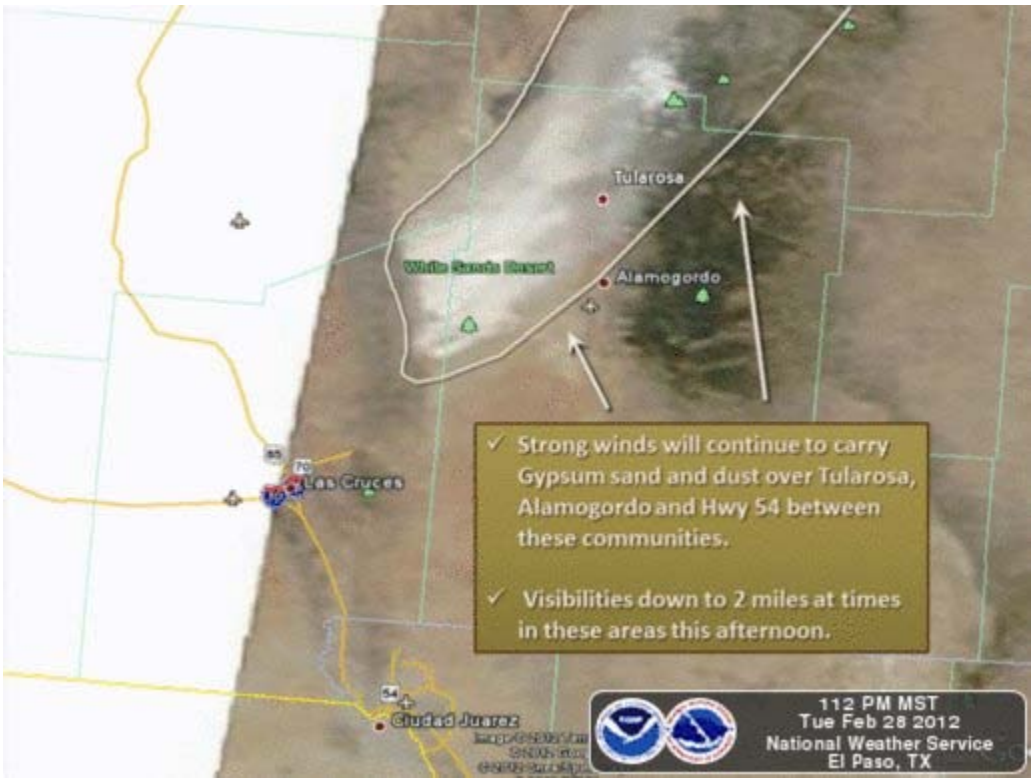
United States Department of Agriculture

NRCS

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

**Weekly Report - Snowpack / Drought Monitor Update** **Date: 1 March 2012**

## SNOTEL SNOWPACK AND PRECIPITATION SUMMARY




**Wind storm on 28 Feb over New Mexico kicked up lots of dust and sand helping to dry top soil moisture. Red flag warnings are in effect today across the region.**

**Snow**: Snow Water-Equivalent: Many Northern River Basins have experienced a 5 - 10 percent increase this week (especially over the Washington Cascades) while the remainder of the West has remained essentially unchanged. Two of Wyoming's basins are not reporting this morning but were near or above normal earlier this week (Fig. 1). 7-Day Snow Depth Change ending this morning shows increases over much of the West, especially over the Cascades. The Great Basin and Southwest were the lagers but did not lose much snow due to seasonal temperatures (Fig. 1a).

**Temperature**: SNOTEL and ACIS 7-day temperature anomaly showed slightly cooler conditions over the Northern Tier States and slightly warmer over the Southern Tier States (i.e., generally within ±5°F) (Fig. 2). ACIS 7-day average temperature anomalies show the greatest positive temperature departures over the Mohave Desert (CA) (>+6°F) and the greatest negative departures over the Northern Great Basin (Nevada) and Northwestern High Plains (MT) (<-8°F) (Fig. 2a).

**Precipitation**: ACIS 7-day average precipitation amounts for the period ending yesterday shows very wet condition over the Cascades and Northern Sierra (Fig. 3). However, in terms of percent of normal, the northeast quarter of the West exceeded 200 percent although scattered areas of high percentages were also noted over the Pacific Northwest (Fig. 3a). Since the start of the 2012 Water-Year that began on 1 October 2011, the seasonal moisture has favored northern Wyoming, south-central Idaho, and parts of northern New Mexico. One basin in extreme northwestern Montana increased by 7 percent this week but most basins remained basically unchanged (Fig. 3b).

**West:** The most active weather was mostly confined to the Pacific Northwest this week with cooler temperatures prevailing except for the Southwest, which saw above-normal temperatures. Some of the better precipitation fell across parts of the continental divide in north central Colorado and up into southern Wyoming, leading to minor reduction of D0 and D1 there. Favorable Water Year numbers also lead to readjustments and trimming of D2 on the central border between New Mexico and Colorado.

Bigger changes occurred farther west this week with more introduction and expansion of D2 across the Wasatch Range in Utah, more of northern Nevada and farther south across the Sierra-Nevada in California. Water Year snow water equivalent values are historically low with not much in the way of time to make up the extreme deficits. Most of the region is still living off the benefits of good snows and water from last winter, which may help to mitigate impacts to some degree, but there are already concerns about water allocation limits during the upcoming growing season. Author: Mark Svoboda, National Drought Mitigation Center

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

## Drought Impacts Definitions

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

## 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). Another good resource can be found at: http://www.emc.ncep.noaa.gov/mmb/nldas/drought/.

## Soil Climate Analysis Network (SCAN)

Figure 6 provides supplemental data on soil conditions (moisture and temperatures at various depths from 2 inches to 80 inches. For more information about SCAN see (brochure).

## 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.

**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/ and http://www.drought.gov.

**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. Reports from 2007 are available on-line while ones from 2001-2006 can be acquired upon request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/
Micheal L. Golden
Acting Deputy Chief, Soil Survey and Resource Assessment

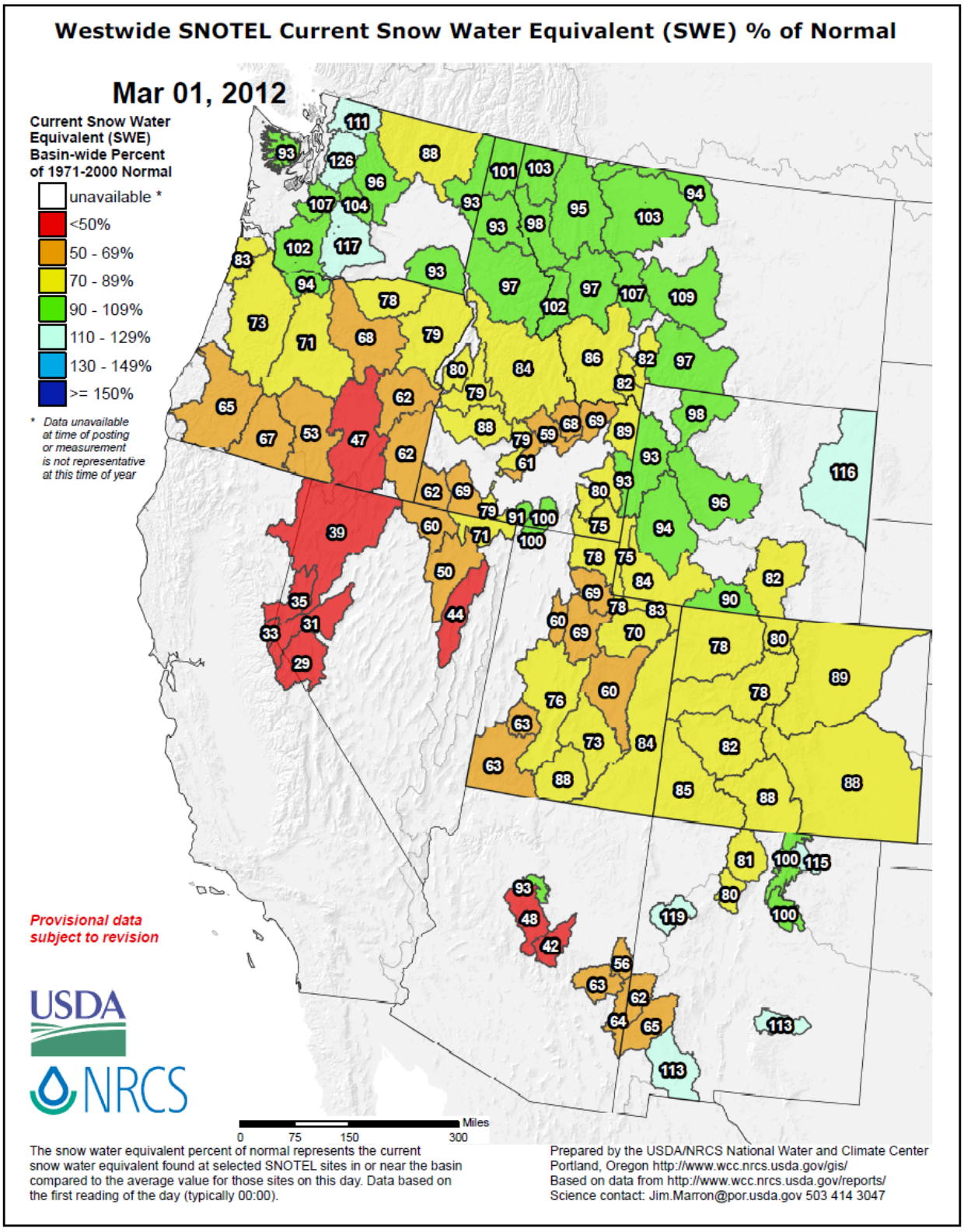



**Fig. 1: Snow Water-Equivalent: Many Northern River Basins have experienced a 5 - 10 percent increase this week (especially over the Washington Cascades) while the remainder of the West has remained essentially unchanged. Two of Wyoming's basins are not reporting this morning.**

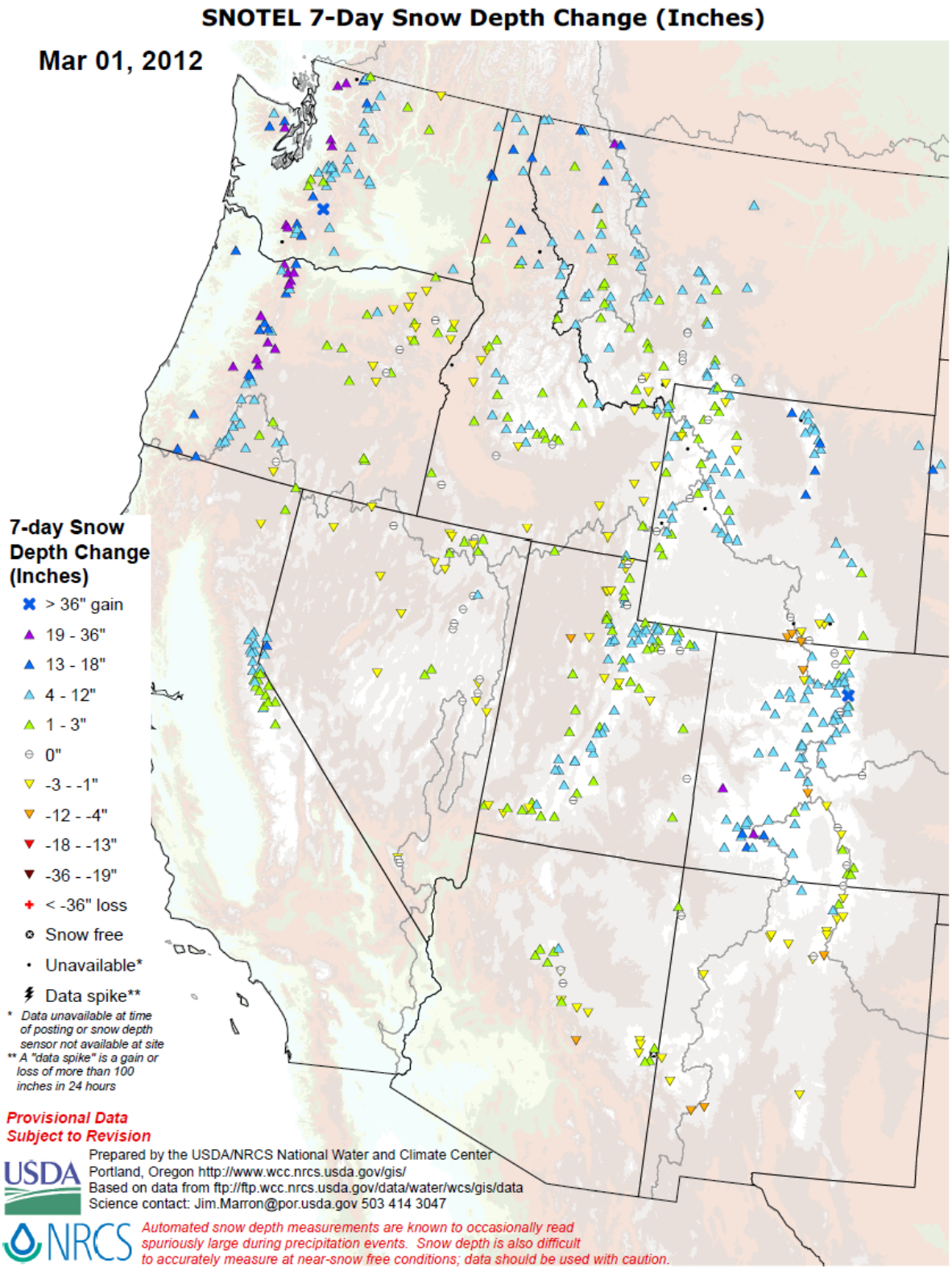



**Fig. 1a: 7-Day Snow Depth Change ending this morning shows increases over much of the West, especially over the Cascades. The Great Basin and Southwest were the lagers but did not lose much snow due to seasonal temperatures.**

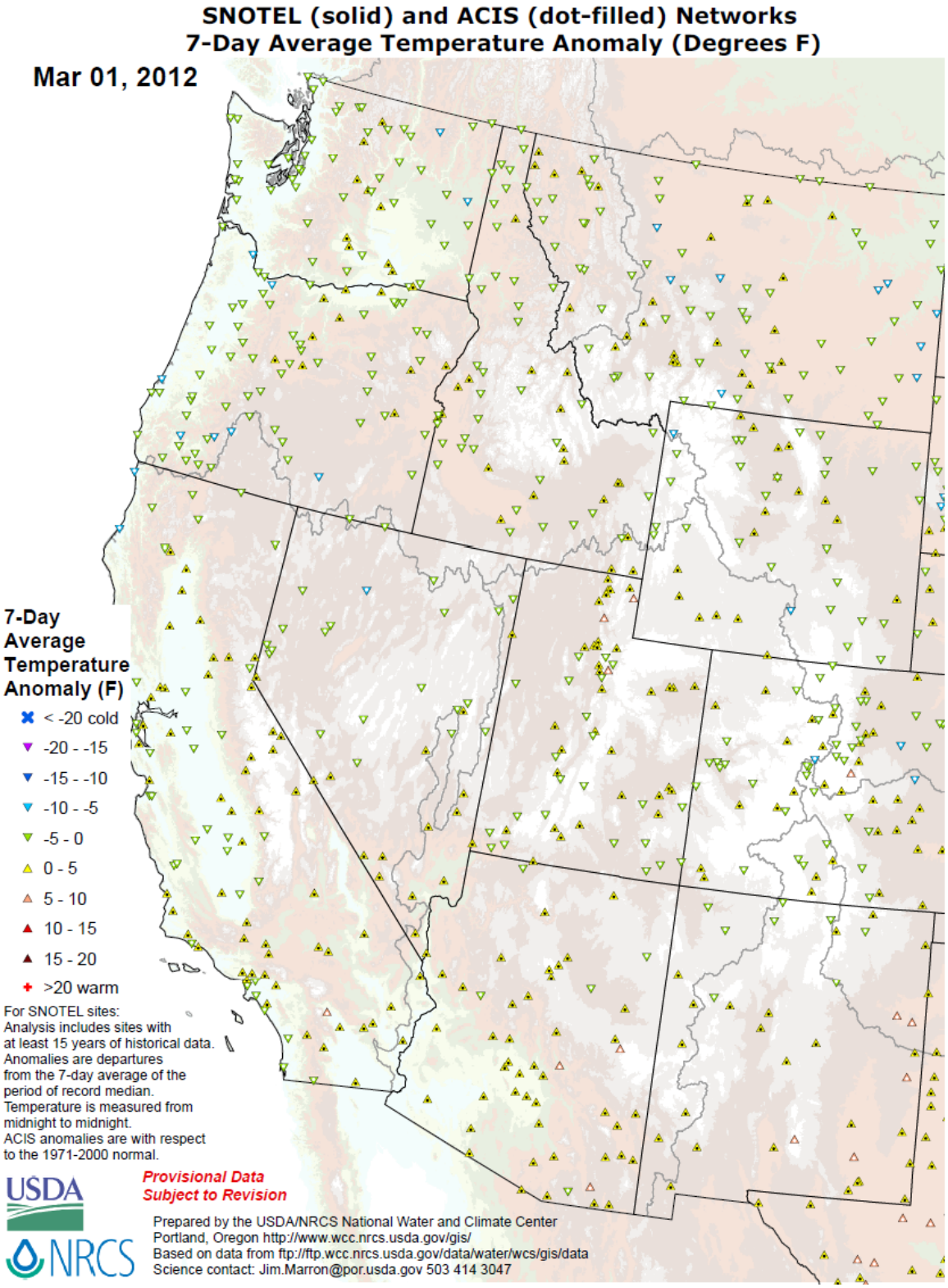



**Fig. 2: SNOTEL and ACIS 7-day temperature anomaly showed slightly cooler conditions over the Northern Tier States and slightly warmer over the Southern Tier States (i.e., generally within ±5°F).**

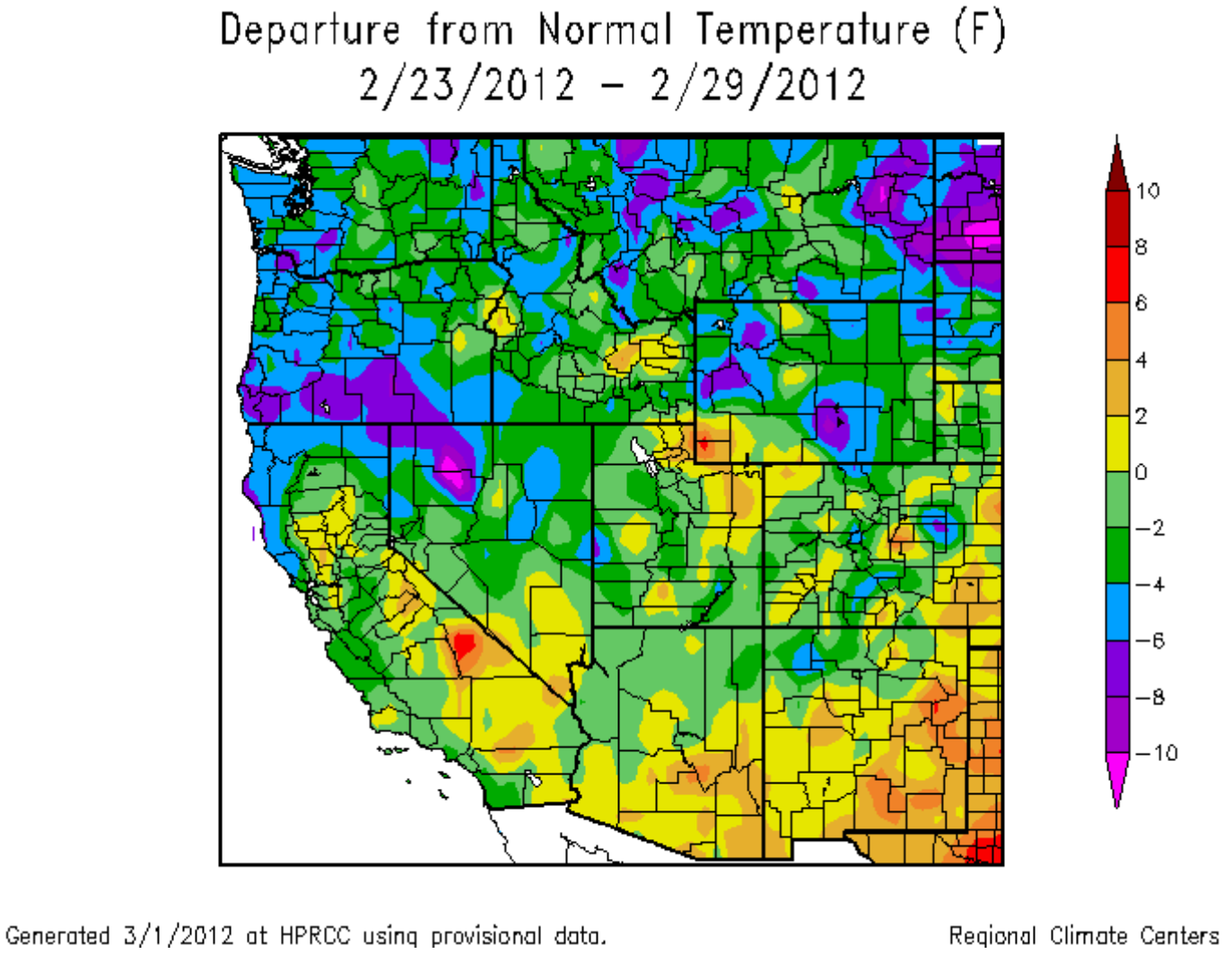
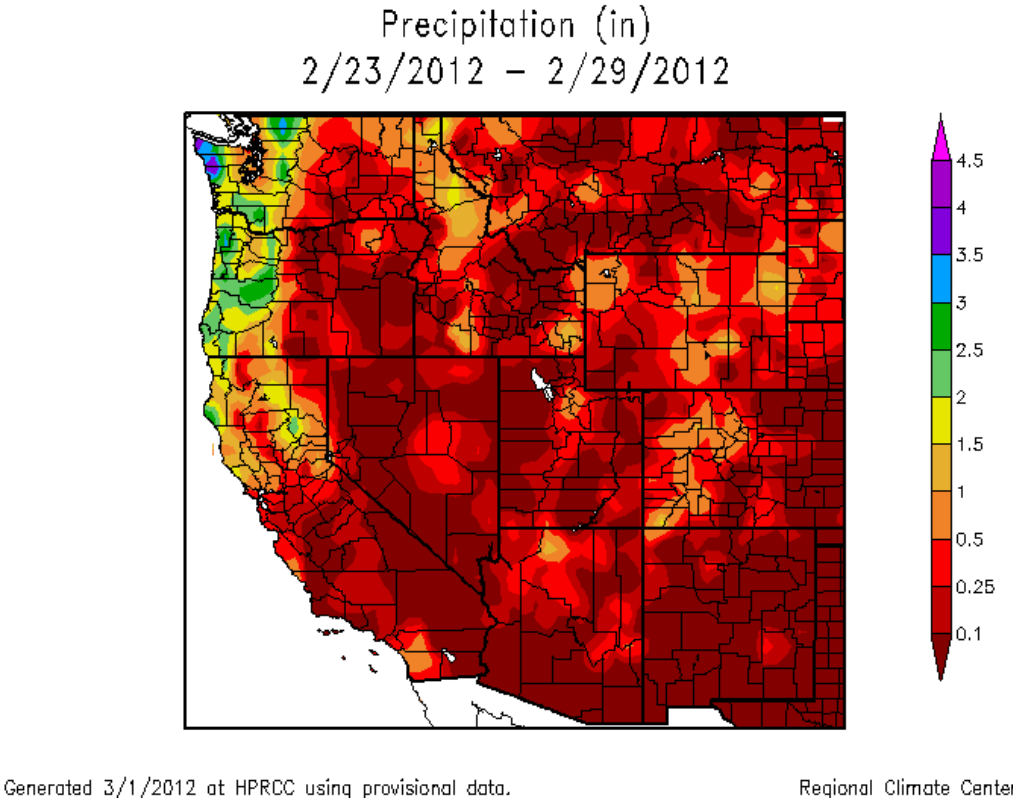



**Fig. 2a: ACIS 7-day average temperature anomalies show the greatest positive temperature departures over the Mohave Desert (CA) (>+6°F) and the greatest negative departures over the Northern Great Basin (Nevada) and Northwestern High Plains (MT) (<-8°F).**



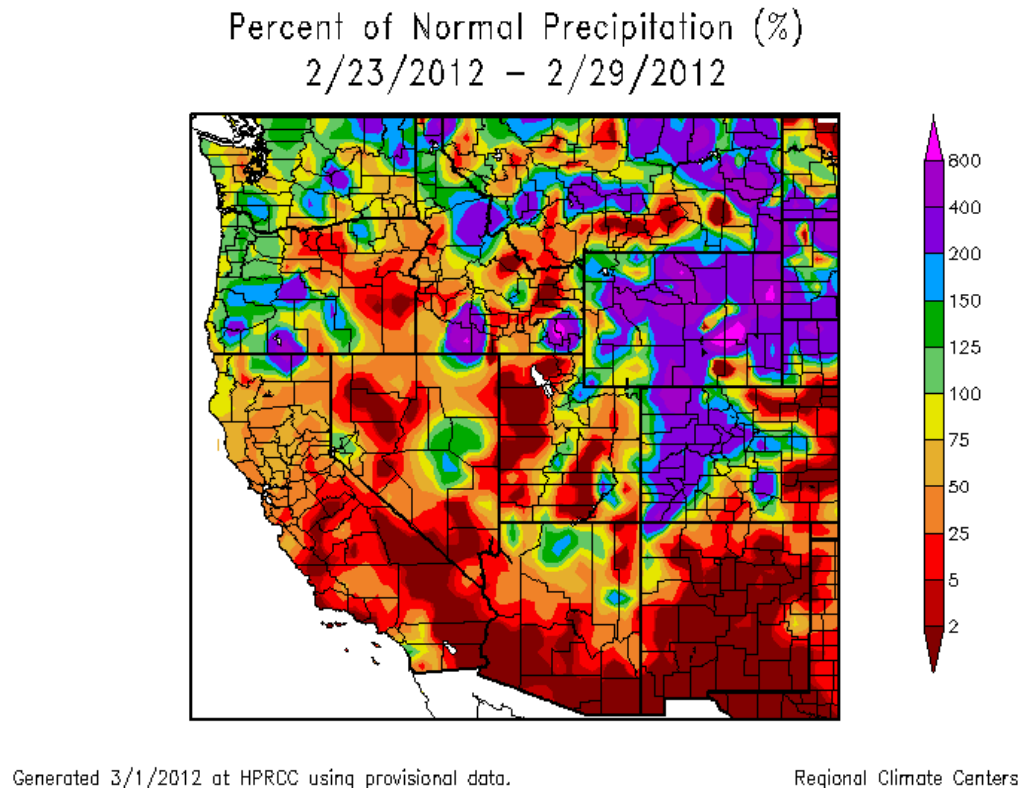




**Fig. 3 and 3a: ACIS 7-day average precipitation amounts for the period ending yesterday shows very wet condition over the Cascades and Northern Sierra (top). However, in terms of percent of normal, the northeast quarter of the West exceeded 200 percent although scattered areas of high percentages were also noted over the Pacific Northwest (bottom).**

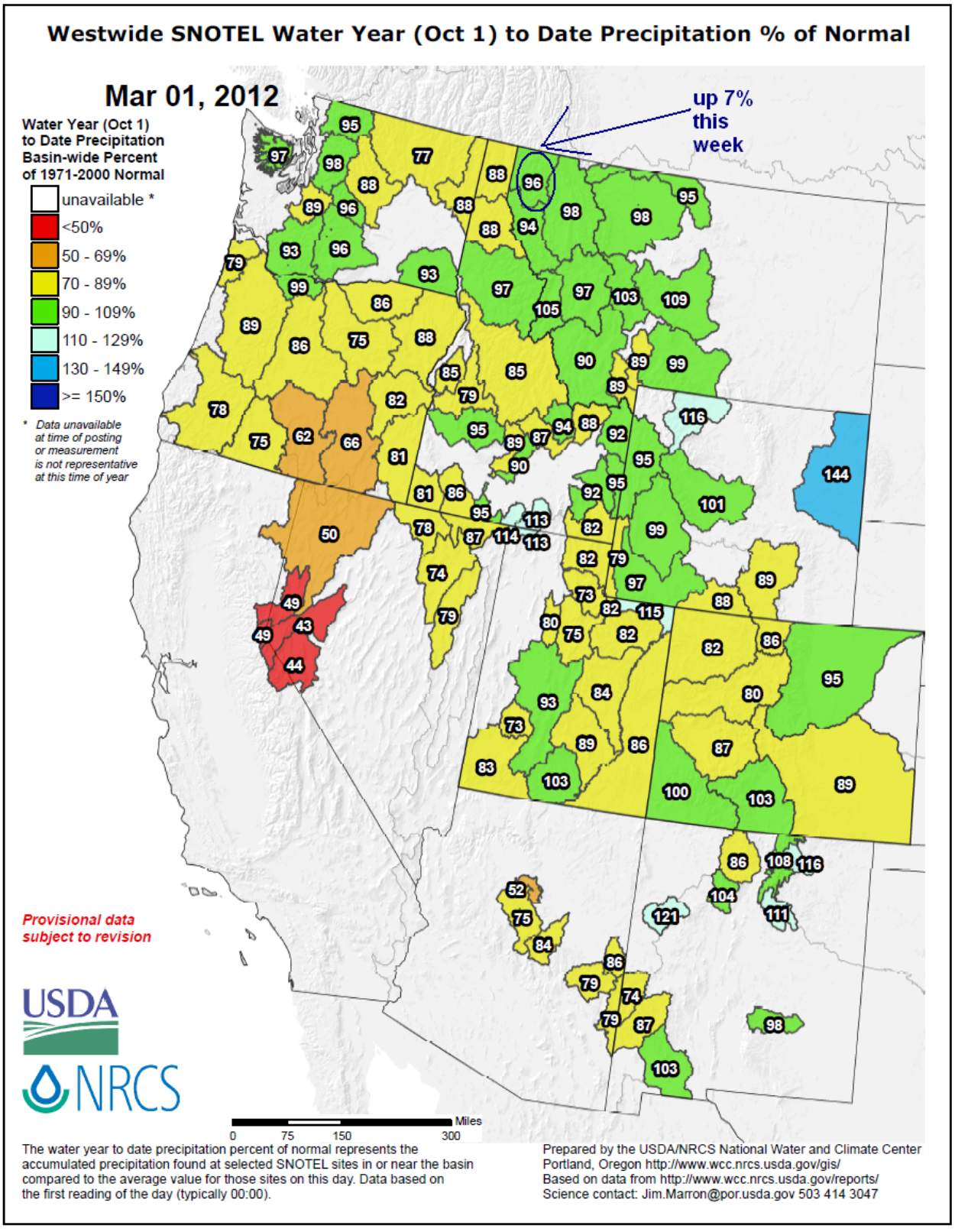



**Fig 3b: Since the start of the 2012 Water-Year that began on 1 October 2011, the seasonal moisture has favored northern Wyoming, south-central Idaho, and parts of northern New Mexico. One basin in extreme northwestern Montana increased by 7 percent this week but most basins remained basically unchanged.**

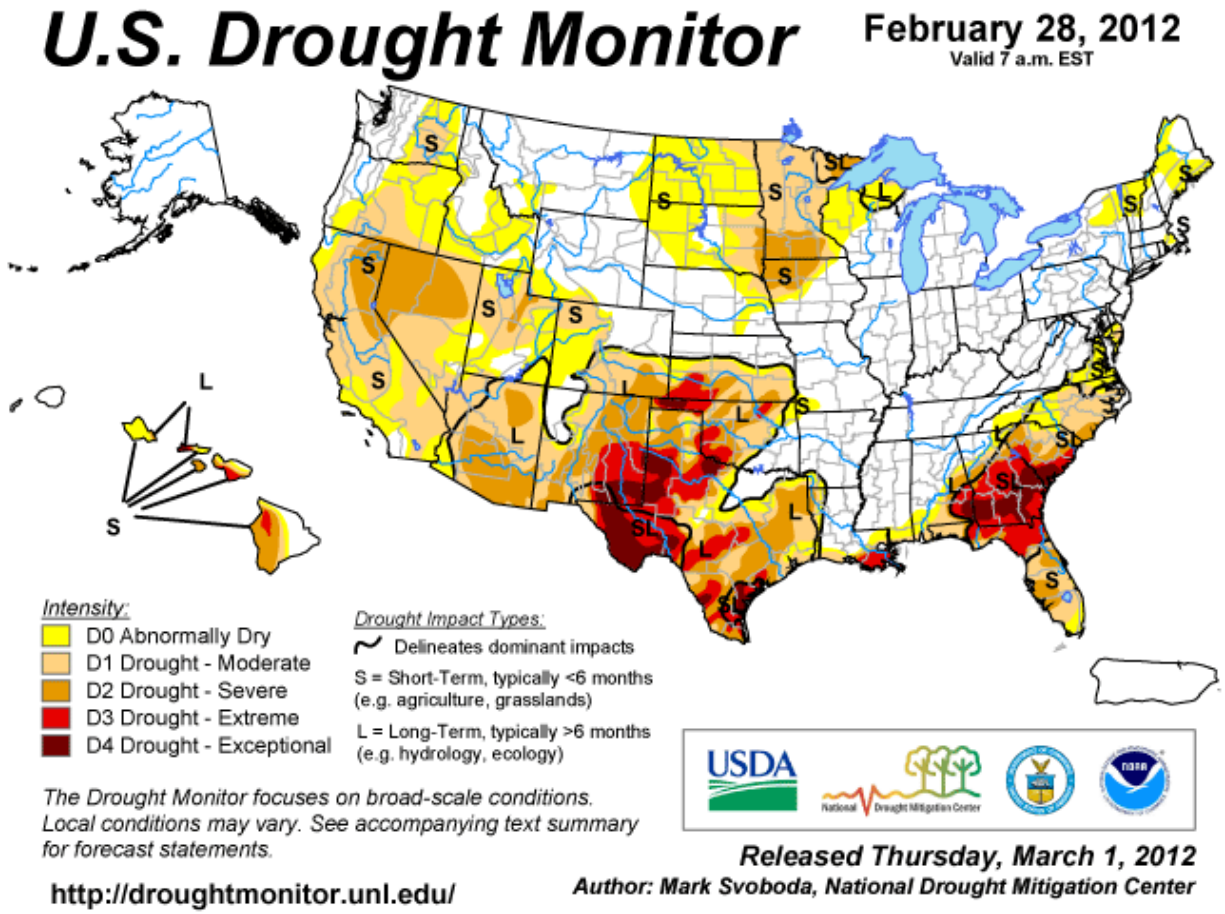



**Fig. 4: Current Drought Monitor weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, much of western Texas, the Panhandle of Oklahoma, and over southern South Carolina – south Georgia – southeast Alabama. For more drought news, see Drought Impact Reporter.**

## Agriculture

Despite rains, Bastrop agriculture facing uncertain year
Feb 20, **Texas**. Agricultural income in Bastrop County fell to just under $23 million in 2011, down roughly $37 million from 2010, according to the county AgriLife extension agent. Income from corn and vegetables fell by $300,000 each; cotton production was down by $140,000; pecan production declined by at least $1 million; and hay production dropped by $31.3 million.

Drought's impact on crops so far is limited
Feb 20, **Southern North Carolina**. Winter wheat will need moisture within the next month to avoid damage from drought.

El Paso-area farmers to suffer as drought drags on
Feb 19, **New Mexico, Texas**. New Mexico and Texas farmers who receive irrigation water from the Rio Grande River were planning to plant fewer acres of cotton in the El Paso area because initial water allocations were just 6 inches per acre, compared to a full allotment in better years of 48 inches per acre. Meager snowfall in New Mexico and Colorado was responsible for the drastically reduced allotment. In addition, water deliveries are expected to begin in mid-May or early June, according to the general manager of El Paso County Water Improvement District No. 1, but deliveries normally begin in early March.

Farmers in Midwest warned to buy crop insurance
Feb 17, **Minnesota**. Minnesota farmers were encouraged by state officials to purchase crop insurance in view of the present drought conditions affecting most of the state. The insurance deadline is March 15.

In dry season, San Joaquin River restoration a sore point among farmers
Feb 20, **San Joaquin Valley in California**. Farmers on the east side of the San Joaquin Valley were bracing for a difficult summer since snowfall has been about one-third of normal, meaning that farmers who rely on the San Joaquin River for water will not receive as much water as they need.

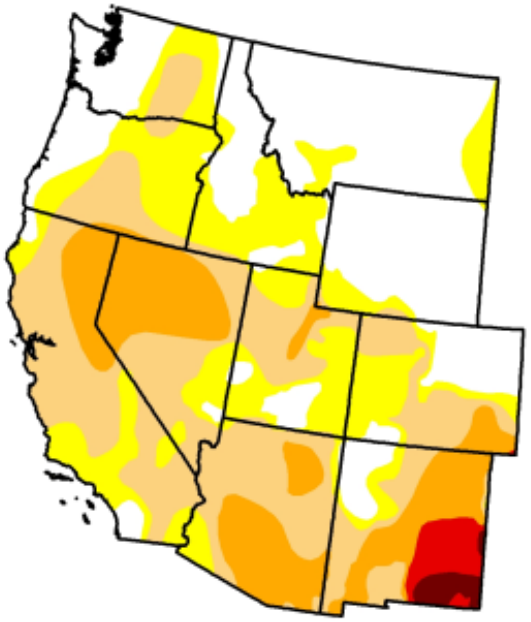
# U.S. Drought Monitor

**February 28, 2012**
Valid 7 a.m. EST

## West

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| Current | 31.91 | 68.09 | 45.30 | 17.63 | 2.56 | 0.83 |
| Last Week (02/21/2012 map) | 32.32 | 67.68 | 42.87 | 11.59 | 2.56 | 0.83 |
| 3 Months Ago (11/29/2011 map) | 72.29 | 27.71 | 18.55 | 14.99 | 9.48 | 1.96 |
| Start of Calendar Year (12/27/2011 map) | 48.49 | 51.51 | 20.05 | 12.22 | 2.67 | 0.78 |
| Start of Water Year (09/27/2011 map) | 66.72 | 33.28 | 19.04 | 14.99 | 9.30 | 3.81 |
| One Year Ago (02/22/2011 map) | 76.19 | 23.81 | 15.02 | 5.41 | 0.00 | 0.00 |



*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://droughtmonitor.unl.edu**

***Released Thursday, March 1, 2012***
***Mark Svoboda, National Drought Mitigation Center***

**Fig. 4a**: **Drought Monitor for the Western States with statistics over various time periods. Note a significant deterioration in D1 to D2 this week over the Northern Great Basin.**

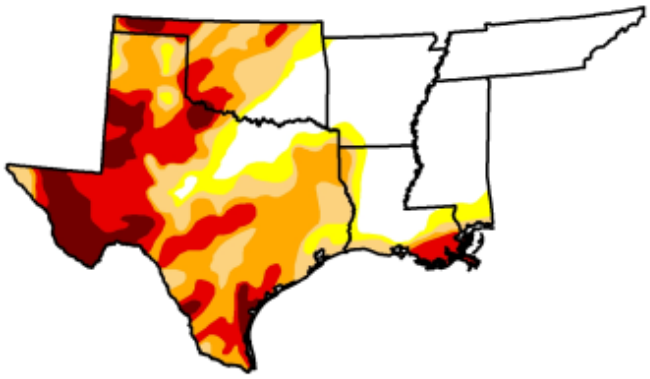
# U.S. Drought Monitor

## South

**February 28, 2012**
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| Current | 36.89 | 63.11 | 55.02 | 41.39 | 23.22 | 7.96 |
| Last Week (02/21/2012 map) | 36.89 | 63.11 | 55.18 | 41.39 | 23.22 | 7.54 |
| 3 Months Ago (11/29/2011 map) | 22.62 | 77.38 | 72.37 | 60.69 | 51.13 | 29.43 |
| Start of Calendar Year (12/27/2011 map) | 26.47 | 73.53 | 69.01 | 54.81 | 39.11 | 17.15 |
| Start of Water Year (09/27/2011 map) | 18.34 | 81.66 | 76.26 | 70.61 | 63.67 | 53.77 |
| One Year Ago (02/22/2011 map) | 4.04 | 95.96 | 74.59 | 38.29 | 10.03 | 0.00 |



*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://droughtmonitor.unl.edu**

*Released Thursday, March 1, 2012*
*Mark Svoboda, National Drought Mitigation Center*

**Fig. 4b**: **Drought Monitor for the South-Central States with statistics over various time periods. No change noted this week.**

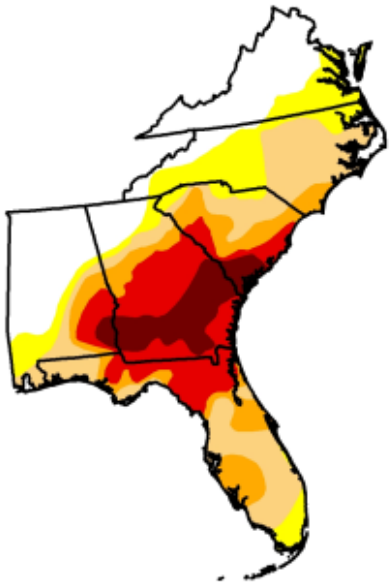
# U.S. Drought Monitor

## Southeast

**February 28, 2012**
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| Current | 24.97 | 75.03 | 58.78 | 36.93 | 24.26 | 8.11 |
| Last Week (02/21/2012 map) | 26.21 | 73.79 | 59.43 | 39.29 | 24.34 | 8.11 |
| 3 Months Ago (11/29/2011 map) | 46.23 | 53.77 | 42.25 | 30.92 | 19.10 | 0.00 |
| Start of Calendar Year (12/27/2011 map) | 40.38 | 59.62 | 43.05 | 28.62 | 18.71 | 0.00 |
| Start of Water Year (09/27/2011 map) | 42.24 | 57.76 | 41.82 | 31.77 | 23.48 | 0.00 |
| One Year Ago (02/22/2011 map) | 5.82 | 94.18 | 71.95 | 24.17 | 3.36 | 0.00 |



*Intensity:*

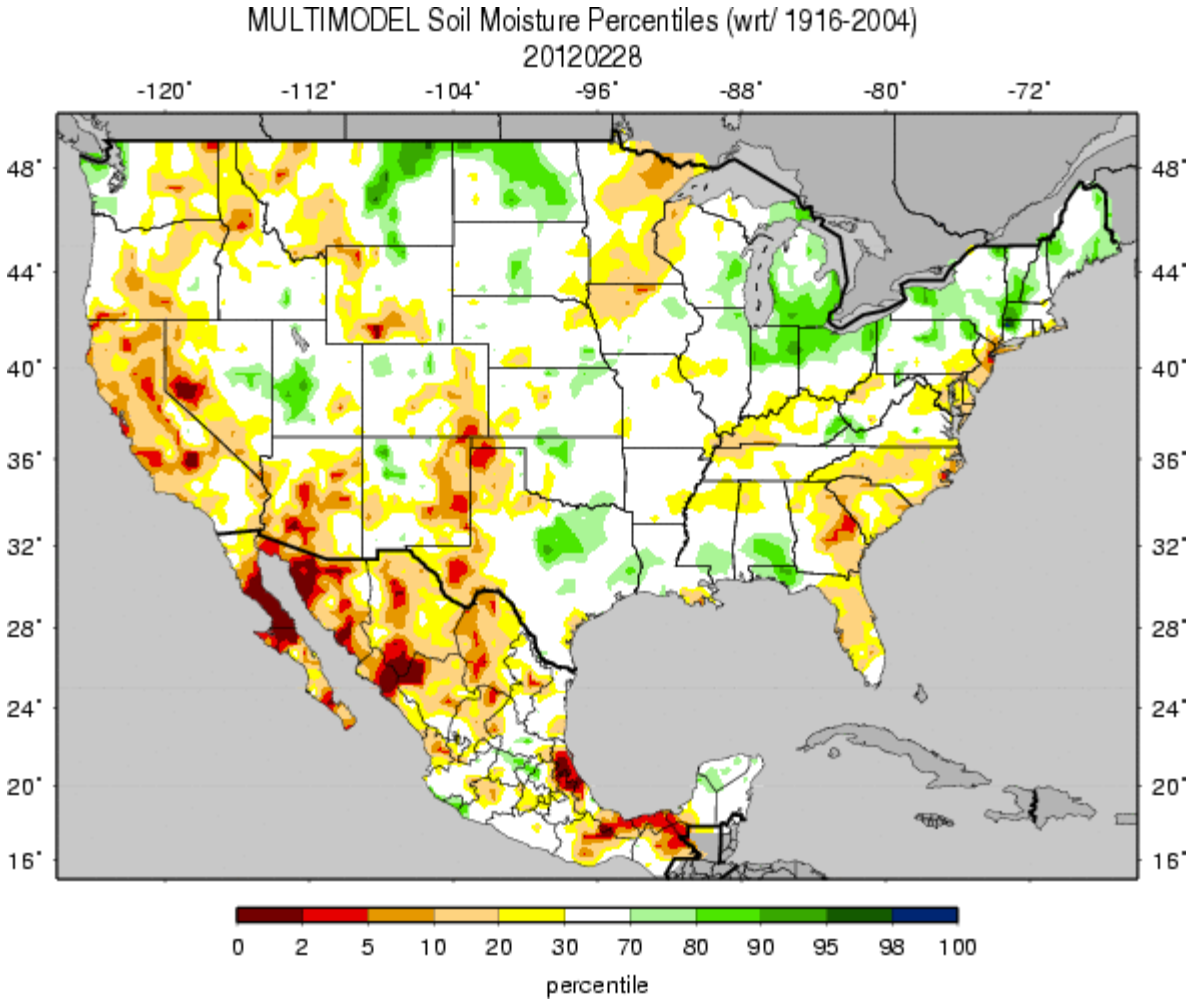
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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

**http://droughtmonitor.unl.edu**

*Released Thursday, March 1, 2012*
*Mark Svoboda, National Drought Mitigation Center*

**Fig. 4c**: **Drought Monitor for the Southeastern States with statistics over various time periods. Note slight deterioration in D0, and D1 this week.**




**Figs. 5: Soil Moisture ranking in [percentile] as of 28 February shows conditions about the same as last week. Note: Soil moisture this time of year is often unreliable due to frozen ground.**

## Soil Climate Analysis Network (SCAN)

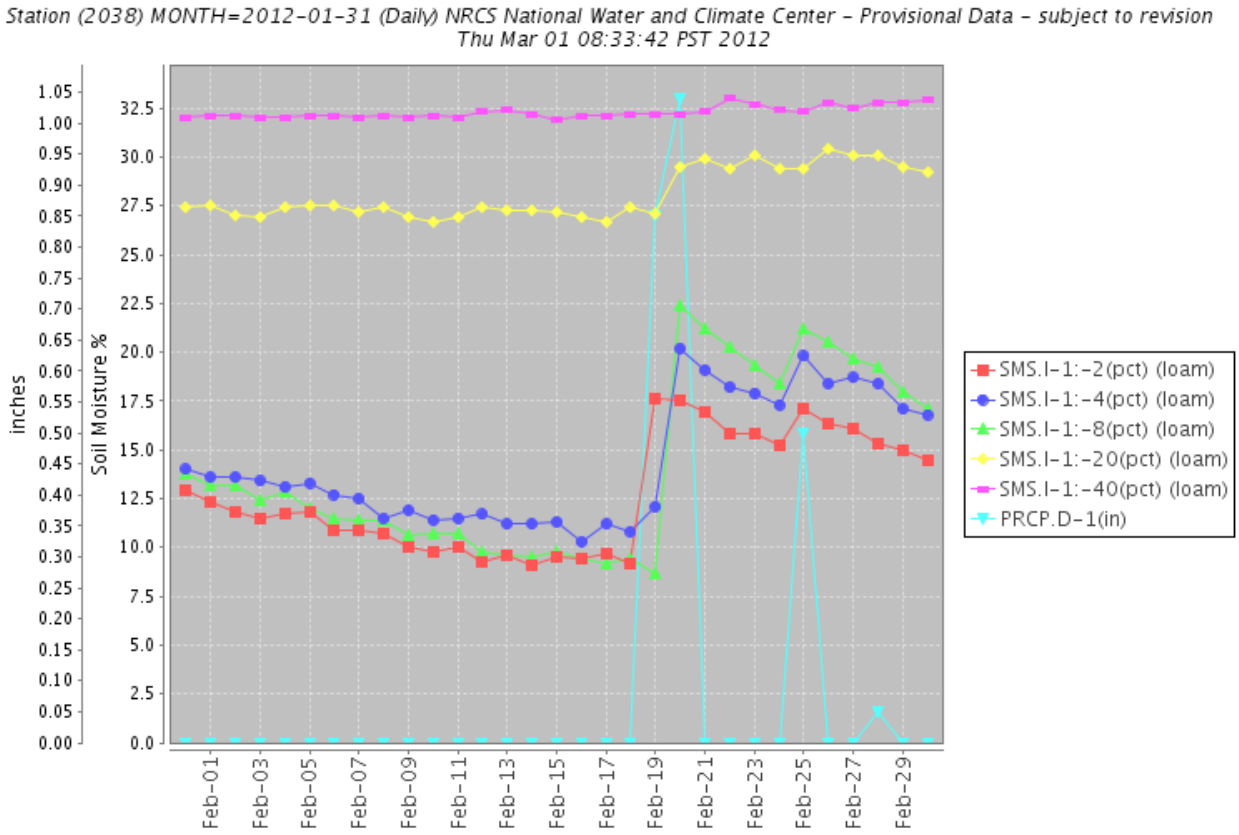



**Fig. 6: This NRCS resource shows a site over southern South Carolina with soil moisture responding to some recent rains but then declining.**

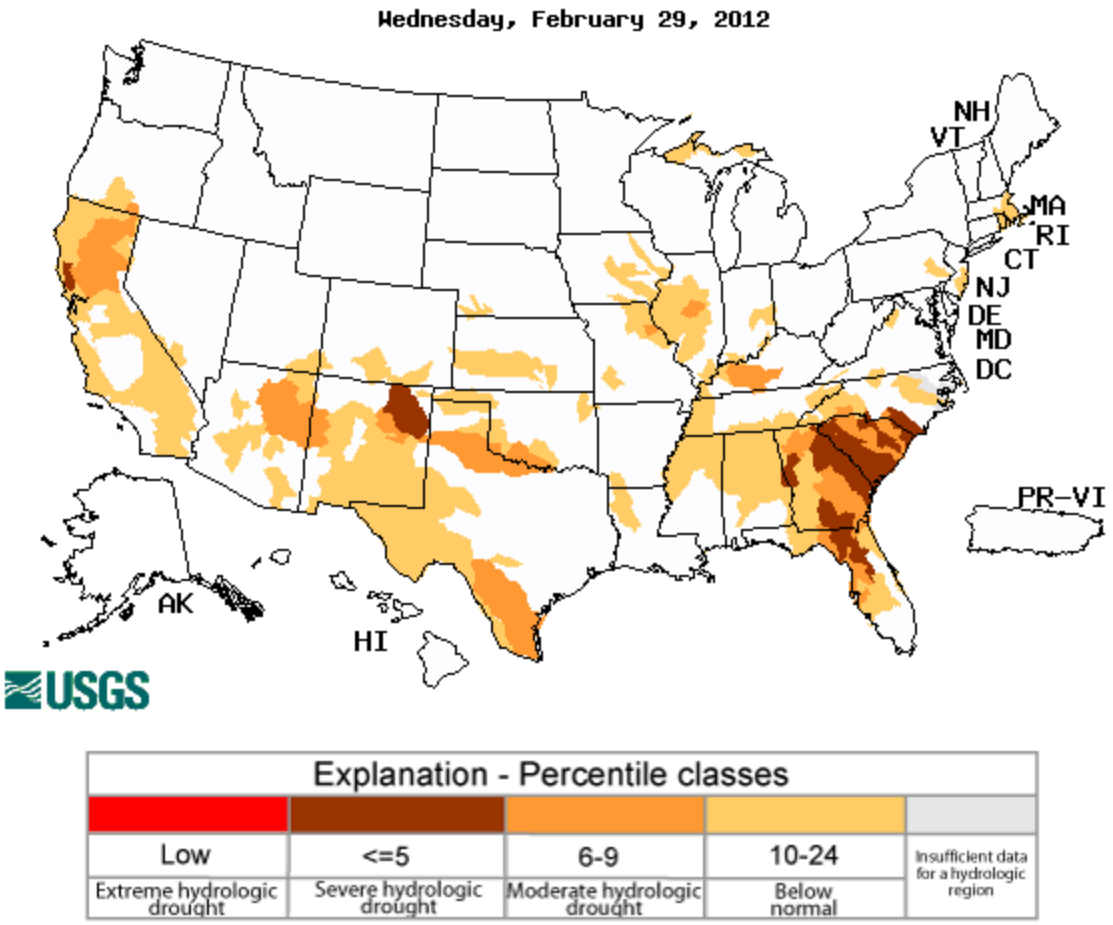



**Fig. 7: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Clearly, the Southeast States, northeastern New Mexico continue to have the severest conditions. A new area of severe flows has developed over the north coastal area of California.**

**National Drought Summary -- February 28, 2012**

*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/*.*

**Northeast:** The Northeast saw some spotty, light precipitation last week, but not enough to warrant any improvement to the existing pockets of D0 as we head into March.

**South Atlantic and Central Gulf Coast Regions:** After a couple of active weeks brought several pulses of moisture and improvement to the region in early to mid-February, the past week was much quieter, resulting in few changes to this week's map. Some continued improvement was noted in southern Alabama and parts of the western Florida Panhandle, which goes from D2 to D1. Persistent rains in west central Florida led to a slight trimming of the D2 and D1 there. Farther north, western North Carolina continues to dry out a bit, leading to a slight expansion of D0 in that region. Status quo is the word across the rest of the Southeast this week.

**The Southern Great Plains and Louisiana:** The tap turned off across all of the southern Plains and Louisiana as well last week, leading to few changes after several weeks of improvement. The only change of note is a slight expansion of D4 in the Big Bend region of west Texas. Most of the region warmed up as well, posting above-normal readings accompanied by much windier weather of late.

**The Northern Plains:** The past few storm systems have dumped some wet snow across the region, leading to some minor improvement from D1 to D0 in southeastern North Dakota this week. The rest of the region remains unchanged.

**West:** The most active weather was mostly confined to the Pacific Northwest this week with cooler temperatures prevailing except for the Southwest, which saw above-normal temperatures. Some of the better precipitation fell across parts of the continental divide in north central Colorado and up into southern Wyoming, leading to minor reduction of D0 and D1 there. Favorable Water Year numbers also lead to readjustments and trimming of D2 on the central border between New Mexico and Colorado.

Bigger changes occurred farther west this week with more introduction and expansion of D2 across the Wasatch Range in Utah, more of northern Nevada and farther south across the Sierra-Nevada in California. Water Year snow water equivalent values are historically low with not much in the way of time to make up the extreme deficits. Most of the region is still living off the benefits of good snows and water from last winter, which may help to mitigate impacts to some degree, but there are already concerns about water allocation limits during the upcoming growing season.

**Hawaii:** There are many notable changes across the state this week, starting in the west with Kauai, where favorable rains led to the removal of D0. Oahu also shared in the improvements with a reduction of D1 to D0 there. The rains didn't come to Molokai this week; reservoir levels continue to drop and water restrictions remain on agricultural activity, leading to an introduction of D4 across the western half of the island. Maui remains dry as well, especially on the leeward side where D3 has encroached upon the Upcountry and Kaupo areas, leading to rangeland/feed issues for livestock there. The Big Island saw a bit of both worlds (wet and dry) last week as the windward side received ample precipitation, which led to a reduction of the D0. On the Kona side, D1 had been degraded to D2 and D3 has expanded northward from the South Kohala region into the lower leeward reaches of the Kohala Mountains.

***Looking Ahead:*** During the next 5 days (March 1 - 5, 2012), the forecast calls for a good chance of heavy rains across parts of the Southeast, particularly northern Alabama, northern Georgia and the Carolinas. Florida and other parts across the coastal Gulf Coast regions can also expect more modest, normal-like totals for this time of year. The Pacific Northwest remains in its active pattern, which may also be shared across the Sierra-Nevada and the Wasatch Range in Utah as well. Temperatures are expected to be below normal for most of the West over this time period while most everyone else east of the Rockies can expect above-normal readings except for the northern Great Lakes region and into Minnesota, where cooler temperatures should prevail.

The Climate Prediction Center (CPC) 6-10 day (March 6 - 10, 2012) outlook is favoring another wet period across the Pacific Northwest. The Southwest and southern Plains don't look as good during this period, with below-normal precipitation being most likely. Temperatures across most of the Intermountain West and coastal Pacific states are expected to be below normal. The eastern half of the country from Texas to the Northeast and Southeast is looking at good chances for above-normal temperatures.

**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.

**Drought Intensity Categories**
D1 ... Moderate Drought
D2 ... Severe Drought
D3 ... Extreme Drought
D4 ... Exceptional Drought

**Drought or Dryness Types**
S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)
L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

*Updated February 29, 2012*