



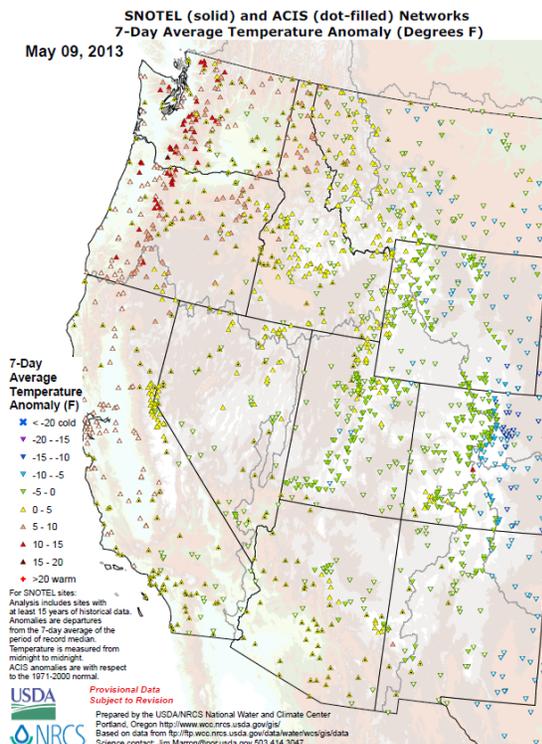
Natural Resources Conservation Service
 P.O. Box 2890
 Washington, D.C. 20013

Weekly Snowpack / Drought Monitor Update, 9 May 2013

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY (Figures are clickable to enlarge and update)

Temperature

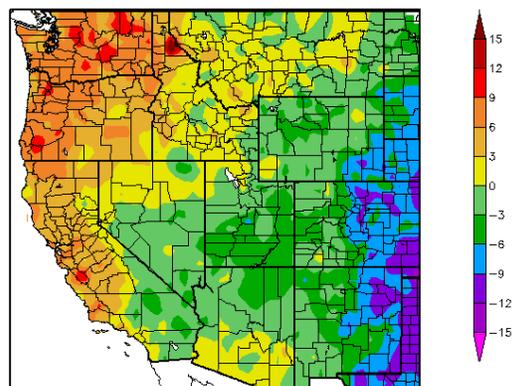
[SNOTEL](#) and ACIS 7-day temperature anomaly ending today reveals a large west-to-east temperature gradient, with the western half of the Western States on the warmer side.



[ACIS 7-day](#) average temperature anomalies show the greatest positive temperature departures over the northern Idaho Panhandle ($>+12^{\circ}\text{F}$). The greatest negative departures occur across portions of the eastern plains of New Mexico and Colorado ($<-9^{\circ}\text{F}$).

For more figures, see the Western Water Assessment's Intermountain West Climate [Dashboard](#). See the [Westwide Drought Tracker](#) for more related maps.

Departure from Normal Temperature (F)
 5/2/2013 – 5/8/2013



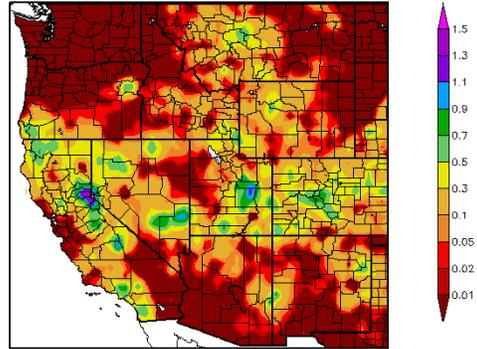
Generated 5/9/2013 at HPRCC using provisional data.

Regional Climate Centers

Weekly Snowpack and Drought Monitor Update Report

[ACIS](#) 7-day average precipitation amounts for the period ending May 8 show the heaviest precipitation scattered across from northern California to central Colorado.

Precipitation (in)
5/2/2013 – 5/8/2013

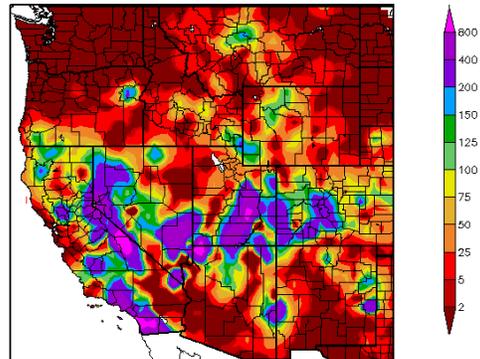


Generated 5/9/2013 at HPRCC using provisional data.

Regional Climate Centers

This moisture is clearly reflected in terms of very high percent of normal values.

Percent of Normal Precipitation (%)
5/2/2013 – 5/8/2013



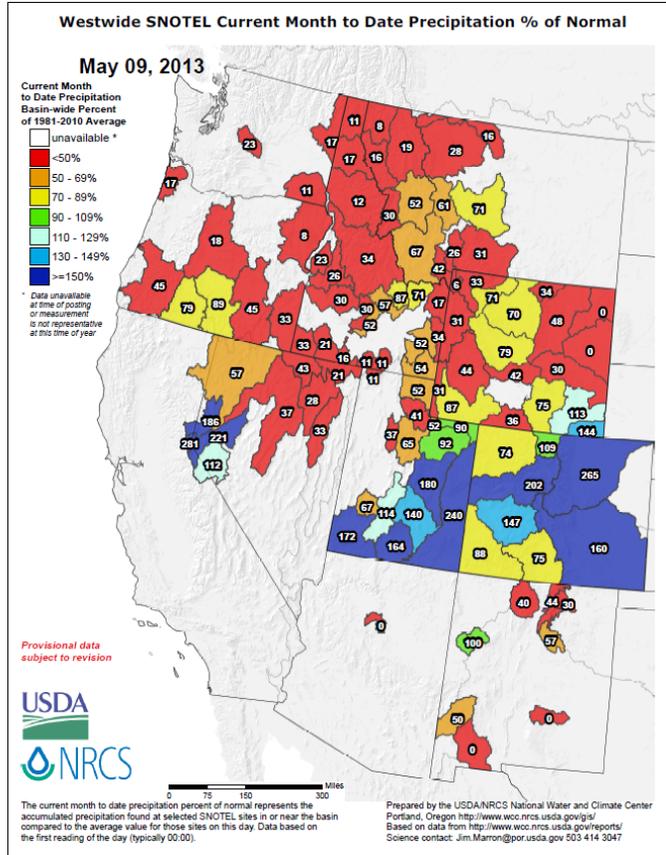
Generated 5/9/2013 at HPRCC using provisional data.

Regional Climate Centers

Weekly Snowpack and Drought Monitor Update Report

SNOTEL [month to date](#) precipitation percent of normal pattern shows significant precipitation across the northern Sierra Nevada, the southeastern half of Utah, and much of central and eastern Colorado.

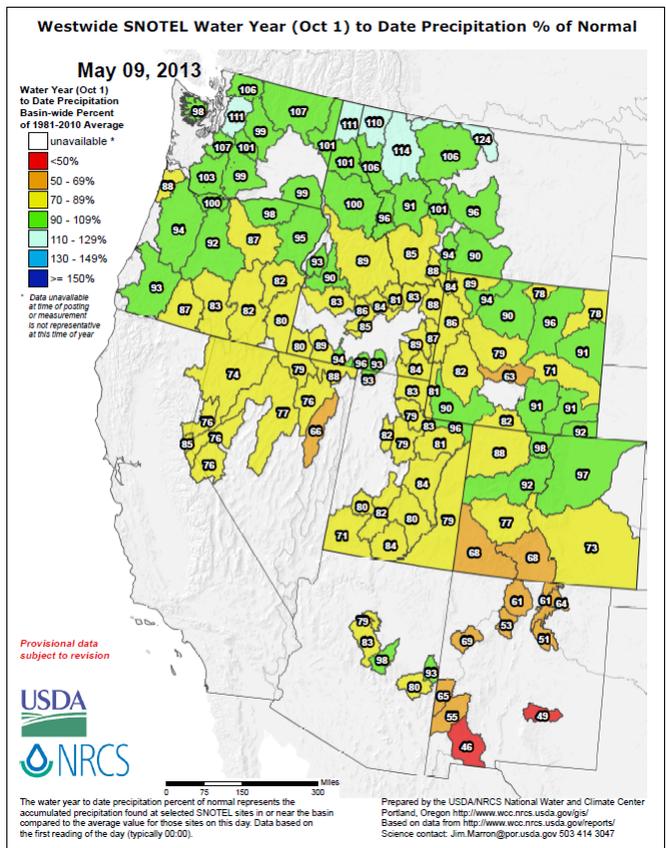
The remainder of the West is starting the month with deficit amounts.



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 northeastern Nevada have bucked this tendency over the northern tier states with lesser precipitation.

For additional information, daily reports by SNOTEL sites are available [here](#).

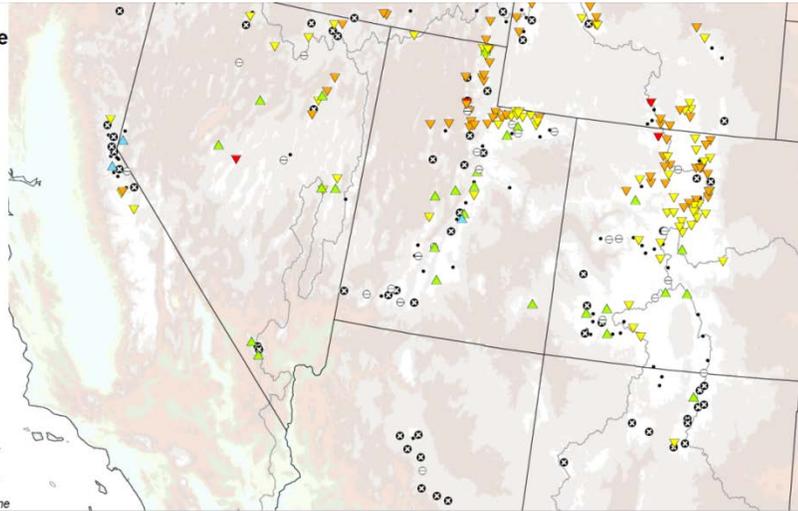


Weekly Snowpack and Drought Monitor Update Report

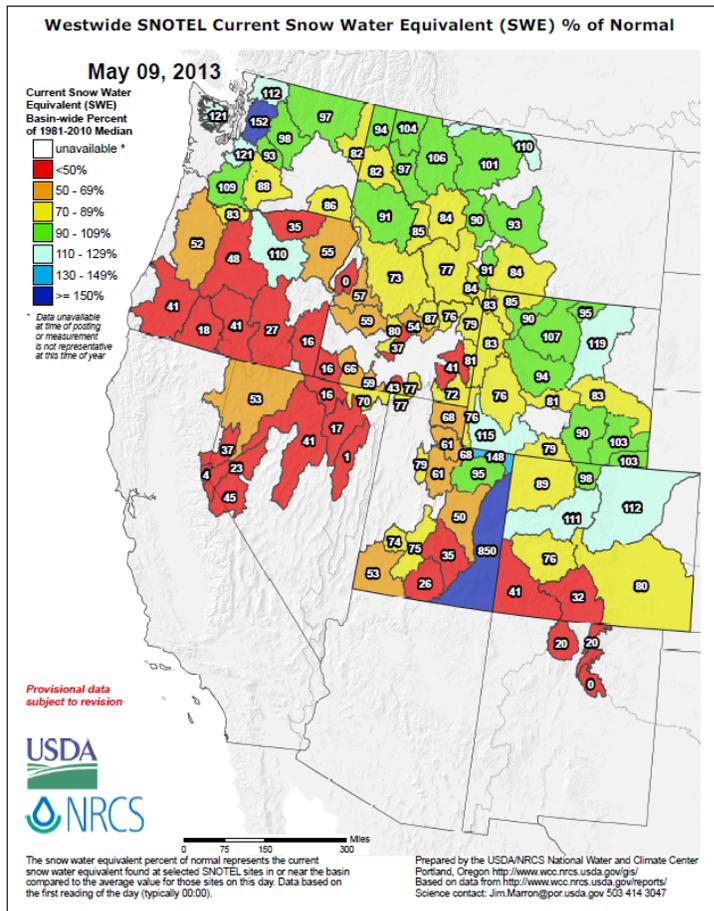
Snow

3-day Snow Depth Change (Inches)

- ✦ > 24" gain
 - ▲ 13 - 24"
 - ▲ 7 - 12"
 - ▲ 4 - 6"
 - ▲ 1 - 3"
 - 0"
 - ▼ -3 - -1"
 - ▼ -6 - -4"
 - ▼ -12 - -7"
 - ▼ -24 - -13"
 - ✦ < 24" loss
 - Snow free
 - Unavailable*
 - ✦ Data spike**
- * Data unavailable at time



The NRCS [3-day snow depth changes](#) map for the Western U.S. shows what is probably the last snow for the season falling from the Sierra Nevada (California-Nevada), Wasatch (Utah), and San Juan Mountains (Colorado).



Snow-Water Equivalent (SWE):

Today's map shows high values holding in Washington and the northern Rockies but falling elsewhere as a result of drier weather and more direct sunshine.

The extremely high value over eastern Nevada reflects low snowpack where there is usually none measured by this late in the season.

A useful basin-by-basin assessment of SWE to date can be viewed by state [here](#) and [here](#).

Weekly Snowpack and Drought Monitor Update Report

WEATHER AND DROUGHT SUMMARY

The following **Weather and Drought Summary** is provided by this week's NDMC Author: **Author: [Eric Luebehusen, U.S. Department of Agriculture](#)**:

Weather Summary: “Due to blocking high pressure over the northwestern Atlantic Ocean, a weather system in the Nation’s mid-section stalled and temporarily retrograded westward, dropping widespread moderate to heavy rains on the Mississippi and Tennessee Valleys, Southeast, and Florida. With the addition of a deep southward push of sub-freezing air into the central U.S., accumulating record-late May snows fell as far south as northwestern Arkansas and northeastern Oklahoma. Unfortunately, the moisture bypassed much of the West and southern Plains, and was blocked by the strong high pressure from entering the Northeast. As the period ended, however, enough moisture from an upper-air low off the southern California coast raised humidity levels, lowered winds, and generated widely-scattered showers in the West which aided firefighters battling the huge wild fire in the southern California coastal mountains. Farther east, the slow-moving storm was creeping northeastward into the mid-Atlantic. Most of the lower 48 States and Alaska recorded subnormal weekly temperatures, especially the Plains, with unseasonable warmth confined to the West, Southwest, eastern Great Lakes region, Ohio Valley, and New England.”

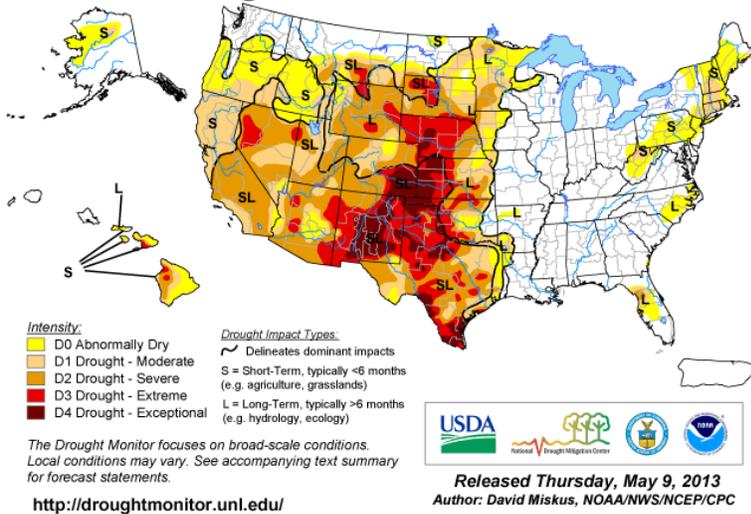
Southwest and West: “Except for widely-scattered light showers late in the period, much of the West saw no precipitation while experiencing above normal temperatures. The late period change of weather, however, was beneficial to wildfire fighters as higher humidity, lower winds, and scattered showers aided the fight to contain the large Spring blaze in the southern California coastal mountains. After a good start to the 2012-13 wet season (November and December were very wet), the January through April period was the complete opposite. In fact, the January-April precipitation percentiles were the driest on record in parts of western Oregon, most of northern and central California, northwestern Nevada, and parts of southwestern Montana, according to the WRCC. With the early good start to the West wet season largely forgotten with four consecutive months of very dry weather and declining basin average precipitation and snow water content values, D0 was added into central Idaho, most of Oregon, and southwestern Montana. Northern California and southern Oregon were similarly degraded by one category, from D0 to D1, while central California was increased from D1 to D2. Losses in rangeland grasses and pastures have been reported in California, with herds being moved to irrigated pastures. Areas in southern California that received light showers late in the period were left at D1 for now. In the Sierra Nevada basins, water year average precipitation ranged from 72 to 81 percent of normal, while the May 6 SWE at 0 to 45 percent. Slight increases in D2 and D3 were made in parts of Arizona where the medium-term deficits were the greatest. In New Mexico, a large expansion of D4 was made as both short and long-term conditions are near record low levels. Through March 2013, the past 30 months have been the driest such period on record. Much of the state reported under half of normal precipitation the past 6 months. The months of July, August, and September (JAS) are the 3 wettest consecutive months for New Mexico, coincident with the summer monsoon. The 2011 and 2012 JAS were the 14th and 9th driest on record, respectively, and another dry monsoon could be devastating. In southeastern New Mexico, the Brantley Reservoir, the largest reservoir on the Pecos, is currently at 1 percent of capacity. The combined storage on the 4 reservoir along the Pecos is at 25 percent of average. In the Hatch Valley, New Mexico’s chile belt, the Elephant Butte Reservoir, where Hatch irrigation water is stored, held the lowest amount of water available for irrigation in almost 100 years. Its storage capacity of 2.2 million acre feet was at 10 percent capacity, and will severely affect the farmers who must pump groundwater to make up for the lost river water.”

A comprehensive narrative describing drought conditions for the nation can be found at the end of this document. For drought impacts definitions for the figures below, click [here](#).

Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor

May 7, 2013
Valid 7 a.m. EDT



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. This link is for the latest [Drought Outlook](#) (forecast). See US Drought Monitor Forum [presentations](#) (16-18 April 2013).

Drought and dry conditions are contributing to fire activity in parts of the U.S.

- CalFire issued a statewide ban on outdoor burning as **California** becomes drier. A wildfire in Ventura County that began yesterday morning has charred more than 10,000 acres and isn't slowing down.
- The state forester of **Arizona** warned that the fire danger was high statewide and particularly in southeastern Arizona. Well-timed rains led to prolific grass growth in the Sonoran Desert near the Phoenix urban area, which has turned into loads of dry fuel.
- Western **Massachusetts** is very dry, prompting a fire chief in Westfield (just west of Springfield) to ban outdoor burning.
- A fire danger emergency was in effect in Lincoln County in central **New Mexico**

The last snow survey for California revealed that the snowpack was just 17 percent of normal, said California Department of Water Resources officials.

The wheat production estimate after the Kansas wheat tour is 313.1 million bushels, which is 18 percent lower than last year's harvest, as cold temps and drought take their toll.

U.S. Drought Monitor West

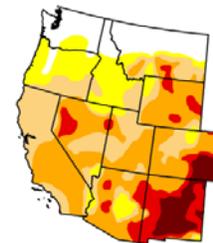
May 7, 2013
Valid 7 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	13.46	66.54	71.04	47.26	15.25	5.66
Last Week (04/30/2013)	15.56	62.44	66.60	45.32	15.09	4.09
3 Months Ago (02/07/2013)	23.73	76.27	66.52	44.01	15.72	3.15
Start of Calendar Year (01/01/2013)	24.39	75.61	69.31	45.04	16.01	2.15
Start of Water Year (09/01/2012)	15.12	64.88	77.15	43.65	16.85	1.77
One Year Ago (05/07/2012)	57.48	62.52	45.62	25.60	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 9, 2013
 National Drought Mitigation Center

Drought Monitor for the [Western States](#)

Weekly Snowpack and Drought Monitor Update Report

Drought Monitor for the [High Plains](#) with statistics over various time periods. Note improvement in all categories but D4 this week.

See [Kansas Drought Update](#).

U.S. Drought Monitor High Plains

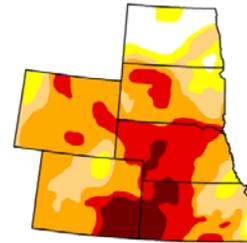
May 7, 2013
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	7.88	92.02	62.56	66.30	30.43	8.48
Last Week (04/30/2013)	7.72	92.28	65.04	69.52	32.50	8.00
3 Months Ago (02/07/2013)	4.79	95.21	62.08	87.25	60.61	29.19
Start of Calendar Year (01/01/2013)	1.54	98.46	63.01	86.20	60.25	26.99
Start of Water Year (09/01/2012)	0.00	100.00	58.91	63.80	61.28	24.25
One Year Ago (05/07/2012)	67.05	42.85	13.27	8.41	0.00	0.00

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

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

<http://droughtmonitor.unl.edu>



USDA
 Released Thursday, May 9, 2013
 National Drought Mitigation Center

Drought Monitor for the [South-Central Region](#) with statistics over various time periods. Note some deterioration in the higher categories this week.

Check out the Texas Drought [Website](#). See [Texas Reservoirs](#).

U.S. Drought Monitor South

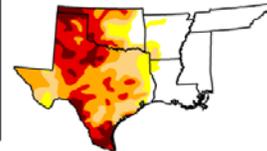
May 7, 2013
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	36.77	63.23	56.17	43.82	24.87	7.66
Last Week (04/30/2013)	36.44	63.56	56.10	44.27	22.46	9.80
3 Months Ago (02/07/2013)	34.85	65.35	55.82	41.86	23.01	9.20
Start of Calendar Year (01/01/2013)	21.19	78.82	63.69	50.30	32.90	10.98
Start of Water Year (09/01/2012)	24.13	75.87	68.61	51.80	29.86	9.11
One Year Ago (05/07/2012)	45.10	54.90	36.70	26.40	12.92	4.39

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

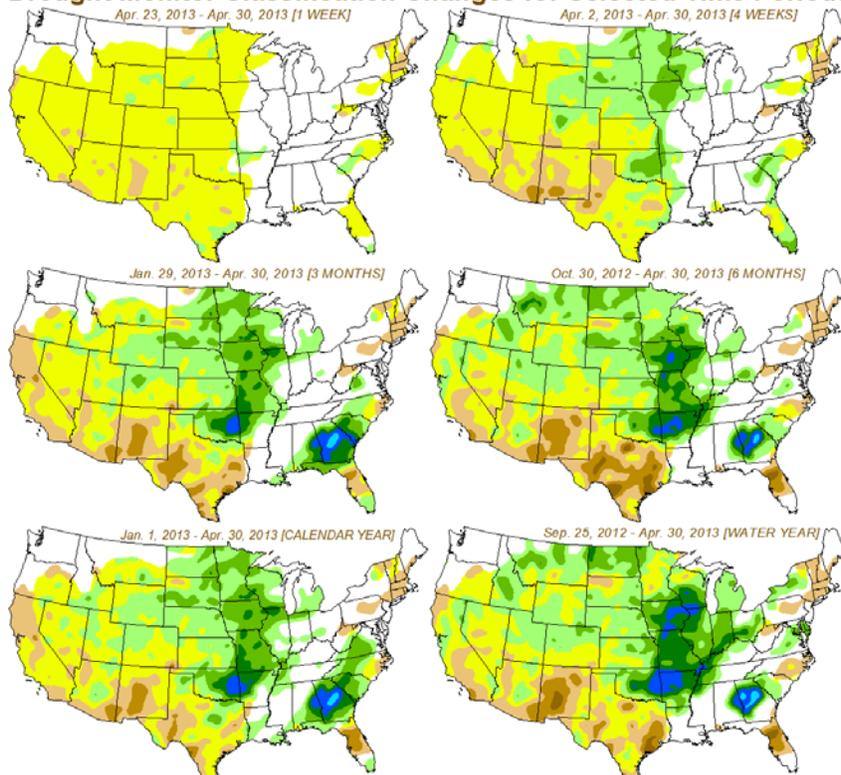
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<http://droughtmonitor.unl.edu>



USDA
 Released Thursday, May 9, 2013
 National Drought Mitigation Center

Drought Monitor Classification Changes for Selected Time Periods



■ 5 class improvement
■ 4 class improvement
■ 3 class improvement
■ 2 class improvement
■ 1 class improvement
■ unchanged
■ 1 class deterioration
■ 2 class deterioration
■ 3 class deterioration
■ 4 class deterioration
■ 5 class deterioration

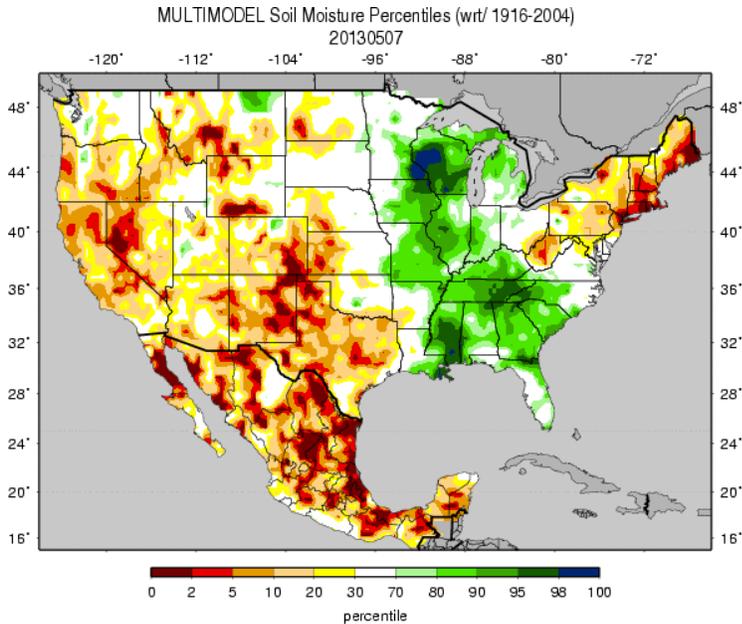
These maps depict approximate changes in drought intensity from selected initial times to the current week, with no consideration given to intervening weeks. The change calculations are based on interpolated 4 km grids of the Drought Monitor depiction, and as a result, will be smoother than if based on the published version.

Drought Monitor [category changes](#) over several time periods. This figure is based on data through 30 April.

Note recent deterioration over parts of the Southwest (upper level panel) and especially in the upper right panel.

Weekly Snowpack and Drought Monitor Update Report

Soil Moisture

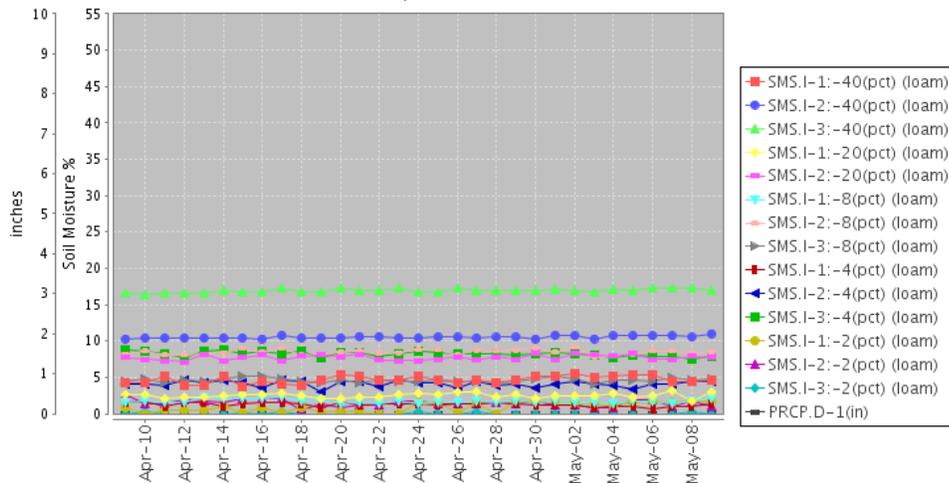


Soil moisture ranking in [percentile](#) as of 7 May shows dryness over the western High Plains, much of the Rockies, western Great Basin, and California. New England dryness is expanding. Note abundant moisture over the western Great Lakes, Tennessee and lower Mississippi River Valleys.

Useful Hydrological Links: [Crop Moisture Index](#); [Palmer Drought Severity Index](#); [Standardized Precipitation Index](#); [Surface Water Supply Index](#); [Weekly supplemental maps](#), [Minnesota Climate Working Group](#).

Soil Climate Analysis Network (SCAN)

Station (2168) MONTH=2013-04-09 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision as of Thu May 09 10:02:50 CDT 2013



This NRCS resource shows a site over [south-central New Mexico](#) with very dry soil moisture as a result of no rainfall during the past month.

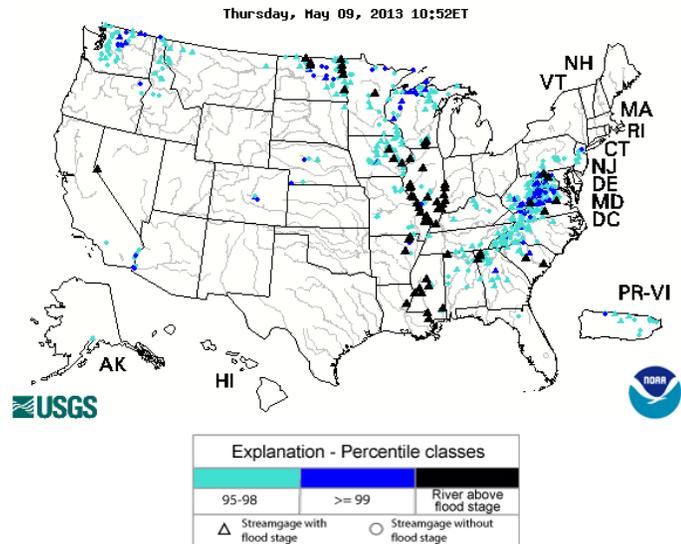
Useful Agriculture Links: [Vegetation Drought Response Index](#); [Evaporative Stress Index](#); [Vegetation Health Index](#); [NDVI Greenness Map](#); [GRACE-Based Surface Soil Moisture](#); [North American Soil Moisture Network](#); [Monthly Wild Fire Forecast Report](#).

Weekly Snowpack and Drought Monitor Update Report

U.S. Historical Streamflow

Map of current flood and high flow conditions shows much of the Mississippi River and Red River (North Dakota) at flood stage. See the USGS [National Water Information System Mapper](#).

Map of flood and high flow condition (United States)



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

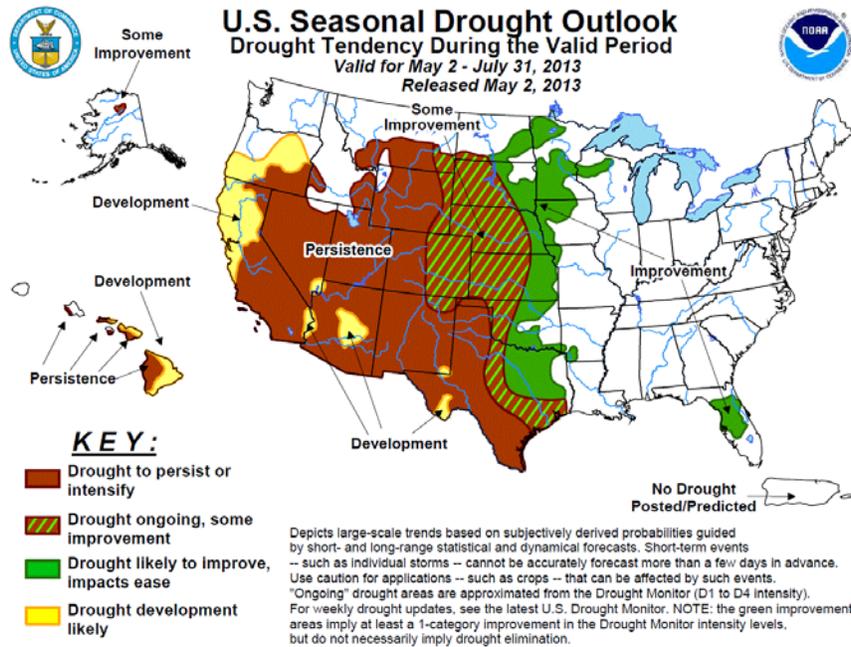
The National Water and Climate Center (NWCC) Homepage provides the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>. Reports from 2007 are available online. Reports from 2001-2006 are available on request.

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

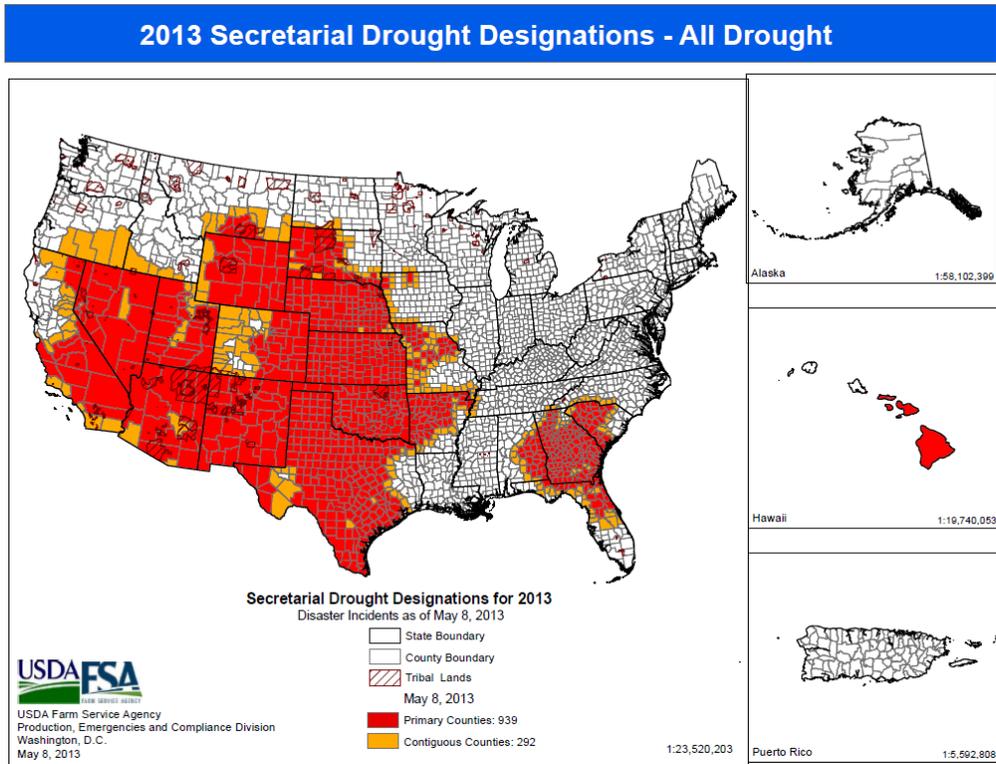
/s/
Micheal L. Golden
Deputy Chief, Soil Science and Resource Assessment

Weekly Snowpack and Drought Monitor Update Report

Drought Outlook (Forecast)



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



Refer to USDA Drought Assistance [website](#) and [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: [David Miskus, NOAA/NWS/NCEP/Climate Prediction Center](#)

National Drought Summary -- May 7, 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/>.

Weather Summary: Due to blocking high pressure over the northwestern Atlantic Ocean, a weather system in the Nation's mid-section stalled and temporarily retrograded westward, dropping widespread moderate to heavy rains on the Mississippi and Tennessee Valleys, Southeast, and Florida. With the addition of a deep southward push of sub-freezing air into the central U.S., accumulating record-late May snows fell as far south as northwestern Arkansas and northeastern Oklahoma. Unfortunately, the moisture bypassed much of the West and southern Plains, and was blocked by the strong high pressure from entering the Northeast. As the period ended, however, enough moisture from an upper-air low off the southern California coast raised humidity levels, lowered winds, and generated widely-scattered showers in the West which aided firefighters battling the huge wild fire in the southern California coastal mountains. Farther east, the slow-moving storm was creeping northeastward into the mid-Atlantic. Most of the lower 48 States and Alaska recorded subnormal weekly temperatures, especially the Plains, with unseasonable warmth confined to the West, Southwest, eastern Great Lakes region, Ohio Valley, and New England.

New England and mid-Atlantic: Strong high pressure off the Northeast coast kept much of the region precipitation free until after the cut off period (12Z Tuesday), further increasing short-term shortages. With many areas receiving less than half of normal precipitation at 30 and 60 days, and under 70 percent at 90 days, deficits at 30, 60, and 90 days rose to between 2 and 4, 3 and 6, and 4 to 7 inches, respectively. Accordingly, D0 was expanded northward and southward, now stretching from central Maine southward into southern West Virginia. In addition, where the deficits were the greatest at 90 days (northern West Virginia and south-central new England), and where the average USGS stream flows at 1, 7, and 14 days were below the tenth percentile (many at record lows on May 6), D1 was added. Fortunately, this is a time of year when stream flows can respond quickly to a good soaking. With southern New England still only one-third to one-half through green-up, the impacts of dry weather were not as obvious as they would be later in the spring. The dry weather, however, has elevated fire weather conditions in the interior.

Southeast: Moderate to heavy rains fell on most of the remaining D0 to D2 areas in the Southeast, prompting additional improvements in the Carolinas, Georgia, southern Alabama, and Florida. In the Carolinas, the slow-moving storm dropped 1 to 2 inches of rain on the western areas of the D0, enough to reduce short and medium term deficits and remove abnormal dryness there. Locations in the eastern D0 area, however, measured under 0.5 inch, and D0 remained. In Georgia, 1.5 to 2 inches of rain near Augusta was enough to eliminate lingering long-term shortages, while heavier rains (2.5 to 6 inches) along the eastern coast eliminated the D1 and most of the D0. Glynn and McIntosh counties were kept at D0 as those two counties missed the intense rains that fell further to the south, in addition to lingering departures at 180 days. In southern Alabama, copious rains (7 to 11 inches) erased the small area of D0(L), producing surpluses at 90 and 180 days. In Florida, a very wet week for much of the state called for sweeping changes (1 and 2 category improvements, and in a few areas, 3 categories). South Florida had 2 to 6 inches, a 2 to 4 inch strip fell from Tampa to Orlando and Daytona Beach, and over 10 inches inundated the Jacksonville and St. Johns county areas. The Big Cypress Preserve had its highest April rainfall since 1970, and the entire South Florida Water Management District had its heaviest 7-day total for this time of the year. As a result, in north-central Florida, D2 was improved to D1, D0, or nothing (3 categories) in its eastern half as the rain totals increased toward the Atlantic Ocean. For example, most of Flagler County, with over 7 inches of rain, went from D2 to nothing. The western third of the D2 area, however, remained as amounts were much lower (less than an inch) in Levy, Citrus, and western Marion counties, with deficits still lingering at 90 days and USGS stream flows remaining in the lower tenth percentile. Elsewhere, most of the D1 was improved to D0 (except to no drought where the heaviest rains fell), and the former D0 areas eliminated.

Weekly Snowpack and Drought Monitor Update Report

The Midwest: With a nearly stationary storm system located over the Nation's midsection for days, ample moisture was pulled northward from the Gulf of Mexico, resulting in widespread heavy rains (more than 2 inches) from the central Gulf Coast northward into the western Great Lakes region. Where enough cold air mixed into the system, late-spring heavy snows blanketed parts of the Midwest (western Missouri, central Iowa, southeastern Minnesota, western Wisconsin), and as far south as northwestern Arkansas. As has been the precipitation pattern recently, the heaviest totals have fallen mainly along and east of the eastern edge of the main drought area, thus continuing a slow retreat of the drought toward the west. In north-central Wisconsin, snow melt and additional precipitation has caused many dam operators to release excess water. Rochester, MN, has already had its fourth wettest spring on record, with the rest of May yet to come. Ground water sensors in north-central Iowa have risen considerably during the past 2 months. In contrast, somewhat lower totals (1 to 1.5 inches) in western Iowa, combined with shallow well levels that are several feet lower than a year ago (although they have been rising recently), and low subsoil moisture estimates from USDA/NASS (4 percent very short and 24 percent short) tempered any major improvements here. However, the combination of wet and cool weather this year has definitely dented or eliminated the drought in much of the Midwest, and if these conditions continue, additional improvement is likely. With that said, a one category improvement was made in western Wisconsin, southeastern Minnesota, most of central Iowa, and western Missouri.

The Plains and western Delta: This week's precipitation was a miss, hit, and miss in the northern, central, and southern Plains, respectively. Fortunately, temperatures averaged well below normal (6 to 10 deg F) throughout the region, keeping the heat factor out of this week's equation except in western portions of Texas, Oklahoma, and southwestern Kansas where highs topped 90 deg F early in the period. Unfortunately, the winter wheat crop, grown in much of the High Plains region, was rated poor or very poor (percent) in Colorado (56), Kansas (40), Nebraska (49), Oklahoma (45), South Dakota (62), and Texas (74), according to USDA/NASS. The U.S. pasture and range conditions are also starting off very poorly on the strength of drought from California to the Great Plains. This is mainly due to the poor previous year (2012) when all sorts of pasture and rangeland condition records were set.

In the northern Plains, little or no precipitation fell on the Dakotas, with the exception of 0.7 to 1.5 inches in extreme southeastern South Dakota. In this area, some slight reductions of D2 and D3 were made as there were small surpluses at 180 days. However, similar to western Iowa subsoil conditions (see **The Midwest**), additional moisture will be required to bring conditions back to levels a year ago. According to USDA/NASS, South Dakota topsoil and subsoil moisture was 31 and 71 percent short or very short, respectively. In contrast, North Dakota was 16 and 34 percent short or very short, respectively. With changes made last week, the rest of the Dakotas remained unchanged.

In the central Plains, the slow-moving storm system initially tracked out of the central Rockies and brought snow and rain to the central Plains. In western Nebraska (and southeastern Wyoming and northern Colorado), 1 to 2 inches of precipitation was enough to significantly reduce 180-day deficits, and in some cases, create 6-month surpluses (southeastern Wyoming and northern Colorado), justifying some reduction of D3 in parts of far western Nebraska, and a slight shrinkage of D4 in southwestern Nebraska. Farther east, widespread moderate precipitation (1 to 1.5 inches) provided some slight reduction of the D2 and D3 edges in eastern Nebraska, with most of this area now above normal at 6 months. However, 12-month deficits were still between 8 to 12 inches here, and with USDA/NASS topsoil and subsoil moisture levels still rated 46 and 84 percent short and very short, respectively, it will take many more rain events to fully recharge the entire soil profile. In Kansas, the heaviest precipitation (1.5 to 2.2 inches) fell on northeastern sections, with 1 to 1.5 inches occurring across the southeast. Lighter amounts, between 0.2 to 0.5 inches, with some of the precipitation falling as snow, were recorded across northwestern and north-central parts of the state. Most of eastern Kansas is now above normal during the past 90 days, but some deficits still remain at 6-months. And similar to eastern Nebraska, 12-month shortages were still large (12 to 16 inches). Accordingly, a one category improvement was made in the northeast while only minor changes made in the southeast due to the lingering long-term departures. In the southwest, little or no precipitation, growing shortages in the short and long term, and most indices indicating D4 conditions validated an eastward expansion of D4 in southwestern Kansas. To the north, enough precipitation (0.3 to 0.5 inches) fell to maintain D3 in northwestern Kansas.

In the southern Plains and western Delta, light rain (less than 0.5 inch) was limited to northern and eastern Oklahoma, western Arkansas, and parts of central Texas. Little or no precipitation fell elsewhere. In northwestern Arkansas, some slight reduction of D0 was made where 1 to 1.5 inches of precipitation

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occurred, but was left where lingering 180-day deficits remained. In southwestern Arkansas, half inch of rain maintained conditions there. In Oklahoma, where at least 0.5 inches fell, no changes were made. Farther west, however, another dry week in the Panhandles of Oklahoma and Texas have effectively overcome the short-term moisture from the winter and has reverted back to impacts consistent with the long-term shortages. Some summer planting is being skipped, and cattle are being sold off. As a result, some degradations were made in the southern High Plains, including a significant increase in D3 and D4. In parts of coastal Texas that received substantial rains last week, the streams were still sustaining their flows, thus additional improvements were made from Corpus Christi to Galveston.

Southwest and West: Except for widely-scattered light showers late in the period, much of the West saw no precipitation while experiencing above normal temperatures. The late period change of weather, however, was beneficial to wildfire fighters as higher humidity, lower winds, and scattered showers aided the fight to contain the large Spring blaze in the southern California coastal mountains. After a good start to the 2012-13 wet season (November and December were very wet), the January through April period was the complete opposite. In fact, the January-April precipitation percentiles were the driest on record in parts of western Oregon, most of northern and central California, northwestern Nevada, and parts of southwestern Montana, according to the WRCC. With the early good start to the West wet season largely forgotten with four consecutive months of very dry weather and declining basin average precipitation and snow water content values, D0 was added into central Idaho, most of Oregon, and southwestern Montana. Northern California and southern Oregon were similarly degraded by one category, from D0 to D1, while central California was increased from D1 to D2. Losses in rangeland grasses and pastures have been reported in California, with herds being moved to irrigated pastures. Areas in southern California that received light showers late in the period were left at D1 for now. In the Sierra Nevada basins, water year average precipitation ranged from 72 to 81 percent of normal, while the May 6 SWE at 0 to 45 percent. Slight increases in D2 and D3 were made in parts of Arizona where the medium-term deficits were the greatest. In New Mexico, a large expansion of D4 was made as both short and long-term conditions are near record low levels. Through March 2013, the past 30 months have been the driest such period on record. Much of the state reported under half of normal precipitation the past 6 months. The months of July, August, and September (JAS) are the 3 wettest consecutive months for New Mexico, coincident with the summer monsoon. The 2011 and 2012 JAS were the 14th and 9th driest on record, respectively, and another dry monsoon could be devastating. In southeastern New Mexico, the Brantley Reservoir, the largest reservoir on the Pecos, is currently at 1 percent of capacity. The combined storage on the 4 reservoir along the Pecos is at 25 percent of average. In the Hatch Valley, New Mexico's chile belt, the Elephant Butte Reservoir, where Hatch irrigation water is stored, held the lowest amount of water available for irrigation in almost 100 years. Its storage capacity of 2.2 million acre feet was at 10 percent capacity, and will severely affect the farmers who must pump groundwater to make up for the lost river water.

Hawaii, Alaska, and Puerto Rico: In Hawaii, showers over the weekend dropped 1 to 3 inches of rain on Kauai and Oahu, with lesser amounts on Molokai, Lanai, and Maui. Parts of western Oahu had their wettest April since the early 1990s, with April percentages running between 125 and 278. For example, Honolulu measured 1.75 inches (normal is 0.63 inches), or 278 percent of normal. As a result, D0 was removed from western Oahu. For Molokai, April was relatively dry, but this weekend's cold front rains and VHI data suggest improvements. In response, west Molokai was improved from D1 to D0, but D2(L) was left near the Kualapuu Reservoir which was still at 20 percent mandatory water restrictions. On Maui, Ulupalakua Ranch (southwest slope of Haleakala) had its driest wet season (Oct-Apr) on record, resulting in expansion of the D3 toward the southeast of Maui. VHI data showed stress conditions over Kahoolawe, with Honokanaia (southwest Kahoolawe) measuring 0.08 inches, or 12 percent of normal April rainfall, and 1.07 inches since January 1, or 18 percent of normal. Accordingly, the small island went from D0 to D1. On the Big Island, coastal ranchers near South Point stated that they are down to one month of dry feed, and D1 was expanded eastward to include the lower elevations near South Point. East-facing slopes were also very dry in April (all stations reporting under half of normal rainfall), but so far there have not been any agricultural impacts. The remaining weeks of May will be important as to whether drought develops in this region.

In south-central and southeastern Alaska, another wet and cold week (precipitation totals of 2 to 6 inches, average temperatures 2 to 6 deg F below normal), along with a cold and wet April, have built sufficient snow packs in south-central and southeastern sections of the state. The Alaskan SNOTEL basin average snow water equivalent (SWE) was above normal as of May 1 from the Chena and upper Tanana basins (182 to 254 percent of normal) in east-central Alaska southward to the Kenai Peninsula (115 to 181 percent of normal), as well as the southeastern Alaskan basins (148 percent of normal). Most stream flow forecasts will

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be at or above the long term average. Accordingly, the D0 was removed in south-central Alaska. Farther north, however, the Kuparuk average basin SWE (in north-central Alaska) stood at 76 percent of normal, thus the D1 remained there.

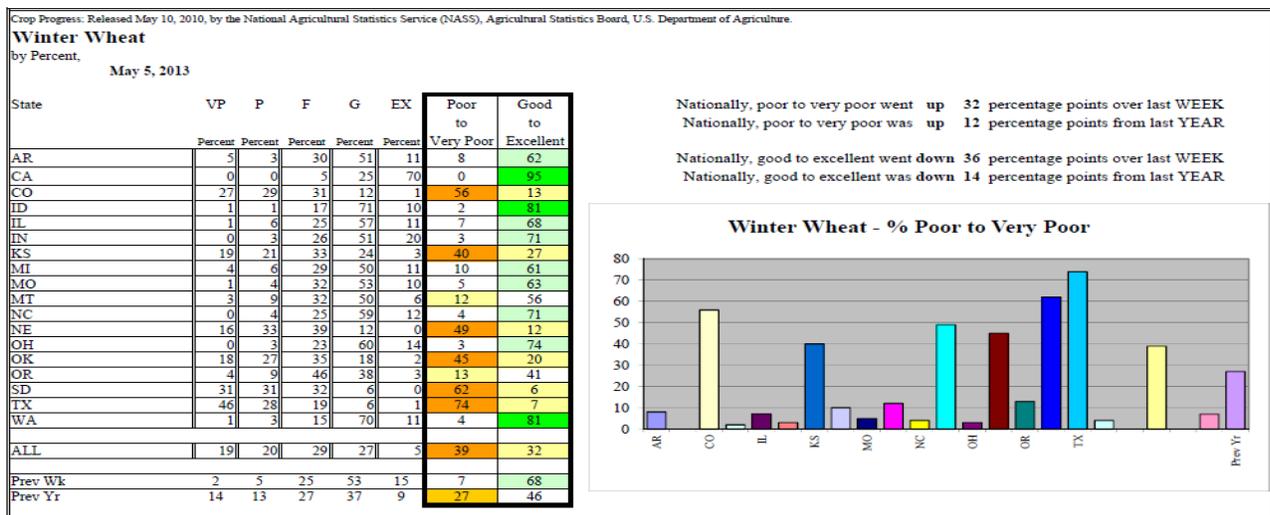
Toward the end of the period, widespread moderate to heavy rains (1.5 to 5 inches) soaked much of Puerto Rico, especially the interior of the island, causing localized flash flooding and the closure of several roads. As a result, the last remaining small areas of D0 were removed.

Looking Ahead: The next 5 days (May 9-13) favor wet weather across most of the eastern half of the Nation, with the heaviest totals expected in Colorado, from central Texas eastward to the Florida Panhandle, and from eastern Kansas northeastward into New England, with over 2 inches predicted in the latter area. Little or no rain is expected in most of the West, Southwest, north-central Plains, and upper Great Lakes region. Temperatures should average above normal in the Far West, Great Basin, and northern Rockies, and below normal in the eastern half of the U.S. and southern Rockies.

For the ensuing 5 days (May 14-18), the odds favor above median precipitation in the southern High Plains (New Mexico and western Texas) and the northeastern quarter of the country. The highest probabilities for submedian rainfall include the Southeast, and from eastern Nevada to western Nebraska. Elsewhere there is no tilt in the odds. Probabilities for above-median temperatures are highest in the western half of the U.S., especially the Southwest, while submedian readings are most likely in the southeastern quarter of the Nation.

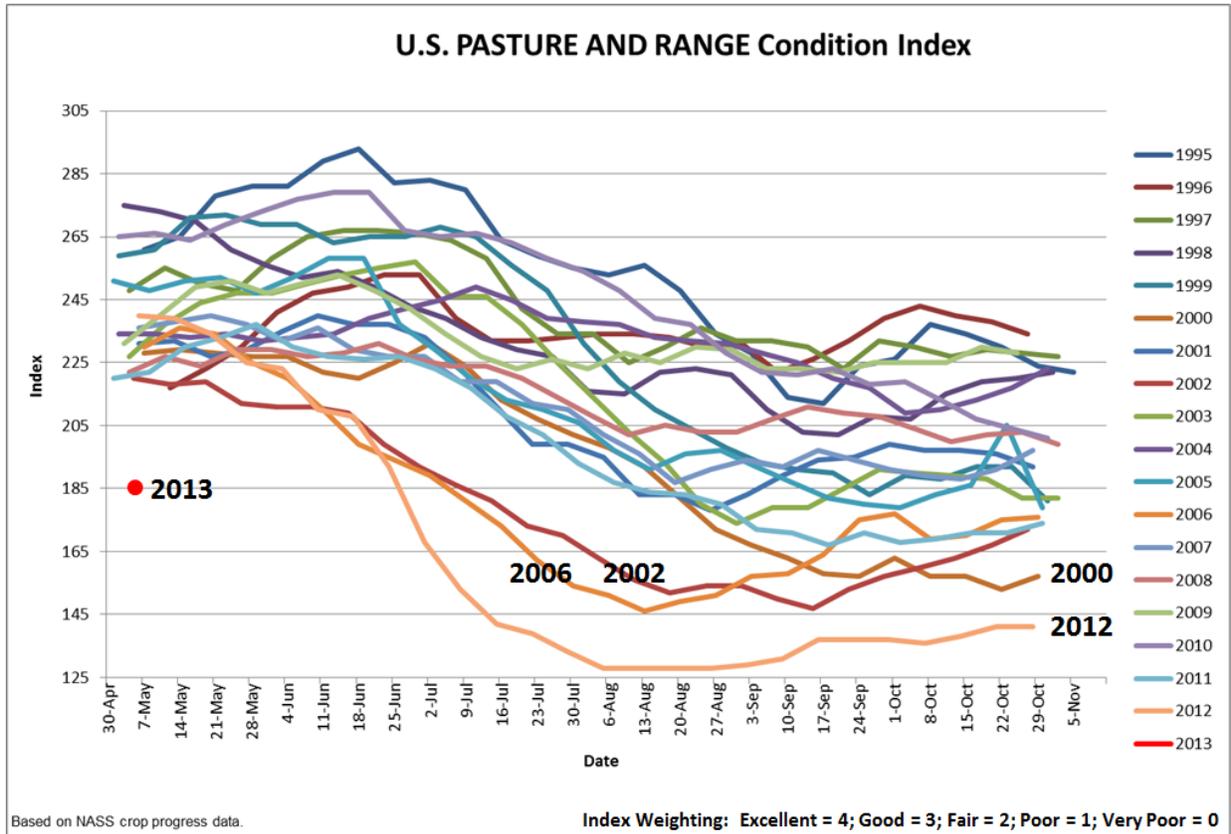
Supplemental Drought Information

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>



Winter Wheat Conditions.

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Source: USDA

We are starting out 2013 in by far the worst shape on record, with respect to U.S. pasture and rangeland conditions. This is on the strength of continuing drought from California to the Great Plains. This part of the country accounts for a disproportionately large percentage of the nation's rangeland.

Of course, we're coming off a year (2012) when all sorts of pasture/rangeland condition records were set (see attached graph). Previous drought years that were surpassed by the Drought of 2012 – with respect to poor pasture and rangeland conditions – include 2000, 2002, and 2006.

Statistical Methodology

<http://usda01.library.cornell.edu/usda/nass/CropProg/2010s/2013/CropProg-05-06-2013.pdf>

The weekly values are derived by adding:

$$(\% \text{ excellent} \times 4) + (\% \text{ good} \times 3) + (\% \text{ fair} \times 2) + (\% \text{ poor} \times 1)$$

% very poor is multiplied by 0 and thus does not add to the index value.

For the week ending May 5, 2013, the U.S. score of 168 is calculated from:

$$\begin{aligned} (5\% \text{ excellent} \times 4) + (27\% \text{ good} \times 3) + (32\% \text{ fair} \times 2) + (21\% \text{ poor} \times 1) &= \\ 20 + 81 + 64 + 21 &= \\ 186 \end{aligned}$$

The maximum possible score would be 100% excellent $\times 4 = 400$

-Brad Rippey, USDA