



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 15 November 2012

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly ending 15 November shows a rather complex pattern of well above and well below temperatures suggesting strong valley inversions dominating (Fig. 1). ACIS [7-day](#) average temperature anomalies show the greatest positive temperature departure over the southeast Plains of New Mexico ($>+3^{\circ}\text{F}$). The greatest negative departures occurred over northern Montana ($<-15^{\circ}\text{F}$) (Fig. 1a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows heavy precipitation (mostly rain) over the Northern Cascades and Coastal Range of Washington (Fig. 2). In terms of percent of normal, heavier amounts were scattered over much of the eastern half of the West with the exception of the Eastern High Plains of Colorado and New Mexico (Fig. 2a). SNOTEL [month to date](#) precipitation percent of normal shows most basins with below values with the notable exceptions of most of Utah, Arizona, and eastern Montana (Fig. 2b). For the [2013 Water-Year](#) that began on 1 October 2012, statistics continue to suggest a La Niña-like precipitation pattern that is favoring the Northern Tier States. *This continued pattern should be supported during the 2nd half of November as we enter an active weather period over the Northern Tier-States* (Fig. 2c).

Snow: [Snow Water-Equivalent](#) Recent early season snowfall over Utah and Arizona are noted although actual total amounts of precipitation are significantly lower especially over Arizona (Fig. 3).

Weather Summary: A Pacific storm system and associated cold front slowly tracked across the lower 48 States during the week, producing welcome and beneficial precipitation to portions of the Northwest, Rockies, Great Plains, Midwest, and lower Mississippi Valley. As the period commenced, a Nor'easter off the middle and northern Atlantic Coast brought unseasonably heavy snow (up to a foot) to some areas devastated by Superstorm Sandy. In the West, the storm system dropped the largest precipitation totals on the mountains, with lesser amounts on lower elevation sites. As the system moved into the Nation's midsection, Gulf moisture was tapped, producing swaths of moderate to heavy showers (more than an inch) from central Kansas northeastward into the UP of Michigan, and from northeastern Texas northeastward into southern Indiana and central Kentucky. Unfortunately, some parts of the country, namely the Southwest, southern and north-central Plains, and the eastern Gulf and southern Atlantic Coast States, missed the bulk of the precipitation and conditions persisted or worsened. Temperatures averaged below normal in the West and East, with above-normal readings in the southern and central Plains into the upper Midwest. In Hawaii, mostly dry weather prevailed early in the period, but trade wind showers coupled with a nearby upper-level trough enhanced the east side rains later in the week. Southwestern and extreme southeastern Alaska received moderate to heavy precipitation.

The West: A slow-moving Pacific storm system brought precipitation to most of the region, but the greatest weekly totals were found in the mountains. 1 to 3 inches of precipitation fell on the

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Cascades, Sierra Nevada, northern and central Rockies, Utah's Wasatch and Uinta Ranges, and across east-central Arizona. With a generally stormy weather pattern affecting the Northwest since mid-October and the 2012-13 Water Year off to a good start (basin average precipitation between 100 and 150 percent of normal), some additional improvements were made along the D0 to D3 western and northern edges in Idaho and Montana. The most noticeable modifications were made across western and northern Montana as persistent precipitation the past 4 weeks has eliminated short- to medium-term deficiencies, and has instead produced surpluses at 30-, 60-, and 90-days. The central Sierra Nevada was also upgraded from D1 to D0 as 1 to 1.5 inches of precipitation bumped its basin average precipitation up to 82 percent of normal from 77 percent a week ago. In northern Utah, 2 to 3 inches of precipitation in the Wasatch and Uinta Mountains improved drought by 1-category as basin average precipitation increased 10 to 20 percentages from a week ago to above normal (101 to 112 percent), and snow water content jumped to 150 percent of normal. In the Southwest, 1.5 to 2.5 inches of precipitation in east-central Arizona and west-central New Mexico slightly eased back D2 in those areas. Some slight adjustments were made in central Colorado: D2 was expanded into eastern Eagle and Summit counties which has seen a poor start to the Water Year and missed out on the most recent storm; some improvement was made in northeastern Colorado as normal October precipitation has kept winter wheat conditions fair; and D2 was trimmed in Douglas and Elbert counties to better match conditions. Author: David Miskus, Climate Prediction Center/NCEP/NWS/NOAA.

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 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 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

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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
Deputy Chief, Soil Survey and Resource Assessment

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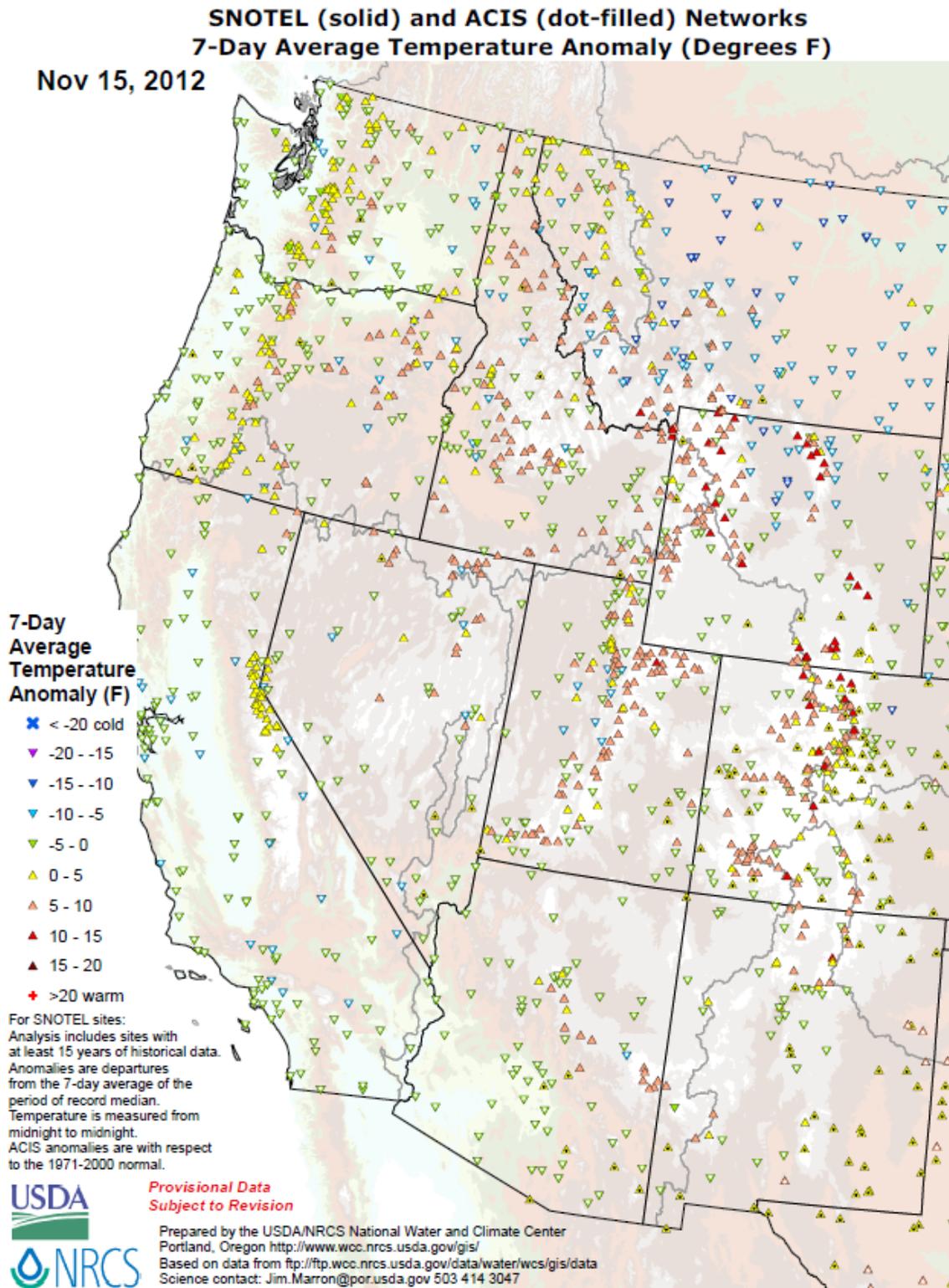
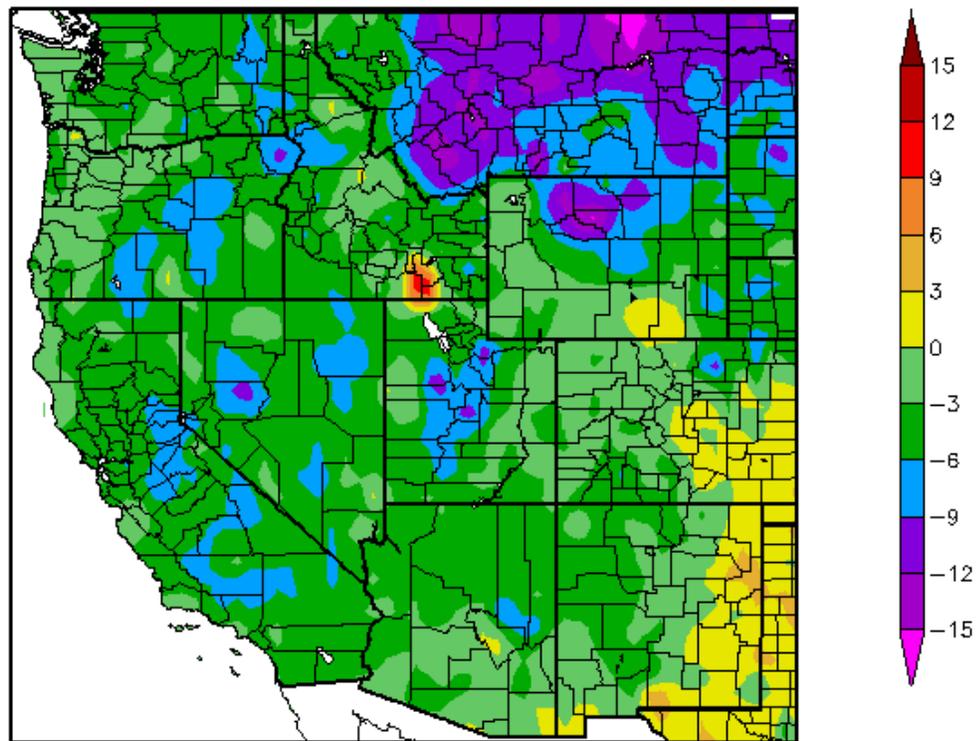


Fig. 1: SNOTEL and ACIS 7-day temperature anomaly ending 15 November shows a rather complex pattern of well above and well below temperatures suggesting strong valley inversions dominating.

Departure from Normal Temperature (F)
11/8/2012 – 11/14/2012



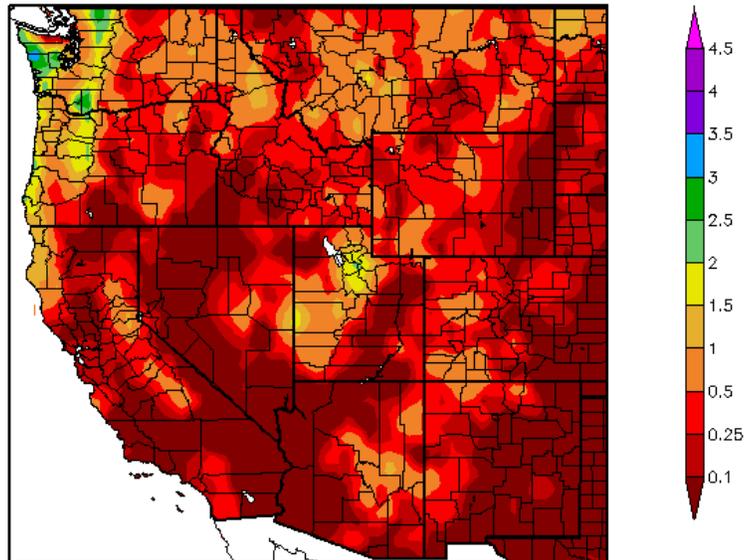
Generated 11/15/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 1a: ACIS **7-day** average temperature anomalies show the greatest positive temperature departure over the southeast Plains of New Mexico (>**+3°F**). The greatest negative departures occurred over northern Montana (<**-15°F**). The above spot in southern Idaho appears to be a data error.

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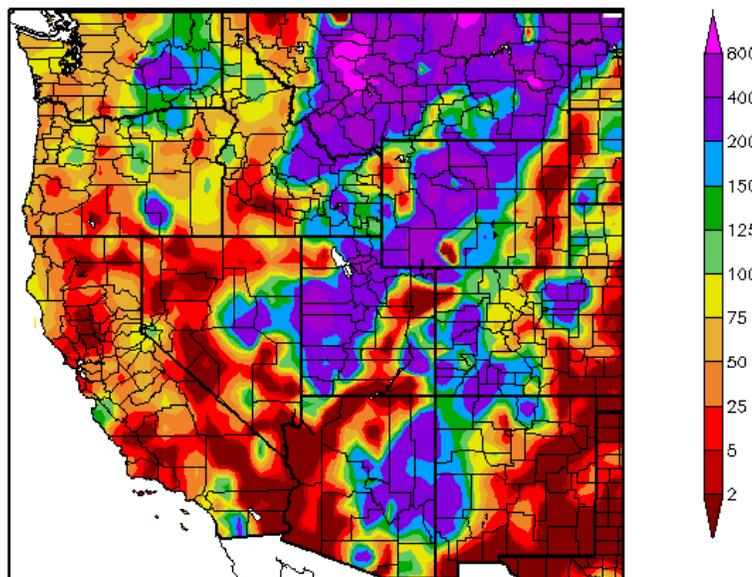
Precipitation (in)
11/8/2012 - 11/14/2012



Generated 11/15/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
11/8/2012 - 11/14/2012



Generated 11/15/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2 and 2a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows heavy precipitation (mostly rain) over the Northern Cascades and Coastal Range of Washington (top). In terms of percent of normal, heavier amounts were scattered over much of the eastern half of the West with the exception of the Eastern High Plains of Colorado and New Mexico (bottom).

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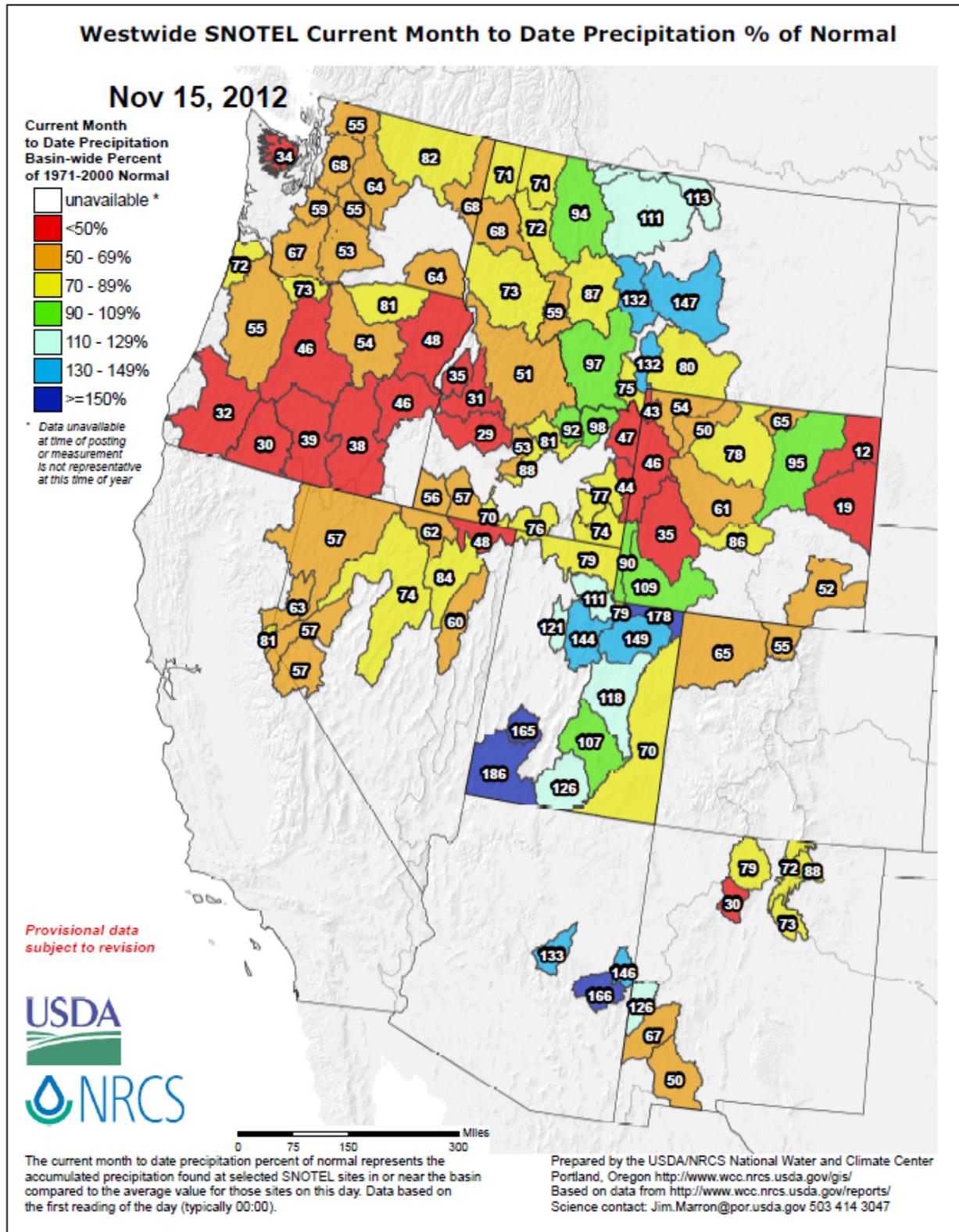


Fig. 2b: SNOTEL month to date precipitation percent of normal shows most basins with below values with the notable exceptions of most of Utah, Arizona, and eastern Montana.

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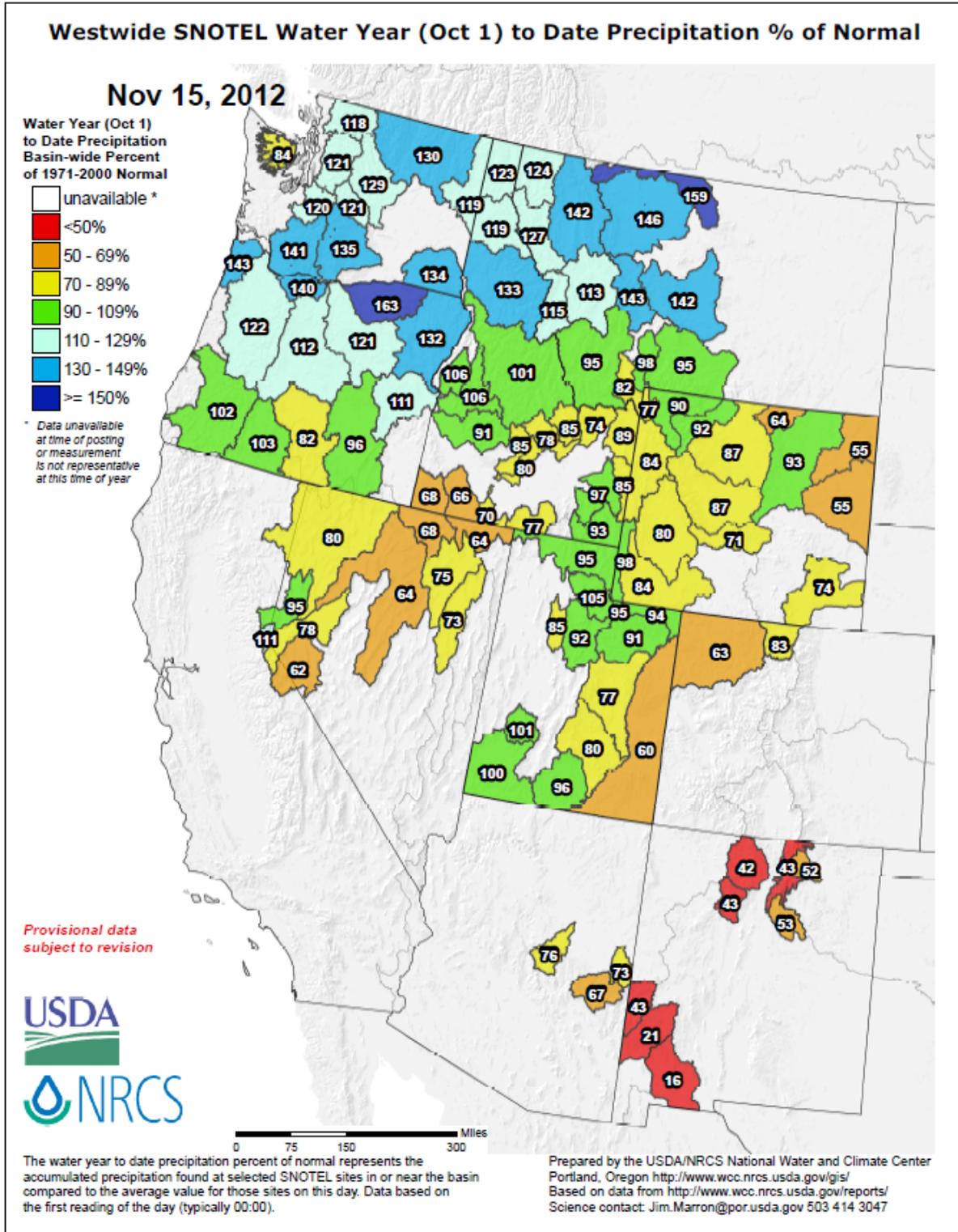


Fig. 2c: For the 2013 Water-Year that began on 1 October 2012, statistics continue to suggest a La Niña-like precipitation pattern that is favoring the Northern Tier States. This pattern should be supported during the 2nd half of November as we enter an active weather period over the Northern Tier-States.

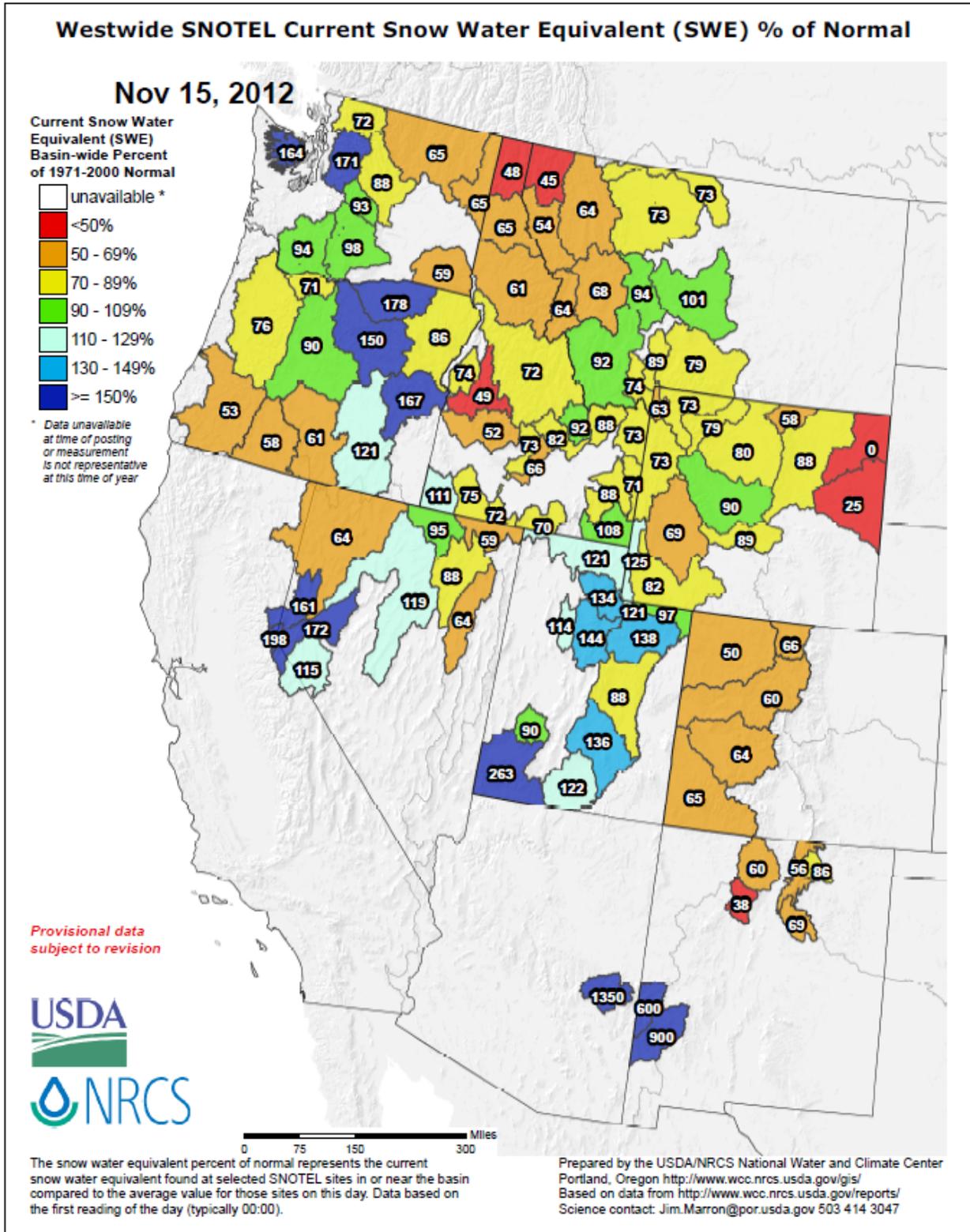


Fig. 3: **Snow Water-Equivalent**: Recent early season snowfall over Utah and Arizona are obvious although actual total amounts of precipitation are significantly lower especially over Arizona.

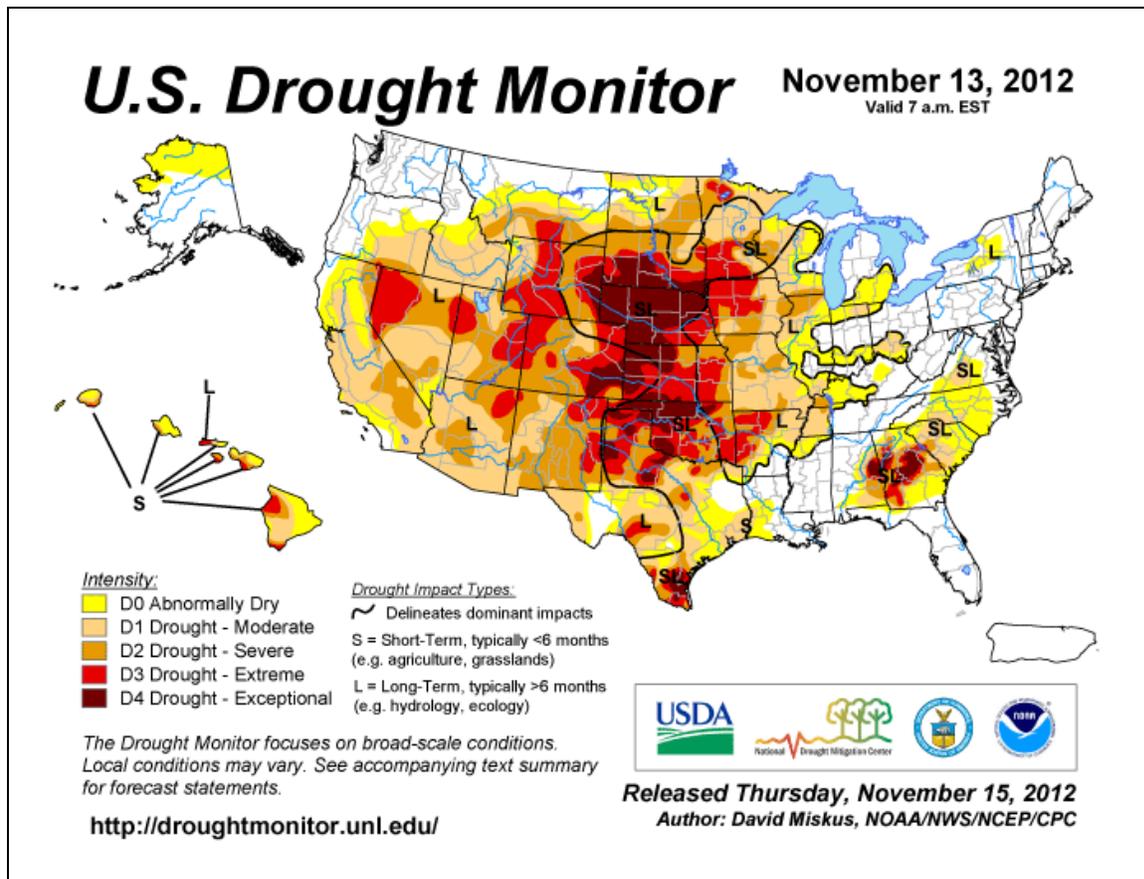


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over Georgia Alabama and scattered across the western corn belt of the Central Plains into Colorado and Wyoming. An expansion of D4 over northern Texas is noteworthy while D4 over the southern region of the state persists. For more drought news, see [Drought Impact Reporter](#). Click for the latest statistics for [California Reservoirs](#). The late October [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

[Farmers say Eddy County water wells drying up](#)

Nov 6, **Southeastern New Mexico**. Nearly two dozen agricultural and domestic wells ran dry in northeastern Eddy County. The farmers and ranchers blame the state's augmentation wells at Seven Rivers, while the manager of the Carlsbad Irrigation District felt that drought and a number of additional factors played a role in the water shortage.

[Texas pecan industry slowly bouncing back from drought](#)

Nov 6, **Central Texas**. Pecan trees in central Texas made more shells than the distressed trees could fill, according to a pecan grower in San Saba County. The trees have heavy nut loads, but did not have the resources to produce plump pecans in some instances, lowering the overall quality of the pecans.

[USDA releases crop insurance payments](#)

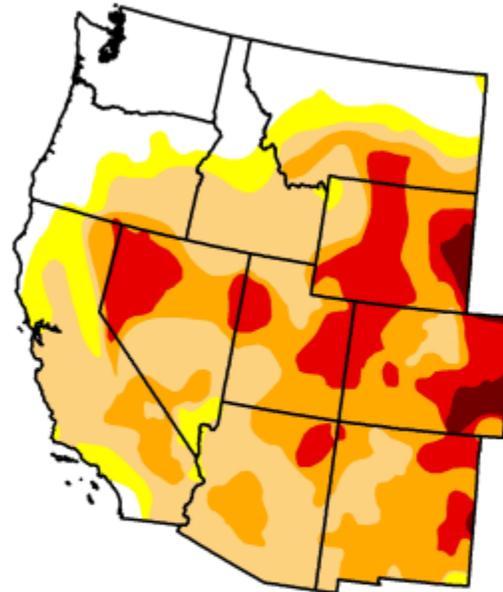
Nov 5, **U.S.** Crop-loss insurance payments have reached \$3.5 billion in the U.S. through Oct. 29, according to the U.S. Department of Agriculture. Federal subsidies for U.S. crop insurance premiums in 2012 have amounted to \$6.9 billion or 62 percent of the \$11.03 billion in premiums paid to insure 2012 crops, as reported in the Des Moines Register.

U.S. Drought Monitor

West

November 13, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.61	81.39	72.16	41.56	16.23	1.80
Last Week (11/06/2012 map)	16.89	83.11	73.49	43.52	17.38	1.90
3 Months Ago (08/14/2012 map)	16.88	83.12	69.22	50.43	16.95	0.81
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
One Year Ago (11/08/2011 map)	73.00	27.00	18.55	14.96	9.50	2.88



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, November 15, 2012
David Miskus, Climate Prediction Center/NCEP/NWS/NOAA

Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Slight improvements are noted this week. The fall edition of SkyWatcher Newsletter for New Mexico is now [available](#).

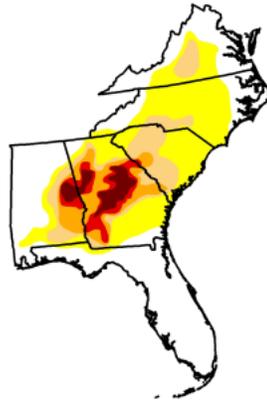
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U.S. Drought Monitor Southeast

November 13, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	45.28	54.72	25.10	13.78	6.99	3.43
Last Week (11/06/2012 map)	53.19	46.81	22.90	12.30	6.85	3.52
3 Months Ago (08/14/2012 map)	52.96	47.04	22.34	12.76	9.41	3.48
Start of Calendar Year (12/27/2011 map)	40.38	59.62	43.05	28.62	18.71	0.00
Start of Water Year (09/25/2012 map)	66.49	33.51	17.18	11.50	8.53	3.52
One Year Ago (11/09/2011 map)	40.77	59.23	46.58	34.06	22.99	0.00

Intensity:



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

<http://droughtmonitor.unl.edu>



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SC

The continuing dry weather has kept conditions favorable harvest, but small grain seeding remains slow until rainfall is received. The lack of moisture has caused soil conditions to fall for another week being rated at 32% very short, 35% short, and 33% adequate. There was an average of 6.5 days across the State that suitable for fieldwork

GA

According to the National Agriculture Statistics Service's Georgia Field Office, there were 6.1 days suitable for fieldwork for the week ending Sunday, November 11, 2012. Statewide topsoil moisture was rated at 32% very short, 42% short, 26% adequate, 0% surplus. Subsoil moisture 30% very short, 41% short, 29% adequate, 0% surplus. Precipitation estimates for the state ranged from no rain up to 2.8 inches. Average high temperatures ranged from the low 50's to the high 70's. Average low temperatures ranged from the low 30's to the mid 60's.

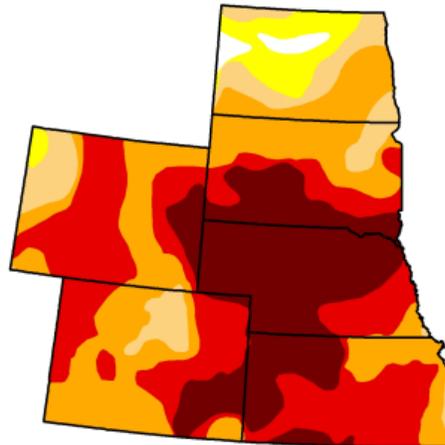
Fig. 4b: Note Georgia's drought statistics over various time periods. D4 conditions have now expanded into eastern Alabama. See the Weekly GridSSAT Output Products: <http://gridssat.nsstc.uah.edu/> for more details.

U.S. Drought Monitor High Plains

November 13, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.20	98.80	93.88	84.32	55.92	25.71
Last Week (11/06/2012 map)	0.03	99.97	96.46	83.94	57.54	27.24
3 Months Ago (08/14/2012 map)	4.48	95.52	86.05	76.97	49.64	15.52
Start of Calendar Year (12/27/2011 map)	61.66	38.34	18.12	7.22	2.07	0.04
Start of Water Year (09/25/2012 map)	0.00	100.00	98.91	83.80	61.28	24.35
One Year Ago (11/08/2011 map)	64.69	35.31	22.41	12.87	6.19	2.59

Intensity:



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, November 15, 2012
David Miskus, Climate Prediction Center/NCEP/NWS/NOAA

Fig. 4c: Drought Monitor for the High Plains with statistics over various time periods. Slight improvements noted this week. D4 has dropped to <26%. See the latest Kansas Drought Report.

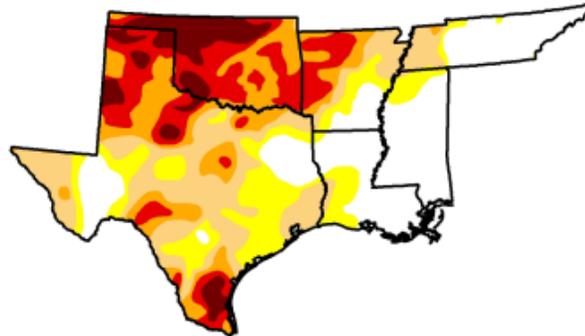
U.S. Drought Monitor

South

November 13, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	27.60	72.40	57.21	36.31	21.46	7.34
Last Week (11/06/2012 map)	29.13	70.87	54.00	37.59	21.68	6.61
3 Months Ago (08/14/2012 map)	21.47	78.53	69.54	49.01	28.32	11.16
Start of Calendar Year (12/27/2011 map)	26.47	73.53	69.01	54.81	39.11	17.15
Start of Water Year (09/25/2012 map)	24.13	75.87	66.61	51.50	29.86	9.11
One Year Ago (11/08/2011 map)	10.11	89.89	82.76	70.33	60.62	41.39



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.



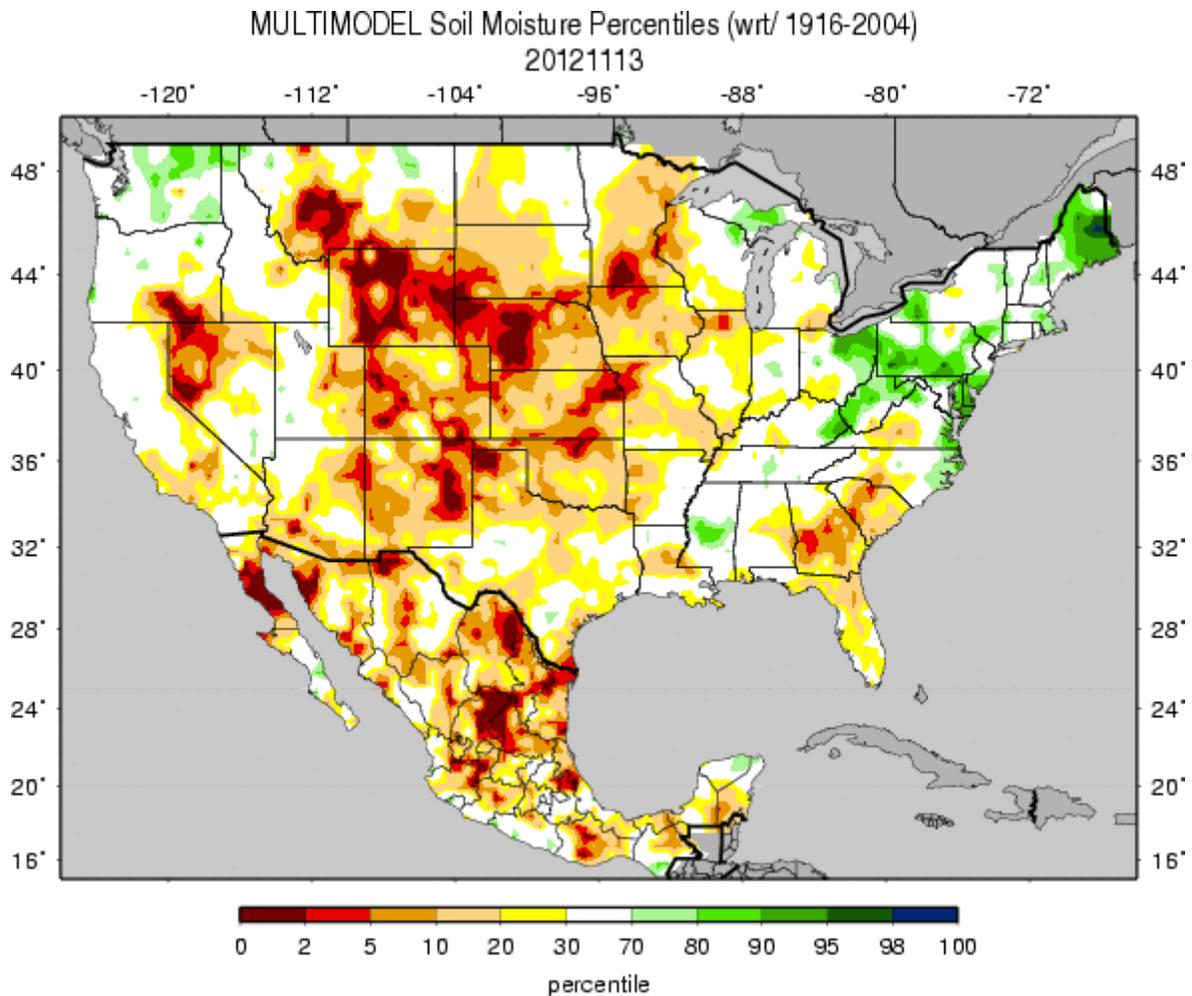
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David Miskus, Climate Prediction Center/NCEP/NWS/NOAA

<http://droughtmonitor.unl.edu>

Fig. 4d: Drought Monitor for the [South-Central Region](#) with statistics over various time periods. Note slight deterioration this week. D4 increased to >7.3%. Check out the [Texas Drought Website](#). See latest [Oklahoma Drought News](#).

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Figs. 5: Soil Moisture ranking in [percentile](#) as of 13 November shows dryness scattered across the Northern, the Central High Plains (including southern Minnesota), northwest Great Basin, Northern Rockies, and northern-most part of Texas.

Useful Hydrological Links:

USDA western U.S. mountain snow water content anomaly map.

USGS (U.S. Geological Service) [observed streamflow](#); NOAA Climate Prediction Center (CPC) modeled runoff [anomalies](#) and [percentiles](#); VIC (University of Washington Variable Infiltration Capacity macro scale hydrologic model) [1-](#), [2-](#), [3-](#), and [6-](#)month and [water year-to-date](#) runoff percentiles; NLDAS (North American Land Data Assimilation System) modeled streamflow [anomalies](#) and [percentiles](#); NLDAS model runoff [anomalies](#) and [percentiles](#); USGS groundwater observations ([real-time network](#), [climate response network](#), [total active network](#)); USDA snow water content observations for the West (SNOTEL station [percentiles](#) and [percent of normal](#), SNOTEL basin [percent of normal](#) and [percent of average](#)) and Alaska ([SNOTEL station percent of normal](#), [SNOTEL basin percent of normal](#)); USDA reservoir storage as [percent of capacity](#).

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

808) MONTH=2012-10-16 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision Thu Nov 15 08:25:29 PST 2012

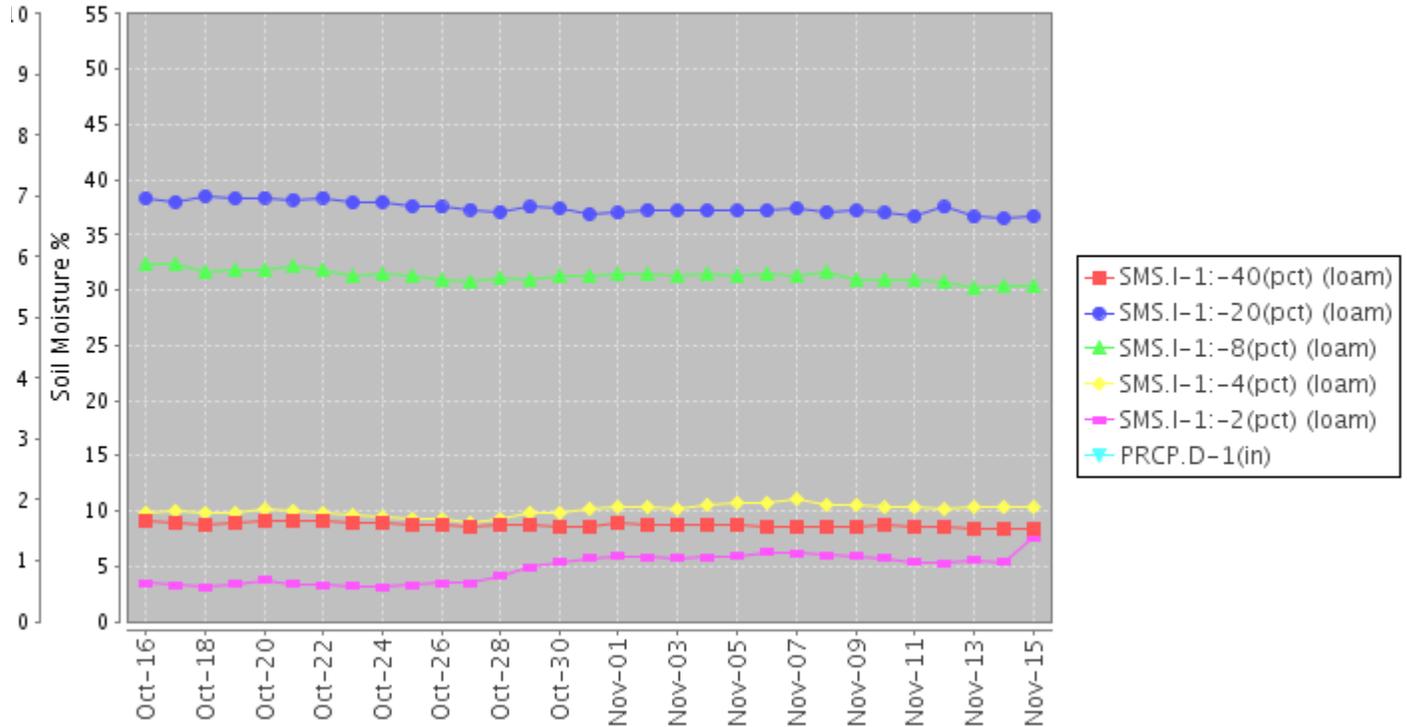


Fig. 6: This NRCS resource shows a site over [southwest Montana](#) with soil moisture near the surface responding to lack of precipitation during the past 30 days.

Useful Agriculture Links:

USDA (U.S. Department of Agriculture) [observed soil moisture conditions](#), [departures and percentiles](#), and comparison to [5-year average](#) and [10-year average](#); the Palmer [Crop Moisture Index \(CMI\)](#), which intensified during the month in the West and Lower to Mid-Mississippi Valley (weeks [1](#), [2](#), [3](#), [4](#), [5](#)); CPC modeled soil moisture [anomalies](#) and [percentiles](#) for end of May, and [soil moisture anomaly change](#) compared to previous month; CPC's Leaky Bucket model [soil moisture percentiles](#); NLDAS modeled soil moisture percentiles for the [top soil layer](#) and [total soil layer](#); VIC modeled [soil moisture percentiles](#), and [soil moisture percentile change](#) compared to previous month; USDA observed [pasture and rangeland conditions](#); [Vegetation Drought Response Index \(VegDRI\)](#); the NOAA/NESDIS satellite-based [Vegetation Health Index \(VHI\)](#); the USGS agro-hydrologic model ([Soil Water Index](#), [Water Requirement Satisfaction Index](#)); Selected SNOTEL Sites (measured [2"](#), [4"](#), [8"](#), [20"](#), and [40"](#) soil moisture depths).

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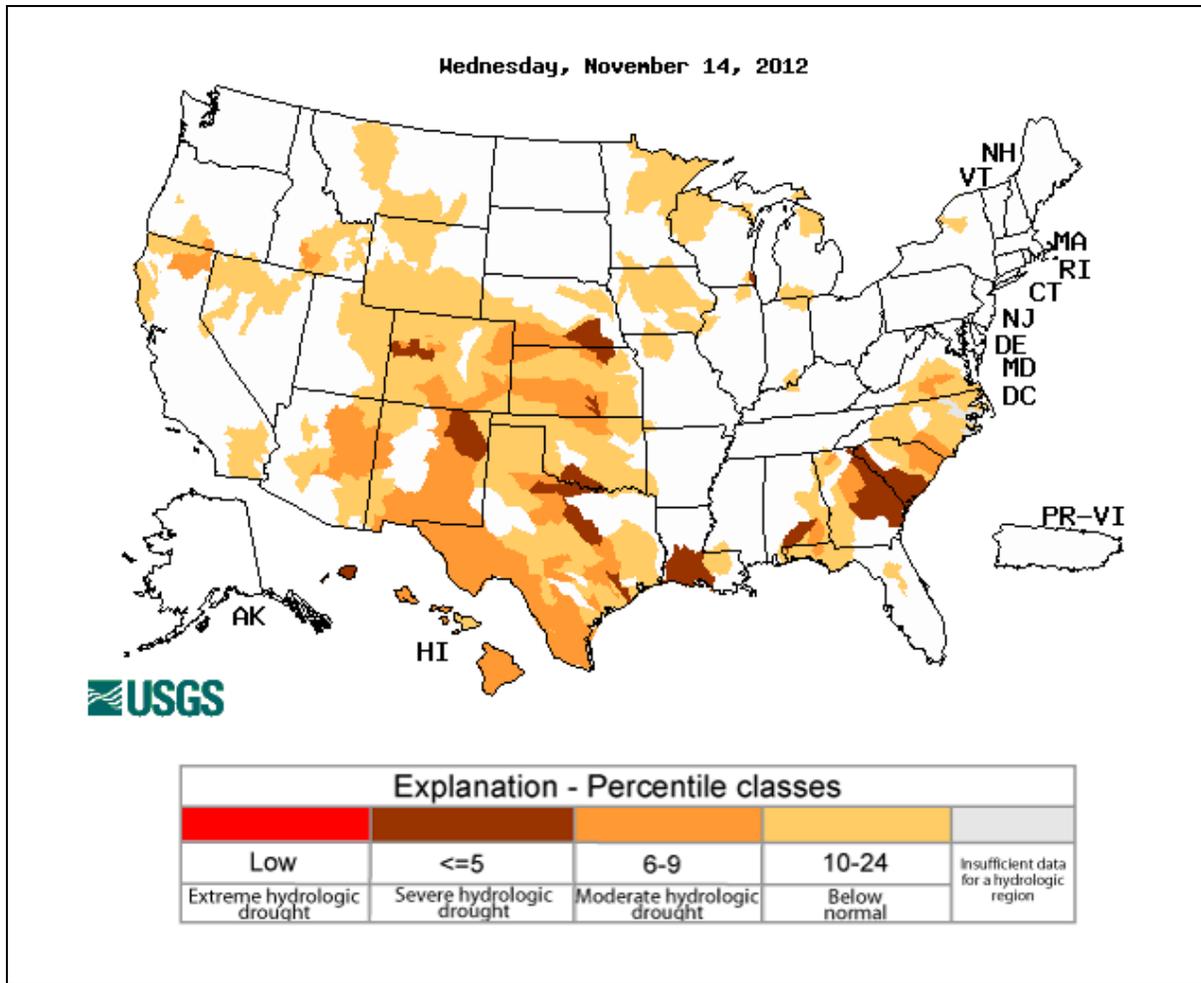


Fig. 7: Map of below normal 7-day average **streamflow** compared to historical streamflow for the day of year. **Severe** conditions exist over parts of northeast New Mexico, Central and Southern Plains, Southwest, Louisiana, and Southeast. See the USGS [National Water Information System Mapper](#).

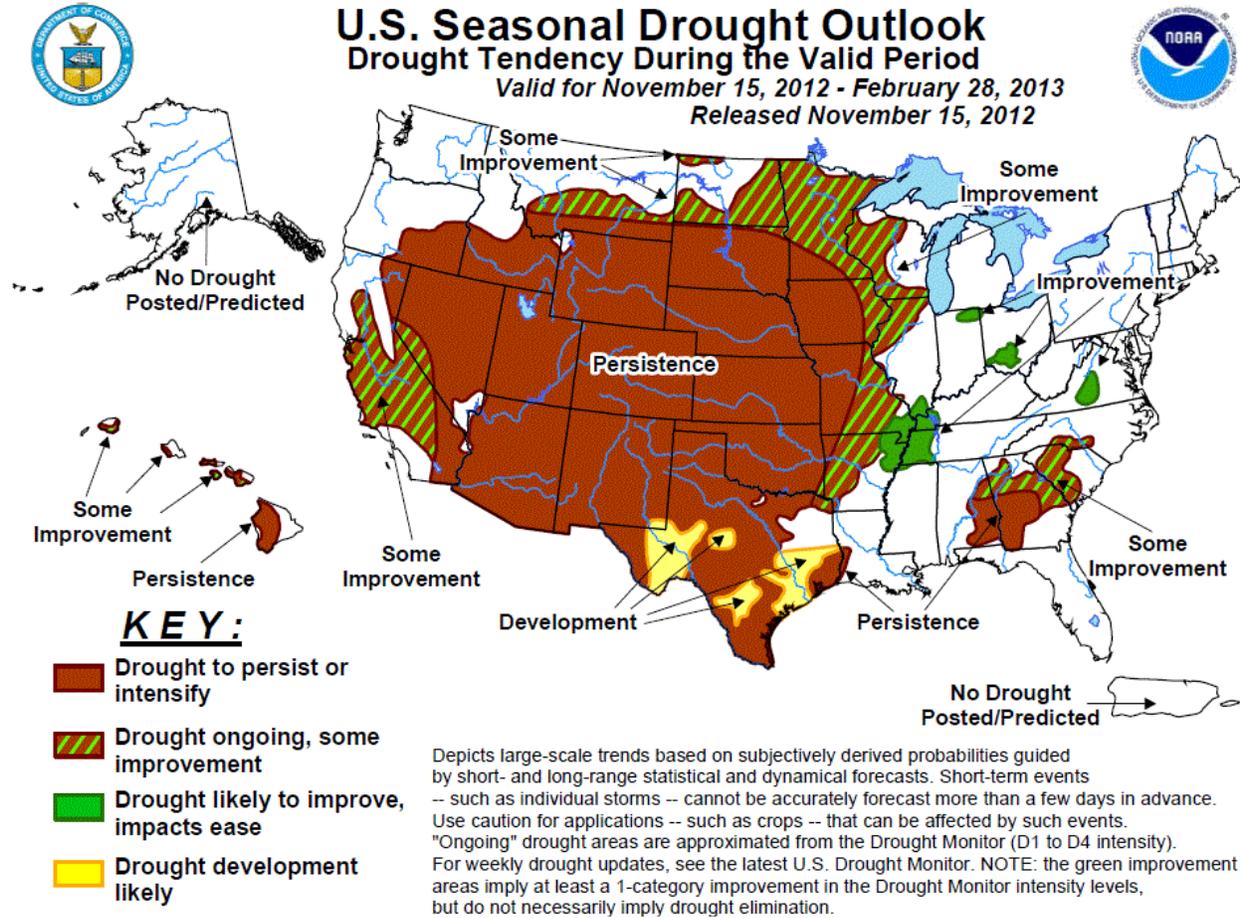


Fig. 8: [U.S. seasonal Drought Outlook](#) released 15 November 2012.

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National Drought Summary -- November 13, 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/>.

A Pacific storm system and associated cold front slowly tracked across the lower 48 States during the week, producing welcome and beneficial precipitation to portions of the Northwest, Rockies, Great Plains, Midwest, and lower Mississippi Valley. As the period commenced, a Nor'easter off the middle and northern Atlantic Coast brought unseasonably heavy snow (up to a foot) to some areas devastated by Superstorm Sandy. In the West, the storm system dropped the largest precipitation totals on the mountains, with lesser amounts on lower elevation sites. As the system moved into the Nation's midsection, Gulf moisture was tapped, producing swaths of moderate to heavy showers (more than an inch) from central Kansas northeastward into the UP of Michigan, and from northeastern Texas northeastward into southern Indiana and central Kentucky. Unfortunately, some parts of the country, namely the Southwest, southern and north-central Plains, and the eastern Gulf and southern Atlantic Coast States, missed the bulk of the precipitation and conditions persisted or worsened. Temperatures averaged below normal in the West and East, with above-normal readings in the southern and central Plains into the upper Midwest. In Hawaii, mostly dry weather prevailed early in the period, but trade wind showers coupled with a nearby upper-level trough enhanced the east side rains later in the week. Southwestern and extreme southeastern Alaska received moderate to heavy precipitation.

The Northeast and Mid-Atlantic: Ten days after Hurricane/Superstorm Sandy devastated coastal sections of New Jersey, New York, Long Island, and southern New England with a huge storm surge and 70+ mph winds, a Nor'easter dropped up to a foot of snow on inland sections, including 4.7 inches at New York's Central Park, 4.8 inches at New Brunswick, NJ, 8.3 inches at Bridgeport, CT, and 11 to 13 inches from cooperative stations in Monmouth and Ocean Counties, NJ. In central New York, moderate precipitation (0.5 to 1 inch) was enough to maintain long-term D0, but not enough to remove the 90- and 180-day deficits of 2 to 4 and 4 to 8 inches, respectively.

Farther south, rainfall totals decreased in south-central Virginia from west to east, with 0.5 to 1.1 inches in the Appalachians to 0.1 to 0.3 inches in the Piedmont. In the short-term (30- and 60-days), subnormal precipitation has fallen, accumulating deficiencies of 2 to 4 inches. With similar short-term conditions in adjacent central and northern North Carolina, the D0 areas were merged, and the D1 in Virginia was adjusted over the largest deficits at 60- and 90-days. This also matched the 7-, 14-, and 28-days average USGS stream flows which have dropped below the 25th percentile, with a few sites below the tenth percentile.

The Southeast: In addition to the D0 expansion of southern Virginia into North Carolina (*see Northeast and Mid-Atlantic summary*), weekly totals of 0.75 to 1.25 inches in western sections (Appalachians) kept abnormal dryness from developing there. Farther east, however, lighter totals (less than 0.5 inches), accumulating short-term deficits (at 60-days, 3 to 6 inches), and dropping USGS stream flows (at 1-, 7-, 14-, and 28-days), some below the tenth percentile, called for deterioration in southern and eastern sections of Georgia and South Carolina. For example, Brunswick, GA, was over 5 inches below normal since September 1, and only received 0.03 inches from the recent storm. D1 and D2 were also expanded in east-central and northern Georgia as both short and long-term deficiencies grew. At least some decent rain (0.5 to 1 inch) fell on parts of northwestern Georgia, preventing further degradation there. In South Carolina, the dry weather has kept conditions favorable for harvesting, but small grain seeding remains slow until rainfall increases. In SC and GA, statewide topsoil moisture was rated 67 and 74 percent short and very short, respectively, while GA subsoil moisture was rated 71 percent short

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and very short.

The Southern Plains and Delta: This region was a mixed bag with respect to the drought as southern sections fared poorly (dry) while northern and eastern areas saw 1 to 2 inches of rain. In Texas, another mostly dry week, except in the extreme northeast (1 to 2 inches), called for a general half category deterioration in most of the state, with D0 expanding into southwestern Louisiana. In contrast, most of Oklahoma (minus the Panhandle), Arkansas, and western Tennessee measured widespread decent precipitation, with a band of 1.5 to 2.5 inches falling from northeastern Texas northeastward into central Tennessee. Accordingly, 1-category improvements were made where the heaviest rain swath occurred. In Oklahoma, the rains (0.5 to 1 inch) were welcome, but strong winds and unseasonable warmth ahead of the cold front further stressed winter wheat and pastures. North-central sections remained a huge concern since it is the state's primary wheat production area. The recent rains bought the wheat crop a few more days before additional deterioration resumes if there is no precipitation. As a result, only a few improvements were made in central and northeastern Oklahoma where more than an inch fell. According to Oklahoma State's Agricultural Economics Department, the 2011-12 Water Year agricultural damages were estimated at \$427 million, while the 2010-11 Water Year agricultural damages were approximately \$1.6 billion or approximately \$2 billion in agricultural losses during the 2-year period (Oct. 1, 2010-Sep. 30, 2012).

Central and Northern Plains and Midwest: Widespread, welcome rains (1 to 1.5 inches) fell from central Kansas northeastward into the Upper Peninsula of Michigan, while another 1 to 1.5 inch swath fell from southern Missouri northeastward into central Illinois and Indiana. Elsewhere in the Midwest, generally 0.5 to 1 inch of rain was reported. The exceptions included western Kansas, western two-thirds of Nebraska, most of South Dakota, southern North Dakota, and western Minnesota (less than 0.5 inches). With little runoff, minimal or no evaporation and crop uptake, lower temperatures, and unfrozen ground, this precipitation was especially beneficial as much of it went into recharging the deficient topsoil (and hopefully the subsoil) moisture. Accordingly, some 1-category improvements were made in central and northeastern Kansas (D4 to D3 central; D3 to D2 northeast), Missouri (D3 to D2 northwest; D2 to D1 west and south), Iowa (D3 to D2 west-central; D2 to D1 east), Wisconsin (D2 and D1 improvements in south and west-central; D0 to nothing in central), eastern South Dakota (D3 to D2), western Kentucky (some D0-D2 reductions), and Illinois (D1 to D0 west-central; D0 to nothing central and southern). In northern North Dakota, the precipitation fell as heavy snow (8 to 18 inches), requiring additional 1-category modifications there. No changes were made in Indiana, Ohio, Michigan, and Minnesota as the rainfall totals were less than in aforementioned areas. In contrast, recent dryness in north-central South Dakota increased the D2 (D1 reduction). Although this week's precipitation was welcome and beneficial, there are still long-term hydrologic drought impacts (streams, rivers, ponds, lakes) that need to recover. Continued precipitation during the non-growing season will be key for adequate moisture for next year's Midwest and Plains crops and pastures, and for reducing hydrological drought impacts.

The West: A slow-moving Pacific storm system brought precipitation to most of the region, but the greatest weekly totals were found in the mountains. 1 to 3 inches of precipitation fell on the Cascades, Sierra Nevada, northern and central Rockies, Utah's Wasatch and Uinta Ranges, and across east-central Arizona. With a generally stormy weather pattern affecting the Northwest since mid-October and the 2012-13 Water Year off to a good start (basin average precipitation between 100 and 150 percent of normal), some additional improvements were made along the D0 to D3 western and northern edges in Idaho and Montana. The most noticeable modifications were made across western and northern Montana as persistent precipitation the past 4 weeks has eliminated short- to medium-term deficiencies, and has instead produced surpluses at 30-, 60-, and 90-days. The central Sierra Nevada was also upgraded from D1 to D0 as 1 to 1.5 inches of precipitation bumped its basin average precipitation up to 82 percent of normal from 77 percent a week ago. In northern Utah, 2 to 3 inches of precipitation in the Wasatch and Uinta Mountains improved drought by 1-category as basin average precipitation increased 10 to 20 percentages from a week ago to above normal (101 to 112 percent), and snow water content jumped to 150 percent of normal. In the Southwest, 1.5 to 2.5 inches of precipitation in east-central

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Arizona and west-central New Mexico slightly eased back D2 in those areas. Some slight adjustments were made in central Colorado: D2 was expanded into eastern Eagle and Summit counties which has seen a poor start to the Water Year and missed out on the most recent storm; some improvement was made in northeastern Colorado as normal October precipitation has kept winter wheat conditions fair; and D2 was trimmed in Douglas and Elbert counties to better match conditions.

Hawaii, Alaska, and Puerto Rico: In Hawaii, mostly dry weather continued into November as little or no rain fell on leeward sites while windward stations measured only light amounts (less than 0.25 inches) at best. Late in the period, however, returning trade wind showers and a nearby upper level trough enhanced the rainfall totals on eastern sides. Several windward stations reported 24-hour totals of 0.25 inches or more ending 8 am HST on November 13, and numerous sites recorded 24-hour totals of 0.50 inches or more ending on November 14, preventing the east-side D0 from deteriorating.

No change was made in northern Alaska as the ground has frozen for the season. Conditions will be assessed during the late spring thaw. There is no dryness or drought in Puerto Rico.

Looking Ahead: During the next 5 days (November 15-19), a relatively tranquil weather pattern will envelop the Nation's midsection. Another Nor'easter is expected to develop and affect the southern and middle Atlantic Coast States later in the period, while another Pacific storm system impacts the western quarter of the U.S., possibly reaching the Rockies by Sunday or Monday. In between the two systems, little or no precipitation is expected to fall. Temperatures are forecast to average above normal from the Intermountain West eastward into the upper Midwest and the southern Plains. Subnormal readings are expected in the southern Atlantic Coast States and along the California Coast.

For the 6-10 day outlook (November 20–24), the odds favor above normal precipitation in the Northwest eastward into the upper Midwest, with subnormal precipitation likely from the Four Corner States eastward into the Southeast, and in Alaska. Chances for above normal temperatures are good across the western half of the Nation and into New England, with the highest odds in the North-Central States. Subnormal temperature probabilities are largest in the eastern Gulf and southern Atlantic Coast States, and in Alaska.

Author: [David Miskus, Climate Prediction Center/NCEP/NWS/NOAA](#)

Dryness Categories

D0 ... Abnormally Dry ... used for areas showing dryness but not yet in drought, or for areas recovering from drought.

Drought Intensity Categories

D1 ... Moderate Drought
D2 ... Severe Drought
D3 ... Extreme Drought
D4 ... Exceptional Drought

Drought or Dryness Types

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)
L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

Updated November 14, 2012

Latest NOAA CPC [Seasonal Outlook](#) has been released.

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Special Feature

Help for You

Producers and Farmers

Additional Emergency Funding to Assist Livestock and Crop Producers: To assist producers facing extreme drought conditions, USDA will utilize nearly \$16 million in financial and technical assistance to immediately help crop and livestock producers in 19 states cope with the adverse impacts of the historic drought. In addition, USDA will initiate a transfer of \$14 million in unobligated program funds into the Emergency Conservation Program.

These funds can be used to assist in moving water to livestock in need, providing emergency forage for livestock, and rehabilitating lands severely impacted by the drought. Together these efforts should provide nearly \$30 million to producers struggling with drought conditions.

[Emergency Disaster Designation and Declaration Process Overview](#)

[Contact your local Farm Services Agency for more information](#)

Conservation Reserve Program (CRP) - Emergency Haying and Grazing

For 2012, a county is authorized for [emergency haying and grazing](#) outside the Primary Nesting Season if the county is designated as level "D0-Abnormally Dry", as of July 19, 2012 or later, according to the U.S. Drought Monitor.

The U.S. Drought Monitor and other information on drought conditions are available online at www.drought.gov.

Under this special determination, emergency **haying** is authorized to August 31, 2012. Emergency **grazing** is authorized until November 30, 2012.

Learn more about [FSA Disaster Program](#) (PDF) triggers, key requirements, payments and funding levels for each disaster programs.

Range Management Assistance

The [Bureau of Land Management](#) (BLM) can assist [grazing permit holders](#) by making adjustments in the use period, allow temporary water hauling, allow permittees to move livestock to allotments that are not being used, or to refund grazing fees. Drought-affected grazing permit holders should [contact their local BLM field office](#) for assistance.

Non-Farm Businesses and Non-Profits

Drought recovery loans are available through the U.S. Small Business Administration. Eligible businesses include:

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- Small, non-farm businesses
- Small, agricultural cooperatives
- Small businesses engaged in aquaculture
- Most private, non-profit organizations of any size

Eligible businesses can apply for Economic Injury Disaster Loans (EIDLs) of up to \$2 million to help meet financial obligations and operating expenses which could have been met had the disaster not occurred. These are working capital loans and can be used to cover operating expenses - like utilities, rent, and monthly overhead that would have been paid if the disaster had not occurred. The interest rate is 4 percent for businesses, 3 percent for nonprofits, with terms up to 30 years. See [detailed eligibility requirements](#). You may also [apply online](#).

General Consumers

Drought Common Operating Picture for Navigation

United States Army Corps of Engineers (USACE) continues to monitor the drought and impacts to navigation on the Nation's waterways. Through close coordination with the US Coast Guard, Industry, state, and local officials actions such as dredging, adjusting flow release from established reservoirs, dispatching survey vessels to mark channels, and placing restrictions on the draft and number of barges in tow the water ways remain navigable. USACE actions are taken within existing authorities and approved operating plans. The [USACE Drought Common Operating Picture](#)  is for informational use only. Monitor your local district information for additional information.

State, Local and Tribal Governments

Hydrologic Monitoring (streamgaging, water-quality sampling, or groundwater monitoring)

The [U.S. Geological Survey](#) (USGS) works closely with state and local partner agencies to identify and address drought-related water-information needs. The USGS hydrologic monitoring networks in the drought-affected states include approximately 2,400 streamgages, 800 water-temperature, 400 conductivity, and 200 dissolved-oxygen monitoring stations and 800 real-time ground-water wells. The data provided by these monitoring devices are used by communities and state resource managers to plan water withdrawals and diversions, assess needs for water-use restrictions, and anticipate or respond to drought-related environmental stresses events such as fishkills, saltwater intrusions or water-quality degradation due to high water temperatures, low dissolved oxygen (DO), or algae blooms.

Representatives of interested agencies should contact the [director of the USGS water science center office](#) in their state.