



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 2 May 2013

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly ending today reveals a mostly warmer period; especially over the western half of the Western States (Fig. 1a). [ACIS 7-day](#) average temperature anomalies show the greatest positive temperature departures scattered across California (>+9°F). The greatest negative departures occur in pockets across the northern tier states of the West (<-3°F) (Fig. 1b). ACIS 7-day average temperature anomalies for [April](#) show the greatest negative temperature departures over the northwestern High Plains and the greatest positive temperature departures over California. Colder than normal temperatures east of the Continental Divide have helped to slow seasonal snowmelt (Fig. 1c).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending May 1 show the heaviest precipitation confined to the Washington Cascades (Fig. 2a). Lesser amounts fell over northern Idaho and parts of the central Rockies. This moisture is clearly reflected in terms of very high percent of normal values (Fig. 2b). SNOTEL precipitation percent of normal pattern for [April](#) shows significant precipitation across much of the Pacific Northwest, northern Utah, northern Montana Rockies and central Rockies (Colorado and southern Wyoming). New Mexico and parts of the Great Basin (including the Sierra Nevada) have not fared as well (Fig. 2c). For the [2013 Water Year](#) that began on 1 October 2012, the pattern continues to resemble La Niña (e.g., wetter northern tier). Parts of Arizona are still the exception for the southern tier with near normal amounts. Southeastern Oregon and northeast Nevada, despite below average precipitation, have seen much below average amounts of snowpack this winter (Fig. 3b). The opposite situation (more snow-water equivalent and less precipitation) has occurred this season over Wyoming. This week's precipitation over northeast Colorado and southeast Wyoming has helped increase the moisture levels between 2% and 4% (Fig. 2d).

Snow: The [3-day snow depth changes](#) for the Western U.S. show a spring storm delivering heavy snowfall over the Front Range in Colorado and parts of northern Wyoming (Fig. 3a). The [Snow-Water Equivalent](#) (SWE) map (Fig. 3b) shows values holding over areas of the Rockies that received snowfall earlier this week, but falling elsewhere as a result of drier weather and more direct sunshine. The very high values over northeastern Wyoming are a result of a statistical anomaly where any snow cover this late in the season is a rare occurrence.

The following **Weather and Drought Summary** is provided by this week's NDMC Author:

Author: [Eric Luebehusen, U.S. Department of Agriculture](#):

Summary: "Periods of locally heavy rain provided drought relief in central and southern portions of the nation, while dry weather with sharp temperature contrasts exacerbated drought from the central High Plains into central and western Texas. The Upper Midwest continued to deal with long-term precipitation deficits despite seasonal spring flooding, while an early end to the western Water Year caused drought to intensify across the Southwest. Short-term dryness was also beginning to have an impact in parts of the Northeast and Mid-Atlantic."

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Western U.S.: “The largely disappointing water year neared an end, with many areas of the west ending the season with bleak spring runoff prospects and increasing drought concerns. Showers were confined to the non-drought areas of the Pacific Northwest, where 1 to 2 inches (liquid equivalent) were reported during the monitoring period. Elsewhere, above-normal temperatures and dry weather maintained or increased drought intensity and coverage.”

“There was little change from California into the Great Basin and central Rockies. However, D0 (Abnormal Dryness) was expanded up the coast into northwestern California and southwestern Oregon, where 90-day precipitation averaged 35 to 60 percent of normal. Extreme Drought (D3) was reduced in southwestern Wyoming, where reports from the field indicated conditions have improved in this data-spare area.”

“Farther south, water-year precipitation shortfalls increased from the southern San Joaquin Valley (40 to 55 percent of normal) into southern Nevada (30 to 50 percent of normal) and western Arizona (less than 50 percent of normal) . The water-year’s disappointing conclusion was further evidenced by the last 3 months, when rainfall tallied less than 20 percent of normal from the southern California Coast into western Arizona and much of central and eastern New Mexico. Consequently, Moderate (D1) to Severe (D2) Drought was expanded in these locales. In New Mexico, the past 36 months (Apr 2010 - Mar 2013) have been the 4th driest period on record for the state, the driest since the 1950s. Exceptional Drought (D4) was expanded to include much of New Mexico’s Rio Grande Valley as well as portions of east-central and northeastern New Mexico.”

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, water restrictions imposed, and crop or pasture losses. 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 4d).

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 up to 40 inches. To access SCAN data, see the National Water & Climate Center [webpage](#).

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

Weekly Snowpack and Drought Monitor Update Report

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 Snow Survey and Water Supply Forecasting (SSWSF) Program State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SSWSF information - <http://www.wcc.nrcs.usda.gov/cgi-bin/bor.pl>. Additional information describing the products available from the Drought Monitor can be found at the following URLs: <http://drought.unl.edu/dm/> and <http://www.drought.gov>.

For More Information

The National Water and Climate Center (NWCC) Homepage provides 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 online while ones from 2001-2006 can be acquired on 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 Science and Resource Assessment

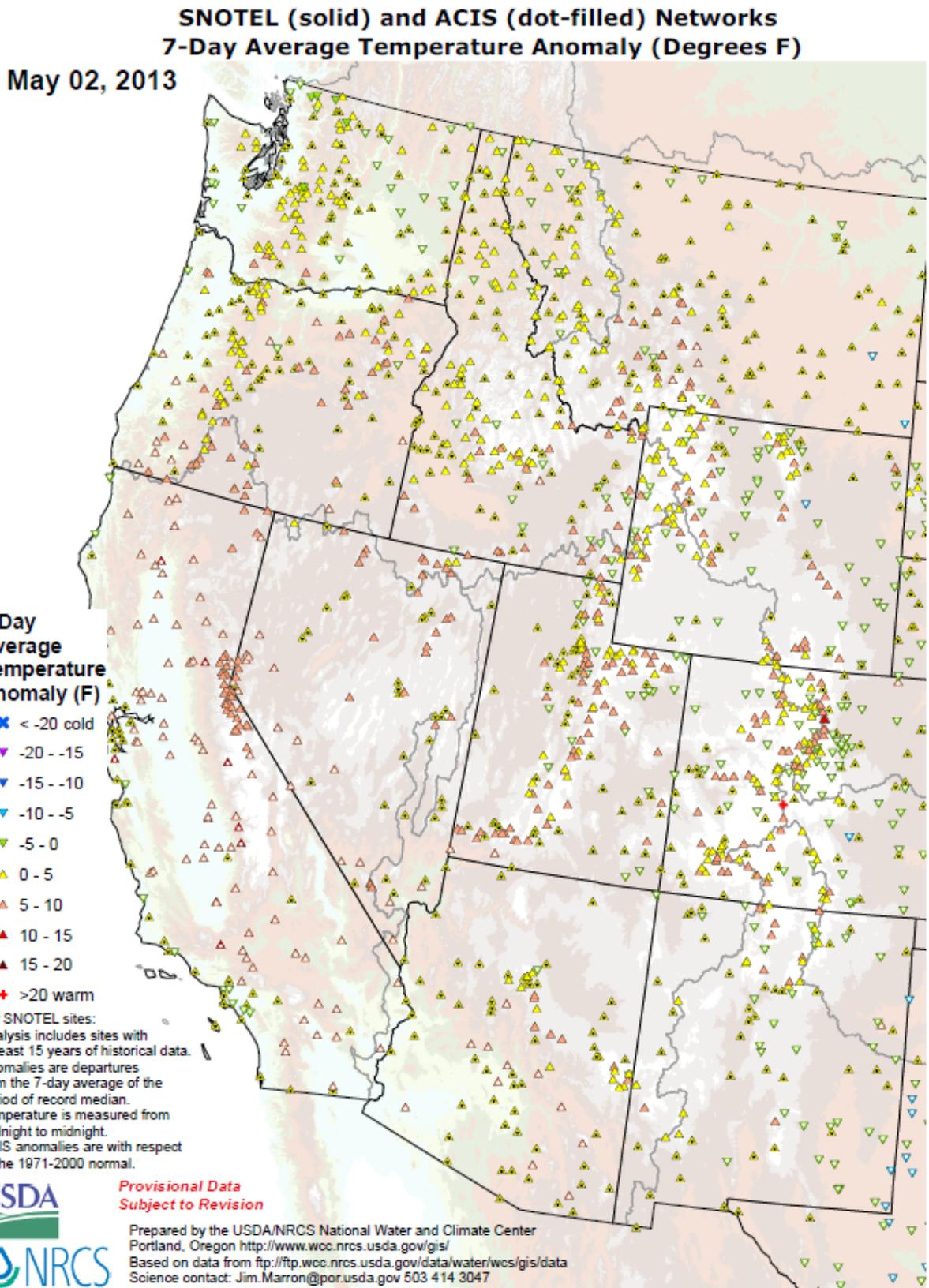
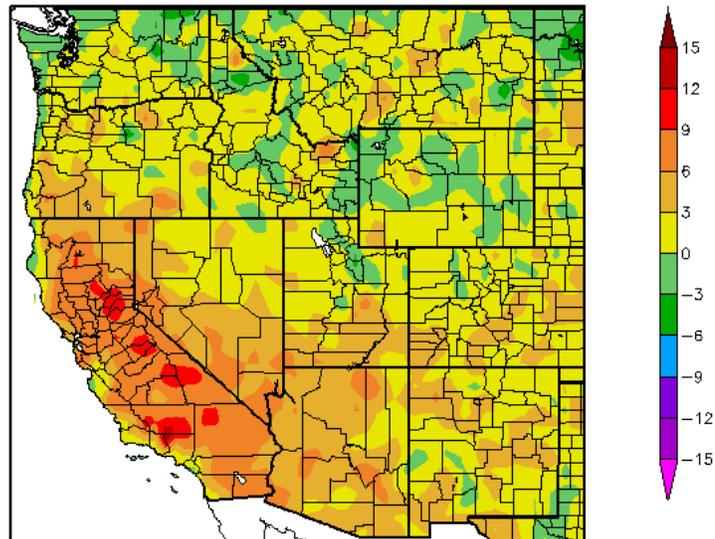


Fig. 1a: SNOTEL and ACIS 7-day temperature anomaly ending today reveals a mostly warmer period; especially over the western half of the Western States.

Weekly Snowpack and Drought Monitor Update Report

Departure from Normal Temperature (F)
4/25/2013 – 5/1/2013

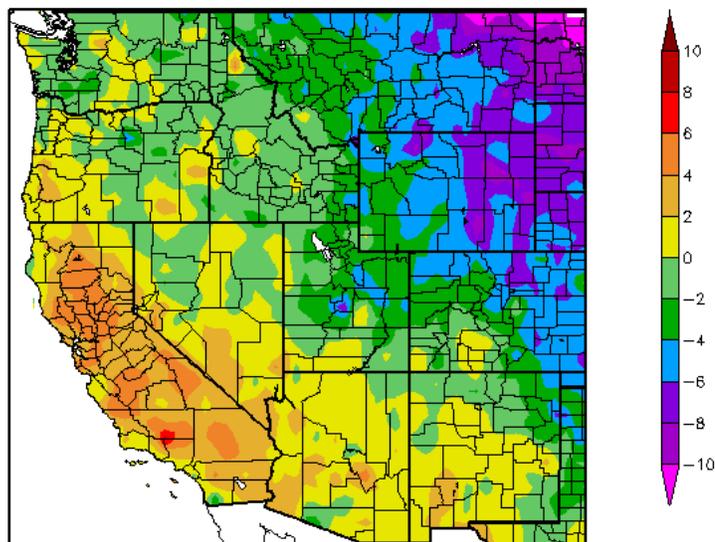


Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

Fig. 1b: [ACIS 7-day](#) average temperature anomalies show the greatest positive temperature departures scattered across California (>+9°F). The greatest negative departures occur in pockets across the northern tier states of the West (<-3°F). For more figures, see the Western Water Assessment's Intermountain West Climate [Dashboard](#).

Departure from Normal Temperature (F)
4/1/2013 – 4/30/2013



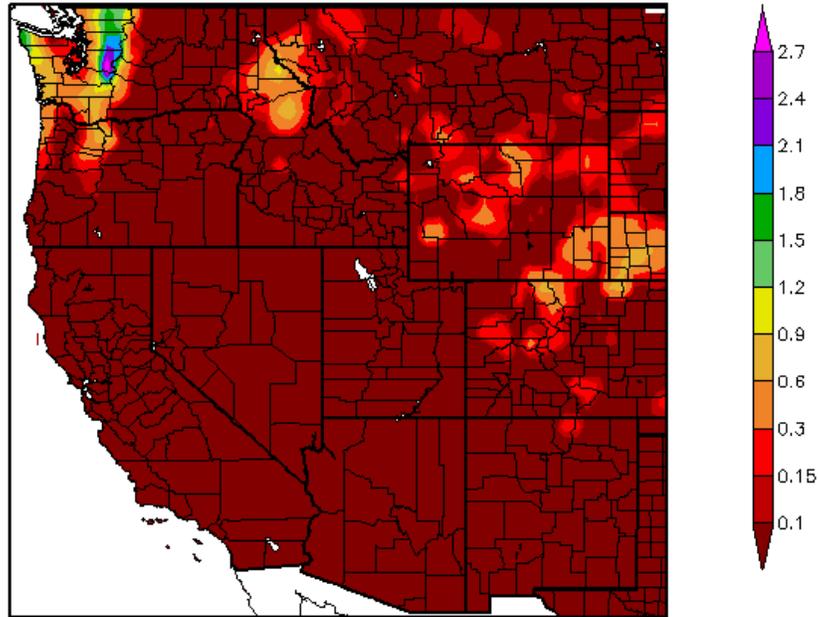
Generated 5/1/2013 at HPRCC using provisional data.

Regional Climate Centers

Fig. 1c: ACIS average temperature anomalies for [April](#) show the greatest negative temperature departures over the northwestern High Plains and the greatest positive temperature departures over California. Colder than normal temperatures east of the Continental Divide have helped to slow seasonal snowmelt.

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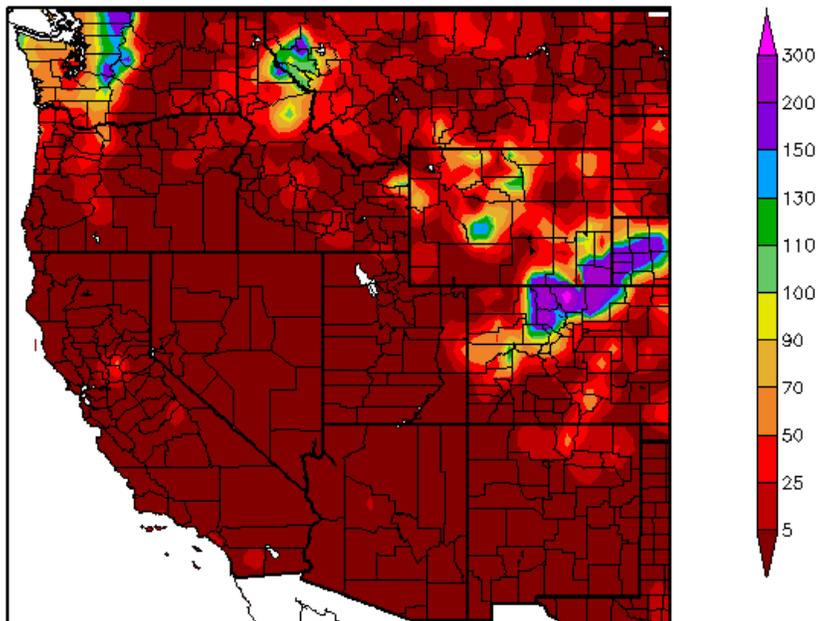
Precipitation (in)
4/25/2013 - 5/1/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
4/25/2013 - 5/1/2013



Generated 5/2/2013 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2a and 2b: [ACIS](#) 7-day average precipitation amounts for the period ending May 1 show the heaviest precipitation confined to the Washington Cascades (Fig. 2a). Lesser amounts fell over northern Idaho and parts of the central Rockies. This moisture is clearly reflected in terms of very high percent of normal values (Fig. 2b).

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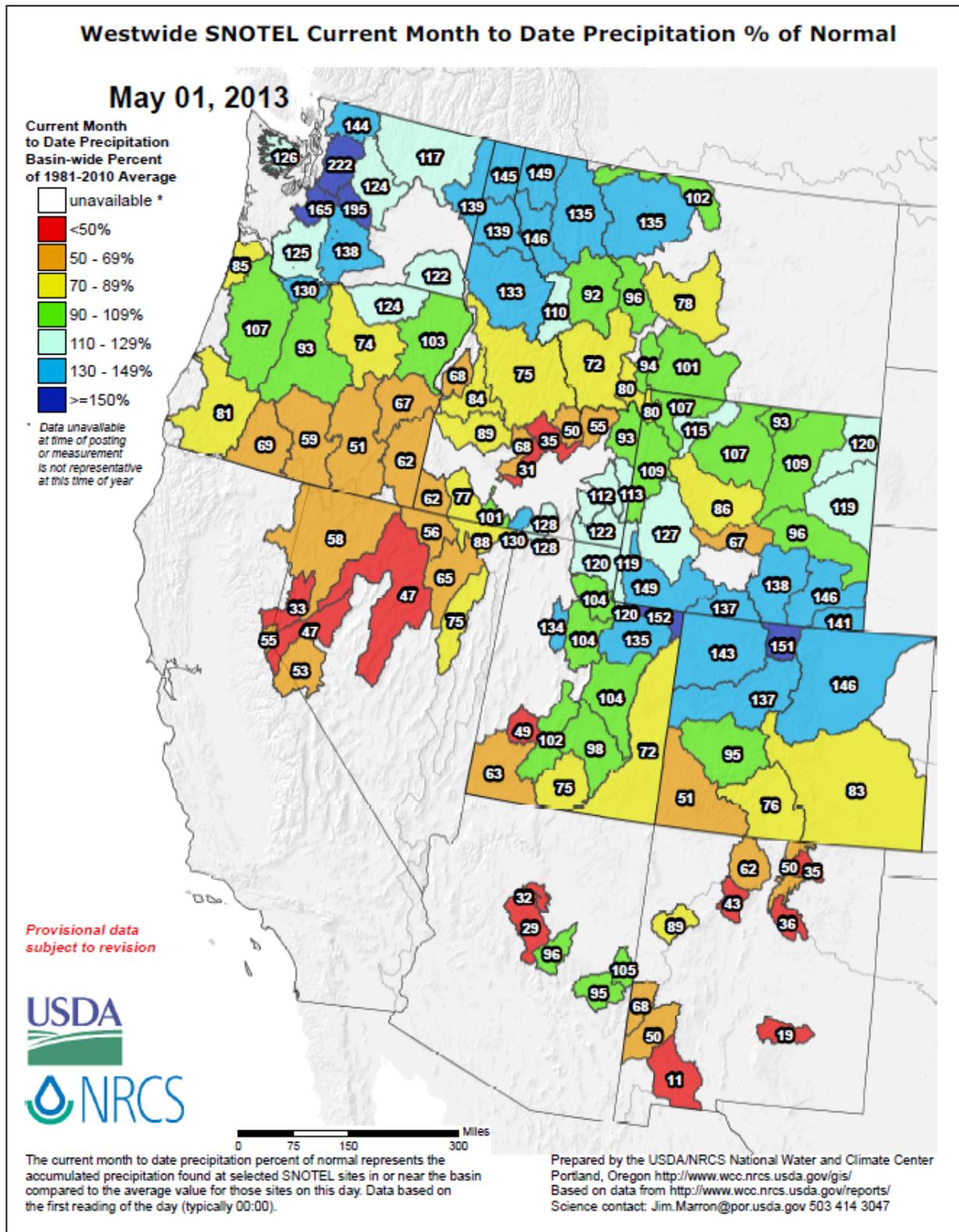


Fig. 2c: SNOTEL precipitation percent of normal pattern for April shows significant precipitation across much of the Pacific Northwest, northern Utah, northern Montana Rockies and central Rockies (Colorado and southern Wyoming). New Mexico and parts of the Great Basin (including the Sierra Nevada) have not fared as well.

Weekly Snowpack and Drought Monitor Update Report

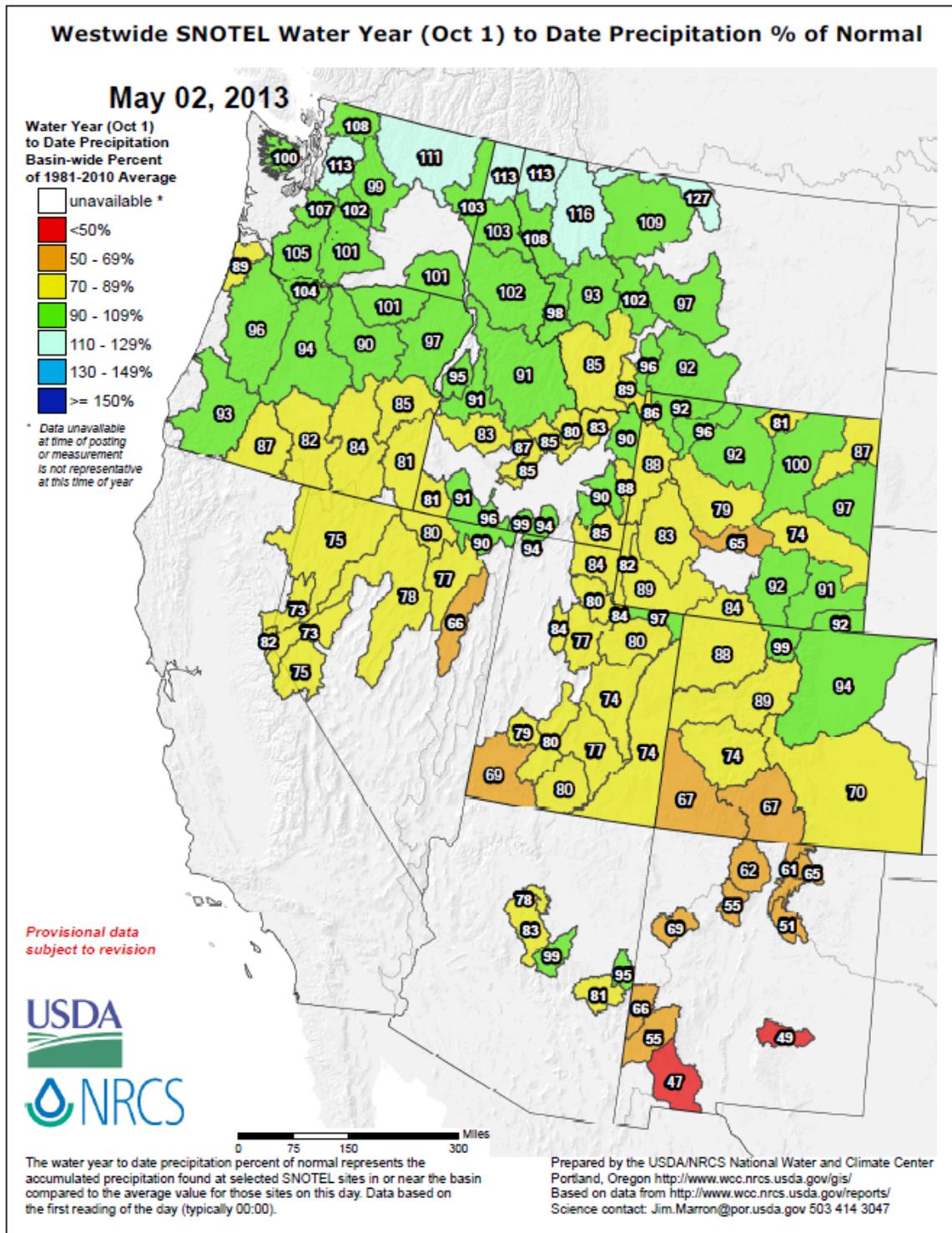


Fig. 2d: For the [2013 Water Year](#) that began on 1 October 2012, the pattern continues to resemble La Niña (e.g., wetter northern tier). Parts of Arizona are still the exception for the southern tier with near normal amounts. Southeastern Oregon and northeast Nevada, despite below average precipitation, have seen much below average amounts of snowpack this winter (Fig. 3b). The opposite situation (more SWE and less precipitation) has occurred this season over Wyoming. This week's precipitation over northeast Colorado and southeast Wyoming has helped increase the moisture levels between 2% and 4%. For additional information, daily reports by SNOTEL sites are available [here](#).

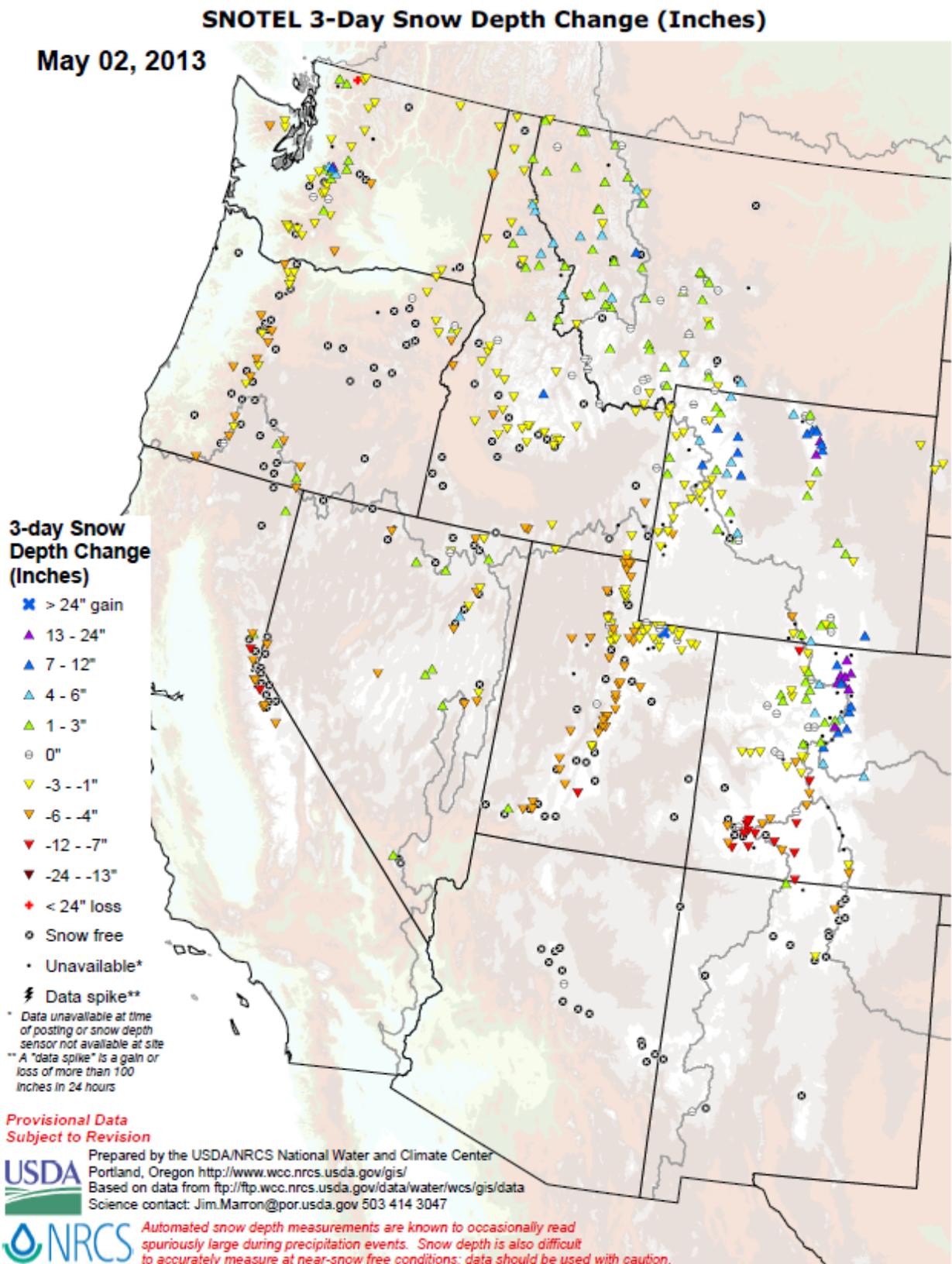


Fig. 3a: The [3-day snow depth changes](#) for the Western US show a spring storm delivering heavy snowfall over the Front Range in Colorado and parts of northern Wyoming.

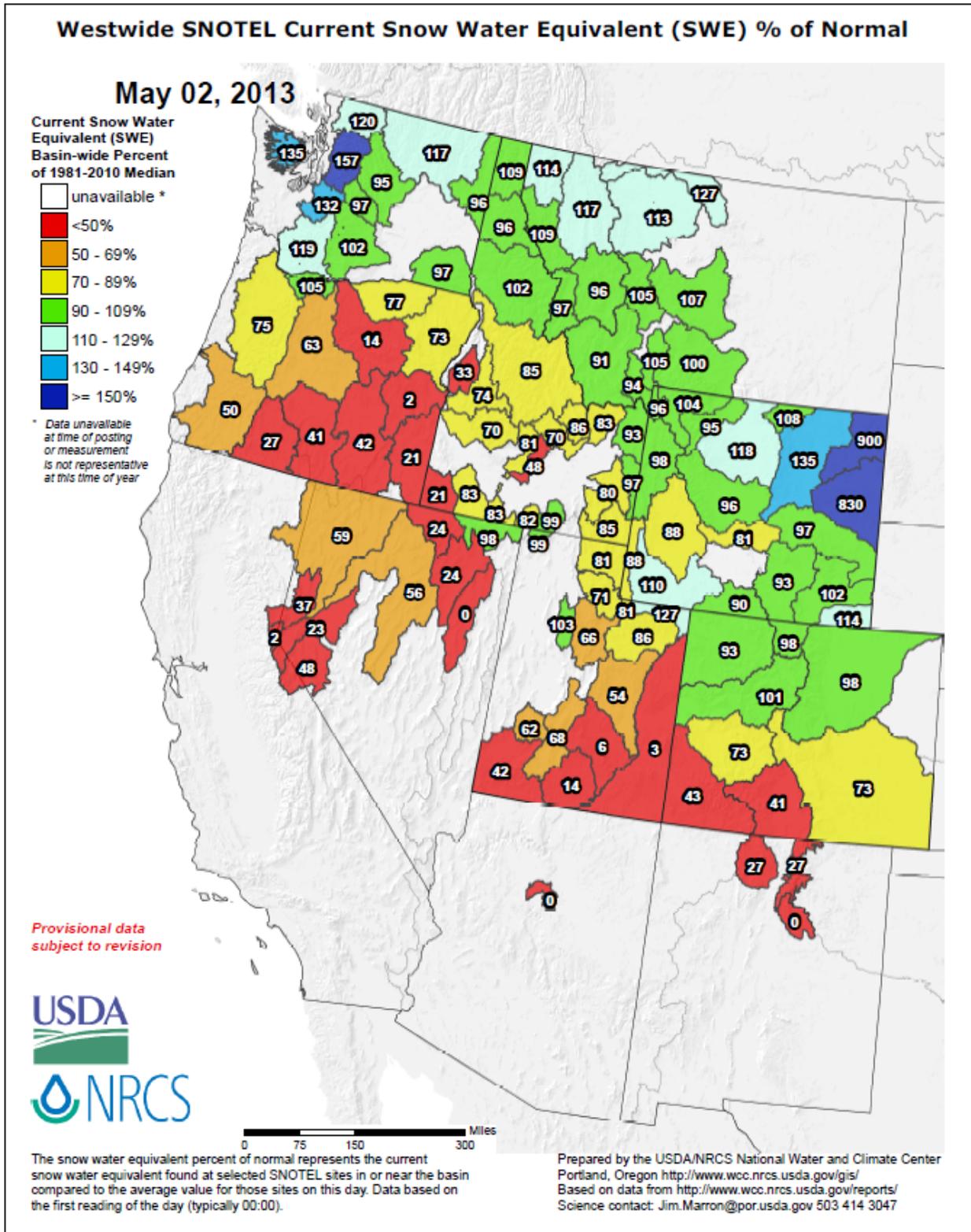


Fig. 3b: [Snow-Water Equivalent](#) (SWE): Today's map shows values holding over areas of the Rockies that received snowfall earlier this week, but falling elsewhere as a result of drier weather and more direct sunshine. The very high values over northeastern Wyoming are a result of a statistical anomaly where any snow cover this late in the season is a rare occurrence. A useful basin-by-basin assessment of SWE to date can be viewed by state [here](#) and [here](#).

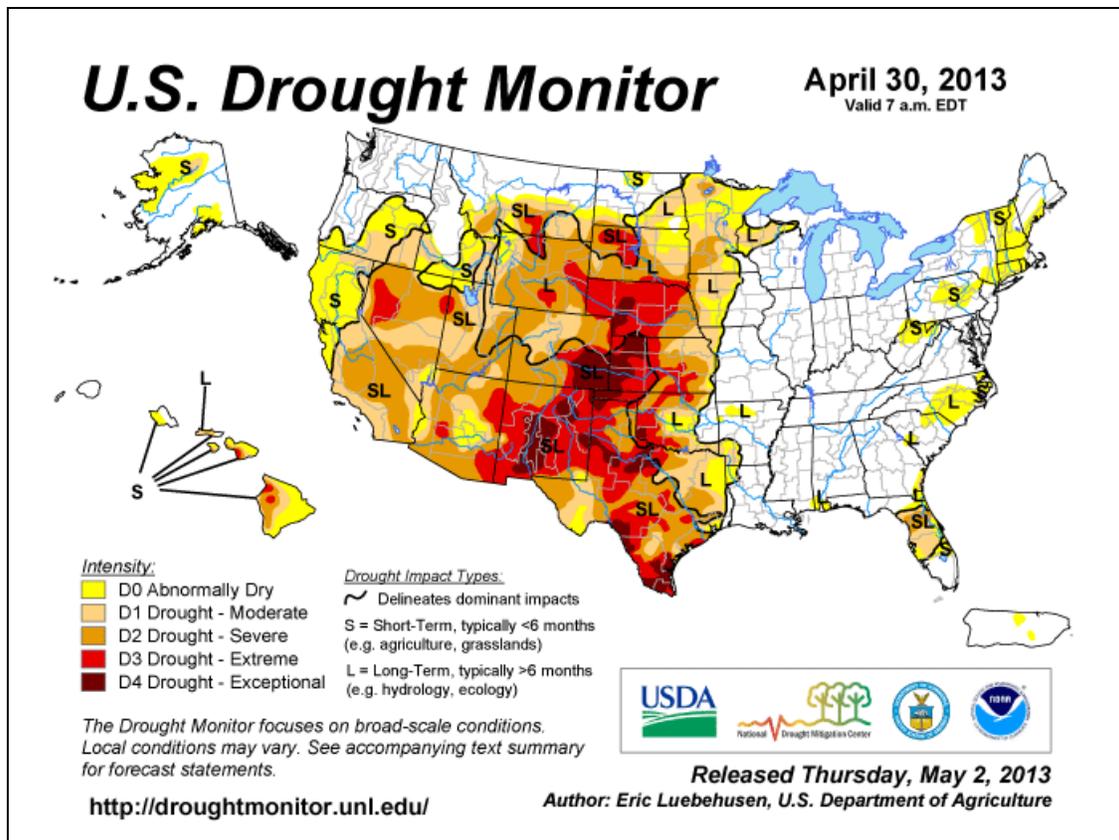


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across the western Corn Belt of the Plains into southeastern Colorado and is expanding across New Mexico. For more drought news, see [Drought Impact Reporter](#). The latest [drought indicator blend and component percentiles](#) spreadsheet is a great resource for climate division drought statistics. See Fig. 8 for the latest [Drought Outlook](#) (forecast).

Agriculture Related News

- [Calf losses likely from Wyoming snowstorm](#) - April 20, **Wyoming**.
- [Crop insurance indemnities nearly \\$17 bln in 2012 – USDA](#)
- [Drought takes toll on South Texas cotton acreage](#)-April 26, **Rio Grande Valley, TX**.
- [Grain handlers wary of toxin lingering in '12 U.S. corn harvest](#) - April 19, **U.S.**
- [Record Freeze in U.S. Extending Wheat Crop Damage](#) - April 23, **U.S.**

Water Supply & Quality Drought Stories

- [Abilene declares water emergency](#) - April 23, **Abilene, Kansas**.
- [Dust storms hasten snowmelt](#) - April 21, **Southwestern Colorado**.
- [LCRA to release water for threatened species downriver](#) - April 22, **Texas**.
- [NM grapples with tough choices as drought persists](#) - April 25, **New Mexico**.
- [North Platte shatters record for driest 365 days](#) – 30 April, **western Nebraska**

General Awareness

- [SNOTEL Water Update for the Western U.S.](#)
- [April 23, 2013: Is the Great Plains Drought Over?](#)
- [Cautious relief in Midwest as river levels fall](#)
- [Drought divide is taking shape across the USA](#)
- [Rain eases drought for some farmers, but not all](#)

U.S. Drought Monitor

West

April 30, 2013

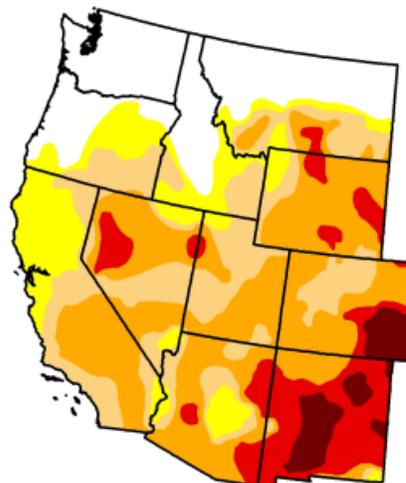
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	19.56	80.44	66.68	45.32	15.09	4.09
Last Week (04/23/2013 map)	20.28	79.72	66.00	43.41	16.10	1.87
3 Months Ago (01/29/2013 map)	23.58	76.42	66.52	44.01	16.39	2.15
Start of Calendar Year (01/01/2013 map)	24.39	75.61	69.31	45.04	18.01	2.15
Start of Water Year (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
One Year Ago (04/24/2012 map)	32.83	67.17	47.61	25.91	4.36	0.91

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, May 2, 2013
Eric Luebehusen, U.S. Department of Agriculture

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Some deterioration in D4 occurred this past week mostly in New Mexico. See, [NIDIS Upper Colorado River Regional Drought Early Warning System](#). Also listen to [CLIMAS](#) Podcast: [Here Comes the Fire Season](#)

In California, there are cooperative snow surveys made up of 35 or so utilities, water agencies, government agencies and the Department of Water Resources. The NRCS is one of the cooperating agencies. Through this cooperative, California has over 200 manual snow surveys and has a similar number of snow pillows. With this data they publish a Bulletin 120 every month from February through May which provides a forecast of April through July runoff. We provide daily snow reports through the California Data Exchange Center (which also posts the Bulletin 120 at

<http://cdec.water.ca.gov/snow/bulletin120/index2.html>) through the following links:

Current PAGE6 report: <http://cdec.water.ca.gov/cgi-progs/snow/PAGE6>
 Current DLYSWEQ report: <http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ>
 Current Regional Snowpack Plots: http://cdec.water.ca.gov/cgi-progs/snow/PLOT_SWC
 California also hosts a statewide water conditions page at: http://cdec.water.ca.gov/water_cond.html which has links to precipitation, reservoir storage, snowpack, runoff, and summary reports. Click for the latest statistics for [California Reservoirs](#).

For the [latest USDA/NASS weekly agricultural report](#) for California:

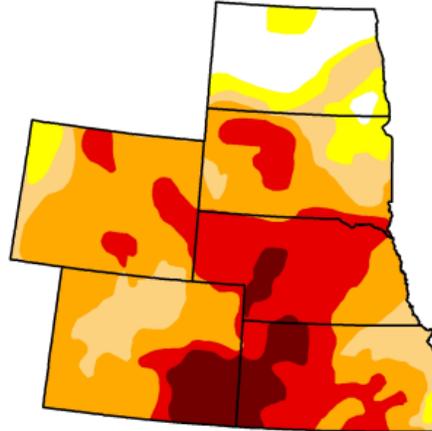
Also see USDA Agriculture Data:
 U.S. Hay Production [Map](#); U.S. Winter Wheat [Map](#); NASS [Statistics by States](#)

Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor
High Plains

April 30, 2013
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	7.72	92.28	85.04	69.52	32.53	8.00
Last Week (04/23/2013 map)	7.07	92.93	86.14	69.80	37.82	7.32
3 Months Ago (01/29/2013 map)	4.79	95.21	92.08	87.25	61.29	27.02
Start of Calendar Year (01/01/2013 map)	1.54	98.46	93.01	86.20	60.25	26.99
Start of Water Year (09/25/2012 map)	0.00	100.00	98.91	83.80	61.28	24.35
One Year Ago (04/24/2012 map)	43.85	56.15	25.85	5.70	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>



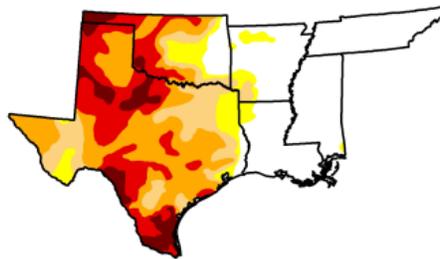
Released Thursday, May 2, 2013
Eric Luebehusen, U.S. Department of Agriculture

Fig. 4b: Drought Monitor for the [High Plains](#) with statistics over various time periods. Note significant improvement in all categories but D4 this week. See [Kansas Drought Update](#).

U.S. Drought Monitor
South

April 30, 2013
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	36.44	63.56	56.10	44.27	22.46	5.95
Last Week (04/23/2013 map)	34.09	65.91	57.02	42.53	23.28	6.76
3 Months Ago (01/29/2013 map)	31.46	68.54	56.21	41.73	24.00	8.59
Start of Calendar Year (01/01/2013 map)	21.18	78.82	63.69	50.50	32.80	10.98
Start of Water Year (09/25/2012 map)	24.13	75.87	66.61	51.50	29.86	9.11
One Year Ago (04/24/2012 map)	49.41	50.59	33.77	24.86	13.28	4.70



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, May 2, 2013
Eric Luebehusen, U.S. Department of Agriculture

Fig. 4c: Drought Monitor for the [South-Central Region](#) with statistics over various time periods. Note slight improvement in all categories this week. Check out the [Texas Drought Website](#). See [Texas Reservoirs](#). See recent article on [Texas drought](#).

Drought Monitor Classification Changes for Selected Time Periods

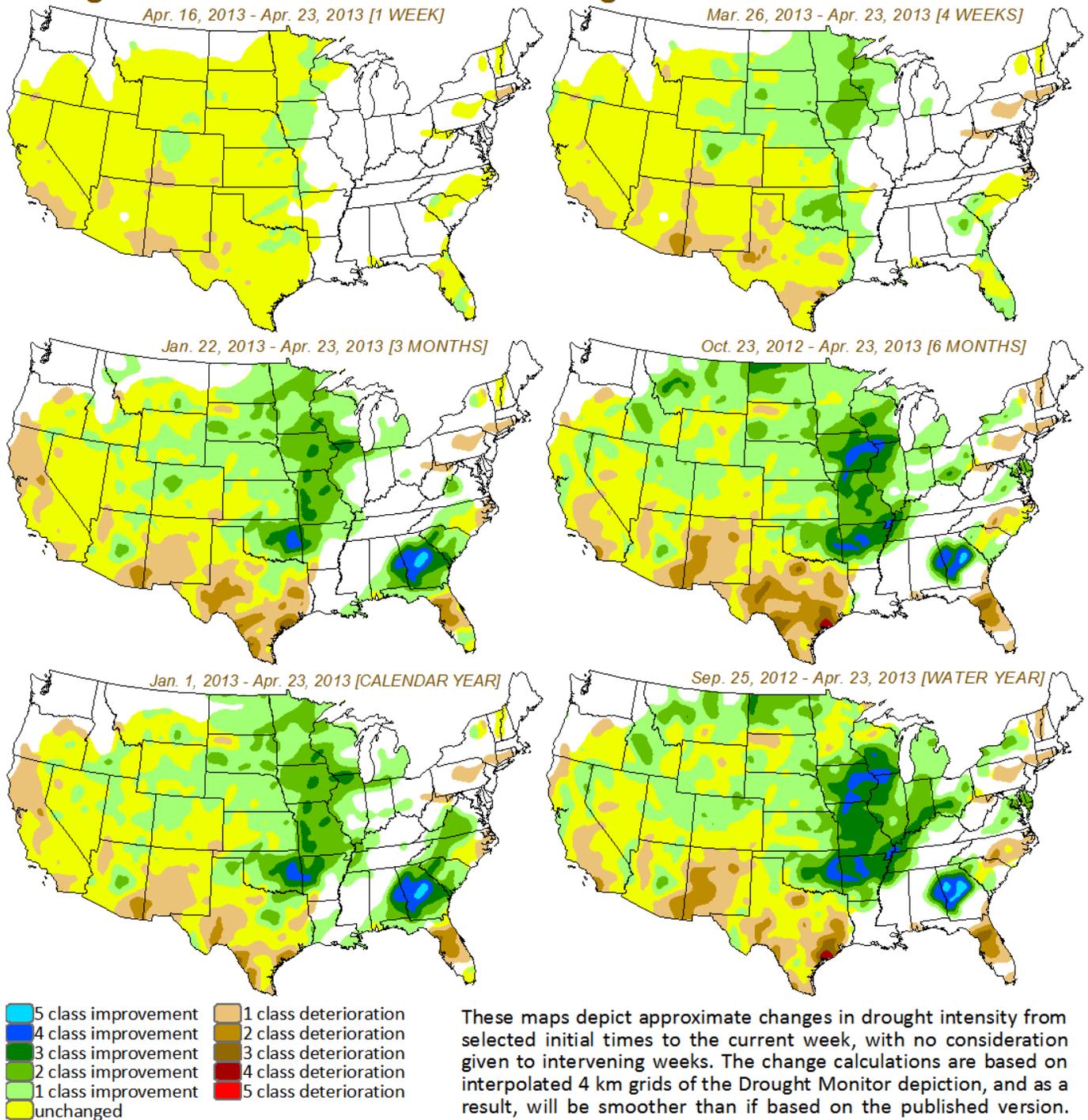
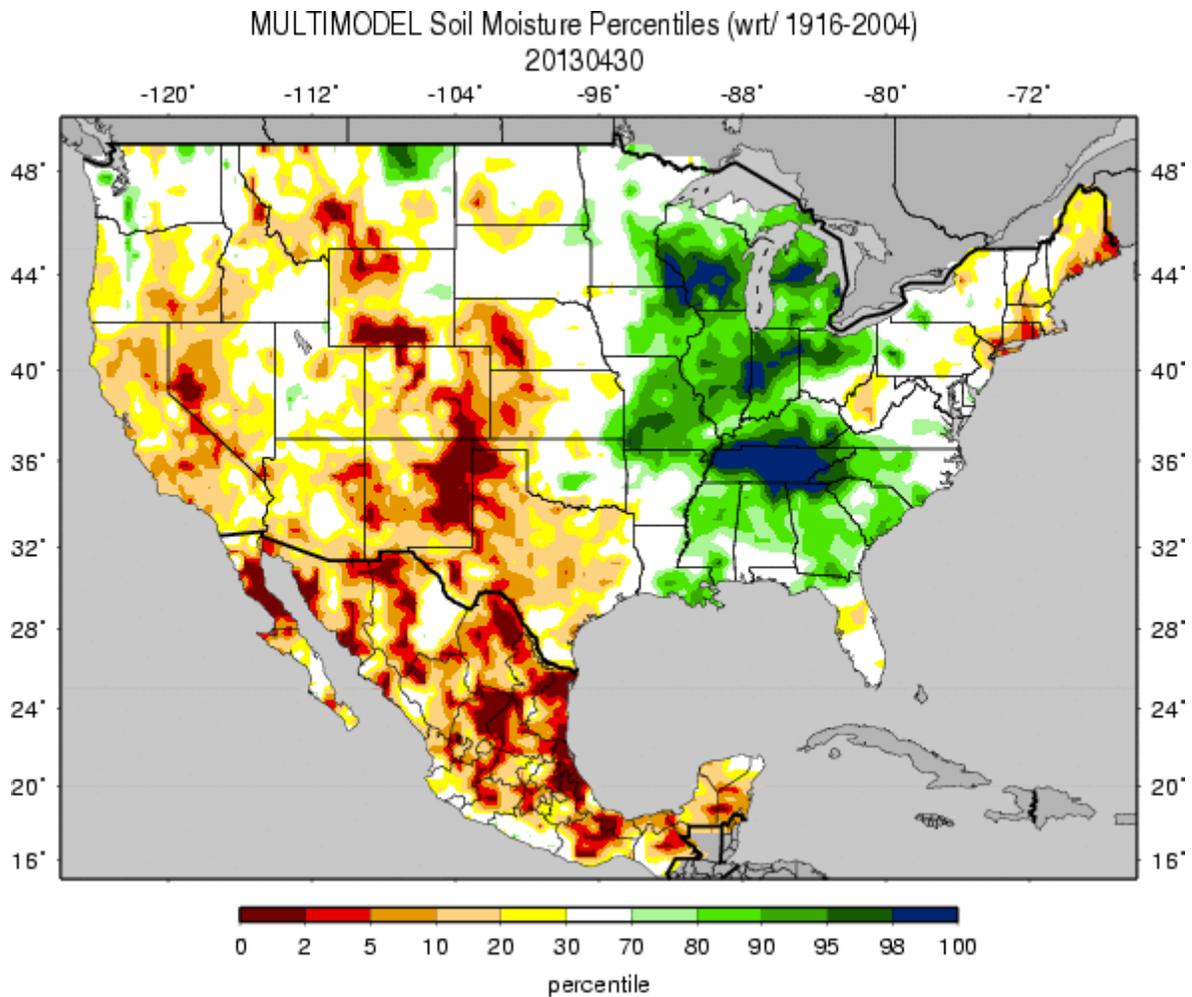


Fig. 4d: Drought Monitor [category changes](#) over several time periods. This figure is based on data through 23 April. Note recent deterioration over parts of the Southwest and southern California (upper level panel).

Weekly Snowpack and Drought Monitor Update Report



Figs. 5: Soil moisture ranking in [percentile](#) as of 30 April shows dryness over the western High Plains, much of the Rockies, and western Great Basin. Note abundant moisture over the Eastern Plains and Tennessee River Valley. *Useful Hydrological Links:* [Crop Moisture Index](#); [Palmer Drought Severity Index](#); [Standardized Precipitation Index](#); [Surface Water Supply Index](#); [Weekly supplemental maps](#), [Minnesota Climate Working Group](#).

Weekly Snowpack and Drought Monitor Update Report

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

Station (2172) MONTH=2013-04-02 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision as of Thu May 02 09:57:50 CDT 2013

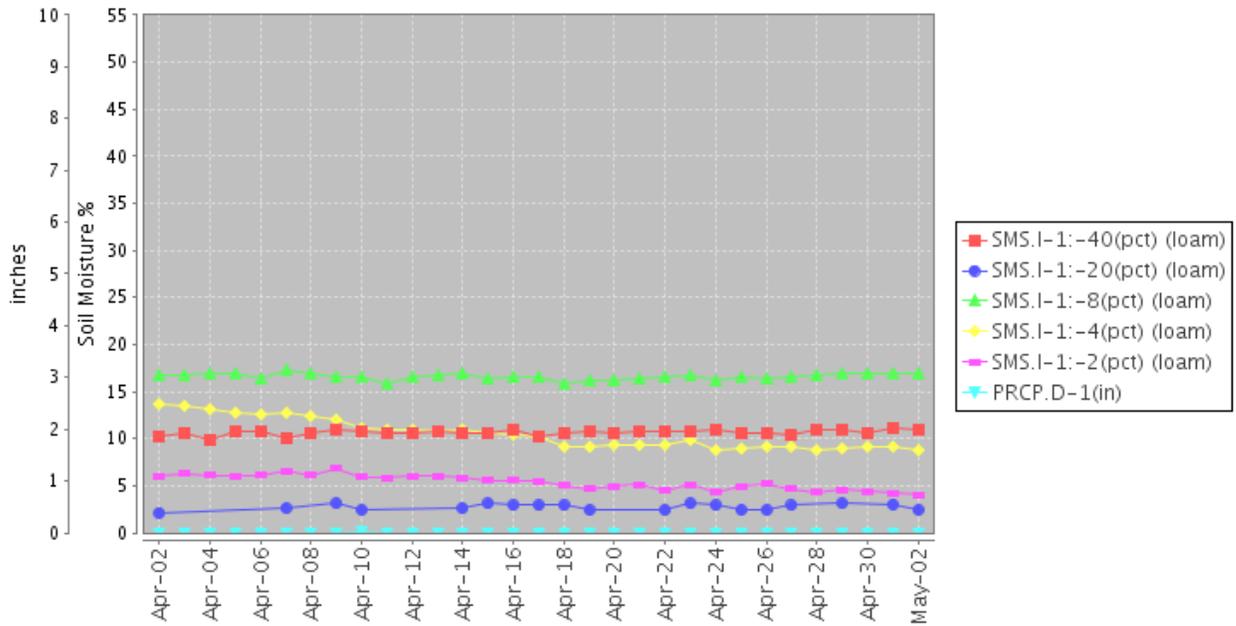
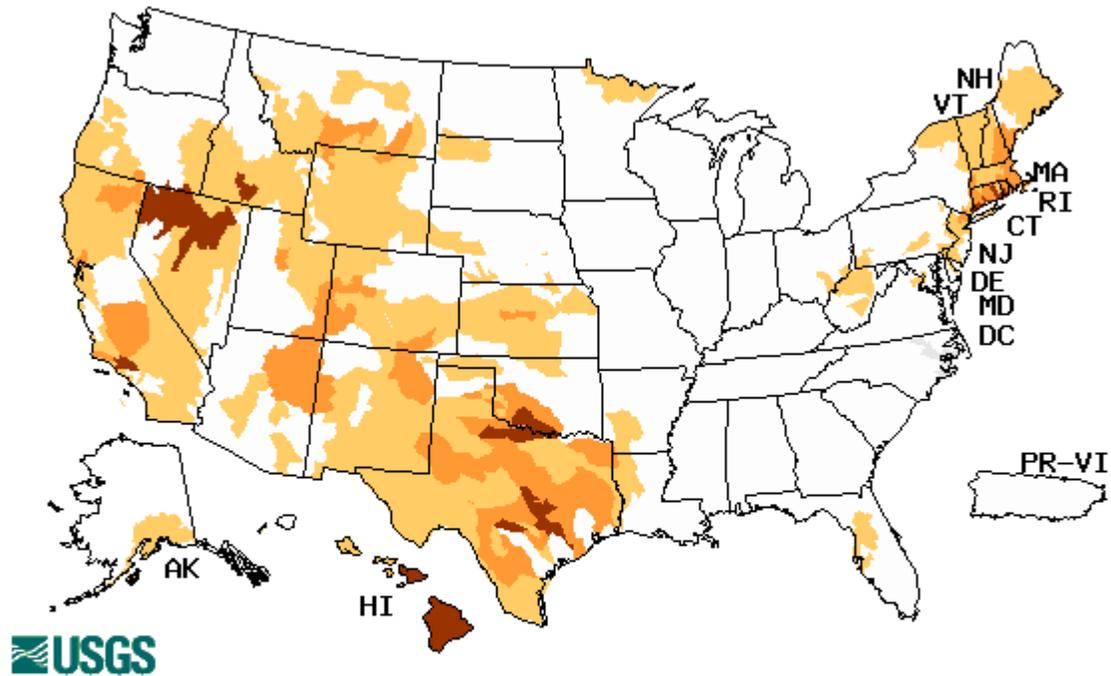


Fig. 6: This NRCS resource shows a site over [north-central New Mexico](#) with relatively dry soil moisture as a result of no rainfall during the past month. *Useful Agriculture Links:* [Vegetation Drought Response Index](#); [Evaporative Stress Index](#); [Vegetation Health Index](#); [NDVI Greenness Map](#); [GRACE-Based Surface Soil Moisture](#); [North American Soil Moisture Network](#). [Monthly Wild Fire Forecast Report](#).

Weekly Snowpack and Drought Monitor Update Report

Wednesday, May 01, 2013



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 the year. **Severe** conditions exist over parts of Texas, southern Oklahoma, northern Nevada, southern California, Hawaii, and south-central Idaho. A new area of severe conditions has developed over southern New England. See the USGS [National Water Information System Mapper](#).

Weekly Snowpack and Drought Monitor Update Report

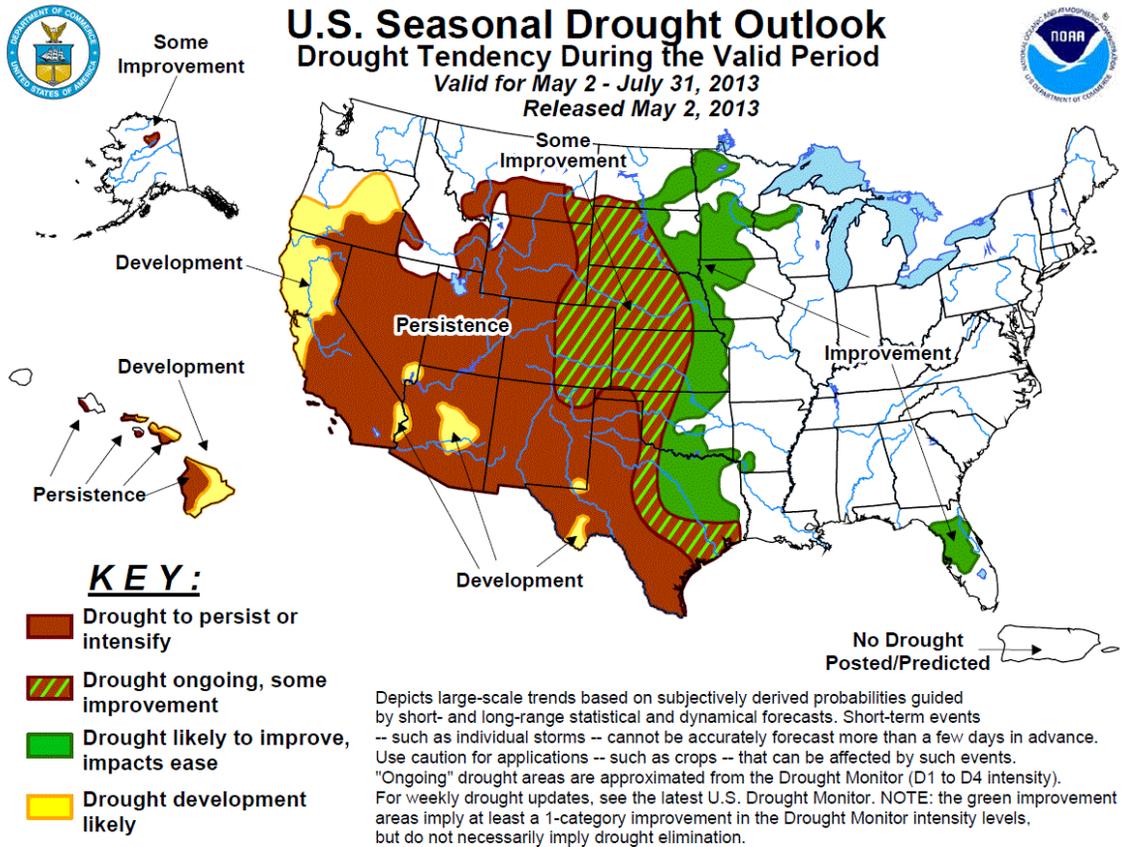
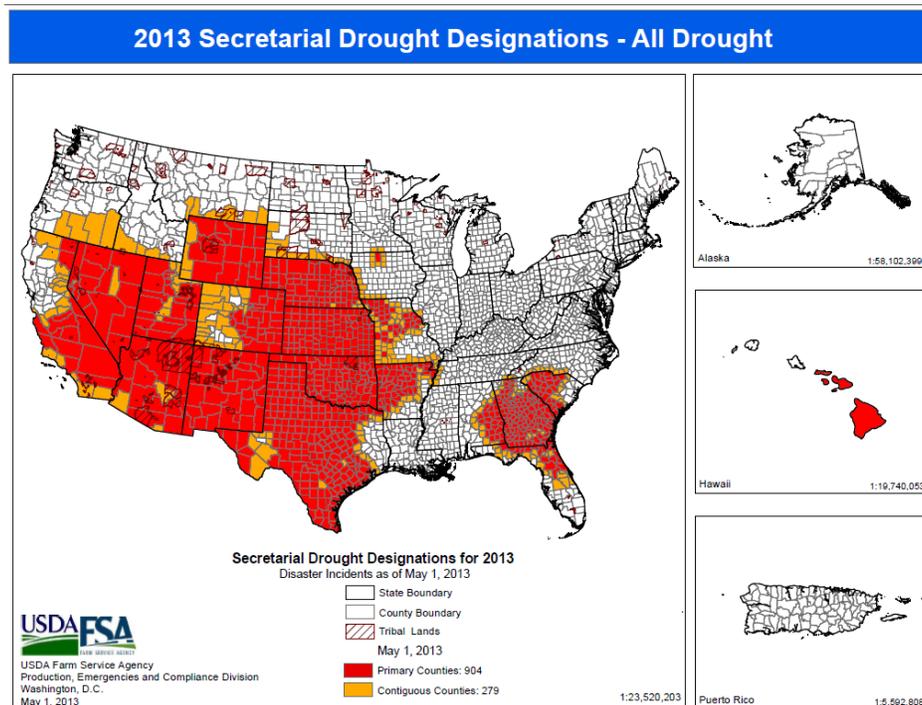


Fig. 8: U.S. Seasonal [Drought Outlook](#) as of 2 May. Note that there are no significant changes since the last update two weeks ago.



See [USDA Drought Assistance website](#).
See [National Sustainable Agriculture Information Service](#)

Weekly Snowpack and Drought Monitor Update Report

**National Drought Summary provided by the National Drought Mitigation Center --
Drought Author: Author: [Eric Luebehusen, U.S. Department of Agriculture](#)**

National Drought Summary -- April 30, 2013

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/>.

Summary: “Periods of locally heavy rain provided drought relief in central and southern portions of the nation, while dry weather with sharp temperature contrasts exacerbated drought from the central High Plains into central and western Texas. The Upper Midwest continued to deal with long-term precipitation deficits despite seasonal spring flooding, while an early end to the western Water Year caused drought to intensify across the Southwest. Short-term dryness was also beginning to have an impact in parts of the Northeast and Mid-Atlantic.

Mid-Atlantic and Northeast: Drier-than-normal weather along with mostly seasonable temperatures prevailed. Over the past 90 days, precipitation deficits of 3 to 7 inches (locally 50 percent of normal or less) have caused streamflows to drop below the 20th percentile in many of the newly expanded D0 (Abnormally Dry) areas. Similar streamflow levels were noted in northern West Virginia, where D0 was expanded slightly. Much of the northern Mid-Atlantic and Northeast is dealing with increasingly dry conditions, and will need to be monitored over the upcoming weeks for potential impacts.

Southeast: Locally heavy rain alleviated Moderate Drought (D1) and further eased lingering long-term dryness (D0). Rain was heaviest (1-4 inches, locally more) from northern and eastern Georgia into southern and western North Carolina, which allowed for the removal of D1 in this region. Streamflows continued to exhibit recovery, and were mostly at or above the 20th percentile (D0 equivalent) at the end of the monitoring period. In contrast, northern Florida’s D2 (Severe Drought) area was mostly warm and dry, with declining soil moisture and low streamflows (10th percentile or lower) indicative of the drought’s localized but pronounced impacts. In southern Florida, a wet April coupled with additional showers during the past week eliminated D0 from the region.

Northern Plains and Upper Midwest: Long-term drought lingered despite seasonal snow melt and river flooding, although some improvements were made using updated precipitation data and reports from the field. A narrow band of 0.50 to 1.50 inches of rain eased D0 (Abnormal Dryness) and D1 (Moderate Drought) from south-central North Dakota into northwestern Minnesota. In addition, updated 90- and 180-day precipitation data supported reducing or eliminating areas of D0 and D1 in southeastern North Dakota and neighboring environs, with totals now at or above 100 percent of normal (locally up to 150 percent) at both time scales. Likewise, D3 (Extreme Drought)

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was reduced in northeast Wyoming and southwestern South Dakota, where near-normal precipitation over the past three months has eased drought impacts. Despite the general consensus that conditions continue to improve, long-term indicators, including the 6-, 9-, and 12-month Standardized Precipitation Indices, show underlying, long-term drought persists in the core D1 and D2 areas of the Upper Midwest. In contrast, short-term dryness has reduced soil moisture in north-central North Dakota, where a small area of D0 was added.

Central Plains and middle Mississippi Valley: Drought intensified over the central High Plains, while rain provided additional drought relief to eastern portions of the region. Widespread showers (0.75-2.0 inches) in eastern Kansas and southwestern Missouri eased drought, with 2-week totals exceeding 4 inches in eastern-most D0 and D1 areas. Meanwhile, above-normal precipitation in northeastern Colorado improved winter wheat conditions, and drought impacts continued to lessen in this area; consequently, Extreme Drought (D3) was mostly eliminated from this corner of the state. In contrast, dry, hot weather (upper 80s and lower 90s, degrees F) prevailed from Nebraska into southeastern Colorado, where drought intensity either held steady or increased. In particular, Exceptional Drought (D4) expanded across southeastern Colorado, where poor pastures and winter wheat conditions reflect the ongoing impacts of protracted dryness (6-month precipitation locally less than 30 percent of normal); the Colorado winter wheat crop was rated 54 percent poor to very poor as of April 28, 2013, while Kansas wheat stood at 39 percent.

South-Central U.S.: Sharp temperature fluctuations were accompanied by rain in the east and south, while unfavorably dry conditions prevailed over the High Plains. From the southeastern Plains into the western Delta, 1 to 3 inches of rain (locally more) eased long-term drought in eastern Oklahoma and northwestern Arkansas; an additional week of rain will likely eliminate the lingering D0 in northwestern Arkansas. Meanwhile, widespread, locally heavy downpours (1-6 inches) eased Moderate to Exceptional Drought (D1-D4) across the southern third of Texas, with totals exceeding 6 inches in western and southern Houston as well as north of Victoria. Meanwhile, scorching heat (highs reaching 97-99°F) extended from the Big Bend northward into eastern New Mexico and the Texas Panhandle. This heat followed an early-period cold snap, when lows dropped into the teens. With no rain and increasing heat, drought intensity and coverage expanded across the southern half of the High Plains. As of April 28, 2013, the percent of the southern Plains' winter wheat rated poor to very poor stood at 41 percent in Oklahoma and 68 percent in Texas, both increases from last week.

Western U.S.: The largely disappointing water year neared an end, with many areas of the west ending the season with bleak spring runoff prospects and increasing drought concerns. Showers were confined to the non-drought areas of the Pacific Northwest, where 1 to 2 inches (liquid equivalent) were reported during the monitoring period. Elsewhere, above-normal temperatures and dry weather maintained or increased drought intensity and coverage.

There was little change from California into the Great Basin and central Rockies. However, D0 (Abnormal Dryness) was expanded up the coast into northwestern California and southwestern Oregon, where 90-day precipitation averaged 35 to 60 percent of normal. Extreme Drought (D3) was reduced in southwestern

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Wyoming, where reports from the field indicated conditions have improved in this data-spare area.

Farther south, water-year precipitation shortfalls increased from the southern San Joaquin Valley (40 to 55 percent of normal) into southern Nevada (30 to 50 percent of normal) and western Arizona (less than 50 percent of normal). The water-year's disappointing conclusion was further evidenced by the last 3 months, when rainfall tallied less than 20 percent of normal from the southern California Coast into western Arizona and much of central and eastern New Mexico. Consequently, Moderate (D1) to Severe (D2) Drought was expanded in these locales. In New Mexico, the past 36 months (Apr 2010 - Mar 2013) have been the 4th driest period on record for the state, the driest since the 1950s. Exceptional Drought (D4) was expanded to include much of New Mexico's Rio Grande Valley as well as portions of east-central and northeastern New Mexico.

Alaska, Hawaii, and Puerto Rico: In Alaska, locally heavy precipitation (liquid equivalent of almost 2 inches) eased D0 in southeastern portions of the state, while updated water-year precipitation values in the 50th percentile or higher supported additional D0 removal in northeastern Alaska. In contrast, D0 was expanded onto central and southern portions of the Kenai Peninsula where water-year precipitation was in the 10th percentile or lower. In Hawaii, there were no changes to the drought depiction despite nearly an inch of rain across the state's western islands. In Puerto Rico, locally heavy showers (2- 8 inches) boosted streamflows and all but eliminated Abnormal Dryness (D0) from the island.

Looking Ahead: A developing storm over the nation's mid-section will become cut off from atmospheric steering, causing the system to drift eastward into the Mid-South by week's end and the Southeast early next week. Five-day precipitation totals could reach 2 to 4 inches across the east-central Plains, upper Midwest, lower and middle Mississippi Valley, and eastern Gulf Coast region. In addition, late-season snow will fall from the central Rockies into the Upper Midwest. In contrast, little or no precipitation will occur in the Northeast and west of the Rockies. Unusually cool air will trail the storm, resulting in widespread freezes on May 2-3 as far south as the southern High Plains. Warmth will linger, however, from the eastern Corn Belt into the Northeast. The NWS 6- to 10-day outlook for May 7-11 calls for above-normal temperatures in the West and Northeast, while cooler-than-normal conditions will prevail across much of the Corn Belt and from the central and southern Plains into the Southeast. Meanwhile, near- to below-normal precipitation from the Northwest into the northern Plains and western and northern Corn Belt will contrast with wetter-than-normal weather in the central and southern Rockies, portions of the Intermountain West, and much of the eastern third of the nation."

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

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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 1, 2013

Supplemental Drought Information

The “Ag in Drought” file that had been previously posted each week by Brian Fuchs at NDMC is now available at: <http://www.usda.gov/oce/weather/Drought/AgInDrought.pdf>

Highlights for the drought-monitoring period ending 7 am EDT on April 23 include:

- Overall U.S. drought coverage decreased nearly one-half percentage point (0.48%) from the previous week to 47.34%. Drought coverage is now down 13.75 percentage points since the beginning of 2013 and down 18.11 points from the record high of 65.45% on September 25, 2012. For the second week in a row, a major spring storm soaked much of the Midwest. Improbably, flooding has now replaced drought as the Midwest’s greatest imminent concern. In fact, from April 20-23, the Mississippi River rose to one of its five highest levels on record from just south of Moline, Illinois, to just north of St. Louis, Missouri. Within that stretch of the middle Mississippi River, higher crests occurred in 1993 and 2008, and in some cases, 1973 and 2001. Record-setting crests were noted in portions of several smaller basins, including the Illinois River in Illinois, Wabash River in Indiana, and the Grand River in Michigan. Farther west, rain and snow continued to chip away at long-term drought across the eastern Plains, but drought remained entrenched in most areas from California to the High Plains.

- The portion of the contiguous U.S. in the worst category – D4, or exceptional drought – remained virtually unchanged at 2.59%.

- Winter wheat in drought dropped slightly from last week to 54%. There were three percentage point declines in hay in drought (43%) and cattle in drought (55%). Starting this week, corn and soybeans in drought have been added to the attached package of maps. Although very few Midwestern crops have been planted due to persistently below-normal temperatures and cool, soggy soils, it is illustrative to note the sharp declines in drought coverage in areas historically planted to corn and soybeans. By April 23, only 40% of the U.S. corn area was in drought, compared to 51% two weeks ago and last year’s peak of 89%. Similarly, just 33% of the U.S. soybean area is currently in drought, down from 43% two weeks ago and the 2012 peak of 88%.

[Brad Rippey](#), USDA Meteorologist
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Main areas/topics of concern for the week:

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New Mexico

- Worst drought in NM since the 1950s with this episode lasting for three years and counting
- The Rio Grande River is dry in southern NM, confining carp to small puddles. Thousands of freshwater clams have died. Domestic wells have dropped considerably near Hatch.
- Water restrictions in Santa Fe, Albuquerque and other communities.
- In eastern NM, ranchers are selling cattle, wells going dry
- Conflicts on Rio Grande and Pecos rivers.
 - Texas has asked the Supreme Court to force NM to stop pumping from the Rio Grande River and allow more water to flow south
 - Call on the Pecos River in eastern NM
- All snowmelt for the Pecos River in eastern NM was absorbed into dry soil and did not contribute any water to the Santa Rosa Lake, the main reservoir on the river

Rio Grande Valley in south Texas

- Roughly half as much cotton planted as was planted in the past 3 years, due to drought, lack of irrigation water
- The International Boundary and Water Commission releasing water from Amistad and Falcon reservoirs on the Rio Grande River to provide more water to the parched Lower Rio Grande Valley in Texas
- Power outages from utility pole top fires
- Fewer wildflowers, fewer pollinators in the region

Crop insurance indemnities climbed to a record \$16.99 billion for the 2012 crop year, according to a USDA report issued on April 22.

Statistics from Nebraska (as of 20 April 2013)

North Platte has just shattered its record for lowest 365 day (1 year) running precip total with only 7.23" (technically we don't break the record until midnight but with no clouds in the sky I felt safe we will stay dry). The previous record was 7.87" set on 6/9/1932. Midway through the month it looked promising that we would not break this record, however the last half of the month saw precip fall to the east.

Valentine saw some beneficial snow since February and will not break its record for 365 days, although it is below 10" for the 12 months. The lowest in recent days was 9.45" - the end of February. Although it is currently down to 9.53".

Side note: interesting comparing VTN and LBF with the lowest 365 day totals. North Platte has not gone below 10" since 1940, while Valentine had all but 1 over their lowest totals since 1934. The range is also much greater for North Platte.

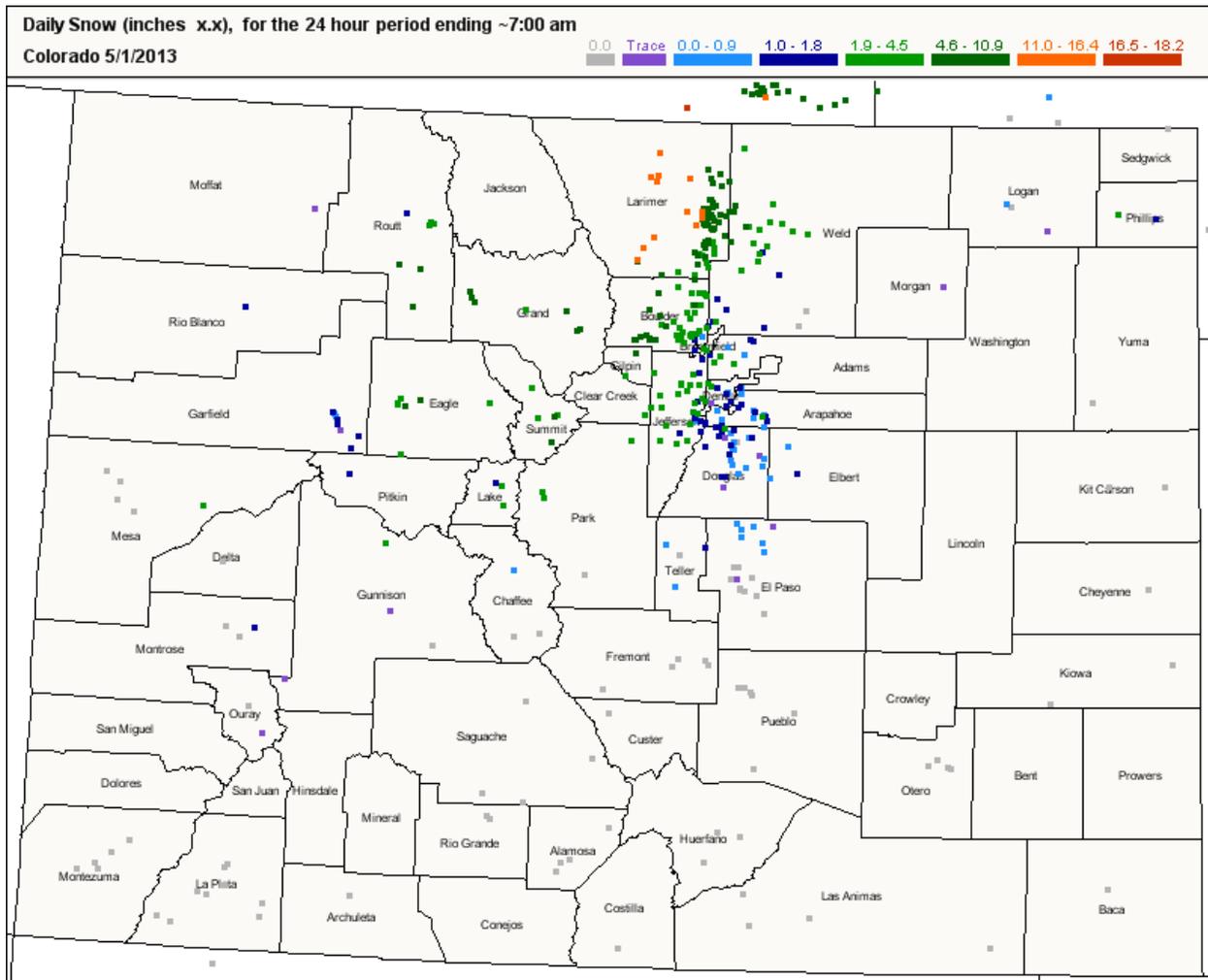
The other two ASOS sites:

Broken Bow will record its first month since last April (2012) to record more than an inch of precipitation, although it was still well below normal for the month. The 12 month total is staggering with just over 4.5" when they should be over 23.5". They are short what Imperial averages in a year.

Climate Division						Drought Blends		Individual Blend Components										
								Precipitation					Palmer Z-Index	Palmer Drought Index (PDI)	Palmer Hydro. Drought Index (PHDI)	5-Year Average Z-Index	CPC Soil Moisture Model	
ID #	U.S. CD #	State #	State CD #	State Name	CD Name	Short Term	Long Term	1-Month	3-Month	6-Month	1-Year	2-Year	5-Year					
2501	173	25	1	Nebraska	Panhandle	51.4	19.7	65.6	50.9	22.2	0.0	5.2	68.4	70.2	0.7	0.0	69.9	2.4
2502	174	25	2	Nebraska	North-Central	63.0	16.7	73.6	75.6	47.2	0.0	21.9	89.1	72.1	10.6	3.9	89.0	4.9
2503	175	25	3	Nebraska	Northeast	75.8	17.3	86.3	78.1	58.9	1.8	9.5	66.8	89.2	20.8	10.9	63.9	15.9
2505	176	25	5	Nebraska	Central	65.3	15.7	78.6	69.8	41.3	0.0	10.0	92.8	77.3	14.5	12.7	90.2	4.9
2506	177	25	6	Nebraska	East-Central	73.3	22.4	83.3	77.9	59.3	8.2	24.2	65.5	82.4	23.5	13.3	60.0	22.0
2507	178	25	7	Nebraska	Southwest	47.5	35.4	59.4	58.3	39.0	0.0	14.6	94.4	56.3	7.2	5.8	95.5	3.7
2508	179	25	8	Nebraska	South-Central	53.7	21.5	57.3	57.9	38.2	1.6	23.7	88.3	66.9	26.7	18.9	95.4	14.6
2509	180	25	9	Nebraska	Southeast	65.6	19.2	76.9	62.2	46.4	11.8	23.5	34.4	76.2	26.1	19.7	41.8	19.5

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Snowfall from [CoCoRaHS](#) Network (24 hours ending at 7AM 1 May 2013)



Excellent example of a springtime [Front Range upslope weather event](#) in Colorado.