



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

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## Weekly Report - Snowpack / Drought Monitor Update

Date: 24 May 2012

### SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

**Snow:** [Snow Water-Equivalent](#): River basins over the Northern Pacific Northwest and northernmost Rockies continue to maintain their high SWE values (reflecting slowed snow melt) this week while the opposite is true for the remainder of the West. Most of the southern half of the West has melted out. Click on the above link for latest map (Fig. 1).

**Temperature:** [SNOTEL](#) and ACIS 7-day temperature anomaly showed values above normal over most of the West and especially over the Great Basin, southern California, and Arizona (Fig. 2). ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over the southern Nevada and eastern Wyoming ( $>+8^{\circ}\text{F}$ ) and the greatest negative departures over southwestern Washington and northeast Oregon ( $<-4^{\circ}\text{F}$ ) (Fig. 2a).

**Precipitation:** [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over western Washington (Fig 3). In terms of percent of normal, besides western Washington much of the Northern Tier States experienced a wetter week than is typical (Fig. 3a). 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 (Fig. 3b). Since the start of [May](#), the Cascades, Northern Rockies, and southern New Mexico have been wetter than the long term average. Elsewhere, a dry May has dominated (Fig. 3c).



Last Sunday's [Annular Solar Eclipse](#). Internal reflection near top center shows the "[Ring of Fire](#)" – by J. Curtis

## Weekly Snowpack and Drought Monitor Update Report

**Weather Summary:** For the second week in a row, beneficial showers peppered the East. Much-needed rain also fell across the northern Plains and upper Midwest, although amounts were highly variable. In contrast, “flash drought” conditions quickly worsened across the remainder of the Midwest, portions of the central and southeastern Plains, and the Mid-South. The term “flash drought” describes a period of short-term dryness, often accompanied by above-normal temperatures, which has an adverse impact on crops and pastures. Elsewhere, much of the West—excluding the northern tier of the region—continued to slip deeper into drought under a warm, mostly dry weather regime.

**The West:** Both short- and long-term drought continued to affect large portions of the West. Only the northern tier of the region, from the Pacific Northwest to the northern Rockies, remained largely free of drought. Worsening drought was noted in parts of Wyoming and the Four Corners States. During the week ending May 20, the portion of Wyoming’s rangeland and pastures rated in very poor to poor condition leaped from 18 to 33%. More than half of the rangeland and pastures were very poor to poor in New Mexico (82%), Arizona (69%), and Nevada (51%). Although nine of the eleven Western States have a buffer against developing drought in the form of abundant reservoir storage, high-elevation snow packs have largely melted out across the southern half of the region. Reservoir storage is below average for this time of year in Arizona and New Mexico, compounding water-supply issues in those two states. A new area of extreme drought (D3) in northwestern Colorado is reflective of very low water year-to-date precipitation totals—in the 5th percentile or lower at several locations. In addition, severe drought (D2) was expanded in several other parts of the Four Corners States. In recent days, several wildfires have been active in the Southwest. In central Arizona, both the Gladiator (just east of Crown King) and the Sunflower fires (well north of Mesa) have charred at least 15,000 acres of vegetation. Author: Brad Rippey, U.S. Department of Agriculture.

***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 4c).

### 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](#)).

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### 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 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. 8 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.

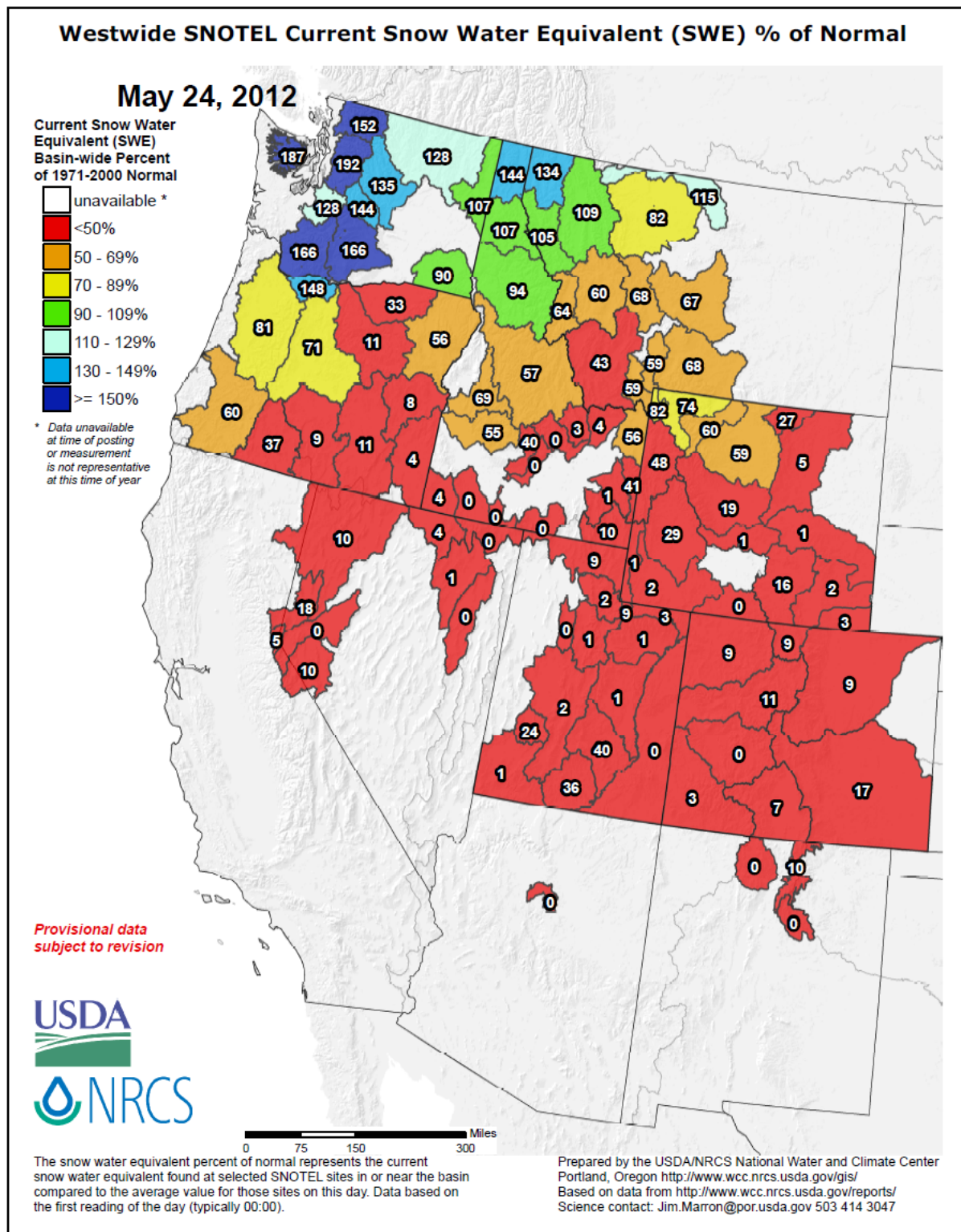
This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

Micheal L. Golden

Deputy Chief, Soil Survey and Resource Assessment

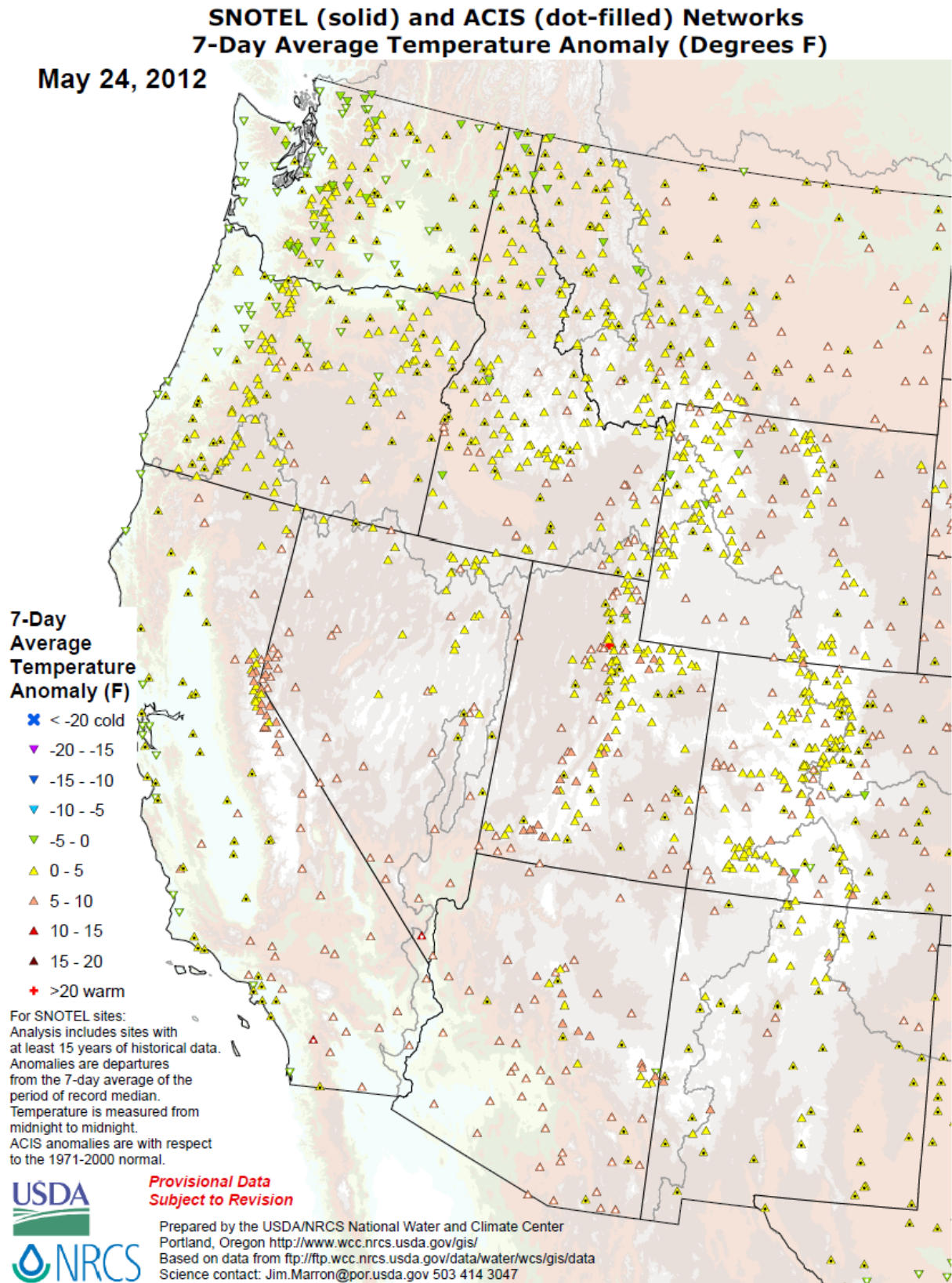
## Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: Snow Water-Equivalent:** River basins over the Northern Pacific Northwest and Northernmost Rockies continue to maintain their high SWE values this week while the opposite is true for the remainder of the West. Most of the southern half of the West has melted out. Click on the above link for latest map.

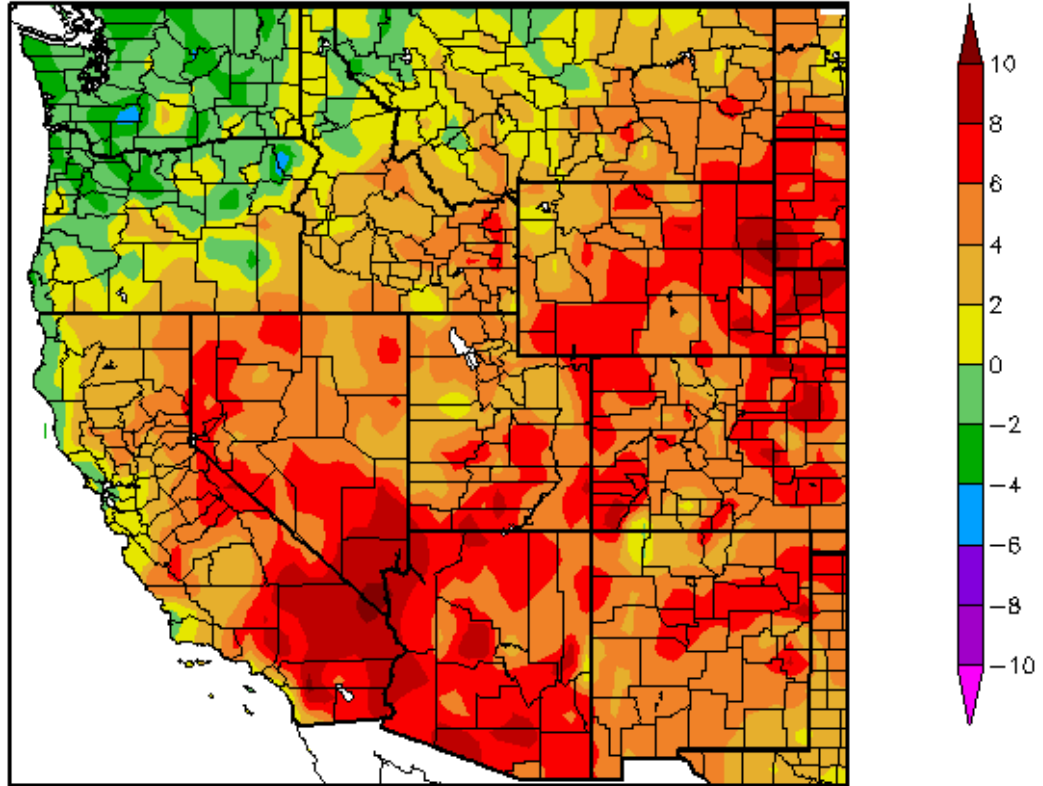


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**Fig. 2: SNOTEL and ACIS 7-day temperature anomaly showed values above normal over most of the West and especially over the Great Basin, southern California, and Arizona.**

Departure from Normal Temperature (F)  
5/17/2012 – 5/23/2012



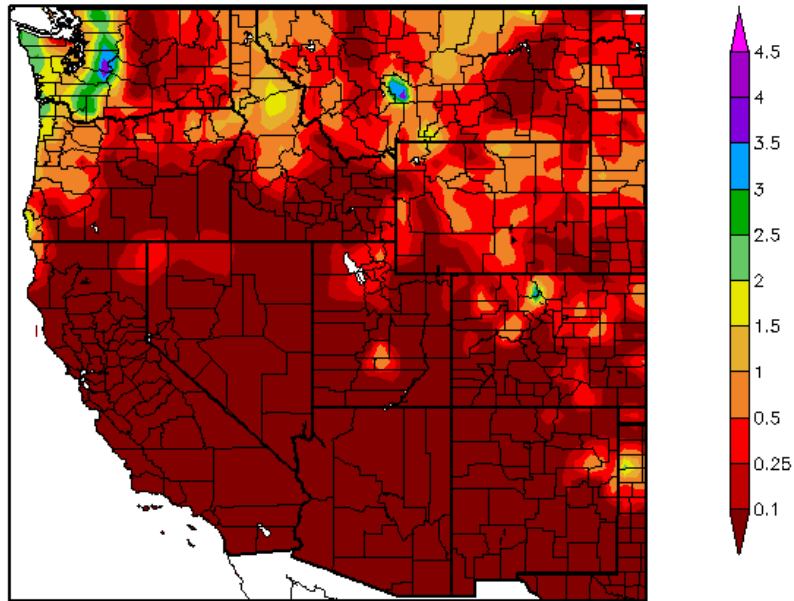
Generated 5/24/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 2a:** ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over the southern Nevada and eastern Wyoming (>+8°F) and the greatest negative departures over southwestern Washington and northeast Oregon (<-4°F).

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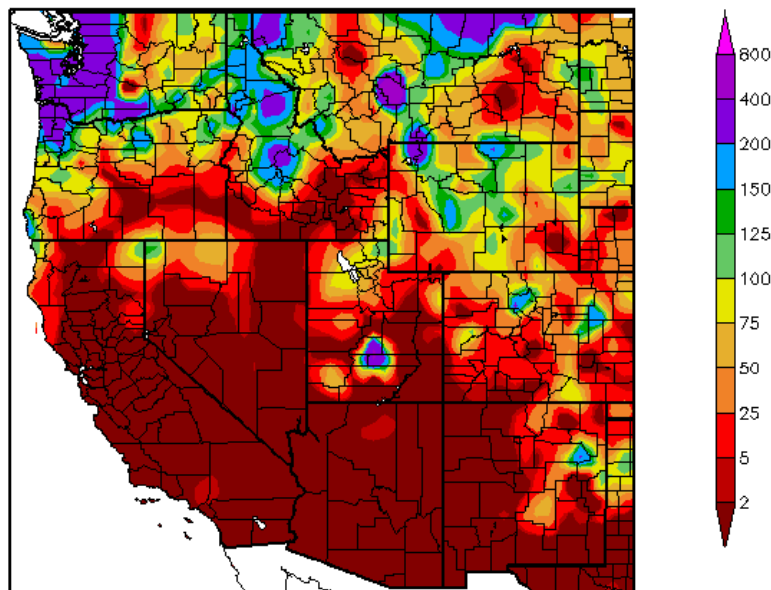
Precipitation (in)  
5/17/2012 – 5/23/2012



Generated 5/24/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
5/17/2012 – 5/23/2012



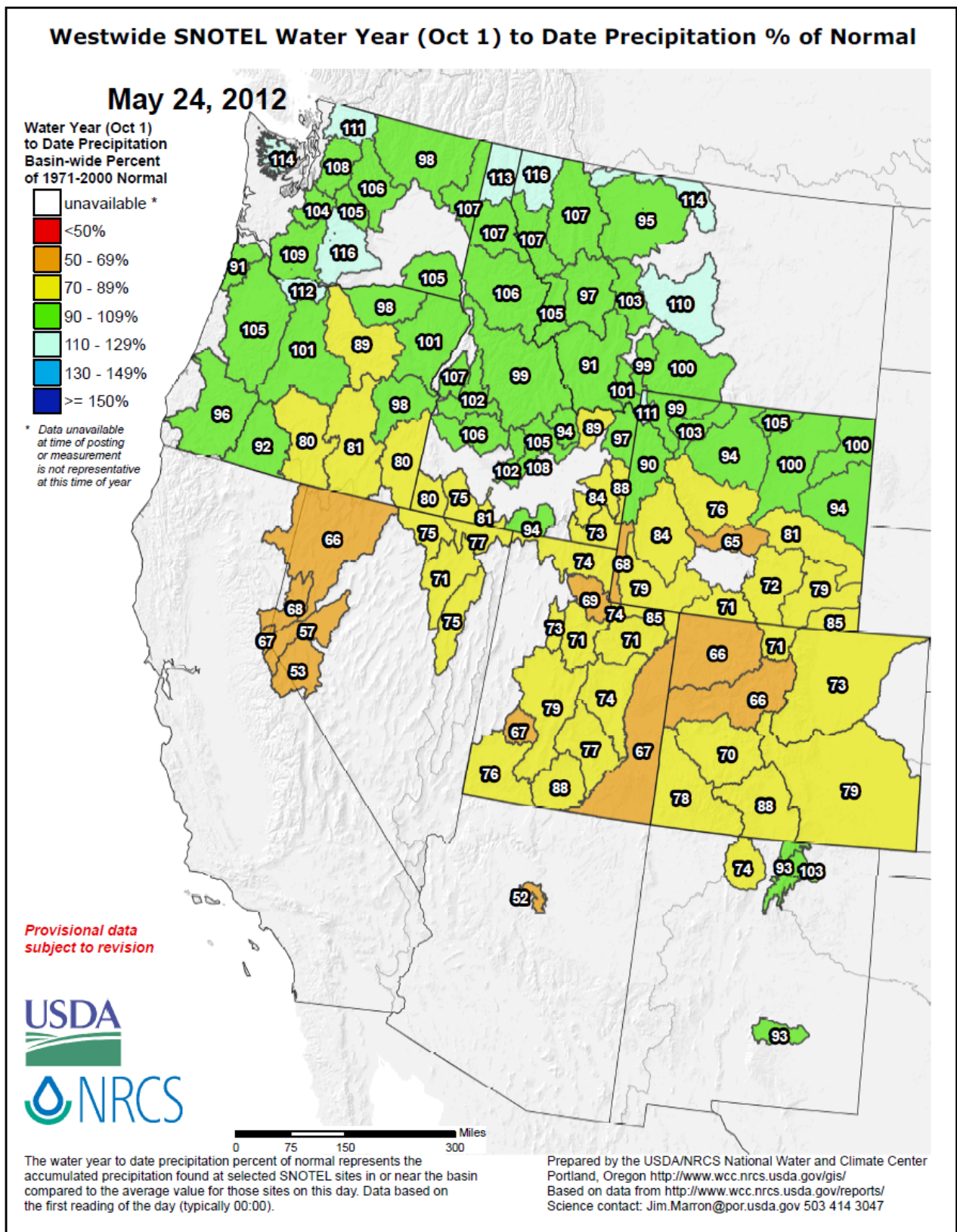
Generated 5/24/2012 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 3 and 3a: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over western Washington (top). In terms of percent of normal, besides western Washington much of the Northern Tier States experienced a wetter week than is typical (bottom).**



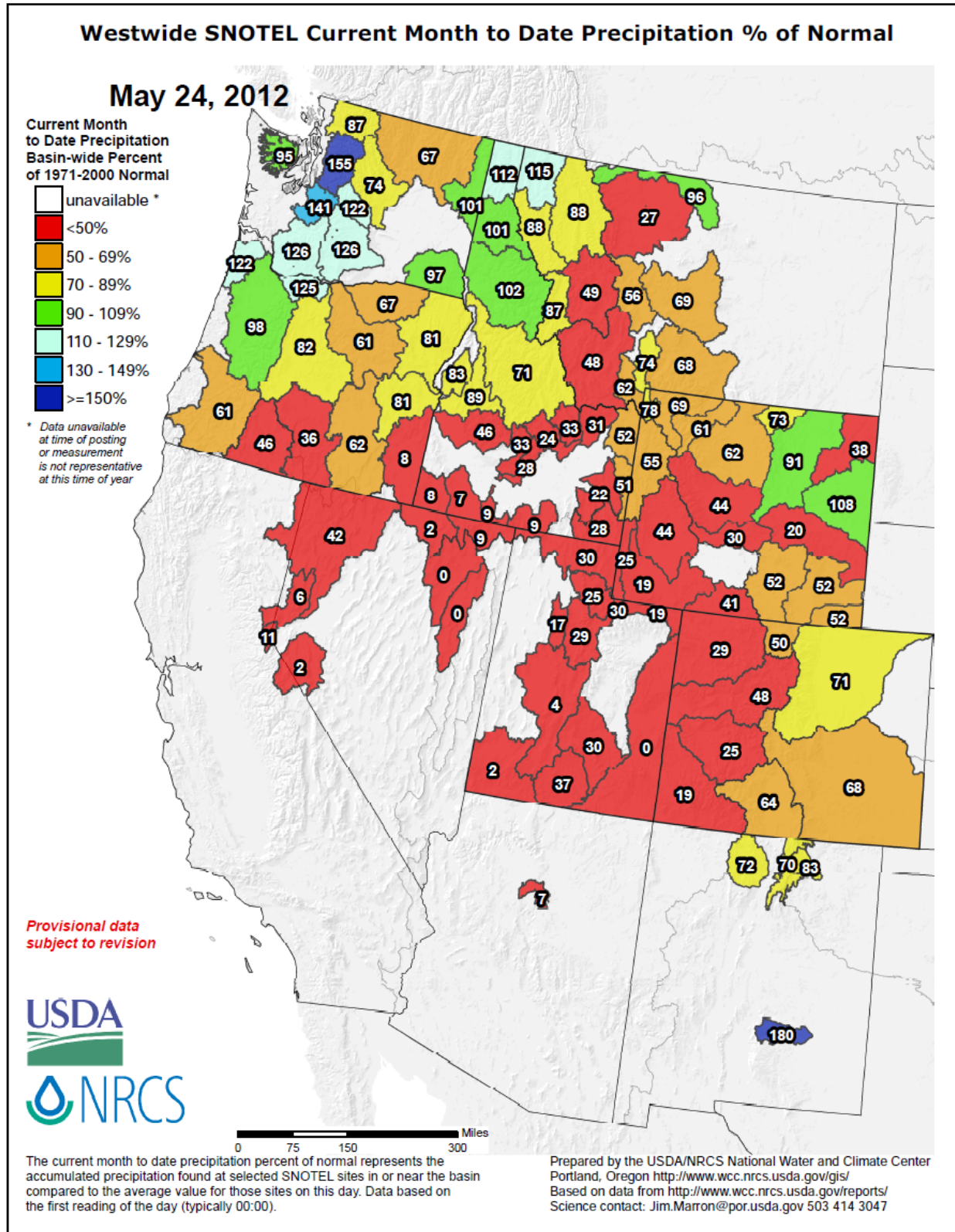
## Weekly Snowpack and Drought Monitor Update Report



**Fig 3b:** 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.



## Weekly Snowpack and Drought Monitor Update Report



**Fig 3c: Since the start of May, the Cascades, Northern Rockies, and southern New Mexico (due to thunderstorm activity) have been wetter than the long term average. Elsewhere, a dry May has dominated.**

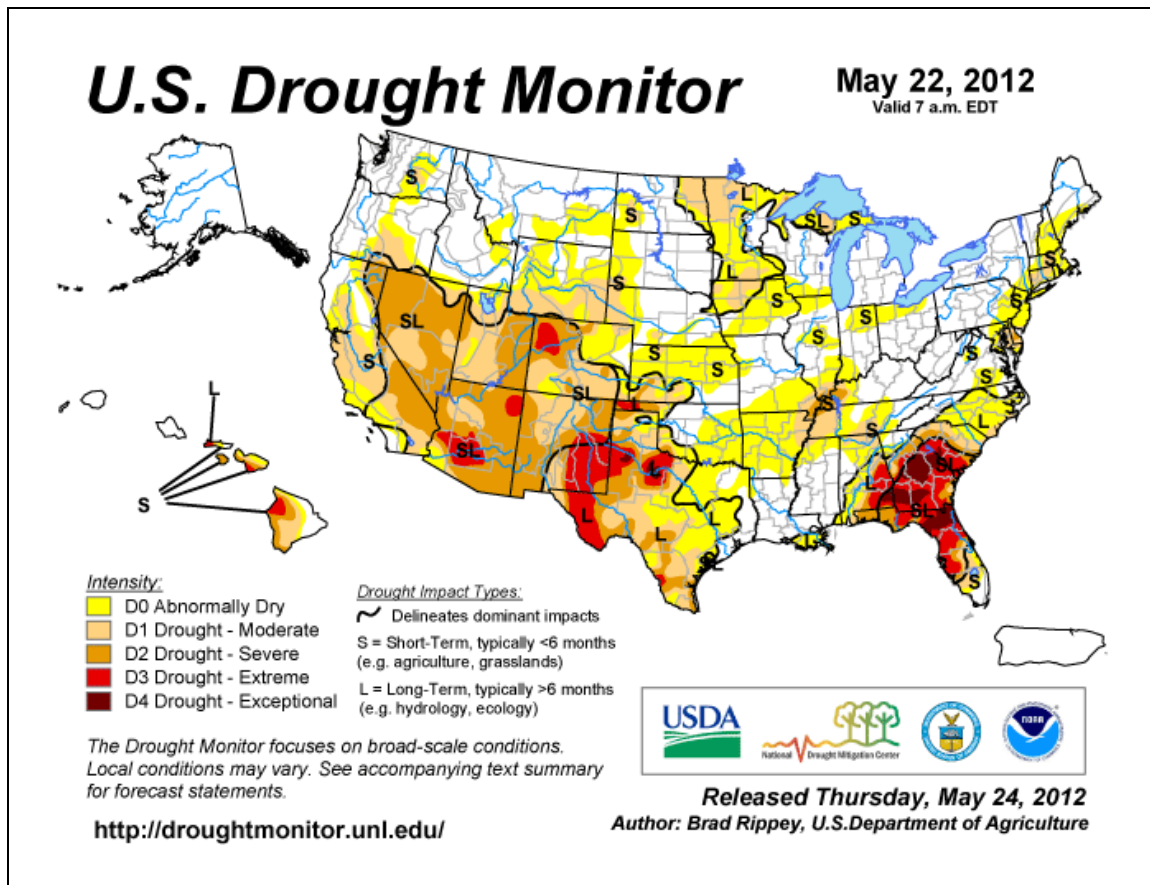


Fig. 4: Current [Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are found over extreme southeastern New Mexico, scattered across north-central Texas and over parts of Georgia, southeast Alabama, and northern Florida. For more drought news, see [Drought Impact Reporter](#). Click for the latest statistics for [California Reservoirs](#). More drought news:

#### Agriculture

##### [Dry weather could lead to hay shortage](#)

May 18, **Wyoming**. There is concern that farmers who irrigated to grow hay may not have enough water to irrigate and get additional cuttings, possibly leading to a hay shortage in the upcoming winter. The snowpack in Wyoming is less than 30 percent of average for this time of year.

##### [Keepers buzzing over low bee numbers](#)

May 6, **Vicinity of Corpus Christi, Texas**. A beekeeper in Calallen, northwest of Corpus Christi stated that drought prevented his bees from making honey the past two years. Without rain to grow flowers, the bees do not produce honey. He noted that he lost half of his bees due to the current drought.

##### [Sorghum Seed Is In Short Supply](#)

May 11, **Texas Panhandle**. Drought cut sorghum production by 60 percent in 2011 in the Texas Panhandle, where at least 90 percent of the sorghum seed is grown. As a result, farmers may not be able to find adequate supplies of sorghum seed, stated a forage and cover crop specialist for Millborn Seeds in Brookings, South Dakota.

##### [State cattle farmers try to recoup livestock after last year's heat, drought](#)

May 18, **Oklahoma**. A professor of agricultural economics with Oklahoma State University in Stillwater estimated that there were at least 3 million fewer cattle in the state than last year as drought forced producers to sell livestock.

##### [Wheat Jumps Most in Two Weeks as Dry Kansas Weather Curbs Yield](#)

May 15, **Kansas**. Dry weather is beginning to reduce wheat yield in west central Kansas.

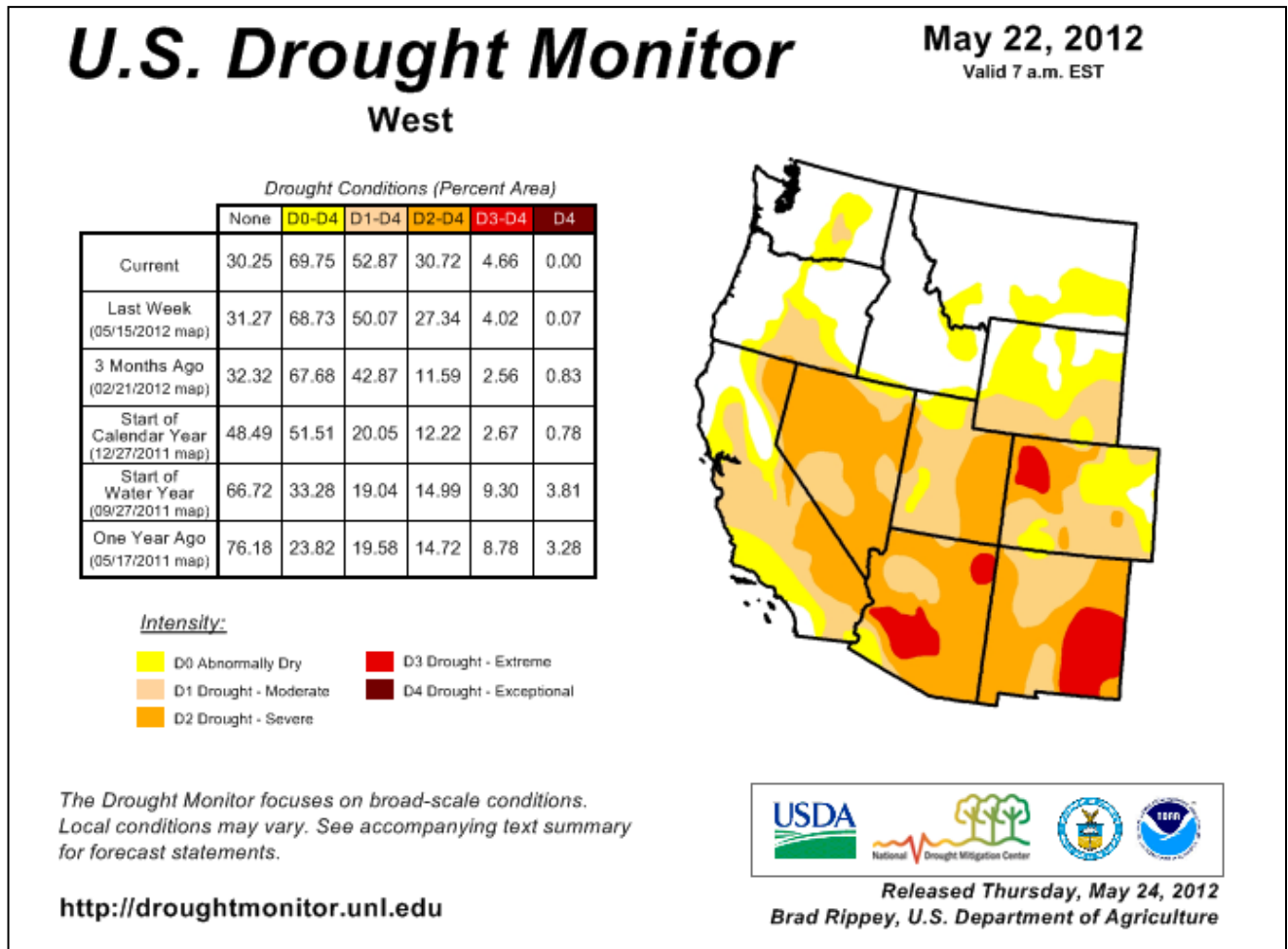


Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Note slight deteriorate in all categories this week. Drought emergency declared in [New Mexico](#). Click [here](#) for the May issue of the Southwest Climate Outlook.

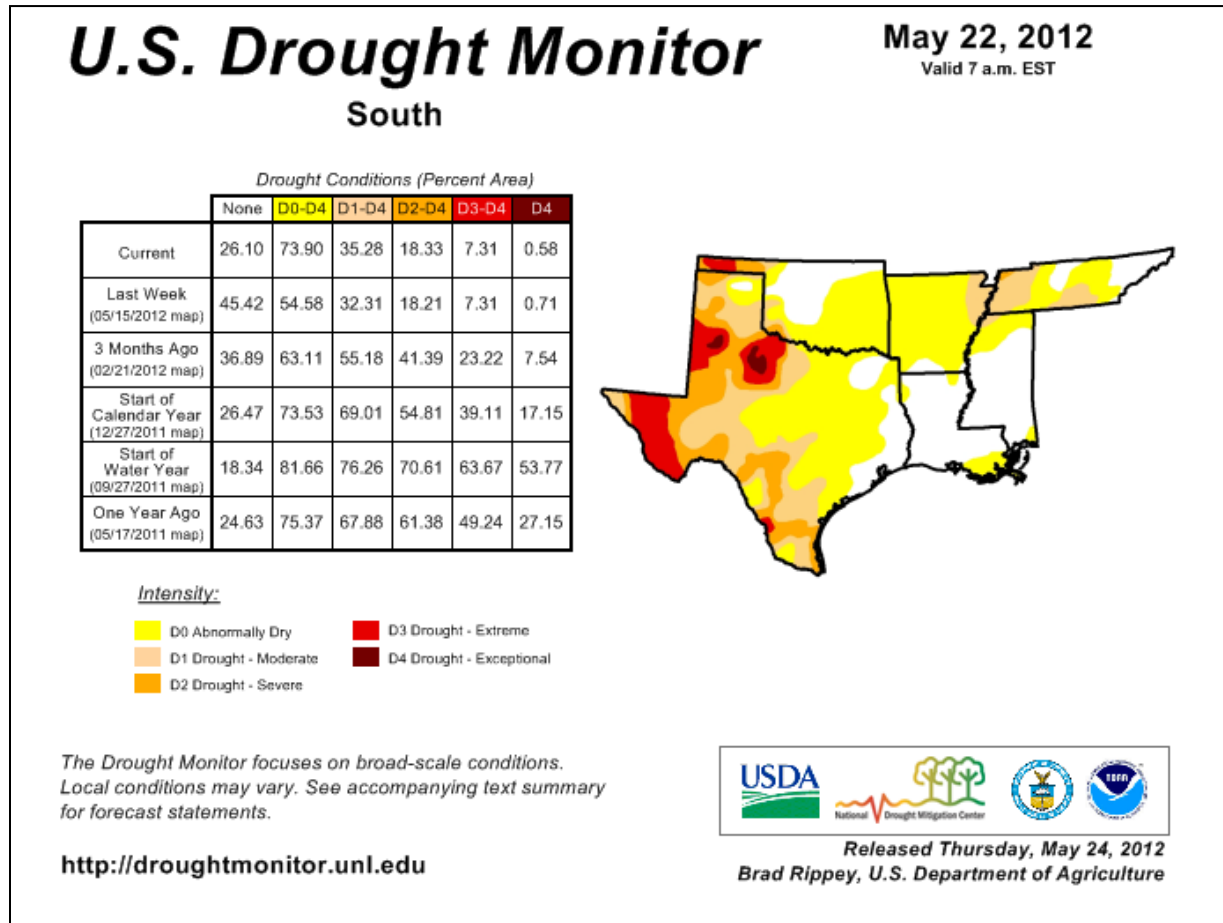


Fig. 4b: Drought Monitor for the [South-Central States](#) with statistics over various time periods. Note deterioration in the lower D- Categories this week. Some D-4 persists over parts of northern Texas.



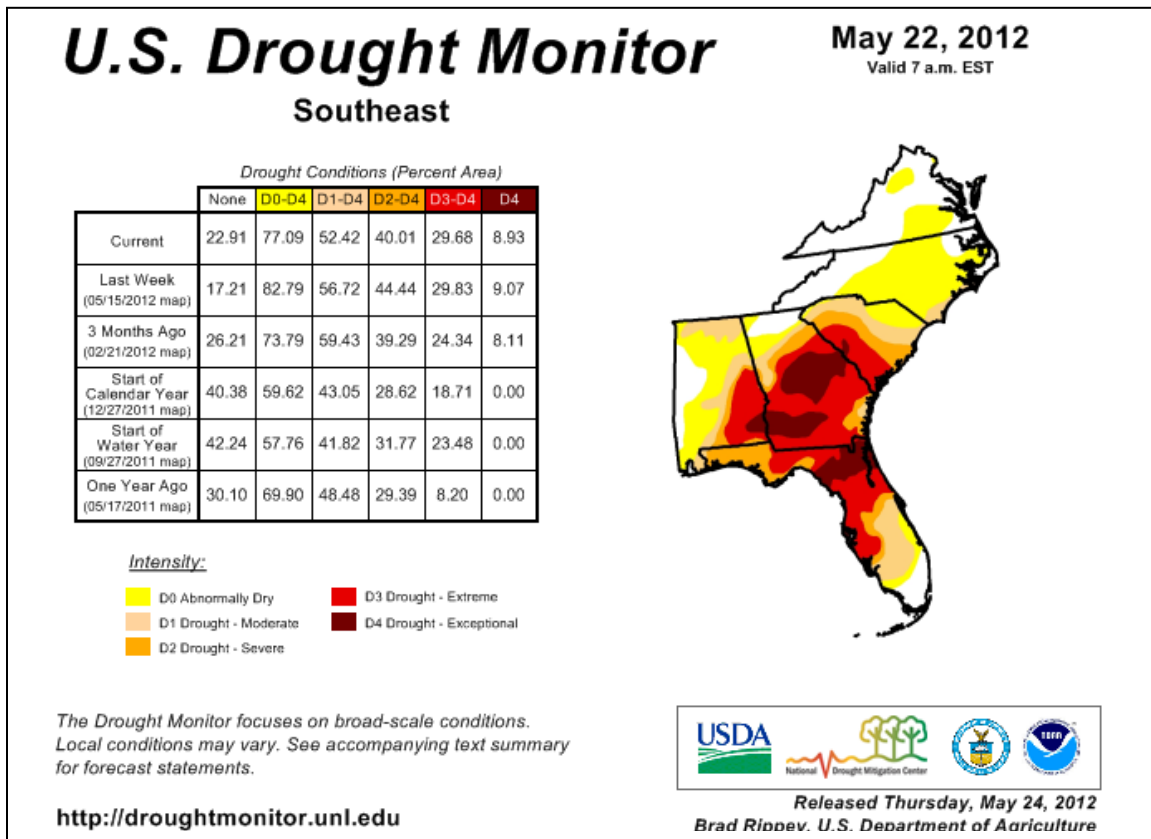
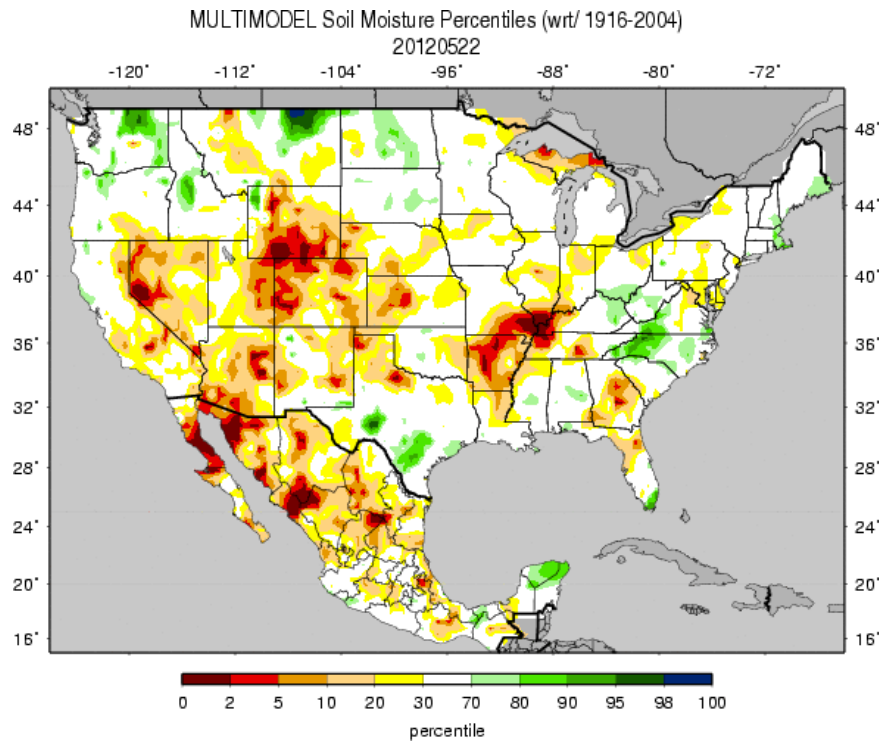


Fig. 4c: Drought Monitor for the [Southeastern States](#) with statistics over various time periods. Note some improvement in all categories this week.

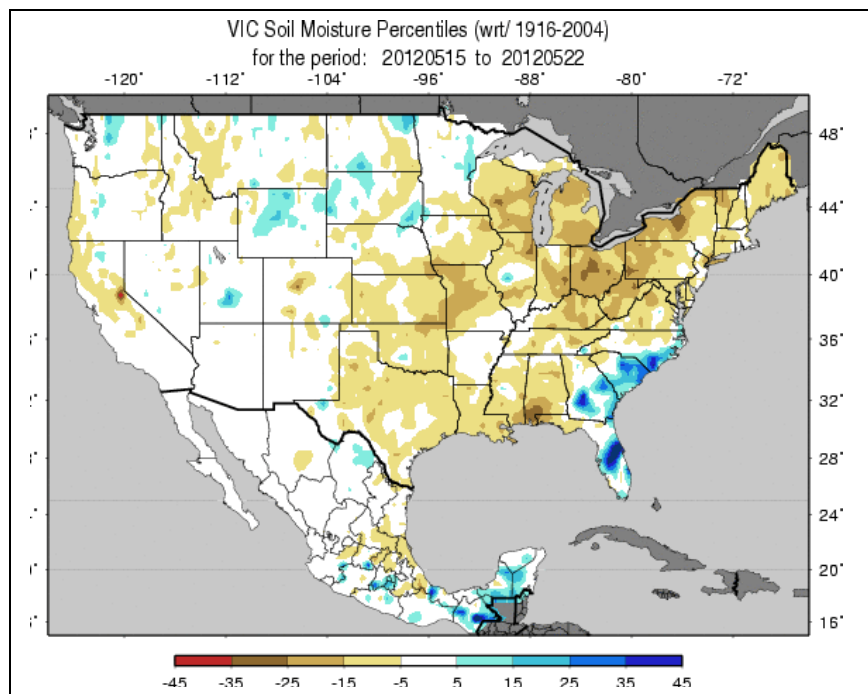
**South Carolina:** Rains intensified with the arrival of heavy thunderstorms during the week ending May 20, 2012. Many counties received multiple inches of rain over the bulk of the week. Severe thunderstorms led to reports of minor flooding and hail damage to wheat and tobacco crops. Temperatures were cooler than average at the beginning of the week but warmed by the weekend. Tropical Storm Alberto became the first named storm of the 2012 season but stayed out to sea off the coast of Charleston. The State average temperature for the period was one degree above normal with 4.7 days suitable for fieldwork. The State average rainfall for the period was 1.9 inches. Soil moisture conditions were greatly improved to 5% very short, 22% short, 69% adequate and 4% surplus.

**General:** According to the National Agriculture Statistics Service's **Georgia** Field Office, there were 5.6 days suitable for fieldwork for the week ending Sunday, May 20, 2012. Statewide topsoil moisture was rated at 9% very short, 32% short, 56% adequate, 3% surplus. Subsoil moisture 17% very short, 44% short, 37% adequate, 2% surplus. Precipitation estimates for the state ranged from 0 inches up to 4.7 inches. Average high temperatures ranged from the mid 70's to the mid 80's. Average low temperatures ranged from the low 50's to the mid 60's.

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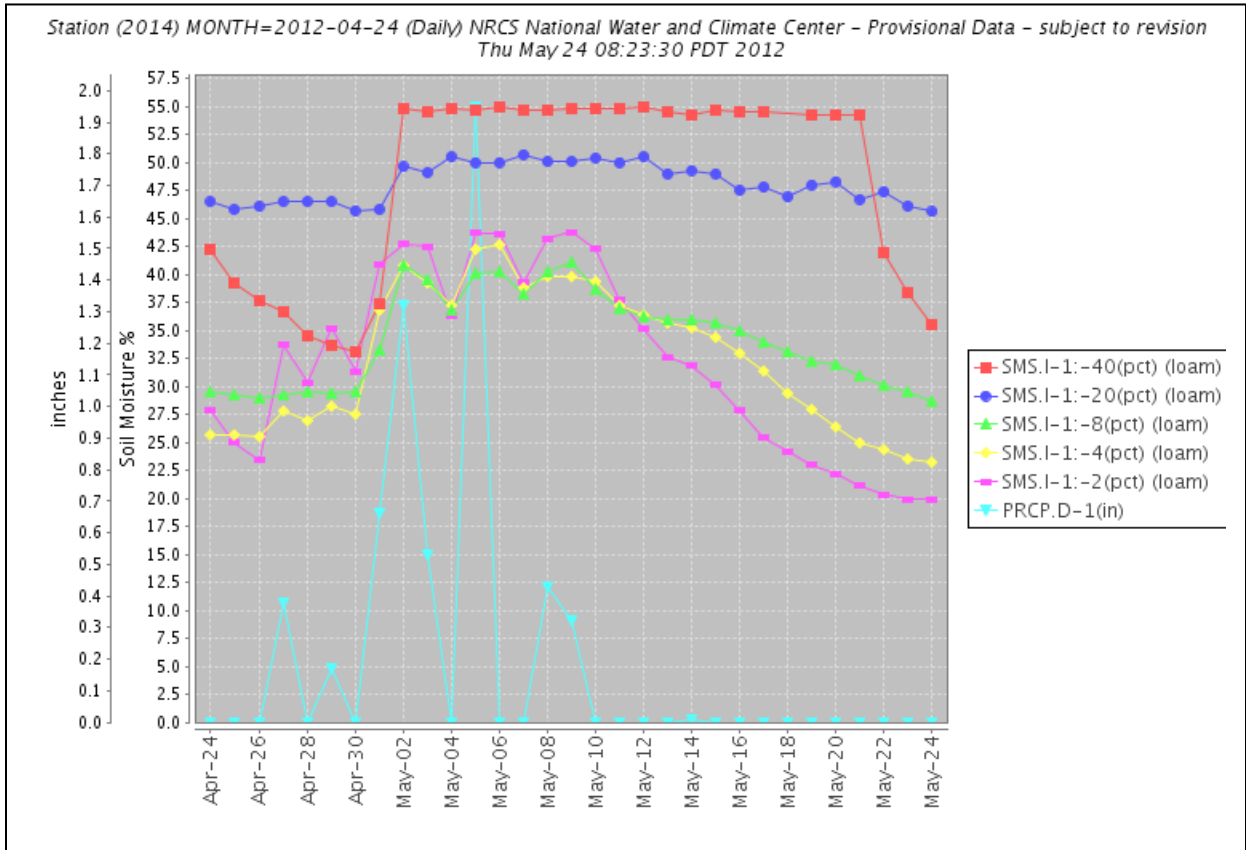
**Figs. 5:** Soil Moisture ranking in [percentile](#) as of 22 May shows scattered pockets of dry conditions over the mid-Mississippi River Valley, Central Rockies, and Western Great Basin. Note that as snows continue to melt over the Cascades and Northern Rockies, increases in soil moisture are expected.



**Figs. 5a:** Soil Moisture [change](#) during the past week reveals increases over the Southeast and drying over much of the eastern half of the nation.

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



**Fig. 6:** This NRCS resource shows a site over [central Ohio](#) with soil moisture responding to early May rains and subsequent dramatic declines during the 2<sup>nd</sup> half of the month.

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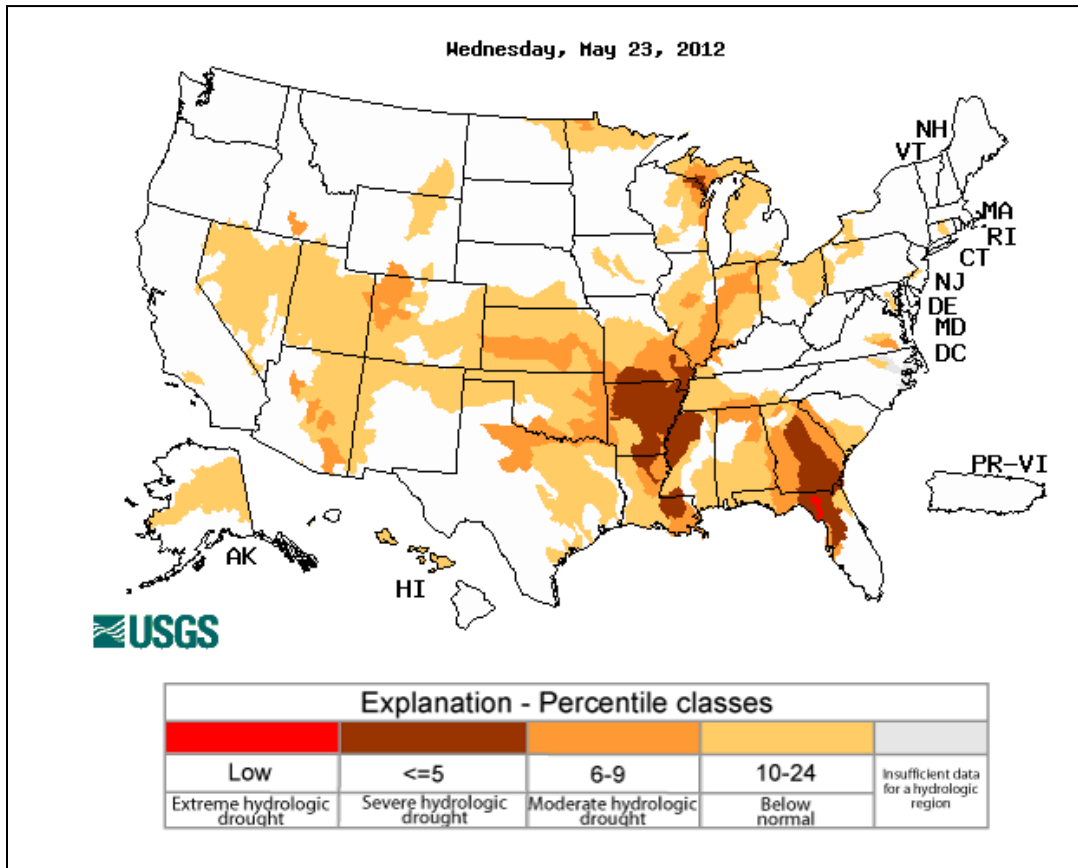


Fig. 7: Map of below normal 7-day average [streamflow](#) compared to historical streamflow for the day of year. **Extreme** conditions exist over northern Florida this week.



## Weekly Snowpack and Drought Monitor Update Report

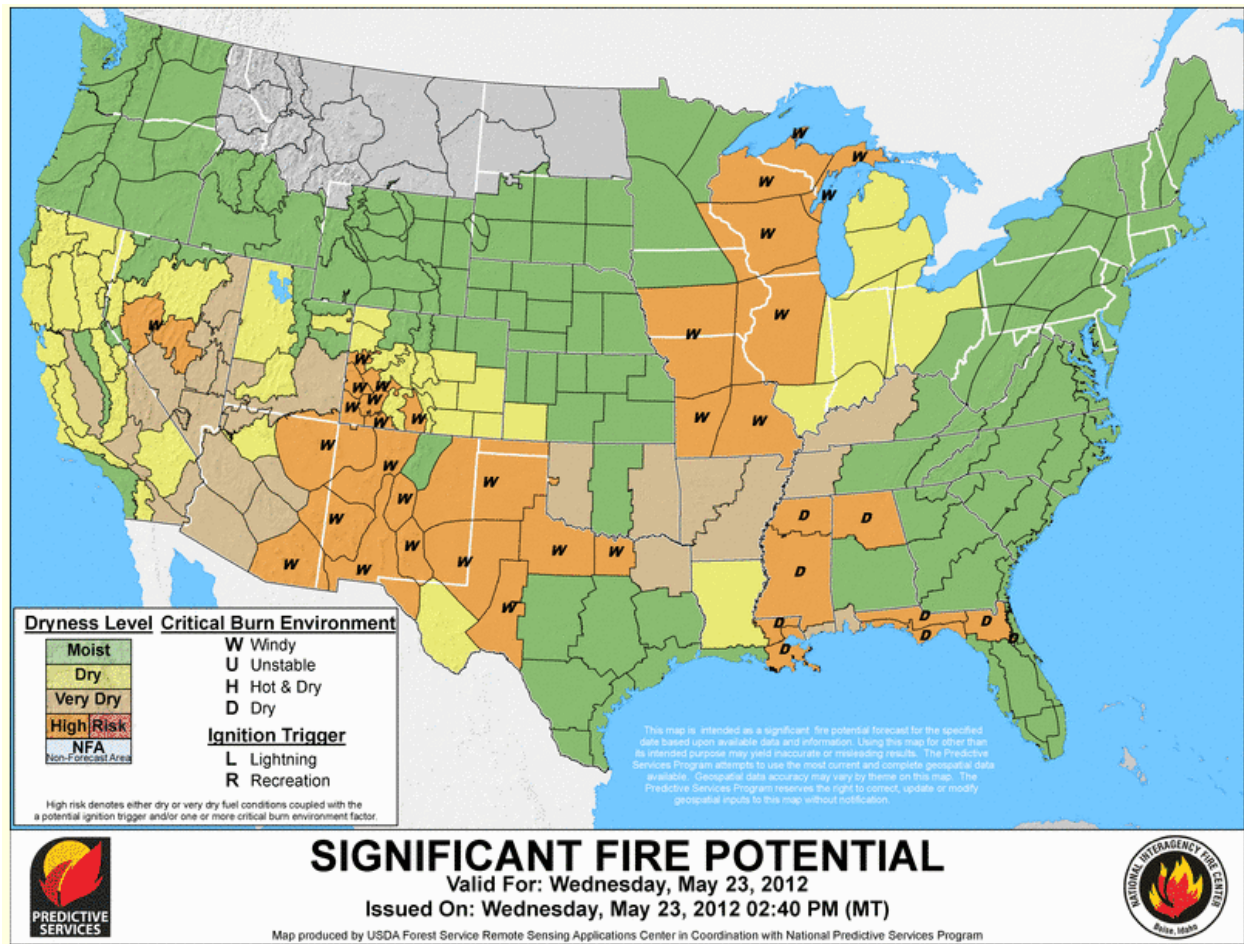
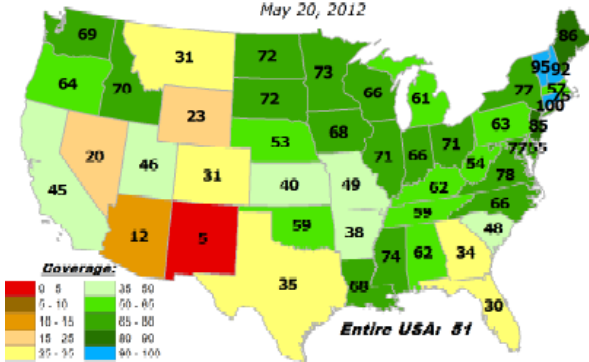


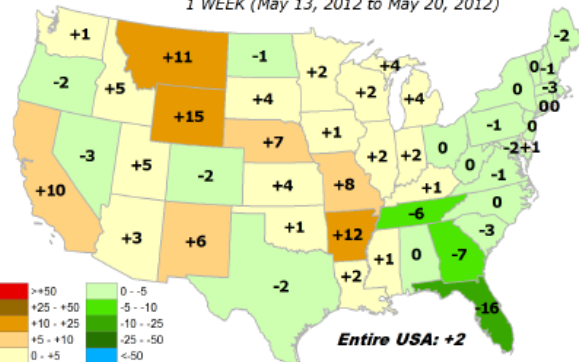
Fig. 8: [Significant fire potential](#) from yesterday. This resource also provides forecasts out to 7 days.

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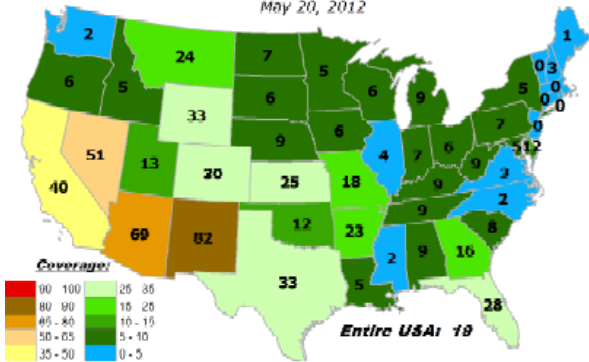
**Percent of Pasture & Range Land in "Good" or "Excellent" Condition**  
May 20, 2012



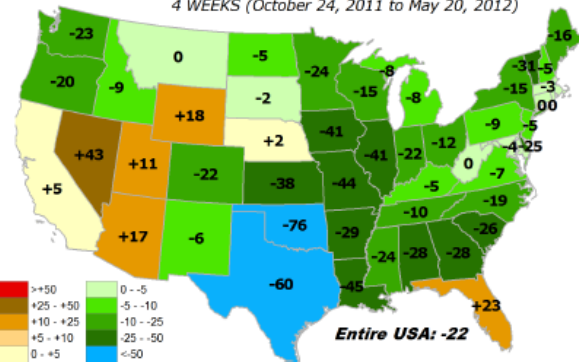
**CHANGE in % of Pasture and Range Lands in "Poor" or "Very Poor" Condition**  
1 WEEK (May 13, 2012 to May 20, 2012)



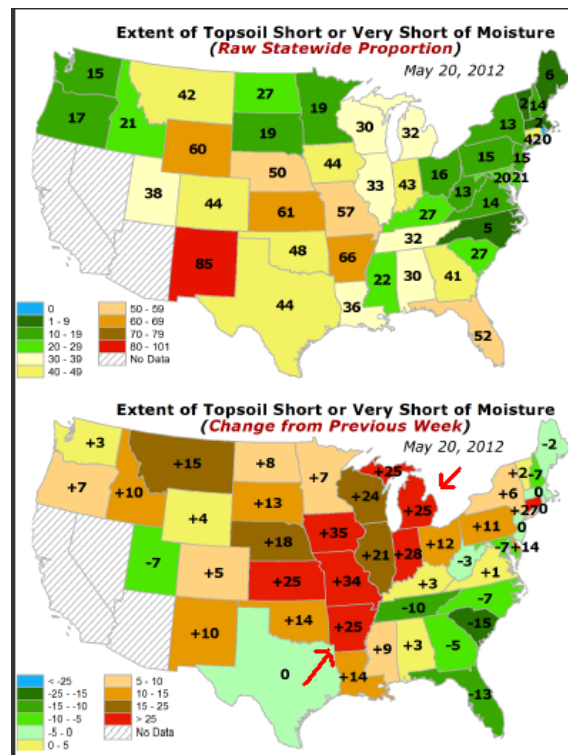
**Percent of Pasture & Range Land in "Poor" or "Very Poor" Condition**  
May 20, 2012



**CHANGE in % of Pasture and Range Lands in "Poor" or "Very Poor" Condition**  
4 WEEKS (October 24, 2011 to May 20, 2012)



**Fig. 9: Pasture and range land conditions and changes during the past week. New Mexico has the most poor or very poor conditions (lower left panel) and Montana, Wyoming, and Missouri have experienced the worst declines this week (upper right panel).**



**Fig. 10: Top soils have dramatically declined over the Midwest and Great Lakes this week (red arrows).**

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### National Drought Summary -- May 22, 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/>.

**Weather Summary:** For the second week in a row, beneficial showers peppered the East. Much-needed rain also fell across the northern Plains and upper Midwest, although amounts were highly variable. In contrast, “flash drought” conditions quickly worsened across the remainder of the Midwest, portions of the central and southeastern Plains, and the Mid-South. The term “flash drought” describes a period of short-term dryness, often accompanied by above-normal temperatures, which has an adverse impact on crops and pastures. Elsewhere, much of the West—excluding the northern tier of the region—continued to slip deeper into drought under a warm, mostly dry weather regime.

**The East:** Once again, appreciable rainfall from the Mid-Atlantic States into southern New England chipped away at dryness (D0) and moderate to severe drought (D1 to D2). Despite some lingering year-to-date rainfall deficits in locations such as Washington, D.C., drought impacts were quickly diminishing. Through May 22, Washington’s year-to-date precipitation stood at 9.87 inches (67% of normal). Farther south, a core region of extreme to exceptional drought (D3 to D4) lingered across central and southern Georgia, northern and central Florida, southern South Carolina, and southeastern Alabama. On May 19, the first Atlantic tropical storm of the season, Alberto—the earliest named system since Andrea on May 9, 2007—formed about 120 miles south of Cape Fear, North Carolina. The storm was compact and remained offshore during its entire lifespan, resulting in negligible impacts other than contributing to an increase in convective activity along the southern Atlantic Coast.

**The Mid-South:** Rapidly deteriorating agricultural conditions resulted from another week of very warm, mostly dry weather. During the week ending May 20, the portion of pastureland rated in very poor to poor condition increased by at least 8 percentage points in Arkansas (from 11 to 23%) and Missouri (10 to 18%). During the same 7-day period, USDA reported that the portion of topsoil moisture rated very short to short skyrocketed from 41 to 66% in Arkansas and 23 to 57% in Missouri. As a result, moderate to severe drought (D1 to D2) expanded in an area centered on the northern Mississippi Delta and the lower Ohio Valley.

**The Midwest:** For the week ending May 20, the portion of topsoil moisture rated very short to short jumped at least 20 percentage points in Iowa (from 9 to 44%), Indiana (15 to 43%), Illinois (12 to 33%), Michigan (7 to 32%), and Wisconsin (6 to 30%). As a result, there was a fairly large expansion of abnormally dry conditions (D0) across the central and eastern Corn Belt. Hot weather, short-term dryness, and crop demands were to blame for the rapid depletion of topsoil moisture. On May 18, high temperatures soared to daily-record levels in St. Cloud, Minnesota (94°F), and Eau Claire, Wisconsin (91°F). The following day, May 19 featured daily-record highs in Michigan locations such as Traverse City (92°F) and Alpena (91°F). In contrast, showers developed across the upper Midwest. Although upper Midwestern rainfall coverage

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was patchy, drought development was arrested in some areas. Little rain fell, however, east of a line from southeastern Nebraska to Lake Superior.

**The Plains:** Like the Mid-South and much of the Midwest, a continuation of warm, dry weather led to rapid deterioration in crop and pasture conditions. For the week ending May 20, the portion of Montana's rangeland and pastures rated in very poor to poor condition jumped from 13 to 24%. During the 2-week period ending May 20, the portion of the Kansas winter wheat crop rated very poor to poor doubled from 11 to 22%. However, shower activity began to increase across Montana, Nebraska, and the Dakotas late in the drought monitoring period, helping to slow the expansion of dryness (D0) and moderate drought (D1). Farther south, warm, dry weather returned to the Oklahoma and Texas early in the period, following the previous week's drought-easing rainfall. Still, the May 1-22 rainfall of 9.84 inches (364% of normal) marked San Antonio's highest May total since 1993, when 12.47 inches fell.

**The West:** Both short- and long-term drought continued to affect large portions of the West. Only the northern tier of the region, from the Pacific Northwest to the northern Rockies, remained largely free of drought. Worsening drought was noted in parts of Wyoming and the Four Corners States. During the week ending May 20, the portion of Wyoming's rangeland and pastures rated in very poor to poor condition leaped from 18 to 33%. More than half of the rangeland and pastures were very poor to poor in New Mexico (82%), Arizona (69%), and Nevada (51%). Although nine of the eleven Western States have a buffer against developing drought in the form of abundant reservoir storage, high-elevation snow packs have largely melted out across the southern half of the region. Reservoir storage is below average for this time of year in Arizona and New Mexico, compounding water-supply issues in those two states. A new area of extreme drought (D3) in northwestern Colorado is reflective of very low water year-to-date precipitation totals—in the 5th percentile or lower at several locations. In addition, severe drought (D2) was expanded in several other parts of the Four Corners States. In recent days, several wildfires have been active in the Southwest. In central Arizona, both the Gladiator (just east of Crown King) and the Sunflower fires (well north of Mesa) have charred at least 15,000 acres of vegetation.

**Hawaii, Alaska and Puerto Rico:** Currently, there is neither dryness nor drought depicted in Alaska and Puerto. The drought situation across Hawaii's central and eastern islands continued to gradually deteriorate due to unusually dry conditions since the beginning of the late-spring and summer "dry" season. On the Big Island at Hilo, April 1 – May 22 rainfall totaled just 10.77 inches (61% of normal). On the leeward side of the Big Island, deterioration of pastures was reported.

**Looking Ahead:** During the next 5 days (May 24-28), daily showers and thunderstorms will linger in parts of the East, particularly across southern Florida and the Mid-Atlantic States. Meanwhile, a series of disturbances will maintain cool conditions and periods of rain from the Pacific Northwest into the upper Midwest. Five-day rainfall totals could reach 2 to 4 inches in the upper Midwest and 1 to 2 inches on the northern Plains. In contrast, mostly dry weather will prevail across the nation's southern tier, excluding southern Florida. During the Memorial Day weekend, heat will build across the South, East, and lower Midwest, with many locations expecting multiple days of 90-degree heat.

The NWS 6- to 10-day outlook for May 29 – June 2 calls for near- to above-normal temperatures nationwide, except for cooler-than-normal conditions from the northern Plains into the Great Lakes region. Meanwhile, near- to below-normal rainfall across the majority of the



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U.S. will contrast with wetter-than-normal weather in the Southeastern and Atlantic Coast States.

**Author:** [Brad Rippey, U.S. Department of Agriculture](#)

### **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 May 23, 2012*