



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 23 February 2012

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY



Clear Skies over New Mexico suggests no immediate moisture in the forecast. – Photo by J. Curtis

Snow: [Snow Water-Equivalent](#): Northern River Basins have experienced a several percent increase this week while the remainder of the West has remained unchanged (Fig. 1). [7-Day Snow Depth Change](#) ending this morning shows increases from the Northern Pacific Northwest to the Western Slope of the Central Rockies. Elsewhere, the Southern Cascades, Sierra, and much of the 4-Corner States have seen small decreases (Fig. 1a).

Weekly Snowpack and Drought Monitor Update Report

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly showed a cooler week over much of the West with the exception of the Northwestern High Plains where warmer conditions dominated (Fig. 2). ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over the northeast Montana ($>+10^{\circ}\text{F}$) and the greatest negative departures over the Central Great Basin (Nevada), southwest Utah, and south-central Wyoming ($<-10^{\circ}\text{F}$) (Fig. 2a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows very wet condition over the Washington Cascades (fig. 3a). However, in terms of percent of normal, the Northern Tier States dominated with above normal amounts but western Utah, northwest Colorado, and southern New Mexico held their own with ample precipitation as well (fig. 3b). Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored northern Wyoming, southern Idaho, and parts of northern New Mexico. The Washington Cascades have improved by 10% while the Northern Rockies have increased by 5% this week. Elsewhere, there was no significant change (Fig. 3b).

West: Cooler temperatures settled in last week and all but the coastal Pacific Northwest was dry as well, bucking the general abnormally warm trend of the past month. Changes this week, all in the form of deterioration, are depicted in Wyoming, Utah, Arizona, Nevada and California. Assessment of Water Year-to-date (WYTD) snow pack and water equivalent estimates within the pack shows some very low readings in the regions listed above. The saving grace for many of these basins was the bounty of last year, but in turning our attention to this year we are painting a different picture as the peak snow accumulation season comes down the final stretch. USDA-SNOTEL observations show snow water equivalent (SWE) ranking percentiles for many of the basins in the 6%-10% or even the driest 5% range based on the long-term record (over the past 20 years at least). This has led to the removal of D0 and replacement with D1 in the Mogollon region of central Arizona. It has also resulted in an expansion of D1 in the Upper Bear basin along the Wyoming/Utah state line, along with a slight D1 push into more of extreme northeastern Utah toward Wyoming and Colorado. Colorado, however, stands pat this week.

Farther west, northwestern Nevada and northeastern California both see an expansion of D2 for the same reasons explained above. WYTD precipitation has been slow in coming to date. The dryness also extends farther southward in California and into the lower elevations as well as to the coast in northern California. Both D0 and D1 have pushed west to the coast and south into the Los Angeles region continuing down to just north of San Diego. After a bumper year last winter, results of a new snow survey in the Sierras over the coming weeks will reveal a lot more about where we stand this winter. 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).

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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

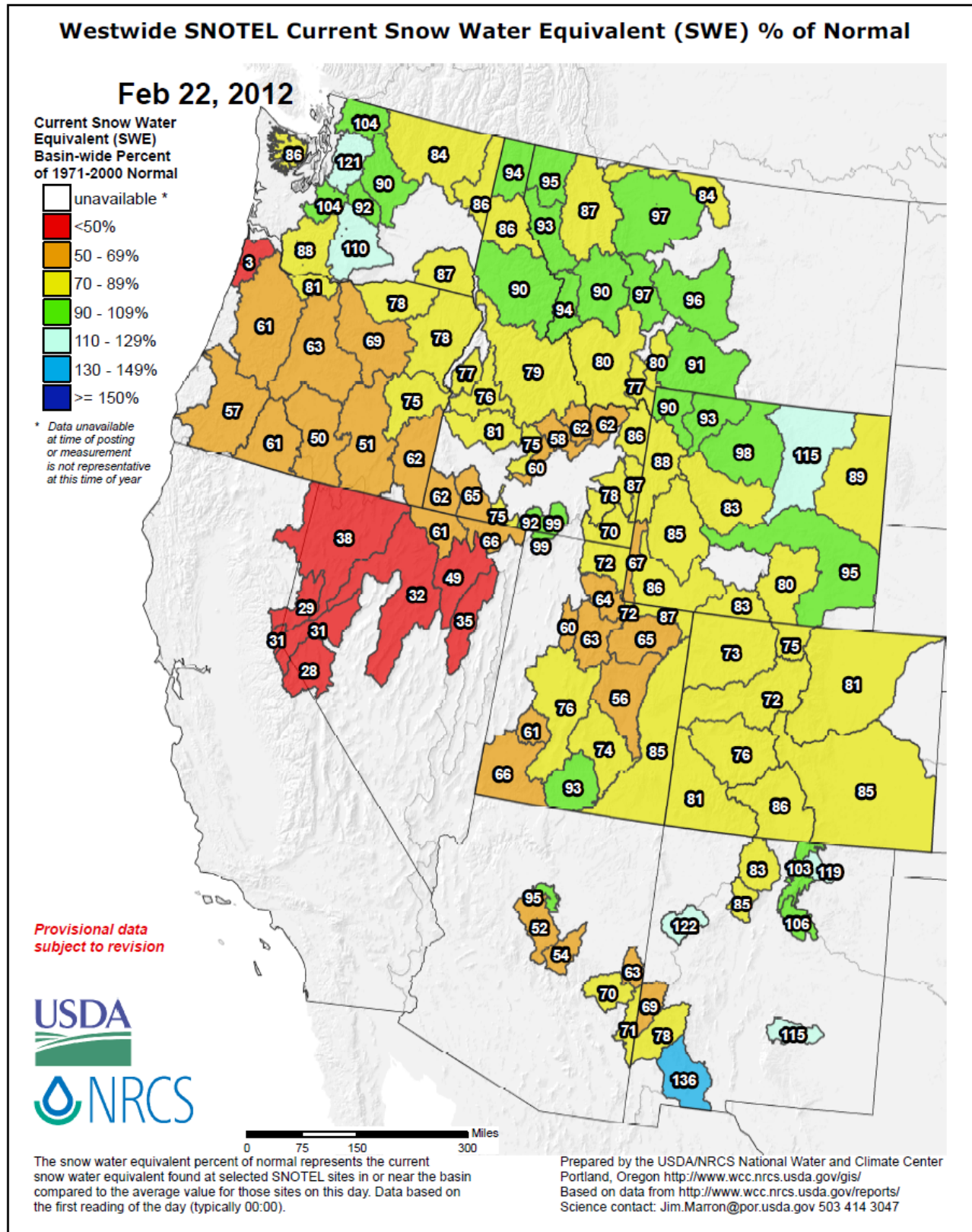


Fig. 1: Snow Water-Equivalent: Northern River Basins have experienced a several percent increase this week while the remainder of the West has remained unchanged.

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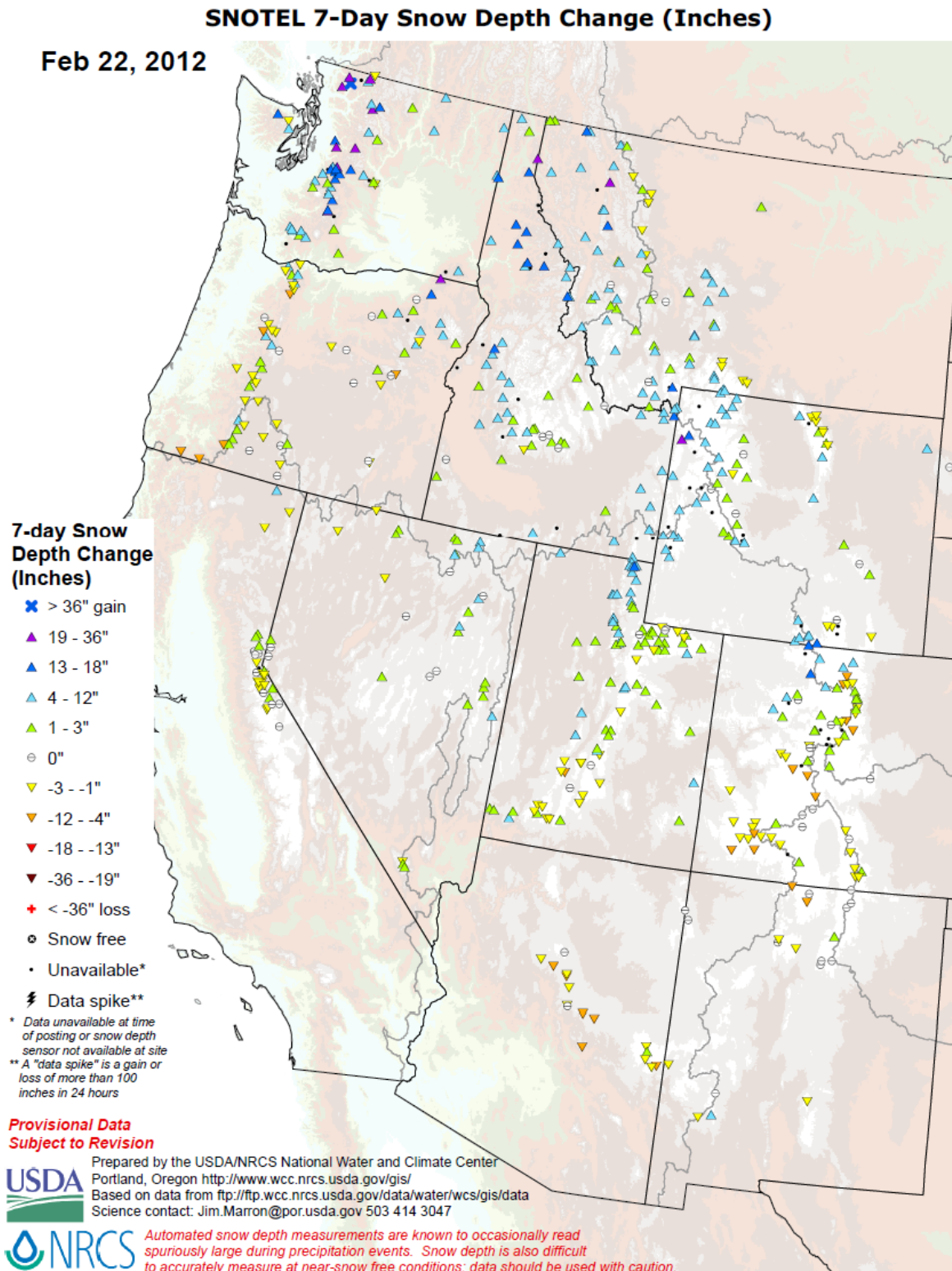


Fig. 1a: 7-Day Snow Depth Change ending this morning shows increases from the Northern Pacific Northwest to the Western Slope of the Central Rockies. Elsewhere, the Southern Cascades, Sierra, and much of the 4-Corner States have seen small decreases.

Weekly Snowpack and Drought Monitor Update Report

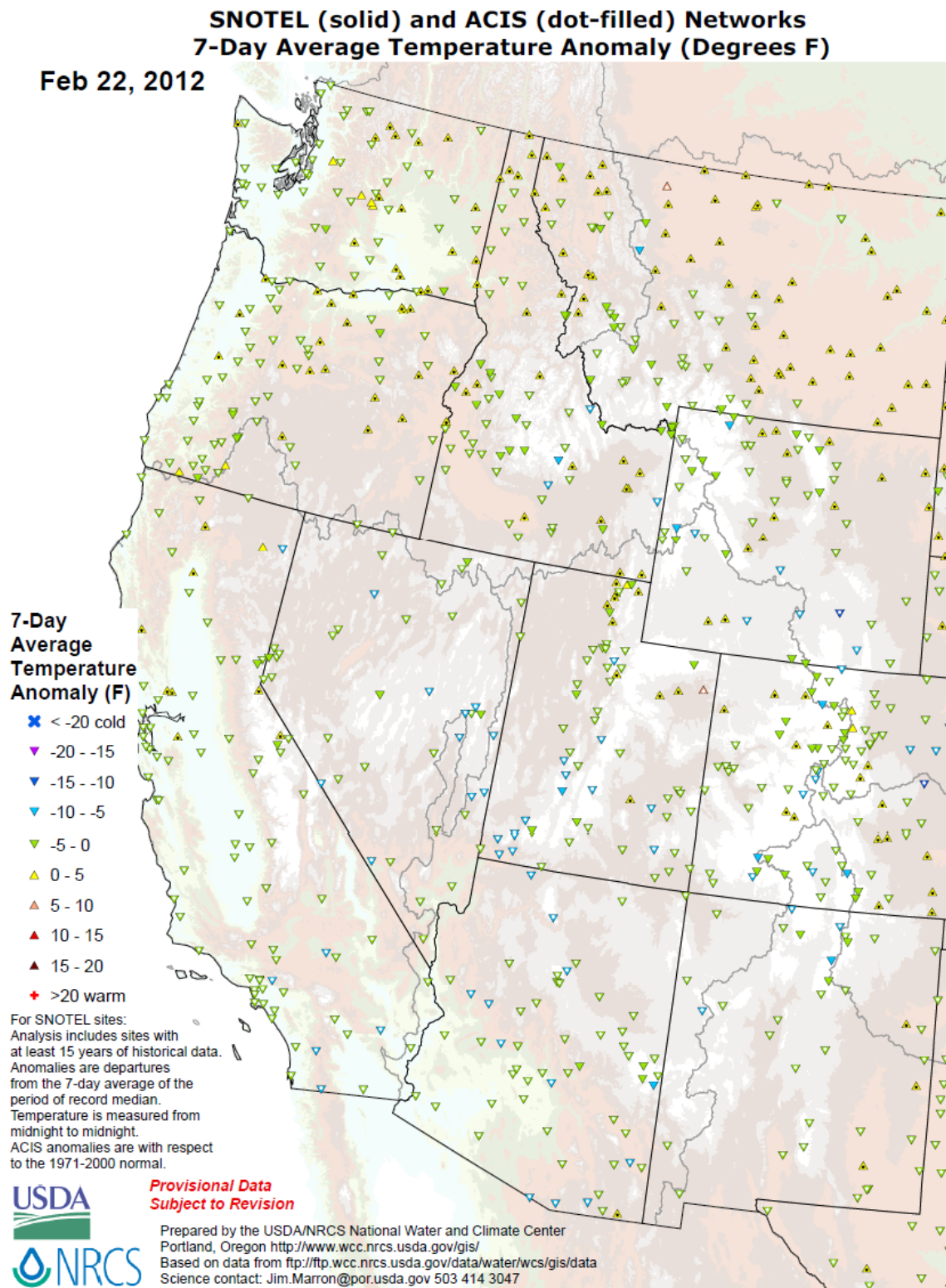
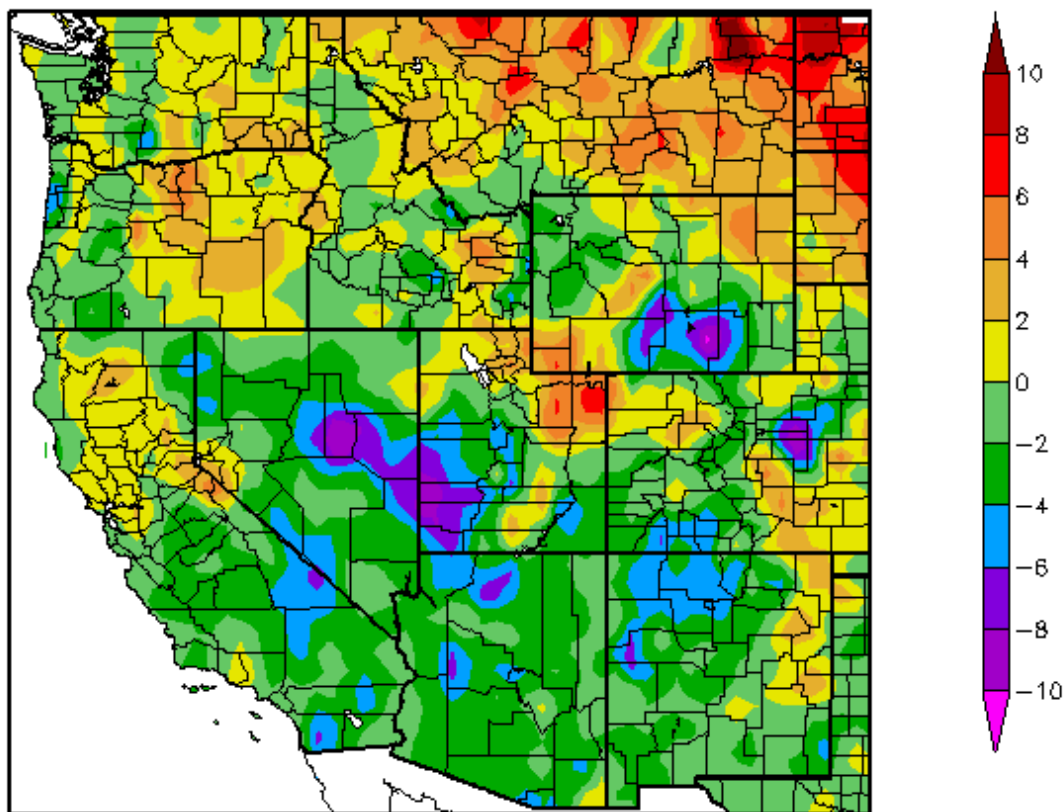


Fig. 2: SNOTEL and ACIS 7-day temperature anomaly showed a cooler week over much of the West with the exception of the Northwestern High Plains where warmer conditions dominated.

Departure from Normal Temperature (F)
2/16/2012 – 2/22/2012



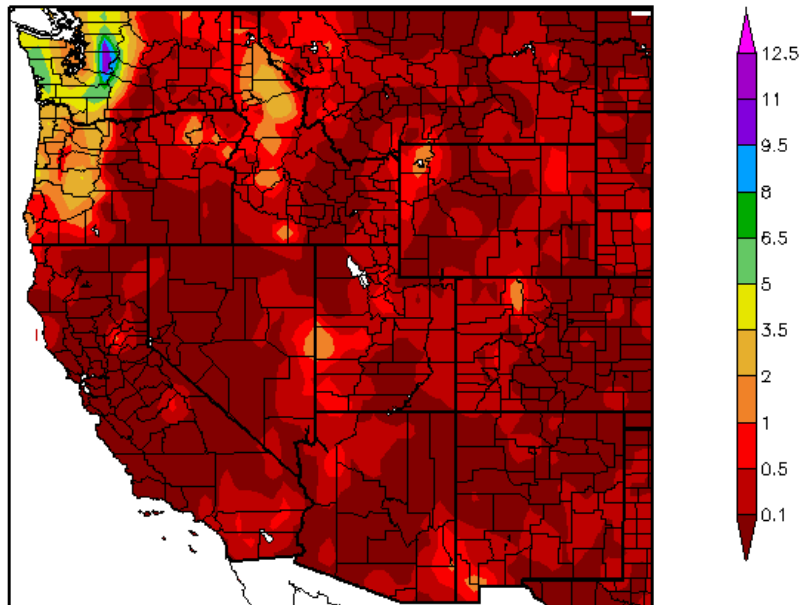
Generated 2/23/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2a: ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over the northeast Montana ($>+10^{\circ}\text{F}$) and the greatest negative departures over the Central Great Basin (Nevada), southwest Utah, and south-central Wyoming ($<-10^{\circ}\text{F}$).

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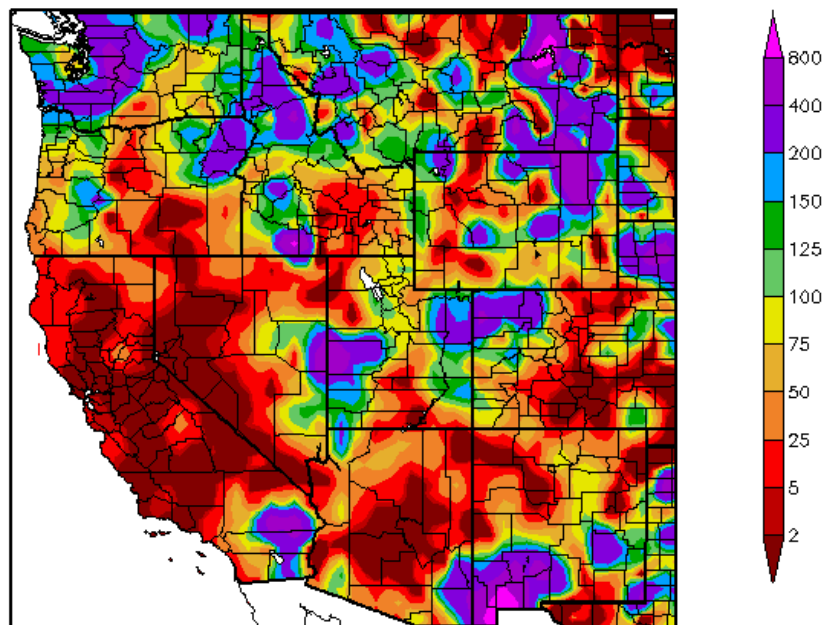
Precipitation (in)
2/16/2012 – 2/22/2012



Generated 2/23/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
2/16/2012 – 2/22/2012



Generated 2/23/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows very wet condition over the Washington Cascades (top). However, in terms of percent of normal, the Northern Tier States dominated with above normal amounts but western Utah, northwest Colorado, and southern New Mexico held their own with ample precipitation as well (bottom).

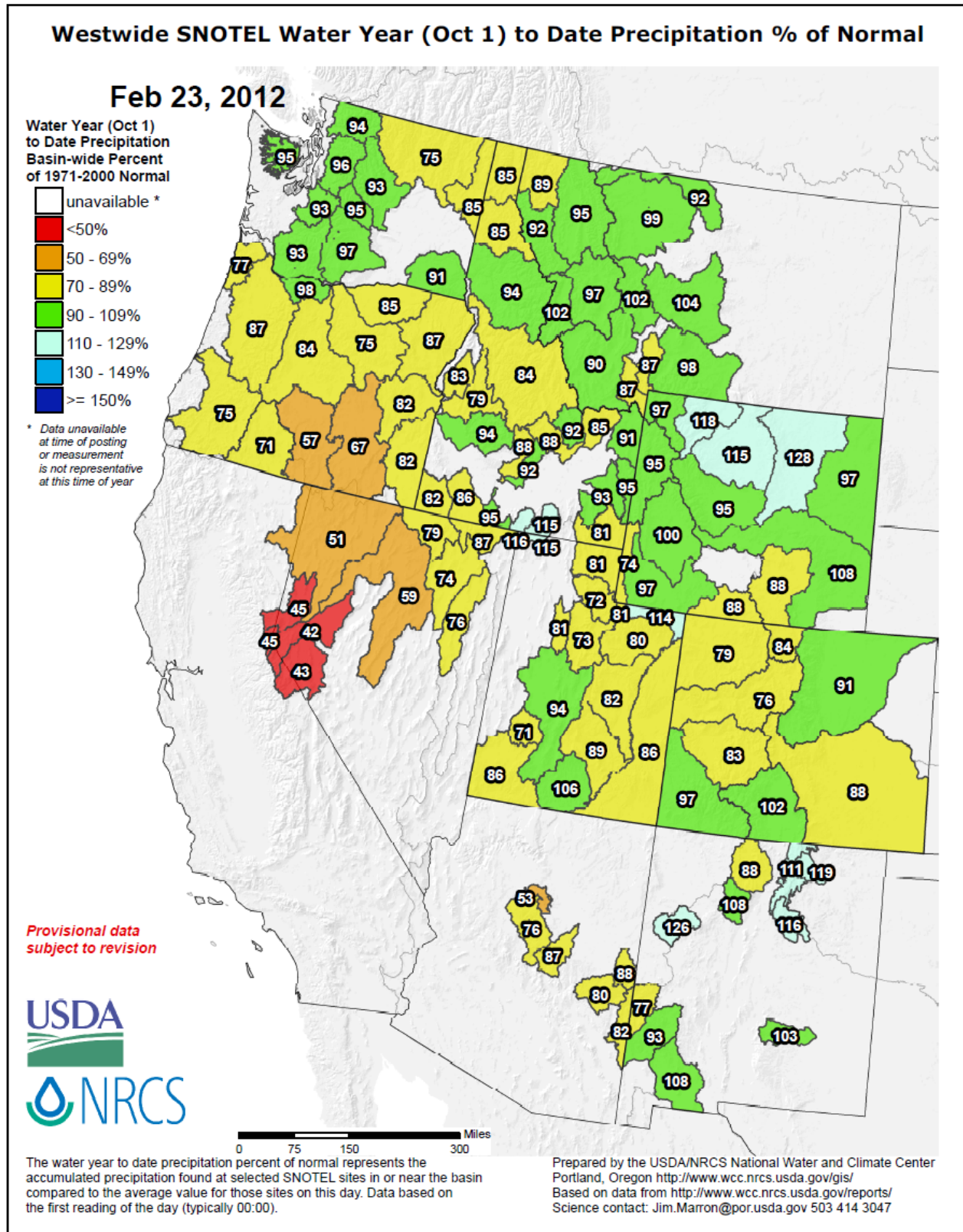


Fig 3b: Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored northern Wyoming, southern Idaho, and parts of northern New Mexico. The Washington Cascades have improved by 10% while the Northern Rockies have increased by 5% this week. Elsewhere, there was no significant change.

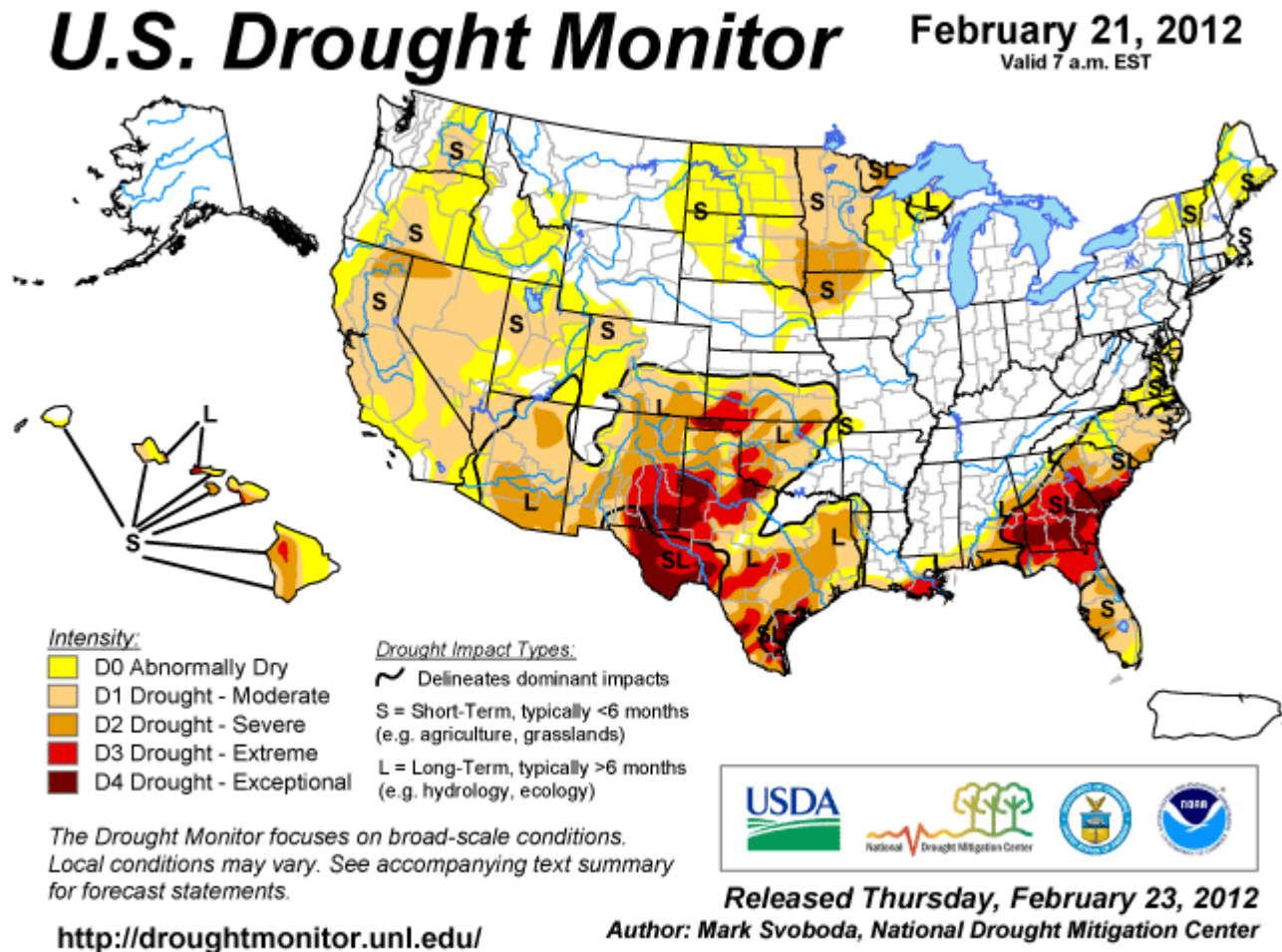


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, much of western Texas, the Panhandle of Oklahoma, and over southern South Carolina – south Georgia – southeast Alabama. For more drought news, see [Drought Impact Reporter](#).

Agriculture

[Drought, low yield means seed corn shortage](#)

Feb 13, **Minnesota**. A seed corn shortage has emerged after a wet spring in Minnesota and northern parts of the Corn Belt in 2011 and drought in corn producing regions later in the year.

[Drought, saltwater slow start to Louisiana's tasty crawfish season](#)

Feb 11, **Southwestern Louisiana**. Crawfish catches in Vermilion Parish were much smaller than usual since last summer's drought and hot weather and continuing saltwater intrusion have hurt crawfish growth. One crawfish farmer stated that crawfish buyers were buying perhaps one-third of the amount they purchased last year, which was one of the lowest crawfish production years for Louisiana.

[Extreme weather in 2011 affects bottling of wines in 2012, 2013](#)

Feb 15, **Texas**. Drought improved the quality of West Texas grapes, but there were fewer of them.

[Growers warned of potential spring drought conditions](#)

Feb 16, **Minnesota**. Southern and western Minnesotans are bracing for a dry spring.

[Prices more bullish than profits for Wyoming cattle](#)

Feb 13, **Wyoming**. The cattle population is down, while demand is increasing from Japan and China, leading to higher prices, but high production costs are keeping livestock producers from capitalizing on the situation.

[Smaller Texas herds means better pay for Georgia beef producers](#)

Feb 12, **Georgia**. "The price of beef is up — that's true," said Dave Stewart, a Carlton cattle farmer. "It's up on the hoof and in the market. But what's also happening is that the price of hay, the price of grain, the price of fertilizer for your pasture, the transportation cost — gas and diesel fuel — all that has gone up, too. So, you might be getting a bigger paycheck but you're paying out a larger amount for expenses."

U.S. Drought Monitor

West

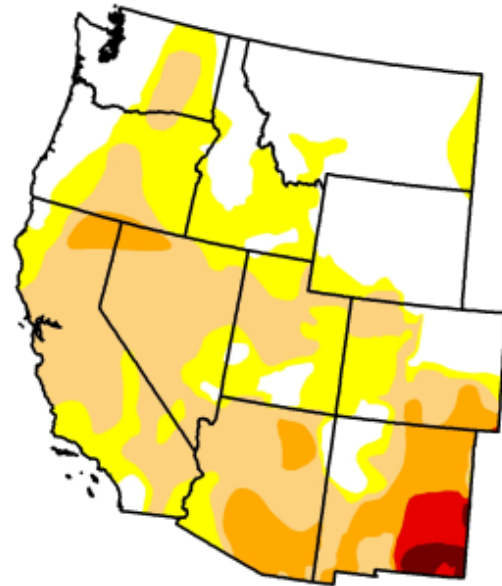
February 21, 2012

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	32.32	67.68	42.87	11.59	2.56	0.83
Last Week (02/14/2012 map)	33.22	66.78	40.87	10.32	2.56	0.83
3 Months Ago (11/22/2011 map)	72.72	27.28	18.57	15.00	9.51	2.85
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 (02/15/2011 map)	72.99	27.01	13.79	4.34	0.00	0.00

Intensity:

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



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, February 23, 2012
Mark Svoboda, National Drought Mitigation Center

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Note a slight deterioration in D0 to D2 this week. A nice drought summary for the Southwest is available [here](#).

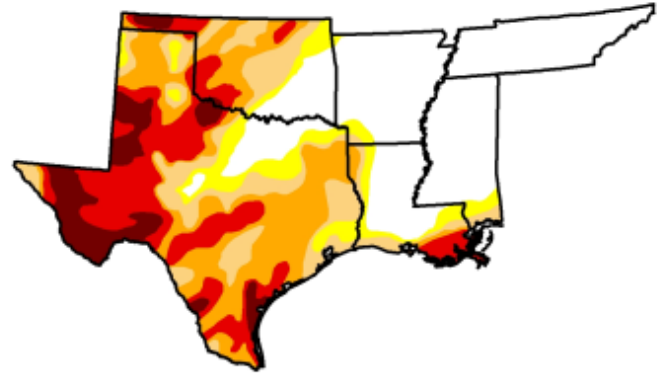
U.S. Drought Monitor

South

February 21, 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	55.18	41.39	23.22	7.54
Last Week (02/14/2012 map)	34.46	65.54	58.89	47.27	30.88	10.81
3 Months Ago (11/22/2011 map)	15.07	84.93	76.43	64.48	54.43	37.62
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 (02/15/2011 map)	8.58	91.42	61.15	31.17	6.39	0.00



Intensity:



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<http://droughtmonitor.unl.edu>



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Fig. 4b: Drought Monitor for the [South-Central States](#) with statistics over various time periods. Note a marked improvement in all categories this week.

U.S. Drought Monitor

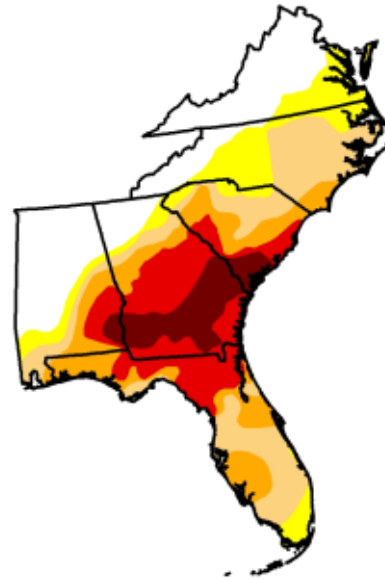
Southeast

February 21, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	26.21	73.79	59.43	39.29	24.34	8.11
Last Week (02/14/2012 map)	25.86	74.14	59.78	40.41	27.91	10.41
3 Months Ago (11/22/2011 map)	40.37	59.63	47.52	34.31	23.65	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 (02/15/2011 map)	6.18	93.82	66.90	22.50	3.35	0.00

Intensity:

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



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Local conditions may vary. See accompanying text summary
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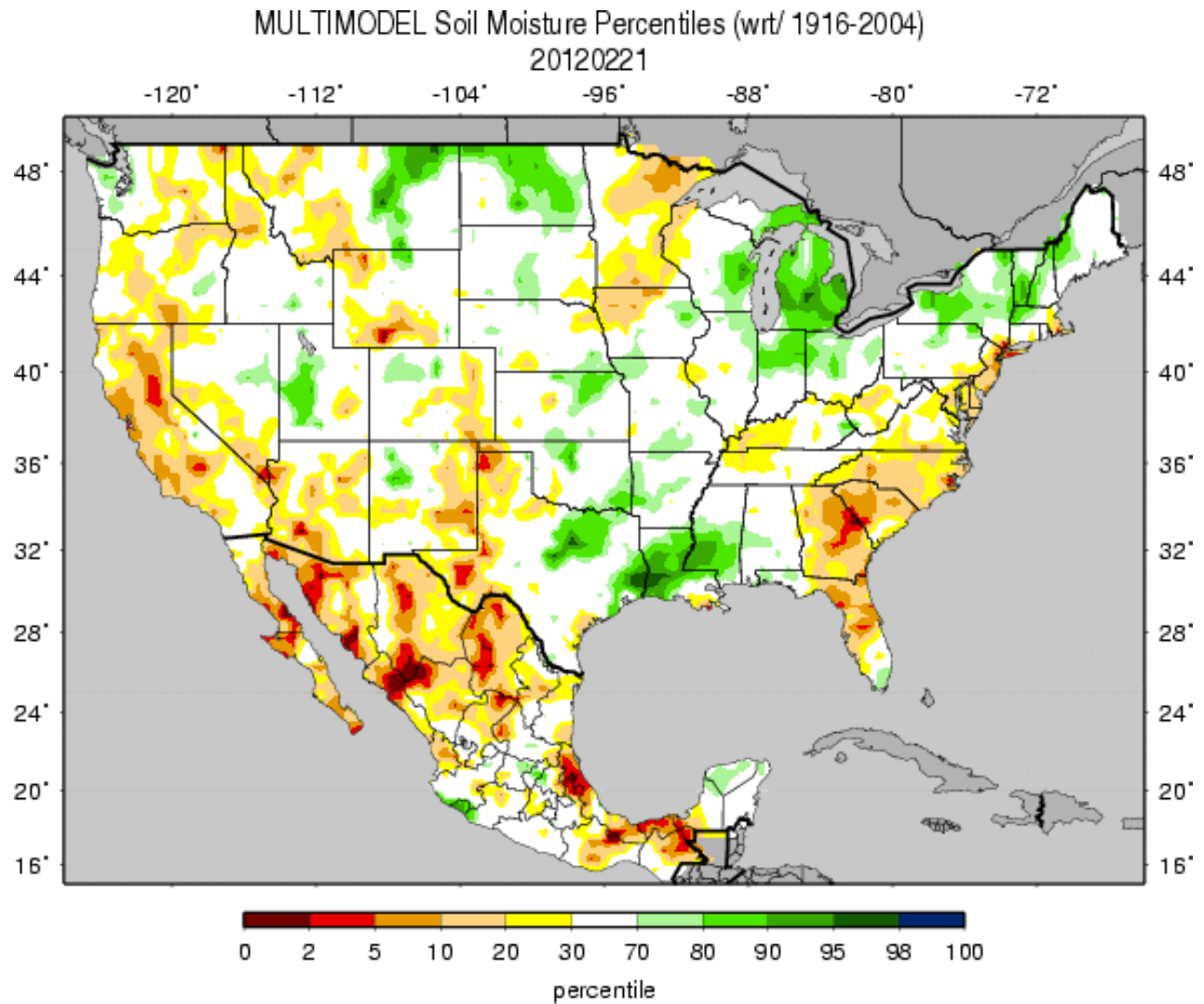
<http://droughtmonitor.unl.edu>



Released Thursday, February 23, 2012
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Fig. 4c: Drought Monitor for the [Southeastern States](#) with statistics over various time periods.
Note some improvement in D3, and D4 this week.

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Figs. 5: Soil Moisture ranking in [percentile](#) as of 21 February shows conditions over the eastern third of the nation approaching neutral conditions this week (as compared to last week's extreme wetness and dryness). The remainder of the county changed little from last week. Note: Soil moisture this time of year is often unreliable due to frozen ground.

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

Station (2149) MONTH=2012-01-24 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Thu Feb 23 06:52:03 PST 2012

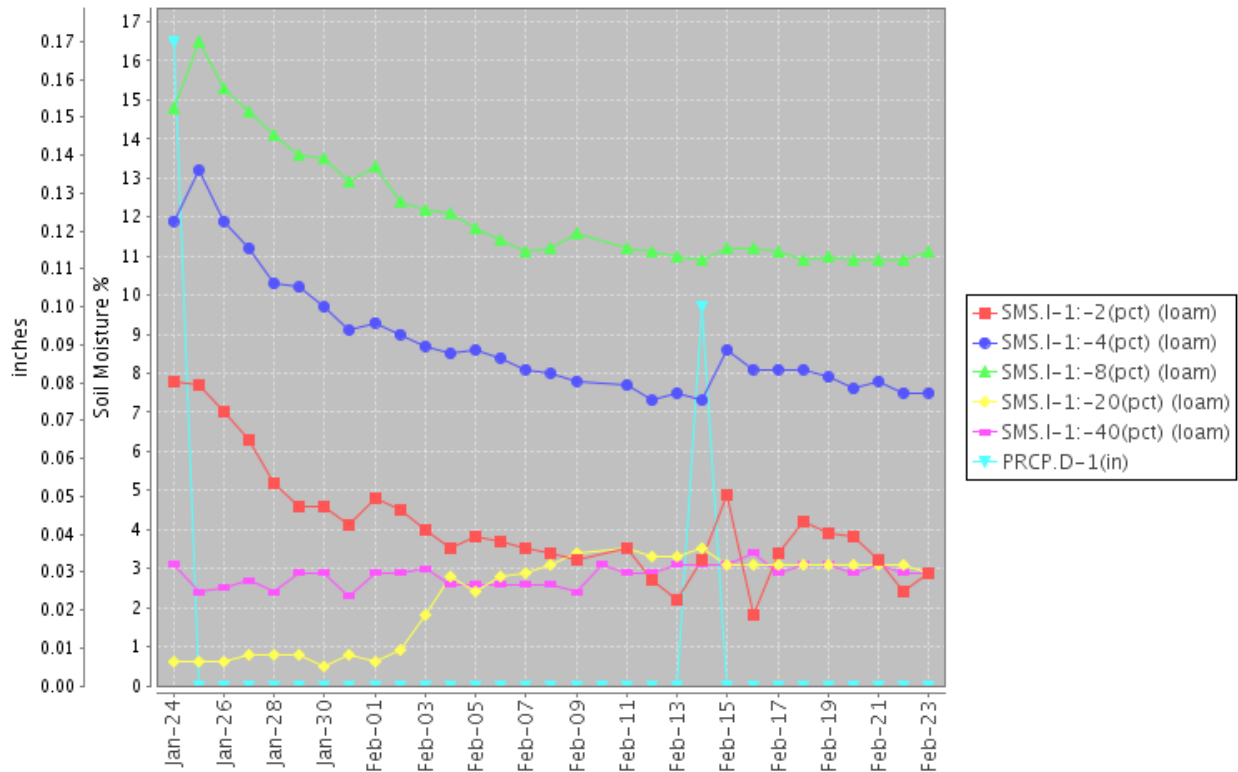
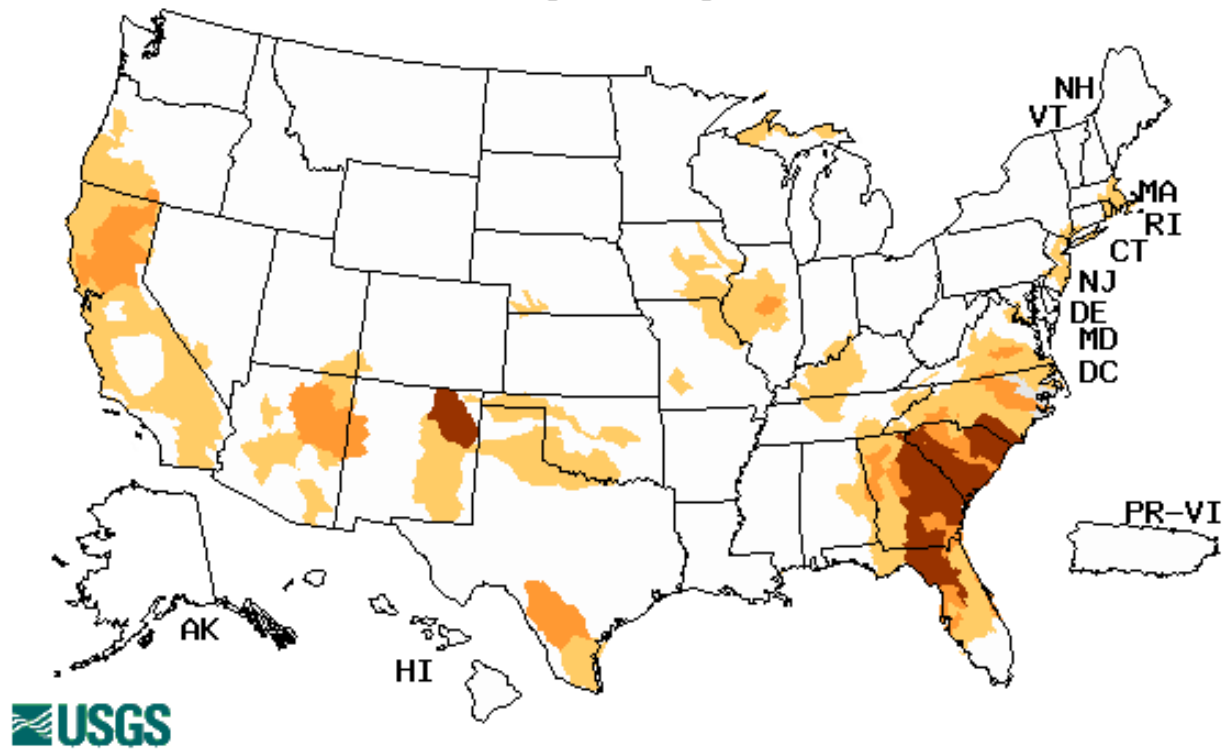


Fig. 6: This NRCS resource shows a site over [east-central California](#) with declining soil moisture at all depths despite rains on 14 February.

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Wednesday, February 22, 2012



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: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. Clearly, the Southeast States and northeastern New Mexico have the severest conditions today.

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National Drought Summary -- February 21, 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: Most of the region experienced abnormally warm temperatures and dry weather, leading to no changes on the map this week. Impacts haven't emerged yet, but the dryness of the past two months is of some concern with spring and the growing season right around the corner. This time serves as the recharge season, and that has been lacking.

South Atlantic and Central Gulf Coast Regions: The South Atlantic didn't fare as well this past week with unseasonably warm weather and very little in the way of precipitation across the Carolinas up into coastal Virginia, Maryland and Delaware. The exception was in south central and southern Georgia, where some modest rainfall occurred. The best rains fell in the heart of the D4 region, and that led to some slight improvement on the northern edge of the D4 within Georgia. The rest of the state remains in status quo given both the short- and long-term drought within the state. Streamflows are historically low virtually statewide save for the northern basins.

Florida saw both the good and bad with regard to the drought this past week, with most of the southern peninsula (basically east of Tallahassee and down to the Everglades) seeing little if any rain. The western Panhandle, however, saw heavy rains of 3 to 5 inches, leading to a 1-category improvement to locales in and around Tallahassee to the west and north into Alabama. Even after the good rains, the area is still in the grips of long-term drought, with D2-D3 left in place. In southern Florida, another week of dryness leads to a slight expansion of D0-D2 from the west coast to the east coast and points south of Orlando.

Both Mississippi and Alabama saw the same heavy bands of rain across the coastal regions, leading to widespread improvement by one category or more in some places within extreme southern Mississippi. Alabama also saw 1-category improvements but the dryness/drought characteristics have shifted a bit more toward the long-term (L) impact type of drought. Southeast Alabama is still fully entrenched in D3 and D4. Streamflows have not rebounded nearly as well in this quadrant of the state but have showed some promise in other regions along the coastal counties in both Mississippi and Alabama and into the extreme western reaches of the Florida Panhandle.

The Southern Great Plains and Louisiana: Louisiana saw a mixed bag of rains and results. The best rainfall totals were observed in western, central and eastern parishes. The New Orleans area and points south didn't fare quite as well and so status quo remains. The other areas within Louisiana all saw 1-category improvement on the week.

Texas continued to see very un-La Nina like precipitation during the week, with most of it centered on the eastern half of the state. Short-term (S) drought impacts are falling by the wayside, but longer-term hydrological remnants are still there, most obvious in the western

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counties and up into the Panhandle. The big news is the reduction of D4 in central Texas this week along with reductions of D1-D3. Lesser amounts of the wet stuff fell across western TX, including the Panhandle, and we will continue to reassess the benefit of these rains in the short-term vs. the long-term duration and severity of the drought moving forward in these parts as more data comes in from the field. Oklahoma and the rest of the southern Plains stand pat this week after very little in the way of precipitation.

The Northern Plains: The only change on the map this week is centered on extreme eastern Montana and northwest North Dakota, where the warm winter continues along with the dryness over the past 90 days or so. As a result, D0 has expanded in both eastern Montana and northwestern North Dakota. The rest of the region remains the same after a relatively quiet week.

West: Cooler temperatures settled in last week and all but the coastal Pacific Northwest was dry as well, bucking the general abnormally warm trend of the past month. Changes this week, all in the form of deterioration, are depicted in Wyoming, Utah, Arizona, Nevada and California. Assessment of Water Year-to-date (WYTD) snow pack and water equivalent estimates within the pack shows some very low readings in the regions listed above. The saving grace for many of these basins was the bounty of last year, but in turning our attention to this year we are painting a different picture as the peak snow accumulation season comes down the final stretch. USDA-SNOTEL observations show snow water equivalent (SWE) ranking percentiles for many of the basins in the 6%-10% or even the driest 5% range based on the long-term record (over the past 20 years at least). This has led to the removal of D0 and replacement with D1 in the Mogollon region of central Arizona. It has also resulted in an expansion of D1 in the Upper Bear basin along the Wyoming/Utah state line, along with a slight D1 push into more of extreme northeastern Utah toward Wyoming and Colorado. Colorado, however, stands pat this week.

Farther west, northwestern Nevada and northeastern California both see an expansion of D2 for the same reasons explained above. WYTD precipitation has been slow in coming to date. The dryness also extends farther southward in California and into the lower elevations as well as to the coast in northern California. Both D0 and D1 have pushed west to the coast and south into the Los Angeles region continuing down to just north of San Diego. After a bumper year last winter, results of a new snow survey in the Sierras over the coming weeks will reveal a lot more about where we stand this winter.

Hawaii: No changes are noted across the islands this week.

Looking Ahead: During the next 5 days (February 23 – 27, 2012), the best bets for precipitation are centered on the Pacific Northwest, Southeast, Atlantic Seaboard and up into New England. Only modest totals are forecast for the drought regions across the Southeast, but anything will help at this point with the spring growing season just around the corner. The wetness in the eastern U.S. will be accompanied by warmer-than-normal temperatures as well. Most locations west of the Missouri River can expect to see below-normal temperatures over this period with the exception being the Four Corners region and California, where near-normal readings are expected.

The Climate Prediction Center (CPC) 6-10 day (February 28-March 3, 2012) outlook shows increased odds of precipitation across the Pacific Northwest, the eastern Great Plains, the Midwest and the Mississippi, Missouri, and Ohio River valleys. Below-normal precipitation is anticipated in southern California, the Southwest and the coastal regions of the Carolinas as

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well as all of Florida except for the Panhandle. Temperatures look to be below normal across all of Alaska and everywhere west of the Rockies. Above-normal temperatures are likely to occur east of the Mississippi Valley and up into New England with the Southeast and Florida showing the strongest chances for unseasonably warm weather as we welcome March in the door.

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 22, 2012