



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

Weekly Report - Snowpack / Drought Monitor Update **Date: April 10, 2008**

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: During the past week, snowy weather dominated portions of the Cascades, Wasatch, and Colorado Rockies. Since last week, the preliminary April-July streamflow runoff forecast has continued to decline over the Southern Rockies but has increased some over Utah and Colorado (Fig. 1). The snow-water equivalent percent as of 10 April shows well above normal values continuing over the Cascades and Coastal Ranges (WA & OR) and to a lesser extent over Colorado and eastern Utah. Values continue to decrease substantially over portions of Arizona and New Mexico (Fig. 1a).

Temperature: For the past seven days, average temperature anomalies were below normal over the interior West and slightly above normal over portions of Arizona and New Mexico (Fig. 2). The greatest negative temperature departures occurred over the Northern Rockies (<-8F) and the greatest positive departures occurred over eastern Arizona and southern New Mexico (>+4F) (Fig. 2a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 9 April shows scattered moisture across the Pacific NW, Northern Rockies (MT), and Central Rockies (CO) while very little precipitation fell across California, Nevada, Wyoming, Arizona, and New Mexico (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 southern Colorado and central Arizona (Fig. 3a).

WESTERN DROUGHT STATUS

The West: Although some areas received significant amounts of precipitation, little of it fell on the dry areas from the Rockies westward, where only isolated locations reported more than 1 inch of precipitation. However, based on new snowpack reports and streamflow forecasts released by the Natural Resources Conservation Service, further improvements were made in several areas. Drought was improved to abnormally dry across most of northern Nevada, southeastern Oregon, southwestern Idaho, and parts of western and far northern Utah, with dryness eliminated completely from a substantial portion of interior northern Utah. These areas are reporting 110 to locally over 180 percent of typical mountain snowpack for April 1, 2008. In addition, similar snowpack reports led to a reduction in the extent of D0H conditions across central Utah and northeastern Oregon. However, not all of the news was good, and based on streamflows and subnormal precipitation over the past few months, D0H conditions were stretched into the eastern San Joaquin Basin, and D1H to D2H conditions expanded in the central Northern Mojave – Mono Lake Basin, much of the Tulare – Buena Vista Lakes Basin, and part of the southern California Coastal Basin. Furthermore, pockets of D2H conditions remained in parts of the West that did not receive as much precipitation as most areas since October 2007. Author: Rich Tinker, Climate Prediction Center, NOAA

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

Weekly Snowpack and Drought Monitor Update Report

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 (Figs. 4, 4a 4b, and 4c).

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.

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/s/ NOLLER HERBERT
Director, Conservation Engineering Division

Weekly Snowpack and Drought Monitor Update Report

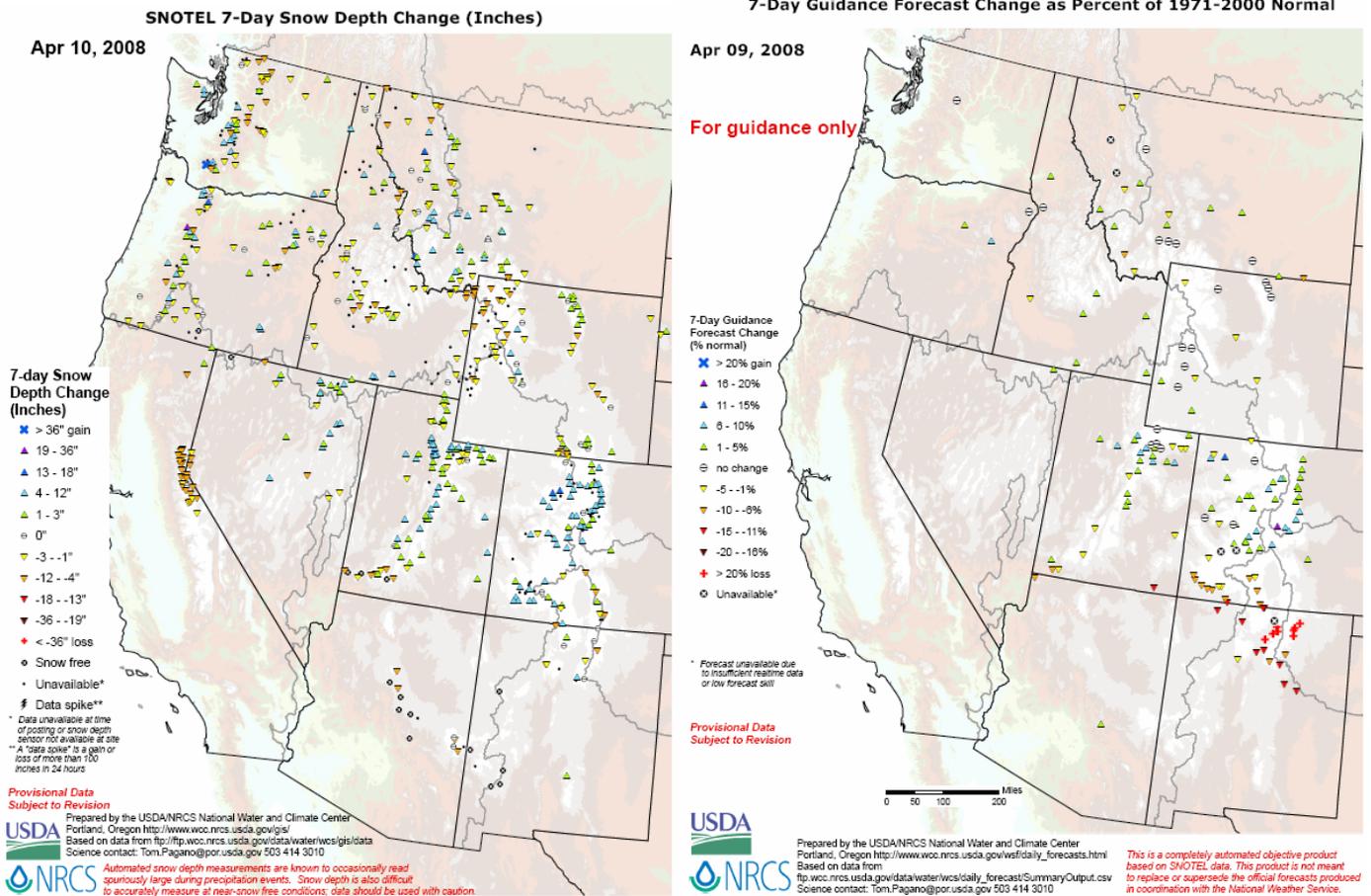


Fig. 1. During the past week, snowy weather dominated portions of the Cascades, Wasatch, and Colorado Rockies (left figure). Since last week, the preliminary April-July streamflow runoff forecast has continued to decline over the Southern Rockies but has increased some over Utah and Colorado (right figure). Note: Area basin preliminary forecasts for the Sierra and Cascades are not made. 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

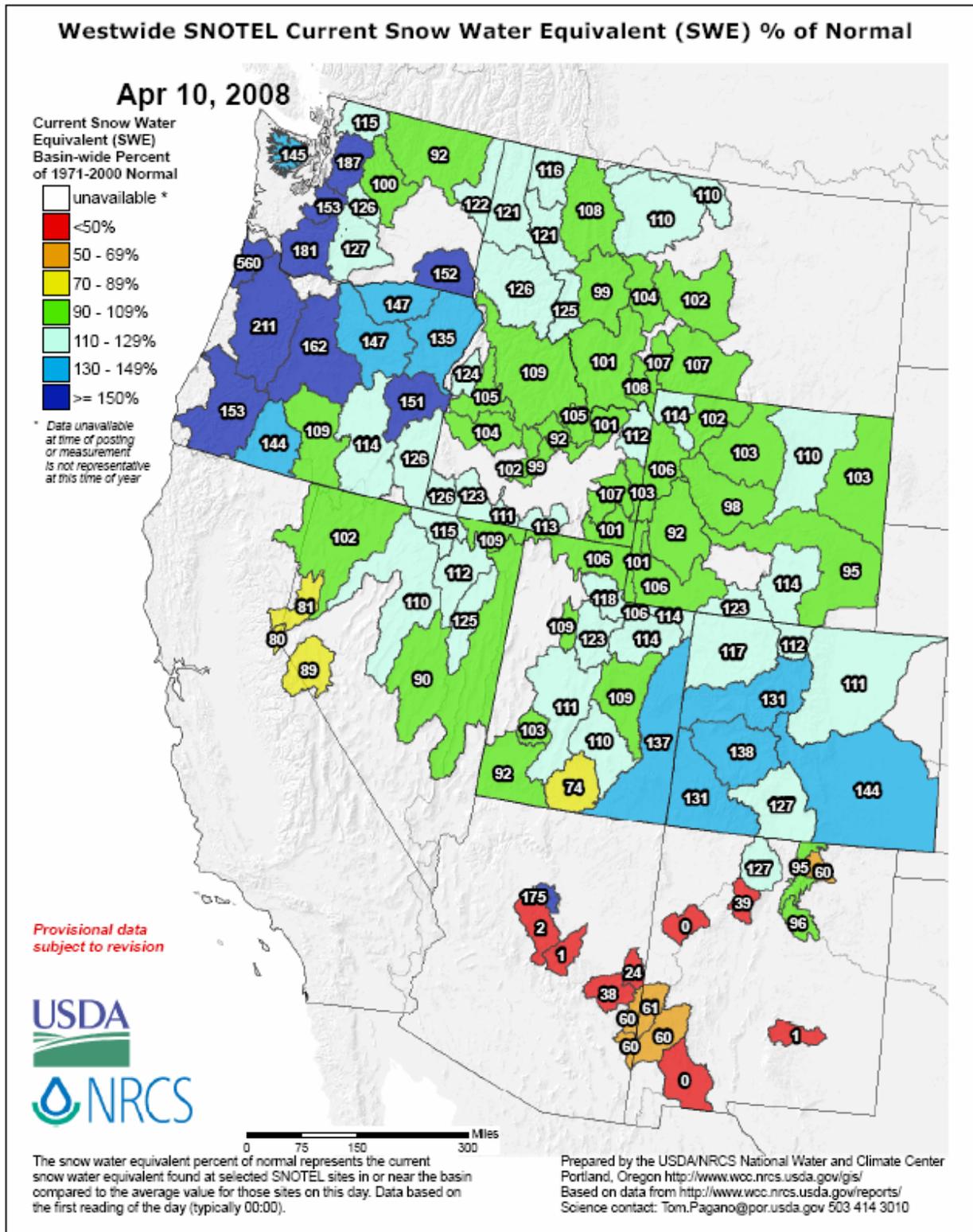


Fig. 1a. Snow-water equivalent percent as of 10 April shows well above normal values continuing over the Cascades and Coastal Ranges (WA & OR) and to a lesser extent over Colorado and eastern Utah. Values continue to decrease substantially over portions of Arizona and New Mexico.

Ref: http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_swepctnormal_update.pdf

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SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Apr 10, 2008

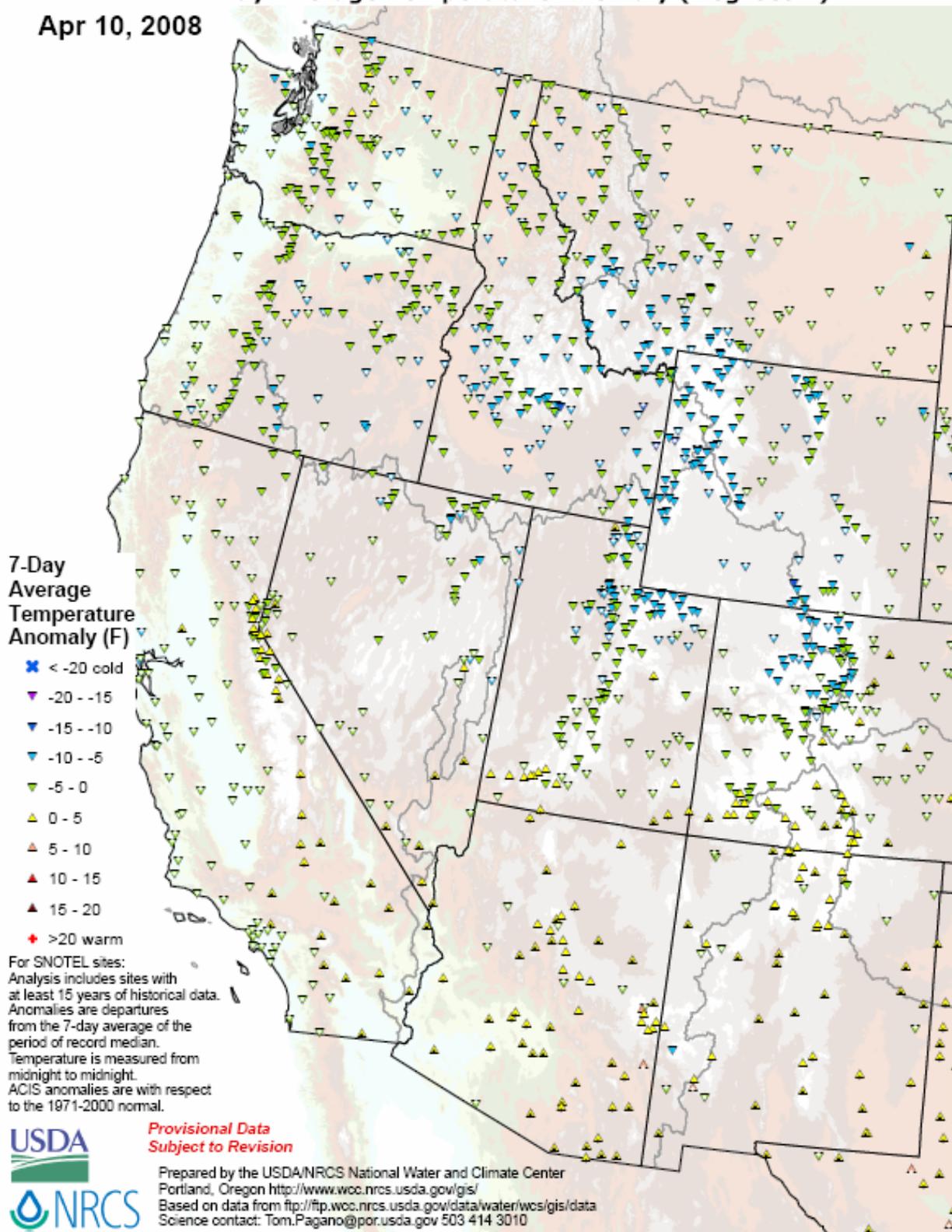
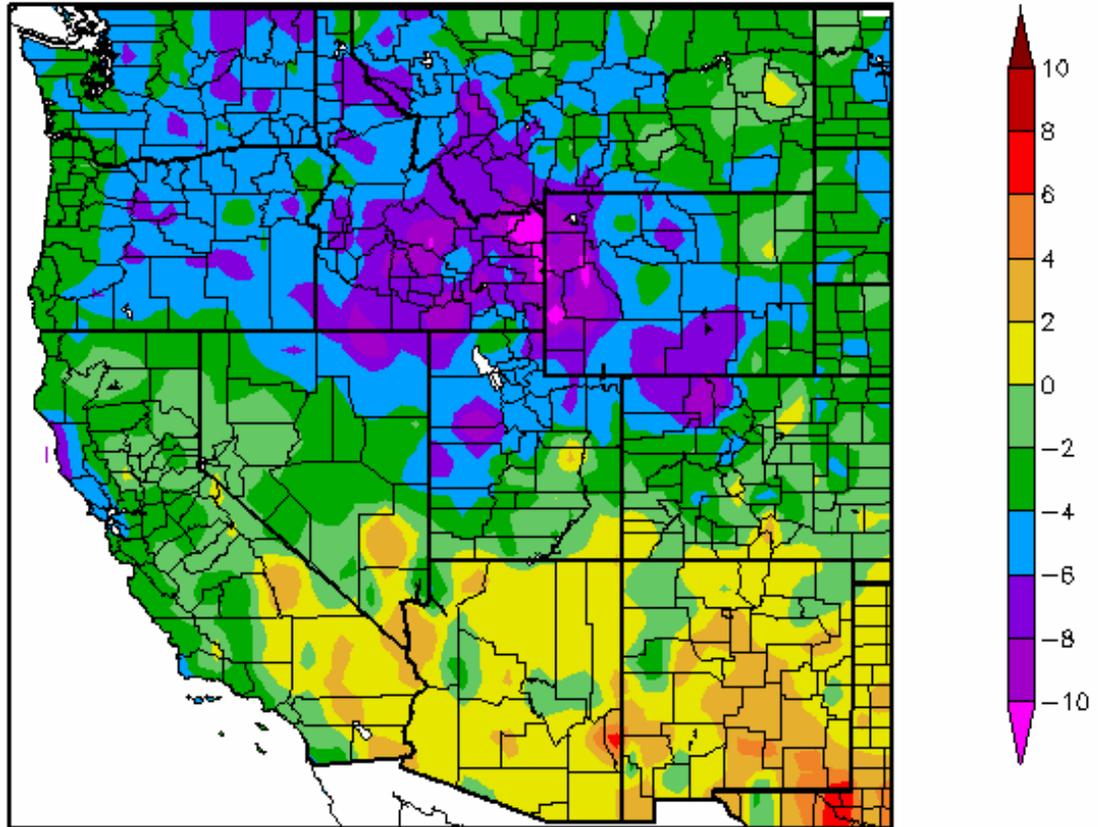


Fig. 2. SNOTEL & ACIS 7-day station average temperature anomalies were below normal over the interior West and slightly above normal over portions of Arizona and New Mexico.

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

Departure from Normal Temperature (F)
4/3/2008 - 4/9/2008



Generated 4/10/2008 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.

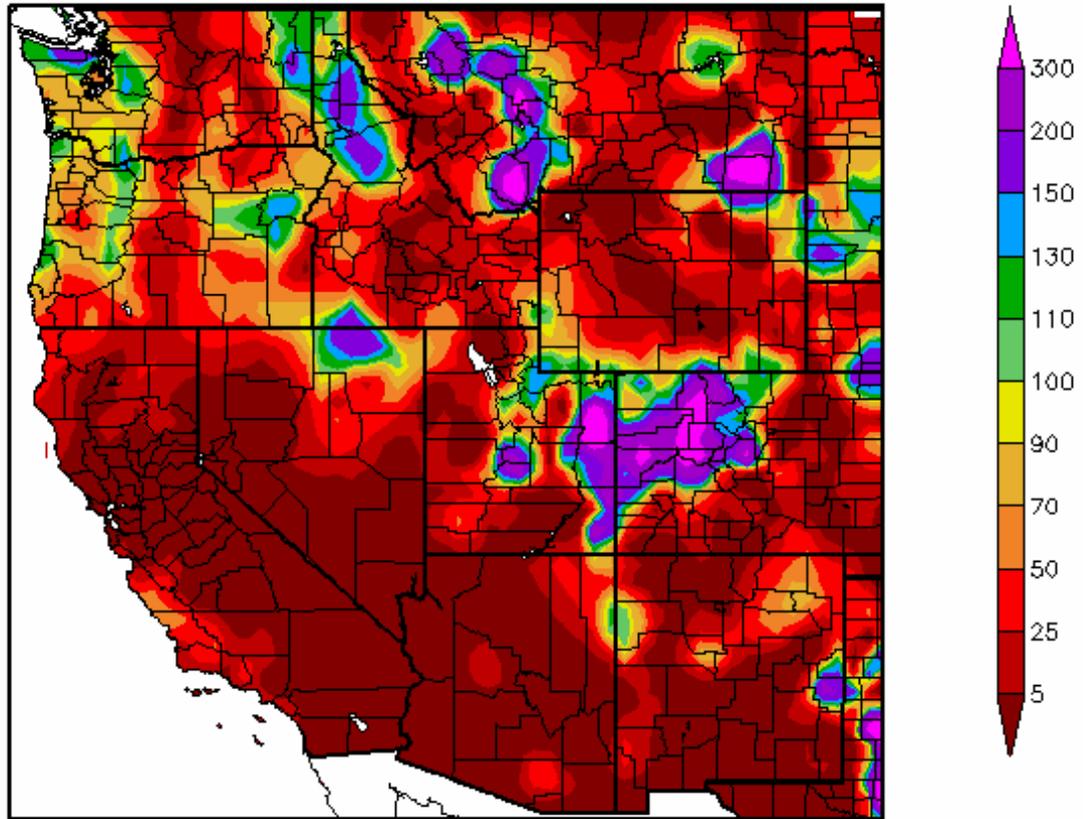


Fig. 2a. ACIS 7-day average temperature anomalies: Greatest negative temperature departures over the Northern Rockies (<-8F) and greatest positive departures over eastern Arizona and southern New Mexico (>+4F). This is a very similar pattern to last week's map.

Ref:

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

Percent of Normal Precipitation (%)
4/3/2008 – 4/9/2008



Generated 4/10/2008 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 9 April shows scattered moisture across the Pacific NW and Northern Rockies (MT) and Central Rockies (CO) while very little precipitation fell across California, Nevada, Wyoming, Arizona, and New Mexico.

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

Weekly Snowpack and Drought Monitor Update Report

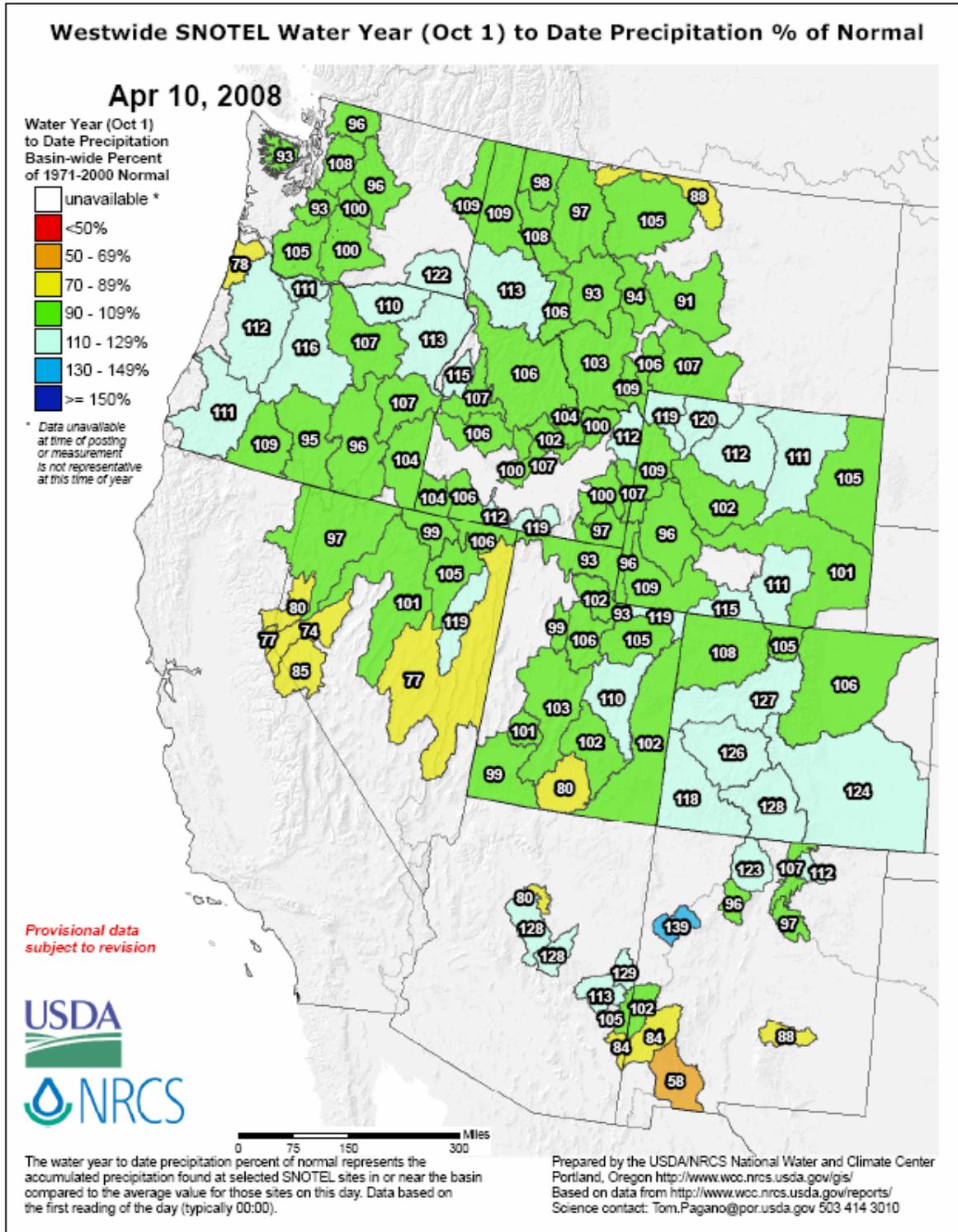
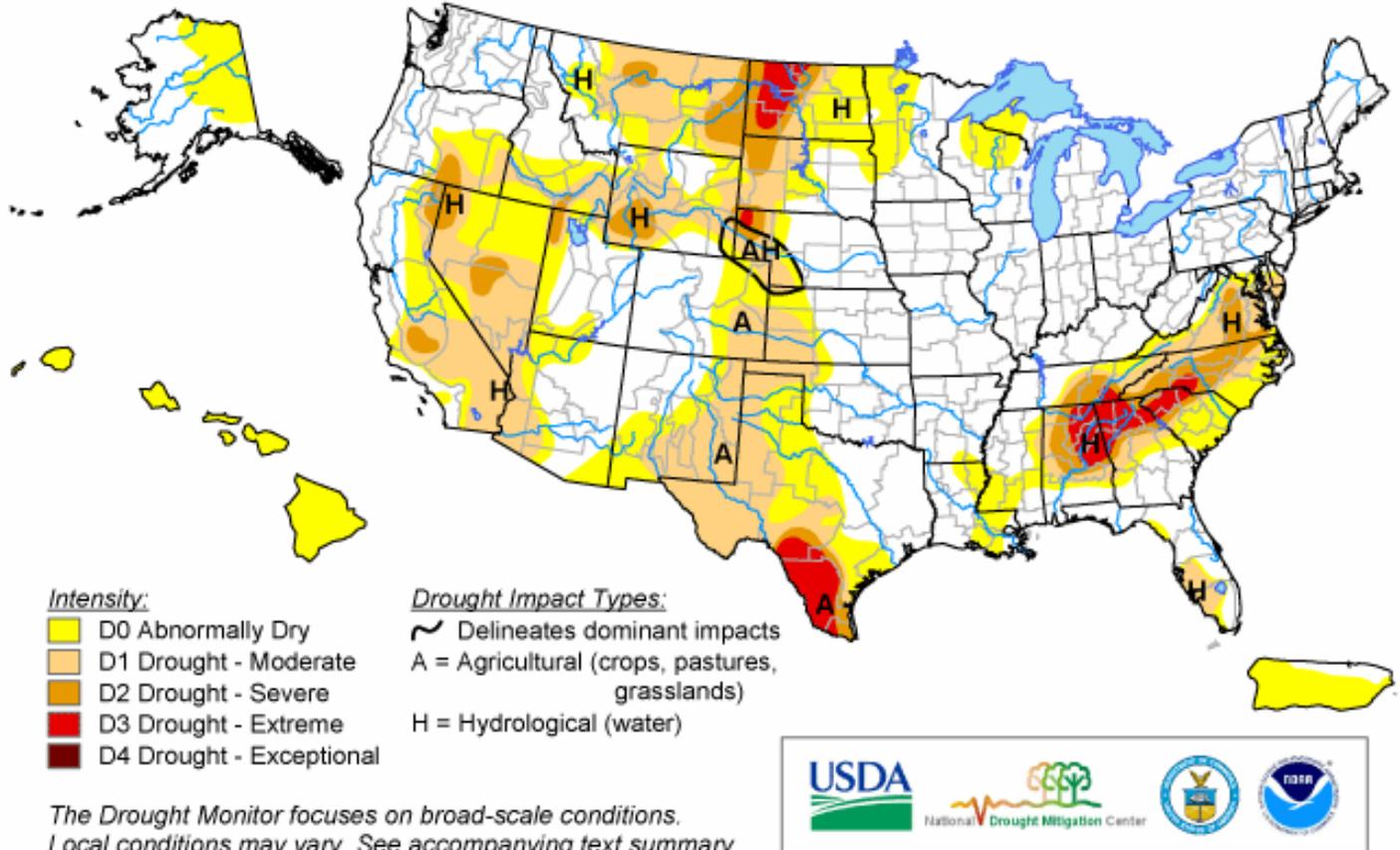


Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of southern Colorado and central Arizona. Values in general haven't changed very much since last week.

Ref: ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcntnormal_update.pdf

U.S. Drought Monitor

April 8, 2008
Valid 8 a.m. EDT



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

Released Thursday, April 10, 2008
Author: Rich Tinker, Climate Prediction Center, NOAA

Fig. 4. Current Drought Monitor weekly summary.

Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>.

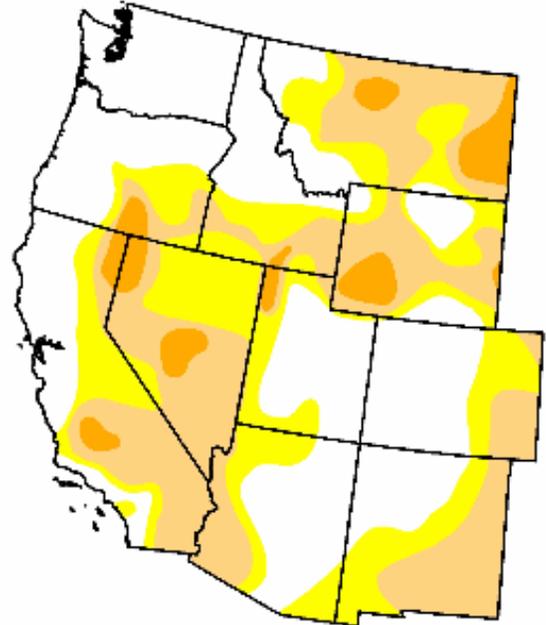
U.S. Drought Monitor

West

April 8, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	42.4	57.6	33.7	5.4	0.0	0.0
Last Week (04/01/2008 map)	40.6	59.4	36.3	7.5	0.0	0.0
3 Months Ago (01/15/2008 map)	27.3	72.7	53.6	28.5	0.0	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 (04/10/2007 map)	30.8	69.2	51.7	19.1	5.6	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, April 10, 2008
Author: Rich Tinker, CPC/NOAA

Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Note some improvement in the D2-D4 levels since last week.
Ref: http://www.drought.unl.edu/dm/DM_west.htm.

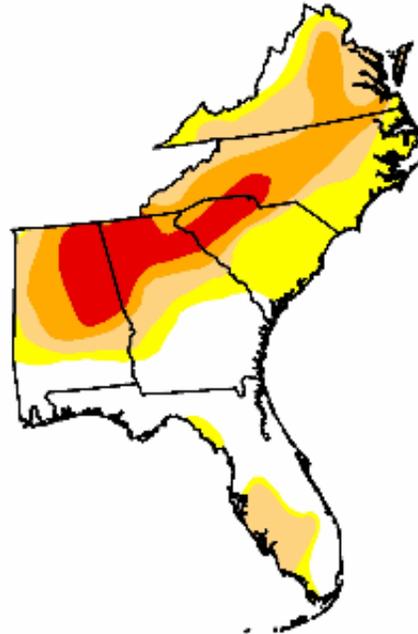
U.S. Drought Monitor

Southeast

April 8, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	29.6	70.4	50.3	29.3	11.5	0.0
Last Week (04/01/2008 map)	23.8	76.2	59.4	39.2	17.9	0.0
3 Months Ago (01/15/2008 map)	3.9	96.1	75.9	58.5	40.4	20.2
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 (04/10/2007 map)	11.6	88.4	46.9	10.2	1.7	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



Released Thursday, April 10, 2008
Author: Rich Tinker, CPC/NOAA

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

Fig. 4b: Drought Monitor for the Southeastern States with statistics over various time periods. Note some improvement (mostly in D3) since last week.

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

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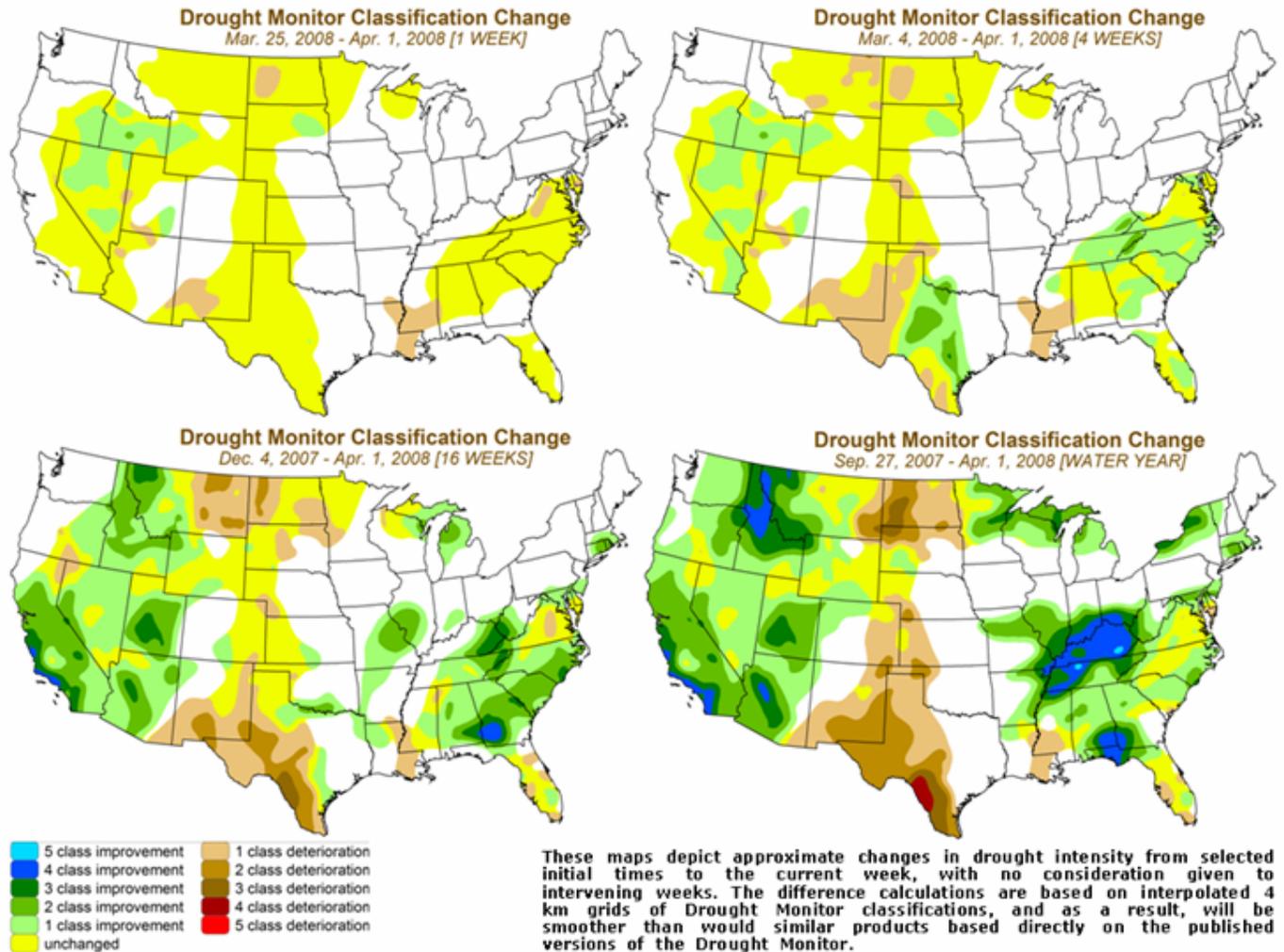
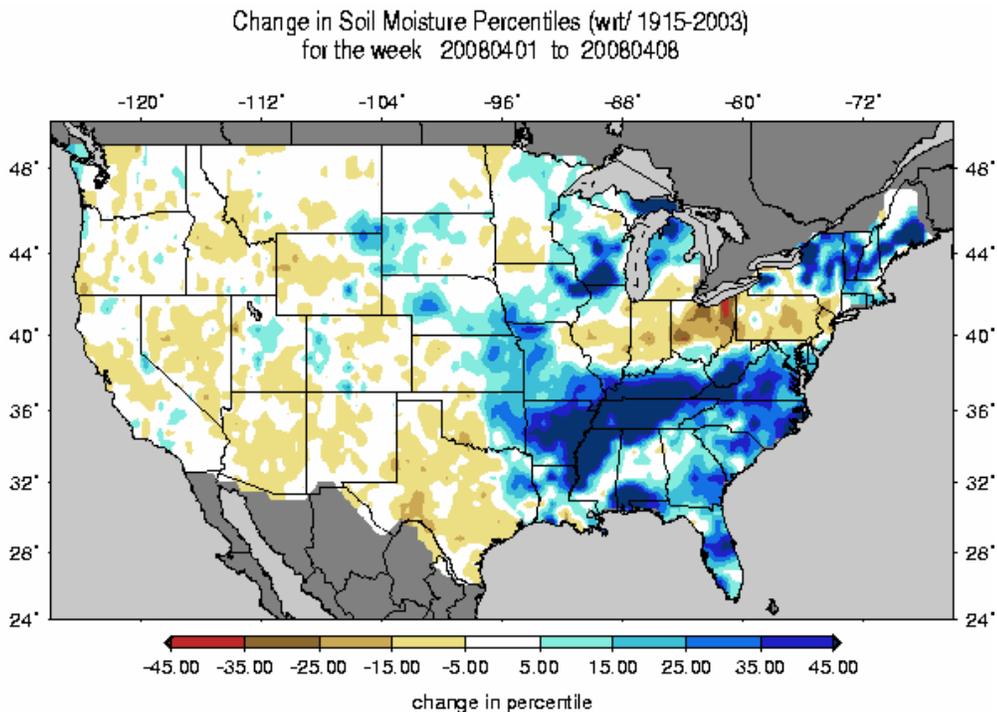
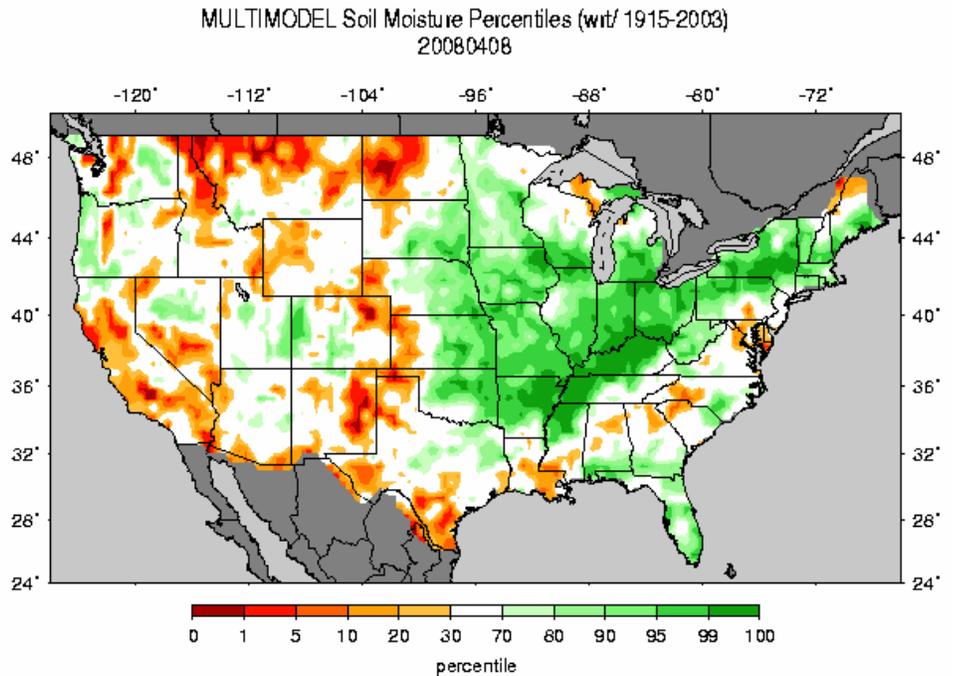


Fig. 4c. Drought Monitor classification changes for various time periods shows some recent improvements over the Intermountain West and Great Basin (upper left). Note long term improvements over the West, Tennessee Valley, and Florida Panhandle but worsening over the mid section of the nation (lower right).

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/dm-change-4maps.png>

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Figs. 5 & 5a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Note some worsening (drying) over the Rockies, California, and the Northern Plains. Significant soil saturation persists over the Mississippi and Ohio River Valleys (flooding is still a problem in some of these areas) (Fig. 5). Remark: In colder regions of the West, frozen ground suggests incorrect values or missing data (e.g. the Cascades are considerably wetter than depicted). A complete reversal to the drying that was occurring the previous week over the lower Mid-West is noted in Fig. 5a. Some welcomed drying in Ohio is noteworthy.

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

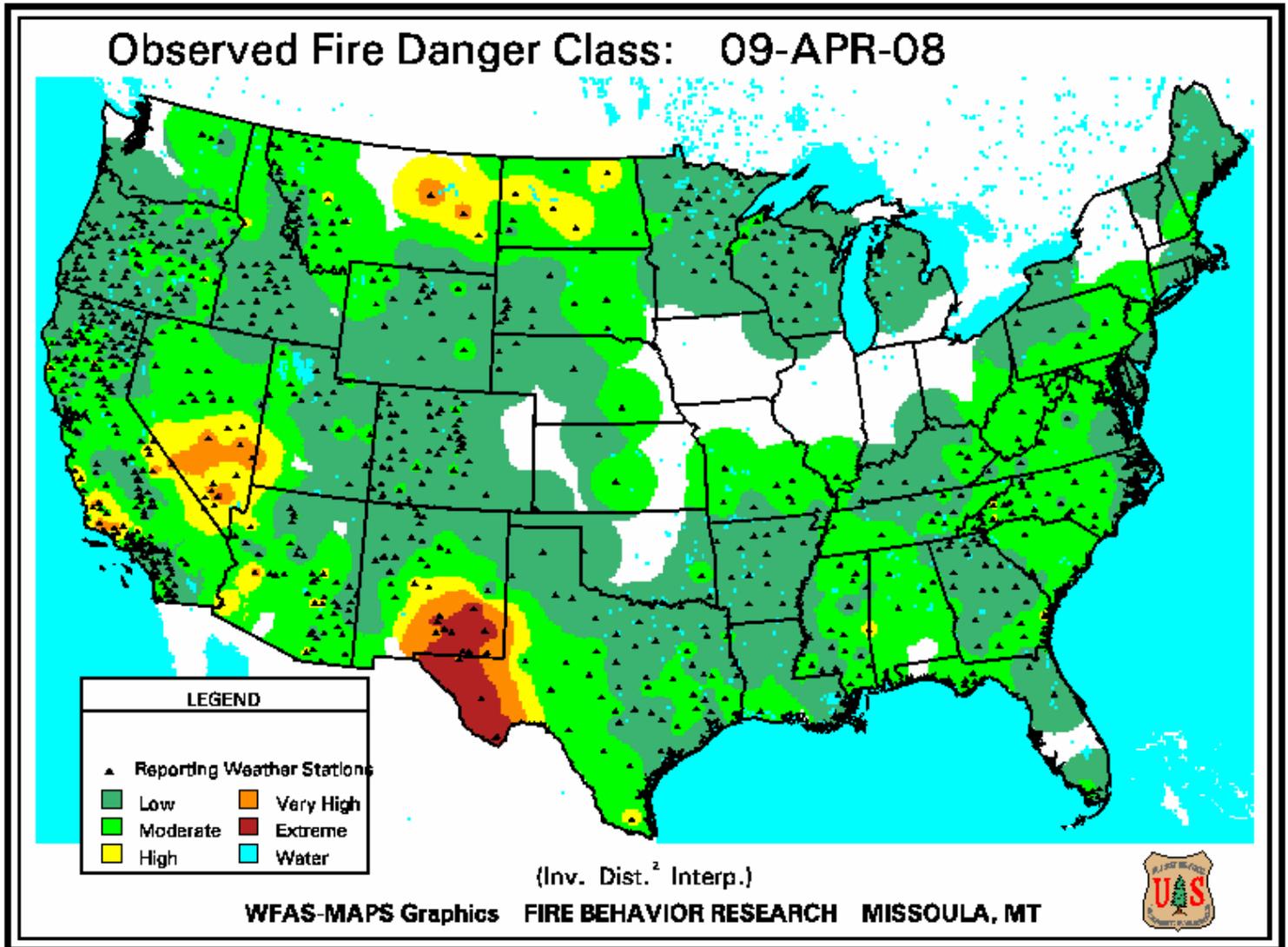
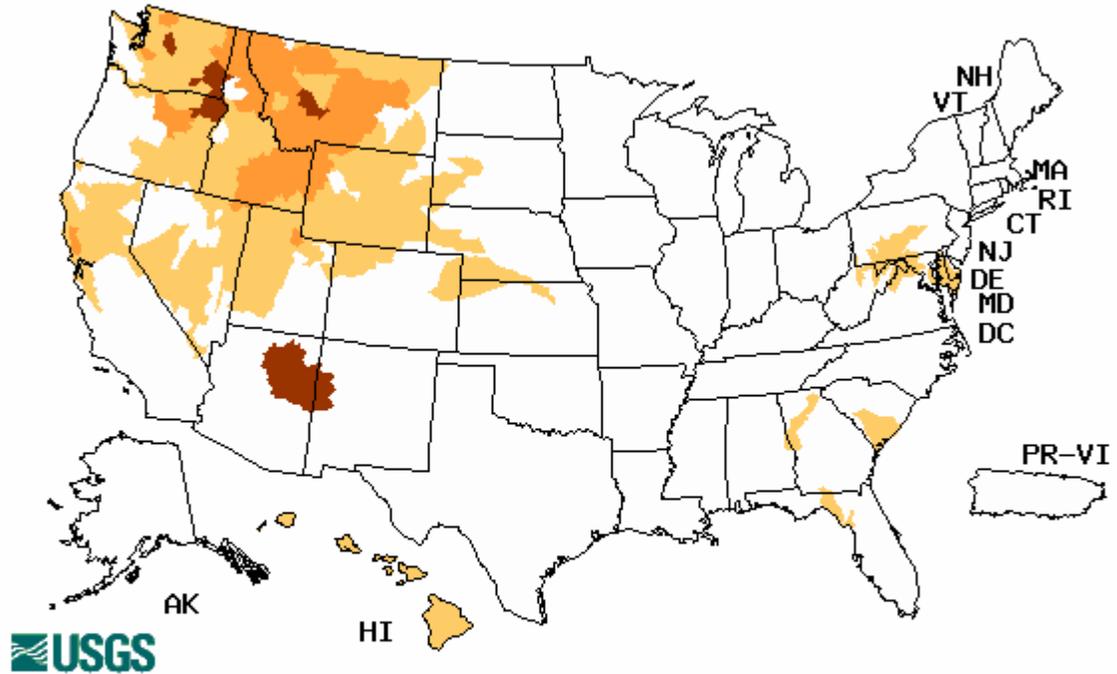


Fig. 6. Observed Fire Danger Class. Note general deterioration over New Mexico and west Texas States since last week. Source: Forest Service Fire Behavior Research – Missoula, MT.

Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

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Wednesday, April 09, 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 some worsening over Montana, Washington, Arizona, and significant improvement over the Eastern States since last week. Values over the colder regions of the West and northern states are probably missing or are in error due to river icing and freeze-up. Ref: USGS <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>

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National Drought Summary -- April 8, 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/>.

The Southeast and Mid-Atlantic: Beneficial precipitation fell throughout the dry areas last week. Most locations reported 1 to 2 inches of rain, with larger amounts falling on much of Florida and the northwestern and southeastern tiers of the dry areas farther north. The central and southern dry areas in Florida recorded widespread totals of 2 to locally 8 inches of rain, 2 to 5 inches fell on many locations across northern Mississippi and central Tennessee, and 2 to 6 inches doused southeastern North Carolina and adjacent South Carolina. In addition, 2 to 4 inches fell on some locations across central sections of Georgia and Alabama.

As a result, drought classifications improved in many locations, though not to the extent that some might expect. One-category improvements were common in northeastern Mississippi, central and northeastern Tennessee, parts of Alabama, central South Carolina, significant sections of North Carolina (where precipitation totals for the past few months have been heavier than in other areas experiencing dryness and drought), and most of Florida. In fact, some 2-category improvements were made in parts of southeastern North Carolina.

The recent rains have certainly benefited topsoil moisture and streamflows, and have made a dent in longer-term hydrologic impacts. However, rainfall in central and western sections of the dry region is slightly below normal on time frames as short as 30 days, and large longer-term deficits remain. The new D3H area approximately corresponds with the area receiving only 50 to 75 percent of normal precipitation for the last 12 months, and most of the dry areas in the Southeast remain more than 20 inches below normal for the last 24 months.

The Plains: Another decent snowstorm brought additional improvements to parts of the northeastern Plains, but most other locations recorded less than 0.5 inch of rain for the week, excepting only small parts of southwestern Nebraska, northeastern Colorado, east-central Kansas, and central Texas. Little or no precipitation fell on the northern High Plains, the southern half of the High Plains, and southern Texas.

The precipitation in the northeastern Plains led to the removal of D0H from parts of central Minnesota, northeastern South Dakota, and a relatively small area near Fargo, ND, where recent precipitation has been heavier than in surrounding areas. In contrast, the dryness farther south led to significant expansion of D0A to D3A conditions in southern Texas, parts of the Texas Panhandle and central New Mexico, east-central Colorado, and west-central Kansas, with most the aforementioned areas outside of central Texas deteriorating from D0A to D1A. The last 6 months have brought less than half of normal precipitation to most of the current D1A area, and less than 25 percent of normal to part of southwestern Texas and small areas in the central Big Bend region and east-central New Mexico.

The West: Although some areas received significant amounts of precipitation, little of it fell on the dry areas from the Rockies westward, where only isolated locations reported more than 1 inch of

Weekly Snowpack and Drought Monitor Update Report

precipitation. However, based on new snowpack reports and streamflow forecasts released by the Natural Resources Conservation Service, further improvements were made in several areas. Drought was improved to abnormally dry across most of northern Nevada, southeastern Oregon, southwestern Idaho, and parts of western and far northern Utah, with dryness eliminated completely from a substantial portion of interior northern Utah. These areas are reporting 110 to locally over 180 percent of typical mountain snowpack for April 1, 2008. In addition, similar snowpack reports led to a reduction in the extent of D0H conditions across central Utah and northeastern Oregon. However, not all of the news was good, and based on streamflows and subnormal precipitation over the past few months, D0H conditions were stretched into the eastern San Joaquin Basin, and D1H to D2H conditions expanded in the central Northern Mojave – Mono Lake Basin, much of the Tulare – Buena Vista Lakes Basin, and part of the southern California Coastal Basin. Furthermore, pockets of D2H conditions remained in parts of the West that did not receive as much precipitation as most areas since October 2007.

Hawaii: Light to moderate precipitation fell last week, with a few areas on the eastern sides of the islands reporting 1 to 3 inches of rain. This kept conditions from deteriorating, but was not sufficient to bring any significant improvement to the state.

Alaska: Central and eastern parts of the D0 region received 0.3 to locally 2.0 inches of precipitation last week, which in conjunction with the April 1, 2008, snowpack report, led to the erosion of D0 conditions from the northwestern and southwestern parts of last week's D0 area.

Puerto Rico: Moderate to heavy rain fell on the northeastern half of the island last week, with totals of 3 to locally 8 inches leading to the elimination of abnormal dryness from the northeastern tier of the region. Farther south and west, precipitation was not sufficient to bring relief.

Looking Ahead: The next 5 days (April 9 – 14, 2008) are expected to bring moderate to heavy rains (0.5 to 2.0 inches) to the southeastern dry areas from West Virginia southward to northwestern Georgia and westward through the dry areas in Tennessee, Alabama, Mississippi, and northern Louisiana. Light to locally moderate rains are forecast for the mid-Atlantic, the Carolinas, and the central Gulf Coast while little or no precipitation is anticipated in Florida. Farther west, at least 0.5 inch of precipitation is expected in the dry areas from South Dakota southward to west-central Texas and eastward across the eastern Plains and the Great Lakes region. Relatively heavy amounts of 1 to 3 inches are expected in southwest Oklahoma and north-central Texas. Light to moderate precipitation at best is anticipated elsewhere from the dry areas of the Plains to the Pacific Coast, with little or no precipitation forecast in the southern Rockies, southern and western Texas, and most of Nevada and California.

Daily high temperatures during this period should average 3°F to 12°F below normal from the High Plains to the mid-Atlantic, with the largest negative departures expected in the central and northeastern Plains. In contrast, areas from Montana and the western Rockies westward through the Great Basin and California should average 3°F to 9°F above normal, with the largest anomalies in central and southern Nevada and much of California.

The ensuing 5 days (April 15 – 19, 2008) should bring a return to drier weather for most of the nation's areas of dryness and drought. The odds favor below-normal precipitation from the western Carolinas westward through the central and southern Plains, the Rockies, the Far West, and eastern Alaska, with the greatest chances covering the Four Corners region and the Great Basin. Enhanced chances for above-normal precipitation are restricted to northern Minnesota, the Upper Peninsula of Michigan, and adjacent Wisconsin. Meanwhile, the odds favor cooler than normal conditions from southeastern Texas and the Mississippi River eastward to the Atlantic Coast, in

Weekly Snowpack and Drought Monitor Update Report

addition to southern sections of Alaska's D0 region. Chances for below-normal temperatures are particularly high in the South Atlantic region. Farther west, warmer than normal weather is favored across the western half of the Plains, the Rockies, the Intermountain West, central and southern California, and the desert Southwest, with the best odds for warmth extending from Wyoming southward through Utah, Colorado, northeastern Arizona, and northern New Mexico.

Author: [Rich Tinker, Climate Prediction Center, NOAA](#)

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 9, 2008