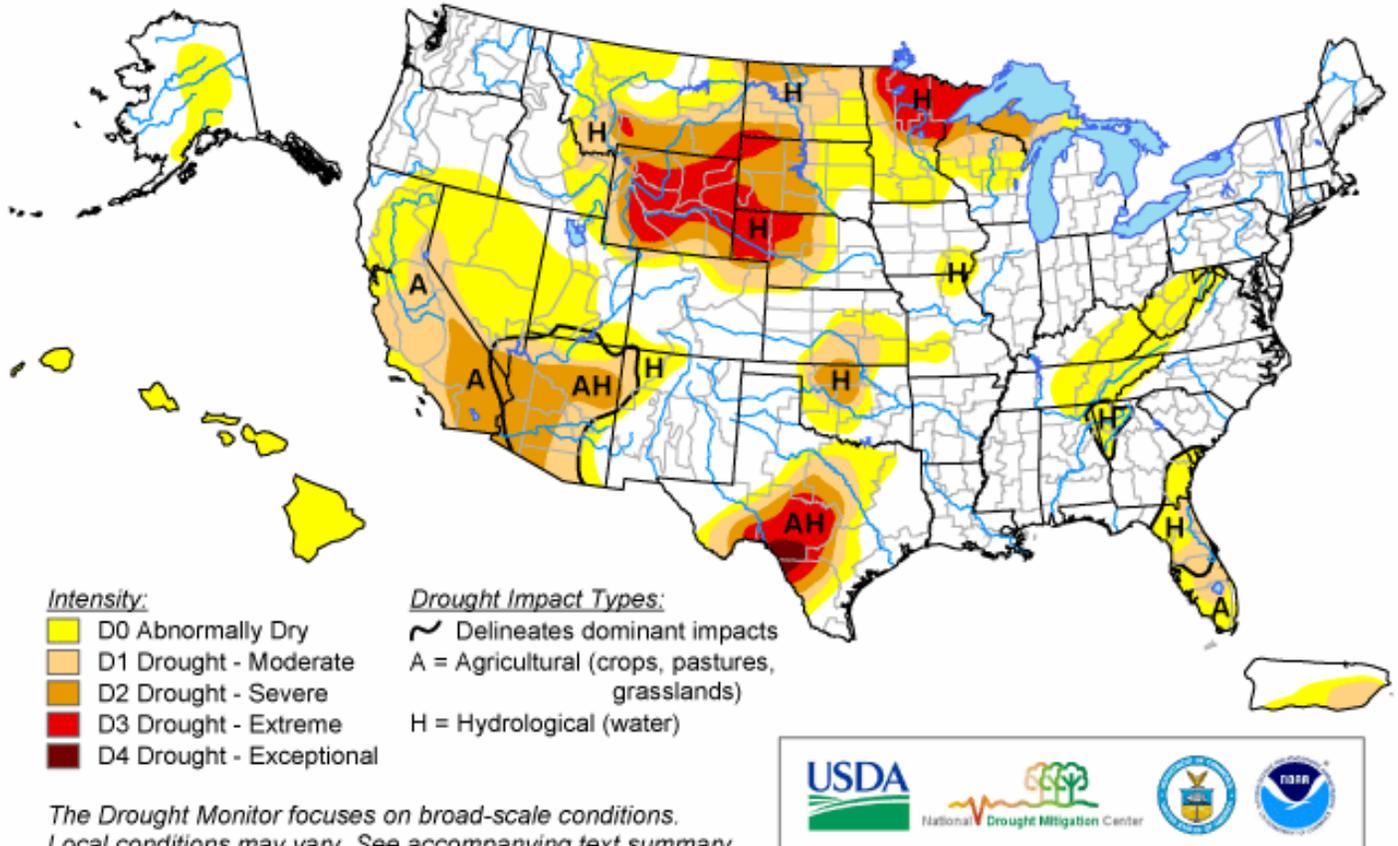


Fig. 3a. SNOTEL station water year (since October 1) precipitation as a percent of normal.

U.S. Drought Monitor

February 6, 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.



Released Thursday, February 8, 2007

Author: Mark Svoboda, National Drought Mitigation Center

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

Fig. 4. Current Drought Monitor – Source: National Drought Mitigation Center (NDMC)

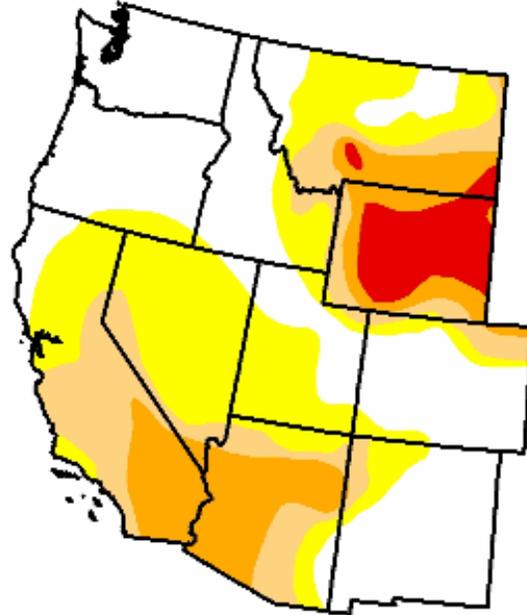
U.S. Drought Monitor

West

February 6, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	40.5	59.5	32.6	18.2	5.0	0.0
Last Week (01/30/2007 map)	45.1	54.9	32.6	16.4	5.0	0.0
3 Months Ago (11/14/2006 map)	58.8	41.2	24.9	11.6	4.8	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 (10/03/2006 map)	43.5	56.5	33.5	16.9	5.2	0.0
One Year Ago (02/07/2006 map)	59.7	40.3	24.9	9.5	3.8	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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



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Fig 4a. Drought Monitor for the Western US with statistics over various time periods. (NDMC)

Calculated Soil Moisture Ranking Percentile
FEB 07, 2007

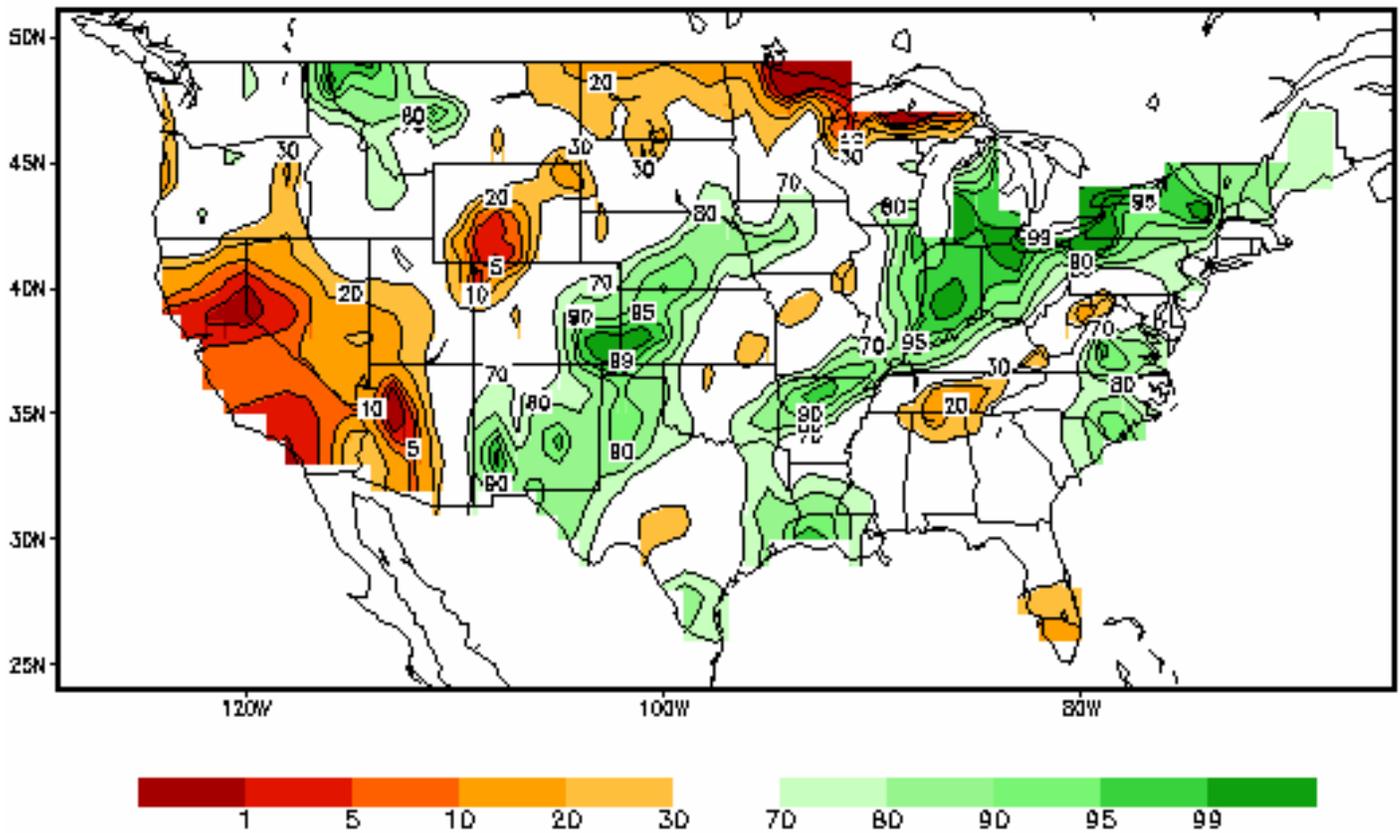


Fig. 5: Soil Moisture Ranking Percentile based on 1932-2000 climatology. Source NOAA-CPC

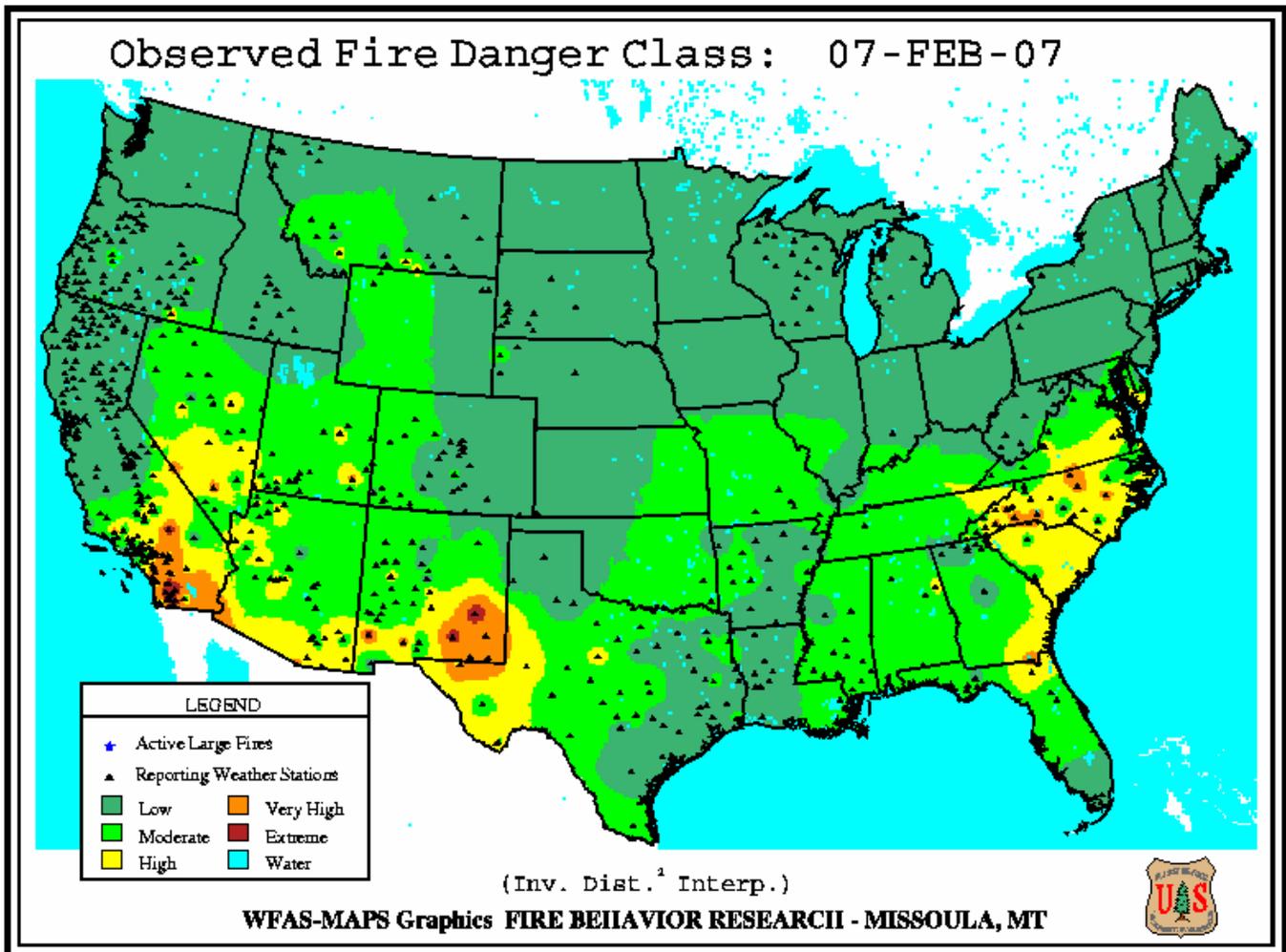
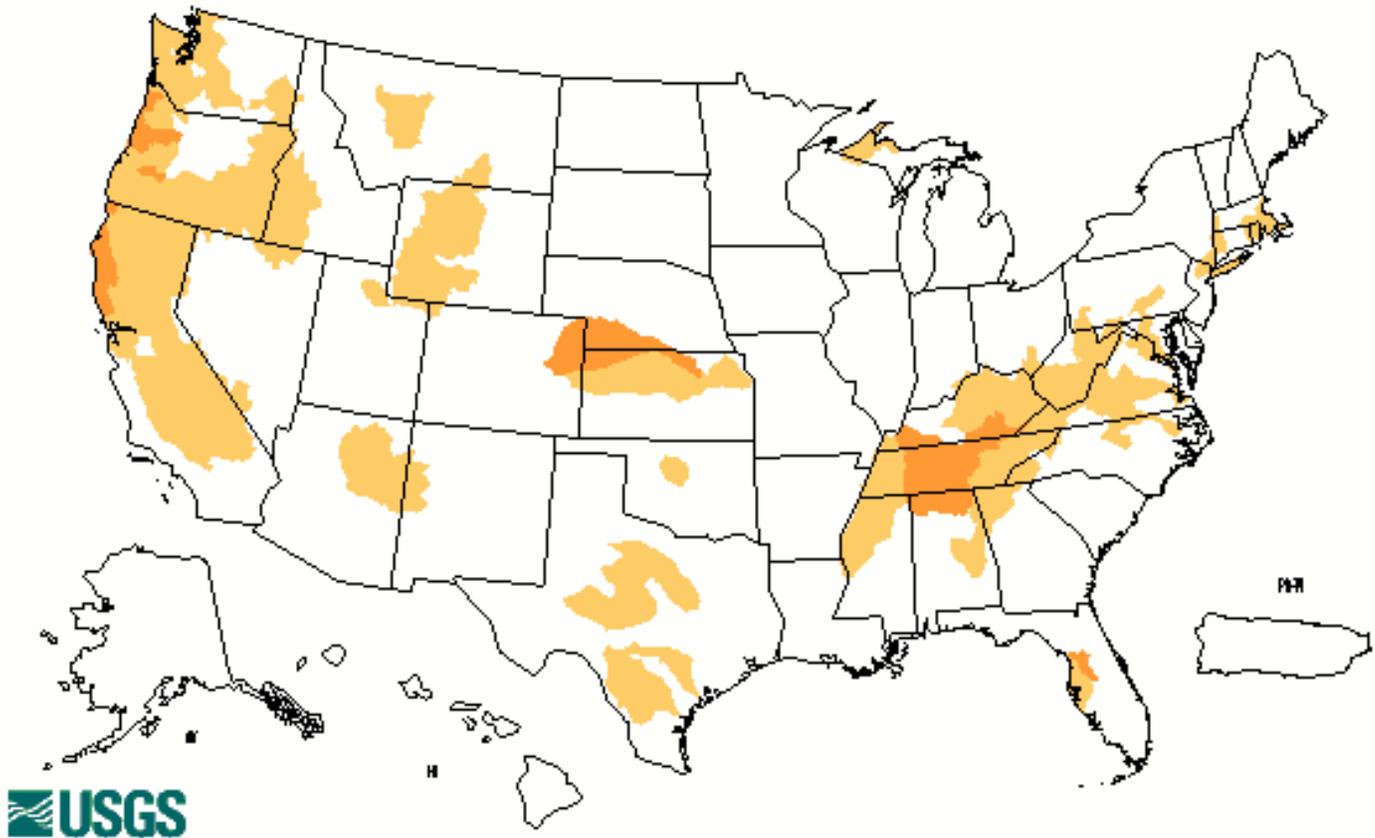


Fig. 6. Observed Fire Danger Class. Note continued increase risk of fire over southern California. Source: Forest Service *Fire Behavior Research – Missoula, MT*

Weekly Snowpack and Drought Monitor Update Report

Wednesday, February 07, 2007



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. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year. Caution: Flows tend to freeze this time of year resulting in potentially erroneous gauge readings. Source: USGS

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- February 6, 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 Midwest and High Plains: The big arctic chill settled in last week as dry, bitterly cold air enveloped the region, keeping drought locked in place for this week and the map unchanged from last week. Temperatures ran, on average, 10 to 20 degrees below normal for the week.

The South and Southeast: A quieter pattern kept most of the region dry last week. Good isolated rains on the order of 1 to 5 inches fell across parts of Florida's north-central and Panhandle regions. The steady diet of recent rains this winter has led to improvements in these areas on this week's map, with the removal of all D2 and a one-category improvement from the Jacksonville area over to Tallahassee and southward into the counties north of Orlando.

Things continue to deteriorate this winter in other parts of the Southeast, most notably across the Appalachians. This marked dryness includes central Tennessee, where 6- to 9-inch deficits over the past 90 days have been recorded. This abnormal dryness (D0) extends northward up the range and is marked this week by a slight expansion of D0 into more of Kentucky, extreme western North Carolina, extreme western Virginia, West Virginia and Maryland.

After recent improvements in the past few weeks, the rest of the South remains unchanged, particularly across Oklahoma and Texas, after a relatively dry week in the drought-affected regions of these states. The coolness of the past week extended down into both Oklahoma and Texas (5 to 15 degrees below normal), helping to keep the hydrological drought in check.

The West and Rocky Mountains: Most of the West remained dry last week, although some spotty rains on the order of an inch or so were reported across parts of the Southwest in Arizona and New Mexico. The rains were not enough, however, to stave off expansion of D2 in western and southwestern Arizona where Water Year-to-date totals are running 25-50% of normal. Lack of snow in northern Nevada and across most of western and southern Utah has led to an expansion of D0 in these states where snow water equivalent readings are generally below 50% of normal. New Mexico, on the other hand, has fared much better (buoyed by a much better monsoon season than Arizona) and is marked by some reduction of D0 in the northwestern reaches of the state in and around the Zuni and San Mateo Mountain ranges.

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Alaska, Hawaii, and Puerto Rico: Most of Alaska saw a pretty dry week. The notable dryness and lack of snowfall in the Fairbanks region keeps the D0 situation locked in up there and to the south in the Alaska Range before things get a bit better in and around Anchorage and the Kenai Peninsula.

In Hawaii, the dryness continues for most of the islands (the exceptions being the north coastal regions of Kauai and Hawaii, which saw some decent rains), leading to no changes in the D0 depiction on the map this week.

The best rains across Puerto Rico over the past week fell over those areas not already shown as D0/D1, keeping the situation as is for another week.

Looking Ahead: During the next 5 days (February 8-12) the bitter cold air from the north will remain entrenched across most of the eastern half of the country with temperature readings of 10-20 degrees below normal expected in the northern Rockies and northern Plains and 5-10 degrees below normal expected across the southern Plains, the Southeast, and the East. The Southwest and southern regions of the Gulf Coast states are looking at above-normal temperatures while most of California is forecasted to see normal to slightly below normal temperatures.

As for precipitation during this period, a breaking down of the ridge that has held its grip over California is a good sign as a large portion of the state (all but the deserts in the south) is hoping to benefit from much needed rains and snow on the order of 1-1.5 inches in the south and upwards of 2-4 inches in the Sierras and northern California. Not much relief is shown for the rest of the West for the drought-affected regions except for portions of extreme eastern Idaho and western and southern Montana, where totals of an inch or so may be possible with this next system. Only light to modest totals are expected across the entire mid-section of the country and the East. The same goes for the Southeast, where the best bet for good rains is found in extreme southern Florida and the Keys. Totals here may amount to an inch or two over this period.

For the ensuing 5 days (February 13-17) temperatures are expected to be below normal for almost the entire United States as a large trough sets up over the eastern half of the country. The exceptions are the Pacific NW, Intermountain Basin and Florida, which are expected to be around normal. All but the Lower Peninsula of Alaska can expect to see above-normal temperatures. As for the precipitation patterns, the southern tier states, and Gulf Coast states in particular, are looking at better odds of above-normal precipitation because of a favorable southerly jet flow overhead while the Pacific NW and Northern Plains states are looking to be drier than normal. Southwestern Alaska is looking at above-normal precipitation and the northwestern regions of the state look to be below normal.

Author: [Mark Svoboda, 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.

Weekly Snowpack and Drought Monitor Update Report

Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

Drought or Dryness Types

A ... Agricultural

H ... Hydrological

Updated February 7, 2007