



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

**Weekly Report - Snowpack / Drought Monitor Update**      **Date: 14 May 2009**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** Snow-water equivalent percent to date shows values over much of the Cascades and Northern Rockies holding on to surplus values while the Southern Tier States continue to dwindle (Fig 1). Unofficial forecast changes for the past 7 days in spring and summer streamflow runoff for selected SNOTEL sites show that forecast values have held nearly constant over much of the Northern Rockies and northern Idaho and have decreased over the remainder of the eastern half of the Western States (Fig. 1a). This past week's snow depth changes show late season increases over parts of the Montana Rockies and the Washington Cascades. Decreases are noted elsewhere; especially in Utah, Colorado, and California as the sun's influence dominates the rapid melting for this time of year (Fig. 1b).

**Temperature:** SNOTEL and ACIS-day station average temperature anomalies were below average across the Northern Tier States, during the week. Average temperatures were warmer than average across the Southern Tier States (Fig. 2). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures occurred over areas over southeastern Arizona (>+12F) and the greatest negative departures occurred over scattered regions of the Pacific Northwest and Montana Rockies (<-6F) (Fig. 2a).

**Precipitation:** ACIS 7-day average precipitation anomaly for the period ending 13 May shows an unusually wet pattern over much of the Northern Cascades and along the Western Slope of the Continental Divide over Idaho and northern Montana (Fig. 3). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2009 Water Year that began on October 1, 2008 shows values within a few percentage points of last week's values. Note that almost all areas but the extreme Southwest are near normal (within +/-10 percent). However, pockets of negative departures from normal exceeding 15 percent are scattered across Oregon, Washington, Montana, Nevada, and Utah (Fig 3a). For precipitation totals, departures, and percent of normal for several time periods. See: <http://www.water.gov/> and <http://cig.mesonet.org/~derek/public/droughtmonitoring/>.

## **WESTERN DROUGHT STATUS**

**The West:** Recent storminess (0.5-2.0 inches) in Montana provided fodder for improving the drought conditions. The D0 area was removed from eastern Montana and reduced in coverage in north-central Montana. The same system also dropped 1-3 inches of precipitation over western Oregon and western Washington. Those rains alleviated much of the drought in that region. The exceptions were the Olympic Peninsula and extreme northern Cascades, where the basin average snow water content was 77 and 85 percent of normal, respectively, and water-year-to-date precipitation remained at 85 and 86 percent of normal, respectively. In central Idaho, 1-2 inches of precipitation and May 1 Surface Water Supply Index (SWSI) values near zero supported the removal of D1 and additional reduction of D0 southward. In contrast, current SWSI for the Bear River and Owyhee basins of -2.4 indicated D1 conditions in southeast and southwest Idaho, respectively. With recent short-term wetness across the northern half of the West and most pasture and range lands rated in good or excellent condition according to National Agricultural Statistic Services (NASS)/USDA, the impacts were deemed to be long-term (H) only.

## Weekly Snowpack and Drought Monitor Update Report

Farther south, no rainfall, weekly temperatures 8 to 12 degrees F above normal, and highs in the 100s further deteriorated conditions in Arizona and New Mexico. This was depicted by the expansion of D1(A) into northeast Arizona and D1(A) and D2(A) into central New Mexico. NASS/USDA pasture and range lands were rated 61, 60, and 49 percent poor or very poor in New Mexico, California and Arizona, respectively. The rest of the West remained status quo. Authors: David Miskus, Matthew Rosencrans, and Anthony Artusa, CPC/NCEP/NWS/NOAA.

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

### **DROUGHT IMPACTS DEFINITIONS** (<http://drought.unl.edu/dm/classify.htm>)

The possible impacts associated with **D4 (H, A)** drought include widespread crop/pasture losses and shortages of water in reservoirs, streams, and wells creating water emergencies. The possible impacts associated with **D3 (H, A)** drought include major crop/pasture losses and widespread water shortages or restrictions. Possible impacts from **D2 (H, A)** drought are focused on water shortages common and water restrictions imposed and crop or pasture losses likely. The possible impacts associated with **D1 (H, A)** drought are focused on water shortages developing in streams, reservoirs, or wells, and some damage to crops and pastures (Figs. 4, 4a, and 4b).

### **SOIL MOISTURE**

Soil moisture (Figs. 5a and 5b), 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).

### **OBSERVED FIRE DANGER CLASS**

**Fire Weather Users:** The image presented on the National page now highlights offices with current Fire Weather Watches or Red Flag Warnings. Though the entire forecast office area is highlighted, the area of the Watch or Warning may be much smaller. Refer to the individual forecasts for details. Since forecast formats and policies are different among the different Weather Service offices, it is impossible to account for all variations in Watch/Warning issuances. Some Watches/Warnings may not be highlighted due to these differences and some may remain highlighted past the expiration time. We will continue to monitor the site and fix these problems as they occur (if possible).

Most offices issue a separate product for Fire Weather Watches/Red Flag Warnings, but some do not. For those that do issue a separate product, a hyperlink will appear in the Fire Weather Forecast for that office (the product that displays when you click on an area in the image of the United States). The offices that do not issue a separate product place the Red Flag Warning/Fire Weather Watch information directly in the Fire Weather Forecast, so no separate hyperlink will show up.

The National Interagency Coordination Center provides a variety of products that describe the current wildfire status for the U.S. - [http://activefiremaps.fs.fed.us/lq\\_fire2.php](http://activefiremaps.fs.fed.us/lq_fire2.php). The latest Observed Fire Danger Class is shown in Figs. 6 shows the current active wildfires across the West - <http://geomac.usgs.gov/>.

### **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

## **Weekly Snowpack and Drought Monitor Update Report**

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.

[http://water.usgs.gov/cgi-bin/waterwatch?state=us&map\\_type=dryw&web\\_type=map](http://water.usgs.gov/cgi-bin/waterwatch?state=us&map_type=dryw&web_type=map).

### **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/>

### **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>

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

/s/ NOLLER HERBERT

Director, Conservation Engineering Division

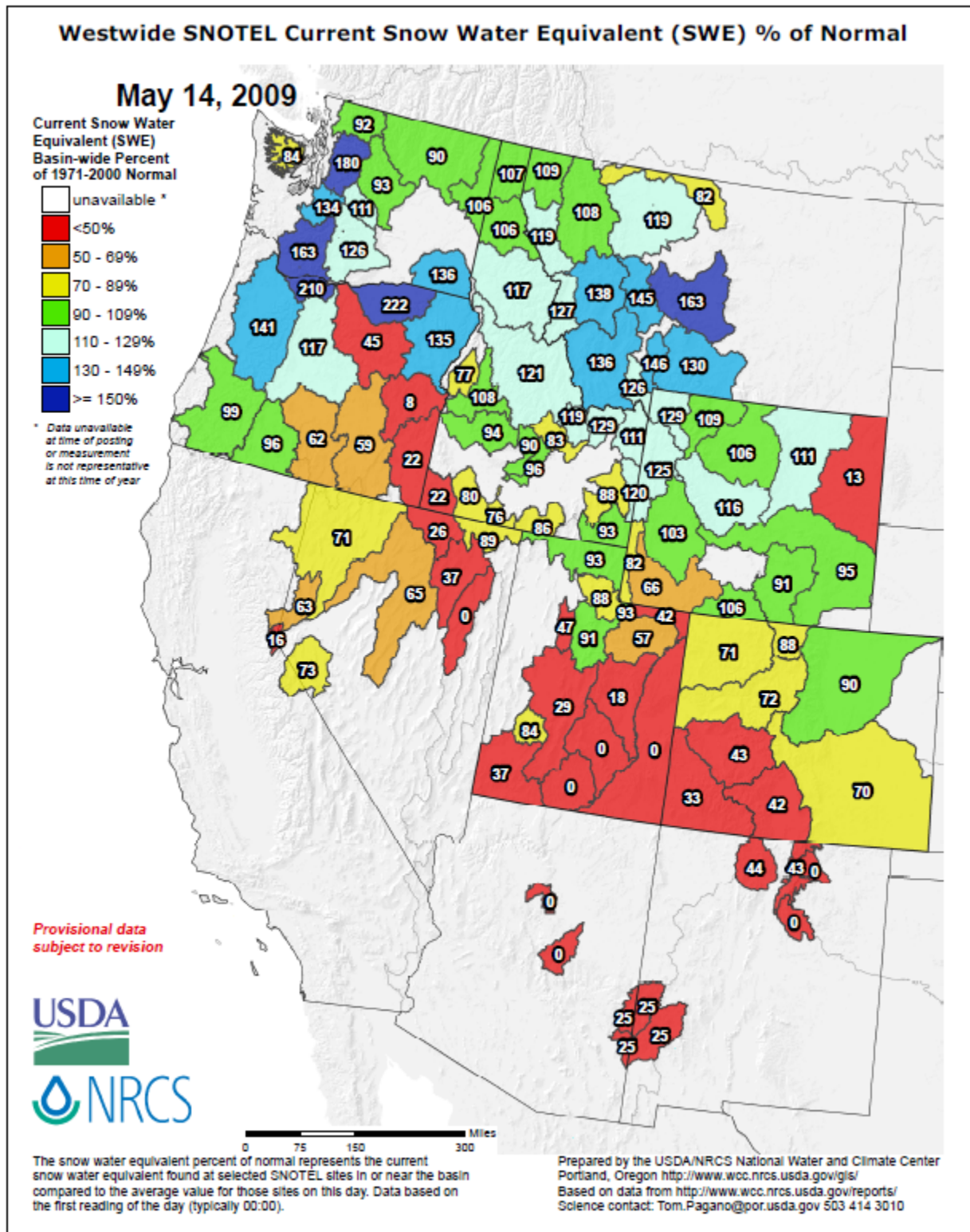


Fig. 1. Snow-water equivalent percent to date shows values over much of the Cascades and Northern Rockies holding on to surplus values while the Southern Tier States continue to dwindle.

Ref: [http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_sweptnormal\\_update.pdf](http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_sweptnormal_update.pdf)



## Weekly Snowpack and Drought Monitor Update Report

### 7-Day Guidance Forecast Change as Percent of 1971-2000 Normal

May 13, 2009

For guidance only

7-Day Guidance  
Forecast Change  
(% normal)

- ✕ > 20% gain
- ▲ 16 - 20%
- ▲ 11 - 15%
- ▲ 6 - 10%
- ▲ 1 - 5%
- ⊖ no change
- ▼ -5 - -1%
- ▼ -10 - -6%
- ▼ -15 - -11%
- ▼ -20 - -16%
- ✖ > 20% loss
- ⊖ Unavailable\*

\* Forecast unavailable due  
to insufficient realtime data  
or low forecast skill

Provisional Data  
Subject to Revision

0 50 100 200 Miles



Prepared by the USDA/NRCS National Water and Climate Center  
Portland, Oregon [http://www.wcc.nrcs.usda.gov/wsf/daily\\_forecasts.html](http://www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html)  
Based on data from  
[ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily\\_forecast/SummaryOutput.csv](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily_forecast/SummaryOutput.csv)  
Science contact: Tom.Pagano@por.usda.gov 503 414 3010

*This is a completely automated objective product  
based on SNOTEL data. This product is not meant  
to replace or supersede the official forecasts produced  
in coordination with the National Weather Service.*

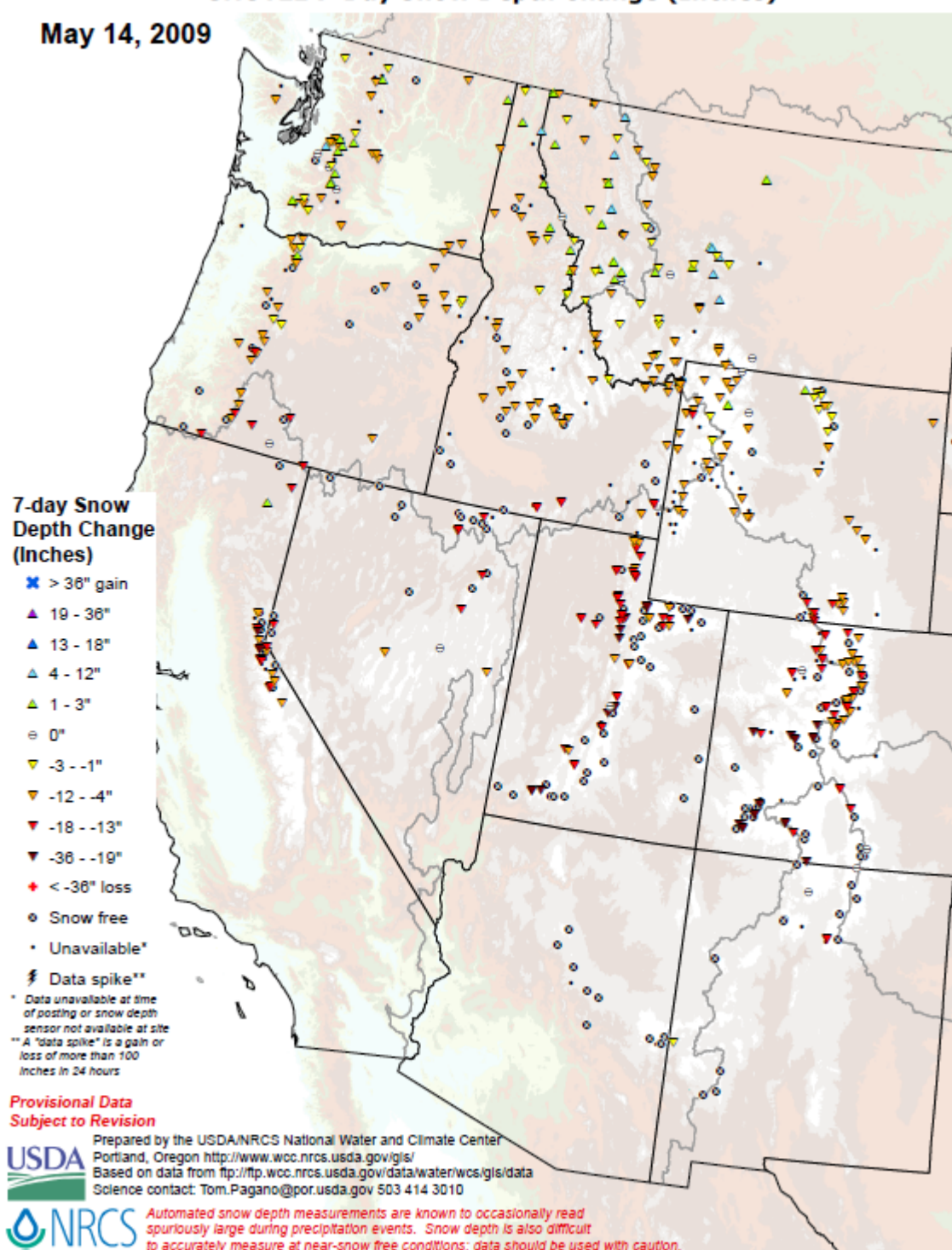
Fig. 1a: Selected preliminary daily water supply forecast changes since last week show that forecast values have held nearly constant over much of the Northern Rockies and northern Idaho and have decreased over the remainder of the eastern half of the Western States.

Ref: [ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily\\_forecast/maps/west\\_dailyfcst\\_7daych.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/daily_forecast/maps/west_dailyfcst_7daych.pdf)

## Weekly Snowpack and Drought Monitor Update Report

### SNOTEL 7-Day Snow Depth Change (Inches)

May 14, 2009



**Fig. 1b:** This past week's snow depth changes show late season increases over parts of the Montana Rockies and the Washington Cascades. Decreases are noted elsewhere; especially in Utah, Colorado and California as the sun's influence dominates rapid melting.

Ref: [ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_snowdepth\\_7ddelta.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_snowdepth_7ddelta.pdf)



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

May 14, 2009

**7-Day  
Average  
Temperature  
Anomaly (F)**

- ✕ < -20 cold
- ▼ -20 - -15
- ▼ -15 - -10
- ▼ -10 - -5
- ▼ -5 - 0
- ▲ 0 - 5
- ▲ 5 - 10
- ▲ 10 - 15
- ▲ 15 - 20
- ◆ >20 warm

For SNOTEL sites:  
Analysis includes sites with  
at least 15 years of historical data.  
Anomalies are departures  
from the 7-day average of the  
period of record median.  
Temperature is measured from  
midnight to midnight.  
ACIS anomalies are with respect  
to the 1971-2000 normal.



**Provisional Data  
Subject to Revision**

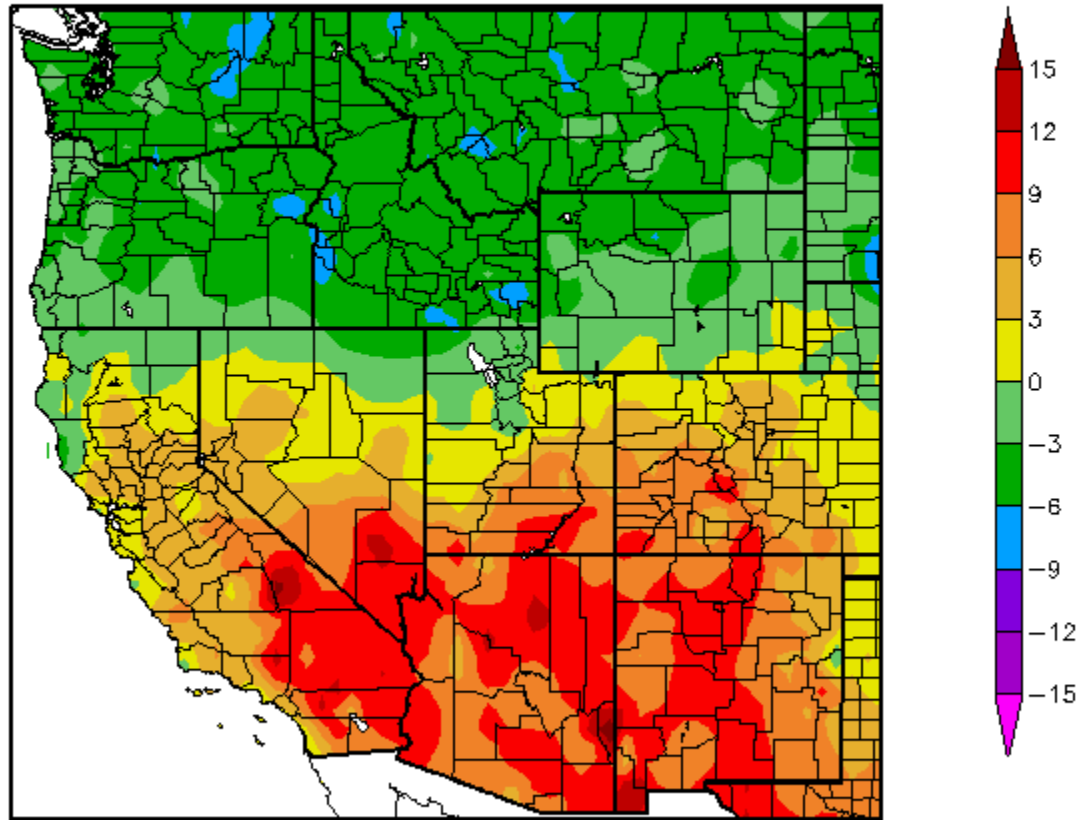
Prepared by the USDA/NRCS National Water and Climate Center  
Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>  
Based on data from <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/data>  
Science contact: Tom.Pagano@por.usda.gov 503 414 3010

v

**Fig. 2. SNOTEL and ACIS-day station average temperature anomalies were below average across the Northern Tier States, during the week. Average temperatures were warmer than average across the Southern Tier States.**

Ref: <http://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>

Departure from Normal Temperature (F)  
5/7/2009 – 5/13/2009



Generated 5/14/2009 at HPRCC using provisional data.

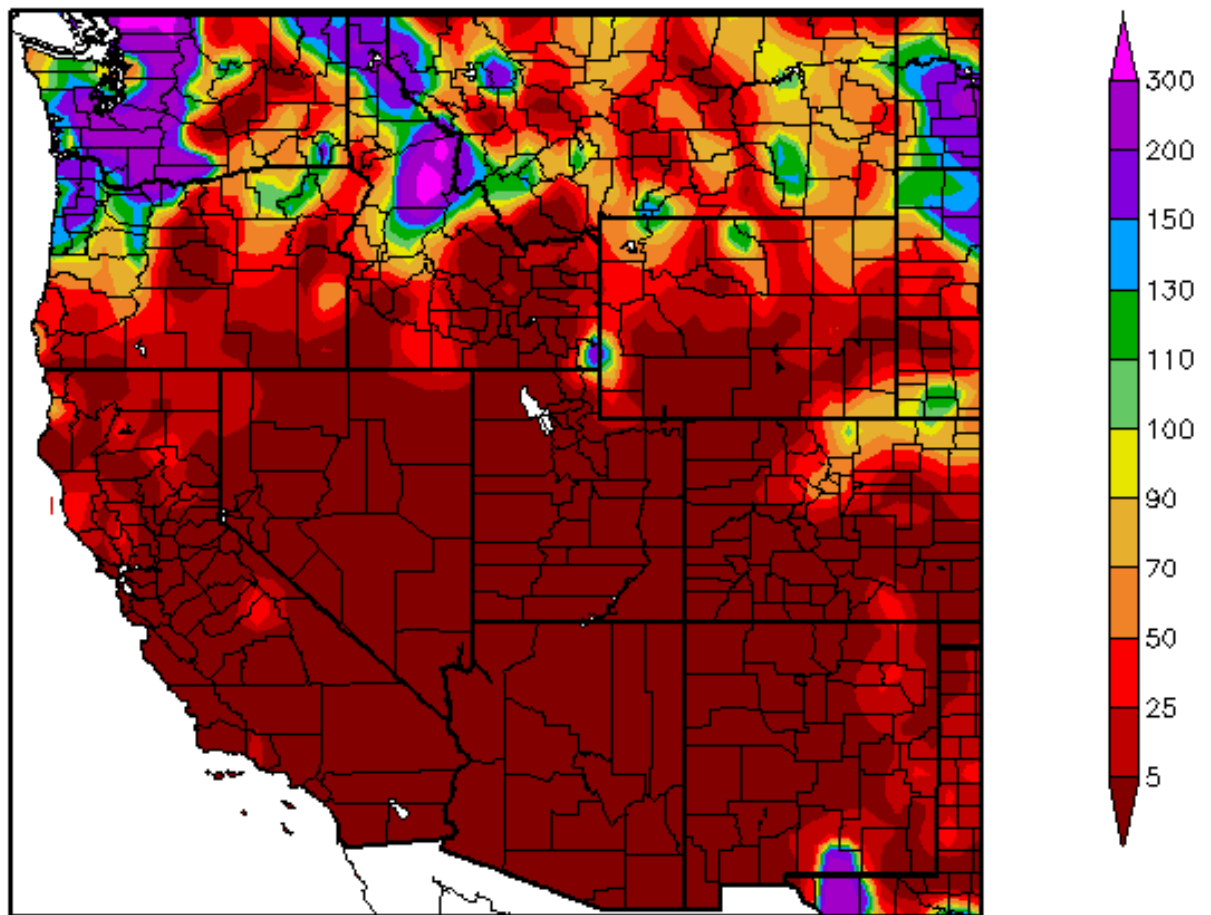
NOAA Regional Climate Centers

**Fig. 2a. ACIS 7-day average temperature anomalies show that the greatest positive temperature departures occurred over areas over southeastern Arizona (>+12F) and the greatest negative departures occurred over scattered regions of the Pacific Northwest and Montana Rockies (<-6F).**

Ref: [http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_product&product=TDept](http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDept)



Percent of Normal Precipitation (%)  
5/7/2009 – 5/13/2009

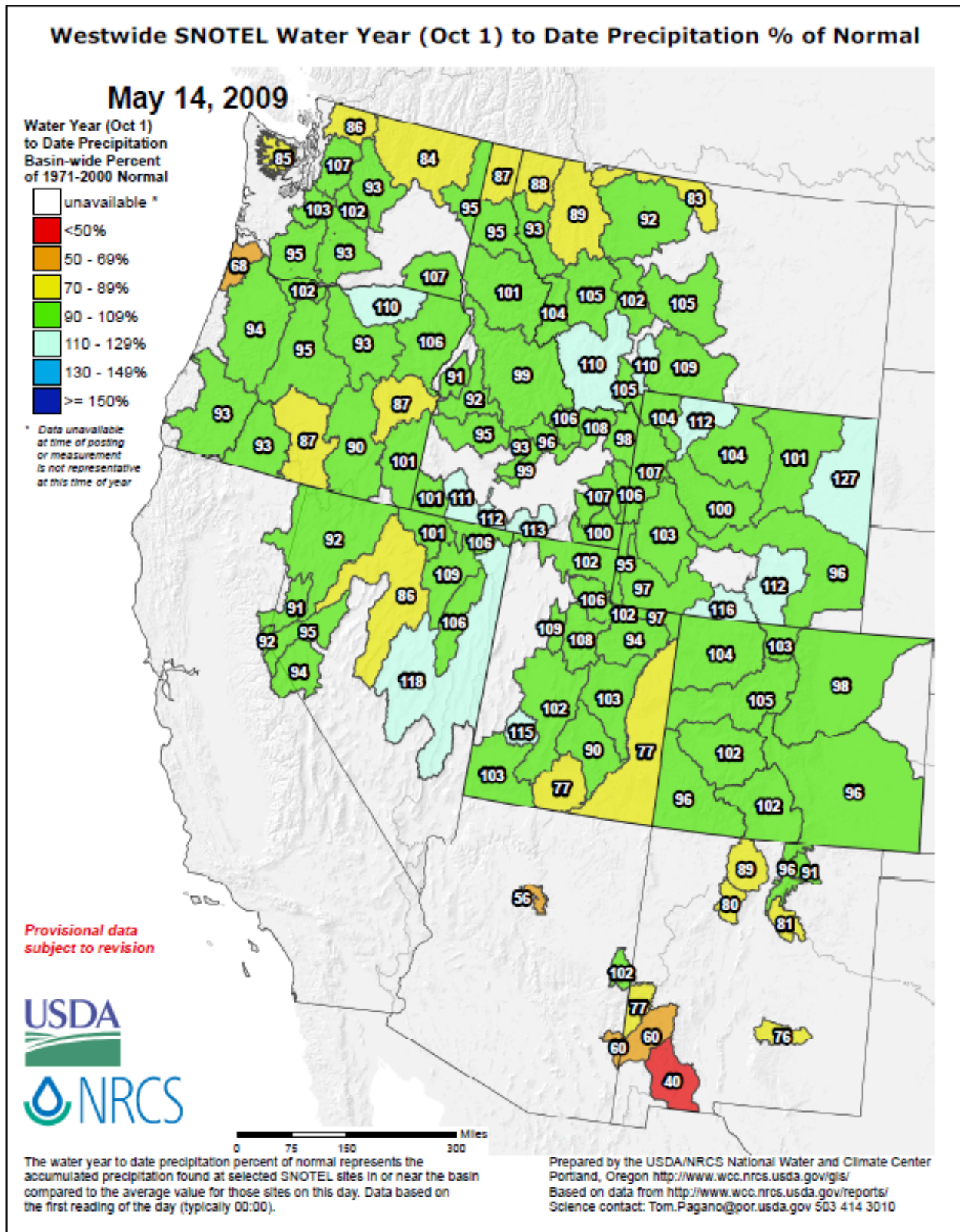


Generated 5/14/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

**Fig. 3. ACIS 7-day average precipitation anomaly for the period ending 13 May shows an unusually wet pattern over much of the Northern Cascades and along the Western Slope of the Continental Divide over Idaho and northern Montana.**

Ref: [http://www.hprcc.unl.edu/maps/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/index.php?action=update_product&product=PNorm)



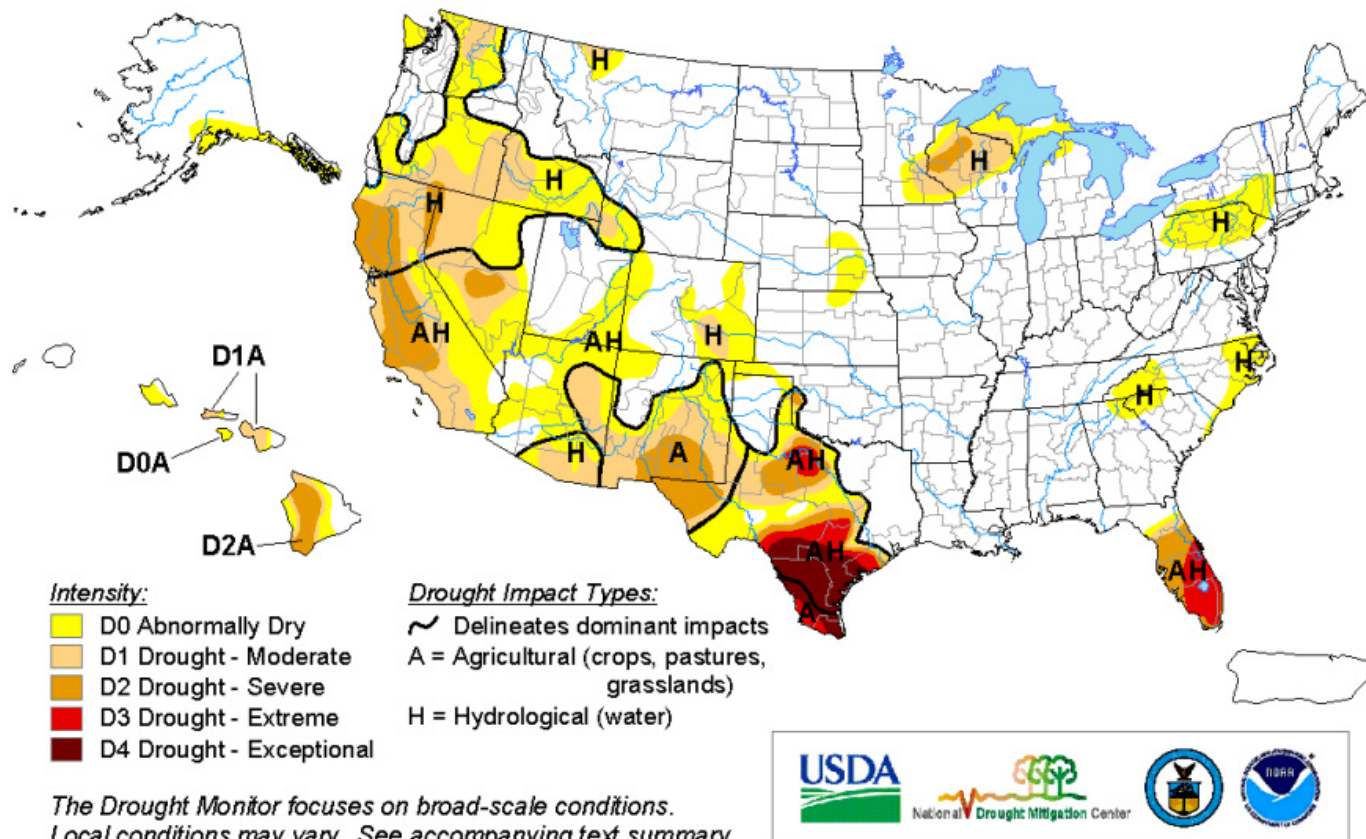
**Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2009 Water Year that began on October 1, 2008 shows values within a few percentage points of last week's values. Note that almost all areas but the extreme Southwest is near normal (within +/-10 percent). However, pockets of negative departures from normal exceeding 15 percent are scattered across Oregon, Washington, Montana, Nevada, and Utah.**

Ref: [ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west\\_wytdprecpcnormal\\_update.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)

# U.S. Drought Monitor

May 12, 2009

Valid 8 a.m. EDT



<http://drought.unl.edu/dm>



Released Thursday, May 14, 2009

Authors: David Miskus, Matthew Rosencrans, and Anthony Artusa, CPC/NOAA

**Fig. 4. Current Drought Monitor weekly summary.**

Ref: National Drought Mitigation Center (NDMC) - <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor

## West

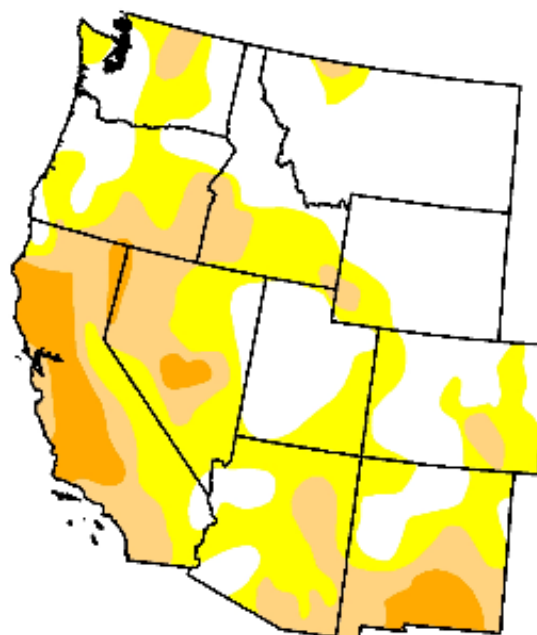
May 12, 2009

Valid 7 a.m. EST

| Drought Conditions (Percent Area)             |      |       |       |       |       |     |
|---|------|-------|-------|-------|-------|-----|
|   | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4  |
| Current                                       | 43.3 | 56.7  | 26.2  | 7.3   | 0.0   | 0.0 |
| Last Week<br>(05/05/2009 map)                 | 38.8 | 61.2  | 24.6  | 6.9   | 0.0   | 0.0 |
| 3 Months Ago<br>(02/17/2009 map)              | 37.6 | 62.4  | 24.4  | 10.1  | 2.2   | 0.0 |
| Start of<br>Calendar Year<br>(01/06/2009 map) | 37.4 | 62.6  | 28.9  | 8.8   | 0.4   | 0.0 |
| Start of<br>Water Year<br>(10/07/2008 map)    | 41.3 | 58.7  | 28.6  | 10.4  | 0.1   | 0.0 |
| One Year Ago<br>(05/13/2008 map)              | 33.4 | 66.6  | 35.8  | 6.2   | 0.0   | 0.0 |

### Intensity:

|  |  |
|--|--|
| <span style="background-color: yellow;">   </span> D0 Abnormally Dry       | <span style="background-color: red;">   </span> D3 Drought - Extreme         |
| <span style="background-color: orange;">   </span> D1 Drought - Moderate   | <span style="background-color: darkred;">   </span> D4 Drought - Exceptional |
| <span style="background-color: darkorange;">   </span> D2 Drought - Severe |  |



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

<http://drought.unl.edu/dm>



Released Thursday, May 14, 2009

Author: D. Miskus/M. Rosencrans/A. Artusa, CPC/NOAA

**Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Conditions have improved a bit during the past week in the D0 and D1 categories.**

Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)



# U.S. Drought Monitor

## Texas

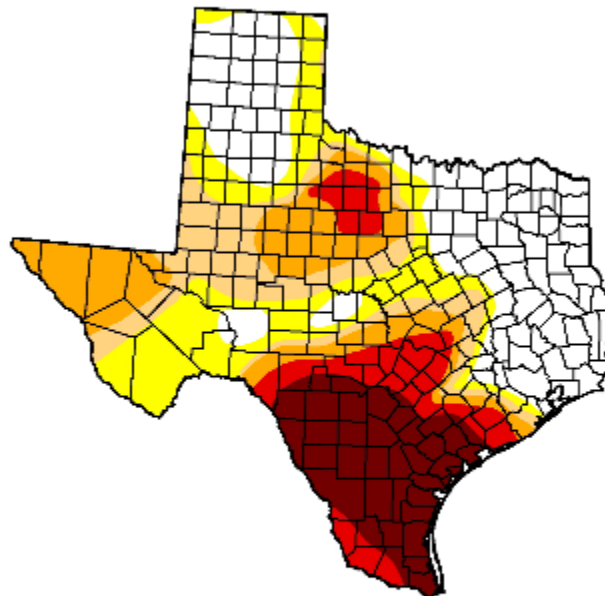
May 12, 2009

Valid 7 a.m. EST

|   | Drought Conditions (Percent Area) |       |       |       |       |      |
|---|-----------------------------------|-------|-------|-------|-------|------|
|   | None                              | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4   |
| Current                                       | 31.2                              | 68.8  | 50.5  | 38.0  | 23.7  | 14.9 |
| Last Week<br>(05/05/2009 map)                 | 28.2                              | 71.8  | 53.7  | 39.2  | 21.6  | 9.7  |
| 3 Months Ago<br>(02/17/2009 map)              | 4.1                               | 95.9  | 61.8  | 43.1  | 19.9  | 8.6  |
| Start of<br>Calendar Year<br>(01/06/2009 map) | 41.7                              | 58.3  | 24.5  | 15.0  | 9.1   | 4.2  |
| Start of<br>Water Year<br>(10/07/2008 map)    | 67.2                              | 32.8  | 20.5  | 11.0  | 3.6   | 0.0  |
| One Year Ago<br>(05/13/2008 map)              | 46.7                              | 53.3  | 36.6  | 24.3  | 6.9   | 0.0  |

Intensity:

|   |  |
|---|--|
|  D0 Abnormally Dry     |  D3 Drought - Extreme     |
|  D1 Drought - Moderate |  D4 Drought - Exceptional |
|  D2 Drought - Severe  |  |



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

<http://drought.unl.edu/dm>

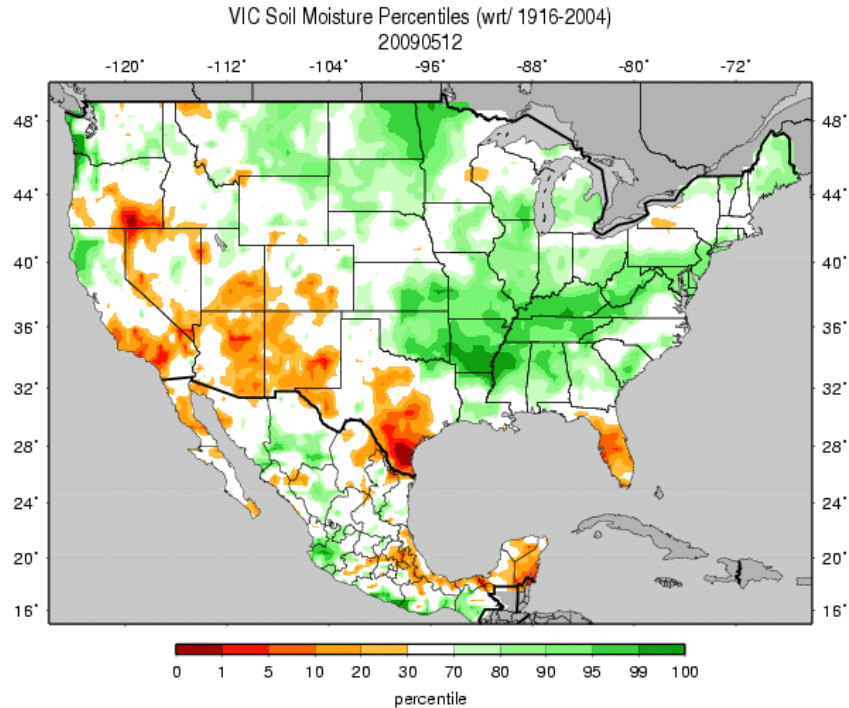


Released Thursday, May 14, 2009

Author: D. Miskus/M. Rosencrans/A. Artusa, CPC/NOAA

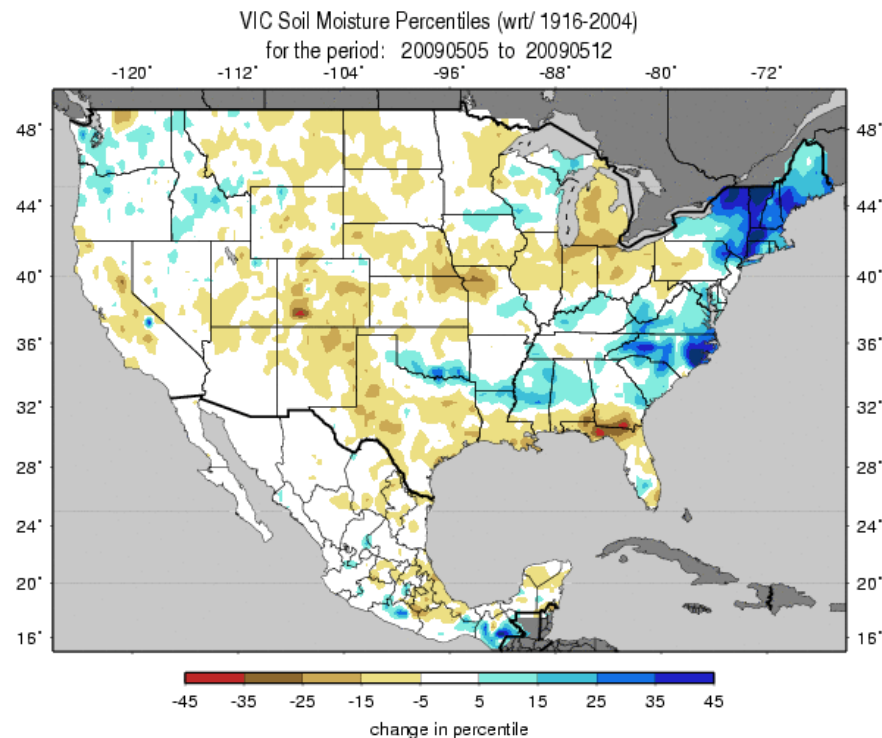
Fig. 4b: Texas is the only state with D4 drought condition in the US. Note some deterioration in D4 since last week. Ref: [http://www.drought.unl.edu/dm/DM\\_state.htm?TX,S](http://www.drought.unl.edu/dm/DM_state.htm?TX,S)

## Weekly Snowpack and Drought Monitor Update Report



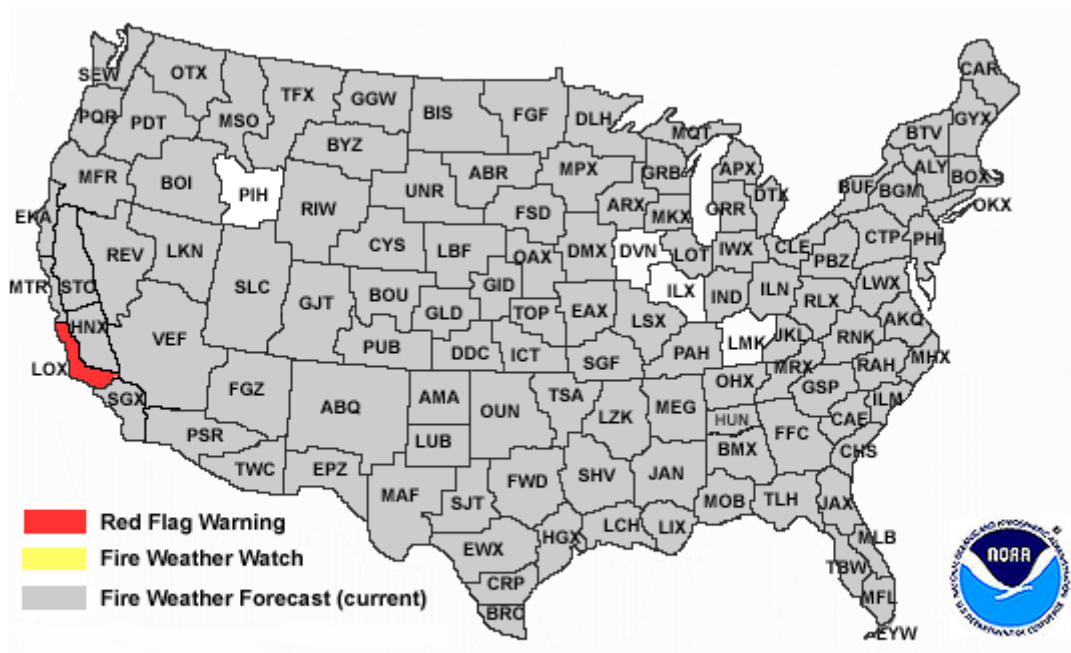
**Figs. 5a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 12 May. Near saturation exists over the Northern Plain and southern Mississippi River Valley into West Virginia while excessive dryness is scattered across the West from Texas to Oregon, and Florida.**

Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_qnt.gif)



**Figs. 5b: Soil Moisture change in percentile based on 1916-2004 climatology for this past week. There was significant moistening over North Carolina and New England. Excessive dryness is noted over the Panhandle of Florida.**

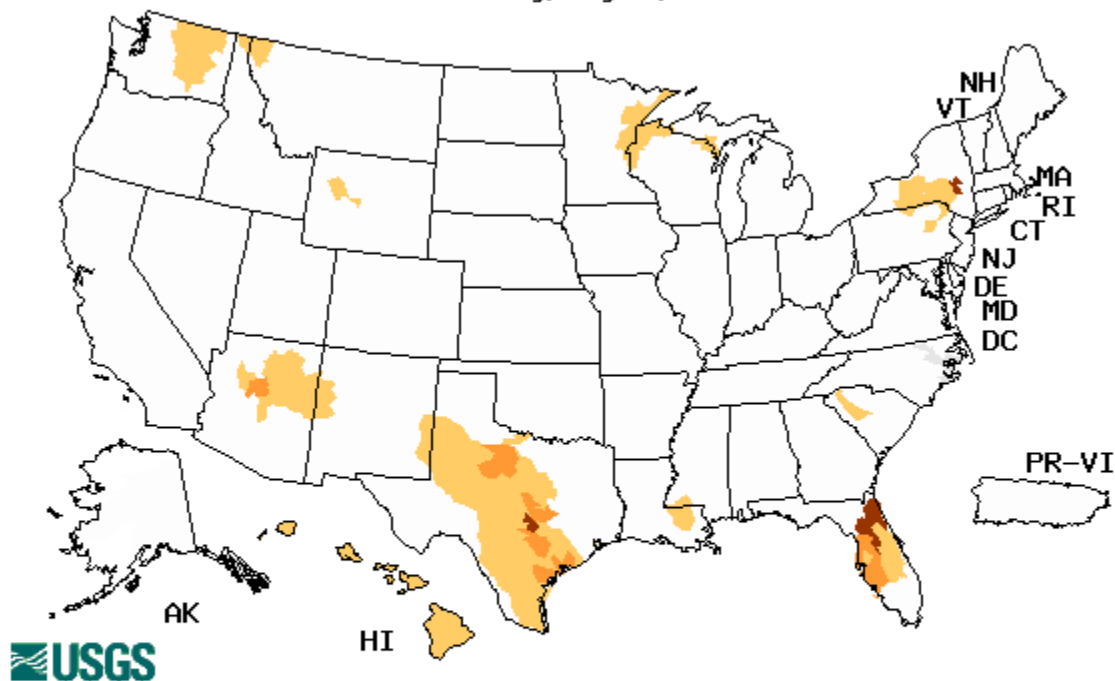
Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm\\_qnt.1wk.gif](http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_qnt.1wk.gif)



**Fig. 6. Red Flag Warning areas**  
 Ref: <http://fire.boi.noaa.gov/>

## Weekly Snowpack and Drought Monitor Update Report

Wednesday, May 13, 2009



| Explanation - Percentile classes |                           |                             |              |   |
|----------------------------------|---------------------------|-----------------------------|--------------|---|
| Low                              | <=5                       | 6-9                         | 10-24        | Insufficient data for a hydrologic region |
| Extreme hydrologic drought       | Severe hydrologic drought | Moderate hydrologic drought | Below normal |   |

**Fig. 7. Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Conditions are very poor over Florida and Texas during the past week.**

Ref: <http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us>



## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary – May 12, 2009

*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/>.*

During May 5-11, an upper-air ridge (high pressure) over the Southwest brought very warm and dry weather to most of the region during the week, while upper-air troughs (low pressure) off the Pacific Northwest Coast and over the East contributed to stormy conditions. Rainfall totals in excess of two inches were observed in a broad, sweeping arc stretching from the South Central Plains to the lower Ohio and Tennessee Valleys, northeastward into New England. Additional rains fell over the Carolinas, parts of the Northwest, and northwestern Corn Belt. The stormy conditions brought rainfall maxima of near 12 inches to the ArkLaTex. In contrast, hot and dry weather was recorded in peninsular Florida, southern Texas, and the southwestern quadrant of the Nation.

**Northeast, Mid-Atlantic, and Carolinas:** Another week of widespread moderate to heavy rains (2-4 inches) in the southern Appalachians, most of Virginia, and the I-95 corridor from Maryland to Massachusetts prompted a 1-category improvement for most of the area. Exceptions included northern Pennsylvania and southern New York where rainfall totals were less (0.5-1 inch). The remaining D0 is further supported by 7-, 14-, and 28-day average stream flows remaining in the lower 10<sup>th</sup> percentile. For the Carolinas, D0 remained along the Eastern Seaboard due to larger, long-term deficits (90-day departures of -3 to -6 inches, 6-month departures of -4 to -8 inches, and 1-year departures exceeding -12 inches). In the southern Appalachians, 1-, 7-, 14-, and 28-day average stream flows ending May 11 were finally back to near normal. Lingering long-term rainfall deficits prompted the retention of D0(H) across the southern Appalachians (8-12 inch deficits for previous 12-months).

**Florida:** The dry season continued to be abnormally dry and hot. Little or no rainfall and temperatures 6-10 degrees F above normal for the week exacerbated the drought conditions, prompting an expansion of D3 to just north of the Space Coast. D2 was expanded to include west-central Florida as conditions deteriorated further, reflected by additional US Geological Survey (USGS) stream flow measurements dropping to the lowest 2 percentile. Precipitation totals for the southern two-thirds of Florida over the previous six months were less than 50 percent of normal. South of a West-East line from Levy to Saint-Johns counties, Keetch-Byrum Drought Index (KBDI) values were greater than 550 with maximum values over the central Everglades topping out above 750. As of May 12, 5 large incidents across Florida are being monitored by the National Interagency Fire Center while 63 new, smaller wildfires broke out over last weekend (Florida Division of Forestry).

**Midwest:** Another week of repetitive precipitation events alleviated the abnormal dryness in southwest Ohio. 1-2 inches of rain (0.5-1 inch gain on climatology) across southern Minnesota and southern Wisconsin led to a small trimming of the southern flank of the area in Minnesota/Wisconsin. The Minnesota NASS reports adequate top soil moisture in the newly trimmed areas. Stream hydrology in those improved areas was in the historical mid-range. Soil moisture and precipitation anomalies supported keeping D1/D2 in northern Wisconsin as weekly rainfall amounts were generally under 0.5 inch.

**The Plains:** Recent rains (0.5-1 inch) and fair topsoil moisture supported the removal of D0 from North Dakota. In the central Plains, the southern portions of the D0 area previously in central Kansas were eliminated due to approximately 2 inches of rainfall. To the north, however, below

## Weekly Snowpack and Drought Monitor Update Report

normal precipitation (less than 0.4 inches) maintained the abnormal dryness across eastern Nebraska and extreme northern Kansas. This D0 area reflects 90-day deficits of 3-6 inches.

In the southern Plains, an analysis of newly available data revealed a complicated picture. In general, improvements were made to southwest Oklahoma and northern and central Texas with further deterioration over southern Texas. In southwest Oklahoma, 1-category improvement along the border with Texas was supported by recent 1-2 inch rainfall totals with soil moisture levels now at or above normal. The only Oklahoma reservoirs not in flood control operations are in southwest, but these are used for irrigation and are normally drawn down in the spring. Arbuckle Lake in Murray County (south-central Oklahoma) was setting record lows three weeks ago but now has 19% of its flood pool filled. The exception is Roger Mills County which missed out on the latest rains. Little or no rain in the Oklahoma Panhandle did not support any improvement there.

The convective nature of the recent precipitation over Texas led to a complex depiction. Newly created SPI blend products from Texas A&M supported improvement along the Red River, a thin strip through the center of the state, and the eastern periphery of the previously indicated drought areas. The 14- and 28-day stream flows indicated the unique pattern of recent wetness in isolated areas, which is reflected in the very tight gradients of drought conditions across central Texas. The holes in the drought pattern were supported by isolated heavy thunderstorms that recently hit McCulloch, Pecos, and Crockett counties.

A 1-category deterioration (now D3/D4(A)) was rendered over south Texas as most areas received little to no rainfall (less than 0.1 inch) over the past month. The lack of rainfall, combined with daily high temperatures around the century mark and average weekly temperature 8-14 degrees F above normal served to worsen conditions.

**The West:** Recent storminess (0.5-2.0 inches) in Montana provided fodder for improving the drought conditions. The D0 area was removed from eastern Montana and reduced in coverage in north-central Montana. The same system also dropped 1-3 inches of precipitation over western Oregon and western Washington. Those rains alleviated much of the drought in that region. The exceptions were the Olympic Peninsula and extreme northern Cascades, where the basin average snow water content was 77 and 85 percent of normal, respectively, and water-year-to-date precipitation remained at 85 and 86 percent of normal, respectively. In central Idaho, 1-2 inches of precipitation and May 1 Surface Water Supply Index (SWSI) values near zero supported the removal of D1, and additional reduction of D0 southward. In contrast, current SWSI for the Bear River and Owyhee basins of -2.4 indicated D1 conditions in southeast and southwest Idaho, respectively. With recent short-term wetness across the northern half of the West and most pasture and range lands rated in good or excellent condition according to National Agricultural Statistic Services (NASS)/USDA, the impacts were deemed to be long-term (H) only.

Farther south, no rainfall, weekly temperatures 8 to 12 degrees F above normal, and highs in the 100s further deteriorated conditions in Arizona and New Mexico. This was depicted by the expansion of D1(A) into northeast Arizona and D1(A) and D2(A) into central New Mexico. NASS/USDA pasture and range lands were rated 61, 60, and 49 percent poor or very poor in New Mexico, California and Arizona, respectively. The rest of the West remained status quo.

**Hawaii and Alaska:** Although Hawaii has entered their normal dry season, some areas have been much drier than normal. This was most prevalent on the leeward side of Oahu, prompting the introduction of D0 conditions.

In Alaska, recent dryness (less than 0.5 inch of rain) on top of 30- and 90-day observed precipitation deficits at Sitka (3.3/7.8 inches), Ketchikan (5.4/13.3 inches), Juneau (1.7/3.8 inches), and Yakutat (8.3/21.7 inches) drove the expansion of D0 throughout the Alaskan Panhandle.

## Weekly Snowpack and Drought Monitor Update Report

**Looking Ahead:** During the next 5 days (May 14-18), a storm system in the Midwest will bring showers and thunderstorms to the eastern third of the country. Mild weather over the East will be replaced by lower temperatures late in the period. On Thursday, another storm system will approach the Pacific Northwest and produce rain and higher-elevation snows. This system will track rapidly eastward across the northern US, accompanied by showers and thunderstorms. Beneficial rains are expected across the drought areas of peninsular Florida, the mid-Atlantic, Wisconsin, northern and central Texas, and the Olympic Peninsula of Washington. Dry and warm weather will persist over California, Great Basin, and Southwest.

The Climate Prediction Center 6-10 day forecast (May 19-23) calls for above-normal precipitation over the Atlantic Coastal States (including Florida), and from Colorado northeastward to the upper Midwest. Subnormal precipitation is expected across the West, and from the southern Great Plains northeastward into the eastern Great Lakes region. Warmer than usual weather is forecast for the western half of the Nation, while subnormal readings are predicted for the Southeast and upper Midwest. **Authors:** David Miskus, Matthew Rosencrans, and Anthony Artusa, CPC/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**

A...Agricultural

H...Hydrological

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