United States Department of Agriculture

NRCS

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

Weekly Report - Snowpack / Drought Monitor Update Date: April 12, 2007

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snowpack: Springtime snow melt continues across the West as snow water-equivalent values are decreasing to zero over portions of Arizona, Utah, Idaho, and Oregon. For the 2007 Water Year, only the Northern Cascades, Bighorn Mountains in Wyoming, and Colorado Front Range shows any surplus (Fig. 1). During this week, snow water-equivalent actually increased over the Colorado Rockies, the mountains bordering Idaho, Wyoming, and Utah, and portions of the Oregon Cascades (Fig 1a). Snow depths increased over the Colorado Rockies and portions of the Montana Rockies and Southern Cascades (Fig. 1b).

Temperature: During the past seven days, temperatures ranged from up to 10°F above normal west of the Continental Divide to 10°F below normal over portions of the eastern slopes of the Rockies in Wyoming and Montana (Fig. 2). During the last 24 hours, a transiting low pressure system has helped to reduce temperatures by 10°F over the Sierra Nevada and the southern half of the Rockies (Fig. 2a).

Precipitation: During this report period, significant precipitation (rain and snow) fell over portions of Oregon, Utah, Colorado, and New Mexico (Fig. 3). Extreme lack of moisture continues over most of California, Nevada, Arizona, Idaho, and Wyoming. For the Water Year, surpluses continue over the Cascades and scattered across the Rockies (Fig. 3a). Large deficits persist over California and Arizona and to a lesser extent over eastern Oregon, southern Idaho, western Wyoming, and Utah.

WESTERN DROUGHT STATUS

The West: Much of the West saw above-normal temperatures and below-normal precipitation. Thermometer readings averaged up to 12°F above normal in the Great Basin, while California, Nevada, and Arizona experienced light and below-normal precipitation. The result was little change in the overall drought picture, with further expansion of the drought in California, D1 drought extending northward past Redding and D2 spreading northward past Bakersfield. D3 drought persisted over much of southern California and western Arizona. The April 1 snow pack was the lowest for that date since 1988 in California. D0 dryness expanded slightly in eastern Oregon and southern Idaho as snow pack decreased. Rain or snow deposited an inch or more of liquid in parts of Utah and Colorado, but amounts were not enough to change the D0 to D1 conditions in western Colorado and D1 in Utah. Light to moderate precipitation over southern and eastern Montana and northern Wyoming contributed to a D1 to D0 improvement from eastern Montana into north-central Wyoming, as did a re-evaluation of the impacts from the late-March snow storm. Low snow pack led to development of D0 in northwest Montana (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 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, and 4a).

SOIL MOISTURE
Soil moisture (Fig. 5), 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 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. 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/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

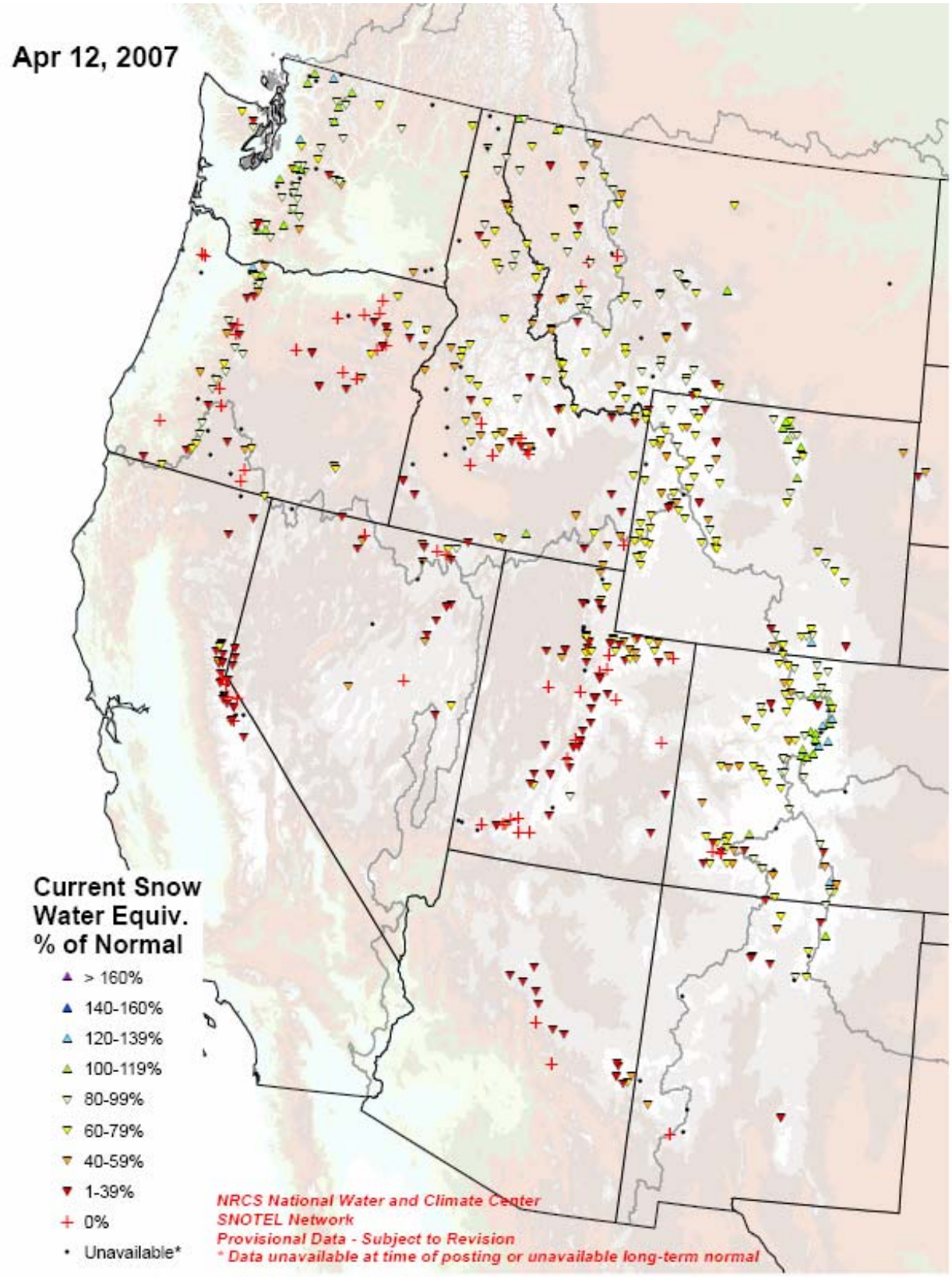


Fig. 1: Snow Water-Equivalent as a percent of normal for Water Year 2007.
Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideSWEPercent.pdf

Weekly SWE Change

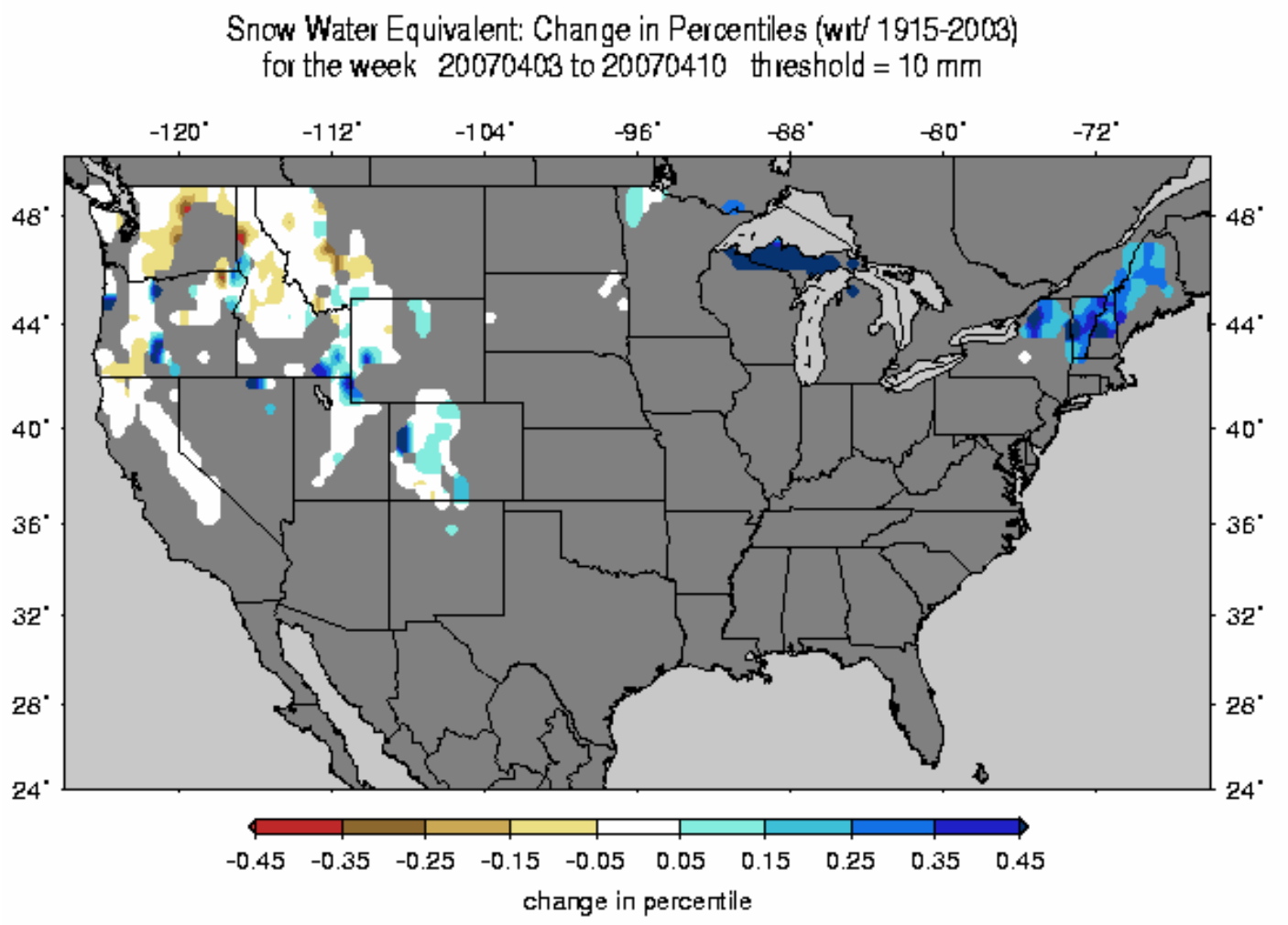


Fig. 1a. Snow Water-Equivalent changes as a percent during the period 3 to 10 April 2007 based on 1915-2003 climatology. Note enhanced SWE over the Northern Rockies due to last week's snow storm. **Ref:** http://www.hydro.washington.edu/forecast/monitor/index.shtml

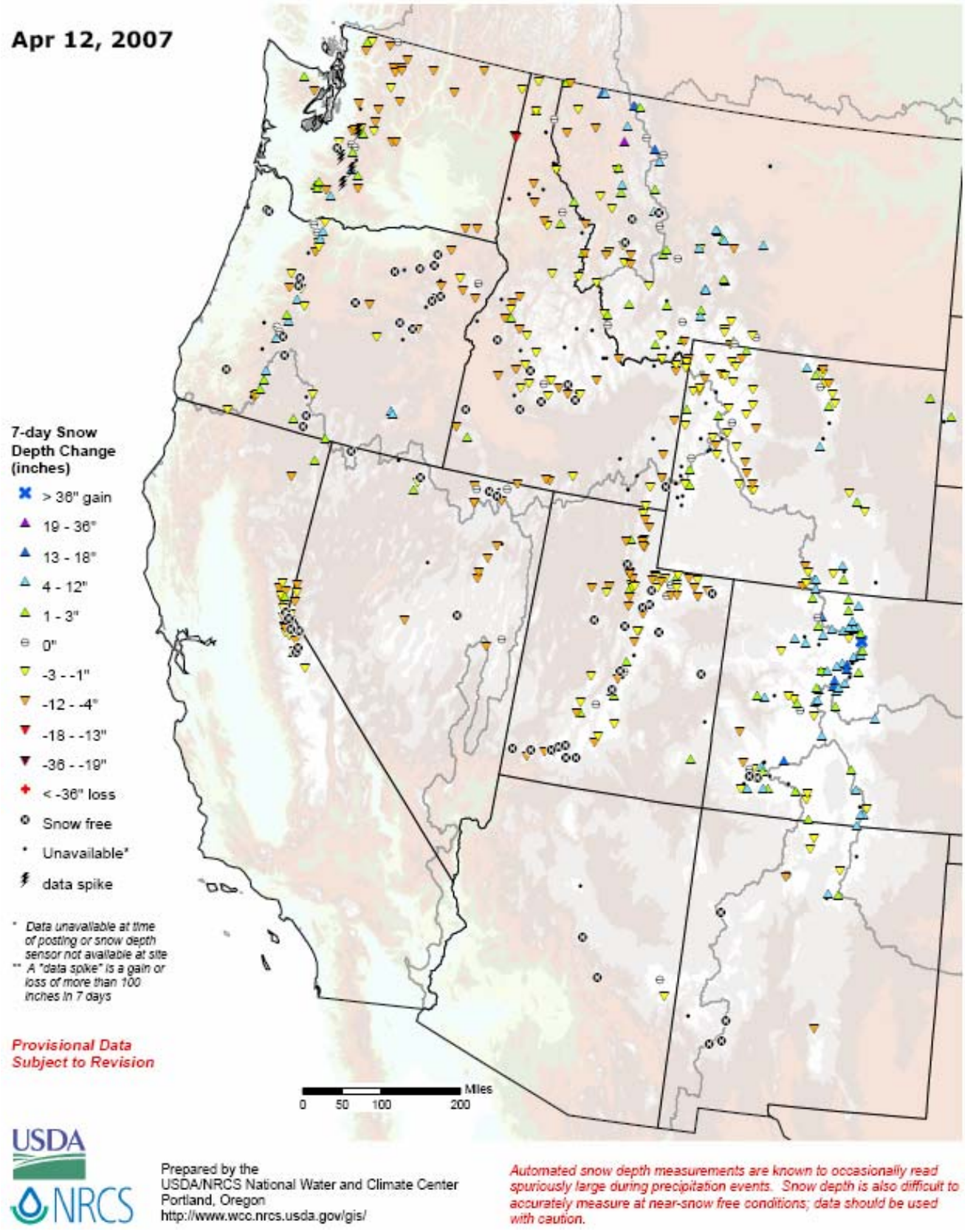


Fig. 1b. SNOTEL 7-day snow depth change.
Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf

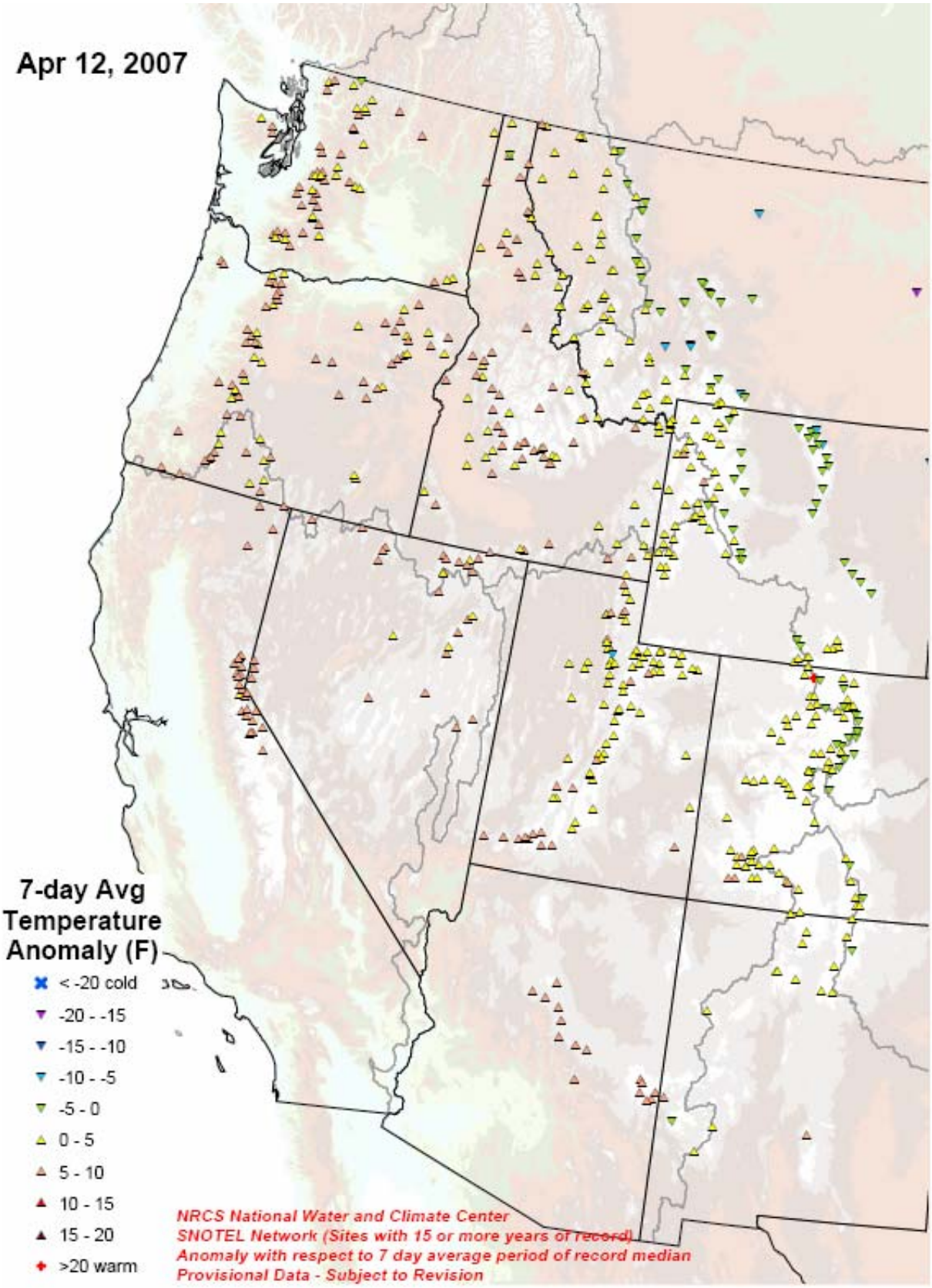


Fig. 2. SNOTEL 7-day average temperature anomaly.
Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomaly.pdf

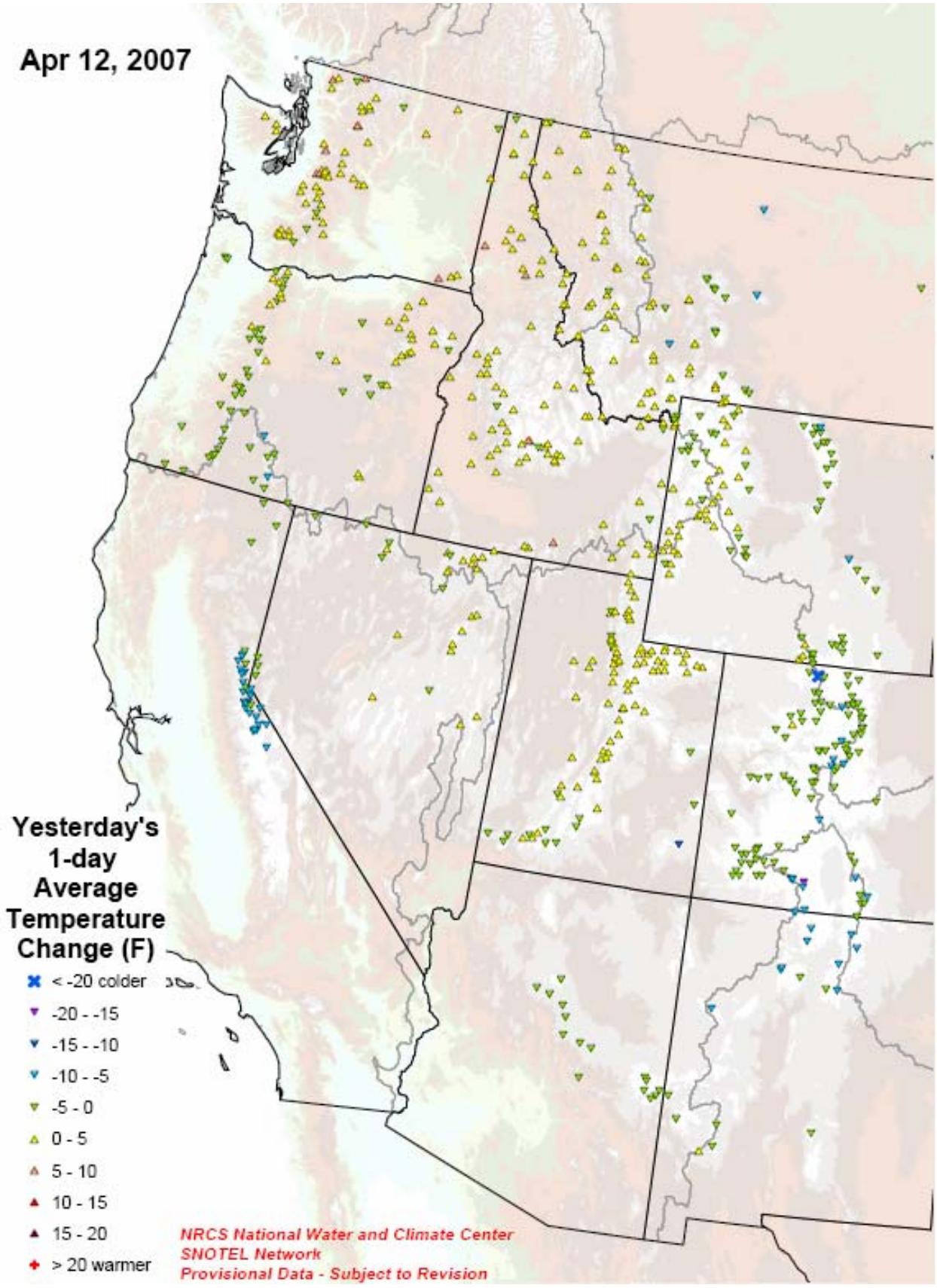


Fig. 2a. SNOTEL average temperature change from 11 to 12 April 2007.

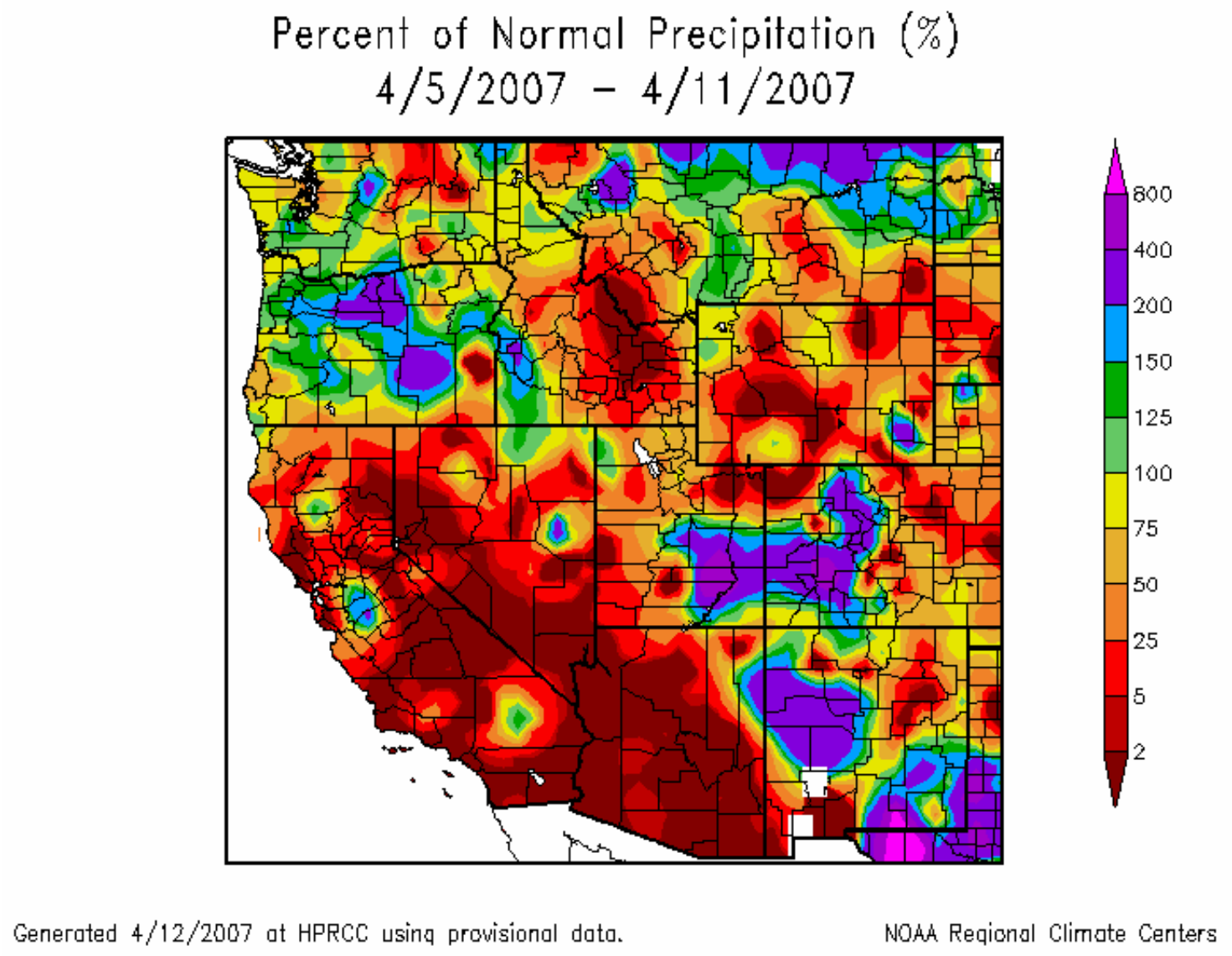


Fig. 3. ACIS preliminary of precipitation as a percent of normal for the 7-day period ending 11 April 2007.
Ref: http://www.hprcc.unl.edu/acis/program/acis_maps

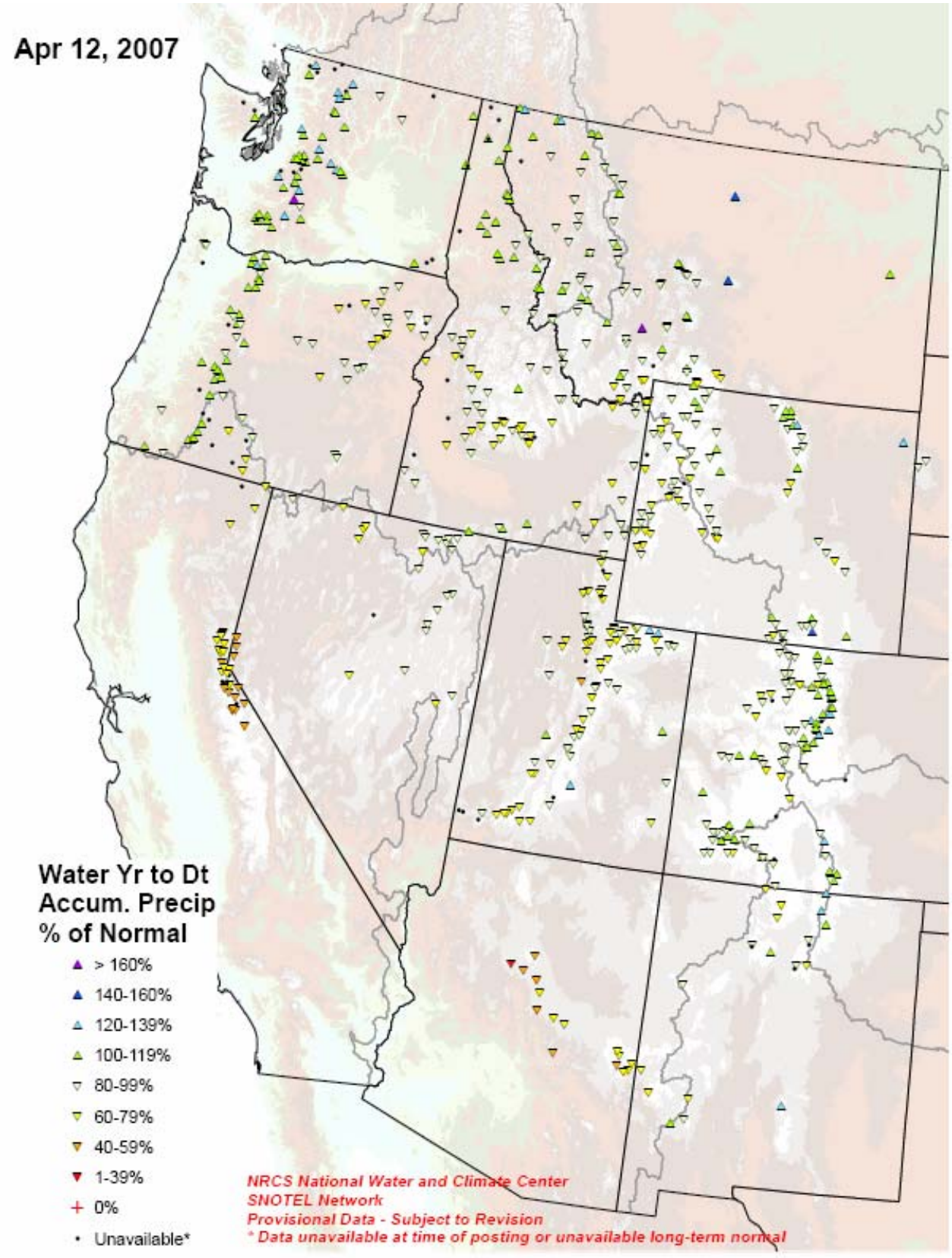


Fig. 3a. SNOTEL station water year (since October 1) precipitation as a percent of normal.
Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideWYTDPrecipPercent.pdf

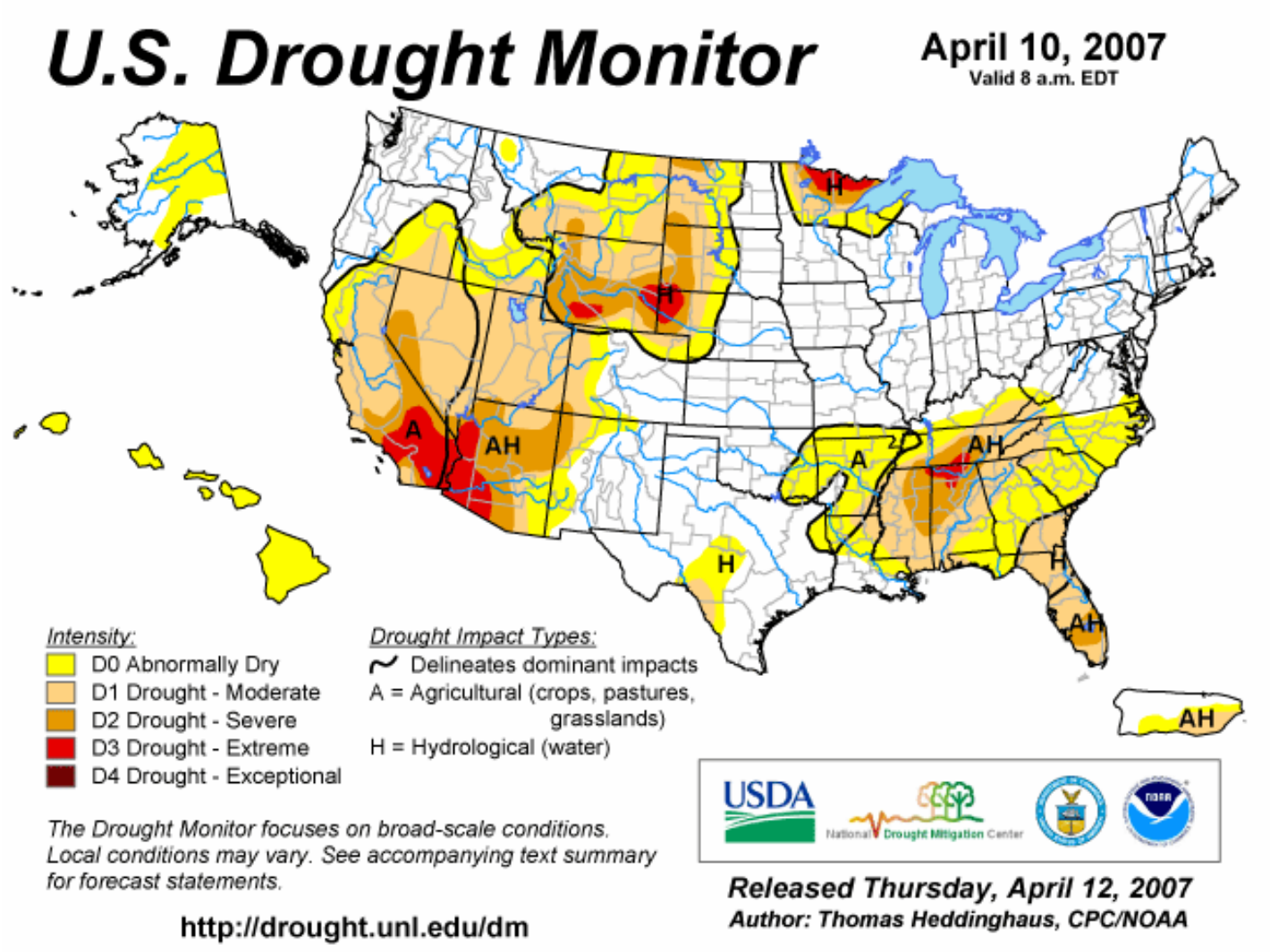


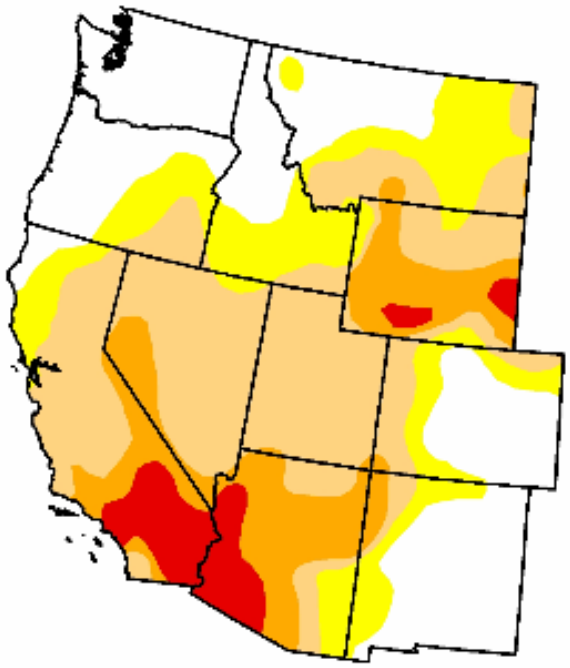
Fig. 4. Current Drought Monitor weekly summary.
Ref: ***National Drought Mitigation Center (NDMC) -*** **http://www.drought.unl.edu/dm/monitor.html**

U.S. Drought Monitor
West

April 10, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	30.8	69.2	51.7	19.1	5.6	0.0
Last Week (04/03/2007 map)	33.3	66.7	49.7	17.5	5.6	0.0
3 Months Ago (01/16/2007 map)	50.6	49.4	26.8	12.5	5.0	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 (04/11/2006 map)	62.9	37.1	26.6	15.9	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

USDA National Drought Mitigation Center

Released Thursday, April 12, 2007
Author: Thomas Heddinghaus, CPC/NOAA

Fig 4a. Drought Monitor for the Western States with statistics over various time periods.
Ref: http://www.drought.unl.edu/dm/DM_west.htm

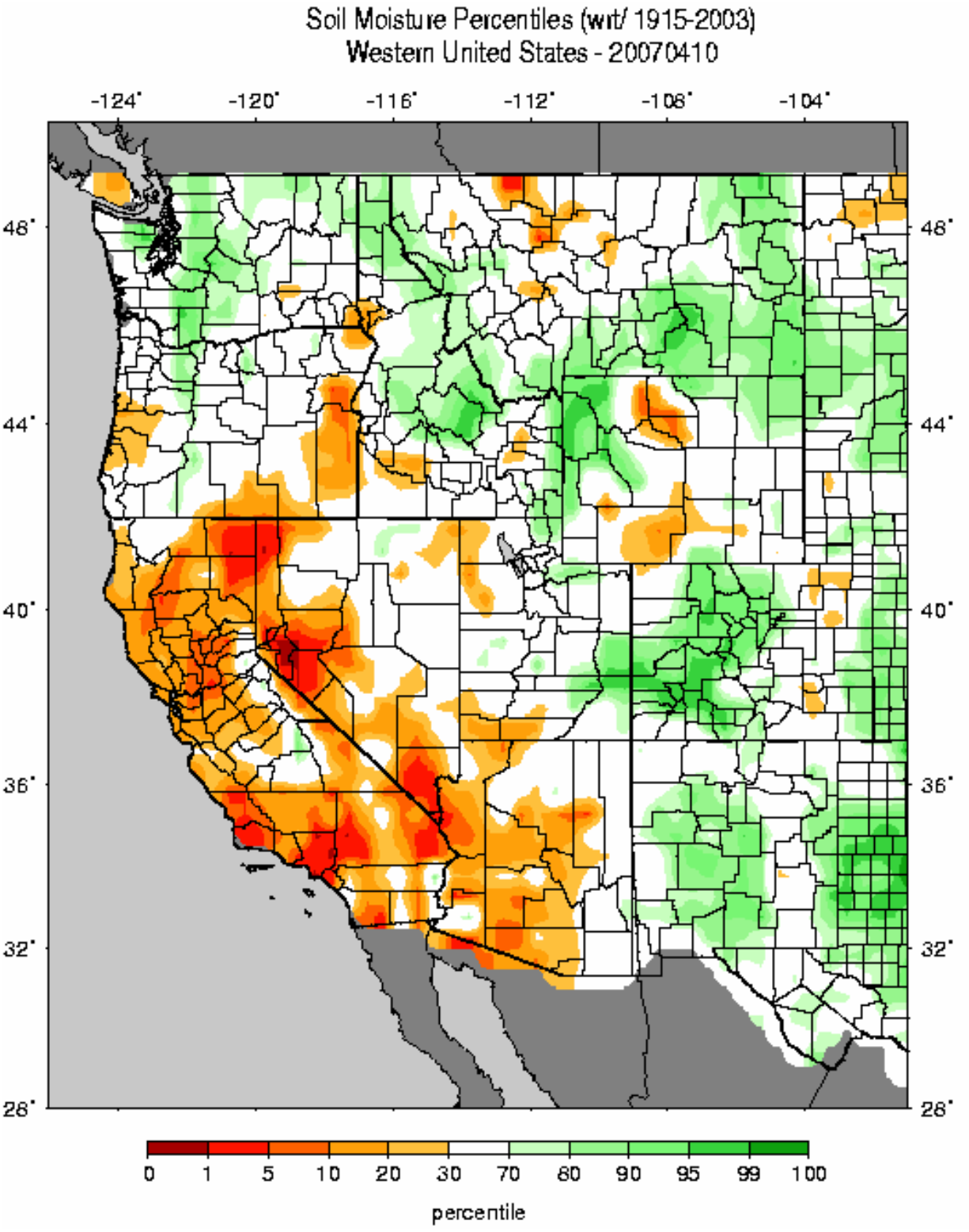


Fig. 5: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). **Ref:** http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_gnt.gif

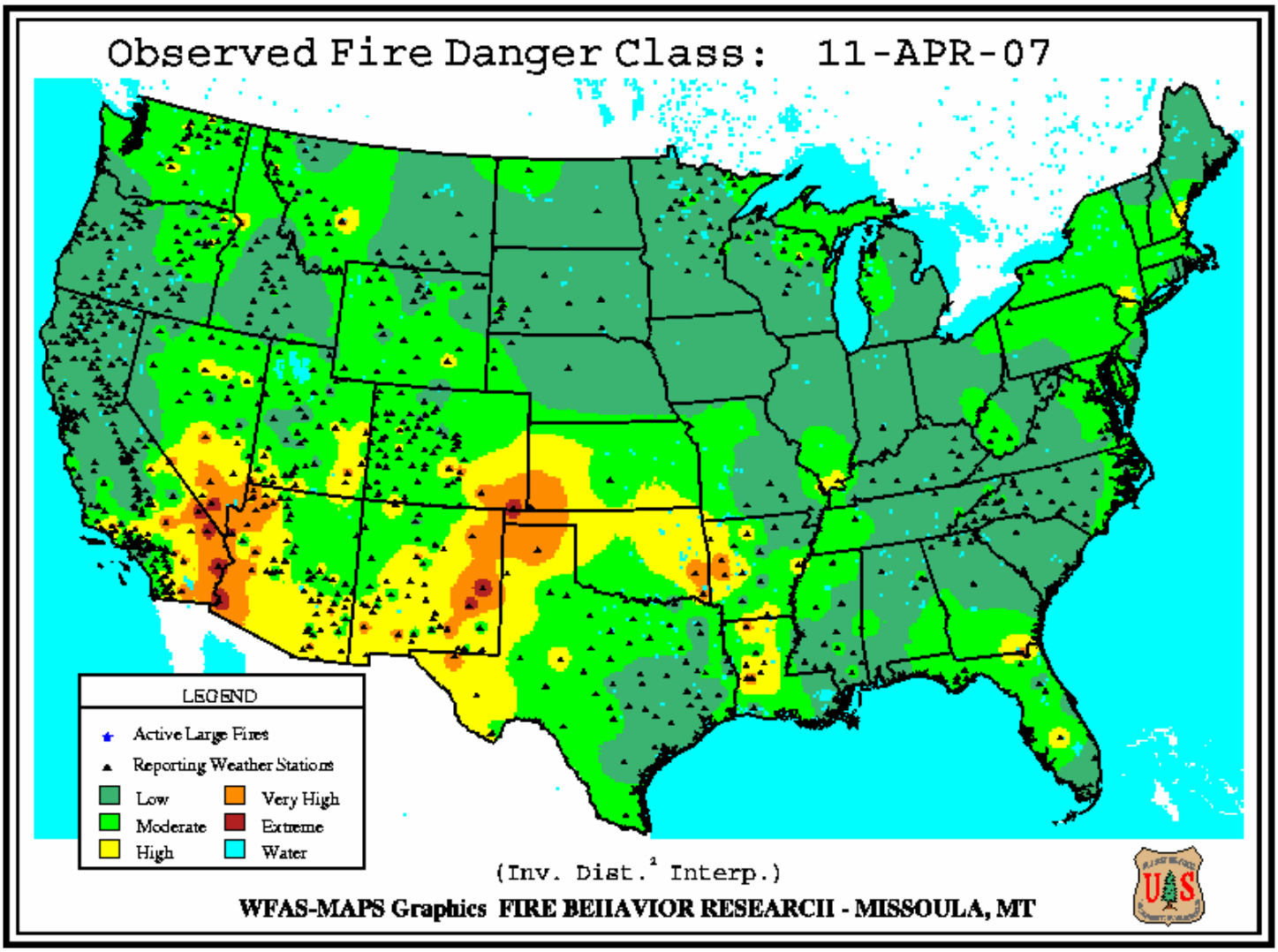


Fig. 6. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT
Ref: ***http://www.fs.fed.us/land/wfas/fd_class.gif***

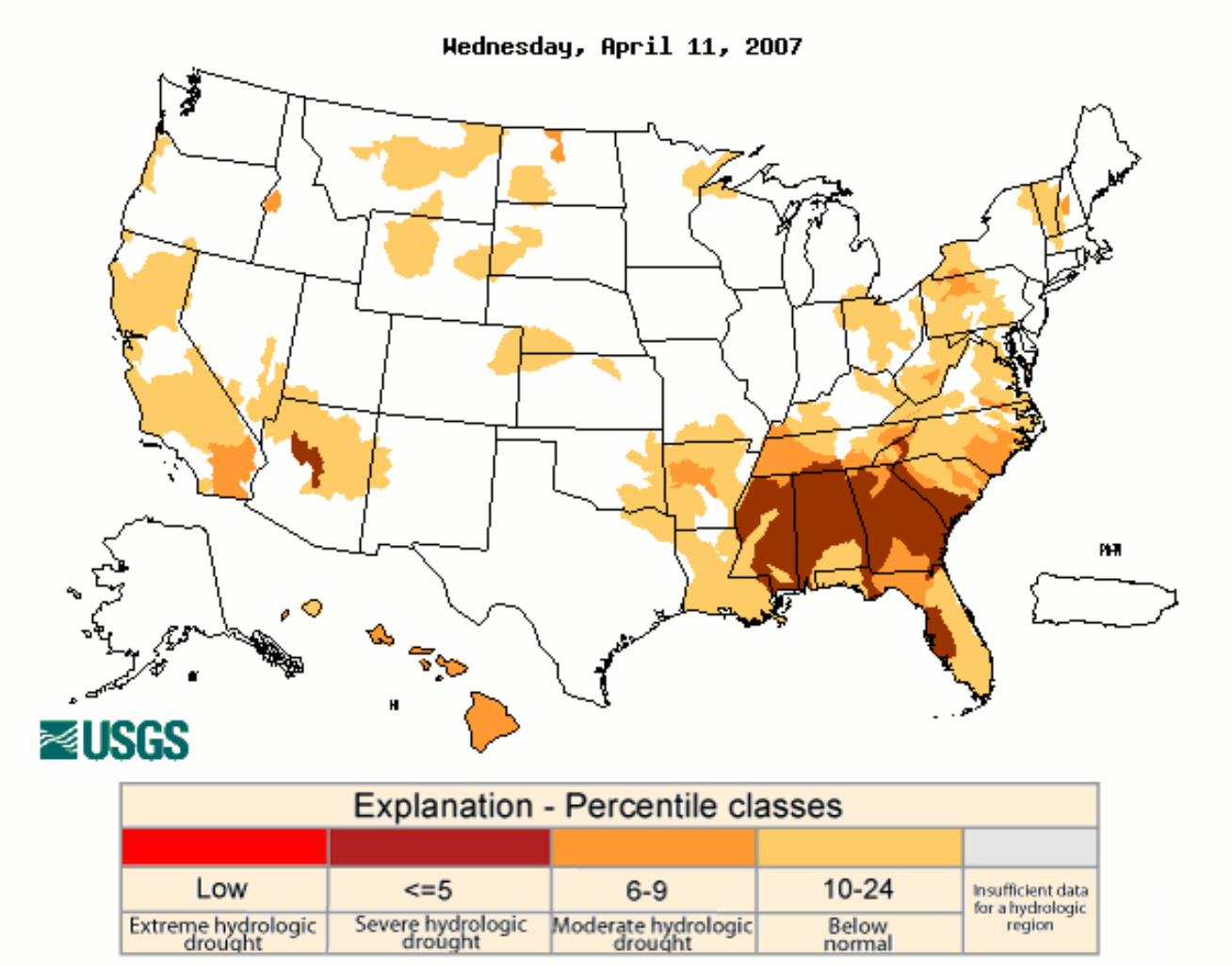


Fig. 7. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year. Note decreased stream flows over California and Arizona.
Ref: USGS http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us

National Drought Summary -- April 10, 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 West: Much of the West saw above-normal temperatures and below-normal precipitation. Thermometer readings averaged up to 12°F above normal in the Great Basin, while California, Nevada, and Arizona experienced light and below-normal precipitation. The result was little change in the overall drought picture, with further expansion of the drought in California, D1 drought extending northward past Redding and D2 spreading northward past Bakersfield. D3 drought persisted over much of southern California and western Arizona. The April 1 snow pack was the lowest for that date since 1988 in California. D0 dryness expanded slightly in eastern Oregon and southern Idaho as snow pack decreased. Rain or snow deposited an inch or more of liquid in parts of Utah and Colorado, but amounts were not enough to change the D0 to D1 conditions in western Colorado and D1 in Utah. Light to moderate precipitation over southern and eastern Montana and northern Wyoming contributed to a D1 to D0 improvement from eastern Montana into north-central Wyoming, as did a re-evaluation of the impacts from the late-March snow storm. Low snow pack led to development of D0 in northwest Montana.

The Plains and Upper Midwest: A historically cold high pressure ridge dominated the region, with temperatures averaging more than 16°F below normal in the northern Plains, and snow falling as far south as central Texas. Outside of Texas, precipitation totals generally totaled less than 0.5 inches, although higher amounts in the form of snow blanketed northeastern Minnesota at the start of the period. The Texas precipitation led to a slight shrinking of the lingering D1 and D0 area in southern Texas.

Southeast: The frontal system that heralded the leading edge of the cold air coming out of Canada triggered a massive severe weather outbreak across the Tennessee and Lower Mississippi valleys on April 3. The rainfall totals of 0.5 to 1.0 inch benefited dry areas, but were not enough to change drought categories. Drier weather even led to some expansion of D2 westward into Mississippi and D1 into northern Louisiana and southeastern Arkansas. D1 drought also expanded northward from Georgia into coastal South Carolina. In Florida, widespread showers on Monday, April 9, left up to 0.27 inches of rain on the central Peninsula, but amounts were lower to the south, where D2 drought expanded westward into the Fort Myers area. Naples had seen just 1.24 inches of rain since January 1 through April 9, 5.56 inches below normal.

Alaska, Hawaii, and Puerto Rico: Precipitation was light in Alaska, allowing D0 dryness to persist. Snow pack in the D0 area was generally less than 70 percent of normal on April 1. Hawaii rainfall was light and below normal, allowing D0 to persist and even expand to all areas. Up to 2 inches of rain hit southwestern Puerto Rico, improving D1 to D0. D1 lingered in the southeast.

Looking Ahead: Forecast weather that could have an impact on dry conditions during the next 2 weeks: 1) a storm system bringing widespread snow to the northern Plains on Tuesday-

Wednesday, April 10-11, after the cutoff time for this week's Monitor; 2) heavy showers in the Tennessee Valley and Southeast on Wednesday from the same storm; 3) heavy showers over the Florida Peninsula on Tuesday after the cutoff time; 3) forecast heavy showers from a second frontal system on April 14-15 across the Southeast; 4) normal to above-normal rainfall over the Southeast during week 2 (April 19-25).

Author: Thomas Heddinghaus, NOAA/CPC

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 April 11, 2007