



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

Weekly Report - Snowpack / Drought Monitor Update **Date:** **February 1, 2007**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snowpack: During the 2007 Water Year, the Cascades and Front Range of the Central and Southern Rockies have above normal snow water-equivalent (Fig. 1). Large deficits persist over the Sierra Nevada and much of Arizona although improvement is occurring in New Mexico (Fig. 1a). During the past week, snowfall accumulation was down across much of the West except for some modest increases over parts of the eastern slopes of the Rockies in Montana and Colorado, central Utah, and the Southwest (Fig. 1b).

Temperature: During the past seven days, temperatures were within +/-10°F of normal over the Pacific Northwest. Colder weather dominated the Northern Rockies (Fig. 2). Looking at the past seven, 14 and 30 days, temperatures across the West were below normal for most of January except for the Montana and the Northern Plains (fig. 2a).

Precipitation: During this report period, precipitation (rain and snow) was practically non-existent except for moderate precipitation over parts of southern California and New Mexico (Fig. 3). Radar failed to adequately capture precipitation over Arizona and the Central Rockies. The seven day (Fig. 3a), 30 day, and Water Year precipitation departures from normal show mostly a dry January and dry Water Year over much of the West (Fig. 3b). Notable exceptions are the Northern Cascades and Northern Rockies although persistent high pressure near the West Coast is helping to reduce much of these early season surplus. Looking at the one, two and three year precipitation departures from normal reveal a lot of variability across the West. Wyoming and Arizona show the most persistent dryness although more recently dryness has spread into the Great Basin and much of California (Fig. 3c).

WESTERN DROUGHT STATUS

The West and Rocky Mountains: A dry week over much of the West and Rocky Mountains. Temperatures recovered from the arctic blast over much of the region, with most areas normal to slightly below normal. In Montana, conditions continue to worsen in the southern part of the state. Low snowpack is raising some concern. D1 and D2 conditions shifted farther to the north, leaving much of the southern part of Montana in D2. In the north-central part of the state, conditions have improved enough to reduce the D1 area to D0.

The dry winter continued in Nevada and California. Abnormally dry (D0) conditions were migrated to the east, now covering most of Nevada. Dryness continued as well over the Sierra Mountains and into California. Low snowpack in the Sierra Mountains along with very dry conditions in California has allowed for expansion of D1 conditions into the central valley and along the coast. A very wet 2006 water year has allowed ample water storage in the state's reservoir systems, thus lessening the impacts of the current dryness. The water in storage has allowed for water deliveries to irrigators to continue as planned, with only a few reductions announced at this point. The short-term dryness has also increased fire danger for much of

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California, with counties spending extra money to have crews on stand-by during high fire danger conditions.

Rain along a portion of the southern California coast this week allowed for a small reduction of the D1 conditions along the south coast drainage region. Ojai, California, reported 4.49 inches of precipitation this week, while Santa Paula recorded 4.49 inches. Santa Barbara reported 2.55 inches, and Oxnard had 2.34 inches (Fig. 4).

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/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

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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

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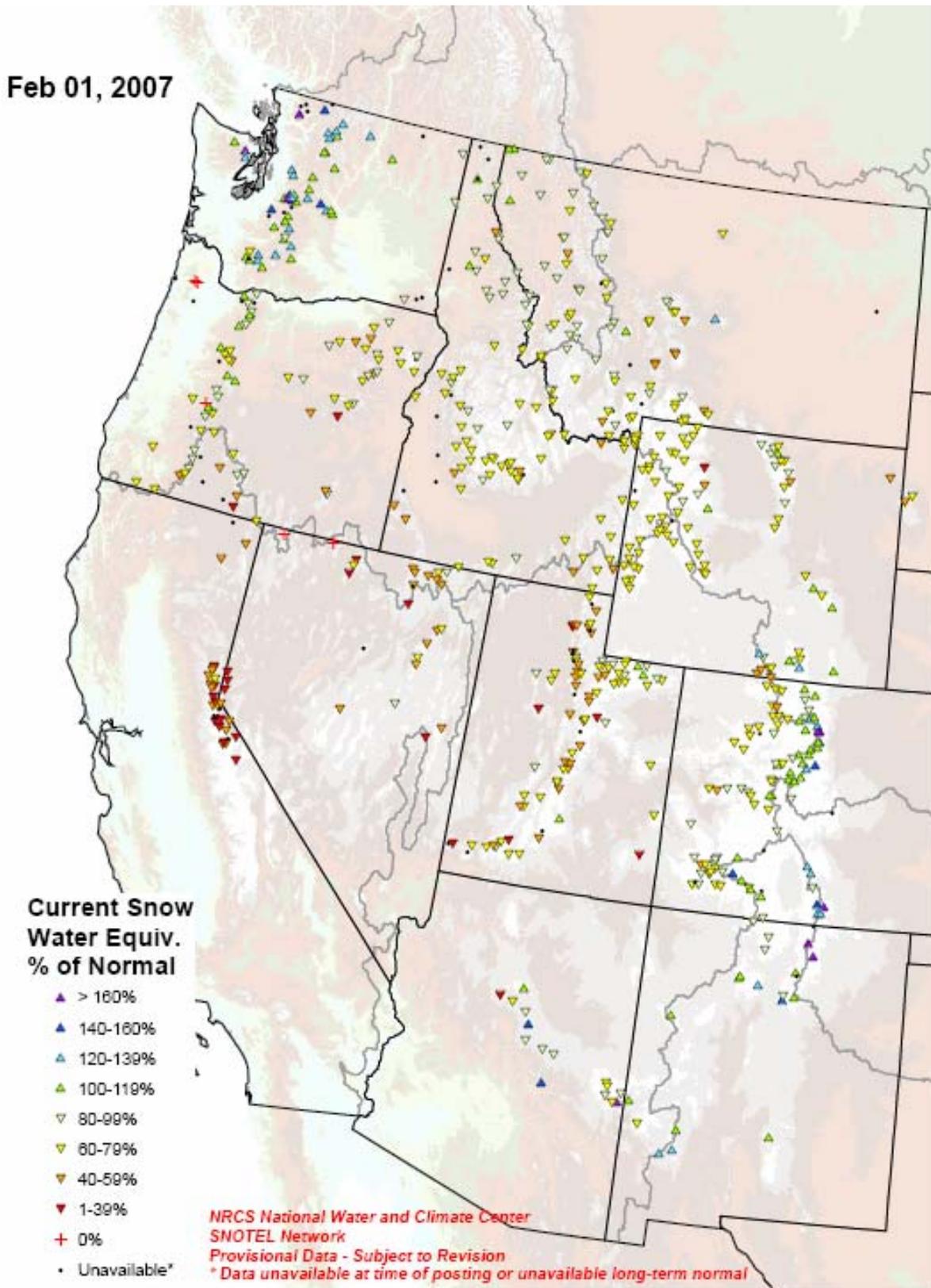


Fig. 1: Snow Water-Equivalent as a percent of normal for Water Year 2007.

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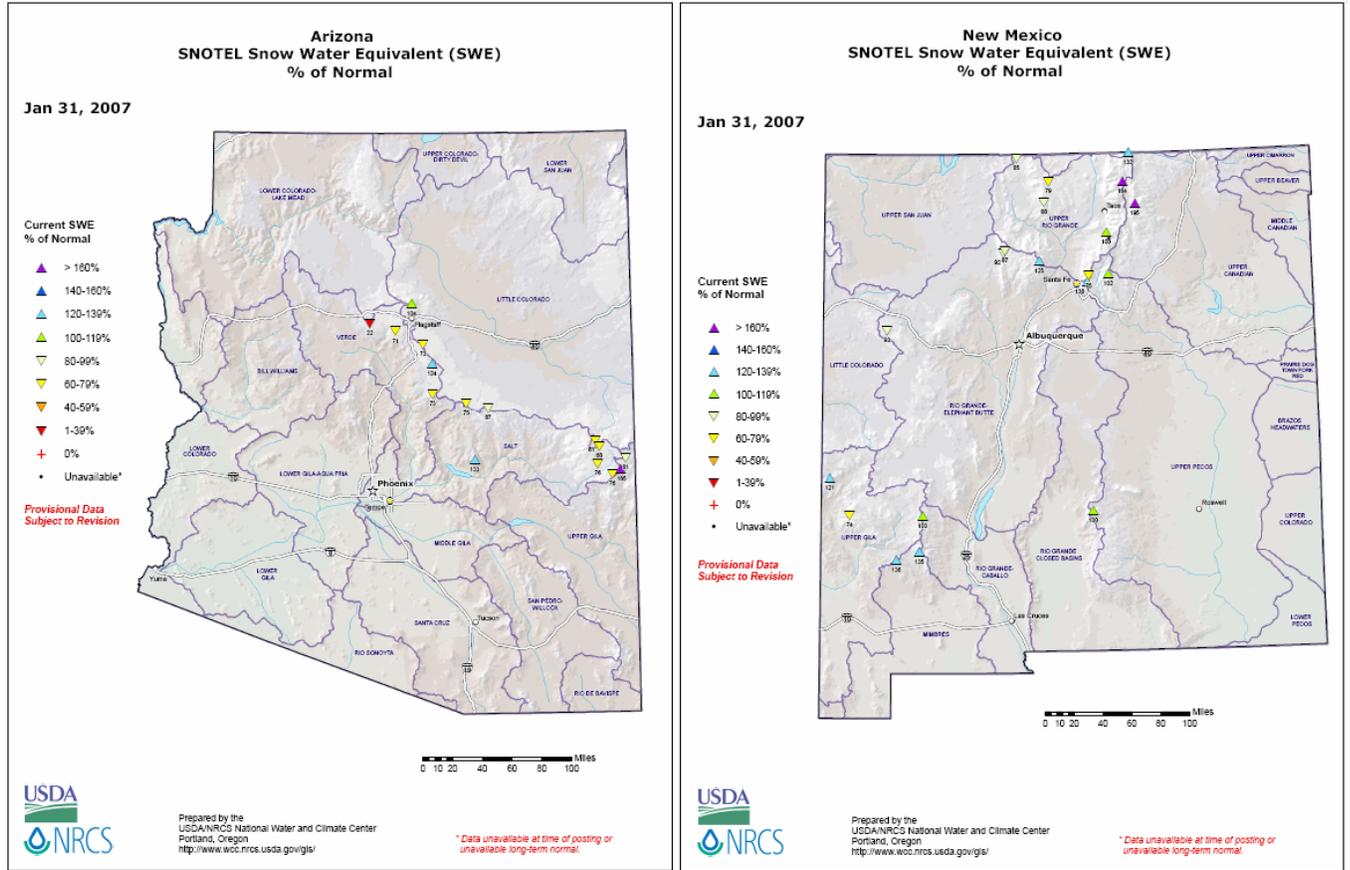


Fig. 1a. Current SNOTEL SWE percent of normal for Water Year 2007 over Arizona & New Mexico. ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/nm_swepctnormal.pdf
ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/nm_swepctnormal.pdf

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Feb 01, 2007

7-day Snow Depth Change (inches)

- ⊙ snow free
- ♦ < -24 loss
- ▼ -23.9 - -12
- ▽ -11.9 - -8
- ▽ -5.9 - -2
- ▽ -1.9 - 0
- ▲ 0.1 - 2
- ▲ 2.1 - 8
- ▲ 8.1 - 12
- ▲ 12.1 - 24
- ✖ > 24 gain
- ⚡ data spike

*NRCS National Water and Climate Center
SNOTEL Network
Provisional Data - Subject to Revision
A "data spike" is defined as a gain or loss of more than 100 inches*

Automated snow depth measurements are known to occasionally read spuriously large during precipitation events. Snow depth is also difficult to accurately measure at near-snow free conditions; data should be used with caution.

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

Feb 01, 2007

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

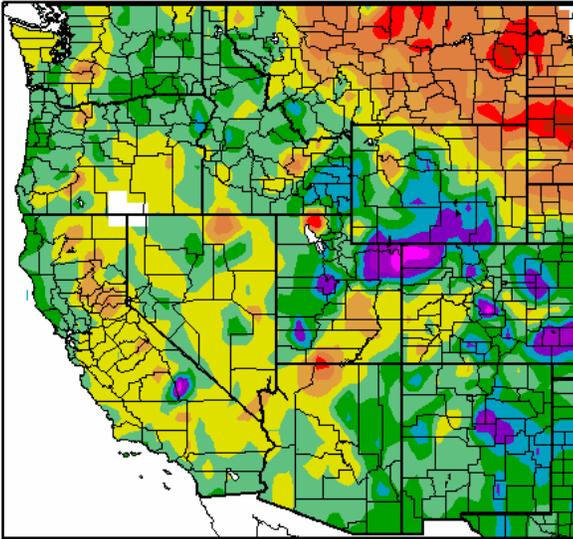
- ✖ < -20 cold
- ▼ -20 -- -15
- ▼ -15 -- -10
- ▼ -10 -- -5
- ▼ -5 - 0
- ▲ 0 - 5
- ▲ 5 - 10
- ▲ 10 - 15
- ▲ 15 - 20
- ◆ >20 warm

*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*

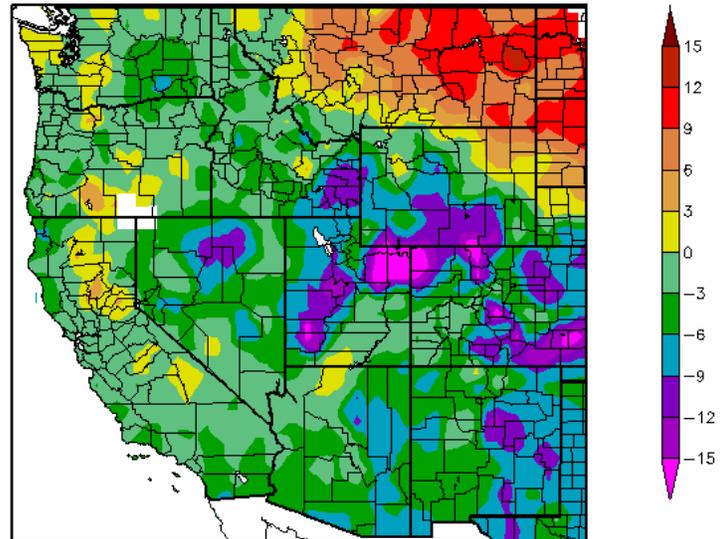
Fig. 2. SNOTEL 7-day average temperature anomaly.

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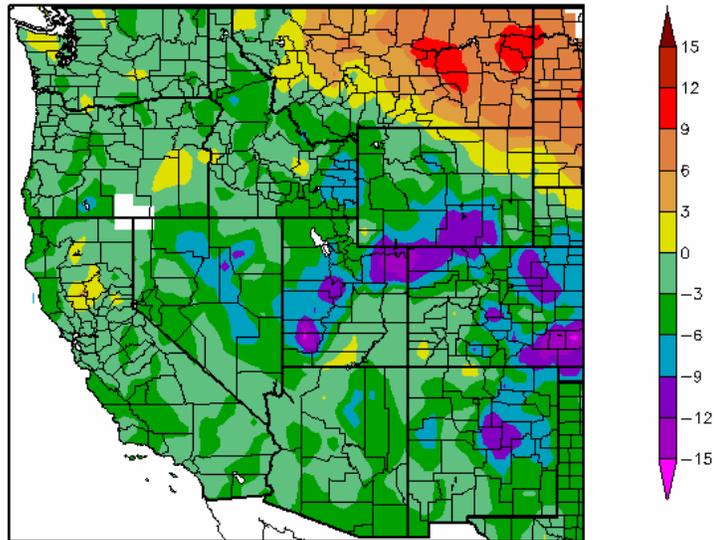
Departure from Normal Temperature (F)
1/24/2007 - 1/30/2007



Departure from Normal Temperature (F)
1/17/2007 - 1/30/2007



Departure from Normal Temperature (F)
1/1/2007 - 1/30/2007



Generated 1/31/2007 at HPRCC using provisional data.
NOAA Regional Climate Centers

Fig. 2a. ACIS 7, 14 and 30-days average temperature anomaly.

Latest Drought Monitor & Ensuing Precipitation
January 23 - 29[p], 2007

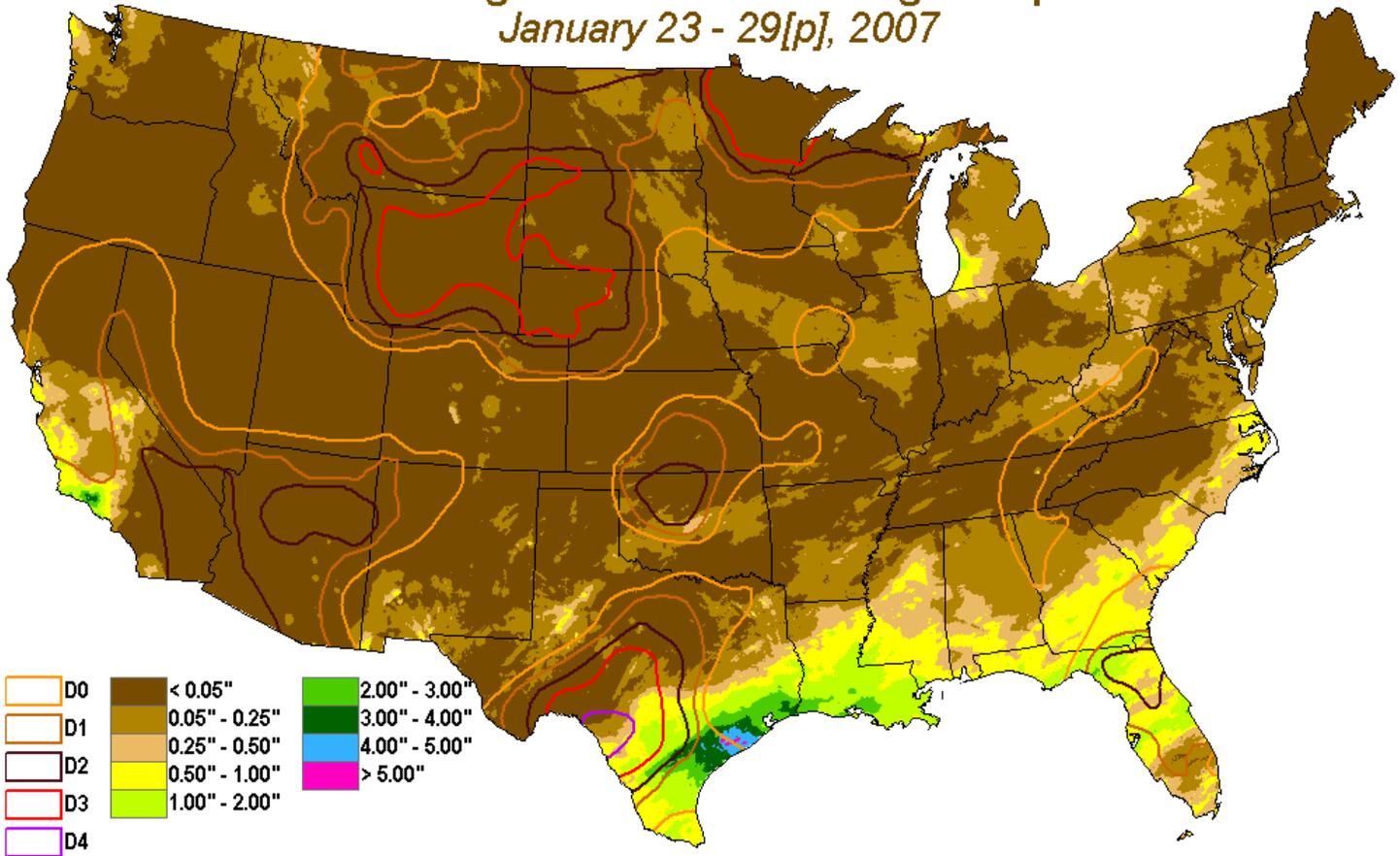


Fig. 3. National radar precipitation estimate for the past week. Note: estimates over the mountain areas of the West are less reliable. Drought Monitor intensities are shown as contour lines.

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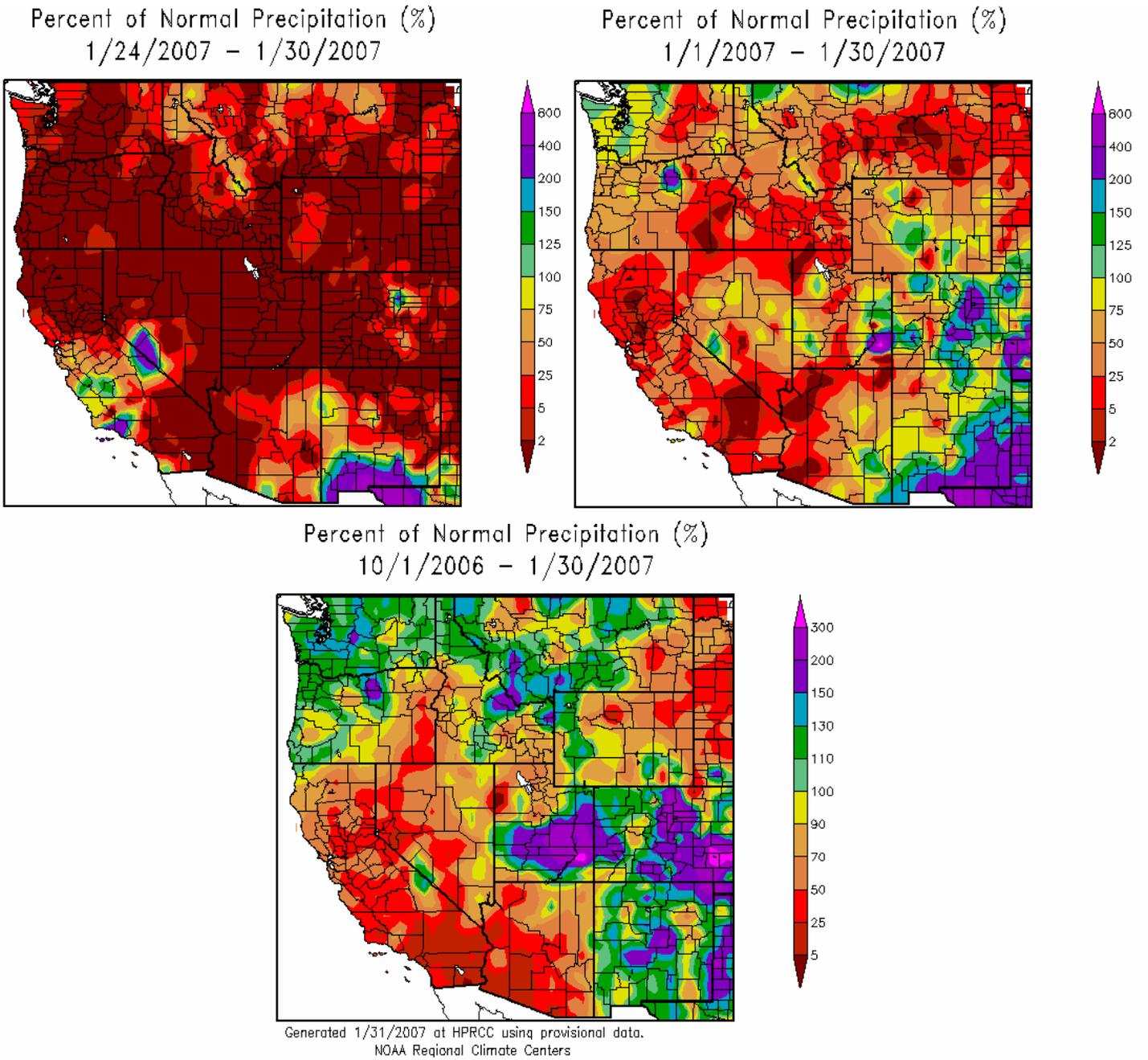


Fig. 3a. ACIS percent of normal precipitation for the past 7, 14, and 30-days over the Western US.

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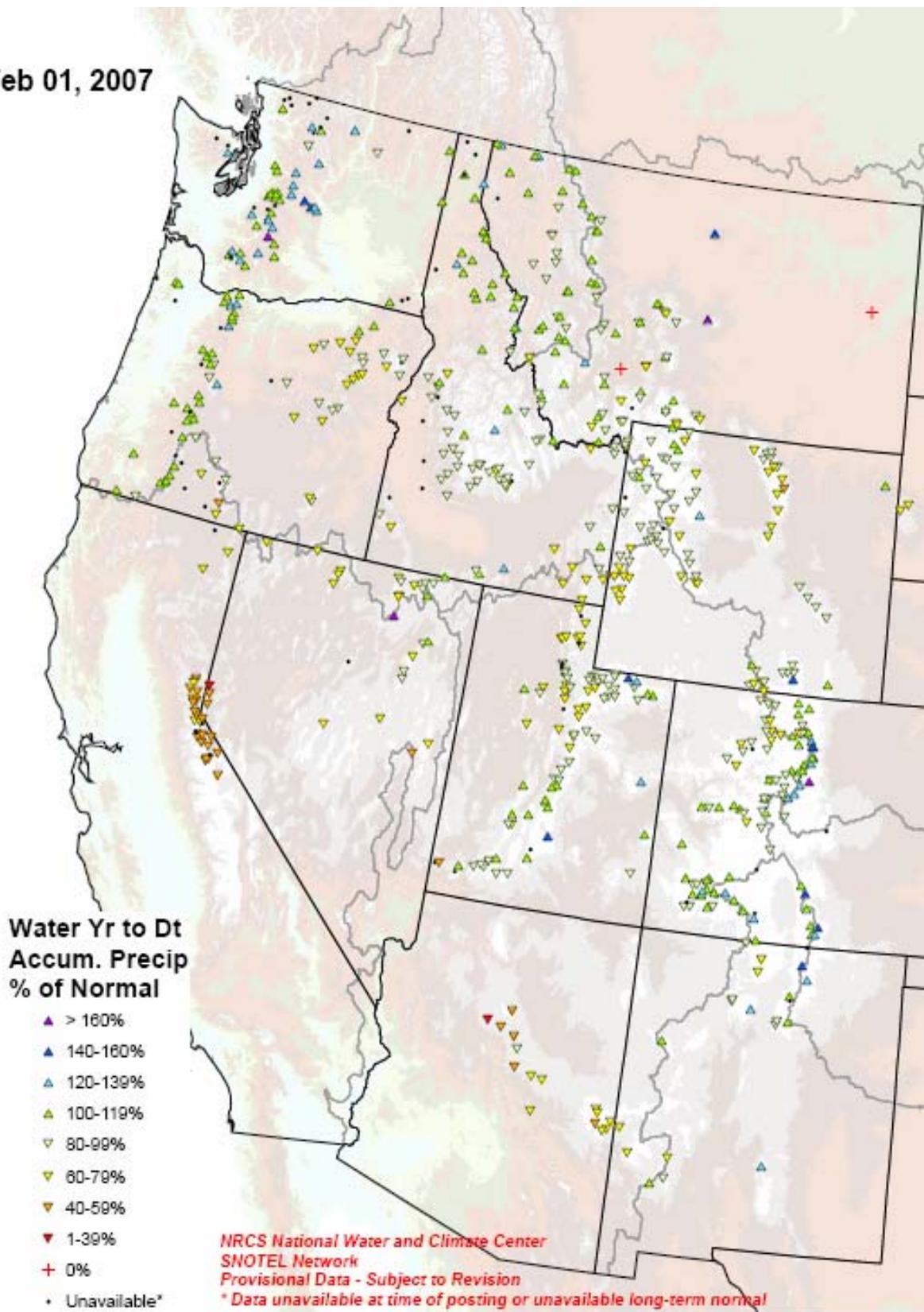
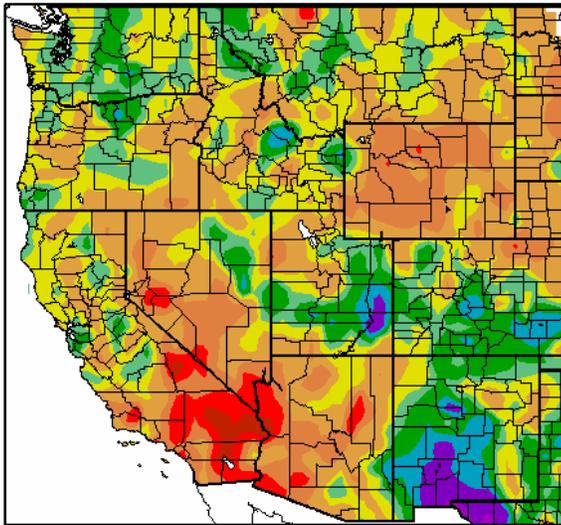


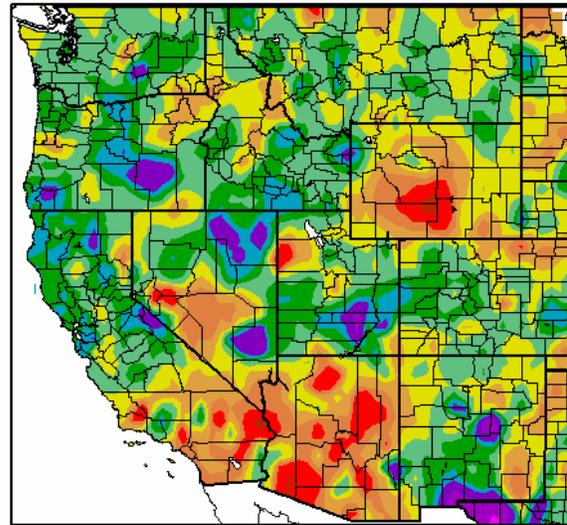
Fig. 3b. SNOTEL station water year (since October 1) precipitation as a percent of normal.

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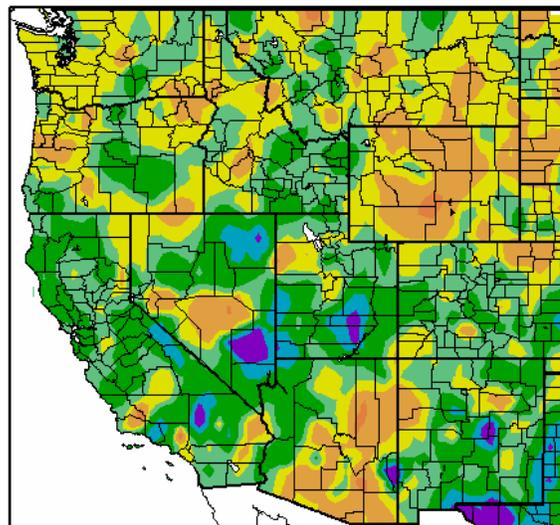
Percent of Normal Precipitation (%)
1/31/2006 – 1/30/2007



Percent of Normal Precipitation (%)
1/31/2005 – 1/30/2007



Percent of Normal Precipitation (%)
1/31/2004 – 1/30/2007

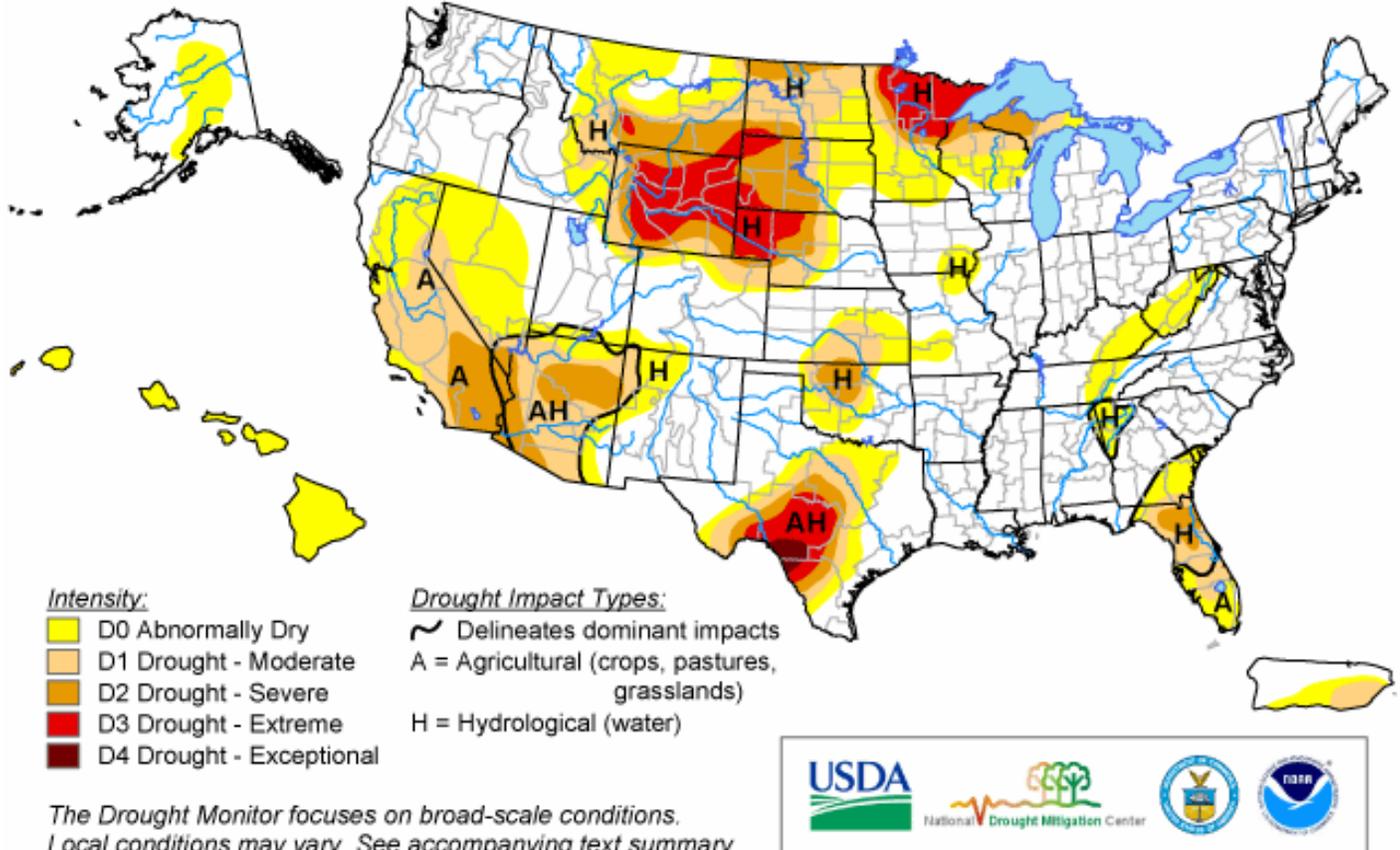


Generated 1/31/2007 at HPRCC using provisional data.
NOAA Regional Climate Centers

Fig. 3c. ACIS percent of normal precipitation for the past 1, 2, and 3-years over the Western US.

U.S. Drought Monitor

January 30, 2007
Valid 7 a.m. EST



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

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



Released Thursday, February 1, 2007

Author: Brian Fuchs, National Drought Mitigation Center

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

Calculated Soil Moisture Ranking Percentile
JAN 31, 2007

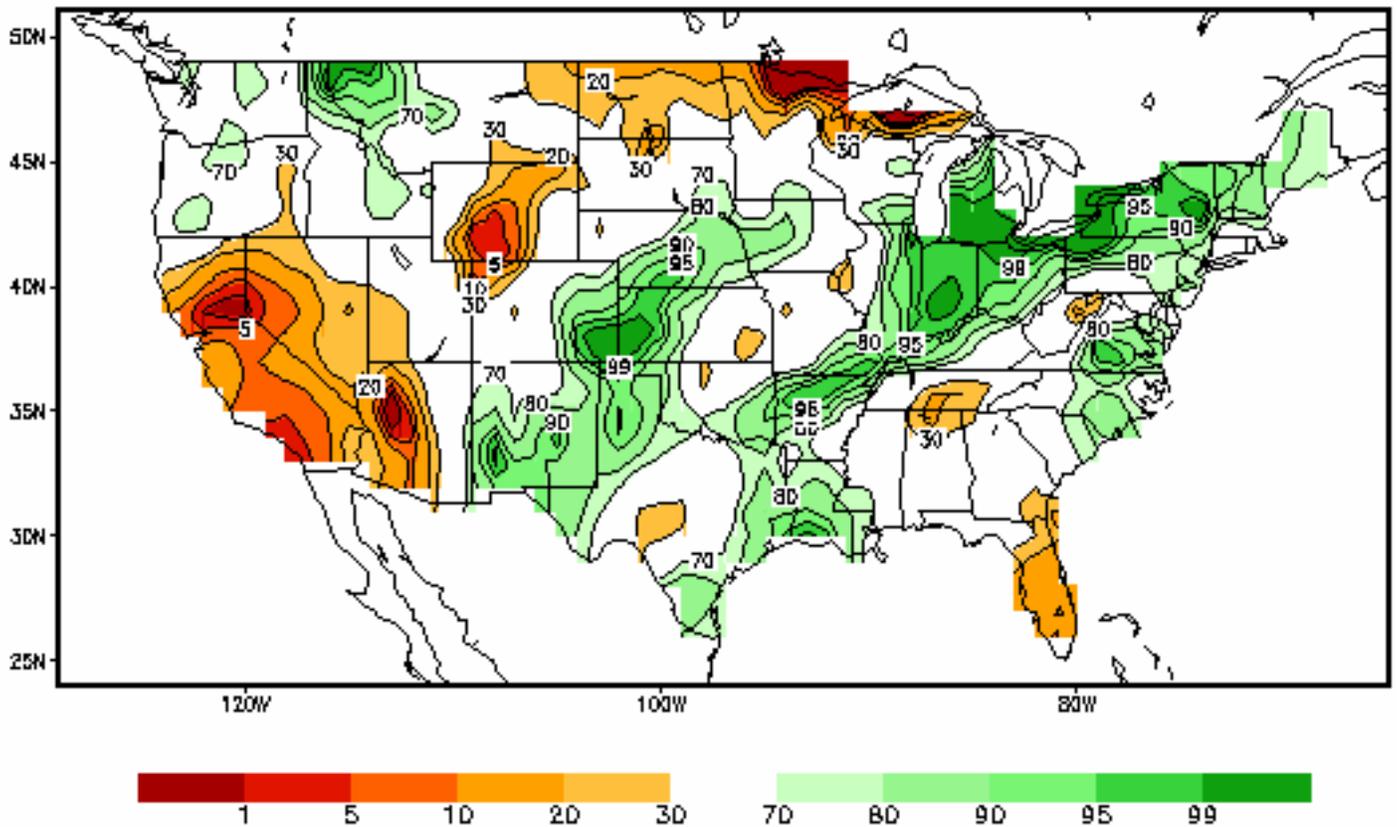


Fig. 5: Soil Moisture Ranking Percentile based on 1932-2000 climatology. Source NOAA-CPC

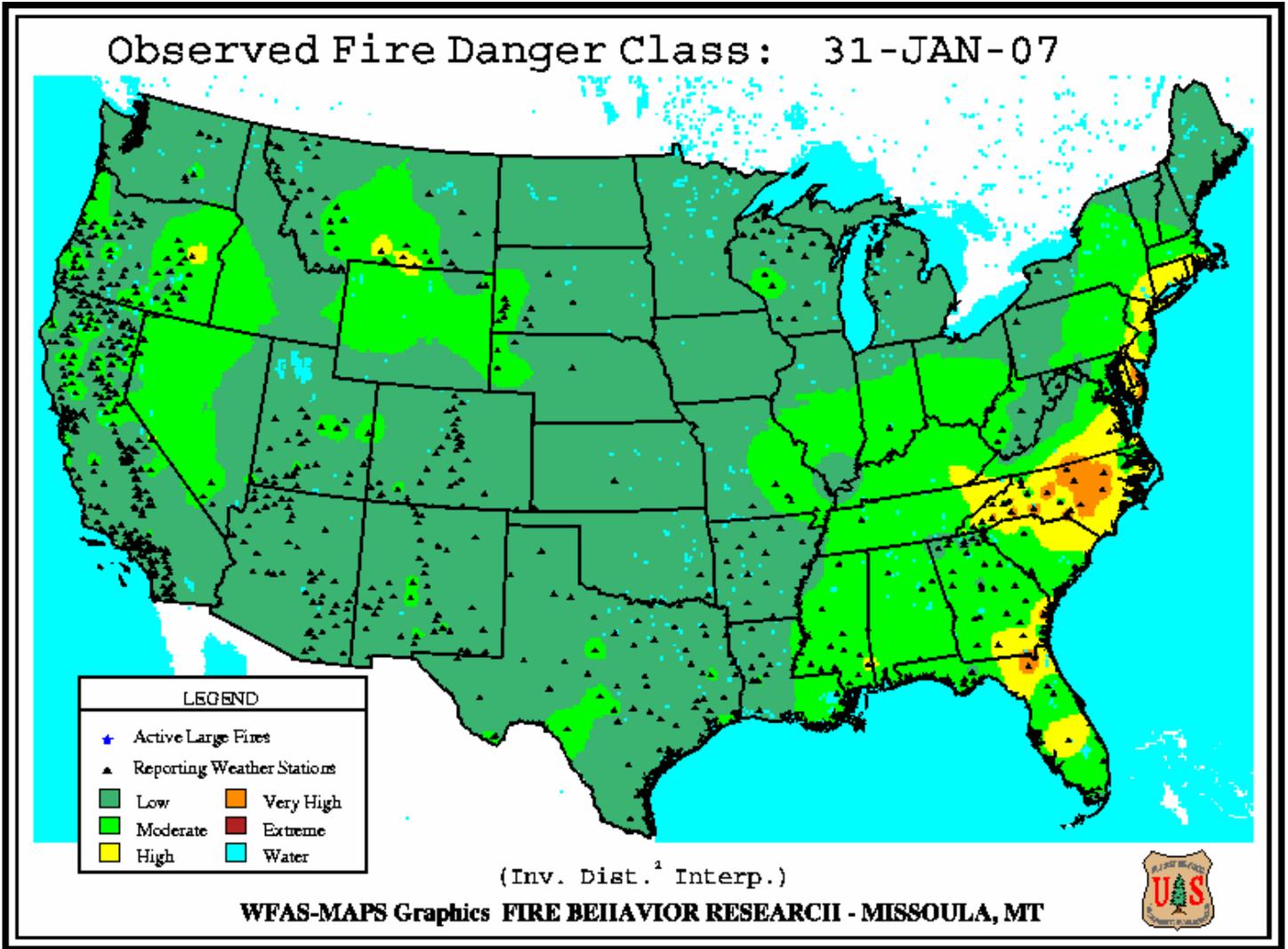
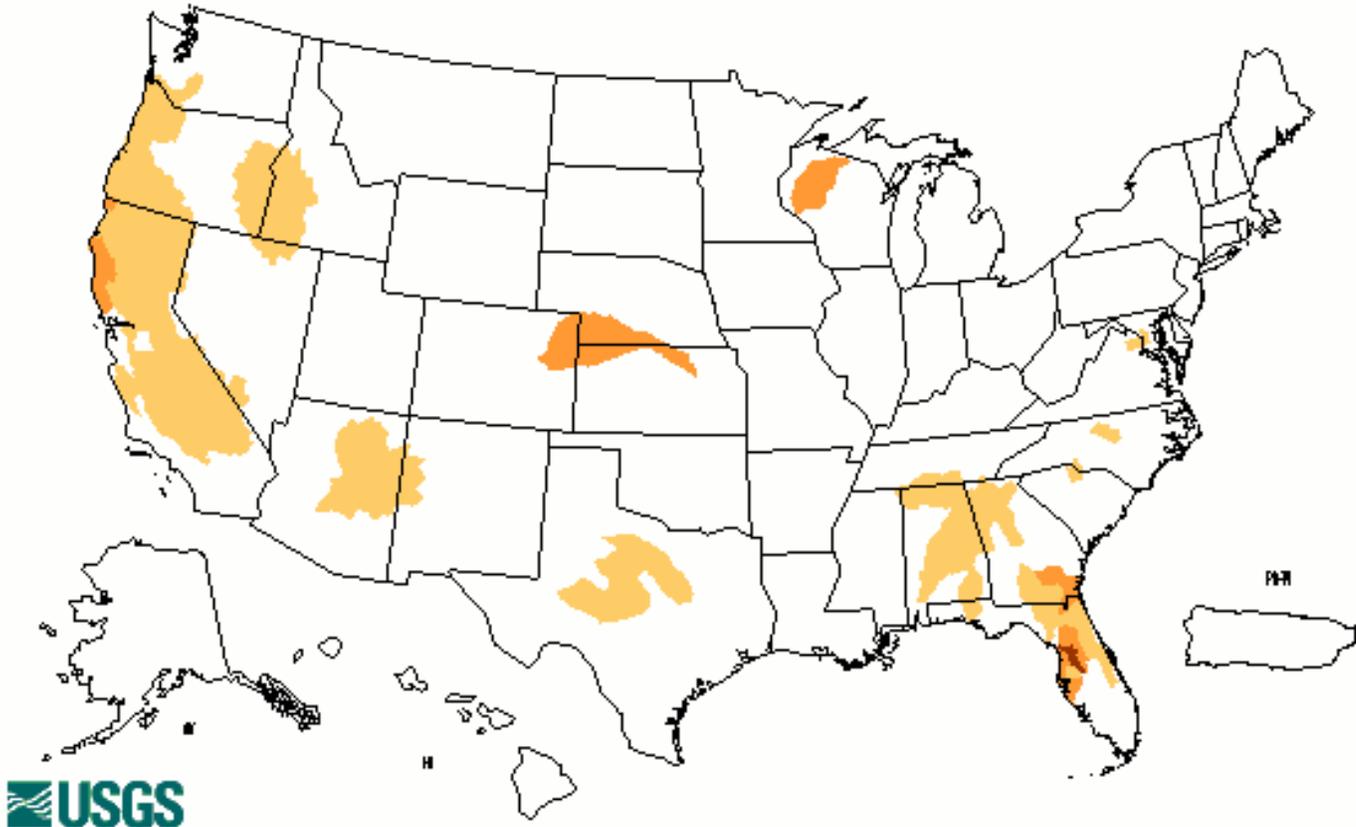


Fig. 6. Observed Fire Danger Class. Note continued increase risk of fire over southern California. Source: Forest Service *Fire Behavior Research – Missoula, MT*

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Wednesday, January 31, 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

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National Drought Summary -- January 30, 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, High Plains and Appalachians: A dry week over the region has resulted in little change to the drought status. Temperatures were seasonal for the Midwest and Appalachians, with above-normal temperatures for much of the High Plains and average temperatures 5-10°F above normal. Short-term dryness continues to plague much of the region, but little impact has resulted so far. D0 was extended in Kentucky, covering more of the eastern part of the state and into western West Virginia and the Maryland Panhandle. D3 conditions were extended in northeast Wyoming where low snowpack and water concerns are prevalent.

The South and Southeast: Precipitation remains ample along the southern jet stream, bringing continued relief along the Gulf Coast. In Texas, 3-5 inches of rain this week has allowed for further improvements to the region. D0 conditions were removed along the coast and moved inland. D1, D2 and D3 conditions in south Texas were all improved, pushing the gradient farther to the west. In Oklahoma, D0 was extended into the southwest portion of the state. There has been very little hydrological response in this region to the recent rains, with many lakes still at historical low elevations. Lake Altus is still at 18% of capacity, with Lake Tom Steed and Lake Waurika at 40% and 79% of capacity, respectively. In north-central Oklahoma, there has been a positive response to recent precipitation, and this has allowed for some improvement to the drought designations in this region.

The West and Rocky Mountains: A dry week over much of the West and Rocky Mountains. Temperatures recovered from the arctic blast over much of the region, with most areas normal to slightly below normal. In Montana, conditions continue to worsen in the southern part of the state. Low snowpack is raising some concern. D1 and D2 conditions shifted farther to the north, leaving much of the southern part of Montana in D2. In the north-central part of the state, conditions have improved enough to reduce the D1 area to D0.

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Looking Ahead: During the next 5 days (February 1-5) cold air is going to settle in over much of the United States. Average temperatures are forecasted to be below normal for most locations except for south Florida and the Pacific Northwest. Departures from normal will range from 15-20°F below normal over the Plains to 3-6°F below normal over the East Coast. Precipitation amounts are expected to be greatest over the southeast portion of the United States and continued dry through much of the West.

For the ensuing 5 days (February 6-10) a long-wave ridge over the west and a trough over the central and eastern United States are expected to maintain cold air over much of country with the coldest temperatures in the northeast. Temperatures should remain above normal for much of the West and Alaska. Precipitation during this time period is expected to be varied, with below-normal precipitation over the Southeast, New England, the Southwest and the northern Plains as well as in Alaska. The shift of the long wave ridge to the east should also allow above-normal precipitation over much of California, the northern Rocky Mountains, and the Pacific Northwest.

Author: [Brian Fuchs, National Drought Mitigation Center](#)

Dryness Categories

D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought, or for areas recovering from drought.

Drought Intensity Categories

D1 ... Moderate Drought

D2 ... Severe Drought

D3 ... Extreme Drought

D4 ... Exceptional Drought

Drought or Dryness Types

A ... Agricultural

H ... Hydrological

Updated January 31, 2007