



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

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## Weekly Report - Snowpack / Drought Monitor Update

Date: 5 April 2012

### SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

**Snow:** [Snow Water-Equivalent](#): River basins over the Pacific Northwest saw increases SWE values this week. However, the eastern third of the West saw widespread decreases in SWE as mild weather and mostly the lack of moisture prevailed. A number of basins in Arizona and New Mexico are about to melt out for the season. The Belle Chase River Basin in northeast Wyoming has also melted out (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows some increases over the Cascades, northeast ranges in Oregon, northern Idaho Panhandle, and Southern Front Range of the Rockies but moderate decreases elsewhere (Fig. 1a).

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly showed values well above normal over the eastern slope of the Rockies. Cooler temperatures influenced the West Coast States, Northernmost Rockies, and the Sierra. This week's temperature pattern is very similar to last week's (Fig. 2). ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over Western High Plains ( $>+15^{\circ}\text{F}$ ) and the greatest negative departures over parts of northern California and the Cascades ( $<-3^{\circ}\text{F}$ ). This pattern reflects continued ridging over the Central US and troughing over the West Coast (Fig. 2a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over northern California to northern Washington coastline (Fig. 3). However, in terms of percent of normal, the Pacific Northwest and southeast region of the Western States were very wet (Fig. 3a). Very dry conditions dominated over Arizona and the Northwestern High Plains. Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored northern Wyoming, parts of Montana, and west-central New Mexico. Drier than normal conditions reign over most of the southern half of the West. Values have increased by a few percentage points over some river basins over the Pacific Northwest this week (Fig. 3b). Since the start of [April](#), the persistence of La Niña is very apparent over Oregon, the Northern Great Basin, and the northern Panhandle of Idaho. Additionally, an early spring snow storm hit northern New Mexico and southeast Colorado this week (Fig. 3c).

**The West:** The snow totals continue to be below normal for much of the western United States, and coupled with temperatures well above normal, the region is seeing snowpack being reduced much earlier than normal. A significant system did impact the Pacific Northwest, with coastal areas from Washington to northern California picking up some much needed precipitation. In response to this event, some improvements were made in northern California and southern Oregon where the most significant precipitation was recorded. For Colorado and Utah, the conditions were unusual, with the lack of snowfall in the upper elevations and the early melt. In response, D2 was expanded in northwest Colorado and D1 was also expanded in western Colorado and into eastern Utah. From eastern Wyoming up into Montana, D0 was expanded and included regions in western South Dakota and western Nebraska as this area has been very dry over the last 6-8 weeks and temperatures are still well above seasonal normals. In the northwest portions of New Mexico, D0 was also introduced as warm and dry conditions are being experienced there as well. Northwest Arizona also had D1 and D2

## Weekly Snowpack and Drought Monitor Update Report

conditions expand while D0 was pushed to the east in portions of eastern Nevada. Author: Brian Fuchs, 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>.

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### 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.

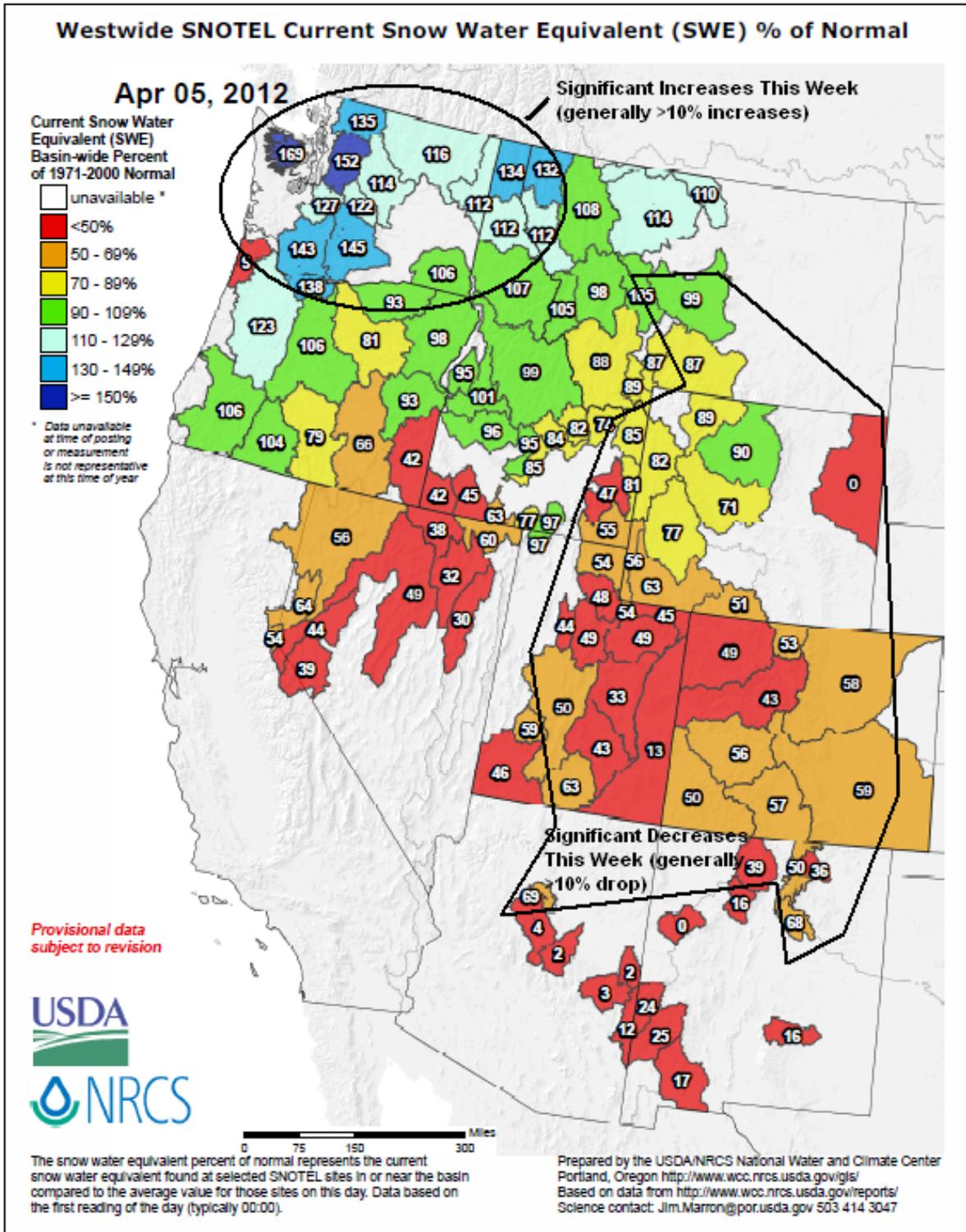
This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

Micheal L. Golden

Acting Deputy Chief, Soil Survey and Resource Assessment

## Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: Snow Water-Equivalent:** River basins over the Pacific Northwest saw increases in SWE values this week. However, the eastern third of the West saw widespread decreases in SWE as mild weather and/or the lack of moisture prevailed. A number of basins in Arizona and New Mexico are about to melt out for the season. The Belle Chase River Basin in northeast Wyoming has also melted out.

# Weekly Snowpack and Drought Monitor Update Report

## SNOTEL 7-Day Snow Depth Change (Inches)

Apr 05, 2012

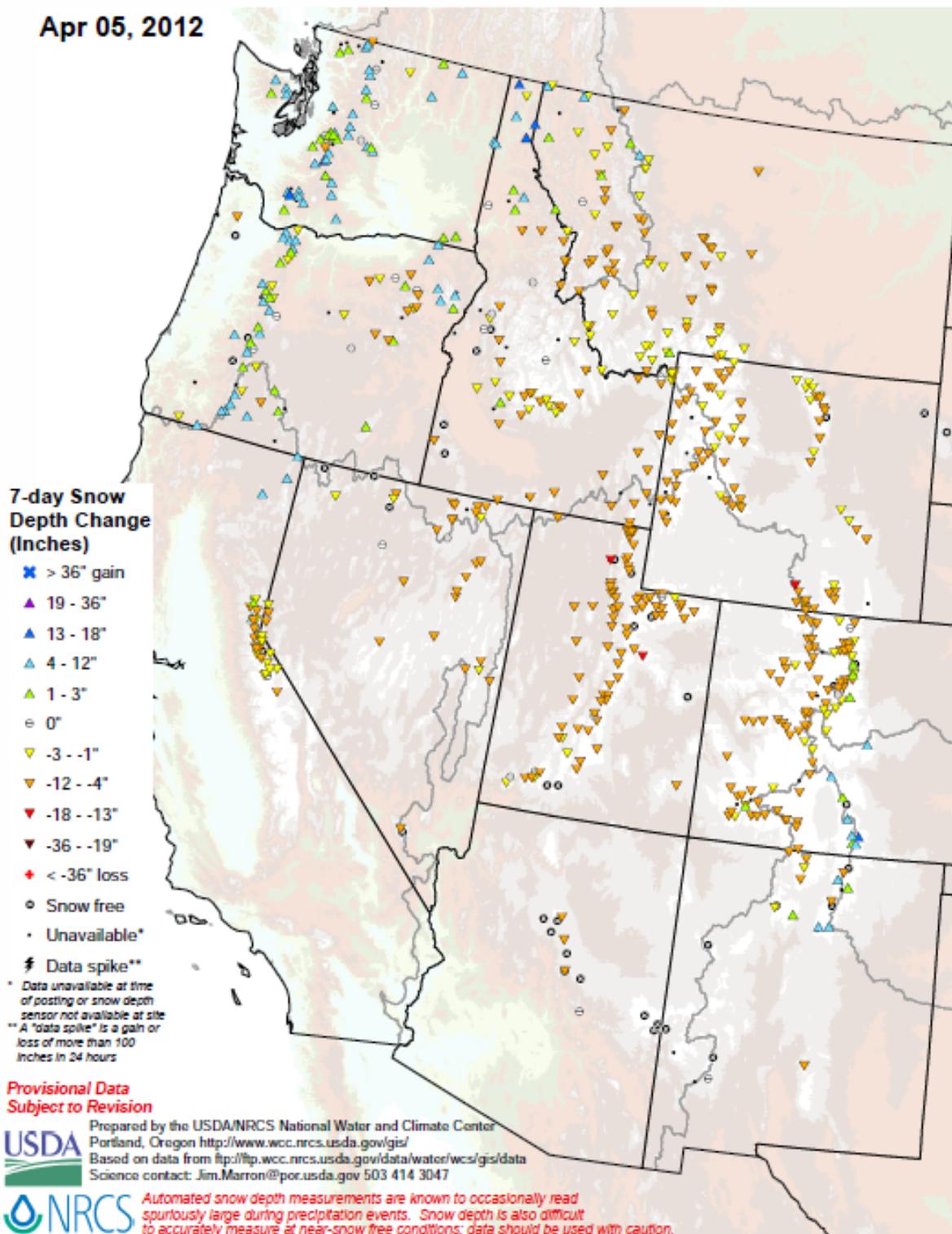
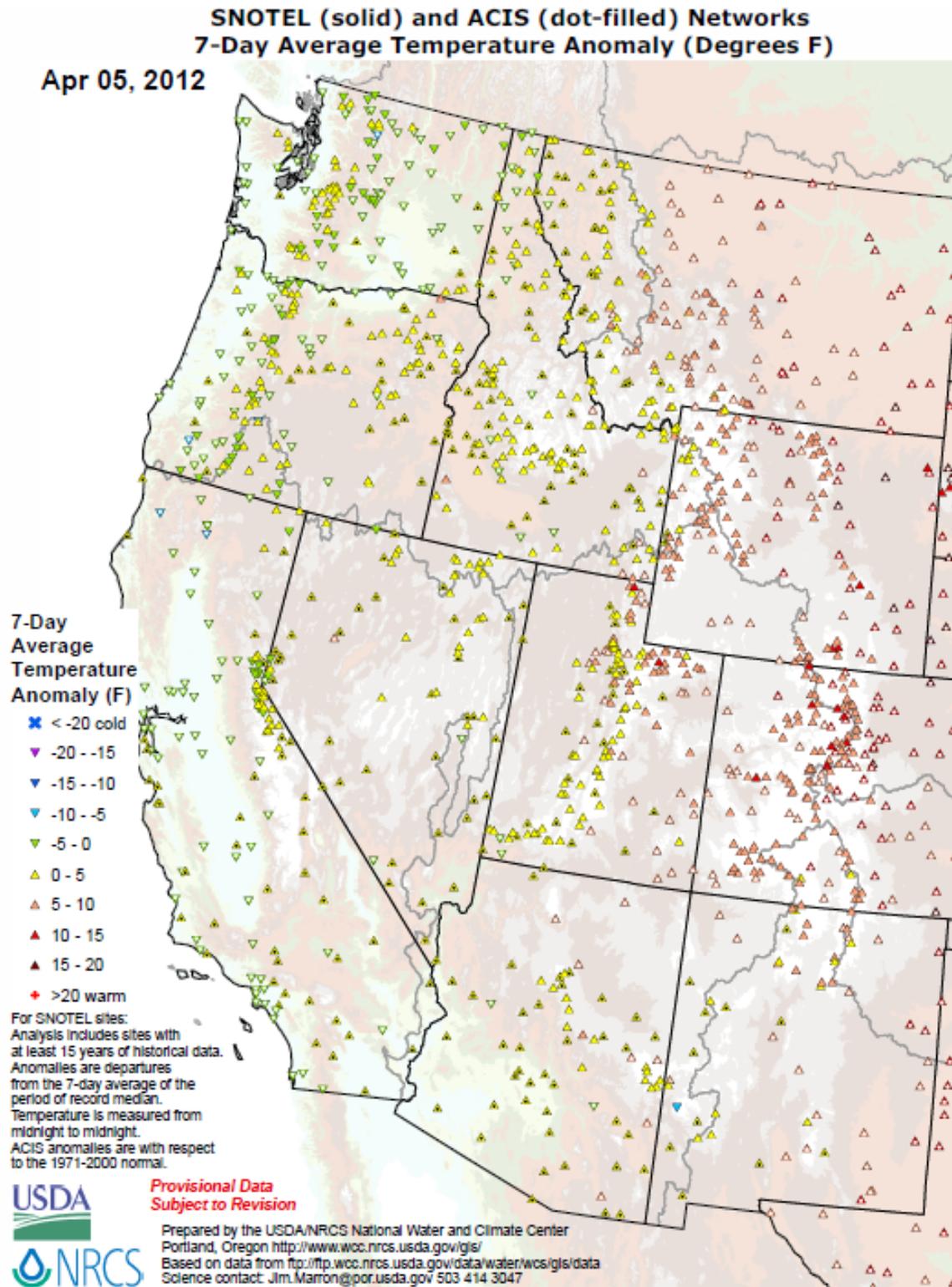


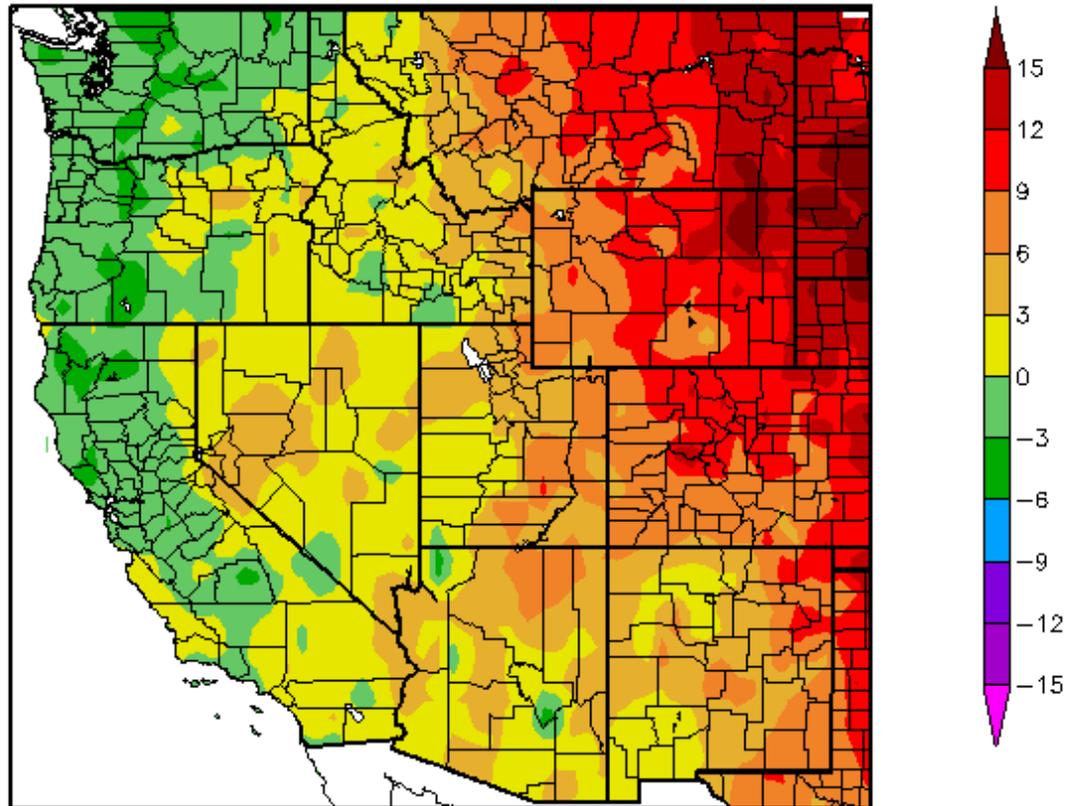
Fig. 1a: 7-Day Snow Depth Change ending this morning shows some increases over the Cascades, northeast ranges in Oregon, northern Idaho Panhandle, and Southern Front Range of the Rockies but moderate decreases elsewhere.

# Weekly Snowpack and Drought Monitor Update Report



**Fig. 2: SNOTEL and ACIS 7-day temperature anomaly showed values well above normal over the eastern slope of the Rockies. Cooler temperatures influenced the West Coast States, Northernmost Rockies, and the Sierra. This week's temperature pattern is very similar to last week's.**

Departure from Normal Temperature (F)  
3/29/2012 - 4/4/2012



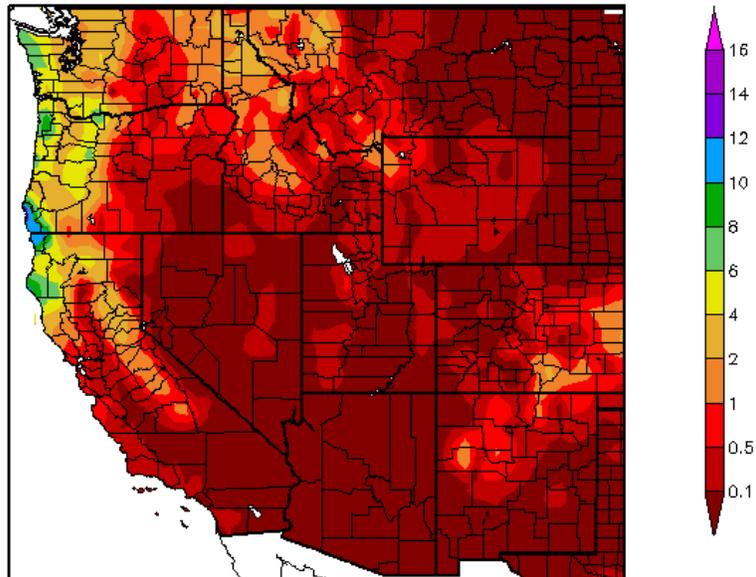
Generated 4/5/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2a:** ACIS 7-day average temperature anomalies show the greatest positive temperature departures over Western High Plains (>+15°F) and the greatest negative departures over parts of northern California and the Cascades (<-3°F). This pattern reflects continued ridging over the Central US and troughing over the West Coast.

## Weekly Snowpack and Drought Monitor Update Report

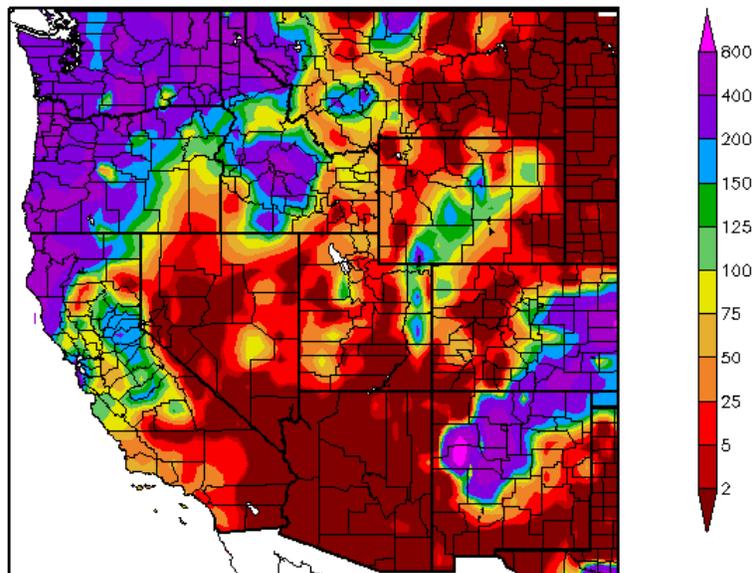
Precipitation (in)  
3/29/2012 - 4/4/2012



Generated 4/5/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
3/29/2012 - 4/4/2012

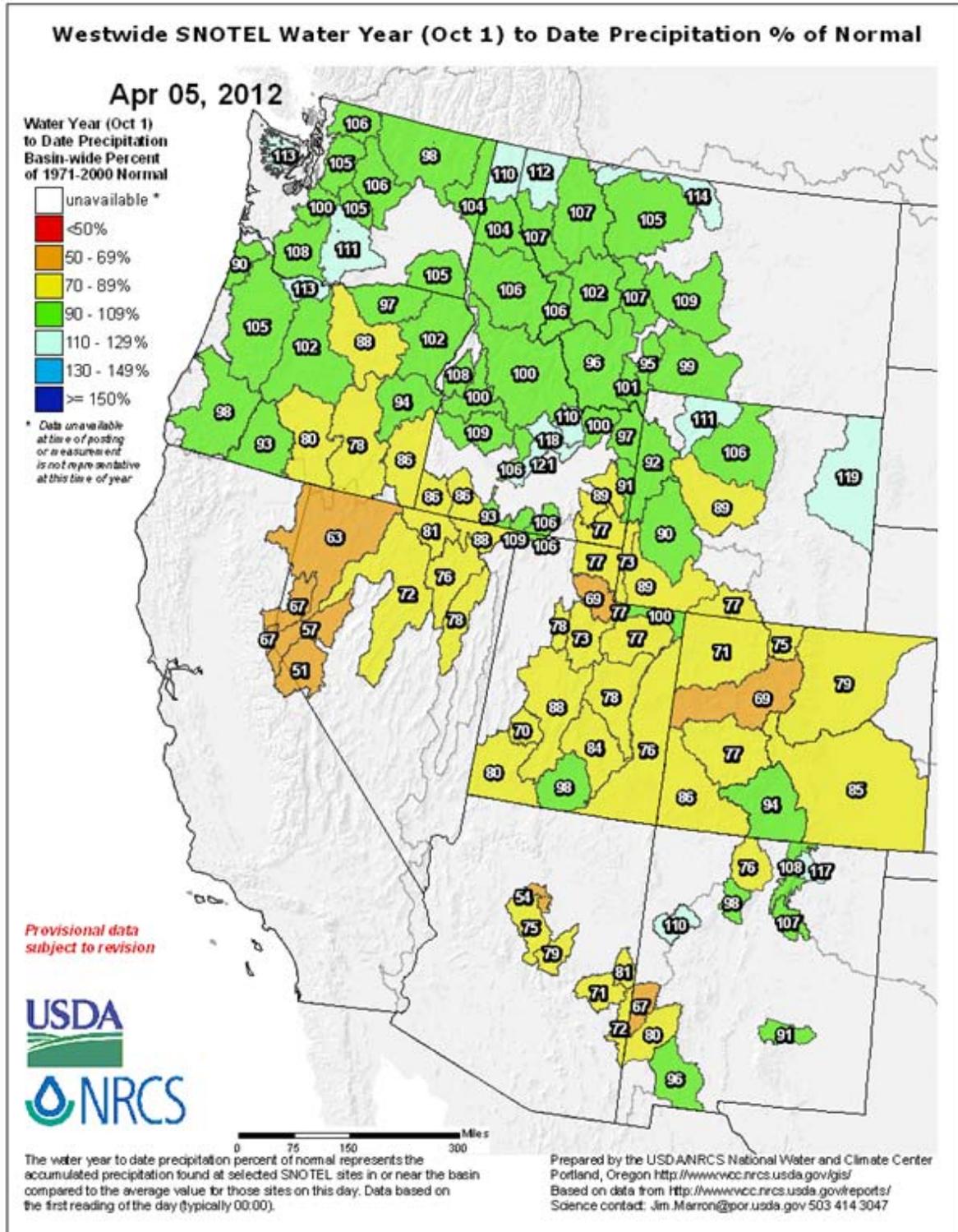


Generated 4/5/2012 at HPRCC using provisional data.

Regional Climate Centers

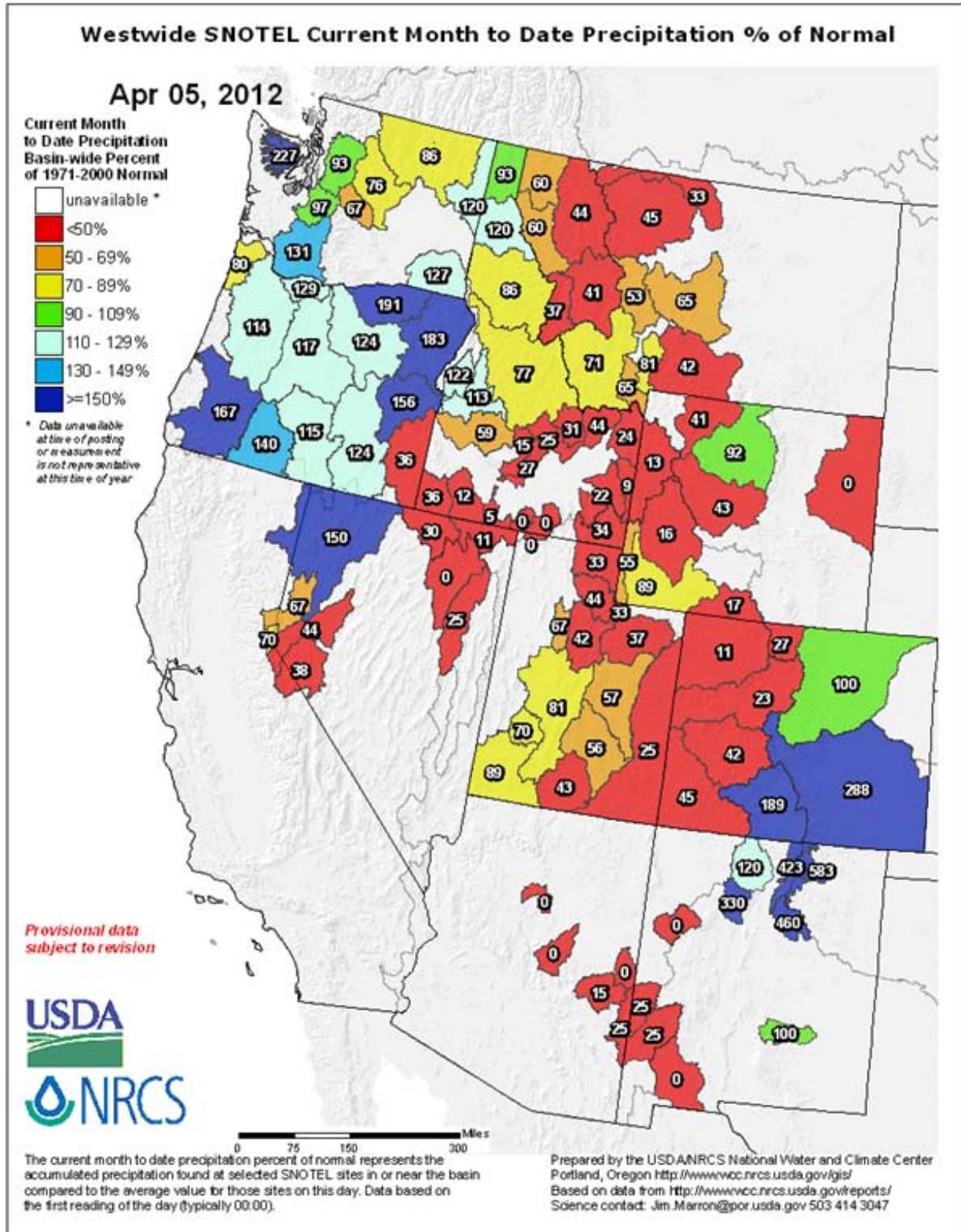
**Fig. 3 and 3a:** ACIS 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over northern California to northern Washington coastline (top). However, in terms of percent of normal, the Pacific Northwest and southeast region of the Western States were very wet (bottom). Very dry conditions dominated over Arizona and the Northwestern High Plains.

## 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 Wyoming, parts of Montana, and west-central New Mexico. Drier the normal conditions reign over most of the southern half of the West. Values have increases by a few percentage points over some river basins over the Pacific Northwest this week.

## Weekly Snowpack and Drought Monitor Update Report



**Fig 3c:** Since the start of **April**, the persistence of La Niña is very apparent over Oregon, the Northern Great Basin, and the northern Panhandle of Idaho. Additionally, an early spring snow storm hit northern New Mexico and southeast Colorado this week.

# U.S. Drought Monitor

April 3, 2012  
Valid 7 a.m. EDT

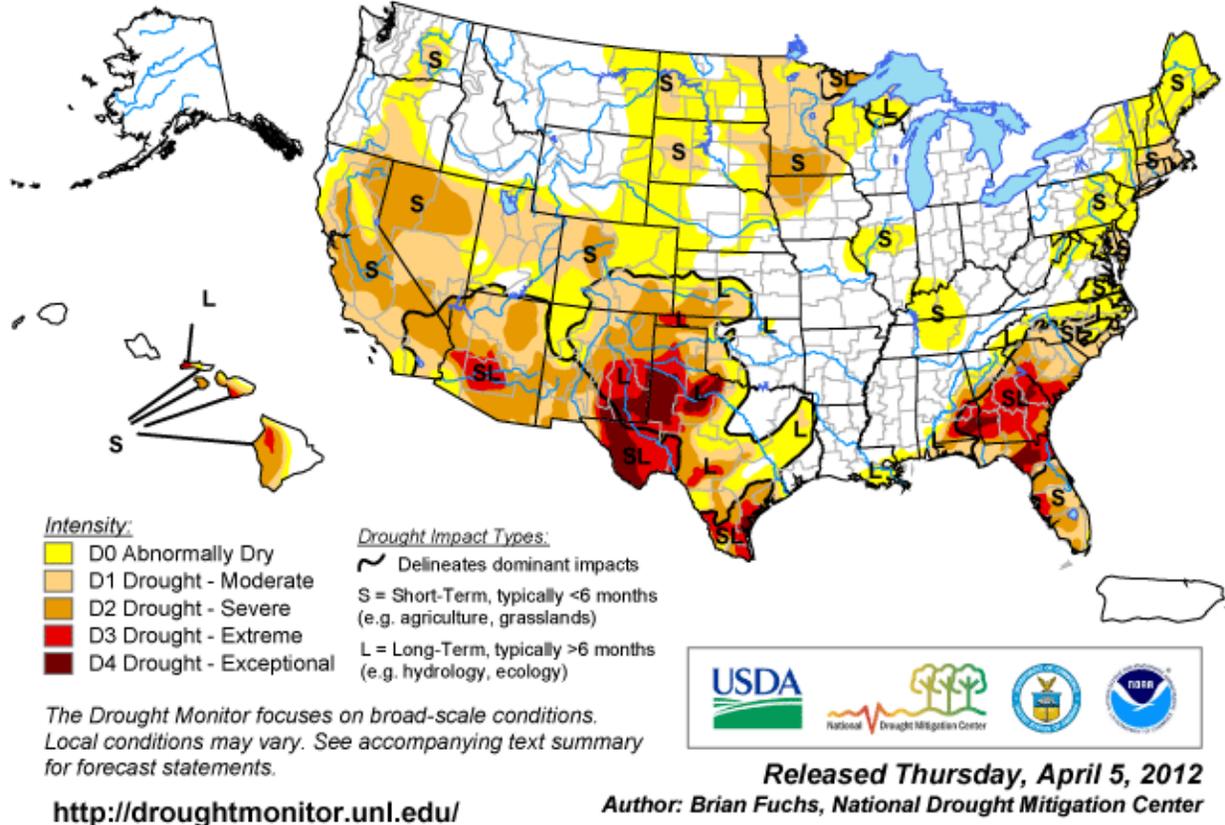


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, much of western Texas, the Panhandle of Oklahoma, and to a lesser extent over Georgia and southeast Alabama. For more drought news, see [Drought Impact Reporter](#).

## Agriculture

### [Battered last year by drought, bees primed to produce more honey this year](#)

March 23, **Texas**. Honey production in Texas was down by approximately 50 percent in 2011 as heat and drought strained the bees and decreased honey production, according to the U.S. Department of Agriculture. Honey production ceased by September.

### [Brangus cattle fetch high prices at spring auction; many buyers from outside Big Country](#)

March 24, Abilene, **Texas**. Apprehension about whether or not it was too soon to rebuild herds after last year's drought discouraged Abilene area ranchers from buying many replacement animals at the Abilene Auction. Many of the buyers were from outside the area.

### [Hundreds of donkeys abandoned in lingering drought](#)

March 29, **Texas**. A donkey rescue group has taken in almost 800 donkeys in Texas since March 2011 as owners have abandoned the animals. The donkeys, which are hostile to dogs, wolves and coyotes, were used to guard cattle, but were no longer needed to guard the livestock since many of them were sold off during drought.

### [San Juan County ranchers cope with rising cost of hay](#)

March 27, **Northwestern New Mexico**. A horse rescue shelter in Farmington has all of the horses that it can care for, but horses owners continue to offer their horses to the shelter because they cannot afford to purchase expensive hay for their animals. Some of the horses placed in homes last year were returned to the shelter as hay prices continued to rise.

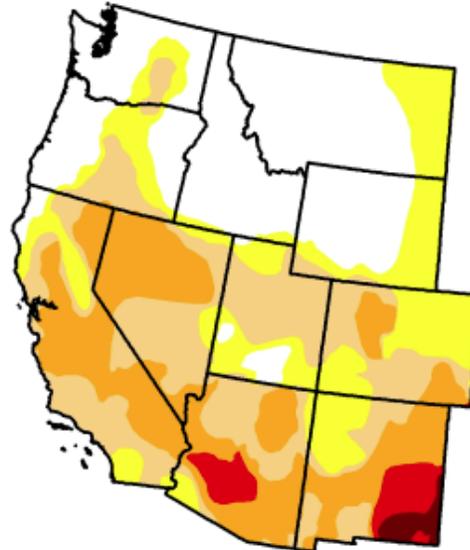
# U.S. Drought Monitor

## West

April 3, 2012  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.44	68.56	48.66	24.84	3.78	0.93
Last Week (03/27/2012 map)	35.56	64.44	47.91	23.86	3.78	0.94
3 Months Ago (01/03/2012 map)	50.20	49.80	28.05	11.84	2.67	0.78
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 (03/29/2011 map)	76.08	23.92	18.56	13.12	2.12	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, April 5, 2012  
Brian Fuchs, National Drought Mitigation Center

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Note some deterioration especially in the D0 category this week.

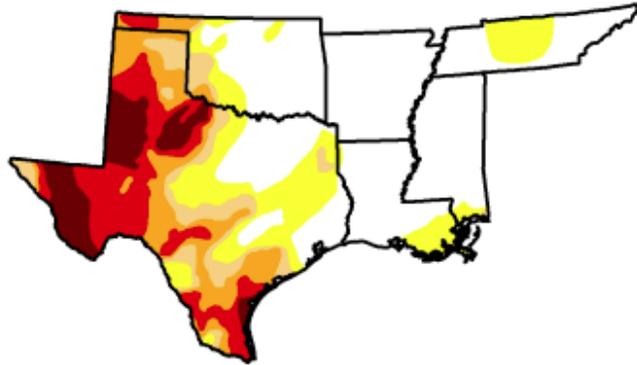
# U.S. Drought Monitor

## South

April 3, 2012  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	48.69	51.31	35.56	28.26	18.08	7.10
Last Week (03/27/2012 map)	49.24	50.76	37.09	29.54	19.03	9.19
3 Months Ago (01/03/2012 map)	26.47	73.53	69.01	54.98	40.06	17.24
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 (03/29/2011 map)	8.33	91.67	79.16	60.10	28.53	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>



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Brian Fuchs, National Drought Mitigation Center

Fig. 4b: Drought Monitor for the [South-Central States](#) with statistics over various time periods. Note only minor changes this week but some improvement in D4. See an interesting NPR story on the Texas drought: <http://stateimpact.npr.org/texas/drought/>.

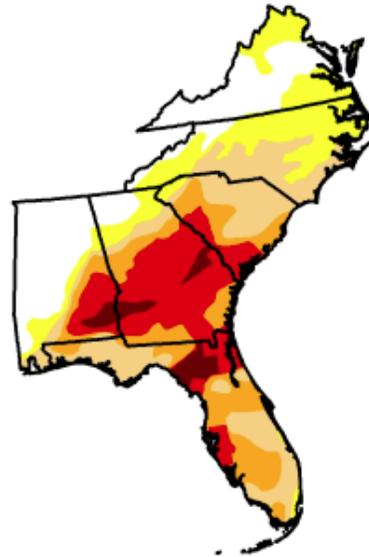
# U.S. Drought Monitor

## Southeast

April 3, 2012  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.46	77.54	58.79	36.74	20.92	3.32
Last Week (03/27/2012 map)	22.86	77.14	58.78	35.92	19.90	1.86
3 Months Ago (01/03/2012 map)	33.81	66.19	45.62	28.62	18.71	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 (03/29/2011 map)	22.51	77.49	53.24	22.40	6.25	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.*

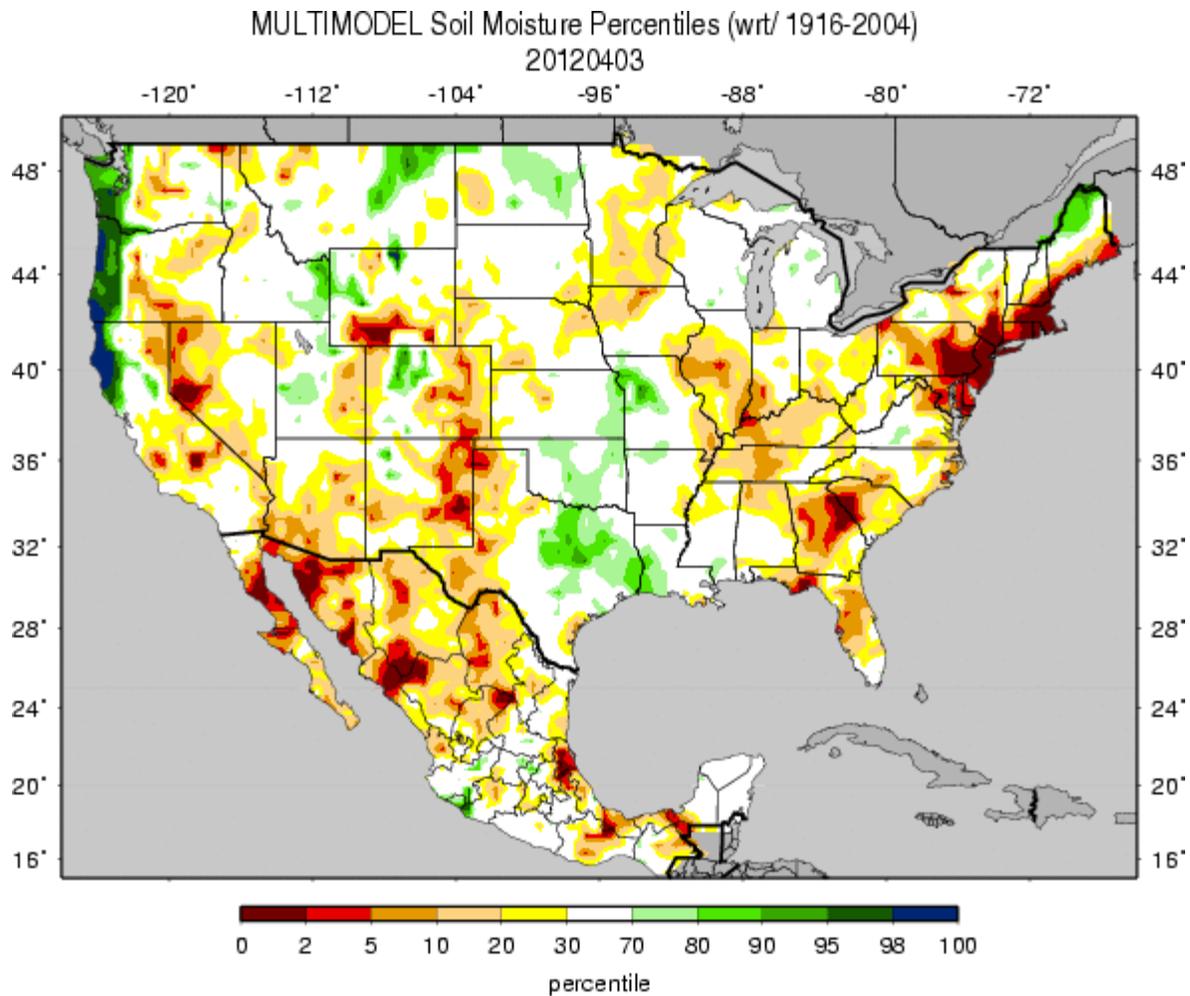
<http://droughtmonitor.unl.edu>



Released Thursday, April 5, 2012  
Brian Fuchs, National Drought Mitigation Center

Fig. 4c: Drought Monitor for the [Southeastern States](#) with statistics over various time periods. Note some deterioration in D3 and D4 categories this week.

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 5: Soil Moisture ranking in percentile as of 3 April shows conditions severe over northern New Jersey and southern New England and saturated conditions over the coastal region of the Pacific Northwest. Note: Soil moisture this time of year is often unreliable due to frozen ground over the Northern Tier States. For example, conditions over the Washington Cascades and Panhandle of Idaho no doubt will reflect more moisture in the weeks due to abundant snow cover and subsequent runoff.**

# Weekly Snowpack and Drought Monitor Update Report

## Soil Climate Analysis Network (SCAN)

Station (2172) MONTH=2012-03-06 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Apr 05 08:15:28 PDT 2012

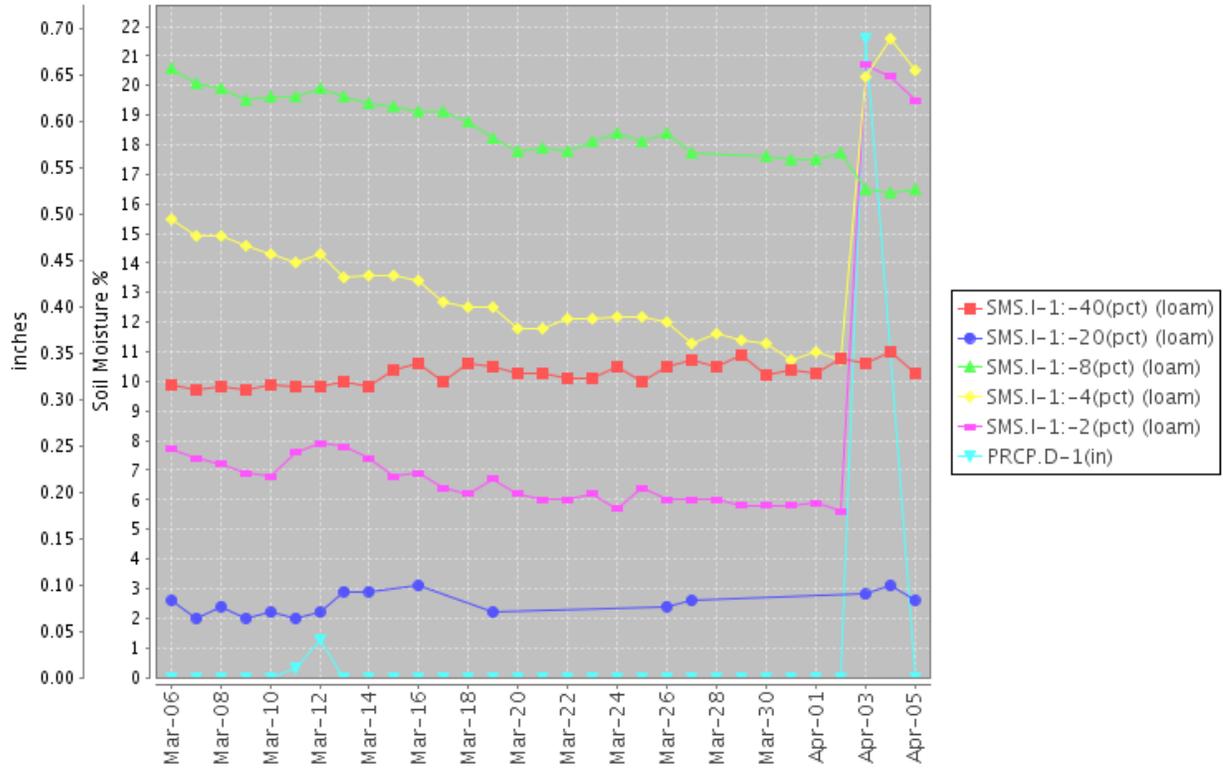
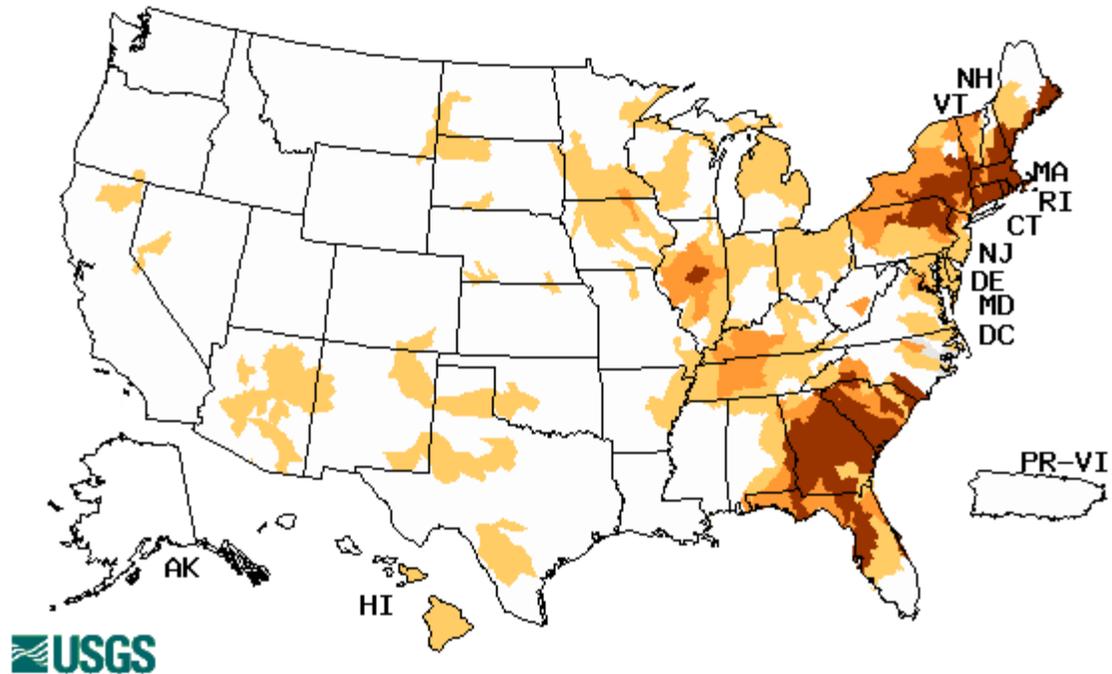


Fig. 6: This NRCS resource shows a site over [northern New Mexico](#) with soil moisture responding to recent precipitation at only shallow depths.

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, April 04, 2012



Explanation - Percentile classes				
Low	$\leq 5$	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

Fig. 7: Map of below normal 7-day average **streamflow** compared to historical streamflow for the day of year. Much of the Northeast and Southeast are experiencing **severe** conditions this week.

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- April 3, 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 Northeast and Mid-Atlantic:** A warm and fairly dry pattern continued over the region for this week. Eastern Pennsylvania, northern New Jersey, and western Virginia were the main areas to receive precipitation this last week, in the form of a few rain showers. As the drought indicators continue to worsen, especially over the short term, expansion of D0 and D1 took place this week. In Massachusetts, Rhode Island, Connecticut and portions of eastern New York, D1 was expanded as it was also done in Delaware and eastern Maryland. Abnormally dry conditions were also expanded in Maine, New Hampshire, northern Virginia, western Maryland and into the panhandle of West Virginia. Not only are the short-term drought indicators looking worse, the river and streamflows in the region are well below normal for this time of year.

**Southeast:** Overall, the showers were not widespread this week for the southeastern United States. The main drought areas did not see any substantial rain that would lead to improvements, and the drought situation declined for the region. In Florida, D4 was introduced in the Suwannee basin because of record low groundwater levels and reduced surface flows. In west Florida, D3 was expanded to the east while in northeast Florida, D3 was pushed to the south. South Florida had D2 shift farther to the south and east but the consensus was to hold off on any new D3 in that part of the state.

**South:** With most areas recording record or near record temperatures for March, the water demand has increased rapidly over the last several weeks. Dry conditions have been noted from middle Tennessee up into western Kentucky. Because of the dry conditions, D0 was introduced this week and there were several discussions about pushing this into northern Alabama and more of eastern Tennessee. It can be noted that this change was not made because of the lack of notable impacts at this point, with many expressing that it will not take much more dryness to have widespread concerns.

**Midwest:** With some good rains over eastern Iowa, northern Missouri, southern Wisconsin and into Michigan, this region picked up some of the most widespread precipitation this week. The only changes this week include an expansion of D1 out of southeastern Minnesota and into Wisconsin as they have not picked up any of the recent rains and conditions are drying out, especially with the warm temperatures.

**The Plains:** A dry week for the High Plains and some rains in the southern Plains warranted both improvements and some new drought areas. Up north, the early warm up and dryness that has persisted for the most part since last fall brought with it some new drought regions. In North Dakota, D1 was introduced in the western part of the state; in Nebraska, D1 was shifted out of northwest Iowa and into northeast Nebraska. Because of standing water in agricultural fields, some D0 was eliminated in southeast North Dakota as there are no apparent moisture

## Weekly Snowpack and Drought Monitor Update Report

issues right now. Through much of the High Plains, temperatures well above normal, high winds and a dry start to spring have started taking a toll on soil moisture conditions as they continue to drop. Producers who are eagerly awaiting planting should have adequate moisture to start their crops but will need periodic and consistent precipitation by the end of spring or problems will arise.

For the southern Plains, good rains through the panhandle of Oklahoma and into the southwestern part of the state allowed for a categorical improvement to the drought intensity, with D4 being eliminated in the panhandle. Good rains through west Texas and in and along the southern border also warranted some improvements, with many areas seeing a reduction in drought intensity and some D4 being eliminated in west Texas. Portions of east Texas also picked up some rains and even heavier rains and severe weather coming after the end of the current Drought Monitor period. These rains continued the improvements in the region with some D0 being eliminated and D1 improving along the Gulf Coast.

**The West:** The snow totals continue to be below normal for much of the western United States, and coupled with temperatures well above normal, the region is seeing snowpack being reduced much earlier than normal. A significant system did impact the Pacific Northwest, with coastal areas from Washington to northern California picking up some much needed precipitation. In response to this event, some improvements were made in northern California and southern Oregon where the most significant precipitation was recorded. For Colorado and Utah, the conditions were unusual, with the lack of snowfall in the upper elevations and the early melt. In response, D2 was expanded in northwest Colorado and D1 was also expanded in western Colorado and into eastern Utah. From eastern Wyoming up into Montana, D0 was expanded and included regions in western South Dakota and western Nebraska as this area has been very dry over the last 6-8 weeks and temperatures are still well above seasonal normals. In the northwest portions of New Mexico, D0 was also introduced as warm and dry conditions are being experienced there as well. Northwest Arizona also had D1 and D2 conditions expand while D0 was pushed to the east in portions of eastern Nevada.

**Hawaii, Alaska and Puerto Rico:** No changes were made in Hawaii, Alaska or Puerto Rico this week.

**Looking Ahead:** Over the next five days (April 4-8) precipitation chances continue in the Pacific Northwest and northern Rocky Mountains, where up to an inch of precipitation could be recorded. The central Plains to west Texas along with much of the Southeast look to have a good chance at rains. The most rain is anticipated from southern Alabama and Mississippi into South Carolina, where up to 2 inches may be possible. Temperatures are forecasted to be above normal from the Rocky Mountains (6-9 degrees Fahrenheit above normal) to the Gulf Coast (3 degrees Fahrenheit above normal) and cooler over the west coast with the continuing rain.

The CPC 6-10 day forecast (April 9-13) has much of the western and central United States anticipating temperatures above normal while the rains lingering along the east and west coasts are keeping temperatures below normal. Precipitation chances look to be best over the Tennessee River valley, Alaska and northern Pacific Northwest while the best chance for below normal precipitation is in the Great Lakes region and in the southwest from Arizona to Texas.

**Author:** [Brian Fuchs, National Drought Mitigation Center](#)

## Weekly Snowpack and Drought Monitor Update Report

### **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 April 4, 2012*