



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

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## Weekly Report - Snowpack / Drought Monitor Update

Date: 3 May 2012

### SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

**Snow:** [Snow Water-Equivalent](#): River basins over the Northern Pacific Northwest and Northernmost Rockies are maintaining their high SWE values this week while the opposite is true for the remainder of the West (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows a steady decline throughout the West although some increases occurred over the eastern slope of the Montana Rockies (Fig. 1a).

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly showed values above normal over the West with highest departures over the Western High Plains (Fig. 2). ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over southeast New Mexico ( $>+10^{\circ}\text{F}$ ) and the greatest negative departures scattered over parts of the Pacific Northwest and northeastern Montana ( $<-4^{\circ}\text{F}$ ) (Fig. 2a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over Cascades and Sierra (Fig. 3). However, in terms of percent of normal, all but the Great Basin to Wyoming and the southern half of New Mexico experienced a wetter week (Fig. 3a). Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored Northern Tier States. Drier than normal conditions dominate over much of the southern half of the West (Fig. 3b). Since the start of [May](#), the wetter influence of La Niña is still holding on over parts of the Pacific Northwest (Fig. 3c). However, it is very early in the month to draw any conclusions as to what this month will ultimately tally.

**Summary:** The week featured a series of low-pressure systems moving along a northern storm track. These storm systems brought significant rains to many portions of the Northwest, Great Plains, Ohio Valley, and Central Appalachians. Additionally, soaking rains fell across south Florida. Dry conditions persisted over many of the areas already experiencing drought conditions, especially across the Intermountain West, Upper Mid-West and Southeast, with the exception of South Florida.

**The West:** Across Utah, a reassessment of conditions prompted the removal of an area of severe drought, but the expansion of moderate drought. Snow-water equivalent, percent of normal values were the lowest across the western and eastern portions of the state. Beaver River Basin was at 47 percent of normal, and the Sevier River Basin was at 21 percent of normal, while the Price-San Rafael Basin was at 1 percent of normal. SPI values indicate this split as well. Recommendations from the Upper Colorado River Basin NIDIS project also supported this configuration. Further, the data analyzed by the UCRB project participants supported the introduction of Severe Drought (D2) conditions across Larimer County.

A small improvement to conditions was noted across the central Sierra Nevada mountains as 30-day percent of normal precipitation indicated wetter than average conditions. The impacts designation across Utah and Nevada was also changed to SL to reflect the impact to hydrologic conditions and that data through at least 6 months indicates very dry conditions. Author: Matthew Rosencrans, Climate Prediction Center/NCEP/NWS/NOAA.

## Weekly Snowpack and Drought Monitor Update Report

***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.

### **Fire Conditions**

Fig. 8 comes from the [Predictive Services](#) (USFS) facilitates integration of comprehensive climate, weather, situation and fuels information in geospatial format.

### **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>.

## Weekly Snowpack and Drought Monitor Update Report

### For More Information

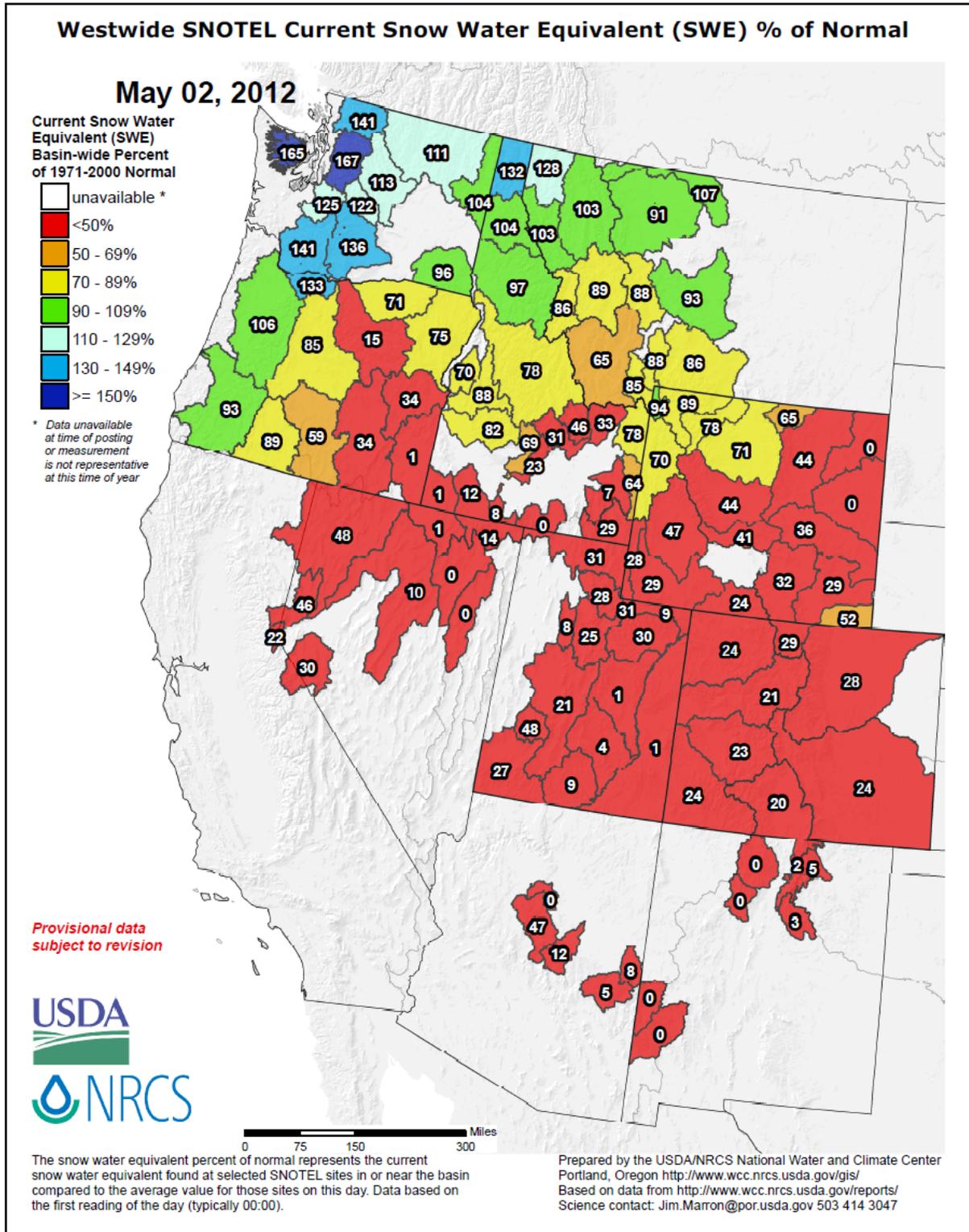
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports 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  
Deputy Chief, Soil Survey and Resource Assessment

# Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: Snow Water-Equivalent: River basins over the Northern Pacific Northwest and Northernmost Rockies are maintaining their high SWE values this week while the opposite is true for the remainder of the West. Click on link for latest map.**

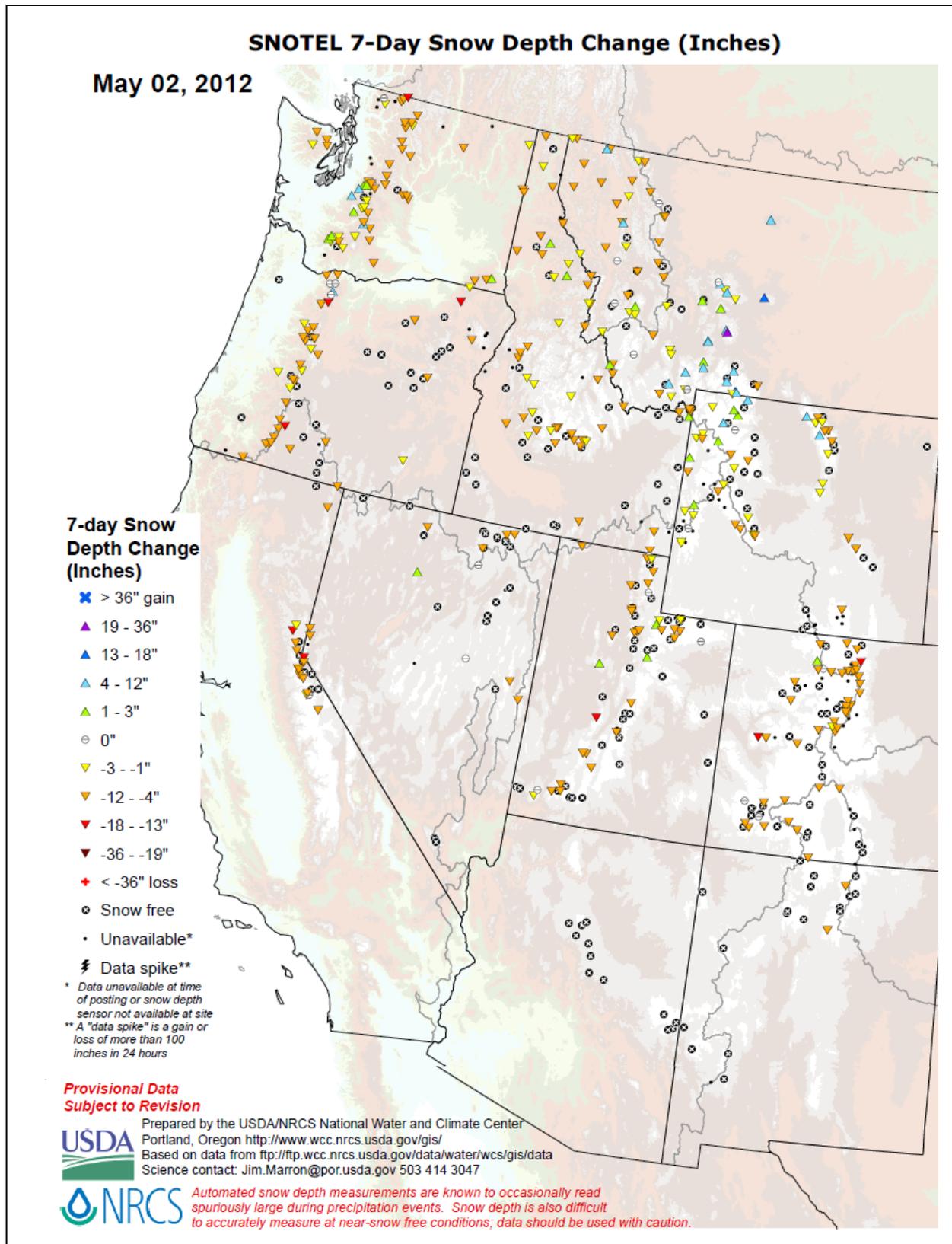


Fig. 1a: [7-Day Snow Depth Change](#) ending this morning shows a steady decline throughout the West although some increases occurred over the eastern slope of the Montana Rockies.

# Weekly Snowpack and Drought Monitor Update Report

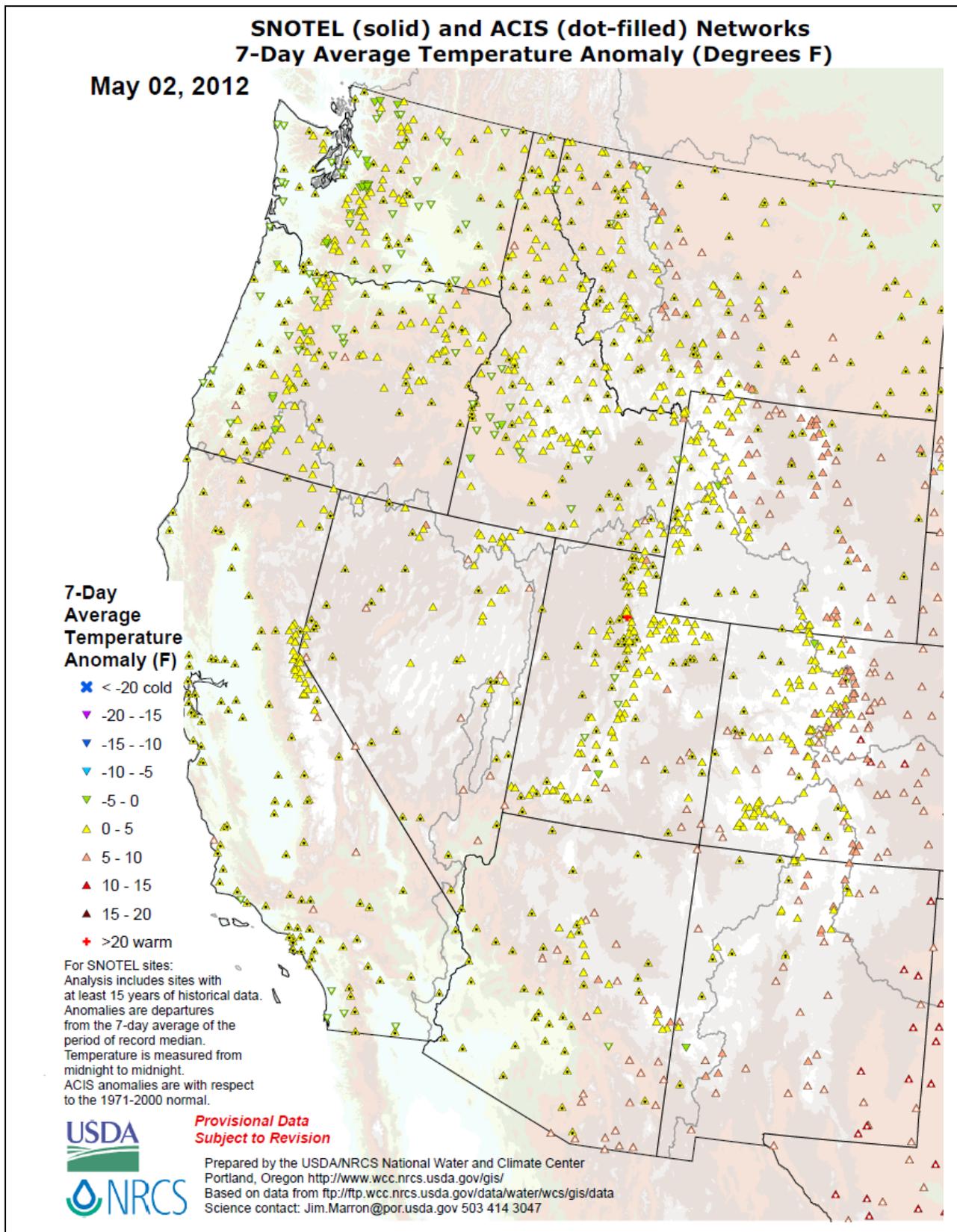
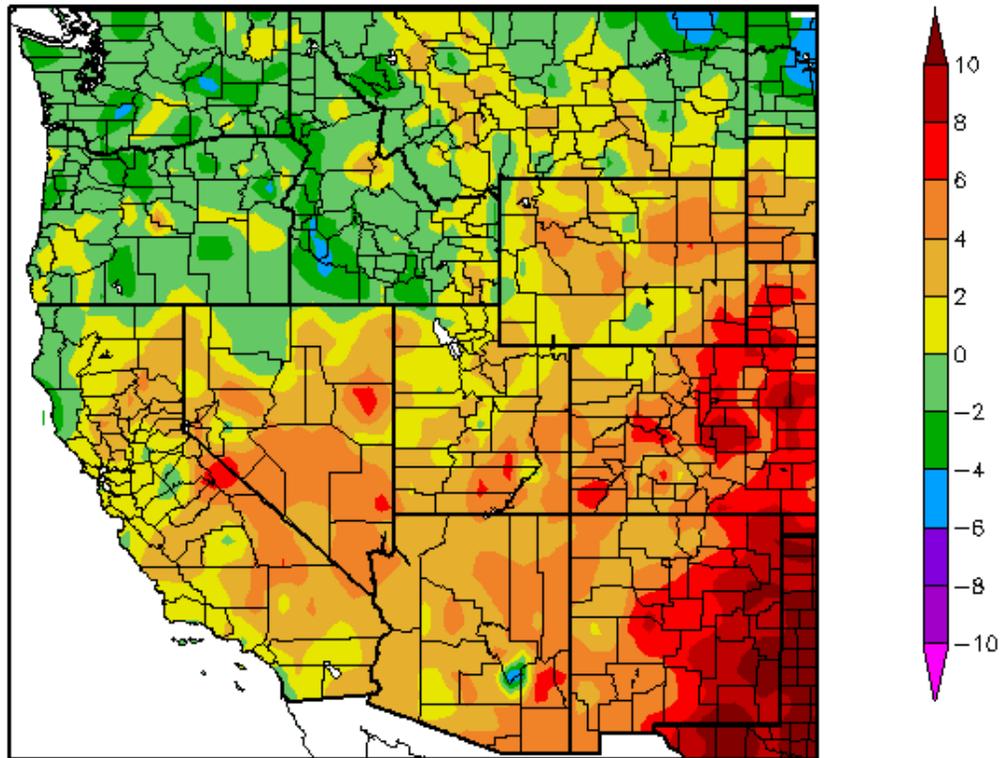


Fig. 2: **SNOTEL** and ACIS 7-day temperature anomaly showed values above normal over the West with highest departures over the Western High Plains.

Weekly Snowpack and Drought Monitor Update Report

Departure from Normal Temperature (F)  
4/26/2012 – 5/2/2012



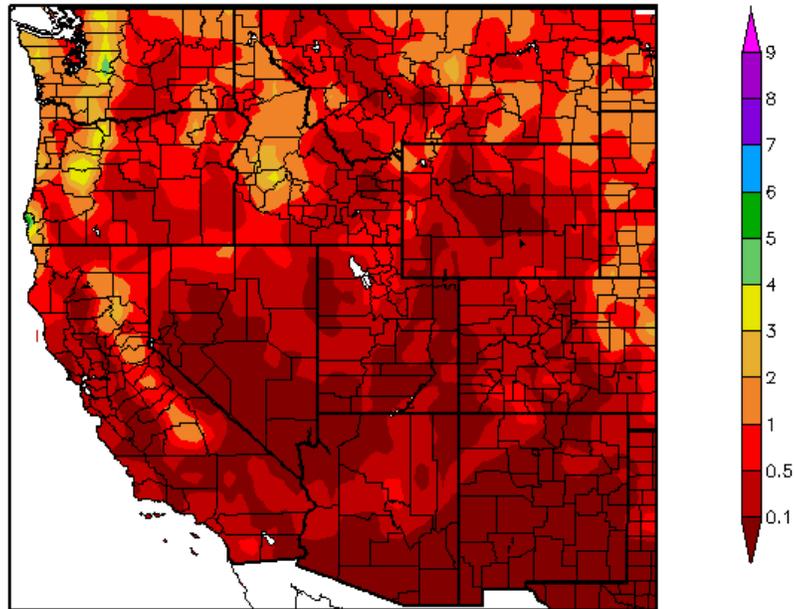
Generated 5/3/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2a:** ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over southeast New Mexico ( $>+10^{\circ}\text{F}$ ) and the greatest negative departures scattered over parts of the Pacific Northwest and northeastern Montana ( $<-4^{\circ}\text{F}$ ).

## Weekly Snowpack and Drought Monitor Update Report

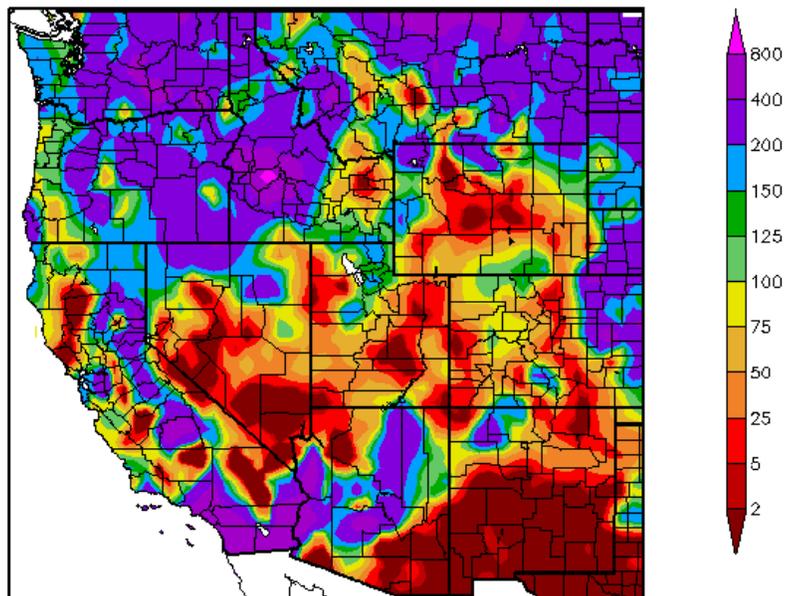
Precipitation (in)  
4/26/2012 – 5/2/2012



Generated 5/3/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
4/26/2012 – 5/2/2012



Generated 5/3/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 3 and 3a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over Cascades and Sierra (top). However, in terms of percent of normal, all but the Great Basin to Wyoming and the southern half of New Mexico experienced a wetter week.**

Weekly Snowpack and Drought Monitor Update Report

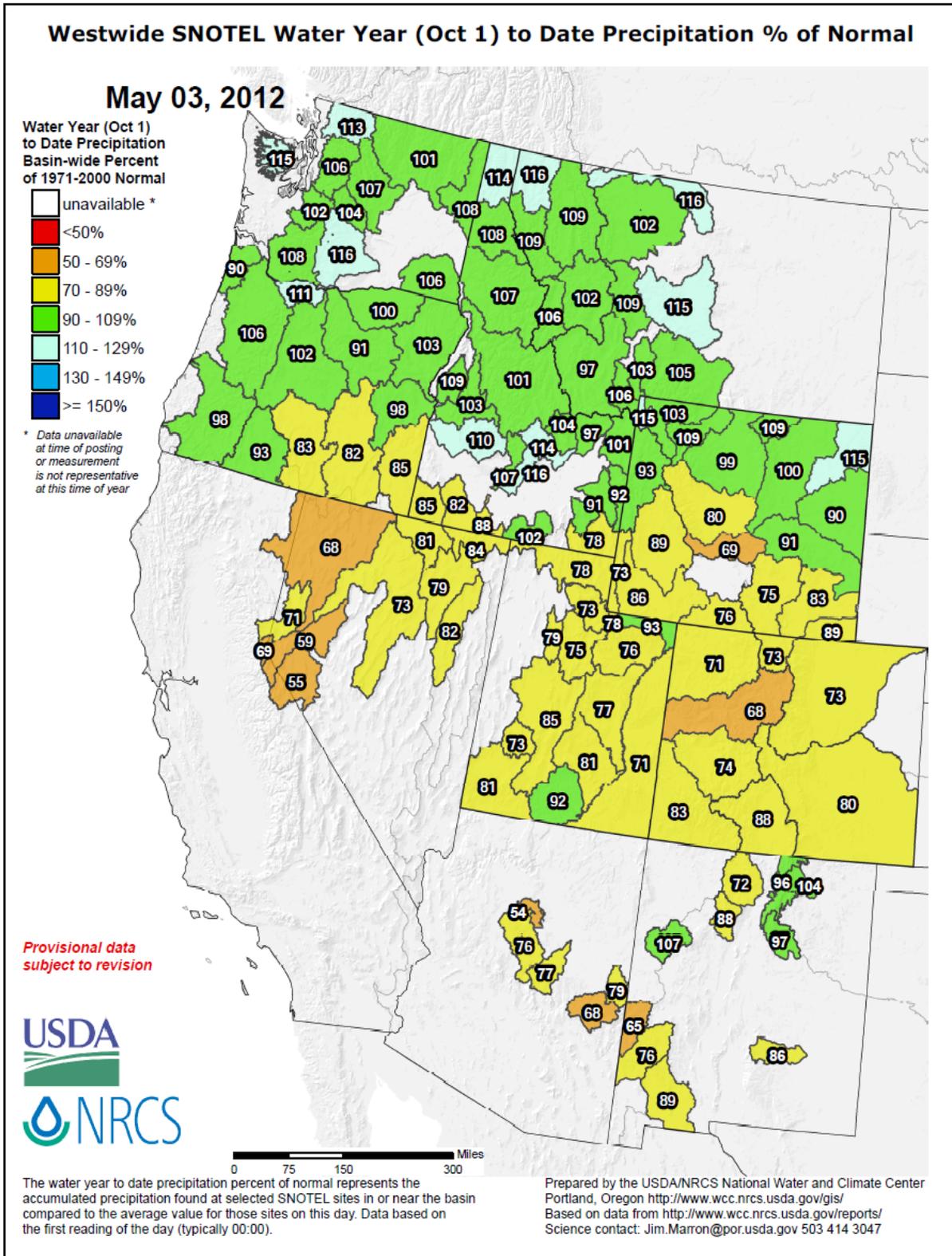
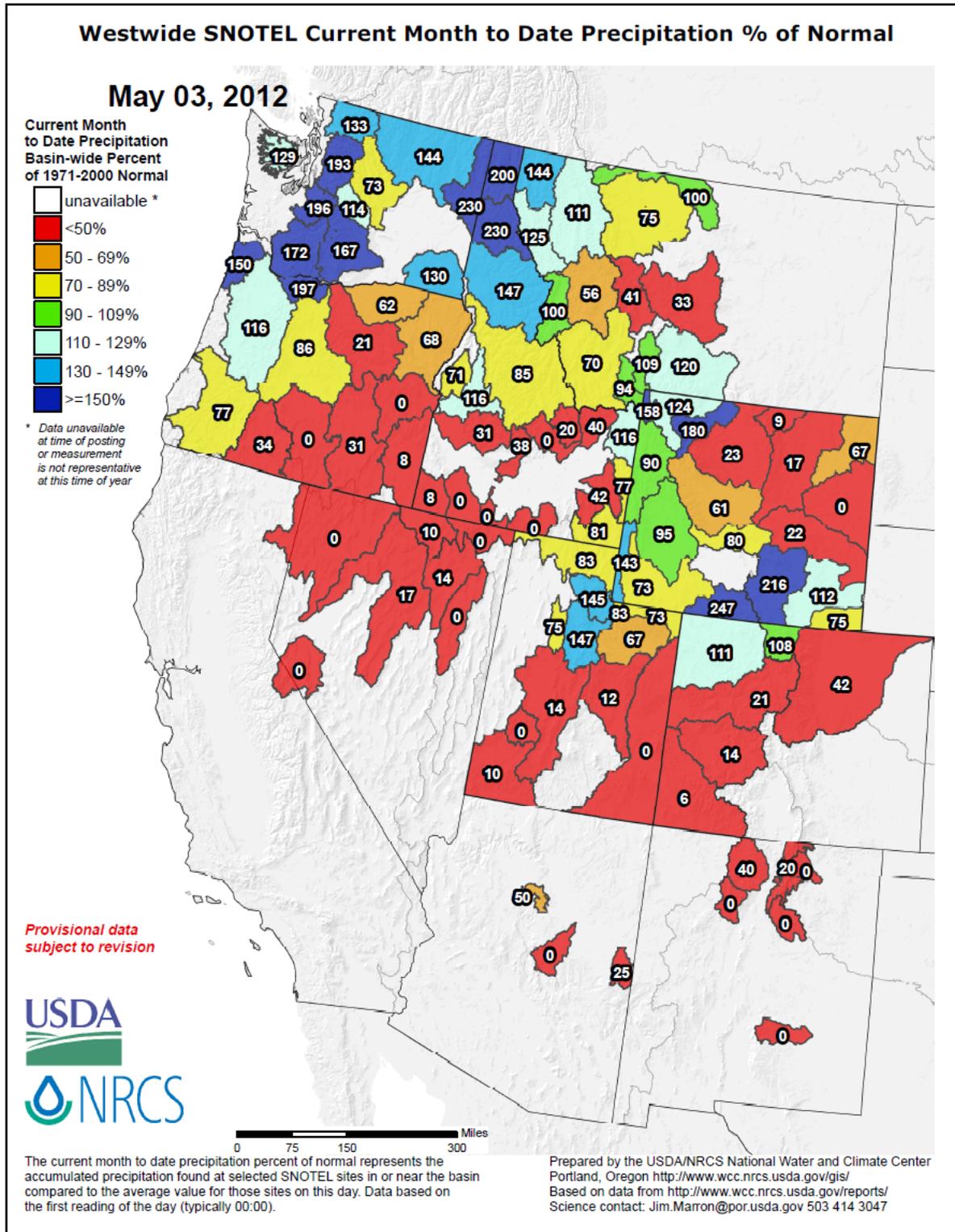


Fig 3b: Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored Northern Tier States. Drier than normal conditions reign over most of the southern half of the West.

Weekly Snowpack and Drought Monitor Update Report



**Fig 3c:** Since the start of [May](#), the wetter influence of La Niña is still holding on over parts of the Pacific Northwest. However, it is very early in the month to draw any conclusions as to what this month will ultimately tally.

## Weekly Snowpack and Drought Monitor Update Report

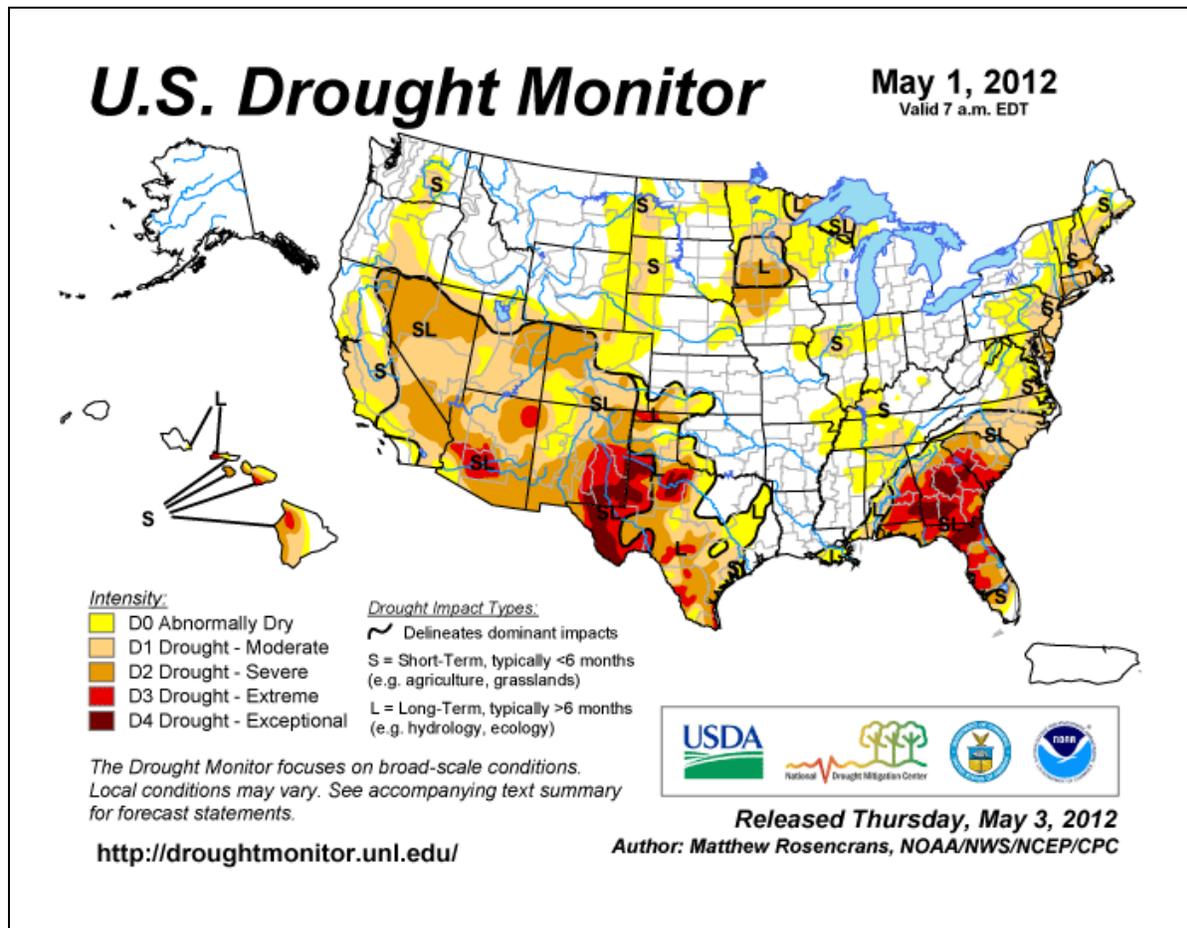


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, much of western Texas and to a lesser extent over Georgia, southeast Alabama, and northern Florida. For more drought news, see [Drought Impact Reporter](#). Click for the latest statistics for [California Reservoirs](#). For the Southwest Climate Outlook, click [here](#).

### Agriculture

#### [Berry crop smaller this year, but good](#)

April 26, **Eastern Oklahoma**. Drought killed up to half of the strawberry vines in some producers' fields, leading to a smaller crop this year.

#### [Farmers, ranchers brace for dry times](#)

April 21, **Hawaii**. Worsening drought was causing problems for ranchers in Maui. One rancher reported that drought had cost him hundreds of thousands of dollars during the last four years.

#### [Hay on the horizon: Growth spurs an early harvest](#)

April 23, **Oklahoma**. Plentiful rain promoted winter wheat and forage growth, allowing farmers to harvest some for hay, making up much of the hay shortage from last year's blistering summer.

#### [Rain and hope in short supply](#)

April 20, **Delaware**. Farmers were delaying planting crops because soil moisture was too low or were irrigating in preparation for planting.

#### [Ranchers concerned about drought, hay yield](#)

April 26, **Wyoming**. The snowpack telemetry reports are near 2002 levels, leading ranchers to reflect back on that year when little hay grew. There is concern that this year will be similar.

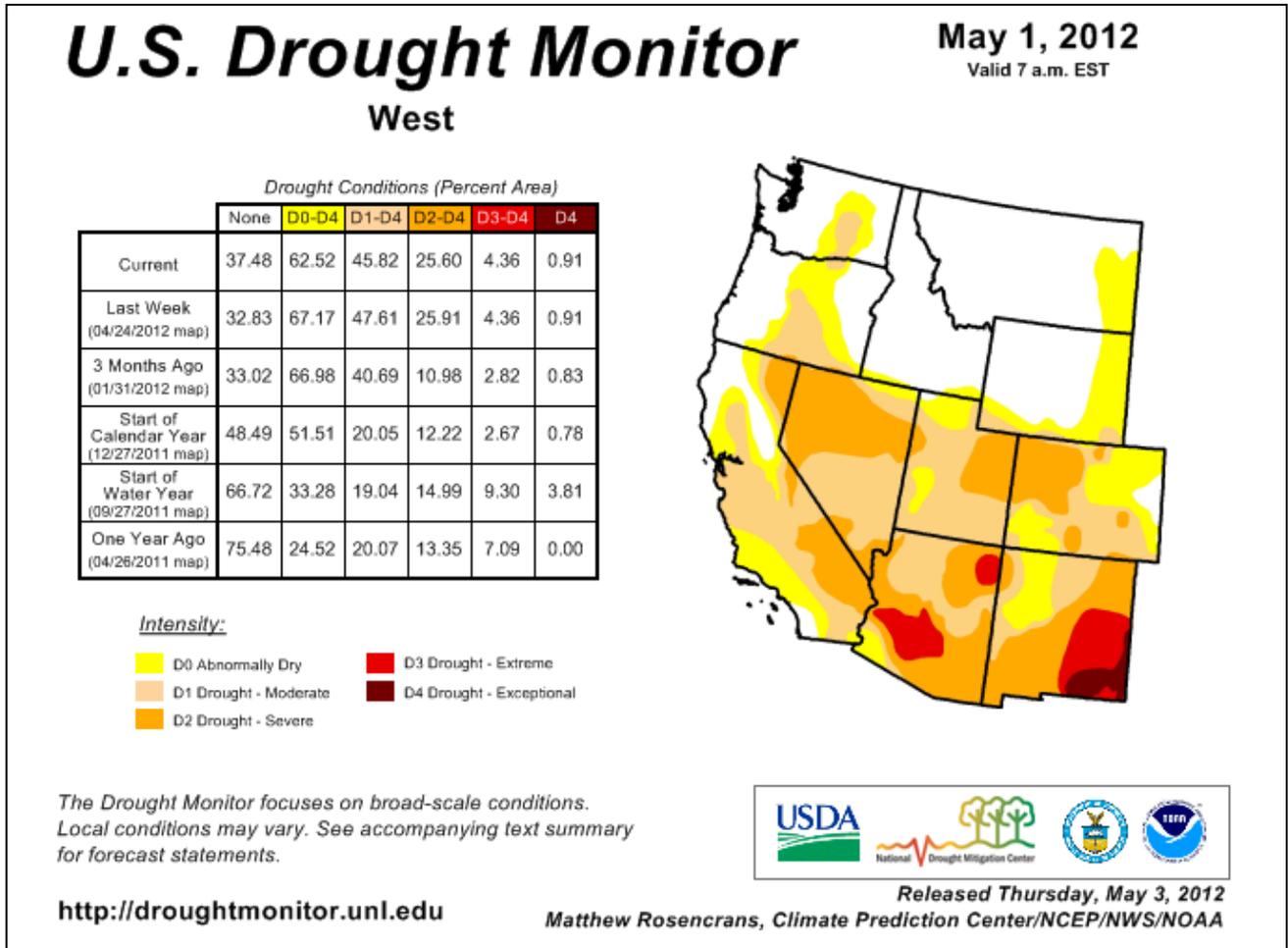


Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Note some slight improvement this week. See: [Warm Spring May Mean Drought and Wildfires in West](#).

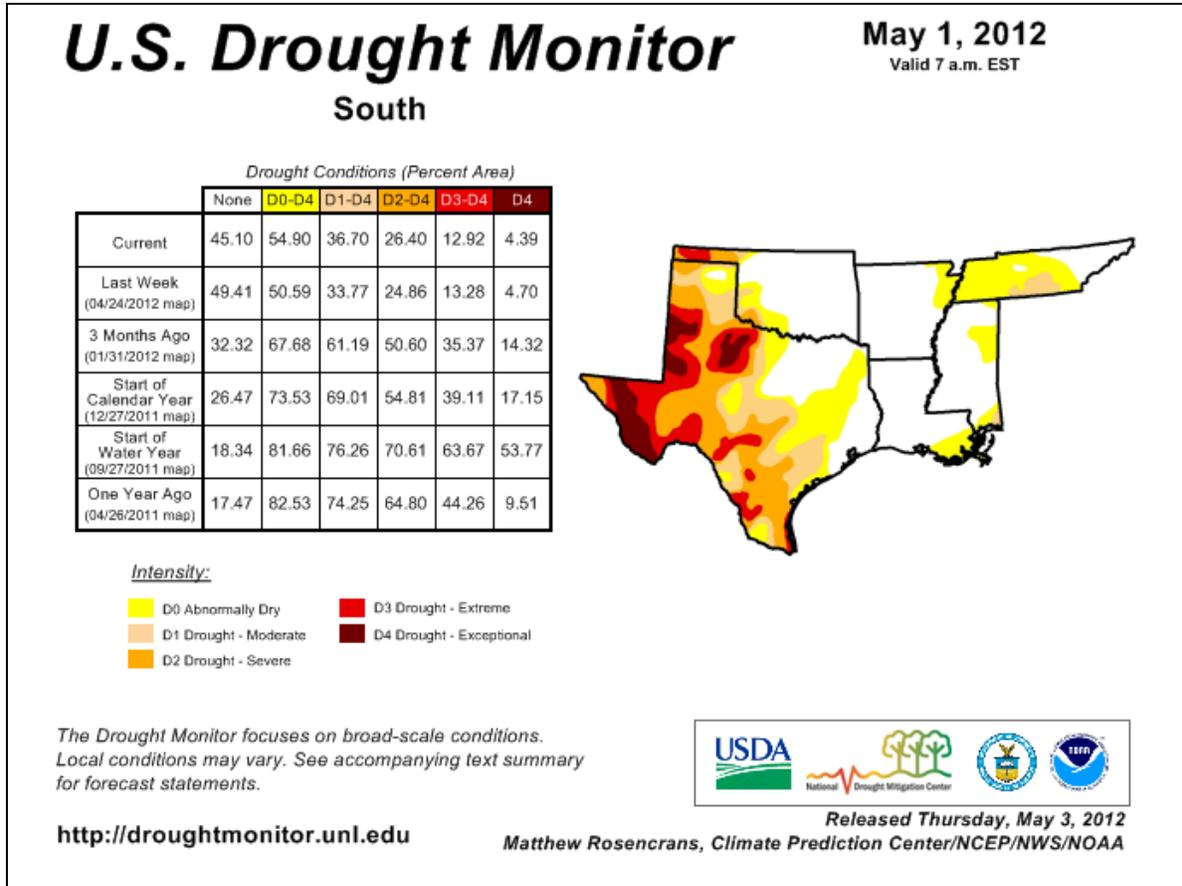


Fig. 4b: Drought Monitor for the [South-Central States](#) with statistics over various time periods. Note some deterioration this week in the lesser drought categories.

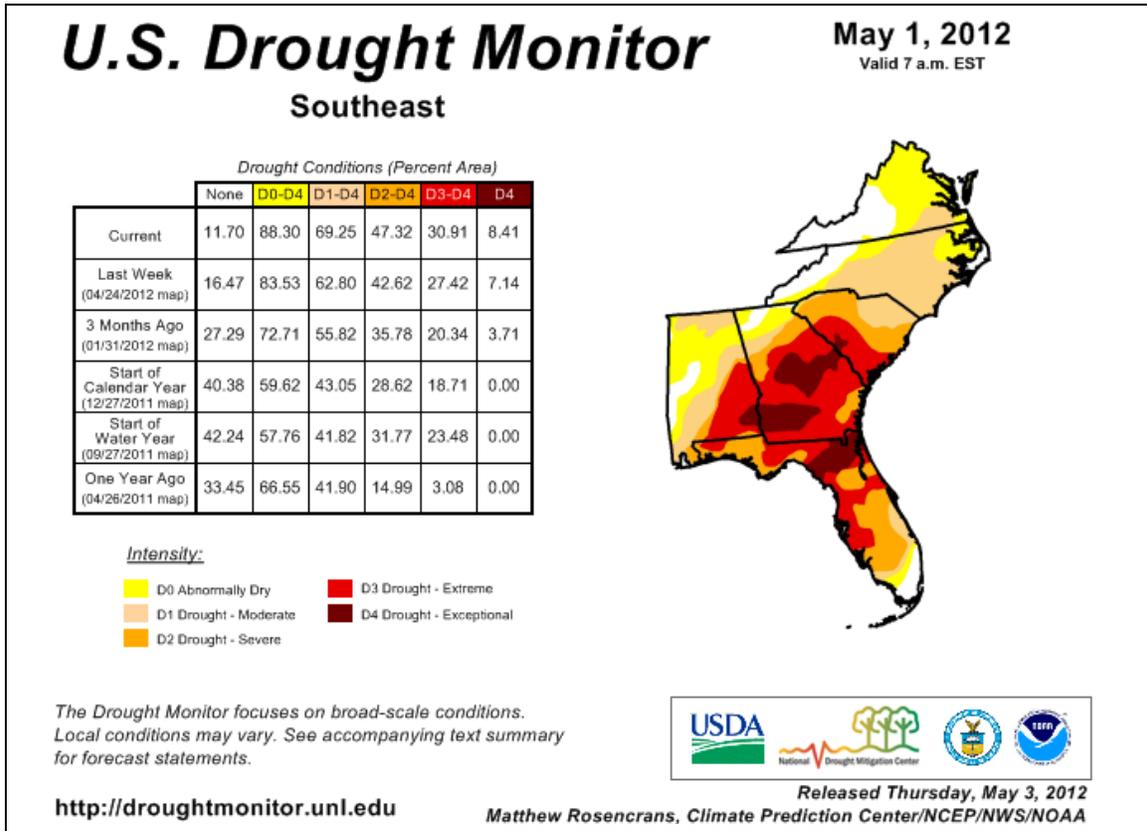
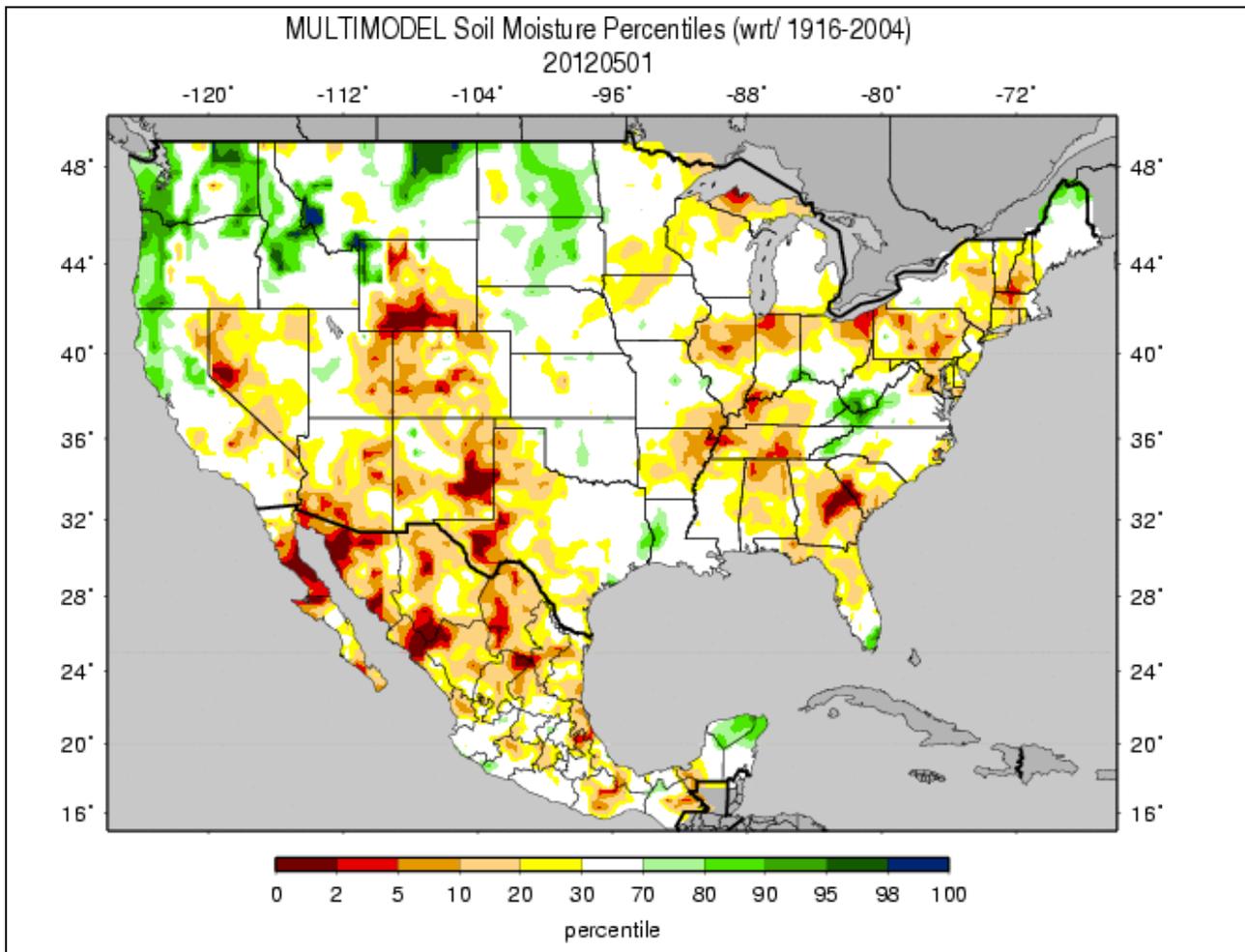


Fig. 4c: Drought Monitor for the [Southeastern States](#) with statistics over various time periods. Note no significant change occurred this week.

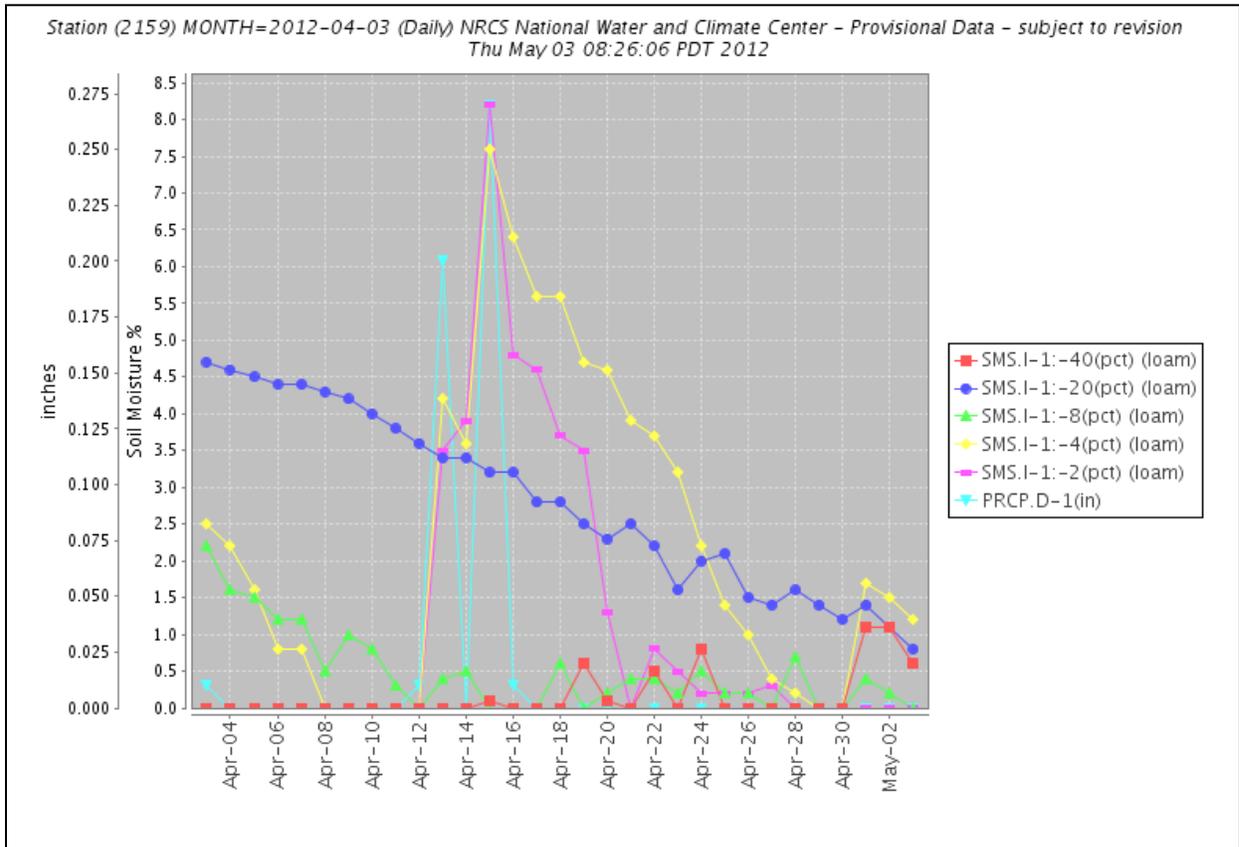
## Weekly Snowpack and Drought Monitor Update Report



**Figs. 5: Soil Moisture ranking in [percentile](#) as of 1 May shows dry conditions over much of the eastern third of the country and over the Central and Southern Rockies. Note that as snow melts over the Cascades and Northern Rockies, increases in soil moisture are starting to be reflected.**

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network ([SCAN](#))



**Fig. 6:** This NRCS resource shows a site over [southwestern Utah](#) with soil moisture only temporarily responding to light precipitation. Soil moisture is getting close to bone dry.

## Weekly Snowpack and Drought Monitor Update Report

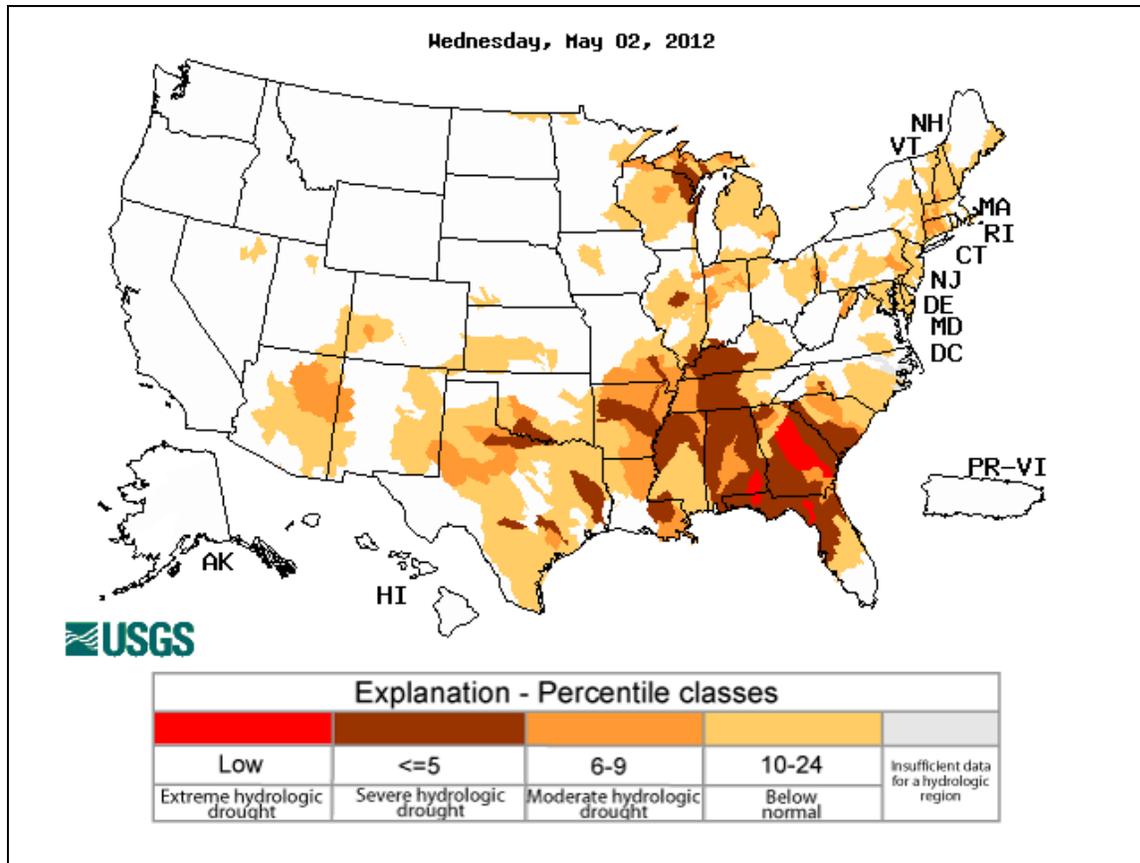


Fig. 7: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. **Extreme** conditions exist over northern Georgia, northern Florida, and southeast Alabama this week.

# Weekly Snowpack and Drought Monitor Update Report

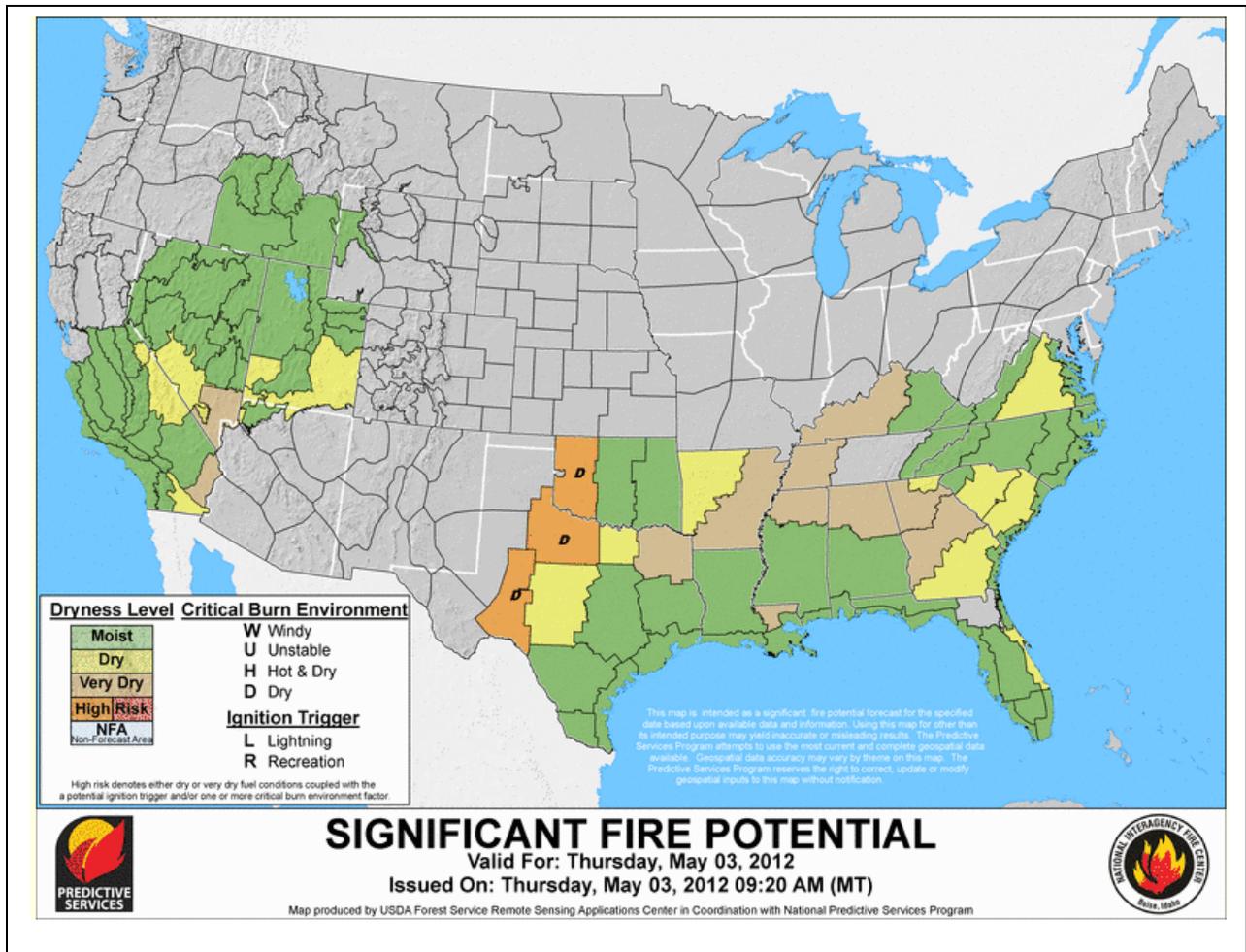


Fig. 8: Significant fire potential for today. This resource also provides forecasts out to 7 days.

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- May 1, 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/>.*

The week featured a series of low-pressure systems moving along a northern storm track. These storm systems brought significant rains to many portions of the Northwest, Great Plains, Ohio Valley, and Central Appalachians. Additionally, soaking rains fell across south Florida. Dry conditions persisted over many of the areas already experiencing drought conditions, especially across the Intermountain West, Upper Mid-West and Southeast, with the exception of South Florida.

**The Northeast and mid-Atlantic:** At the end of last week, a storm system moved to the northeast from the Mid-Atlantic. Much of the precipitation with this system was forced out of the clouds over the Central Appalachians before the storm could again tap moisture over the Atlantic, so the major impacts were across West Virginia and Maine. The result was the removal of the area of abnormally dry (D0) conditions across northern Maine and a slight trimming of the Severe Drought (D2) across the Delmarva Peninsula. No other changes were made across this region as the light precipitation did little to ease the drought.

**The Southeast:** As the storm systems passed to the north, some convective rains (0.5 inch – 2.3 inches) moved across the Carolinas, with heavier amounts (1.0 – 2.6 inches) over the western portions of North Carolina and extreme eastern Tennessee. The response to the precipitation in the hydrologic system over western North Carolina prompted the removal of a small area of D0 across the Catawba and Upper Yadkin river basins. Continued dryness prompted discussion of the expansion of Severe Drought conditions across the Broad River basin, but local hydrological conditions (reservoir storage levels) were not being impacted, so no changes were made across that region. The generally dry conditions over the past 30 days (percent of normal precipitation ranged from 25-50 percent of normal across this region) supported the expansion of D1 conditions across much of the southern Coastal Plain and central portions of the Piedmont.

Continued dry conditions across Georgia, Alabama, and North Florida prompted the expansion of drought conditions across those three areas. Extreme Drought (D3) conditions were expanded to cover the areas where deficits are nearing record lows for yearly totals (Tallahassee). Areas of southern Alabama remained dry last week, with 60-day rainfall totals near 50 percent of normal and USGS streamflows indicating severe hydrologic drought. Farther north, the latest USDA Crop Progress and Condition report noted several impacts in Jackson County, where lack of rainfall has essentially halted planting, along with adverse impacts to crop and pasture health. Early hay yield reports are below half of normal there as well. Winter wheat harvesting however, in the central portion of the state is apparently going well and that was noted, so there are some advantages to the recent dryness.

## Weekly Snowpack and Drought Monitor Update Report

Exceptional drought was expanded in coverage over central Georgia, with the area indicated reflecting Standardized Precipitation Index (SPI) values out through 24 months (SPI3, SPI6, SPI9, SPI12, and SPI24) all indicating drought severity of at least D2. Above-average temperatures exacerbated conditions across the state, as it was second warmest year on record at Augusta-Bush Field, from May of 2011-May 2012.

**The Ohio and Tennessee Valleys:** Abnormally dry conditions expanded across Tennessee, eastern Missouri, and portions of western Kentucky, while some welcomed rains prompted the removal of D0 conditions across eastern Kentucky. That reduction in dry conditions depicted on the map are in sharp contrast to the lack of precipitation that has developed as over the past 3 months near the COOP sites of Shelbyville, Winchester, and Tullahoma, which are having their driest such period ever on record. Tullahoma has a period of record of 120 years.

**The Midwest/Northern Plains:** Contrasting signals emerged over Illinois and Indiana. Recent rains stemmed the tide of drought in some areas but did not stop the reports of dry conditions across Indiana. Minor modifications were made to the depiction of drought over Illinois to reflect some recent rains (1.0-1.9 inches).

Farther north, a wet pattern allowed for some improvement over the arrowhead of Minnesota and across North and South Dakota. Improvements across Minnesota were based on recovering lake levels and recent rains (30 and 60-day percent of normal were greater than 125 percent in some regions). Across the Dakotas, 30 and 60-day percent of normal precipitation and SPI values were used to shape the drought depiction. Those indicators warranted the removal of D1 conditions near the North Dakota-South Dakota border, and improved conditions across Perkins and Ziebach counties. Eastern South Dakota has experienced near-median to 150 percent of median precipitation for this calendar year while stock farms out west are still drier than desired.

**Central and Southern Plains:** The changes to the drought conditions across Texas varied this week, with some improvements across the northern portions of the state. Across the northern portions of the state locally 0.5 – 2.0 inches of rain fell near Hockley County. The rest of the state experienced above-normal temperatures and below-median rainfall, so drought conditions were expanded and/or intensified to reflect SPI values over the past 2 through 6 months. Rains that fell on Monday prompted a small improvement near Del Rio (0.5-1.5 inches).

**The West:** Across Utah, a reassessment of conditions prompted the removal of an area of severe drought, but the expansion of moderate drought. Snow-water equivalent, percent of normal values were the lowest across the western and eastern portions of the state. Beaver River Basin was at 47 percent of normal, and the Sevier River Basin was at 21 percent of normal, while the Price-San Rafael Basin was at 1 percent of normal. SPI values indicate this split as well. Recommendations from the Upper Colorado River Basin NIDIS project also supported this configuration. Further, the data analyzed by the UCRB project participants supported the introduction of Severe Drought (D2) conditions across Larimer County.

A small improvement to conditions was noted across the central Sierra Nevada mountains as 30-day percent of normal precipitation indicated wetter than average conditions. The impacts designation across Utah and Nevada was also changed to SL to reflect the impact to hydrologic conditions and that data through at least 6 months indicates very dry conditions.

## Weekly Snowpack and Drought Monitor Update Report

**Hawaii, Alaska and Puerto Rico:** Windward locations of the Hawaiian Islands generally received 1-2 inches of precipitation during the past 7-days. Strong gradients in precipitation and greenness were evident in photos sent in from the USDA FSA field agents. Conditions were unchanged across Puerto Rico and Alaska, although Alaska has been experiencing dry conditions lately.

**Looking Ahead:** Forecasts from the National Weather Service depict an active northern storm track for the next 5 days, with some moisture moving northward over the western Gulf Coast. Rainfall amounts are expected to exceed 3 inches across portions of the Upper Mississippi River Valley, with amounts greater than 1 inch expected from North Dakota to New Hampshire. Dry conditions are anticipated across the Southwest, Central Rockies and much of the southern Great Plains. During the period from May 8-12, conditions favor warmer than normal temperatures from Nevada to the Pacific Northwest and across the southeast with below-normal temperatures from the southern Great Plains to the Northeast. A southward shift in the active weather is anticipated, as wet conditions are favored from Texas to Nebraska, and across the southeast.

**Author:** [Matthew Rosencrans, Climate Prediction Center/NCEP/NWS/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

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)

L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

*Updated May 2, 2012*