



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

Weekly Report - Snowpack / Drought Monitor Update

Date: 10 May 2012

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: [Snow Water-Equivalent](#): River basins over the Northern Pacific Northwest and Northernmost Rockies are maintaining their high SWE values this week while the opposite is true for the remainder of the West. Click on link for latest map (Fig. 1).

Temperature: [SNOTEL](#) and ACIS 7-day temperature anomaly showed values above normal over the 4-Corner States and below normal values over the Sierra, Pacific Northwest and Northern Rockies (Fig. 2). ACIS [7-day average temperature anomalies](#) show the greatest positive temperature departures over Southern High Plains ($>+6^{\circ}\text{F}$) and the greatest negative departures scattered over parts of eastern Washington ($<-6^{\circ}\text{F}$) (Fig. 2a).

Precipitation: [ACIS](#) 7-day average precipitation amounts for the period ending yesterday shows the wettest areas over Northern Cascades and over Colorado (Fig. 3). In terms of percent of normal, these same areas were this week's moisture winners. Additionally, heavy rains fell over northeastern Montana and southern New Mexico (Fig. 3a). Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored the Northern Tier States. Drier than normal conditions reign over most of the southern half of the West with the exception of Northern Mexico (Fig. 3b). Since the start of [May](#), the wetter influence of La Niña is still holding on over parts of the Pacific Northwest. Rainfall is down sharply from average over the southern half of the West (Fig. 3c)

Weather Summary: The prior week featured a couple of storm systems that produced significant rains across the Pacific Northwest, Upper and Middle Mississippi River Valley, and Ohio Valley. Early in the week, precipitation spread eastward along a warm front that extended from the Northern Great Plains to the Northeast. South of the warm front, some tropical moisture was able to stream northward across the southeast. Later in the week, precipitation was focused along a cold front that moved from the Great Plains to the east coast by Tuesday.

The West: Across Utah, moderate and severe drought conditions were expanded across the western portions of the state. Data from the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) continued to indicate low snow-water equivalent (SWE) values across most of the state. The conditions are impacting inflows into the major reservoirs across Utah and Colorado.

Recent wetness across the Pacific Northwest and Northern Rockies (30 and 60-day periods) resulted in the removal of some D0 from Oregon, Washington, and eastern Montana. The rains have missed much of central and western Montana, Idaho, and Nevada as the moisture is squeezed out over the higher terrain. As a result, some areas of abnormal dryness were added to Idaho, Wyoming, and central Montana. The drought impact lines were also redrawn over Nevada and Utah to indicate the lengthening of this dry period beyond 6 months. Author: Matthew Rosencrans, Climate Prediction Center/NCEP/NWS/NOAA.

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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](#)).

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>.

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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

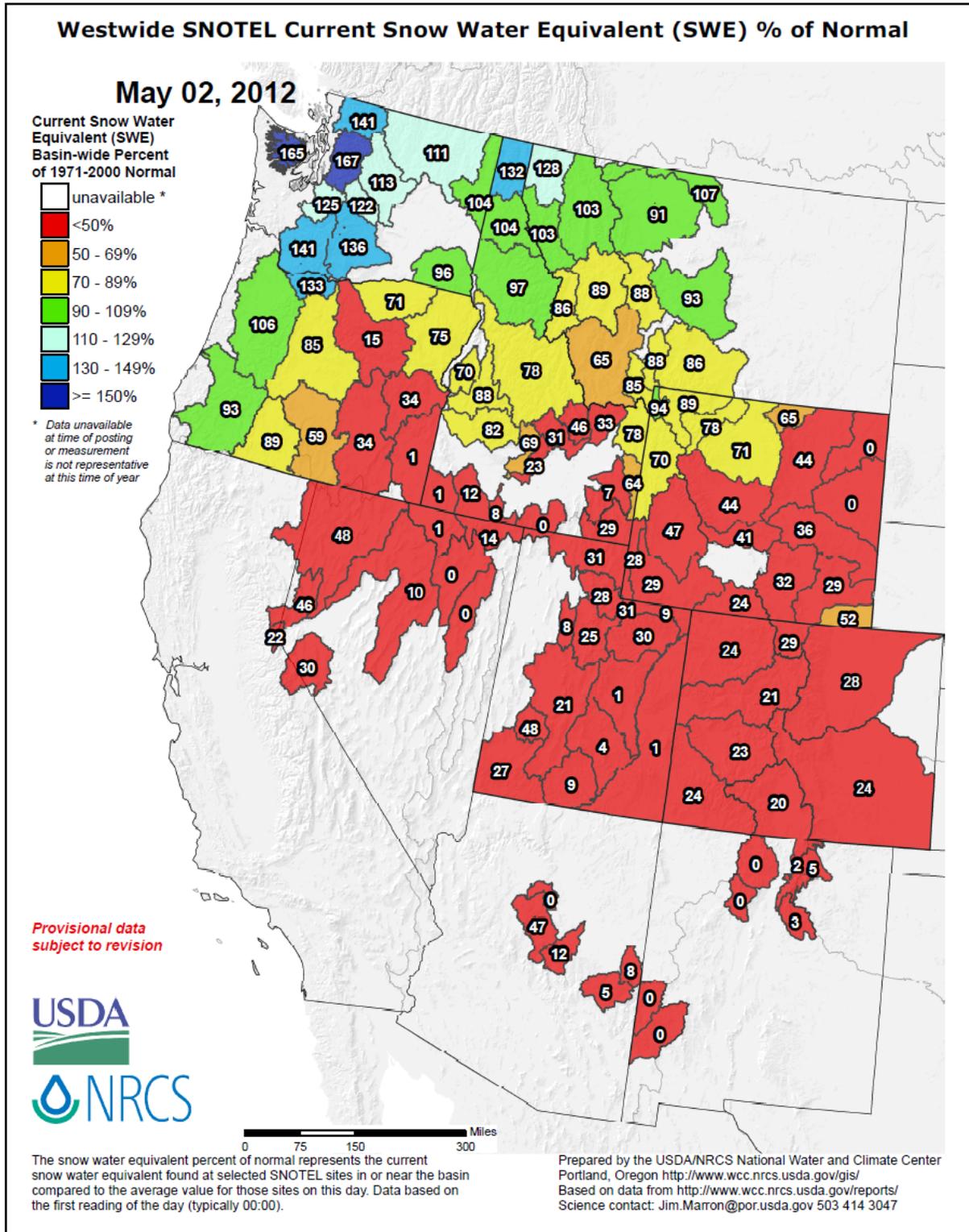


Fig. 1: Snow Water-Equivalent: River basins over the Northern Pacific Northwest and Northernmost Rockies are maintaining their high SWE values this week while the opposite is true for the remainder of the West. Click on link for latest map.

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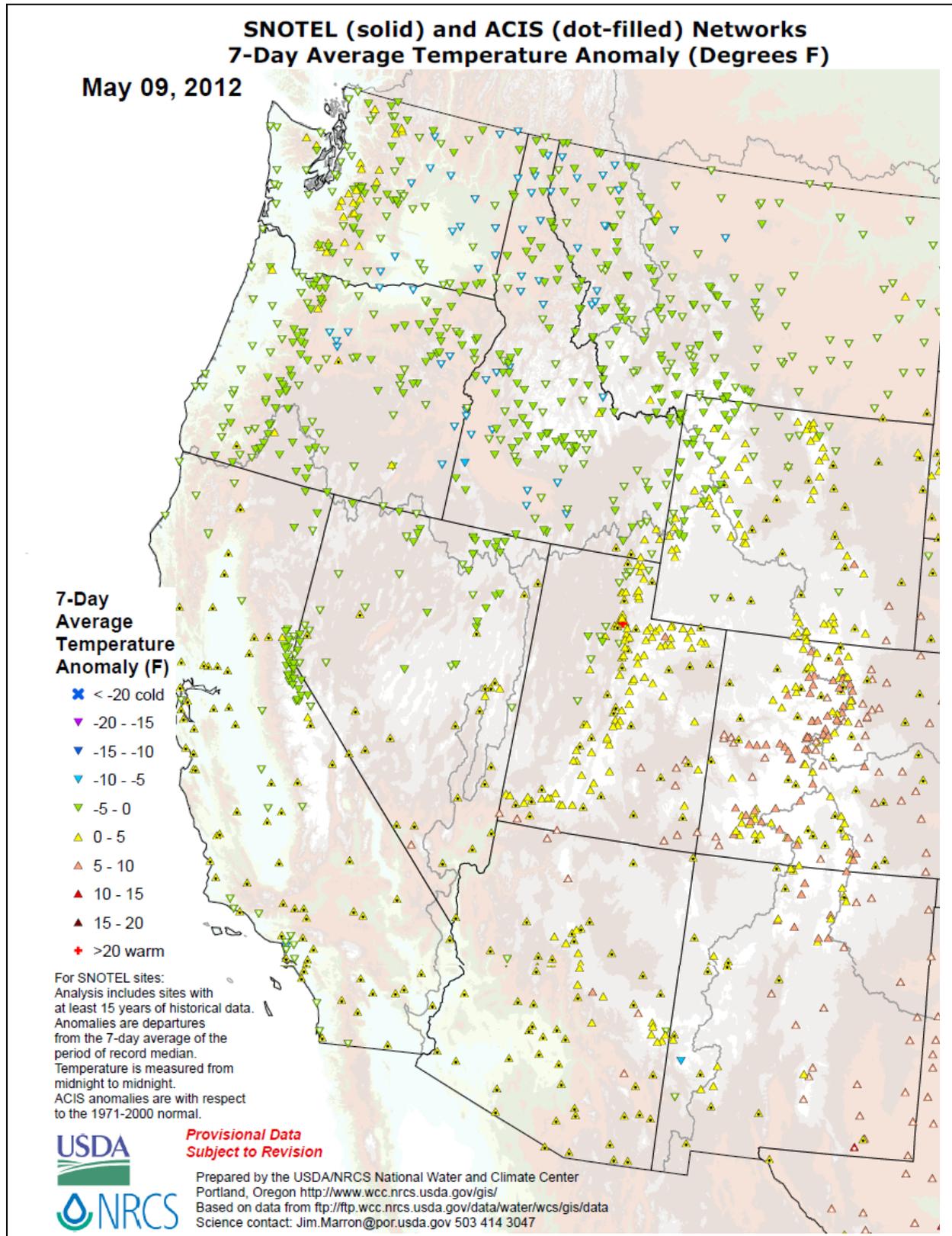
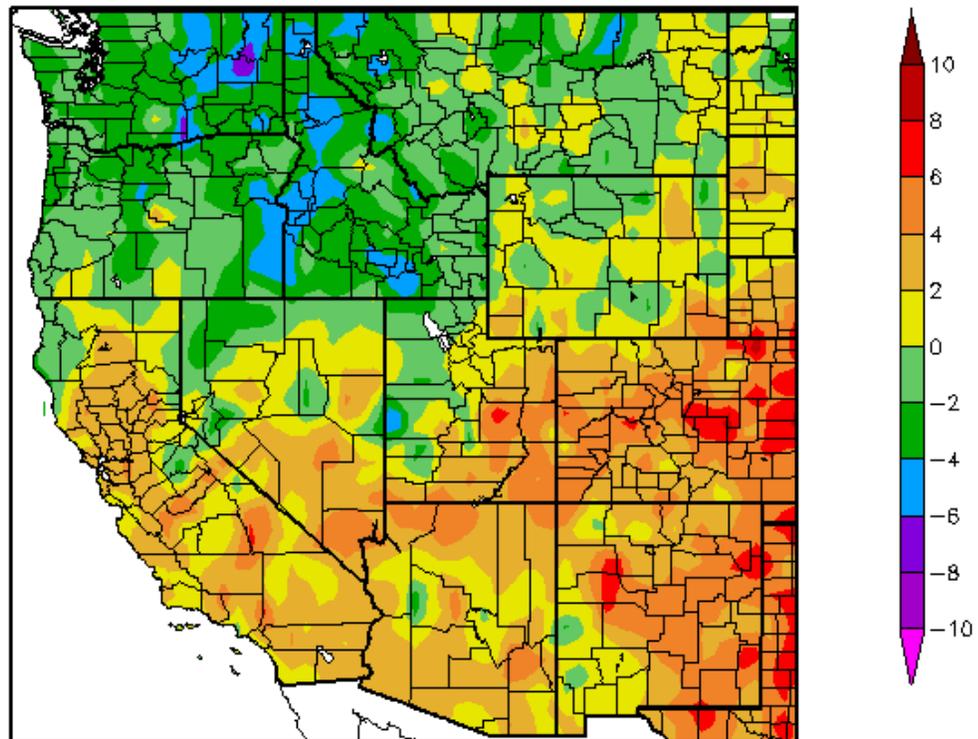


Fig. 2: SNOTEL and ACIS 7-day temperature anomaly showed values above normal over the 4-Corner States and below normal values over the Sierra, Pacific Northwest and Northern Rockies.

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Departure from Normal Temperature (F)
5/3/2012 – 5/9/2012



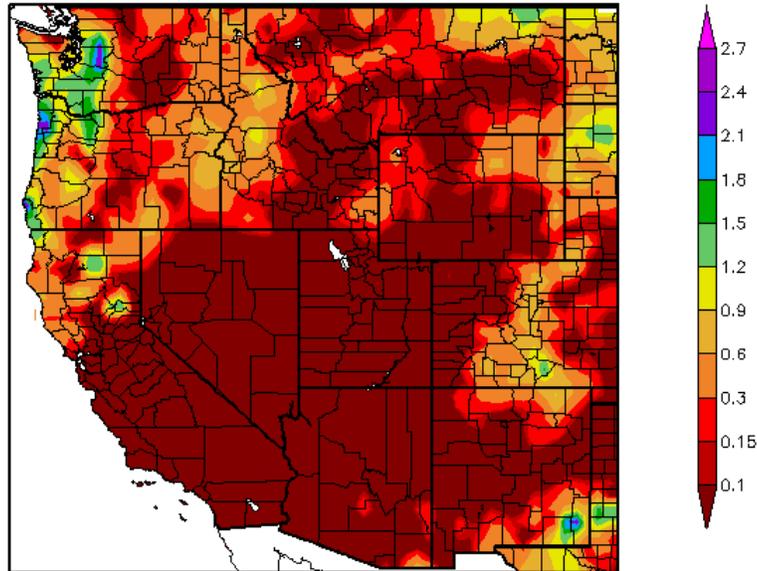
Generated 5/10/2012 at HPRCC using provisional data.

Regional Climate Centers

Fig. 2a: ACIS 7-day average temperature anomalies show the greatest positive temperature departures over Southern High Plains (>+6°F) and the greatest negative departures scattered over parts of eastern Washington (<-6°F).

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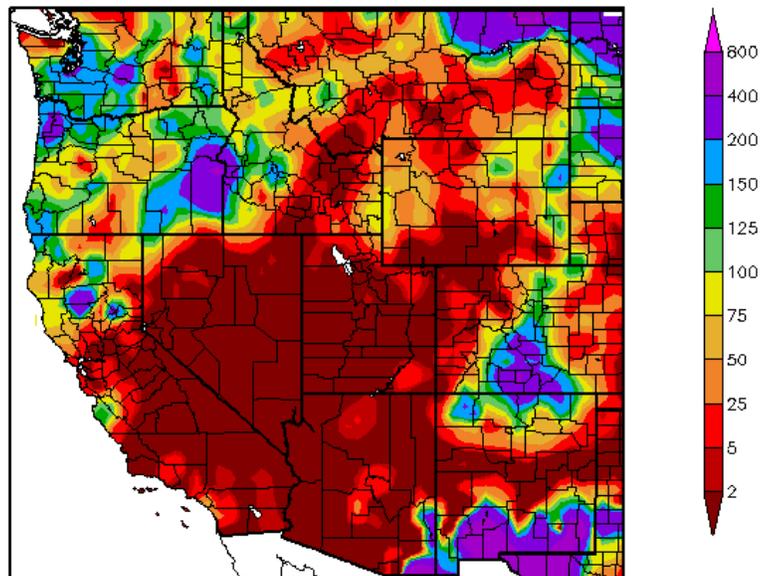
Precipitation (in)
5/3/2012 – 5/9/2012



Generated 5/10/2012 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
5/3/2012 – 5/9/2012



Generated 5/10/2012 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 Northern Cascades and over Colorado (top). In terms of percent of normal, these same areas were this week's moisture winners. Heavy rains over northeastern Montana and southern New Mexico also had substantial rainfall.

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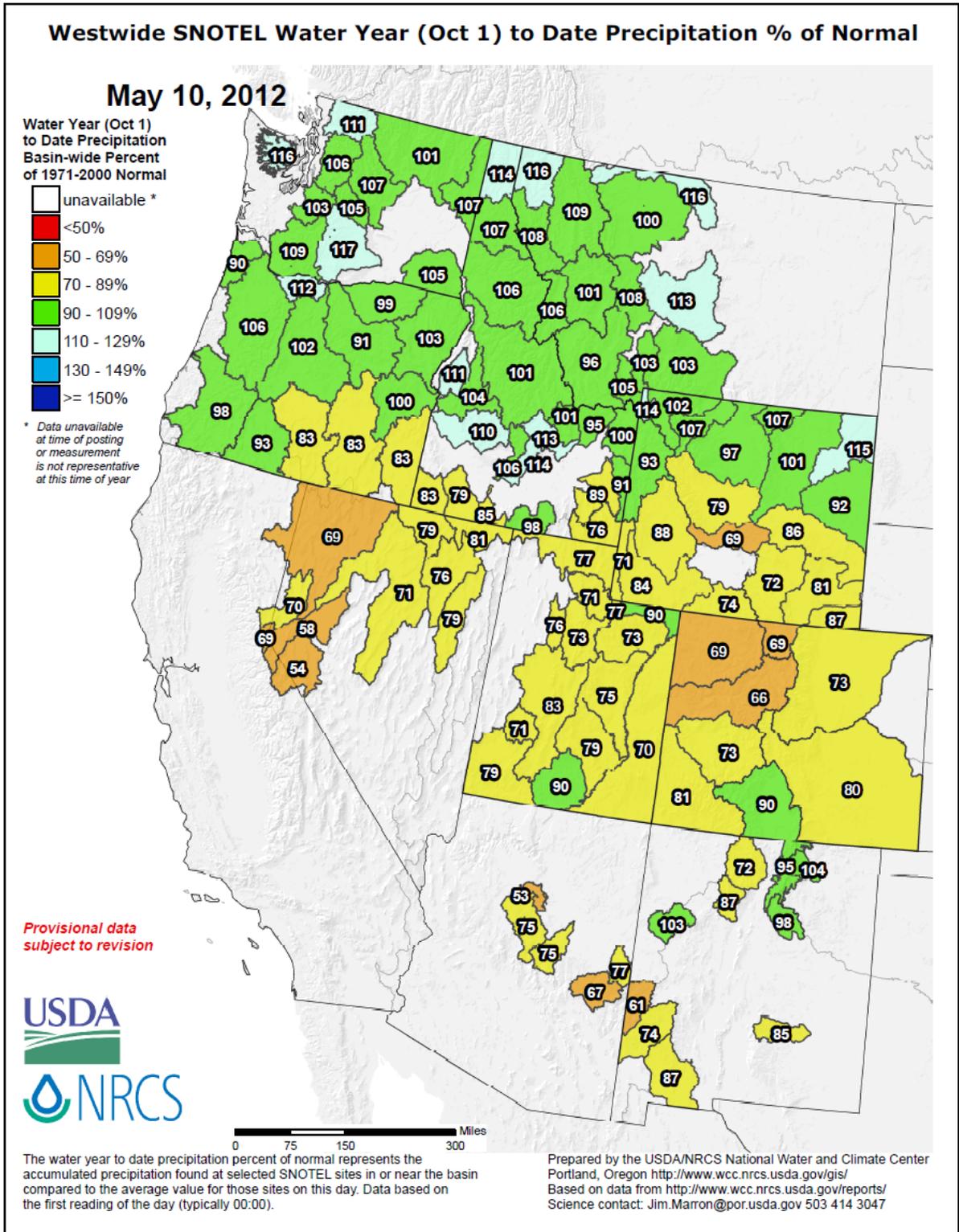


Fig 3b: Since the start of the [2012 Water-Year](#) that began on 1 October 2011, the seasonal moisture has favored Northern Tier States. Drier than normal conditions reign over most of the southern half of the West with the exception of Northern Mexico.

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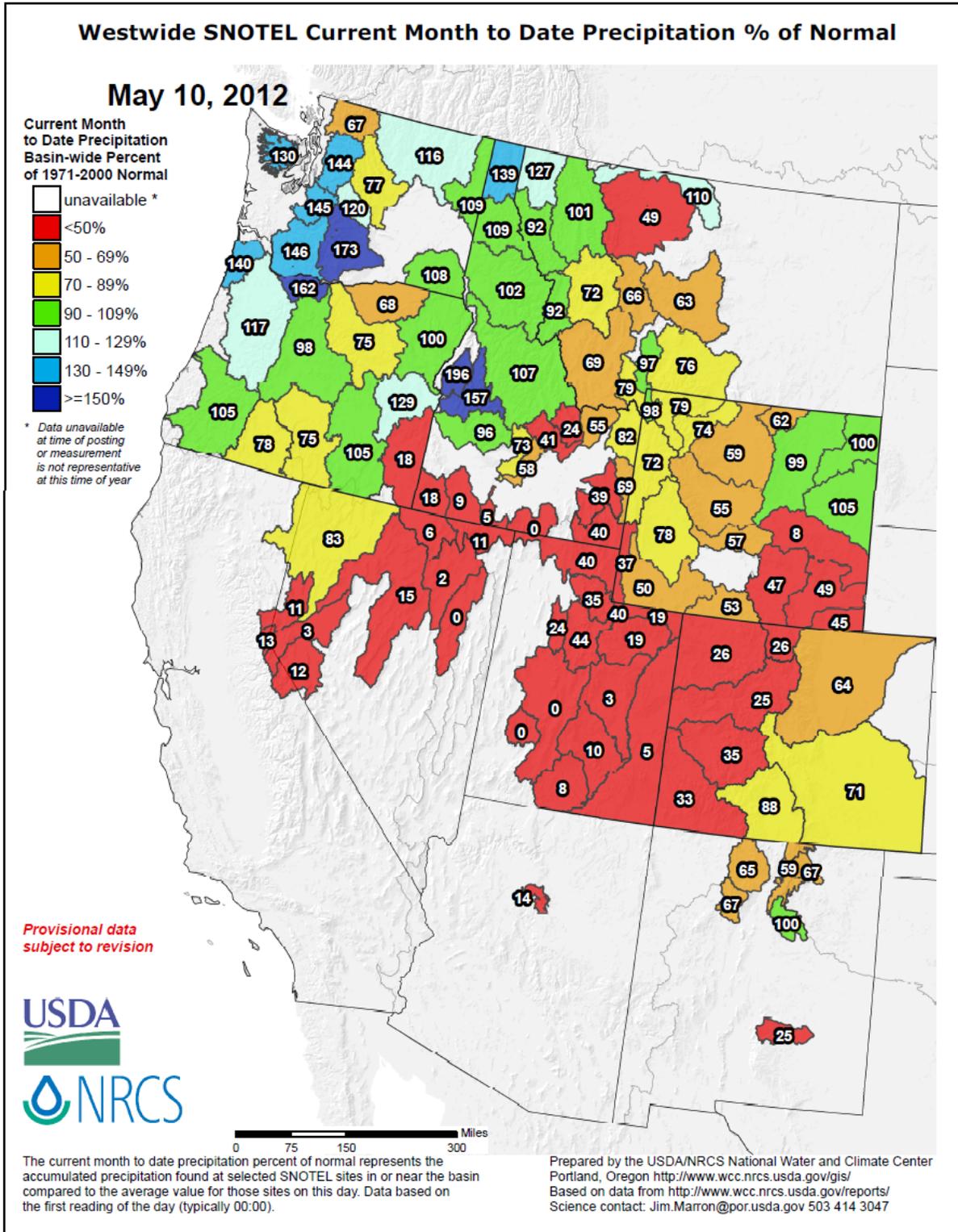


Fig 3c: Since the start of May, the wetter influence of La Niña is still holding on over parts of the Pacific Northwest. Elsewhere, rainfall is down sharply from average over the southern half of the West.

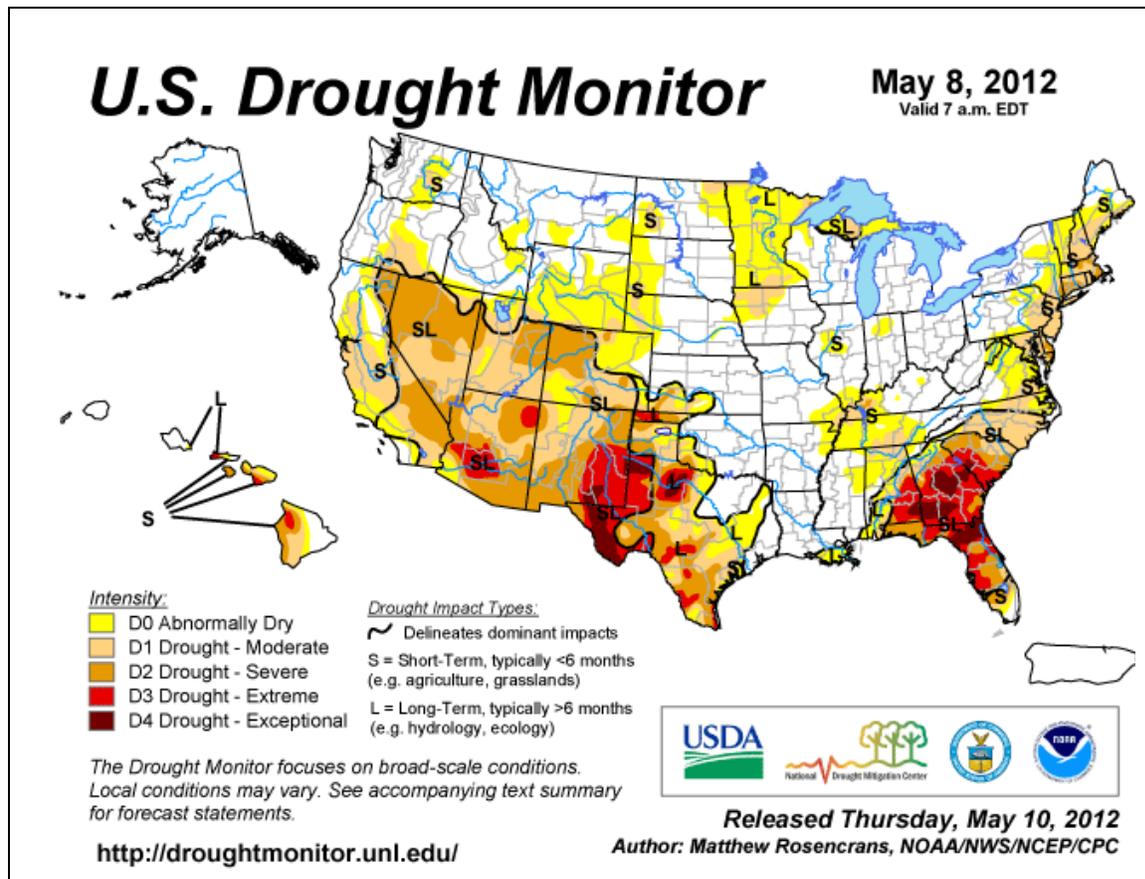


Fig. 4: Current **Drought Monitor** weekly summary. The exceptional D4 levels of drought are found over southeastern New Mexico, scattered across western Texas and over parts of Georgia, southeast Alabama, and northern Florida. For more drought news, see [Drought Impact Reporter](#). Click for the latest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

Agriculture

[Experts predict big increase in Kansas wheat output](#)

May 3, **Kansas**. Wheat in southwestern Kansas needs more rain to make a good crop. Crops are two to three weeks ahead of schedule, thanks to the warm spring we have had.

[Rain deficit has farmers worried in Upstate](#)

May 1, **South Carolina**. Newly planted crops need rain, and irrigation ponds could use a big boost.

Water Supply & Quality

[Corps of Engineers begins drought operations](#)

May 1, **Apalachicola River in Florida**. The Army Corps of Engineers reduced flows in the Apalachicola River to a minimum flow of 5,000 feet per second to keep as much water as possible in reservoirs. The minimum flow is thought to be enough water to sustain threatened and endangered species in the river.

[Denver Water users asked to watch usage following Stage 1 drought declaration](#)

May 1, **Denver, Colorado**. Denver Water ratcheted up their regular summer water restrictions that began May 1 to encourage residents to conserve more water since the snowpack was thin. Summer restrictions normally allow residents to water lawns up to three times weekly, but the tighter restrictions permit outdoor watering just twice weekly for a slightly shorter duration.

[Fort Worth lifting lawn watering restrictions](#)

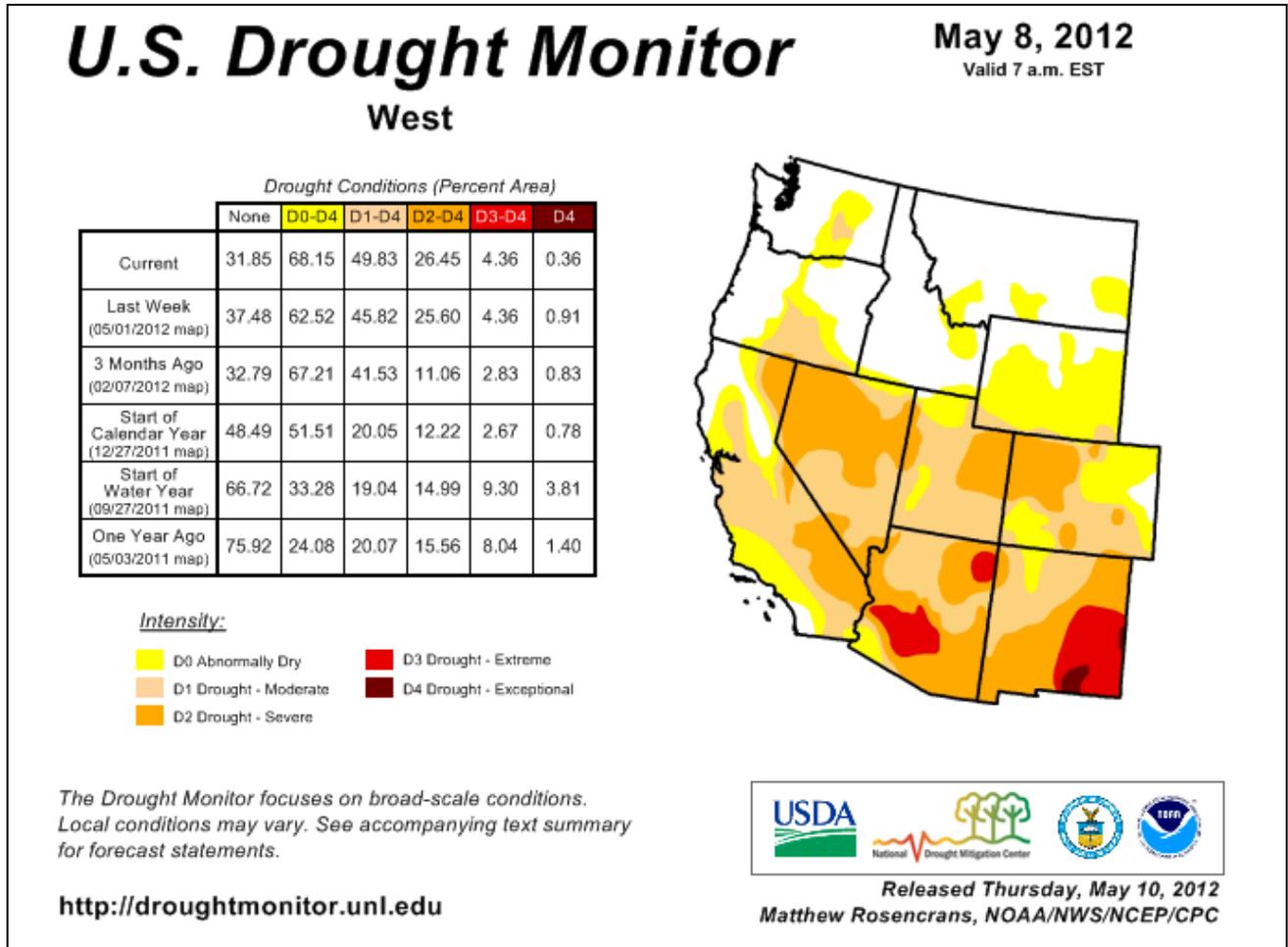


Fig. 4a: Drought Monitor for the [Western States](#) with statistics over various time periods. Note deteriorate in D0 and D1 categories this week. See: [The New Mexico Skywatcher quarterly newsletter](#). See: [La Nina Drought Tracker](#).

More drought related news:

[Low snowpack sets records](#)

May 1, **Southwestern Colorado**. Snowpack in the San Miguel, Dolores, Animas and San Juan river basins in southwestern Colorado was at 29 percent of average, a new low.

[Lower Rio Grande Farmers Approaching Groundwater Limits for 2012](#)

May 3, **Southern New Mexico**. Farmers who have nearly used their entire irrigation water allocations will be notified to stop pumping groundwater.

[Water supplies adequate despite thin snowpack](#)

May 1, **California**. The most recent snow survey revealed that the Sierra snowpack was 40 percent of average, but the plentiful snowfall from last winter still has reservoirs full.

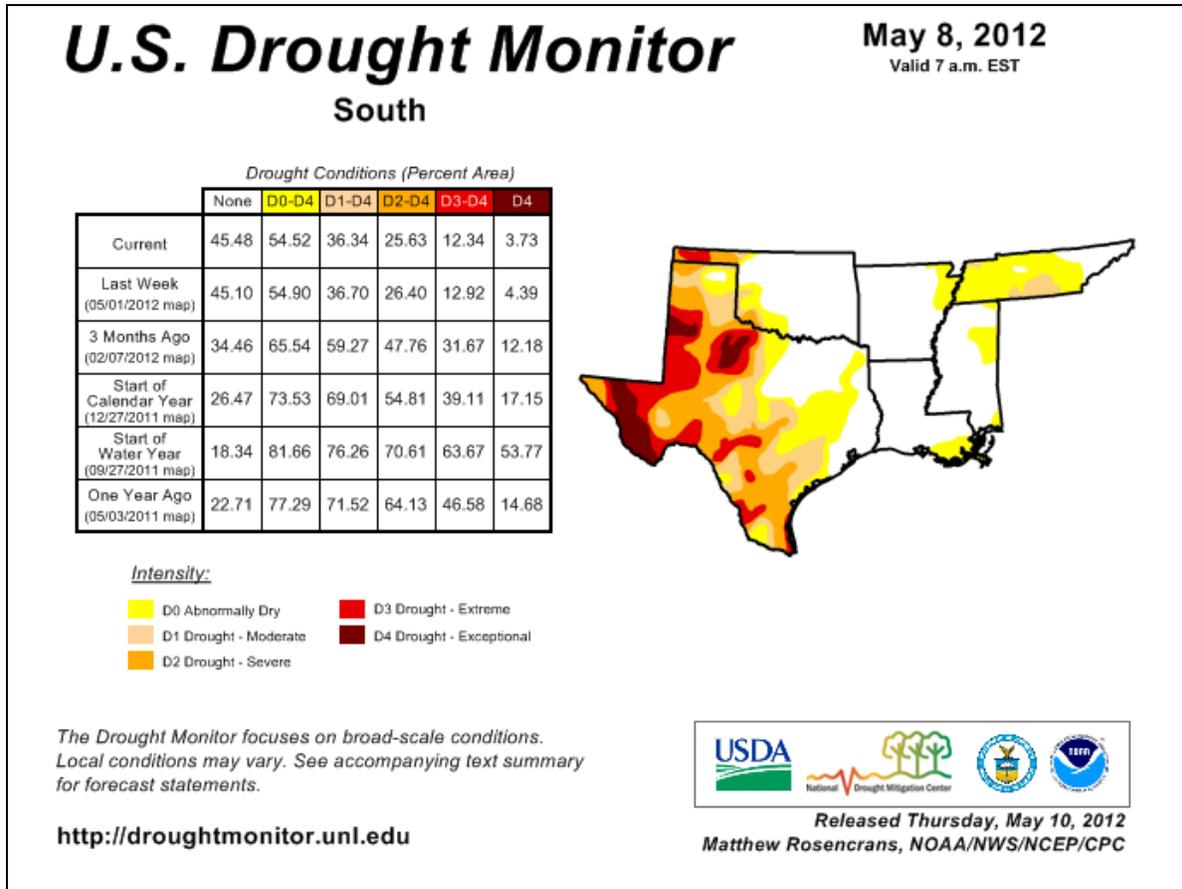
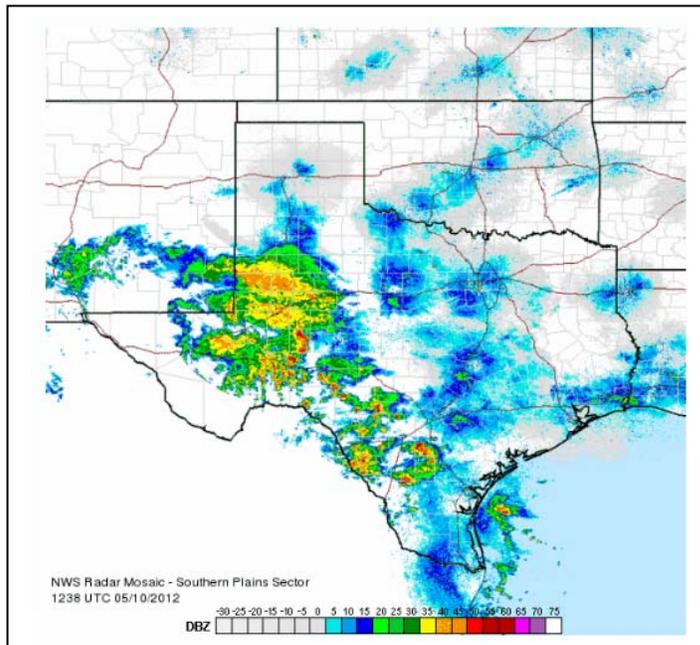


Fig. 4b: Drought Monitor for the [South-Central States](#) with statistics over various time periods. Note no significant changes this week in the lesser drought categories. However,



A slow moving disturbance in northwest Mexico will track across the southern Great Plains Thursday through Saturday. Although this system is weakening, it will encounter an air mass with abundant moisture, leading to the potential for heavy rainfall. Amounts ranging from 2 to 4 inches will be common across southern and southeast Texas from Thursday evening through Friday afternoon, with locally heavier amounts up to 6 inches possible. Locations that may be impacted by the heavy rainfall include Austin, San Antonio, Corpus Christi and Houston. Flash Flood Watches have been posted for portions of southern Texas. Remember: Turn Around Don't Drown [Details...](#)

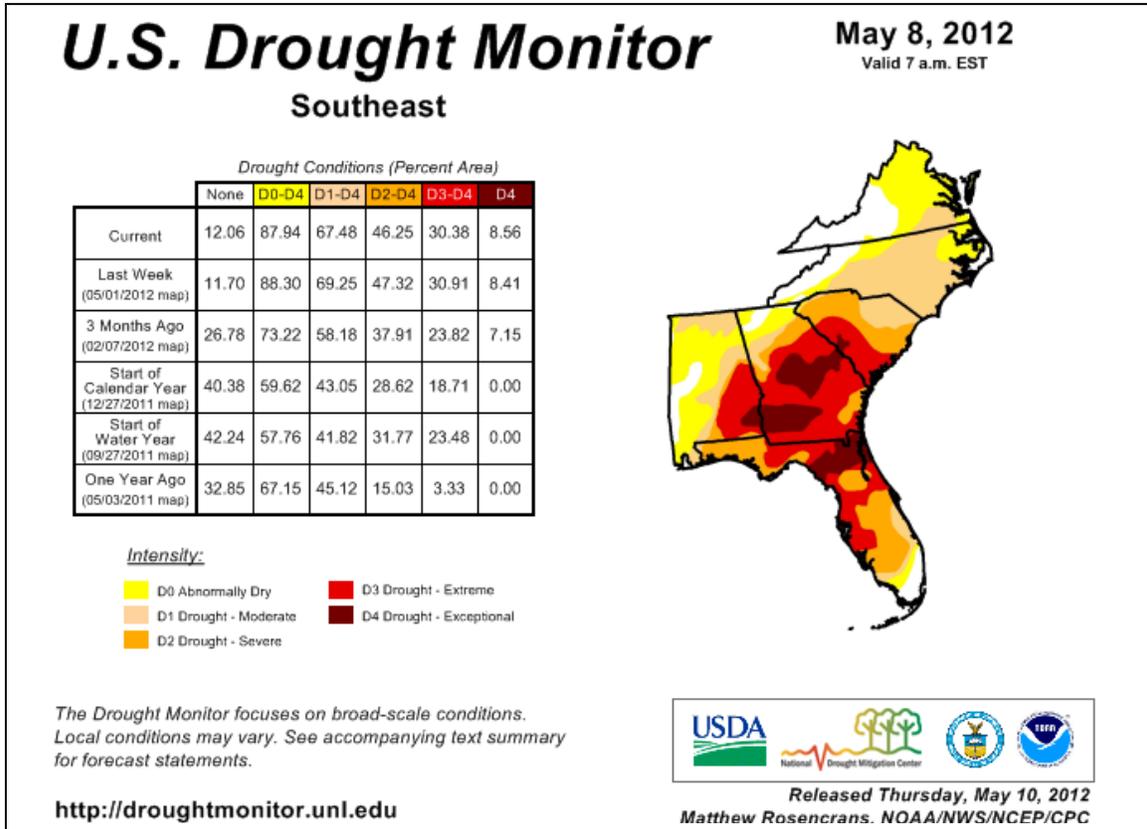
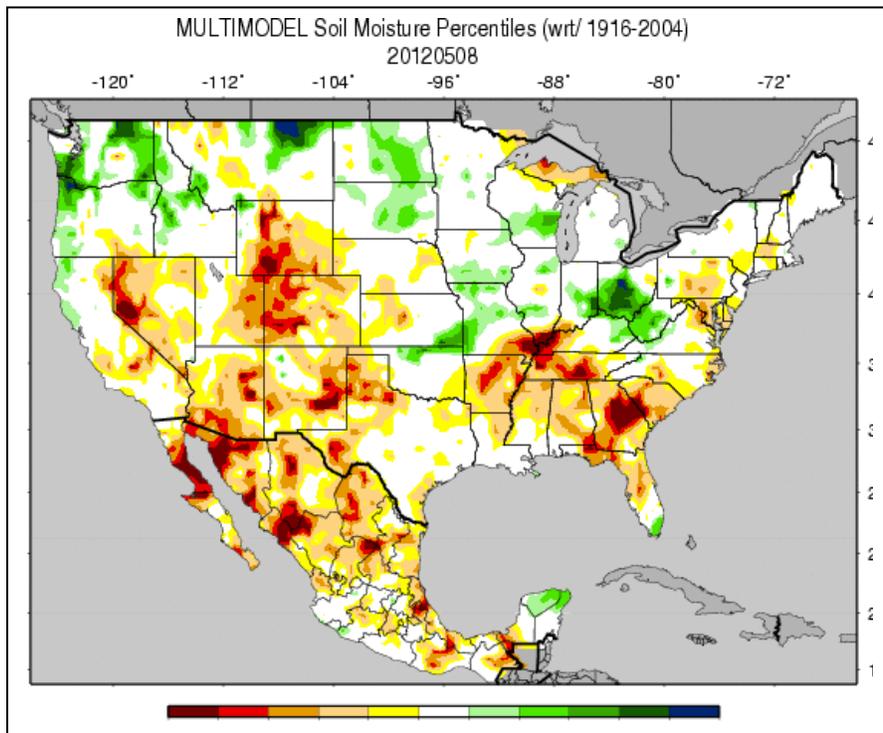
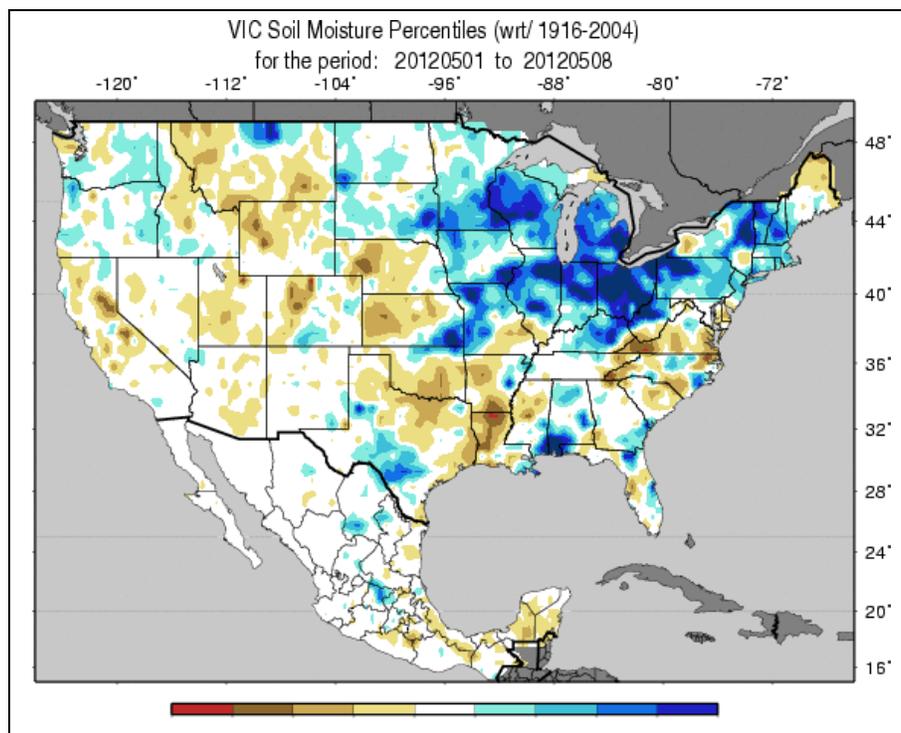


Fig. 4c: Drought Monitor for the [Southeastern States](#) with statistics over various time periods. Note no significant change occurred this week.

Weekly Snowpack and Drought Monitor Update Report



Figs. 5: Soil Moisture ranking in **percentile** as of 1 May shows dry conditions over much of the eastern third of the country and over the Central and Southern Rockies. Note that as snow melts over the Cascades and Northern Rockies, increases in soil moisture are starting to be reflected.



Figs. 5a: Soil Moisture **change** during the past week reveals significant increases over New England, the Mid West, and Northeastern High Plains.

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

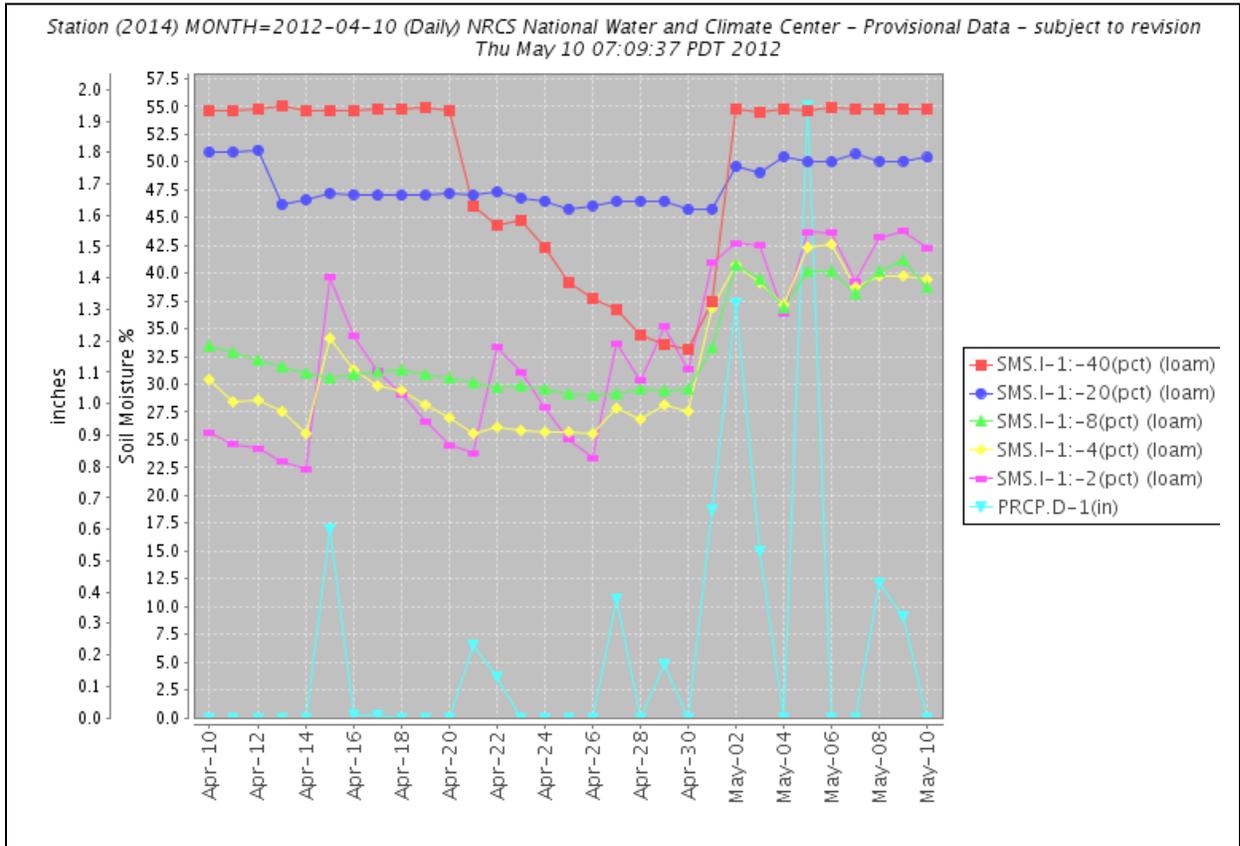


Fig. 6: This NRCS resource shows a site over [central Ohio](#) with soil moisture near saturation due to recent heavy rains.

Weekly Snowpack and Drought Monitor Update Report

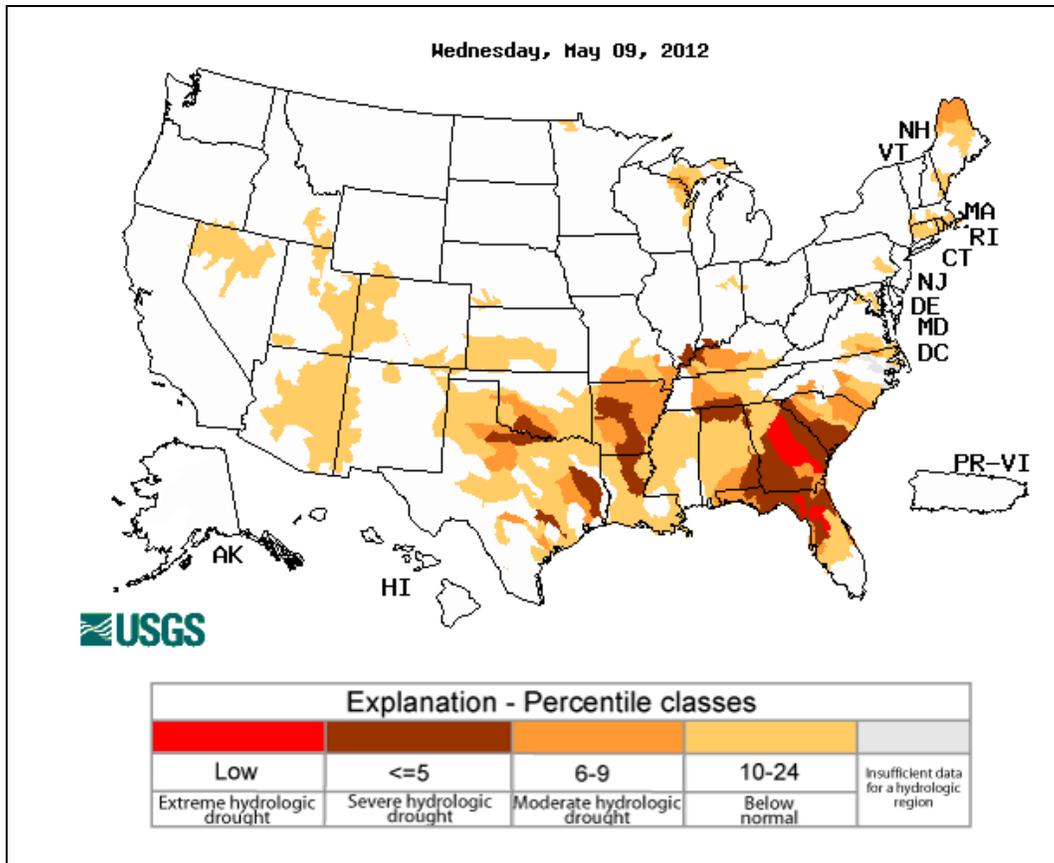


Fig. 7: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. **Extreme** conditions exist over Georgia and northern Florida this week.

Weekly Snowpack and Drought Monitor Update Report

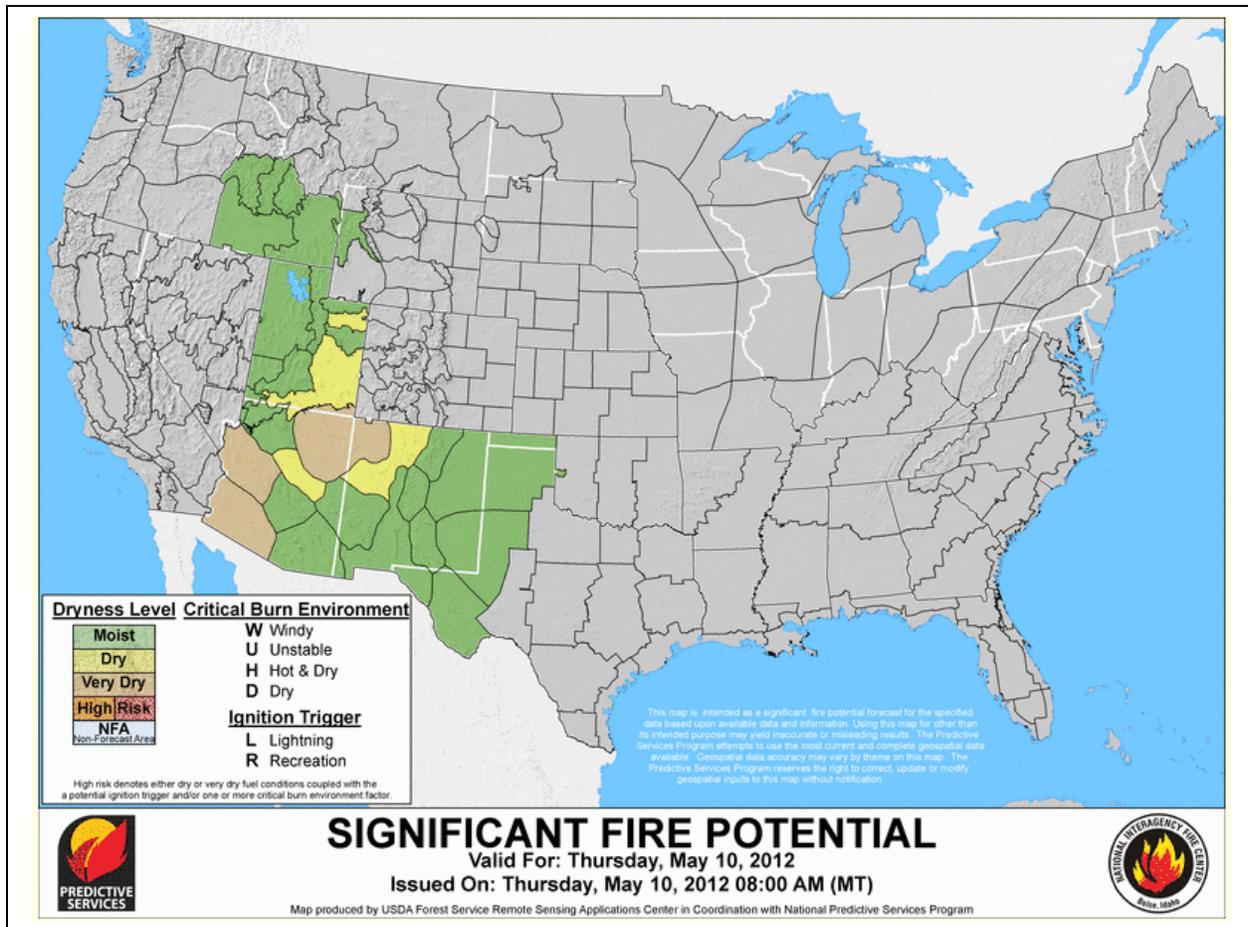


Fig. 8: Significant fire potential for today. This resource also provides forecasts out to 7 days.

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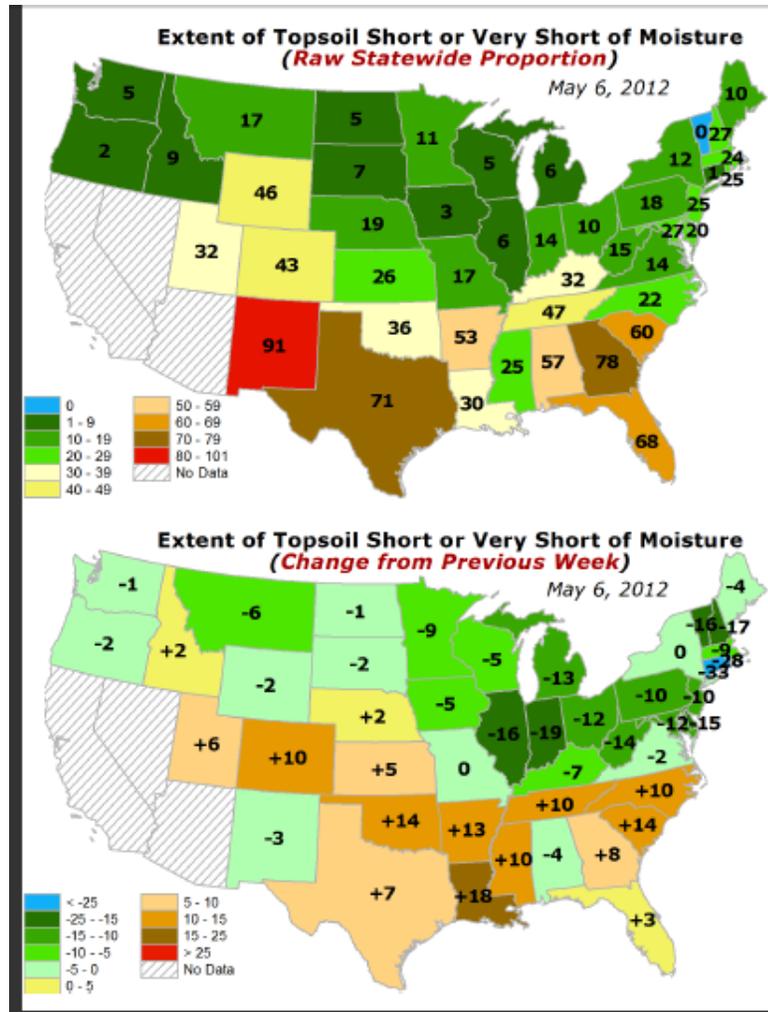


Fig. 9: Top soil moisture is extremely low over New Mexico and Texas this week. The lower panel indicates the greatest improvement this week was in Indiana and the greatest deterioration over Louisiana.

Weekly Snowpack and Drought Monitor Update Report

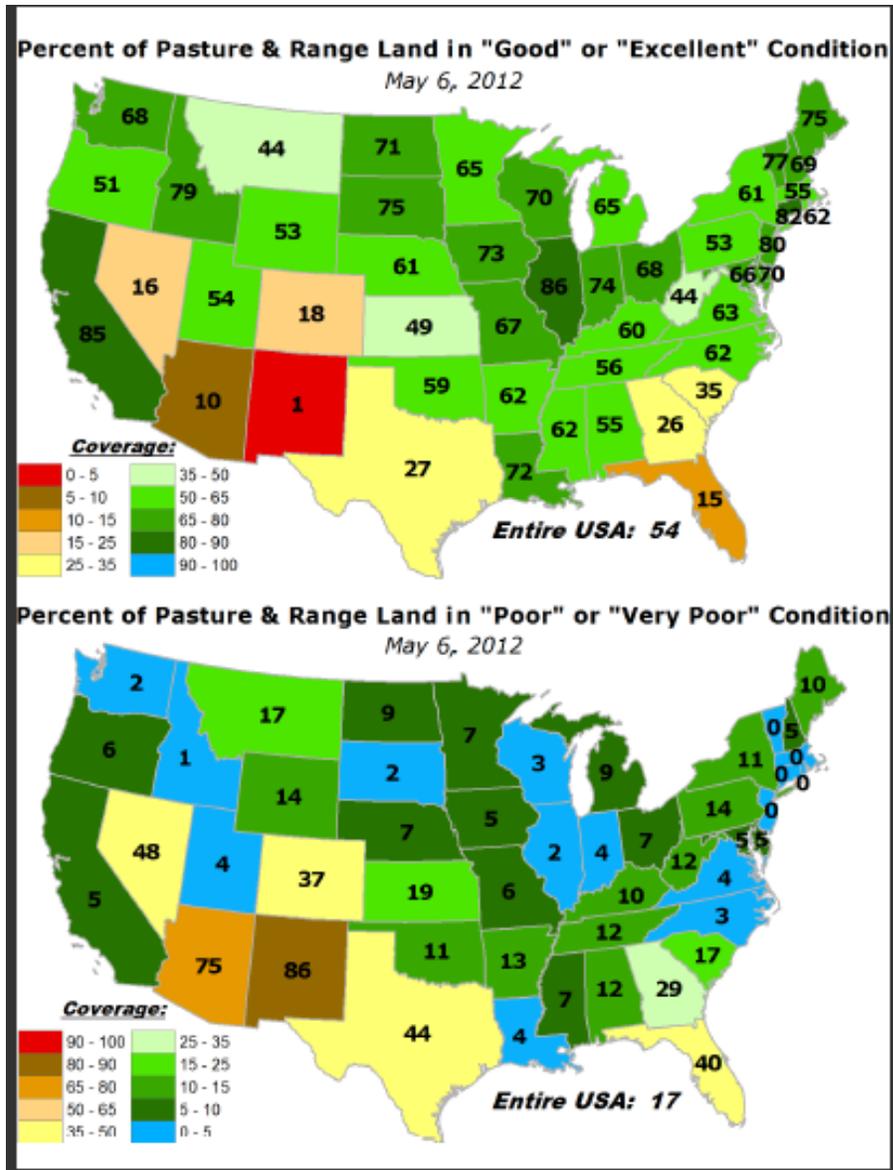


Fig. 10: Pasture and Range Lands in the poorest conditions are found in New Mexico, Arizona, and Florida. The lower panel also reflects this but includes to a less extent Nevada, Texas, and Colorado.

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary -- May 8, 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: The prior week featured a couple of storm systems that produced significant rains across the Pacific Northwest, Upper and Middle Mississippi River Valley, and Ohio Valley. Early in the week, precipitation spread eastward along a warm front that extended from the Northern Great Plains to the Northeast. South of the warm front, some tropical moisture was able to stream northward across the southeast. Later in the week, precipitation was focused along a cold front that moved from the Great Plains to the east coast by Tuesday.

The Northeast and mid-Atlantic: Significant rains fell across many portions of the northeast, with some parts of Pennsylvania receiving nearly 3.0 inches of rain (0.5 – 1.5 inches was more common across New Jersey and New York). Much of the rainfall occurred west of the Appalachians, missing the driest areas along the coast. Where the rains did encroach on the areas depicted in moderate (D1) or severe (D2) drought, the rains were not enough to bring the 30-day totals back to near normal. As a result, the drought depiction remained nearly unchanged, except for some improvement where the rainfall totals were higher (1.0-3.6 inches) across Pennsylvania, west of the Susquehanna River. Rains continued to fall across the region near the data cutoff.

Across Maryland, dry conditions continued, with the moderate drought conditions being expanded westward to near the triple point of Virginia, Maryland, and West Virginia.

The Southeast and Tennessee Valley: A plume of tropical moisture moved northward across the Gulf of Mexico and brought heavy rains to portions of Alabama, Florida, Louisiana and western Georgia. The rains prompted some trimming of each drought level across southwestern Alabama and extreme western Florida. Extreme drought was removed from Okaloosa and Santa Rosa Counties in Florida, and along the I-65 corridor, north of Mobile. As a result of isolated convective rains (1.0 - 2.4 inches), reductions in the coverage of drought conditions were also pursued across west-central Georgia and eastern Alabama.

Across northeastern Florida, the rains missed the areas already under severe or extreme drought, so D4 (exceptional drought) was expanded to cover Saint Johns county. Additional expansion of D3 (extreme drought) was included over Flagler County. Standardized Precipitation Index (SPI) values for the past 3 months indicate moderate drought, but SPI values keyed to longer periods of record (6, 9, and 12 months) all indicate extreme or exceptional drought across this region.

Most of the rains with the cold front later in the week fell west of the Appalachians, resulting in the trimming away of small areas of D0 (abnormal dryness) across Tennessee. What rains did make it across the southern Appalachians; to the Carolinas were enough to stem the tide of drought. No changes were pursued across North Carolina or South Carolina.

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The Ohio Valley and Midwest: Moderate drought conditions expanded over eastern Missouri and western Kentucky, where severe drought was introduced across Caldwell and Hopkins counties. Drought indicators, such as SPI values for 3 months and Percent of normal Precipitation for 90-days or less, indicate much drier conditions than indicators based on longer time periods. Percent of normal precipitation at 30 and 60 days were used to shape the current depiction, with SPI being used to determine the intensity.

Due to recent rains (0.75 – 5.0 inches) and some moistening of soils, improvements to the drought conditions were pursued across Indiana and Illinois. A 1-category improvement was made across this region. Land Data Assimilation System (LDAS) data from NASA continues to depict surface and root zone soil moisture as below normal, but showed increased wetness compared to last week.

The Northern Plains: Improvements were also indicated from the Northern Great Lakes region to the northern Great Plains. Recent rains (1.0 – 5.0 inches) prompted 1 and locally 2-category improvements over Iowa and southern Minnesota. Across Iowa, precipitation since July 15, 2011 (a period of unusually dry weather for NW Iowa) still shows substantial deficits (only 64 percent of normal except for a few scattered counties). However, stream flows have rebounded a great deal and soil moisture has also increased substantially with recent rains.

Across Nebraska, long-term deficits in precipitation and soil moisture are still prevalent. To maintain current conditions, which means receiving rainfall at climatological levels, areas of Nebraska would need to receive nearly 1 inch per week. Anything less, combined with increasing agricultural needs (0.20 inches per day for corn fields), would lead to a drying of the soils.

Across the Dakotas and much of Minnesota and Wisconsin, further reductions in drought coverage were depicted. Heavy rain came to eastern South Dakota (top national CoCoRaHS report of 6.22 inches as of Sunday morning). This fell right on the D1 region in eastern South Dakota. Across Wisconsin and the UP of Michigan, SPI values out to 9 months, and precipitation departures from normal over the past 30 and 60 days, were used to redefine the drought depiction. Moderate drought is now impacting a smaller area.

Central and Southern Plains: Reductions in the coverage of exceptional (D4) and extreme (D3) drought were made across western Texas and southeastern New Mexico. Rains this week were not exceptional, but a recent wet pattern has helped to alleviate some of the dryness across that region. Heavy rains across central Texas, occurring right up to the data-cutoff, prompted improvements there, but poor groundwater storage and slowly responding reservoir levels continue to mitigate the recovery, so the only modest reductions in coverage were indicated.

Across southwestern Kansas, River Forecast Center (RFC) precipitation data indicated small pockets of significant rains (0.5 - 1.5 inches), so small areas of D0 and D1 were removed.

The West: Across Utah, moderate and severe drought conditions were expanded across the western portions of the state. Data from the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) continued to indicate low snow-water equivalent (SWE) values across most of the state. The conditions are impacting inflows into the major reservoirs across Utah and Colorado.

Weekly Snowpack and Drought Monitor Update Report

Recent wetness across the Pacific Northwest and Northern Rockies (30 and 60-day periods) resulted in the removal of some D0 from Oregon, Washington, and eastern Montana. The rains have missed much of central and western Montana, Idaho, and Nevada as the moisture is squeezed out over the higher terrain. As a result, some areas of abnormal dryness were added to Idaho, Wyoming, and central Montana. The drought impact lines were also redrawn over Nevada and Utah to indicate the lengthening of this dry period beyond 6 months.

Hawaii, Alaska and Puerto Rico: No changes were made to the depictions of drought across Alaska, Hawaii, or Puerto Rico. Rainfall totals exceeded 2.0 inches at many reporting stations across Puerto Rico. Windward showers helped to keep drought confined on Hawaii. Southern portions of Alaska remained wet, but interior portions are starting to become dry, so this area will be closely monitored.

Looking Ahead: National Weather Service forecasts indicate an active southern storm track during the next 5 days with soaking rains (locally near 4 inches) forecast across Texas and the western Gulf Coast states. Remnants of cold front are also anticipated to bring another period of wet weather to the northeast. Beyond this upcoming week, forecasts from the Climate Prediction Center indicate higher than normal chances for wet conditions across the Southeast and Central Rockies. Dry conditions are expected to continue from Arizona to Oregon, and across the Great Lakes, with the odds for warm conditions across the northern tier of the contiguous 48 states. Forecasts for Alaska indicate a wet pattern for the southern portions of the state.

Author: [Matthew Rosencrans, 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 May 9, 2012