



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

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

**Date: 6 September 2012**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly ending 6 September shows departures above normal east of the Continental Division and cooler west (Fig. 1). ACIS [7-day](#) average temperature anomalies show the greatest positive temperature departures over northeastern Colorado ( $>+10^{\circ}\text{F}$ ). The greatest negative departures occurred over parts of Washington ( $<-4^{\circ}\text{F}$ ) (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 (Fig. 2). In terms of percent of normal, the same regions are highlighted (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 are not expected to change much for the remainder of this Water Year (Fig. 2b). For the first week of [September](#), the Upper Snake River, Lower Bear River, and Lower Green River Basins have been exceedingly wetter than expected for this period. Additionally, the enhanced monsoon over parts of Arizona and southwest New Mexico are noted this week (Fig. 2c).

**The West:** A mix of improvements and degradation this week. In Wyoming, a large degradation as D3/D4 pushed west out of Nebraska and into the eastern portions of the state. Western Wyoming saw D2/D3 conditions expand as well as D2 in the north central. For Montana, much of the southern portions of the state were put into D2 this week while D1 pushed into the north central portions of Montana. A new area of D3 was introduced in central Montana while D3 also was extended out of Wyoming into the southern portion of the state. In Colorado, some recent rains have allowed for D3 to be improved in the central portion of the state while in the 4 Corners region, D3 was also improved. Author: Brian Fuchs, National Drought Mitigation Center.

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

### **Drought Impacts Definitions**

The possible impacts associated with **D4 (S, L)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (S, L)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (S, L)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (S, L)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 3 through 3e).

### **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

## Weekly Snowpack and Drought Monitor Update Report

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 06, 2012

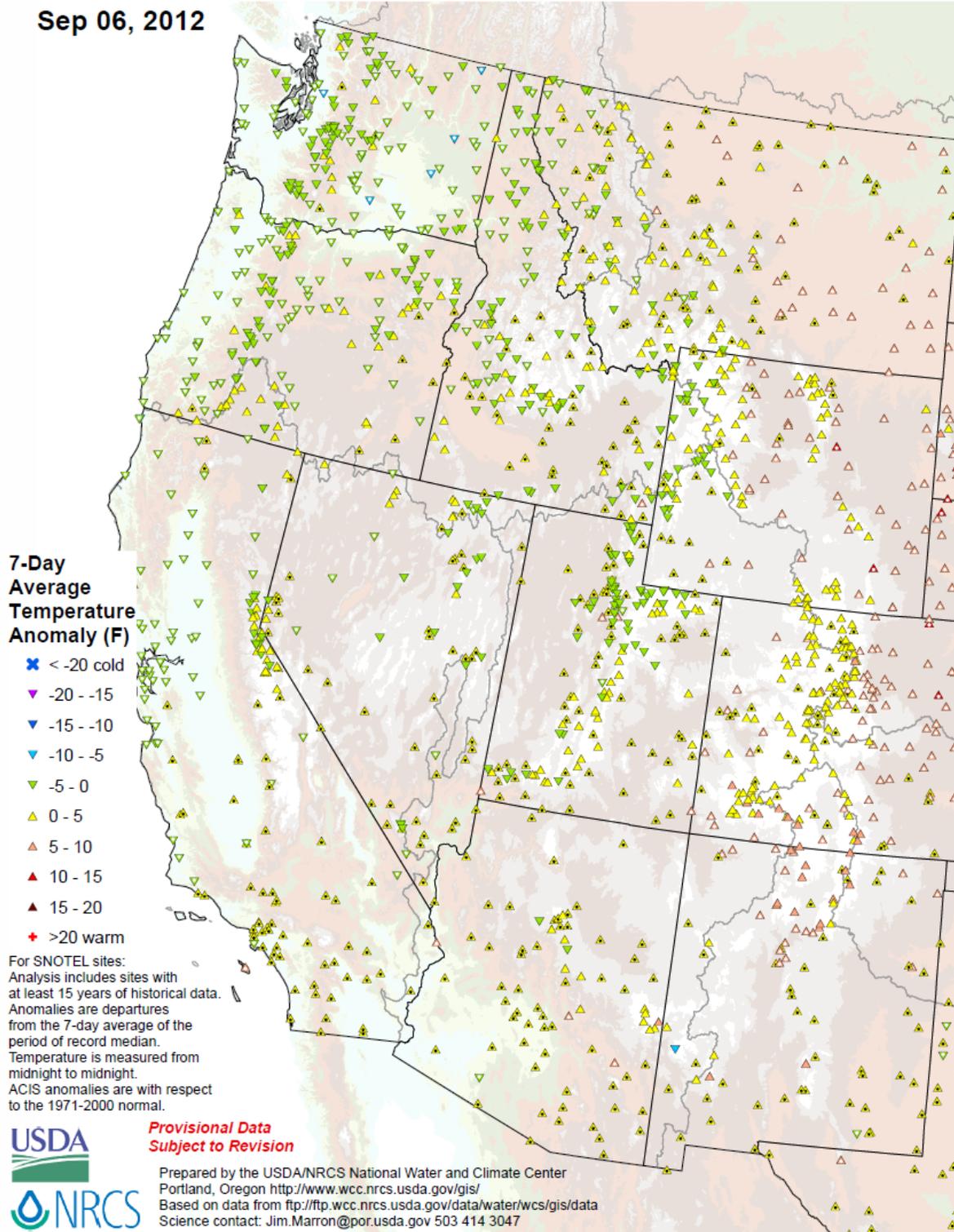
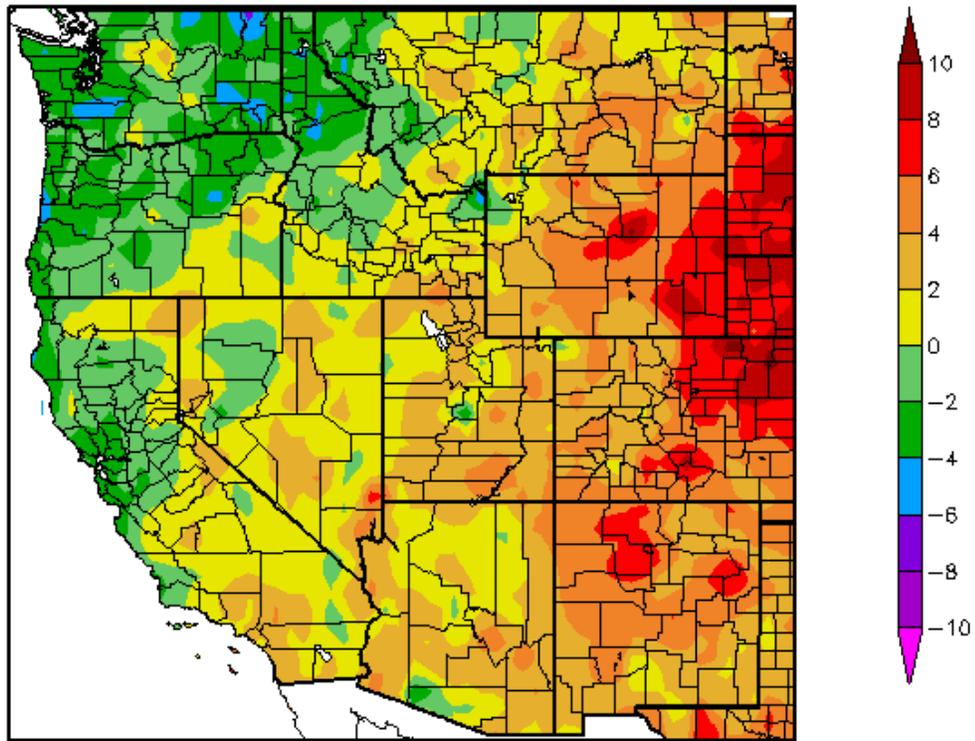


Fig. 1: **SNOTEL** and ACIS 7-day temperature anomaly ending 6 September shows departures above normal east of the Continental Division and cooler west.

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Departure from Normal Temperature (F)  
8/30/2012 – 9/5/2012



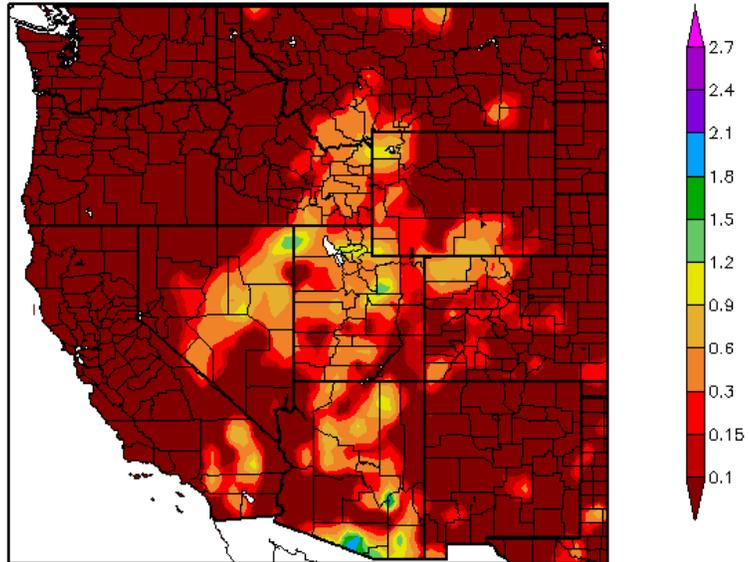
Generated 9/6/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 1a:** ACIS [7-day](#) average temperature anomalies show the greatest positive temperature departures over northeastern Colorado ( $>+10^{\circ}\text{F}$ ). The greatest negative departures occurred over parts of Washington ( $<-4^{\circ}\text{F}$ ).

# Weekly Snowpack and Drought Monitor Update Report

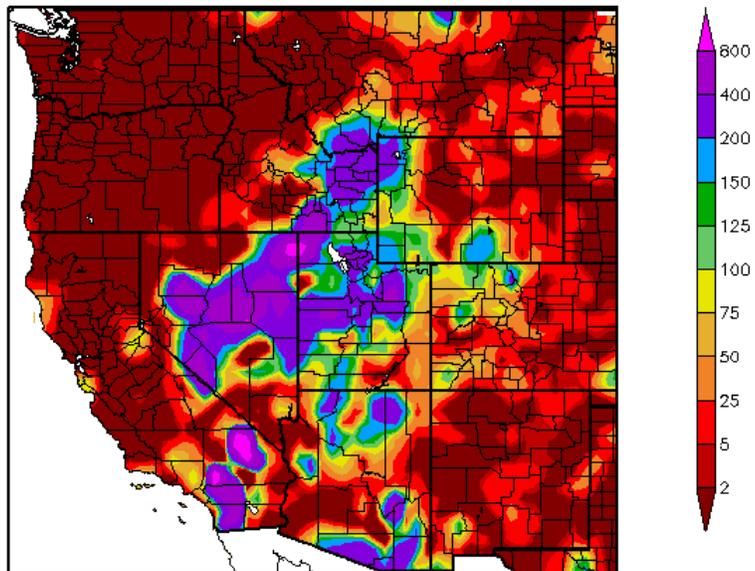
Precipitation (in)  
8/30/2012 - 9/5/2012



Generated 9/6/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
8/30/2012 - 9/5/2012

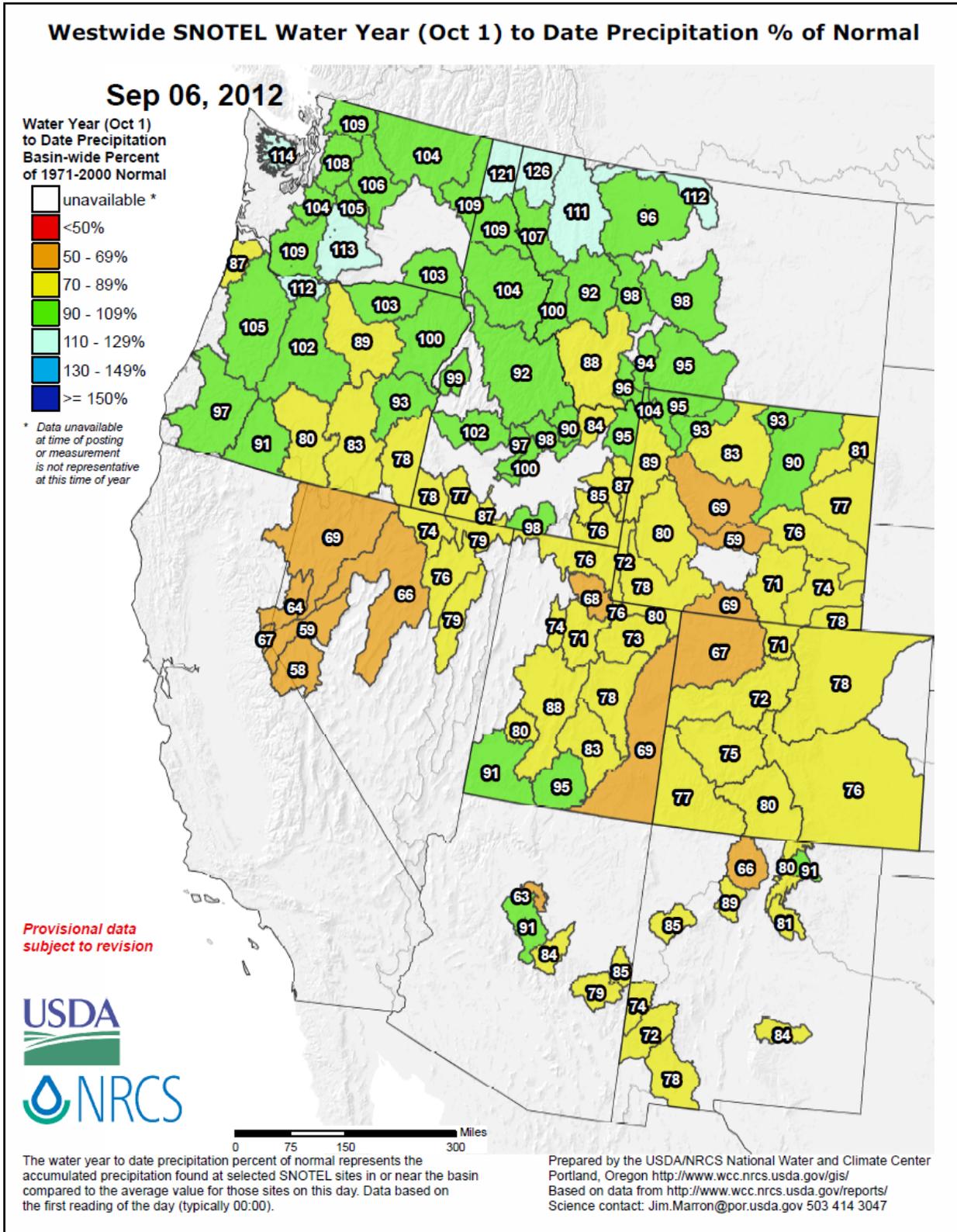


Generated 9/6/2012 at HPRCC using provisional data.

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 (top). In terms of percent of normal, the same region is highlighted with very high percentages (bottom).

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**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 are not expected to change much for the remainder of this Water Year.

# Weekly Snowpack and Drought Monitor Update Report

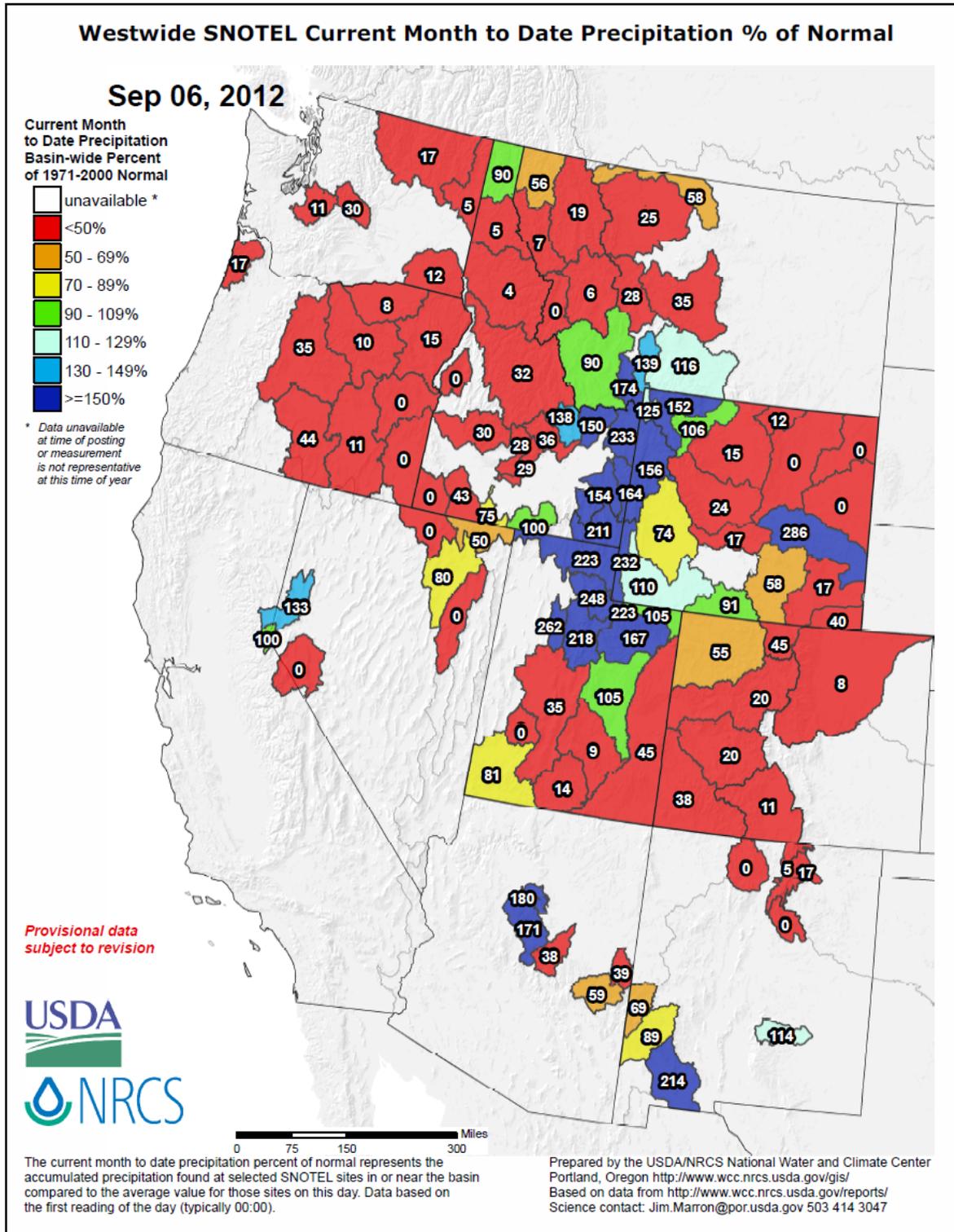


Fig. 2c: For the first week of **September**, the Upper Snake River, Bear River, and Lower Green River Basins have been exceedingly wetter than expected for this period. Additionally, the enhanced monsoon over parts of Arizona and southwest New Mexico are noted this week.

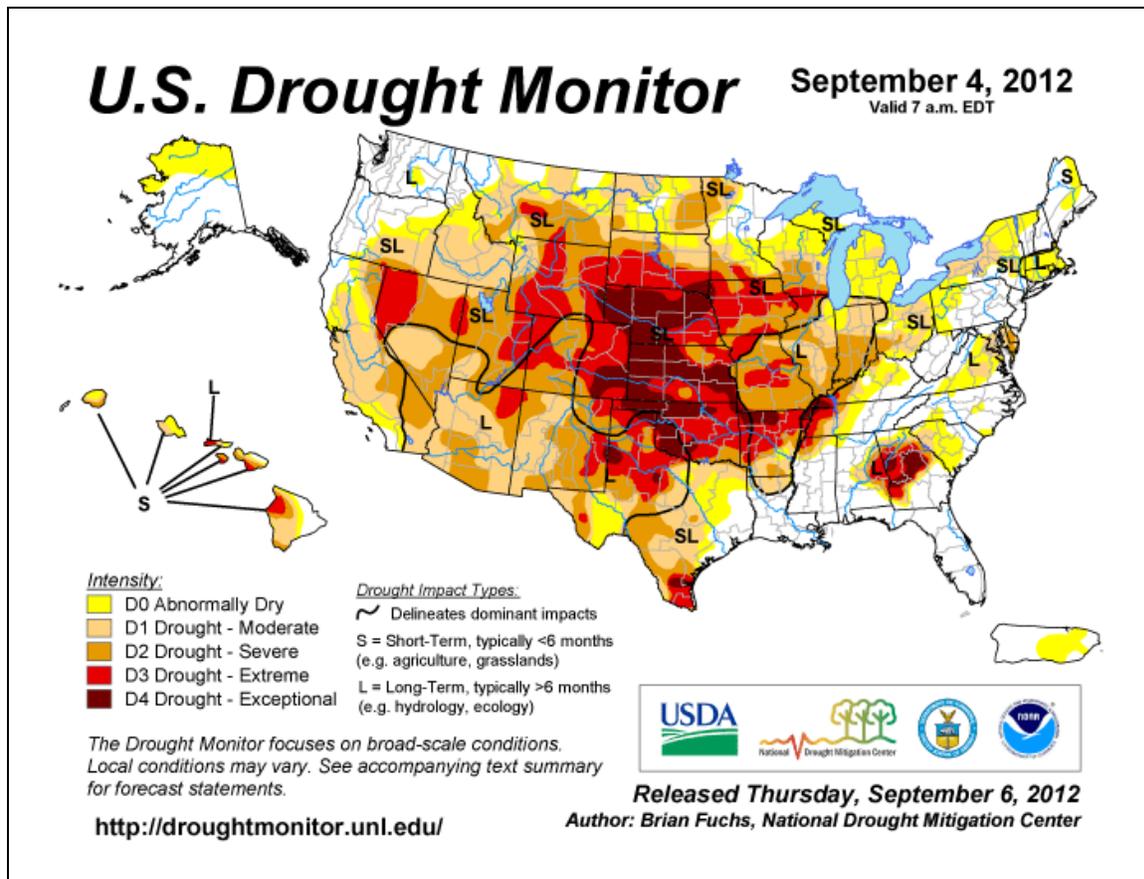


Fig. 3: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over Georgia and scattered across the corn belt of the Central Plains into Colorado. For more drought news, see [Drought Impact Reporter](#). Click for the latest statistics for [California Reservoirs](#).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

## Agriculture

[Colorado drought dries up harvest yields](#) - Aug 27, **Colorado**. Crop production was down on several farms in Adams County because irrigation supplies were limited. Several farm owners said that they had to choose which crops to water and which to sacrifice. Green beans, pickles, cabbage and lettuce were crops that went unwatered on one farm. Another farmer was worried about the impact this year's drought would have on next year's crops.

['Exceptional' drought wreaks havoc in southwest Georgia](#) - Aug 27, **Georgia**. A peanut grower near Dawson pulled a peanut plant from the ground to reveal single nuts rather than ones with several nuts. He lamented that the crop looked pretty good in July, but had deteriorated. Another peanut grower harvested his un-irrigated peanuts early because the soil was too dry to maintain the peanut plants. Overall, 2012 may be a record-breaking year in terms of peanut production in Georgia, despite the drought.

[Fewer cattle = higher prices](#) - Aug 24, **U.S.** The price of retail beef reached a new high in July at \$4.72 per pound, by USDA reckoning, including choice beef, other beef and hamburger in the calculation. The average price of retail ground beef was \$3.085 per pound in July, the highest price since 1984. Whole chickens cost \$1.45 per pound, the highest price in the last 32 years, according to the Bureau of Labor Statistics.

[Isaac could be blessing and curse in drought areas: 'Harvest in a hurry.' farmers urged](#) - Aug 30, **Arkansas, other states in Isaac's path**. Drought-weakened crops may not weather the wind and heavy rain very well.

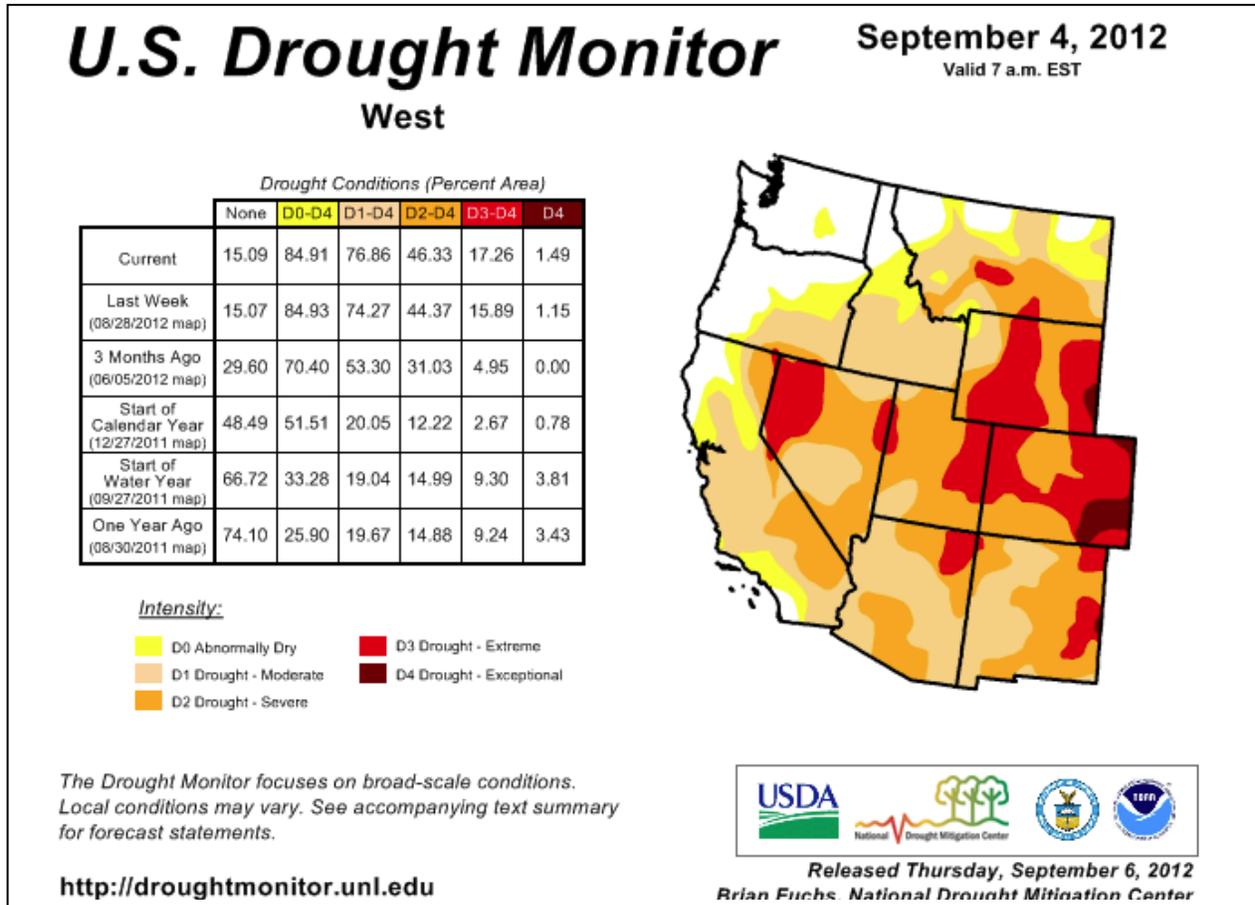


Fig. 3a: Drought Monitor for the [Western States](#) with statistics over various time periods. Some deterioration is noted in D1 to D4 this week.

See: [Coping with Drought on the Rio Grande.](#)

# Weekly Snowpack and Drought Monitor Update Report

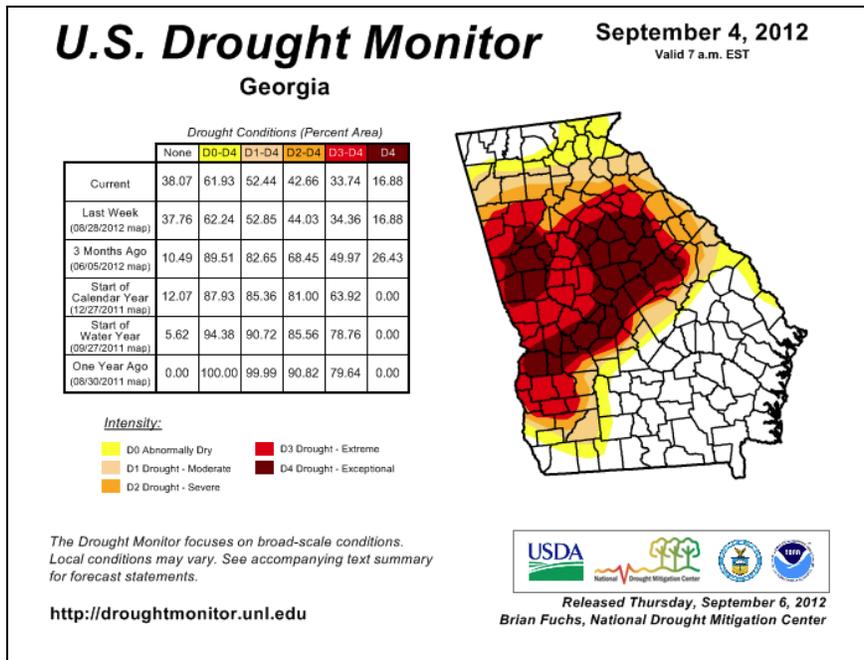


Fig. 3b: Drought Monitor for [Georgia](#) with statistics over various time periods. Note this state is the only state in the Southeast with D4 conditions. See the Weekly GridSAT Output Products: <http://gridssat.nsstc.uah.edu/> for more details.

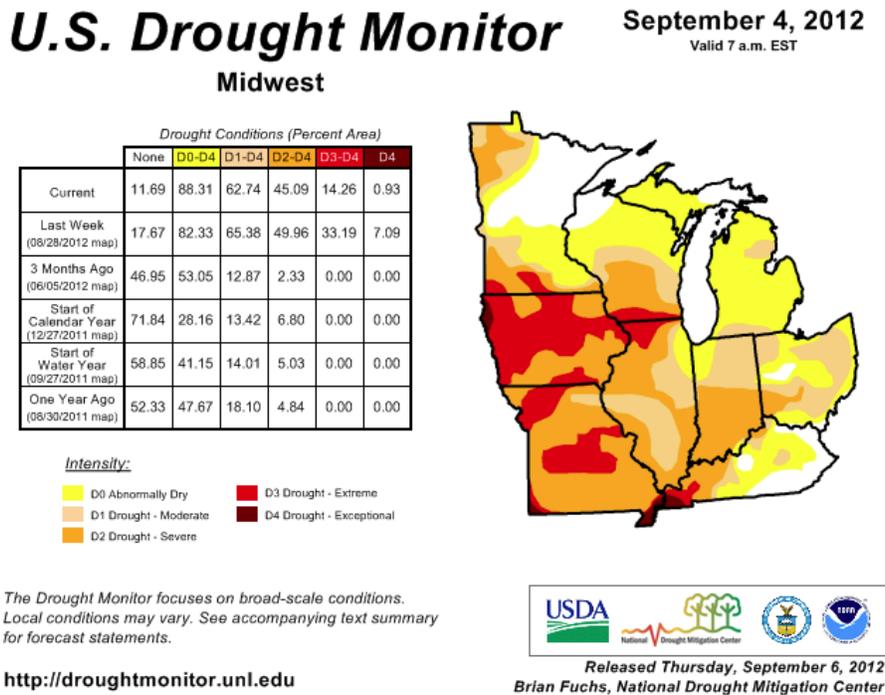


Fig. 3c: Drought Monitor for the [Mid-West](#) with statistics over various time periods. Note vast improvement due to the passage of the remains of Hurricane Isaac this week. See: [Reminiscent of Dust Bowl days](#) - Aug 25, Missouri.

# Weekly Snowpack and Drought Monitor Update Report

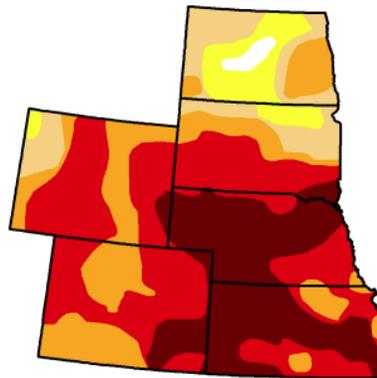
## U.S. Drought Monitor High Plains

September 4, 2012  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.94	99.06	92.43	81.84	61.01	24.54
Last Week (08/28/2012 map)	1.25	98.75	88.07	79.12	54.19	14.97
3 Months Ago (06/05/2012 map)	29.16	70.84	36.18	8.77	2.28	0.00
Start of Calendar Year (12/27/2011 map)	61.66	38.34	18.12	7.22	2.07	0.04
Start of Water Year (09/27/2011 map)	70.09	29.91	17.44	11.97	6.22	2.96
One Year Ago (08/30/2011 map)	74.56	25.44	16.08	12.78	6.92	3.13

**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 6, 2012  
Brian Fuchs, National Drought Mitigation Center

Fig. 3d: Drought Monitor for the [High Plains](#) with statistics over various time periods. Note significant deterioration in the higher categories this week. See the latest [Kansas Drought Report](#).

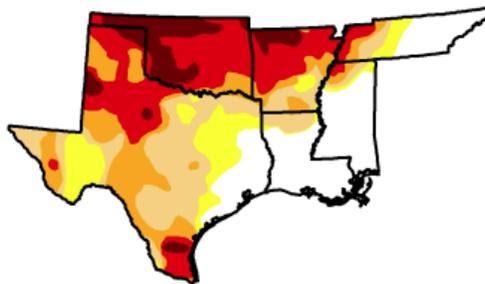
## U.S. Drought Monitor South

September 4, 2012  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	24.35	75.65	64.56	45.89	30.09	8.46
Last Week (08/28/2012 map)	20.94	79.06	66.22	46.19	28.33	11.29
3 Months Ago (06/05/2012 map)	15.44	84.56	48.03	15.15	5.10	0.19
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 (08/30/2011 map)	2.44	97.56	85.82	75.52	66.34	53.74

**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.

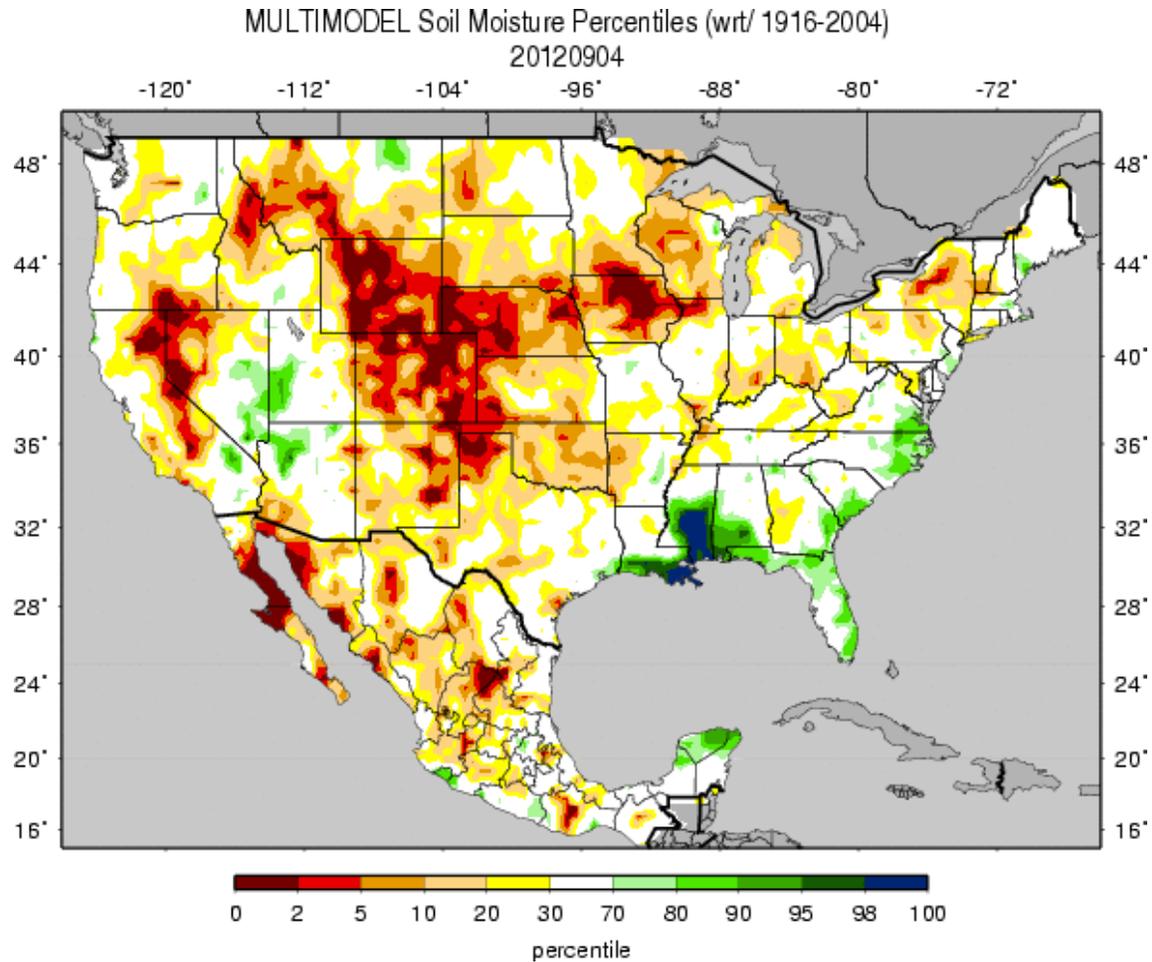
<http://droughtmonitor.unl.edu>



Released Thursday, September 6, 2012  
Brian Fuchs, National Drought Mitigation Center

Fig. 3e: Drought Monitor for the [South-Central Region](#) with statistics over various time periods. Note some improvement in D4 this week.

## Weekly Snowpack and Drought Monitor Update Report



**Figs. 4:** Soil Moisture ranking in [percentile](#) as of 4 September shows dryness over much of the Rockies, Western High Plains (including Iowa), northern California, and the Western Great Basin. Hurricane Isaac's moisture is noted 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 (2068) MONTH=2012-08-07 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Sep 06 08:24:29 PDT 2012

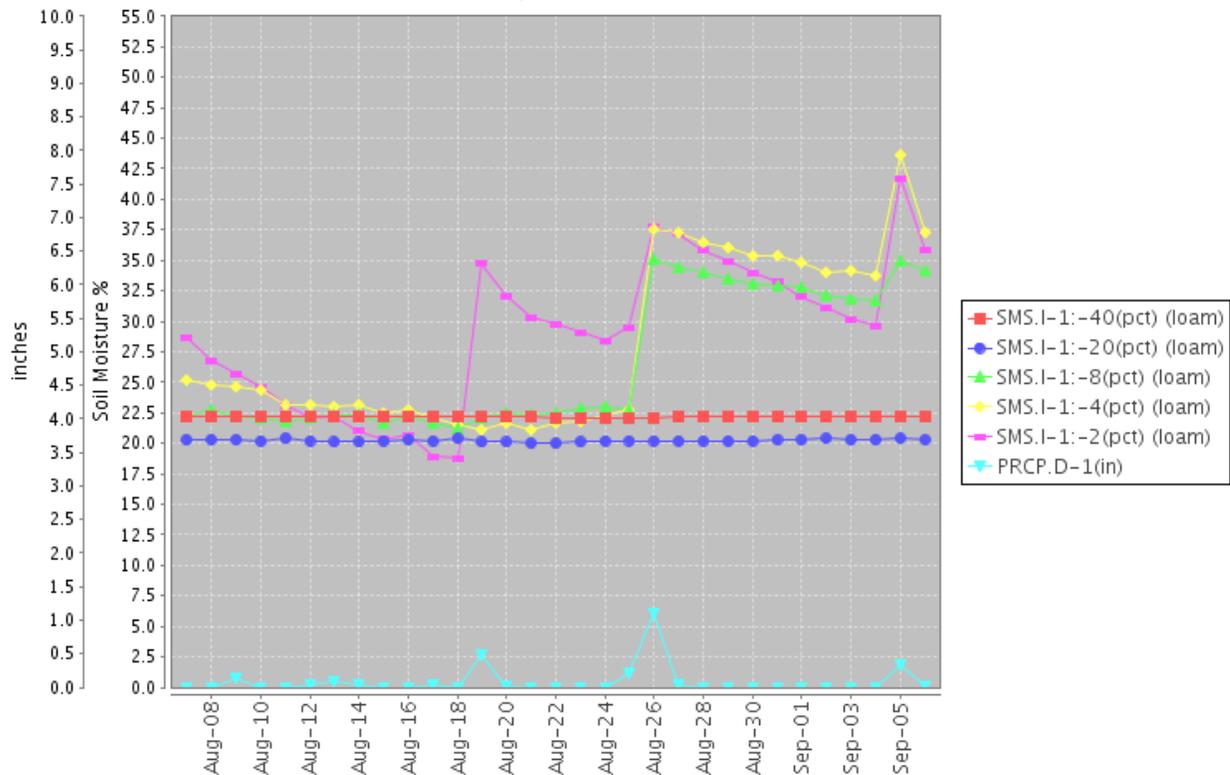


Fig. 5: This NRCS resource shows a site over the [western Iowa](#) and how recent rains have helped boost upper layer soil moisture.

### 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

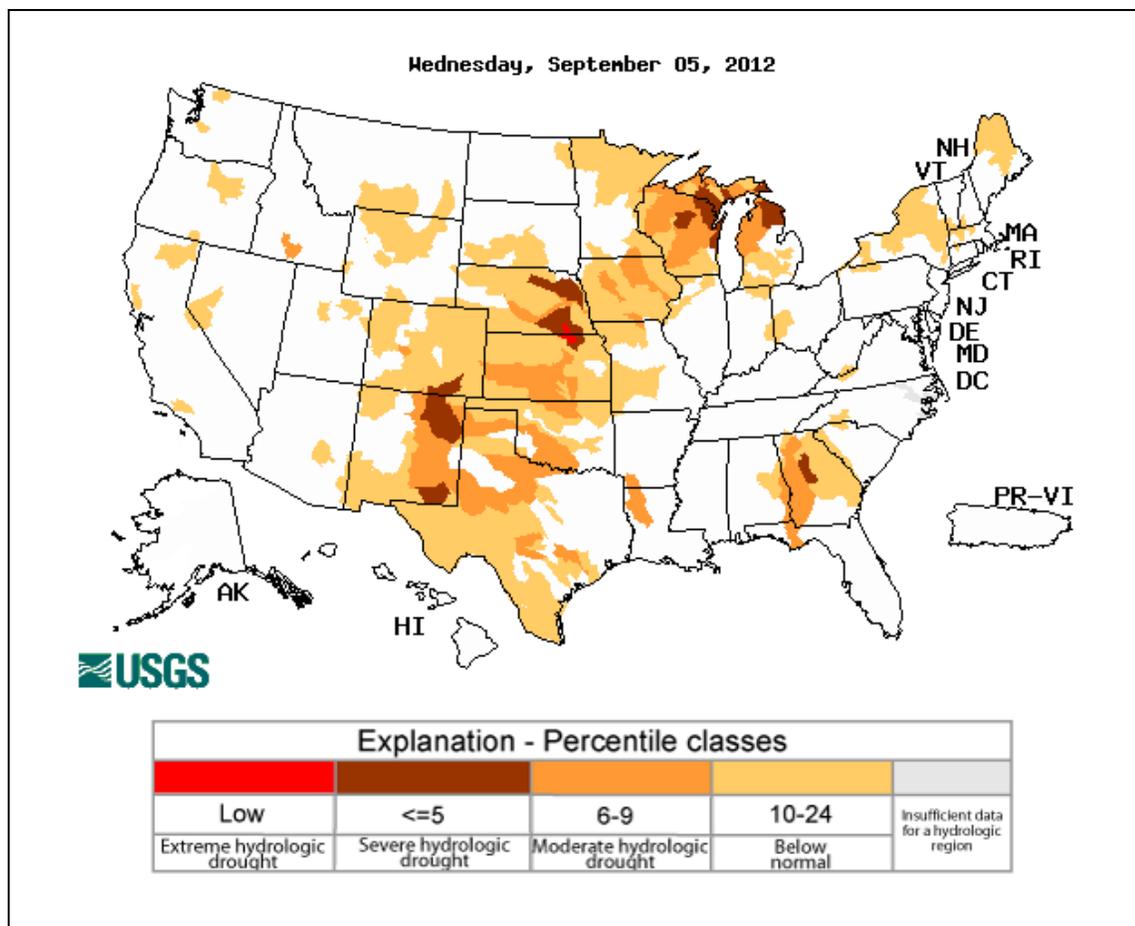


Fig. 6: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. **Extreme** conditions exist over parts of northeast Kansas and southeast Nebraska.

## Weekly Snowpack and Drought Monitor Update Report

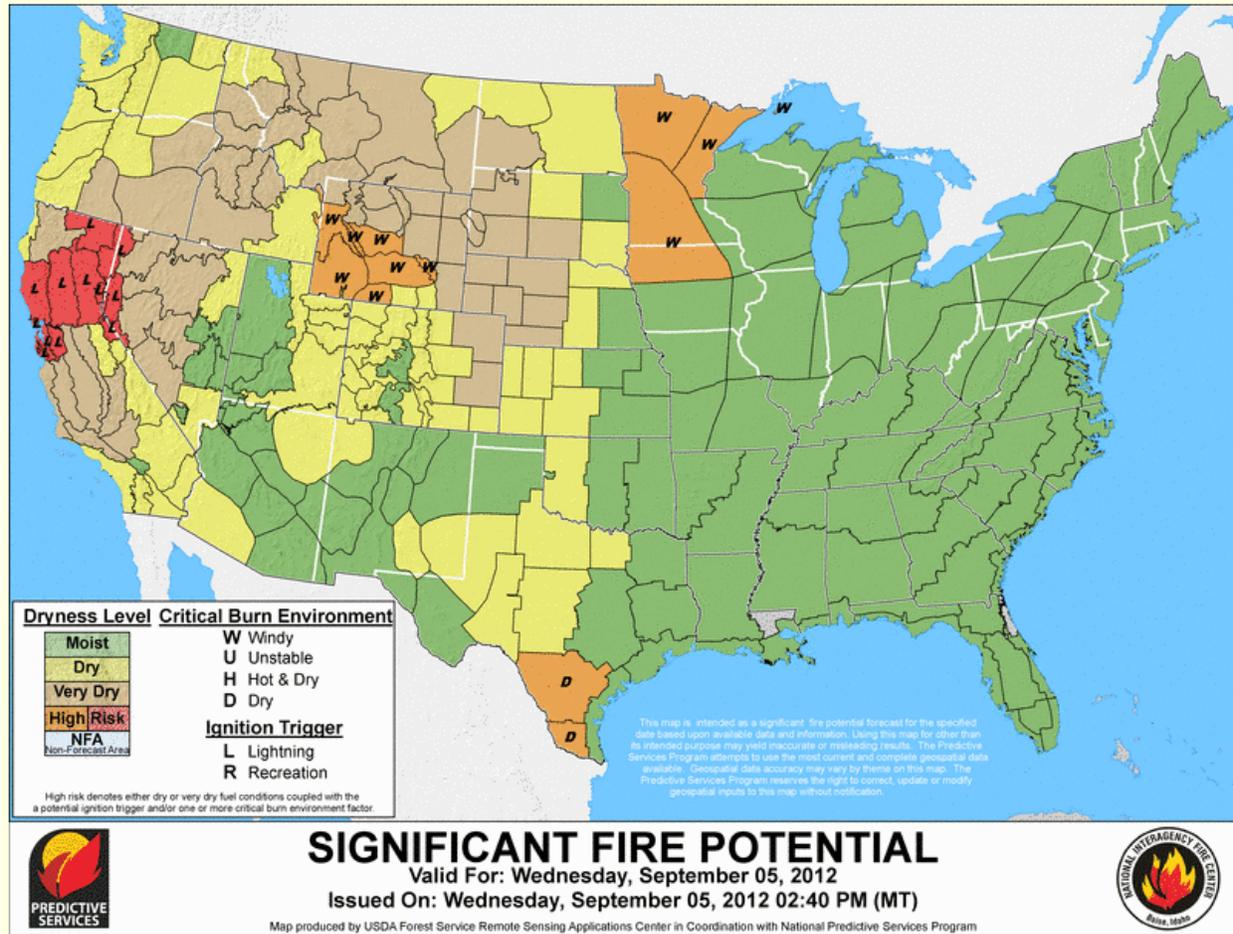


Fig. 7: [Significant fire potential](#) for yesterday. This resource also provides forecasts out to 7 days. Also check out: [NOAA's Fire Server](#). Risk has increased over the Northern California. Also see: [Experimental Southwest area wildland fire smoke impact awareness page](#) and the latest, [National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

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- September 4, 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/>.

**The Northeast:** Some scattered rain events through the region did allow for some improvements to the D0 in southern New York. The recent wet pattern has allowed for most all the impacts in Massachusetts to subside, with only lingering low streamflows in the area. In response to the improvements, D1 was removed and the impact label was changed to "L" to account for the long-term issues. Some late rains in the region may provide enough moisture to show future improvements.

**Mid-Atlantic:** As with the areas to the north, the Mid-Atlantic states have been in an overall wet pattern over the last few weeks, which have helped to ease drought concerns. Improvements were made in Virginia to the D1 while the D0 areas in Virginia and Maryland were reduced. The impact label was changed to an "L" because the main impacts to the region are long-term and most of the short-term issues have improved.

**Southeast:** Some of the outer rain bands from Hurricane Isaac brought additional rains to the region. Accounting for the most recent rains led to improvements in D3/D2 along the Georgia and South Carolina borders. The D0 conditions along the South Carolina coast were also improved while some D0 in North Carolina was also improved. In Alabama, minimal improvements were made to the D0/D1 along the northwest and southeast drought areas. Groundwater and soil moisture in this area have had a very slow response to recent rains, so further improvements were not warranted.

**South:** Hurricane Isaac made landfall and pushed inland to the north/northwest as a very slow-moving subtropical storm system. With the slow-moving nature and direction of movement associated with Isaac, many areas in Louisiana, Arkansas and the Midwest recorded precipitation that approached 10+ inches in places. Many areas in Arkansas and Louisiana saw a 2 class improvement in their U.S. Drought Monitor status this week in response to the rains. Most all the short-term indicators were improved and the area was labeled with an "L" for the lingering long-term issues. The full impact of this event will take time to analyze and consider.

**Midwest:** With the remnants of Isaac moving slowly through the region, many areas of Missouri, Illinois, and Indiana recorded rainfall in the 2-6 inch range. Some areas received more and some less, so the improvements made in these areas were based upon the totals (and in Illinois, totals over the last several weeks). Many areas of Missouri and Illinois did see a 2-category improvement this week and widespread areas of 1-category improvements were evident in Indiana and Ohio. The improvements were based upon how well soil moisture levels responded throughout the area that received the most rain and also the favorable response of the river and streamflows, which were running at near record lows. The response to the storm is interesting in that for some areas, a very tight gradient of precipitation has been observed which led to rapid changes in drought status over a short distance.

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The region did see some degradation this week as portions of northwest Iowa did go into D4 status and D3 was extended into Minnesota out of Iowa. Areas of central Minnesota that were very wet a few months ago have dried out, and D0 was introduced around the Twin Cities this week. Most of central and northern Wisconsin saw full category degradation this week as the last several months have been dry and hot in this area.

**The Plains:** The region continues to miss out on the rains, and the return of temperatures in the 100 degree Fahrenheit range allowed for further degradation this week. In North Dakota, D1 was expanded into the northwest and southeast while D2 expanded in the east. For South Dakota, a large expansion of D3 over most of the central portion of the state took place while D4 was introduced into the southeast portion of the state. The northwest portion of the state had D2 expansion while the northeast had D1 expansion there as well. In Nebraska, the D4 areas expanded to include most of the western half of the state and most of the northeast. Kansas saw D4 expand in the northwest part of the state while the eastern portion of the state saw great improvements in those areas that received rainfall associated with Isaac. Oklahoma saw D4 expand in the panhandle while Texas had general degradation in the south and panhandle regions.

**The West:** A mix of improvements and degradation this week. In Wyoming, a large degradation as D3/D4 pushed west out of Nebraska and into the eastern portions of the state. Western Wyoming saw D2/D3 conditions expand as well as D2 in the north central. For Montana, much of the southern portions of the state were put into D2 this week while D1 pushed into the north central portions of Montana. A new area of D3 was introduced in central Montana while D3 also was extended out of Wyoming into the southern portion of the state. In Colorado, some recent rains have allowed for D3 to be improved in the central portion of the state while in the 4 Corners region, D3 was also improved.

**Hawaii, Alaska and Puerto Rico:** On the Hawaiian island of Kauai, the D1/D2 conditions were expanded. Local FSA reports note that pastures continue to fail in this region as the lower elevation rainfall for August was lacking. No changes for Alaska or Puerto Rico this week.

**Looking Ahead:** Over the next five days (September 4-9) the Plains and Midwest states are forecasted to have temperatures below normal, which may extend into the southeastern United States. Temperatures look to be 3-6 degrees Fahrenheit above normal in the Pacific Northwest and into the Great Basin. A fairly active weather pattern looks to bring a widespread chance of rain over the central Plains through the Midwest and up into New England. The greatest precipitation amounts are expected over the area from Kansas and Oklahoma to western Kentucky, where more than 1.50 inches of rain has been projected.

The CPC 6-10 day forecast (September 10-14) has temperatures below normal over the Southeast and west coast as well as for much of western Alaska. Temperatures can be expected to be above normal for much of the central and northern Plains, the Great Basin and Rocky Mountains. Much of the country should expect below-normal precipitation, with the desert southwest and portions of Florida being the only areas showing above-normal chances of precipitation.

**Author:** [Brian Fuchs, National Drought Mitigation Center](#)

### Dryness Categories

## Weekly Snowpack and Drought Monitor Update Report

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

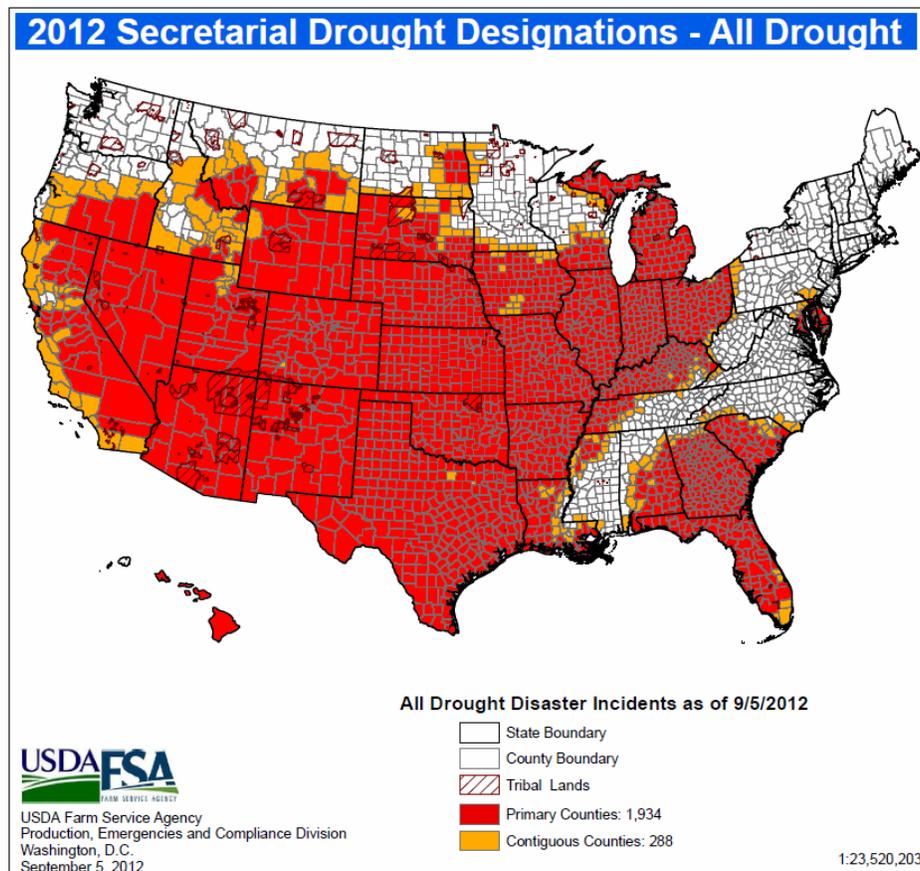
### Drought or Dryness Types

S ... Short-Term, typically <6 months (e.g. agricultural, grasslands)

L ... Long-Term, typically >6 months (e.g. hydrology, ecology)

*Updated September 5, 2012*

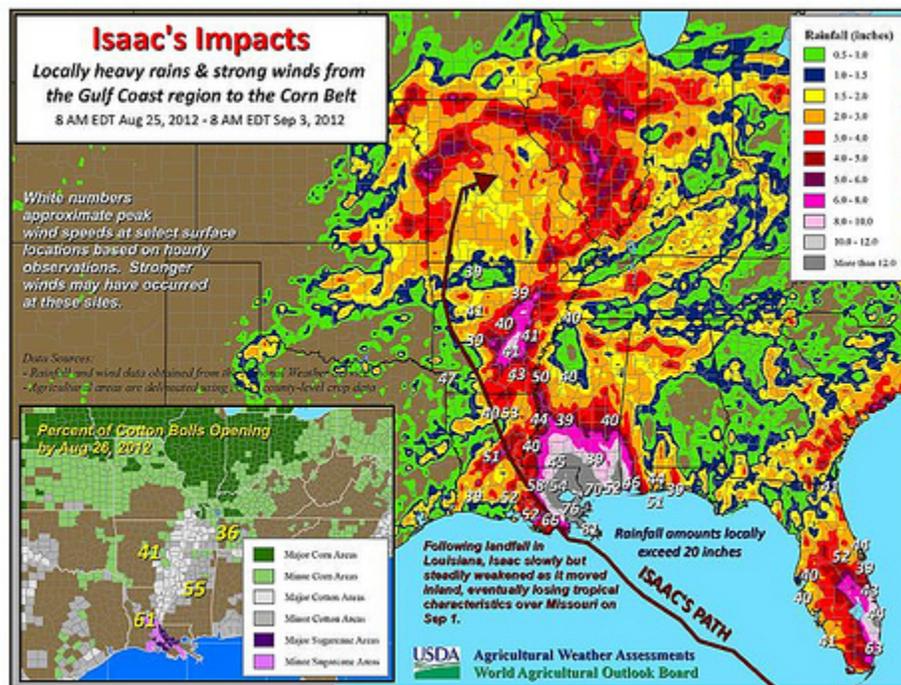
### Special Drought Update



## Weekly Snowpack and Drought Monitor Update Report

### [Agricultural Weather and Drought Update – 9/5/12](#)

Posted by [Brad Rippey](#), [USDA Meteorologist](#), Office of the Chief Economist, on September 5, 2012 at 2:00 PM



**Isaac's impacts: Locally heavy rains and strong winds from the Gulf Coast region to the corn belt.**

Visit [www.usda.gov/drought](http://www.usda.gov/drought) for the latest information regarding USDA's Drought Disaster response and assistance.

Hurricane Isaac moved ashore early Wednesday, August 29, in southeastern Louisiana with maximum sustained winds near 80 mph. Once inland, the storm steadily weakened, losing its tropical characteristics over Missouri on Saturday, September 1. Nevertheless, Isaac's remnant circulation continued to drift across the eastern Corn Belt during the Labor Day weekend, generating locally heavy showers from the lower Midwest into the mid-Atlantic region. Storm-total rainfall reached 10 to 20 inches in the central Gulf Coast region, while some drought-affected areas in Arkansas, Missouri, and Illinois received in excess of 4 inches. In the Mid-South and lower Midwest, positive effects of Isaac's rainfall included replenishment of soil moisture in preparation for the soft red winter wheat planting season and starting the process of pasture recovery.

The latest *Crop Progress* report from USDA's [National Agricultural Statistics Service](#) indicated no appreciable change in rice or cotton conditions in areas affected by Isaac. For example, 68% of the U.S. rice was rated in good to excellent condition on September 2, unchanged from the previous week. Similarly, 42% of the U.S. cotton was rated in good to excellent condition on September 2, down just one percentage point from August 26.

## Weekly Snowpack and Drought Monitor Update Report

Farther north, some late-developing soybeans may have benefited from Isaac's rainfall. In Illinois, 40% of the soybeans were rated very poor to poor on September 2, an improvement from 51% a week ago. However, for most soybeans, the rain arrived too late to help. Overall, 37% of the U.S. soybeans were rated very poor to poor in early September, a slight improvement from 38% on August 26. Meanwhile, U.S. rangeland and pastures remained at a record-high 59% very poor to poor for a fifth consecutive week. The most notable improvements in pasture conditions were observed in Illinois and Arkansas, both 72% very poor to poor on September 2. A week ago, 90% of the pastures were rated very poor to poor in Illinois, along with 84% in Arkansas.

Outside of Isaac's sphere of influence, drought conditions worsened in late August and early September due to persistently dry conditions and the return of record-setting heat. For example, Sioux Falls, South Dakota, completed its driest summer (June-August period) on record, with just 2.73 inches of rain. Sioux Falls' previous record of 3.55 inches had been set in 1894. Meanwhile in Nebraska, Lincoln noted its driest July-August period on record, with rainfall totaling just 0.63 inch (previously, 1.16 inches in 1955). Elsewhere in Nebraska, North Platte set an all-time record on September 3 with its 75<sup>th</sup> day of 90-degree heat in 2012. That broke North Platte's Dust Bowl-era record of 74 days of 90°F heat in 1936. And on August 29, monthly record highs were tied in locations such as Valentine, Nebraska (108°F), and Rapid City, South Dakota (107°F).

Weather Outlook: In Isaac's wake, a series of cold fronts will produce showers from the central and southern Plains into the Ohio Valley and much of the East. Five-day amounts of one to two inches will be common, except for some higher totals in New England and the lower Southeast. Only light showers can be expected across the northern Plains and upper Midwest. The fronts will also result in a cooling trend across the Plains and Midwest, with below-normal temperatures expected in both regions by week's end.