



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

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

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snowpack: For the 2007 Water Year (WY), the only regions showing a surplus in snow water-equivalent (SWE) totals are over the Northern Cascades and the Front Range of the Rockies in Colorado and New Mexico (Fig. 1). During the past week, snowfall was significant over the Sierra Nevada and Great Basin ranges (Fig. 1a). Snowfall amount increases ranged from over three feet in parts of the Sierras and Cascades to less than one foot over the eastern slope of the Rockies. Snow cover actually decreased over Arizona and most of New Mexico (Fig 1b).

Temperature: During the past seven days, temperatures ranged from up to 10°F below normal over the Sierras and Southern Cascades to 5°F above normal over the eastern slope of the Rockies and the Southwest (Fig. 2).

Precipitation: During this report period, precipitation (rain and snow) was significantly above normal over the Sierras and Coastal Range of northern California and Oregon (Fig. 3). Little precipitation fell over Montana, Wyoming, much of Colorado, New Mexico, Arizona, and southern California. For the WY, lesser number of SNOTEL sites have recorded above normal precipitation (compared to last week). Northern California has recovered somewhat since last week but is still behind the long term average while Arizona and western New Mexico are still lagging further behind in precipitation for this season (Fig. 3a).

WESTERN DROUGHT STATUS

The West: In California, a second bout of heavy rain and snow from Saturday through Tuesday reduced D1 and D0 over the northern half of the state, with the D1 retreating south of Lake Tahoe. Impressive snowfall totals piled up in the Sierra Nevada, with 2 to 4 feet common, and up to 5 or 6 feet in the higher elevations. Nevertheless, snowpack remained below normal, and snow water content totaled less than two-thirds of normal from the Tahoe area southward. D1 remained, although diminished, across most of southern California, while D2 persisted south of the San Joaquin Valley. An increase in mountain snows resulted in a slight retreat of the D1 in southeastern Arizona. Moderate to heavy rain or snow reduced the drought area slightly in western Wyoming, eastern Idaho, and southwestern Montana, while improved mountain snow water content led to some drought reduction in south-central Montana and northern Wyoming (Figs. 4 and 4a).

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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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, 4a, and 4b).

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.

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

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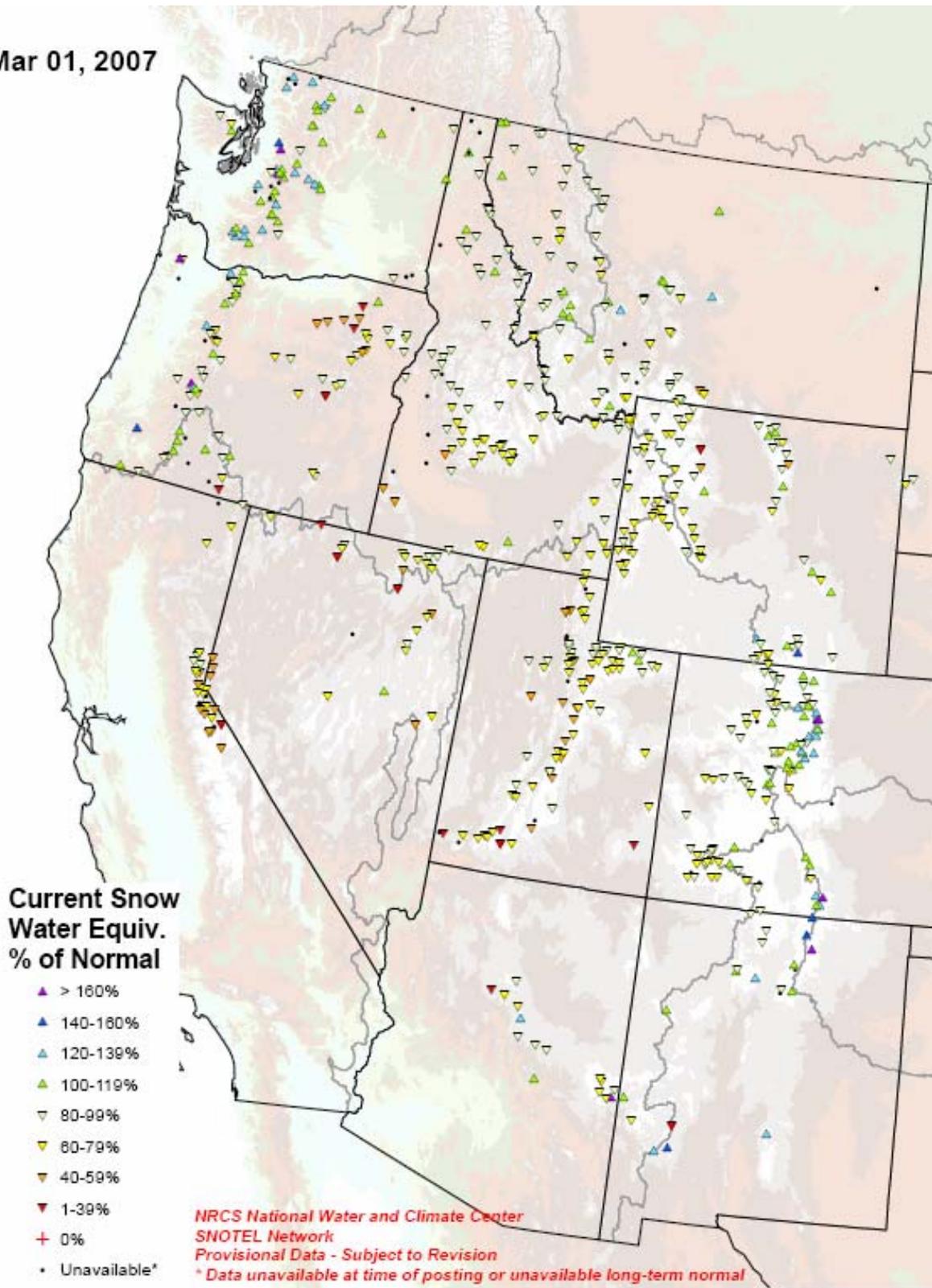


Fig. 1: Snow Water-Equivalent as a percent of normal for Water Year 2007.
<ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideSWEPercent.pdf>

Weekly SWE Change

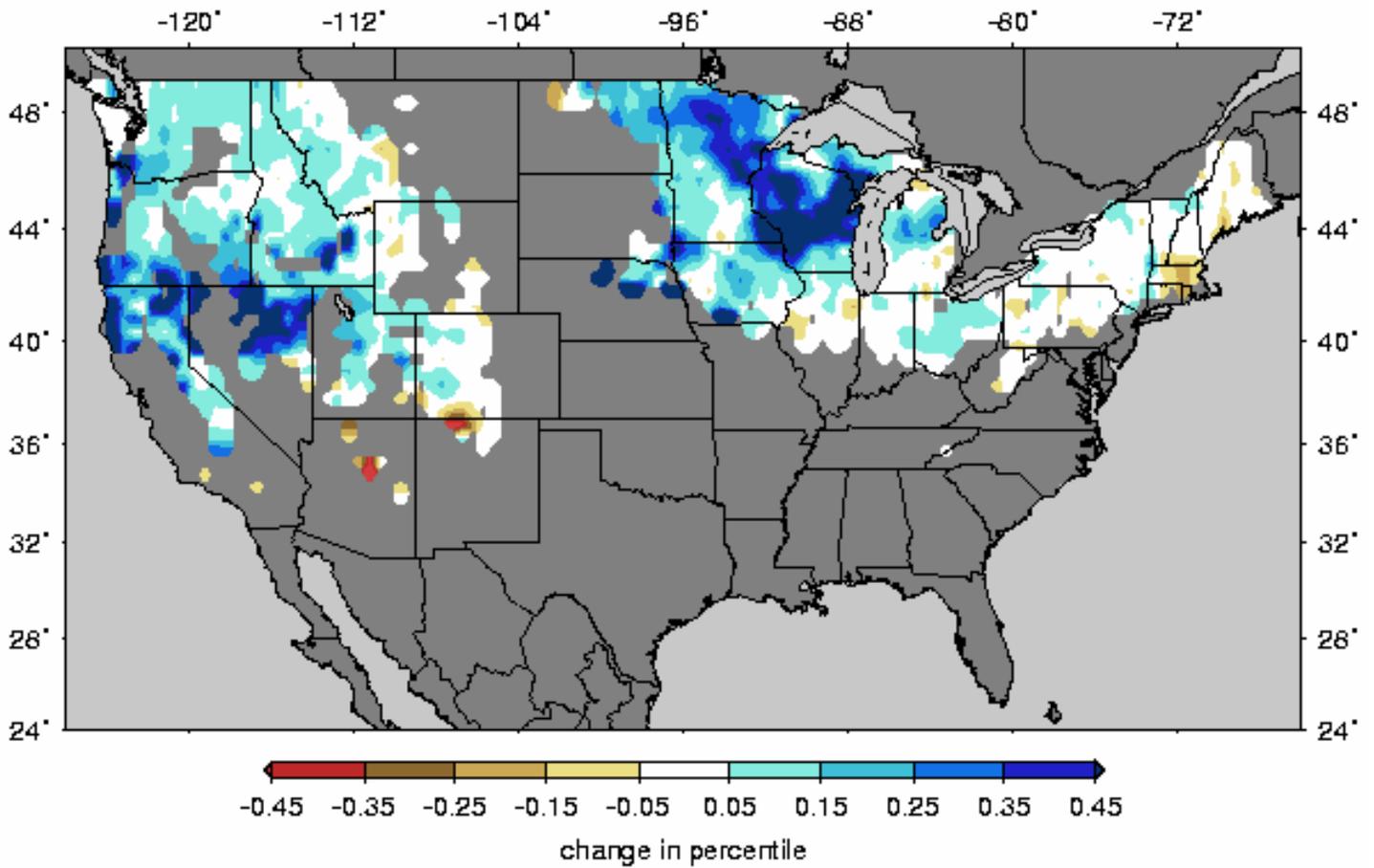


Fig. 1a. Snow Water-Equivalent changes as a percent during the period 20-27 February 2007 based on 1915-2003 climatology. Ref: <http://www.hydro.washington.edu/forecast/monitor/index.shtml>

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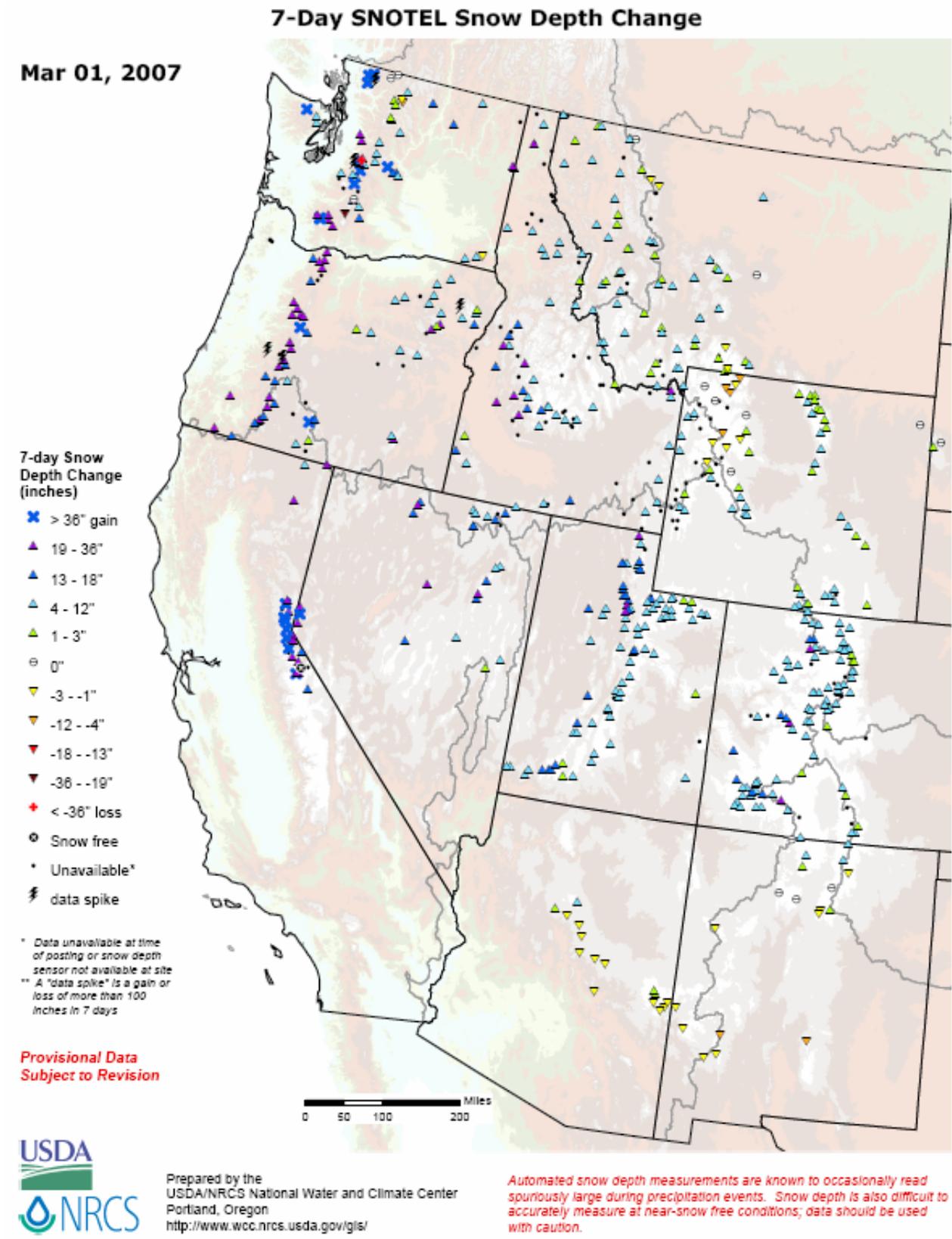


Fig. 1b. SNOTEL 7-day snow depth change.

<http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf>

Mar 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.
<http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf>

Latest Drought Monitor & Ensuing Precipitation February 20 - 26[p], 2007

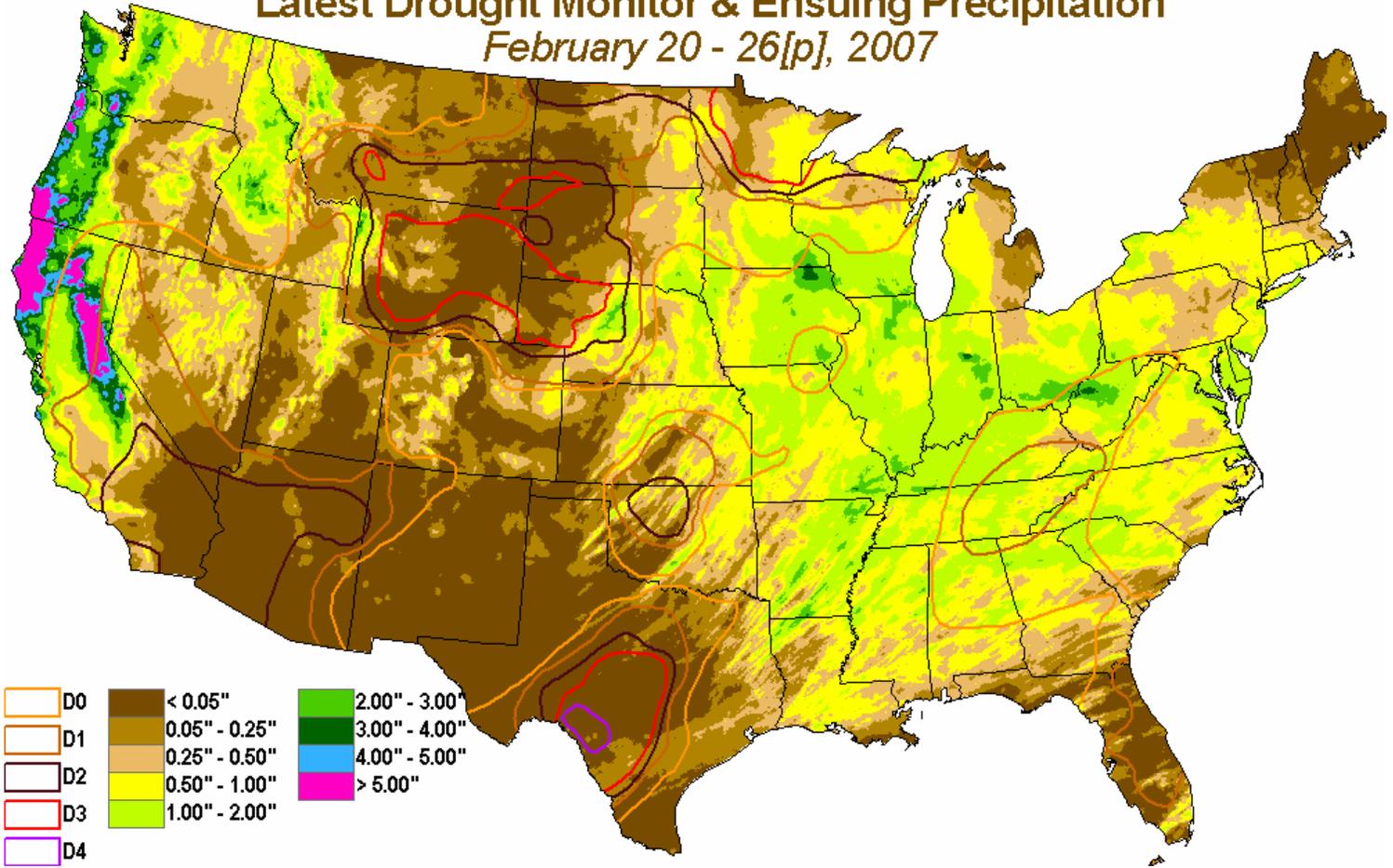


Fig. 3. Radar preliminary estimates of precipitation totals for the 7-day period ending February 26, 2007.

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/USDM-radobsprcp-overlay.gif>

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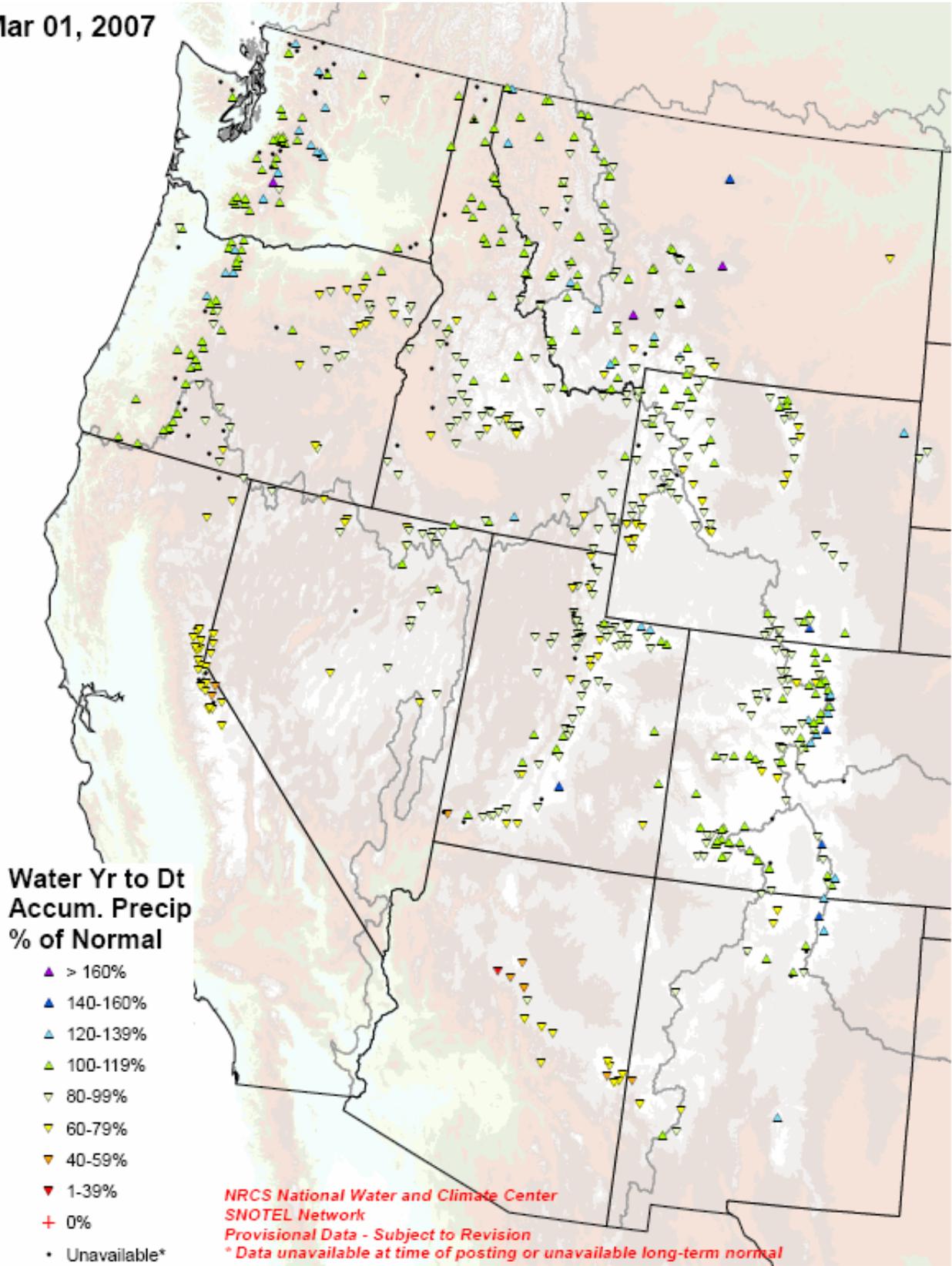


Fig. 3a. SNOTEL station water year (since October 1) precipitation as a percent of normal.
<http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf>

U.S. Drought Monitor

February 27, 2007
Valid 7 a.m. EST

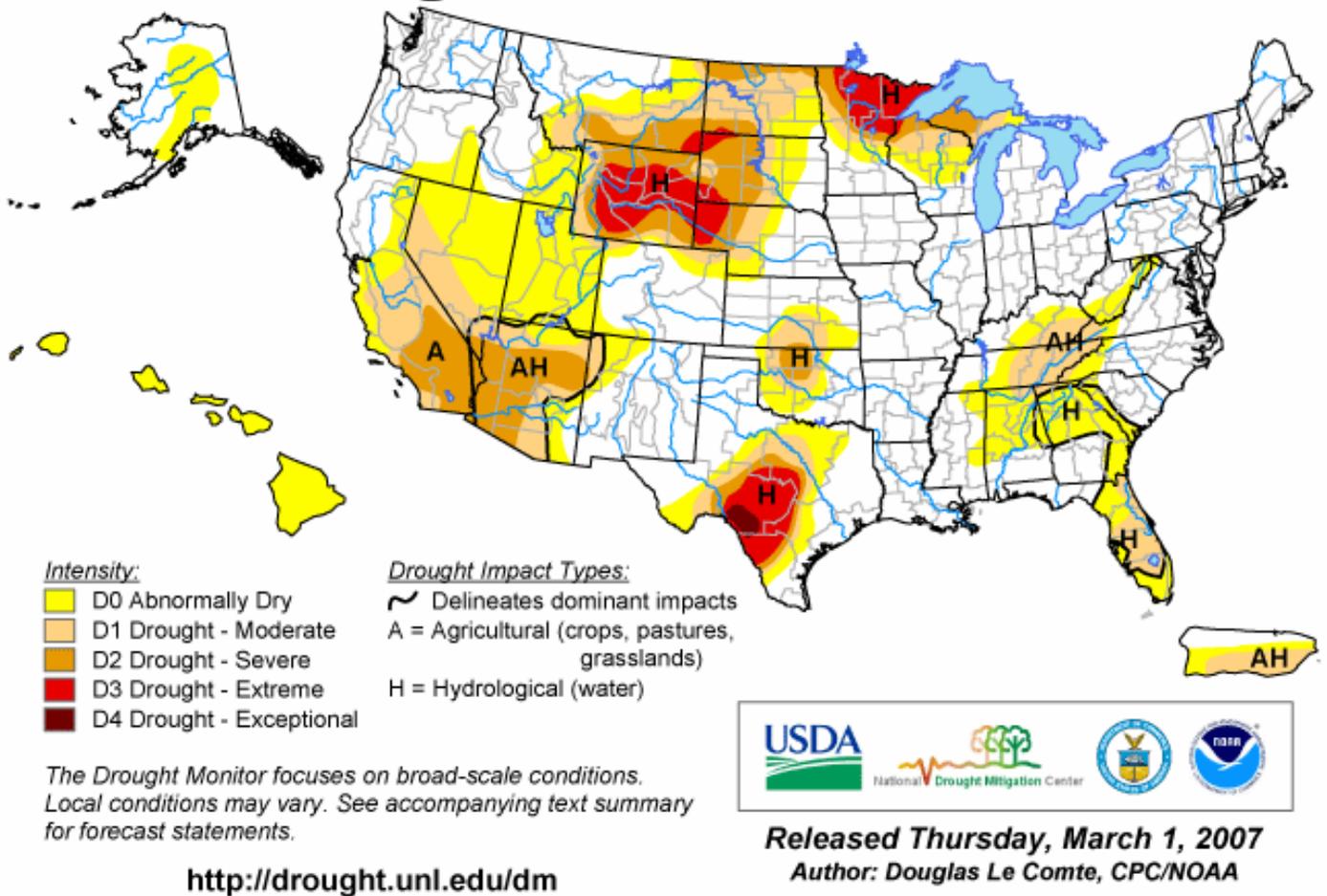


Fig. 4. Current Drought Monitor – Source: *National Drought Mitigation Center (NDMC)*
<http://www.drought.unl.edu/dm/monitor.html>

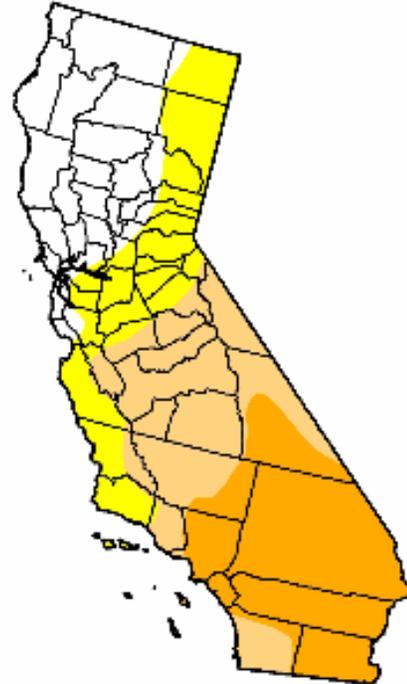
U.S. Drought Monitor

California

February 27, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.4	74.6	54.0	28.8	0.0	0.0
Last Week (02/20/2007 map)	15.2	84.8	59.2	29.6	0.0	0.0
3 Months Ago (12/05/2006 map)	44.0	56.0	0.8	0.0	0.0	0.0
Start of Calendar Year (01/02/2007 map)	40.7	59.3	26.8	0.0	0.0	0.0
Start of Water Year (10/03/2006 map)	85.2	14.8	0.8	0.0	0.0	0.0
One Year Ago (02/28/2006 map)	75.9	24.1	0.5	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, March 1, 2007
Author: Douglas Le Comte, CPC/NOAA

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

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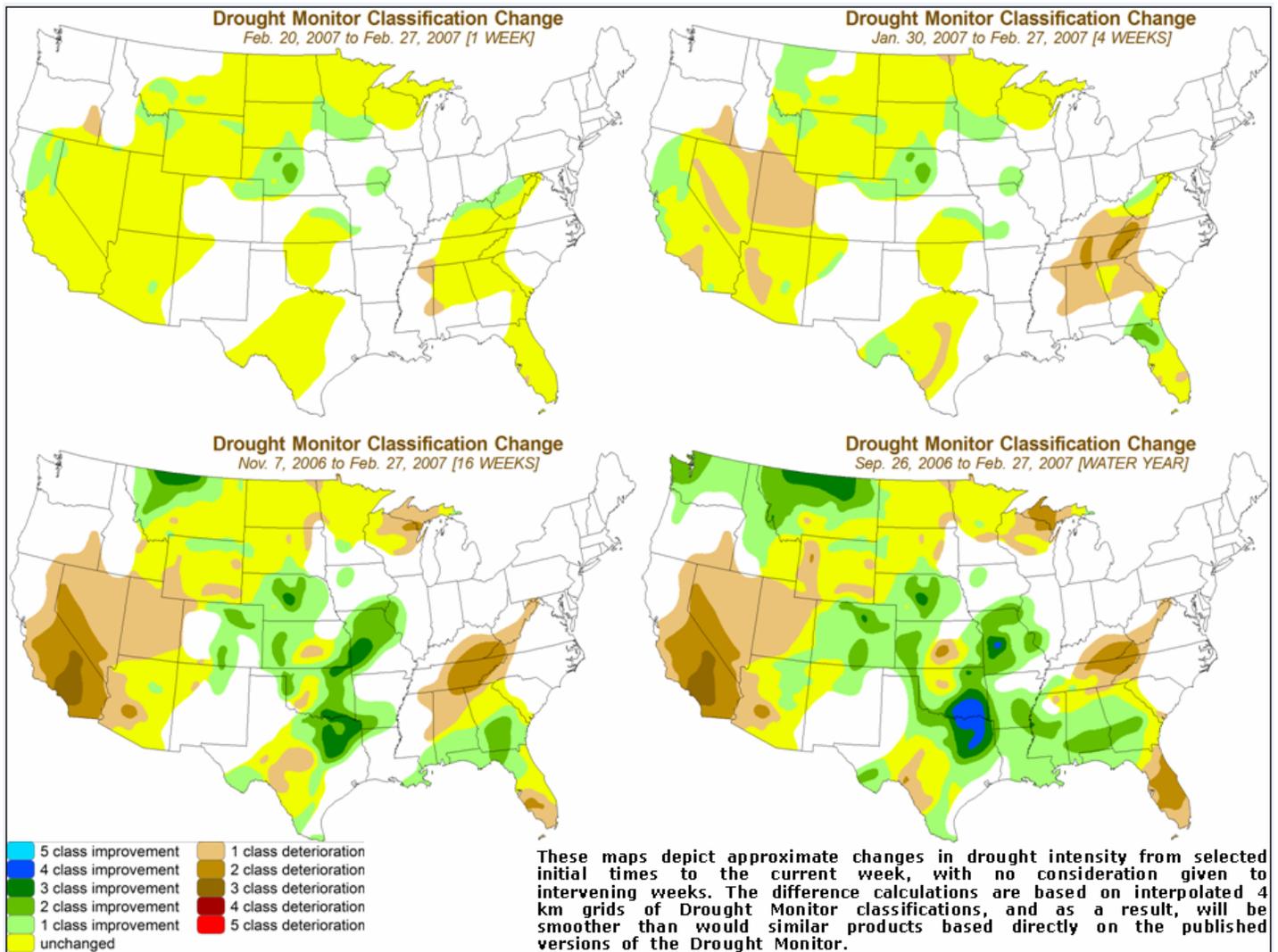


Fig 4b. Drought Monitor classification changes over various time periods. (source: NDMC-CPC)

**Calculated Soil Moisture Ranking Percentile
FEB 28, 2007**

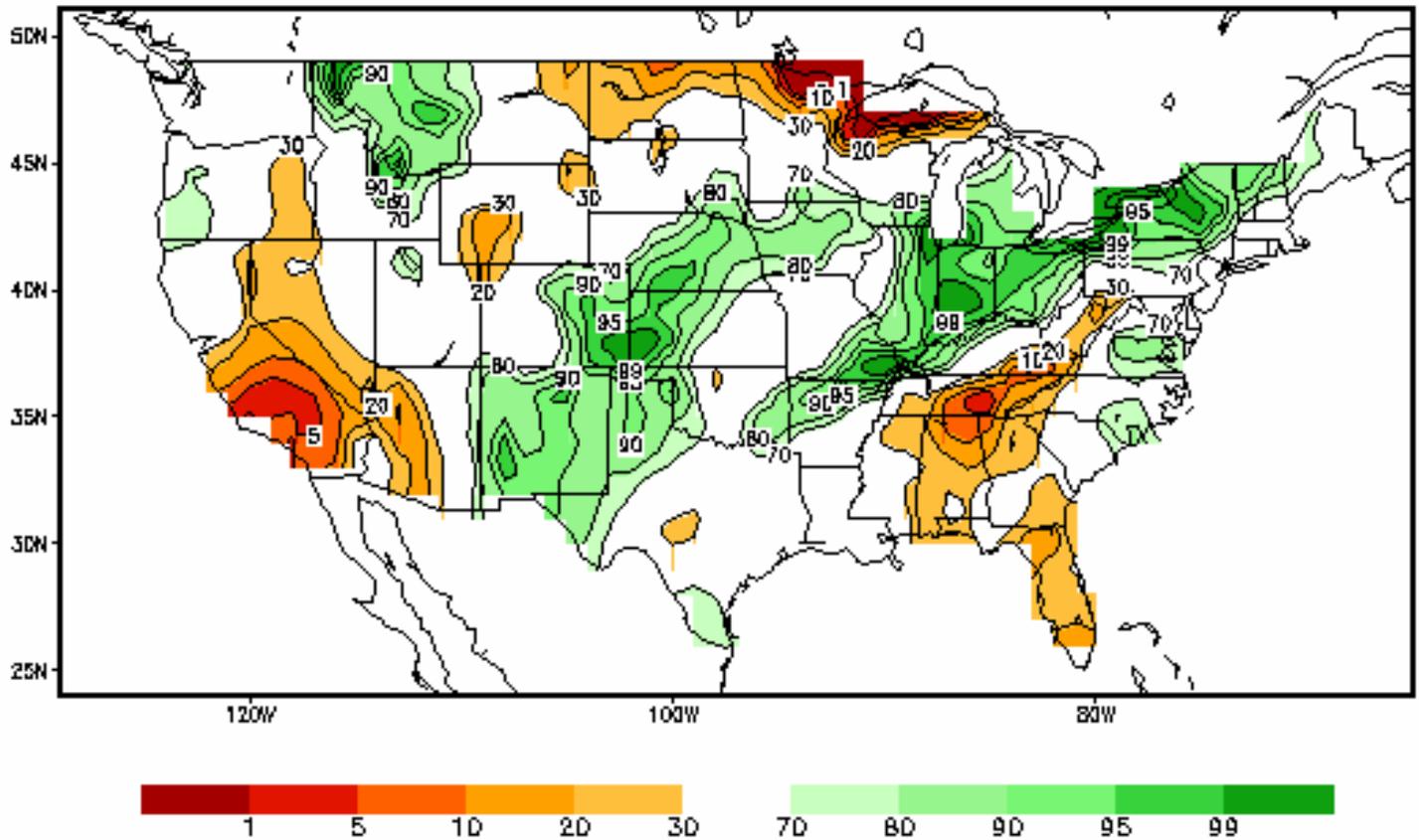


Fig. 5: Soil Moisture Ranking Percentile based on 1932-2000 climatology.
Note continued severe dryness over southern California.
Source NOAA-CPC <http://www.cpc.ncep.noaa.gov/soilmst/img/curr.w.rank.daily.gif>

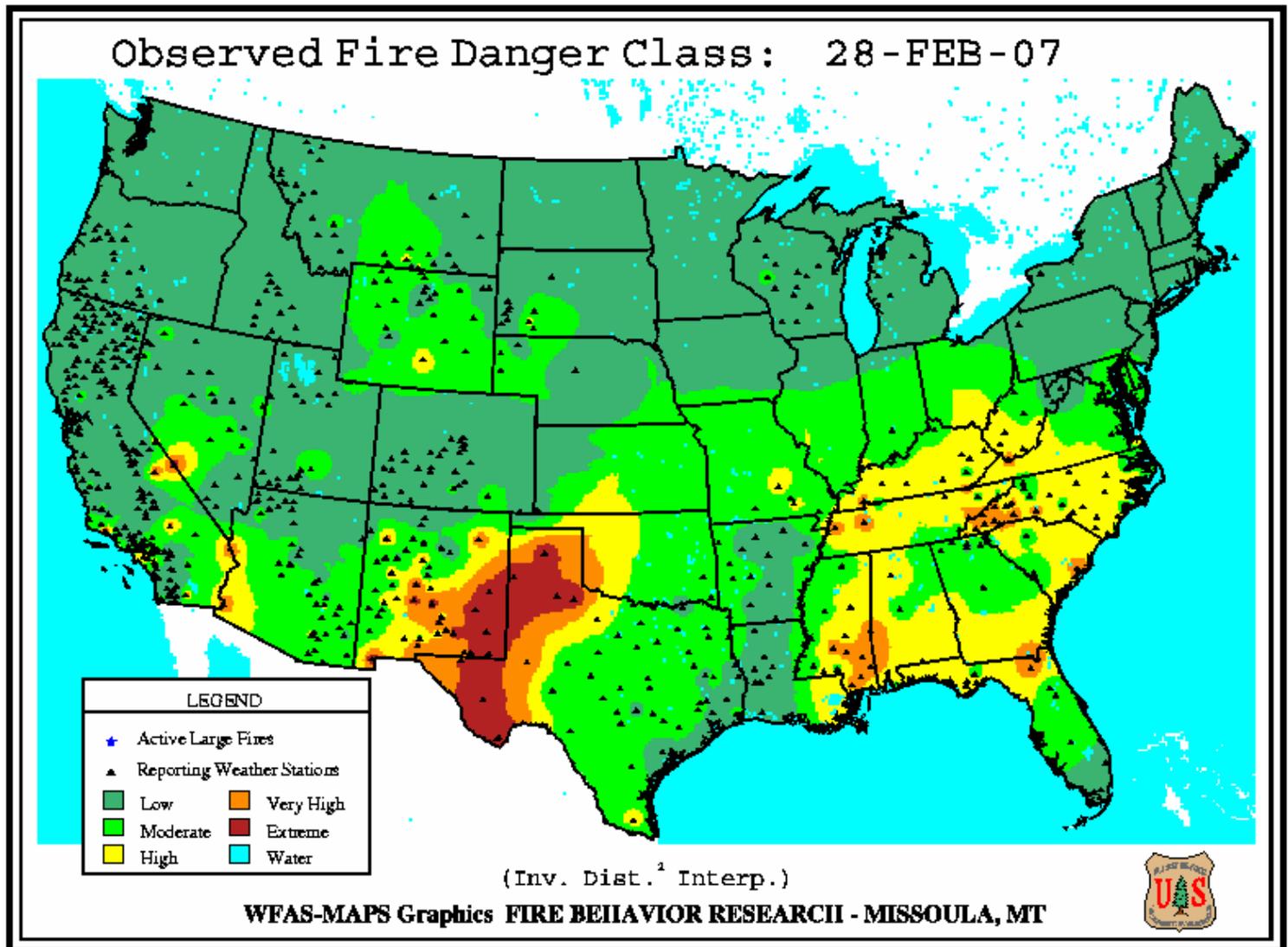


Fig. 6. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT
Note significant worsening over eastern New Mexico and western Texas since last week.
http://www.fs.fed.us/land/wfas/fd_class.gif

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National Drought Summary -- February 27, 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 huge storm system that brought rain, ice, snow, and high winds to many parts of the country highlighted the week's weather. A second system brought important snows to the Sierra Nevada later in the period.

Central States: The frontal system that later evolved into an impressive low pressure center dropped 1 to 2 feet of snow over the California Sierra on February 21-22. By Saturday, February 24, a mammoth low pressure system over Kansas was spreading rain, snow, and ice across the Plains and Upper Midwest and severe weather to the South. Snow totals of 1 to 2 feet during February 23-26 in southern Minnesota eliminated D0 there. Record snows fell to the east in Wisconsin, but these fell south of where they were most needed. Likewise, precipitation amounts were lower in northern Minnesota, with most locations in the D3 area recording 0.5 inches or less. As a result, there was little change in the drought situation from northern Minnesota to northern Wisconsin. To the west and south, amounts were sufficient (over 1 inch) to reduce the D0 in the eastern Dakotas and eliminate the D0 in southeast Iowa and adjacent parts of Illinois and Missouri. A variety of precipitation forms benefited the drought area remaining in Nebraska, with weekly totals exceeding 1 inch in central parts of the state. Given the week's rain and snow, and cumulative totals since October exceeding 150 percent of normal in central Nebraska, the D0/D1/D2/D3 areas all retreated westward. In northeastern Colorado, although storm amounts were modest, D1 retreated northward based on estimated soil moisture and cumulative precipitation totals. Weekly amounts exceeding 0.5 inches resulted in a slight reduction in the D0 and D1 area in Kansas and a very minor reduction of the D1/D2 area in Oklahoma. The area of severe to extreme drought persisted in central Texas, where little rain fell.

East: Rainfall totals less than an inch were not enough to relieve the D1 drought in eastern Tennessee and southeastern Kentucky, although the moisture was sufficient to reduce the D0 in northern Kentucky and West Virginia. Farther south, unseasonably low streamflows and below-normal rainfall since January caused the D0 area to expand from Alabama into parts of Mississippi. D1 drought expanded westward into Lee County in southern Florida.

The West: In California, a second bout of heavy rain and snow from Saturday through Tuesday reduced D1 and D0 over the northern half of the state, with the D1 retreating south of Lake Tahoe. Impressive snowfall totals piled up in the Sierra Nevada, with 2 to 4 feet common, and up to 5 or 6 feet in the higher elevations. Nevertheless, snowpack remained below normal, and snow water content totaled less than two-thirds of normal from the Tahoe area southward. D1 remained, although diminished, across most of southern California, while D2 persisted south of the San Joaquin Valley. An increase in mountain snows resulted in a slight retreat of the D1 in southeastern Arizona. Moderate to heavy rain or snow reduced the drought area slightly in western Wyoming, eastern Idaho, and southwestern Montana, while improved mountain snow water content led to some drought reduction in south-central Montana and northern Wyoming.

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Alaska, Hawaii, and Puerto Rico: There was no change in the D0 area in Alaska, as precipitation was light. Heavy showers hit windward sides of Hawaii, but the rainfall was not widespread enough to bring significant reductions in the D0 area at this time. A second week of good rains in Puerto Rico reduced D1 and D0 dryness in north-central and northeastern parts of the island.

Looking Ahead: Weather features to watch over the next 2 weeks that could affect current dry or drought areas include: 1) another storm system crossing the central states on Thursday-Friday, March 1-2, this one expected to bring 1 to 2 inches of precipitation and moderate to heavy snow to the drought areas in Minnesota and Wisconsin; 2) the same storm system bringing moderate to heavy rains to the Deep South and the Tennessee Valley; 3) generally normal to above-normal precipitation across the northern states, including the Great Lakes region, for the next 2 weeks, but mainly dry weather and above-normal temperatures across the Southwest and central and southern Plains. The updated monthly forecast for March indicates warmth and dryness for the Southwest and above-normal precipitation for Minnesota and Wisconsin.

Author: [Douglas Le Comte, NWS Climate Prediction 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 February 28, 2007