



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

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**Weekly Report - Snowpack / Drought Monitor Update**

**Date: 20 September 2012**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly ending 20 September shows the greatest positive departures over the Cascades and the greatest negative departures over the South High Plains (Fig. 1). ACIS [7-day](#) average temperature anomalies show the greatest positive temperature departure over southwest Oregon ( $>+8^{\circ}\text{F}$ ). The greatest negative departures occurred over southeast Colorado and eastern New Mexico ( $<-8^{\circ}\text{F}$ ) (Fig. 1a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the bulk of moisture as a result of the Southwest Monsoon over New Mexico and much of Colorado (Fig. 2). In terms of percent of normal, the same region is highlighted with very high percentages (Fig. 2a). Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has continued to favor the Northern Tier States. Over much of the southern half of the West, drier conditions dominate. Values over southwest Utah and central Arizona are increasing as a result of an active Southwest Monsoon. However, most river basins are not expected to change much for the remainder of this Water Year (Fig. 2b). For [September](#) thus far, much of the 4-Corner States have been exceedingly wet as a result of a fairly active Southwest Monsoon. The high value over Oregon (134) appears to be a data glitch (Fig. 2c).

**Summary:** Across the West, warm and dry conditions prevailed leading to some minor deterioration of drought conditions in Colorado. The cumulative effect of the monsoon season led to continued improvements throughout portions of the Great Basin and Four Corners region. In the Eastern U.S., overall drought conditions remained unchanged as dry conditions prevailed in most of the region.

**The West:** The West: In the West, warm and dry conditions prevailed across large portions of the region excluding the Southwest and east of the Continental Divide, which experienced cooler than normal temperatures. In the rain-fed coastal mountains of northwestern Oregon, a small area of Abnormally Dry (D0) was added in response to short-term rainfall deficits and low stream flows. Some minor improvements from Severe Drought (D2) to Moderate Drought (D1) in southern and eastern Nevada were made in response to above average precipitation during the past 60 days with areas receiving more than 200% of normal and improving soil moisture conditions. In Arizona, the cumulative effect of the monsoon in northeastern Arizona led to a reduction of Extreme Drought (D3) to Severe Drought (D2) over the Chuska Mountains of the Navajo Nation. . Author: David Simeral, Western Regional Climate Center.

***A comprehensive narrative describing drought conditions for the nation can be found at the end of this document.***

### **[Drought Impacts Definitions](#)**

The possible impacts associated with **D4 (S, L)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (S, L)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (S, L)** drought are

## Weekly Snowpack and Drought Monitor Update Report

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. 3 through 3d).

### Soil Moisture

Soil moisture (Fig. 4), 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 5 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. 6) shows the 7-day average streamflow conditions in hydrologic units of the United States and Puerto Rico for the day of year. The colors represent 7-day average streamflow percentiles based on historical streamflow for the day of the year. Thus, the map shows conditions adjusted for this time of the year. Only stations having at least 30 years of record are used. Sub-regions shaded gray indicate that insufficient data were available to compute a reliable 7-day average streamflow value. During winter months, this situation frequently arises due to ice effects. The data used to produce this map are provisional and have not been reviewed or edited. They may be subject to significant change.

### **Fire Conditions**

Fig. 7 comes from the [Predictive Services](#) (USFS) facilitates integration of comprehensive climate, weather, situation and fuels information in geospatial format.

### **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

# Weekly Snowpack and Drought Monitor Update Report

## SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average Temperature Anomaly (Degrees F)

Sep 20, 2012

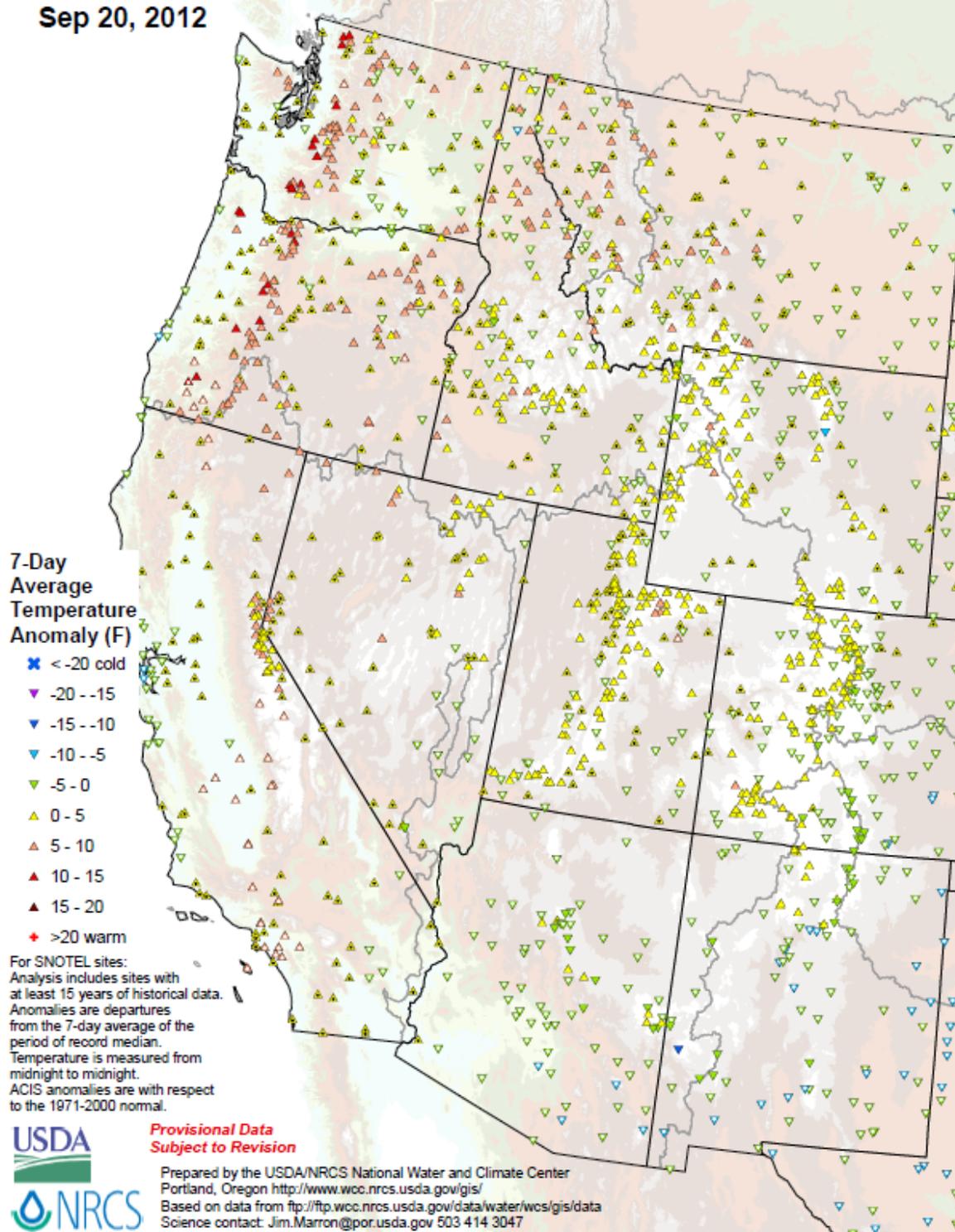
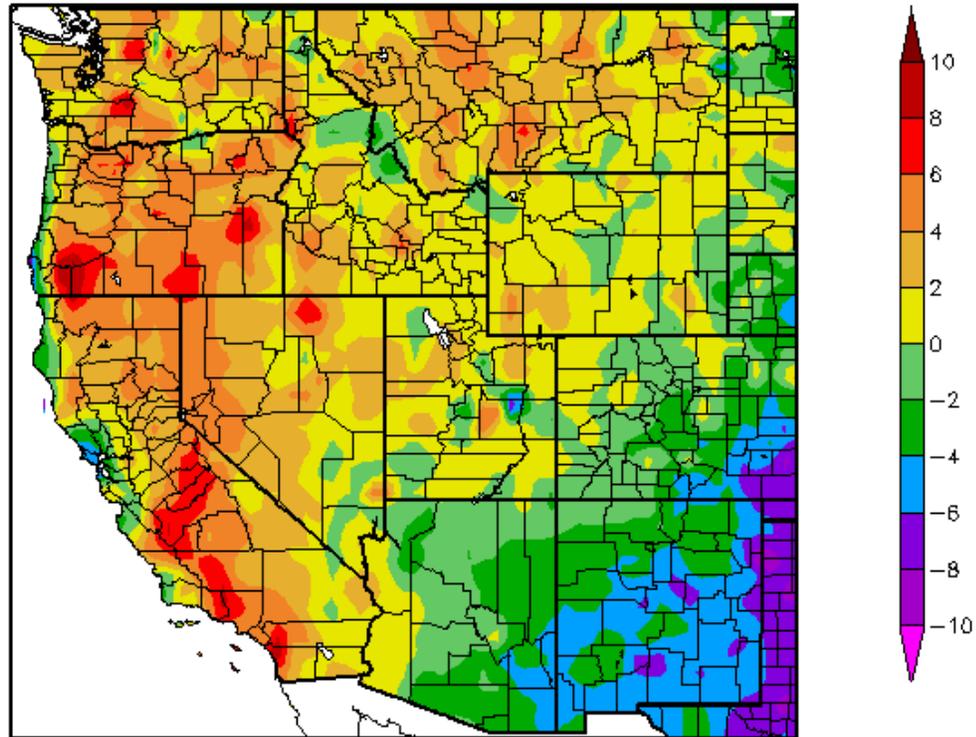


Fig. 1: **SNOTEL** and ACIS 7-day temperature anomaly ending 20 September shows the greatest positive departures over the Cascades and the greatest negative departures over the South High Plains.

Departure from Normal Temperature (F)  
9/13/2012 – 9/19/2012



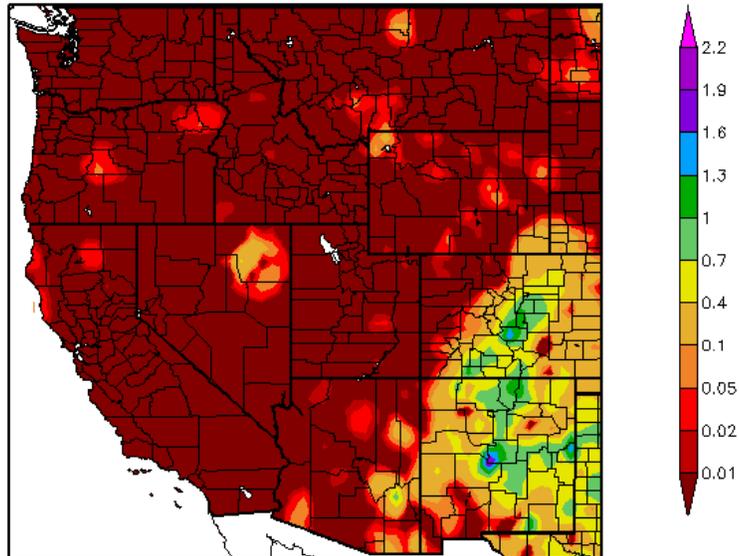
Generated 9/20/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 1a:** ACIS 7-day average temperature anomalies show the greatest positive temperature departure over southwest Oregon ( $>+8^{\circ}\text{F}$ ). The greatest negative departures occurred over southeast Colorado and eastern New Mexico ( $<-8^{\circ}\text{F}$ ).

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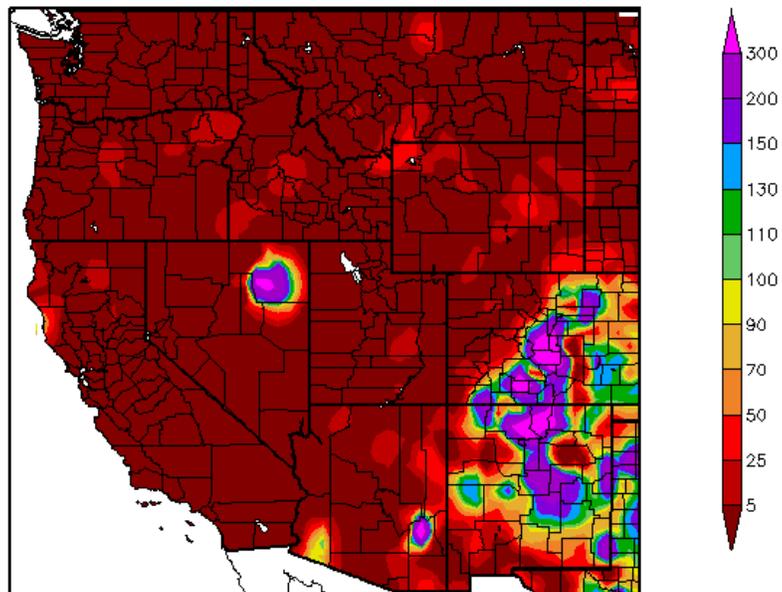
Precipitation (in)  
9/13/2012 - 9/19/2012



Generated 9/20/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
9/13/2012 - 9/19/2012



Generated 9/20/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2 and 2a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the bulk of moisture as a result of the Southwest Monsoon over New Mexico and much of Colorado (top). In terms of percent of normal, the same region is highlighted with very high percentages (bottom).**

Weekly Snowpack and Drought Monitor Update Report

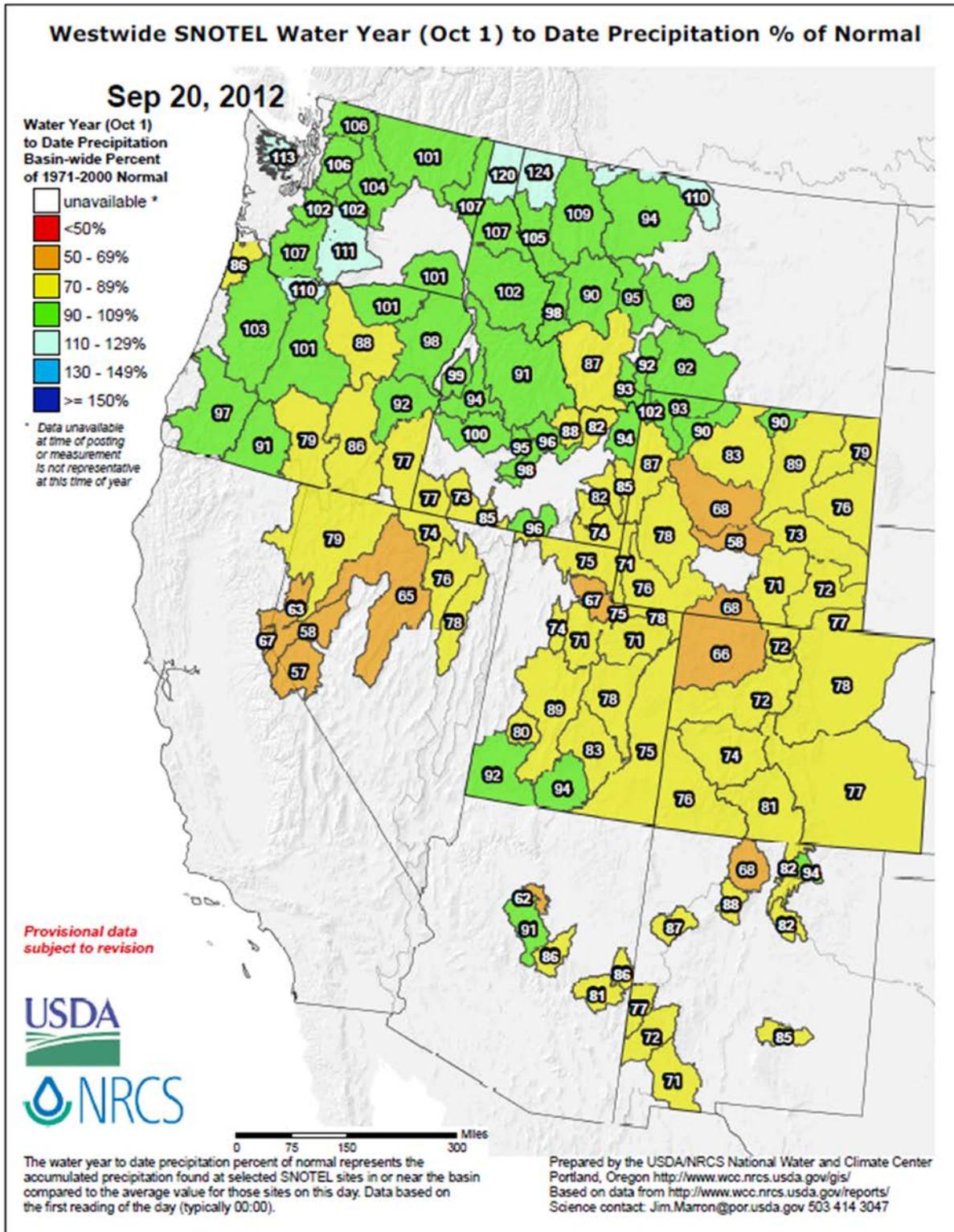
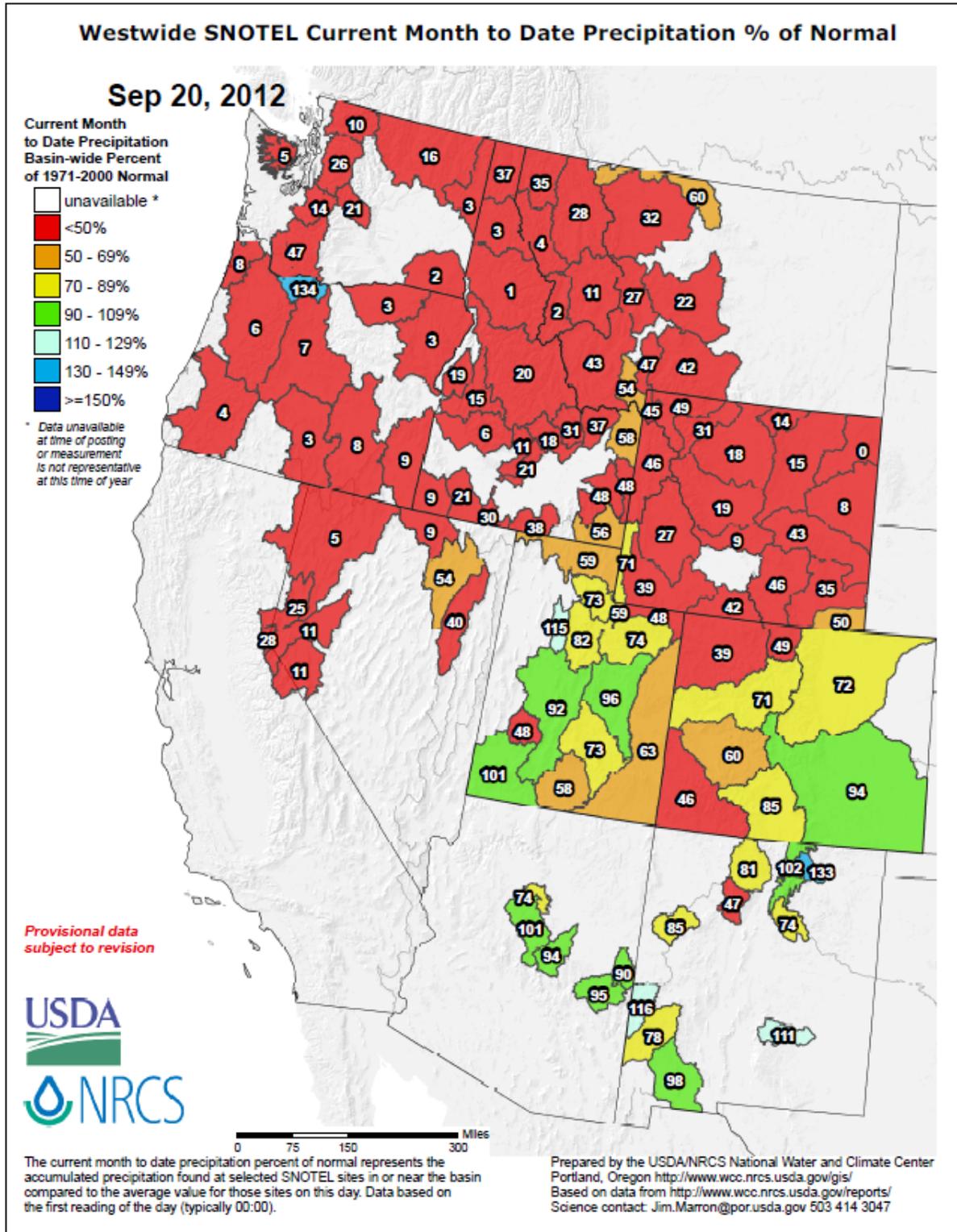


Fig 2b: Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has continued to favor the Northern Tier States. Over much of the southern half of the West, drier conditions dominate. Values over southwest Utah and central Arizona are increasing as a result of an active Southwest Monsoon. However, most river basins are not expected to change much for the remainder of this Water Year.

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**Fig. 2c:** For September thus far, much of the 4-Corner States have been exceedingly wet as a result of a fairly active Southwest Monsoon. The high value over Oregon (134) appears to be a data glitch.

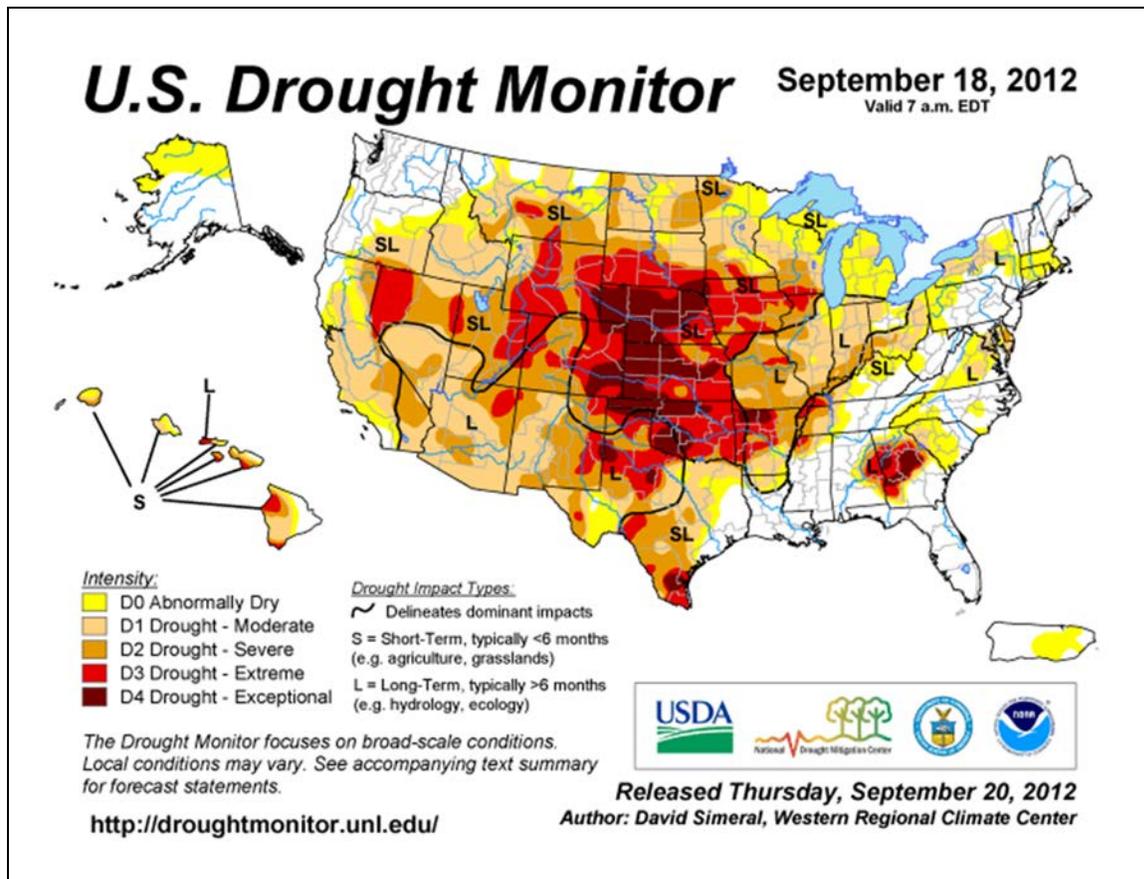


Fig. 3: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over Georgia and scattered across the corn belt of the Central Plains into Colorado. For more drought news, see [Drought Impact Reporter](#). Click for the latest statistics for [California Reservoirs](#). The September [drought indicator blend and component percentiles](#) spreadsheet is a great resource for climate division drought statistics.

### Agriculture

- [Crop insurance losses expected to set record high amid widespread drought, program changes](#) – Sept 13, **US**
- [Drought-resistant corn shows promise under real-life conditions](#) - Sept 13, **Central Illinois**
- [Drought forces farmer to scramble for feed](#) - Sept 14, **Kansas**
- [Government Lowers Crop Yield Forecast Again](#) - Sept 12, **US**.
- [Hay thefts piling up in Colo. as drought sends prices to historic highs](#) - Sept 14, **Colorado**.
- [UNL: Drought leading to high nitrates in crops](#) - Sept 12, **Nebraska**.

See the latest [Agriculture in Drought](#) slides.

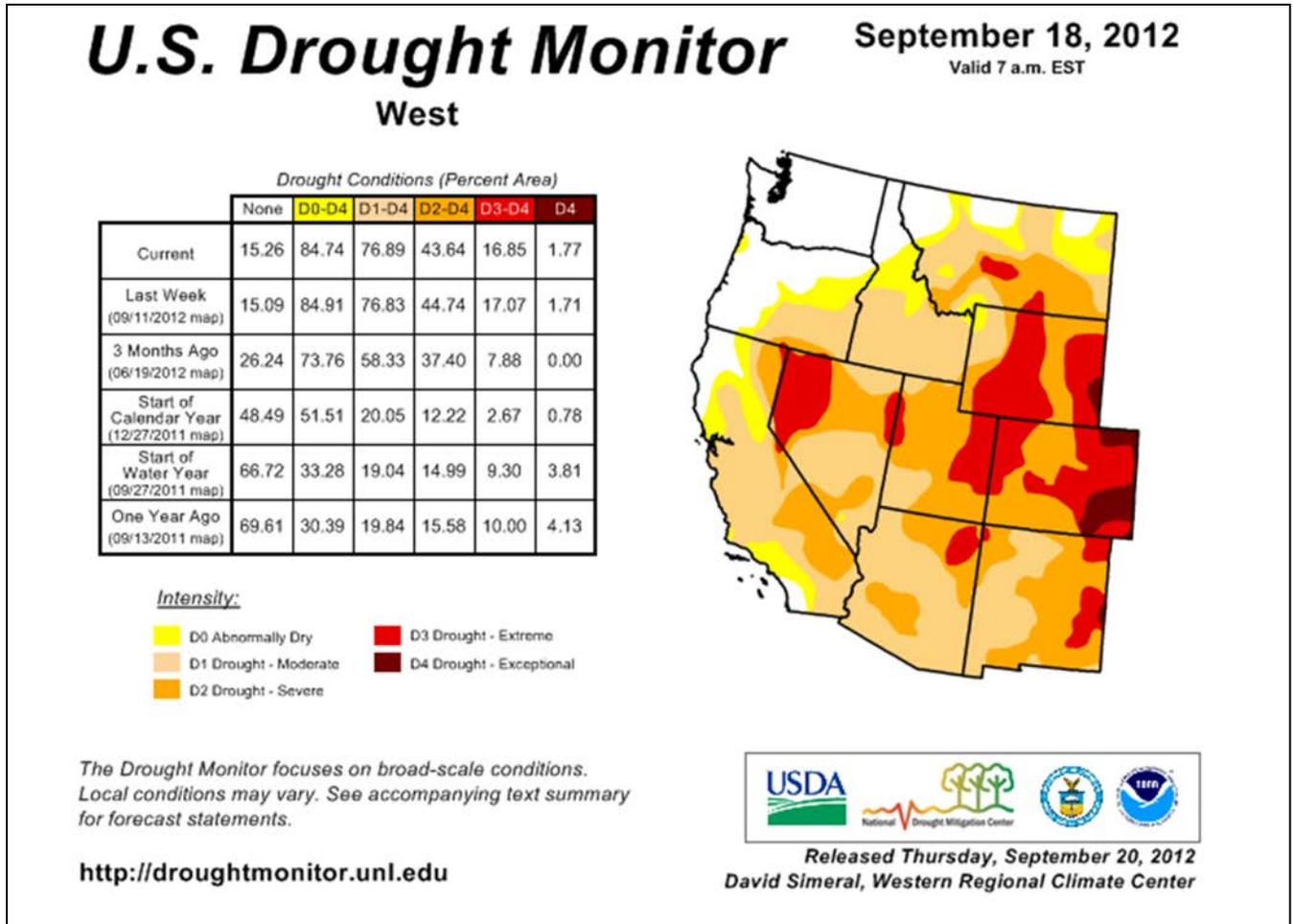


Fig. 3a: Drought Monitor for the [Western States](#) with statistics over various time periods. No significant change this week. D4 is holding near 2%.

## Weekly Snowpack and Drought Monitor Update Report

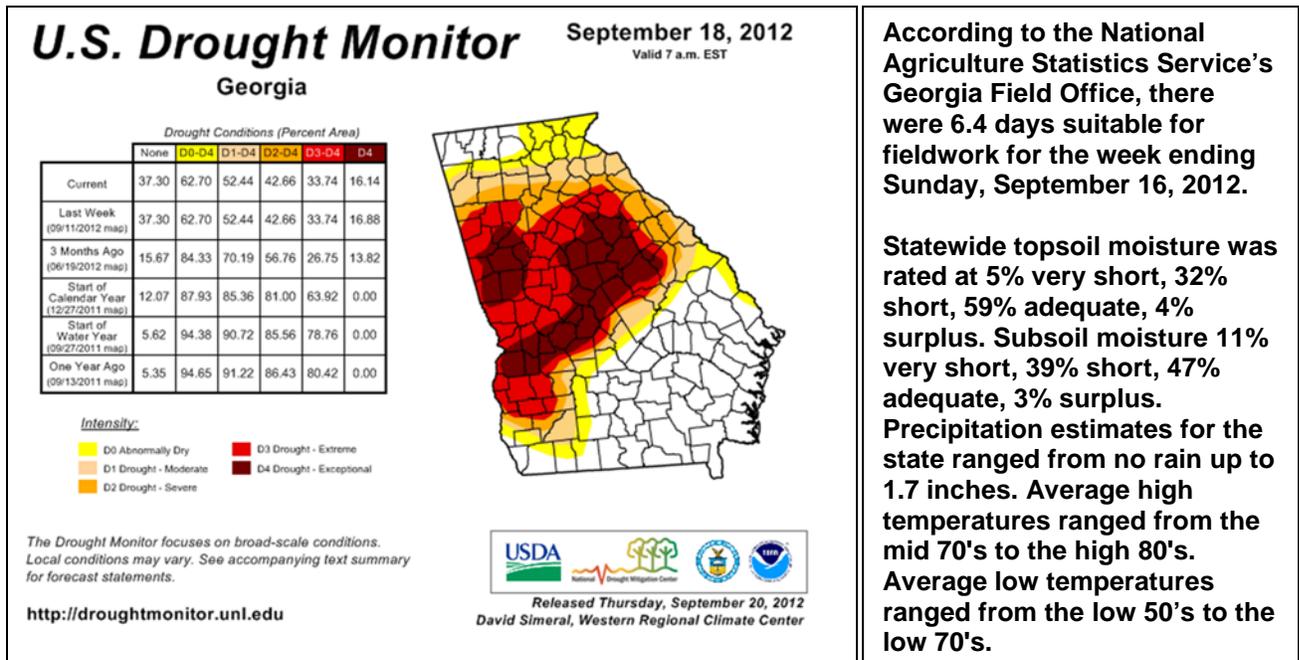


Fig. 3b: Drought Monitor for [Georgia](#) with statistics over various time periods. Note this state is the only state in the Southeast with D4 conditions (~16%). See the Weekly GridSSAT Output Products: <http://gridssat.nsstc.uah.edu/> for more details.

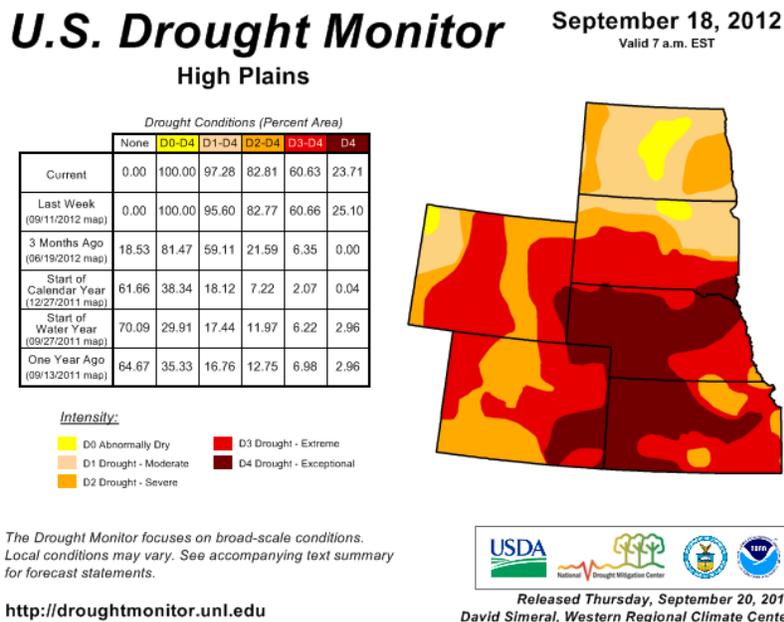


Fig. 3c: Drought Monitor for the [High Plains](#) with statistics over various time periods. No significant change this week. See the latest [Kansas Drought Report](#). D4 is holding near 24%.

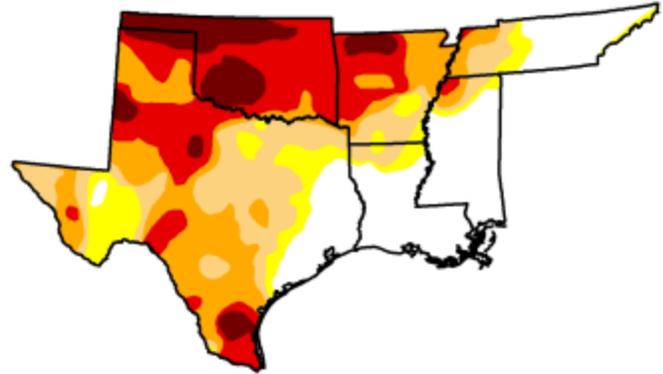
# U.S. Drought Monitor

## South

September 18, 2012  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.06	74.94	65.27	48.67	28.85	8.96
Last Week (09/11/2012 map)	22.96	77.04	66.47	49.00	29.31	8.92
3 Months Ago (06/19/2012 map)	21.52	78.48	52.54	25.63	3.77	0.00
Start of Calendar Year (12/27/2011 map)	26.47	73.53	69.01	54.81	39.11	17.15
Start of Water Year (09/27/2011 map)	18.34	81.66	76.26	70.61	63.67	53.77
One Year Ago (09/13/2011 map)	18.41	81.59	76.36	70.48	65.22	55.21



*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.*

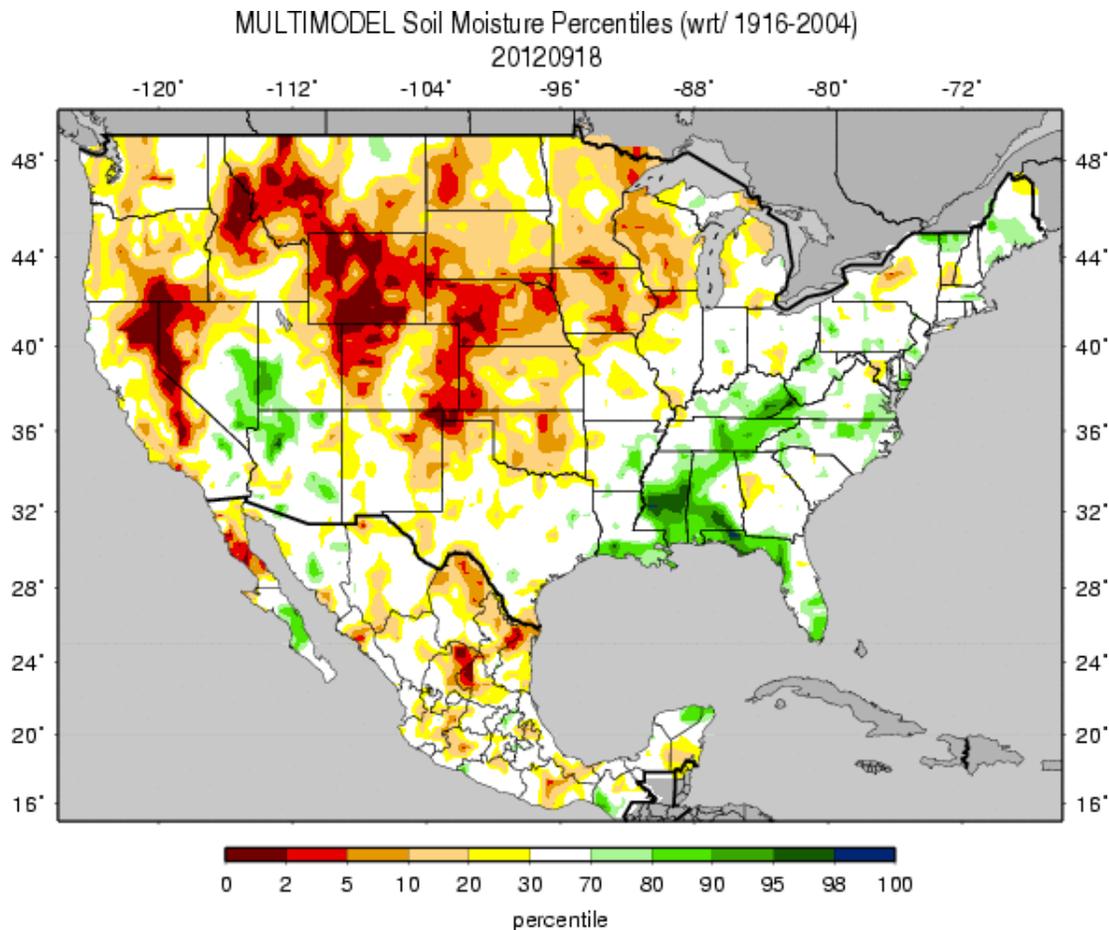
<http://droughtmonitor.unl.edu>



Released Thursday, September 20, 2012  
David Simeral, Western Regional Climate Center

Fig. 3e: Drought Monitor for the [South-Central Region](#) with statistics over various time periods. Note no significant changes this week. D4 is holding near 9%.

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**Figs. 4:** Soil Moisture ranking in [percentile](#) as of 18 September shows dryness over much of the Northern and Central Rockies, Western High Plains (including Iowa), northern California, and the Western Great Basin. Hurricane Isaac's moisture still persists over southern Louisiana and Mississippi.

### *Useful Hydrological Links:*

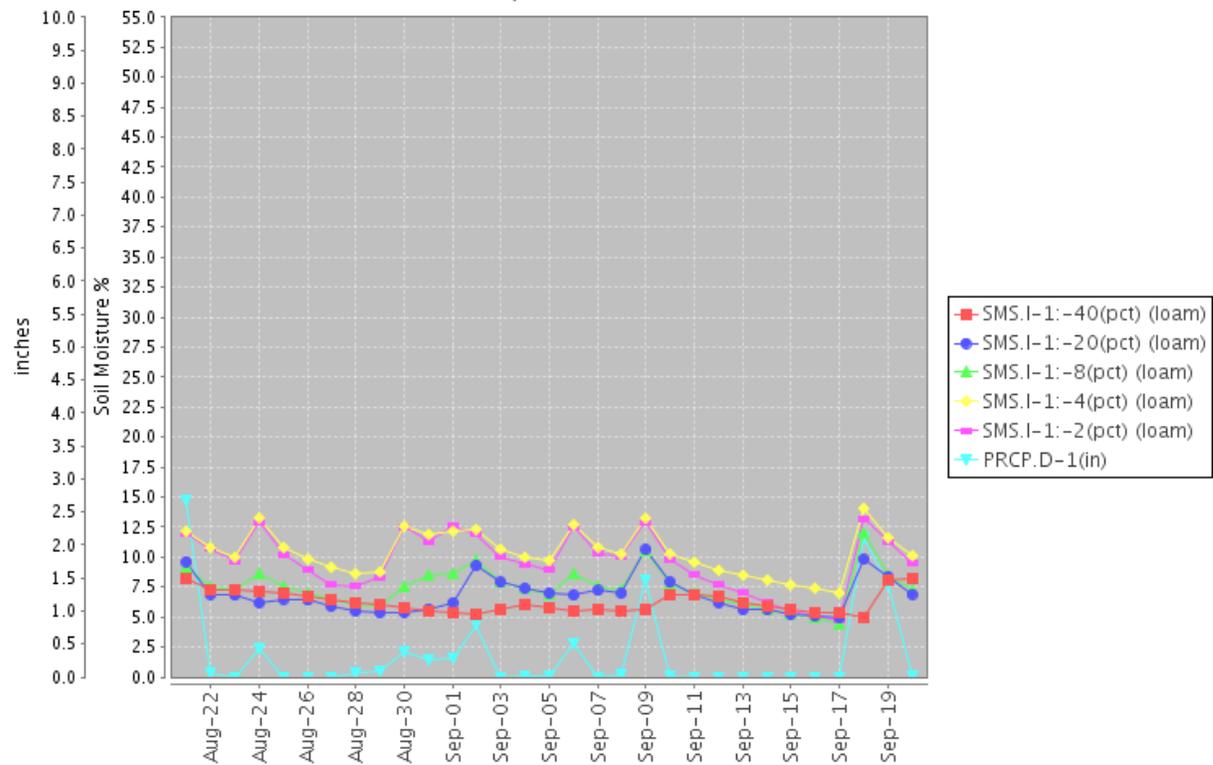
USDA western U.S. mountain snow water content anomaly map.

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](#).

## Weekly Snowpack and Drought Monitor Update Report

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

Station (2009) MONTH=2012-08-21 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Sep 20 08:11:31 PDT 2012



**Fig. 5:** This NRCS resource shows a site over the [Panhandle of Florida](#) responding to periodic rain events.

#### 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);

## Weekly Snowpack and Drought Monitor Update Report

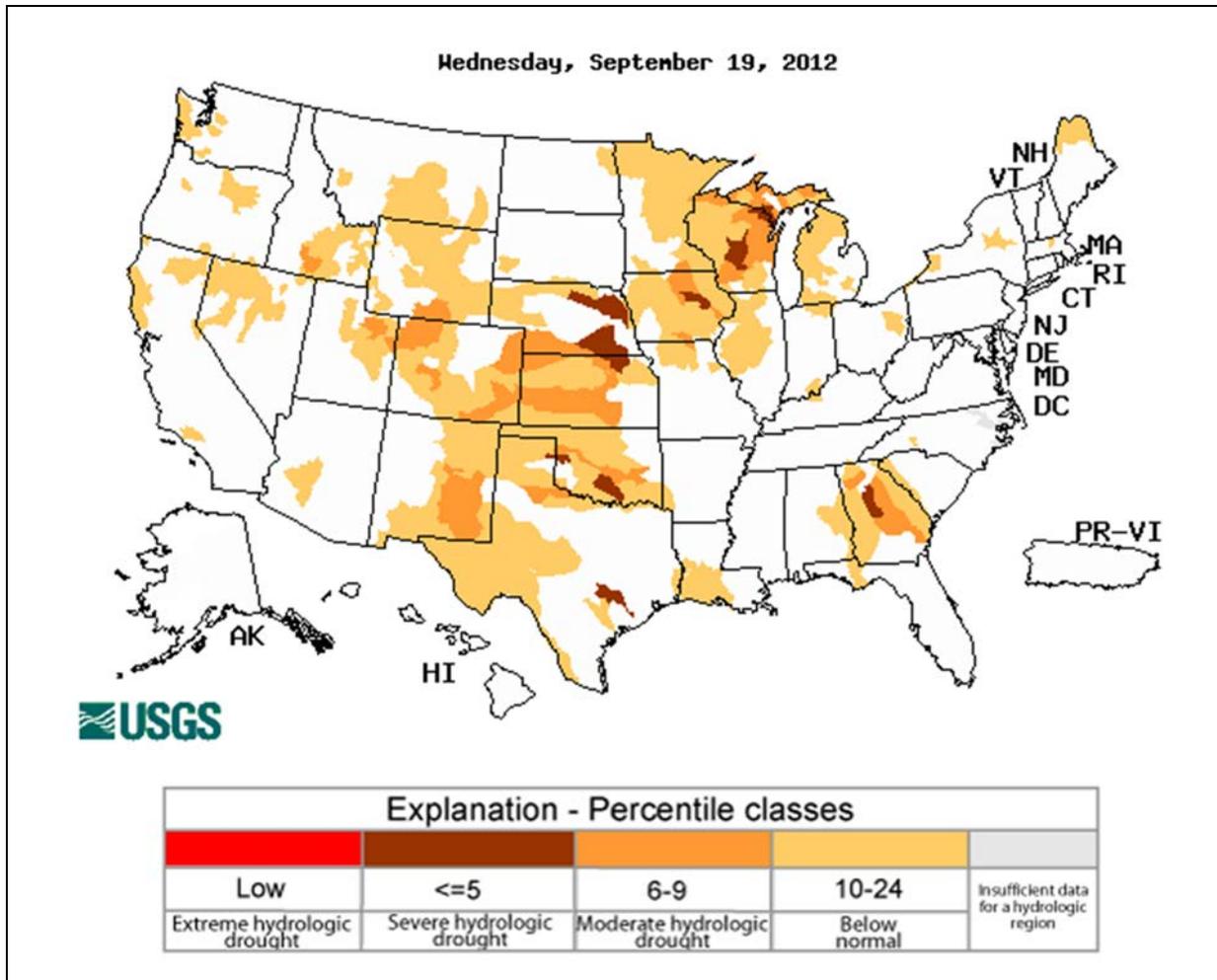


Fig. 6: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. **Severe** conditions exist over parts of northern Kansas and east Nebraska, Oklahoma, Texas, Wisconsin, Iowa, , northern Michigan, and Georgia. See new USGS [National Water Information System Mapper](#).

## Weekly Snowpack and Drought Monitor Update Report

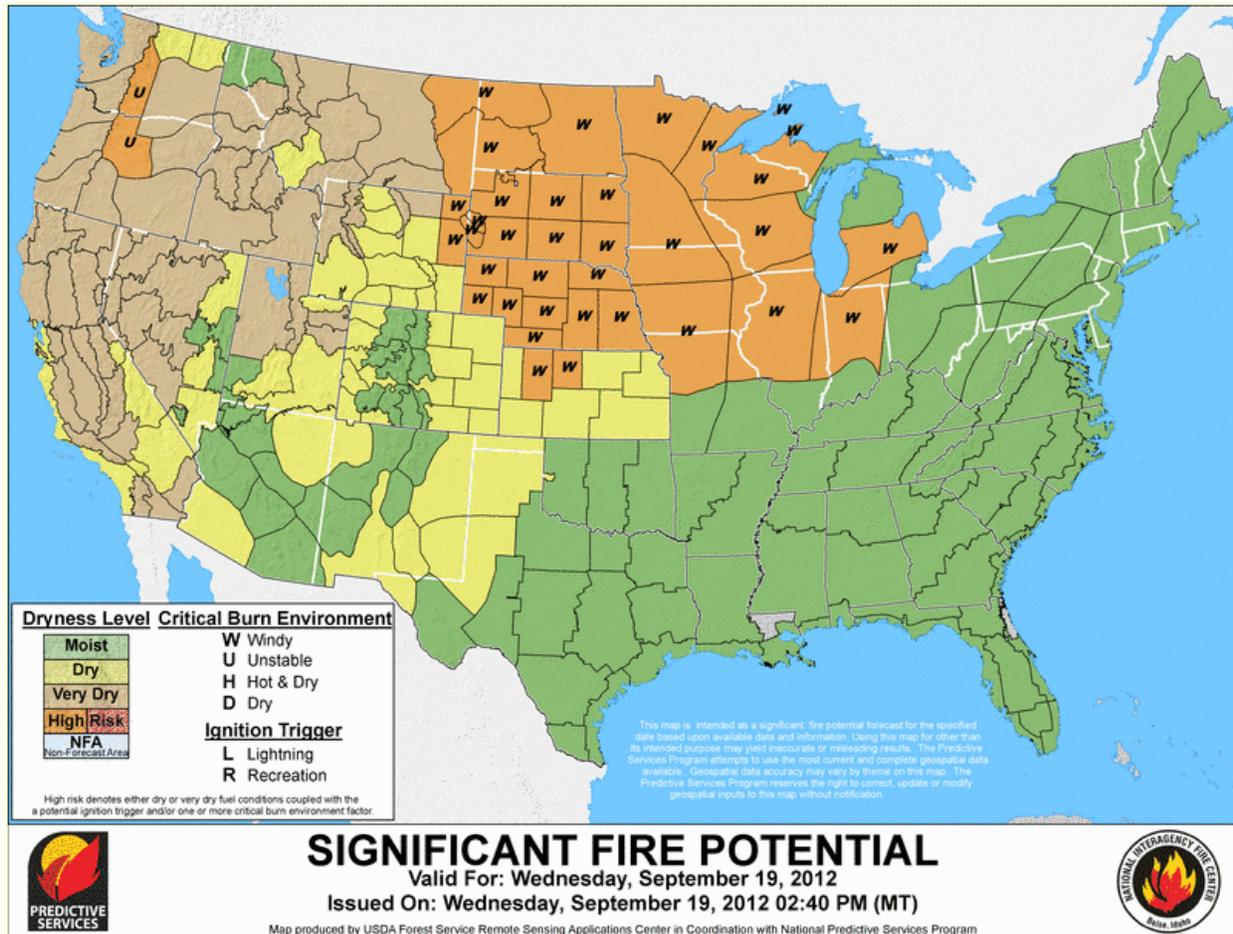


Fig. 7: [Significant fire potential](#) for today. This resource also provides forecasts out to 7 days. Also check out: [NOAA's Fire Server](#). Risk continues over the Northern Plains and Northern Cascades. Also see: [Experimental Southwest area wildland fire smoke impact awareness page](#) and the latest, [National Interagency Fire Agency Report](#).

# Weekly Snowpack and Drought Monitor Update Report

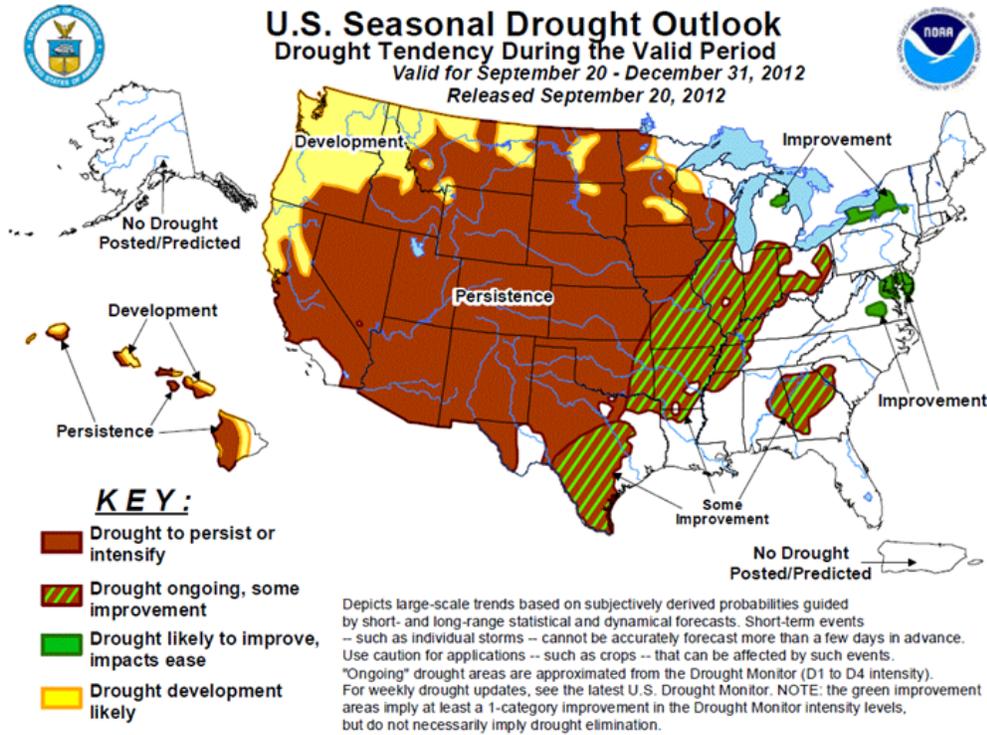


Fig. 8: [U.S. seasonal Drought Outlook](#) released 20 September 2012.

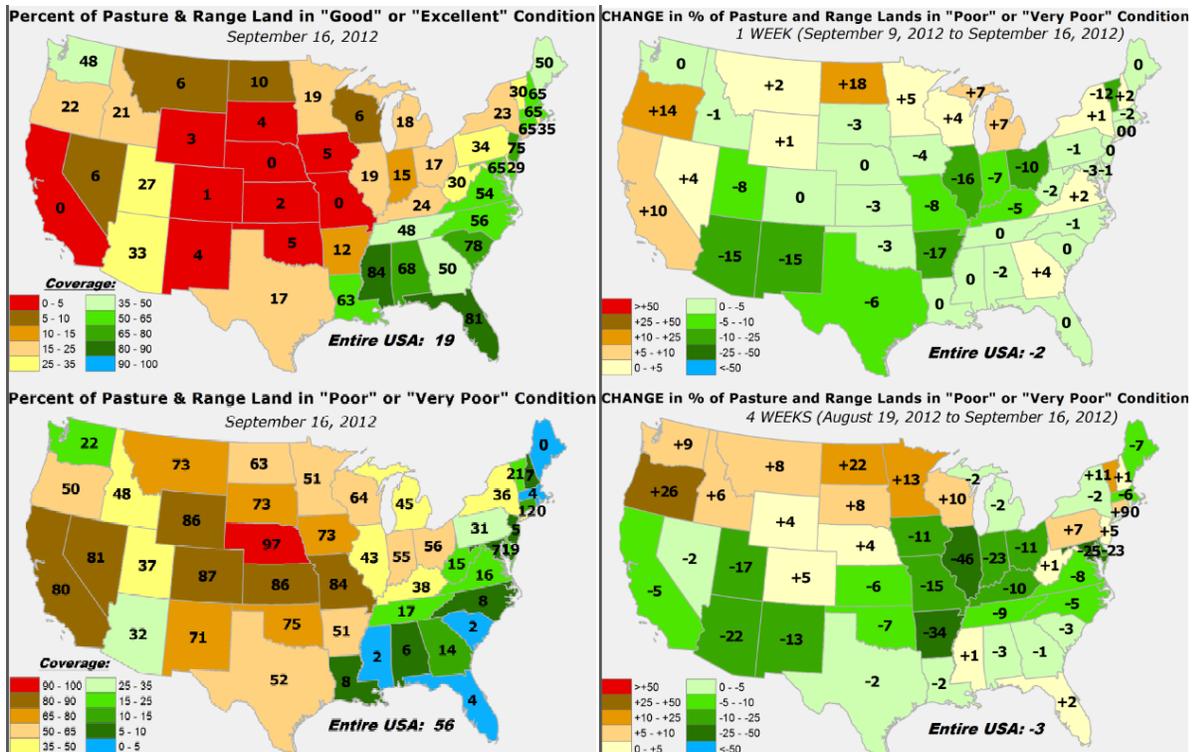


Fig. 9: Pastureland Conditions. Note, marked improvement across the Southwest and Midwest this week (upper right panel).

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- September 18, 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/>.

This U.S. Drought Monitor week saw some improvements in drought conditions in portions of the Lower Midwest, Southern Plains, and the South while drought-stricken areas of the Northern Great Plains and Upper Midwest continued in a dry pattern leading to some minor degradation of conditions. Across the West, warm and dry conditions prevailed leading to some minor deterioration of drought conditions in Colorado. The cumulative effect of the monsoon season led to continued improvements throughout portions of the Great Basin and Four Corners region. In the Eastern U.S., overall drought conditions remained unchanged as dry conditions prevailed in most of the region.

**The Northeast:** Drought conditions in the Northeast remained unchanged during this week as a result of prevailing dry conditions.

**Mid-Atlantic:** The Mid-Atlantic region was generally quiet this week with only minor expansion of Abnormally Dry (D0) conditions in northern Virginia and minor improvements in central Maryland from Moderate Drought (D1) to Abnormally Dry (D0).

**The Southeast:** Some locally heavy rainfall during the period helped to improve small sections of Abnormally Dry (D0) in northwestern and central Alabama as well as minor improvements from Exceptional Drought (D4) to Extreme Drought (D3) in northeastern Georgia. Otherwise, the region was largely unchanged.

**The South and Southern Plains:** Persistence of dry conditions in western Oklahoma and the Texas Panhandle led to expansion of Exceptional Drought (D4) in this region. Heavy rainfall in portions of northeastern Oklahoma, northwestern Arkansas, and southern Texas led to minor improvements across all categories. Locally heavy rainfall across central, southern, and western Arkansas continued to ease drought conditions from Extreme Drought (D3) to Severe Drought (D2).

**Midwest:** In the northern tier, persistent above-average temperatures combined with below-average precipitation led to the expansion of Abnormally Dry (D0) and Moderate Drought (D1) in central and northern portions of Minnesota and Wisconsin. Recent heavy rainfall events during the past 30 days led to improvements in central and southern Illinois, southern Indiana, and eastern Kentucky.

**The Central and Northern Plains:** The region continued to experience below normal precipitation with the exception of extreme southeastern Kansas. In the Dakotas, short-term rainfall deficits and local agricultural impacts led to the expansion of Moderate Drought (D1) in north-central South Dakota and west-central North Dakota.

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The West: In the West, warm and dry conditions prevailed across large portions of the region excluding the Southwest and east of the Continental Divide, which experienced cooler than normal temperatures. In the rain-fed coastal mountains of northwestern Oregon, a small area of Abnormally Dry (D0) was added in response to short-term rainfall deficits and low stream flows. Some minor improvements from Severe Drought (D2) to Moderate Drought (D1) in southern and eastern Nevada were made in response to above average precipitation during the past 60 days with areas receiving more than 200% of normal and improving soil moisture conditions. In Arizona, the cumulative effect of the monsoon in northeastern Arizona led to a reduction of Extreme Drought (D3) to Severe Drought (D2) over the Chuska Mountains of the Navajo Nation.

Hawaii, Alaska, and Puerto Rico: On the Big Island, a small area of Extreme Drought (D3) was added to the southern tip of the island in response to agricultural impacts in the area. In eastern portions of Oahu along the Koolau Range, recent improvements led to the removal of a swath of Abnormally Dry (D0) on the northeastern facing slopes.

*Looking Ahead:* In the short-term (3-5 days), the NWS Hydrological Prediction Center's forecast calls for relatively dry conditions throughout most of the contiguous U.S. coming into the weekend except for a series of minor, upper-air disturbances that mainly will impact the Midwest and portions of the Northeast. These disturbances in addition to the passing cold front will bring cooler air into the eastern half of the nation, while the West will continue to experience above-normal temperatures and dry conditions.

The CPC 6-10 Day Outlook is projecting above-average temperatures across Alaska excluding the Aleutians and Northwest Arctic regions with wetter than normal conditions over interior Alaska. In the contiguous U.S., temperatures across most of the West, except Coastal California, will remain above average. Wetter than normal conditions in the West will be isolated to portions of the southern Great Basin, Four Corners, and southern Rockies while the Great Plains region will continue to remain dry. In the eastern U.S., wetter-than-normal conditions are predicted over the Northeast and Florida.

Author: [David Simeral, Western Regional Climate Center](#)

### Dryness Categories

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

### Drought Intensity Categories

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

### Drought or Dryness Types

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

*Updated September 19, 2012*

Just release, NOAA Climate Prediction Center's [Seasonal Outlook](#).

### Special Report

**The USDA Blog:** [USDA Drought Code Sprint: Giving Americans One-Click Access to Federal Drought Relief](#).

Americans across the country are feeling the impact of the most severe and extensive drought in the last 25 years. We've heard from people throughout the United States, asking how they can help. That's why today we're launching USDA's first-ever Drought Code Sprint, a call to developers across the country to use publicly available government information to help farmers, ranchers, and others gain quick and reliable "one-click" access to information on drought conditions and Federal drought relief. Developers can submit their apps using [this form](#) by October 5. Some of the most innovative ones will be featured on USDA.gov.

Crops are withering as a result of this historic drought and feed for livestock is growing ever more scarce and expensive. None of us is immune—these conditions are affecting over 50% of the country and almost 80% of our agricultural land. But our rural communities and family farmers and ranchers are on the front lines, and have been the first to feel the drought's full effects. They are working hard to overcome these hardships, and the Federal Government has stepped up to help.

Of course, apps can't influence the weather or refill our reservoirs. But they can help farmers and ranchers become more easily aware of the kinds of assistance available to them, and they can simplify the process of taking advantage of these options so relief gets to the people who need it as efficiently as possible.

Some tools we'd love to see include apps that provide "one-click" access to the nearest USDA service centers and available drought programs; county-level drought disaster designations and program eligibility; information on Federal assistance available based on location and sector; types of loans or refinance options available with a handy repayment calculator and eligibility requirements; drought maps; and localized weather outlooks. These are just a few of our ideas but we're confident that you have even better ones—so get coding!