



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

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

**Date: 5 May 2011**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snow:** SNOTEL Snow-Water Equivalent percent of normal values for 5 May 2011 shows remarkable late season 1-Category gains (blue circles) over much of the northern half of the Western States. Since snowpack typically melts this time of year, any late seasonal snowfall will rapidly increase SWE values. Looking ahead, Resources Managers should monitor any flooding potential as a result of wide spread heavy rain over snow event or exceptionally warm temperatures at night at higher elevations across the West (Fig. 1). As SNOTEL snow density is approaching the maximum density (~50%) at which time snow melt begins in earnest, any concerns about potential flooding are heightened (Fig.1a). Some potential flooding concerns exist over the Colorado River Basin. For the latest outlook see:

<http://www.cbrfc.noaa.gov/fop/fop.cgi>.

**Temperature:** SNOTEL 7-day average temperature anomalies show that the greatest negative temperature departures across Utah and Colorado. For the remainder of the West, temperatures were below normal. This has helped slow the snowpack melt runoff for now (Fig. 2). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures across the Los Angeles Basin (>+6°F) and the greatest negative departures over the Central Rockies (<-10°F). This latest season chill has been enhanced by the result of the negative North Atlantic Oscillation and negative Arctic Oscillation indexes and their associated weather patterns (Fig. 2).

**Precipitation:** ACIS 7-day average precipitation amounts for the period ending 4 May shows the bulk of the heaviest precipitation confined to Northern Cascades and the Western Slope of the Northern Rockies (Fig. 3). In terms of percent of normal, the precipitation was highest over a scattered region of the Northern Tier States. An exception occurred over northern New Mexico where an unusually late season system moved through. However, total amounts were generally less than half an inch (Fig 3a). For the 2011 Water-Year that began on 1 October 2010, the greatest deficits are found over the extreme southern reaches of the Southwest. Areas with the highest values are found over the Great Basin and parts of Northern and Central Rockies. Marginal one-category positive changes are denoted by the blue circles. Red circles reflect a one-category decrease (Fig. 3b).

**Rockies and Southwest:** Only scattered light precipitation fell on the region, maintaining or worsening dryness and drought classifications in the region. D2 and D3 conditions expanded in the northeast quarter of New Mexico and the southeast quarter of Arizona due to slowly declining surface moisture conditions. Author: Rich Tinker, NOAA/NWS/NCEP/CPC

***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

## Weekly Snowpack and Drought Monitor Update Report

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).

### VegDRI

For background information about this product (Fig. 6), see:

[http://www.drought.unl.edu/vegdiri/VegDRI\\_faq.htm](http://www.drought.unl.edu/vegdiri/VegDRI_faq.htm).

### U.S. HISTORICAL STREAMFLOW

[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).

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.

### 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://drought.gov>.

### FOR MORE INFORMATION

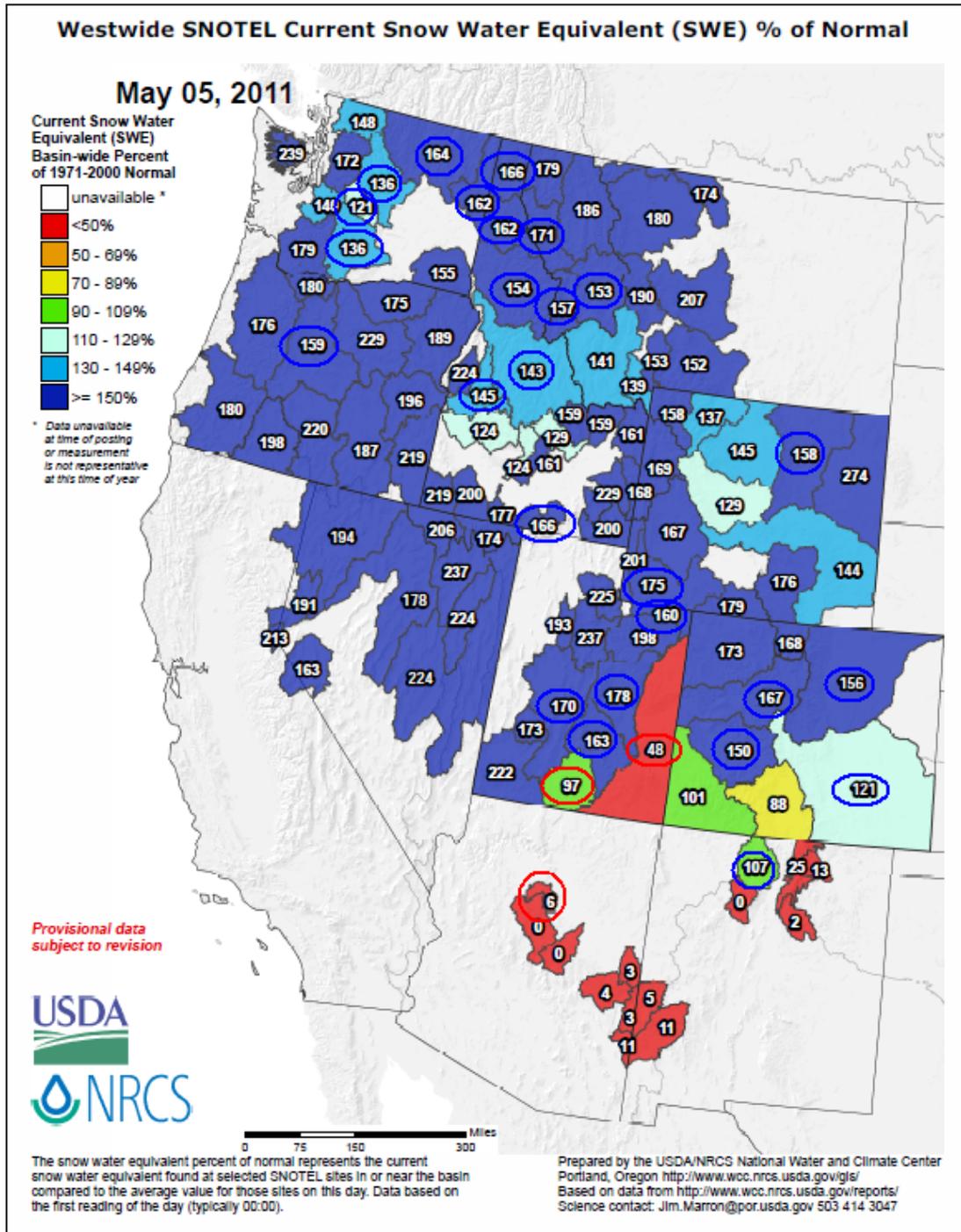
The National Water and Climate Center Homepage provide the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>. This document is available from the following location on the NWCC homepage - <http://www.wcc.nrcs.usda.gov/water/drought/wdr.pl>

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

/s/ JEFF GOEBEL

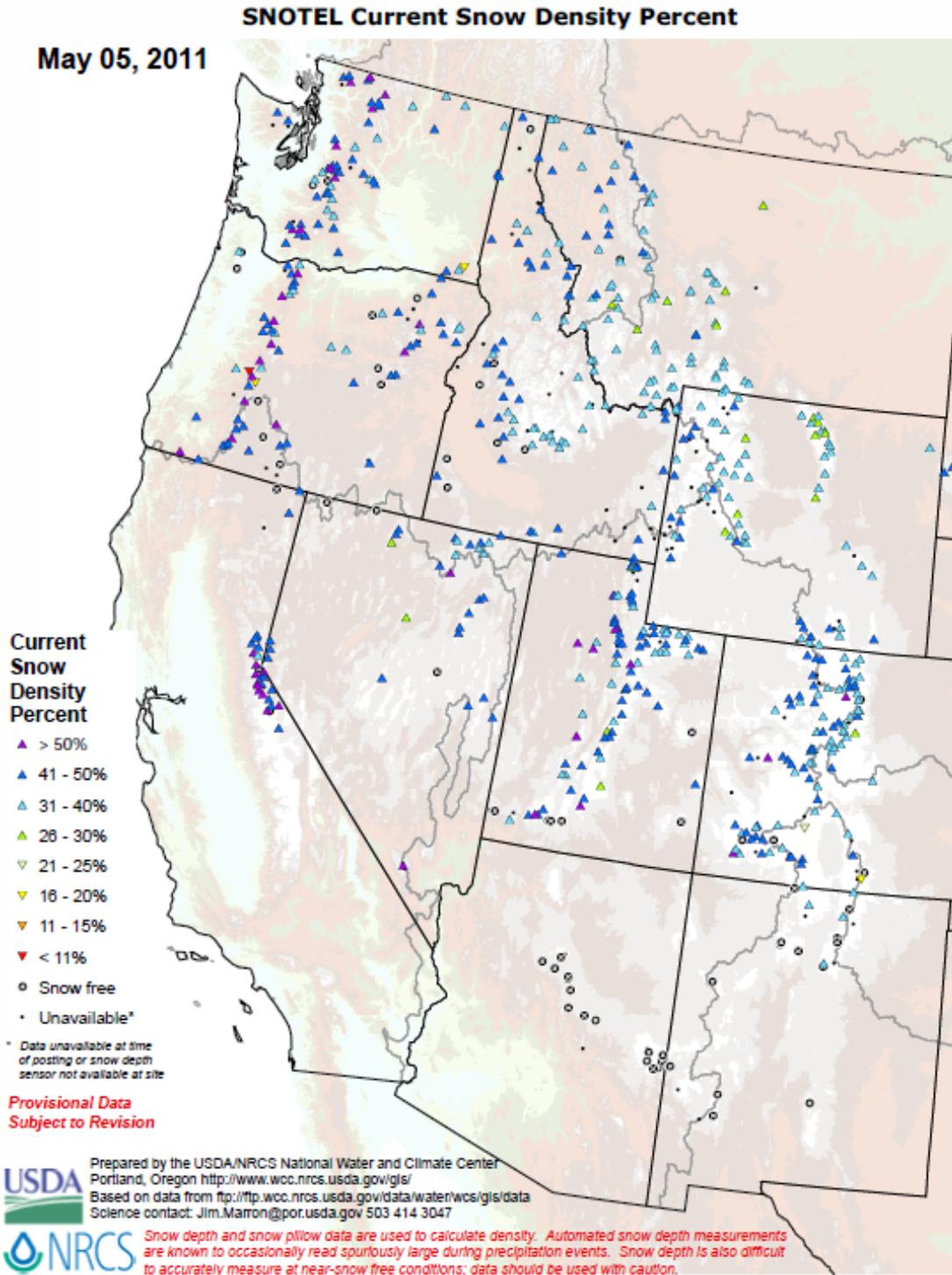
Acting Director, Resource Inventory Division

## Weekly Snowpack and Drought Monitor Update Report



**Fig. 1: SNOTEL Snow-Water Equivalent percent of normal values for 5 May 2011 shows remarkable late season 1-Category gains (blue circles) over much of the northern half of the Western States. Since snowpack typically melts this time of year, any late seasonal snowfall will rapidly increase SWE values. Looking ahead, Resources Managers should monitor any flooding potential as a result of wide spread heavy rain over snow event or exceptionally warm temperatures at night at higher elevations across the West**  
 Ref: [http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west\\_swepctnormal\\_update.pdf](http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_swepctnormal_update.pdf)

# Weekly Snowpack and Drought Monitor Update Report

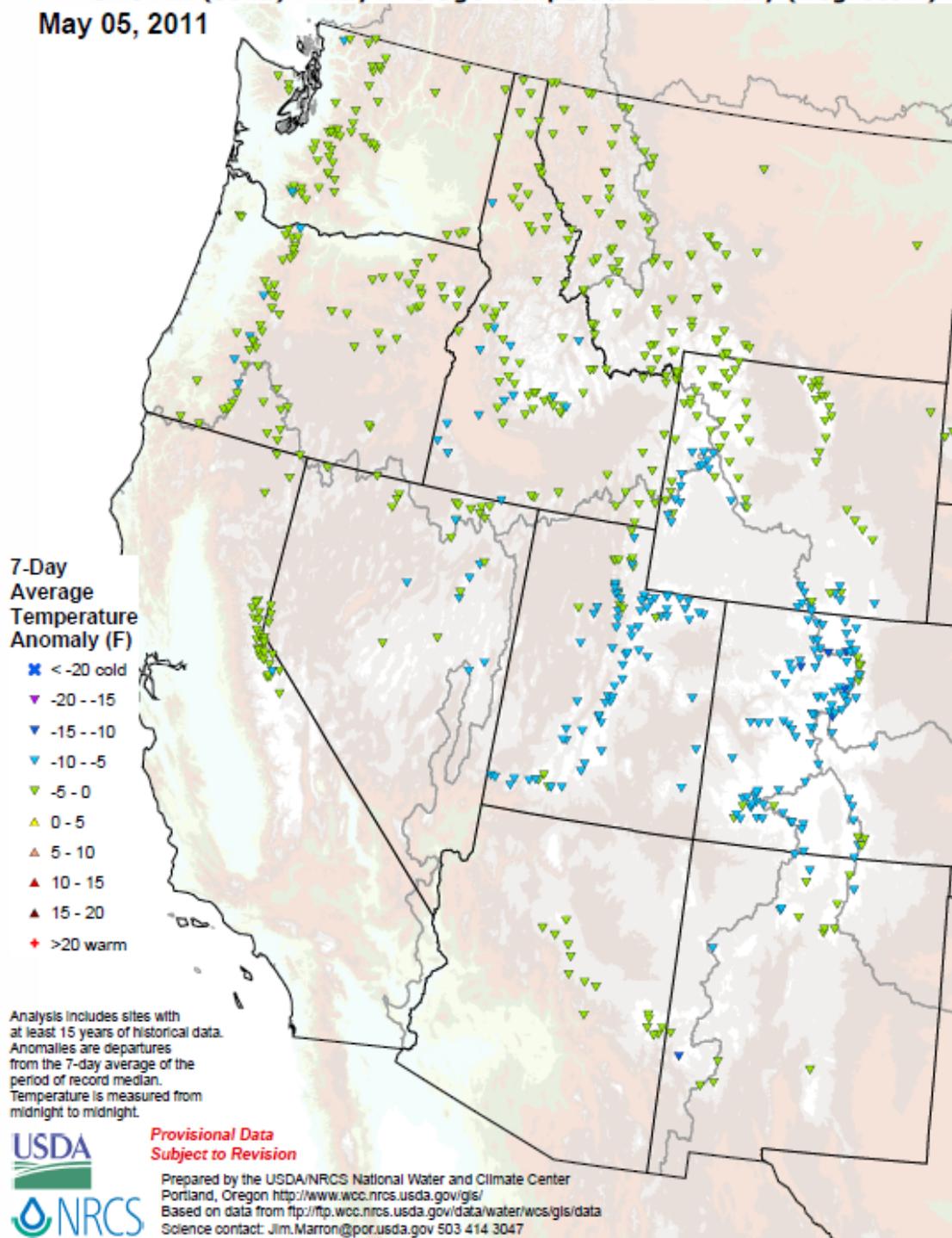


**Fig. 1a:** As SNOTEL snow density is approaching the maximum density (~50%) at which time snow melt begins in earnest, any concerns about potential flooding are heightened (Fig.1a). Some potential flooding concerns exist over the Colorado River Basin. For the latest outlook see: <http://www.cbrfc.noaa.gov/fop/fop.cgi>.

Ref: [http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west\\_snowdensity.pdf](http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_snowdensity.pdf)

## Weekly Snowpack and Drought Monitor Update Report

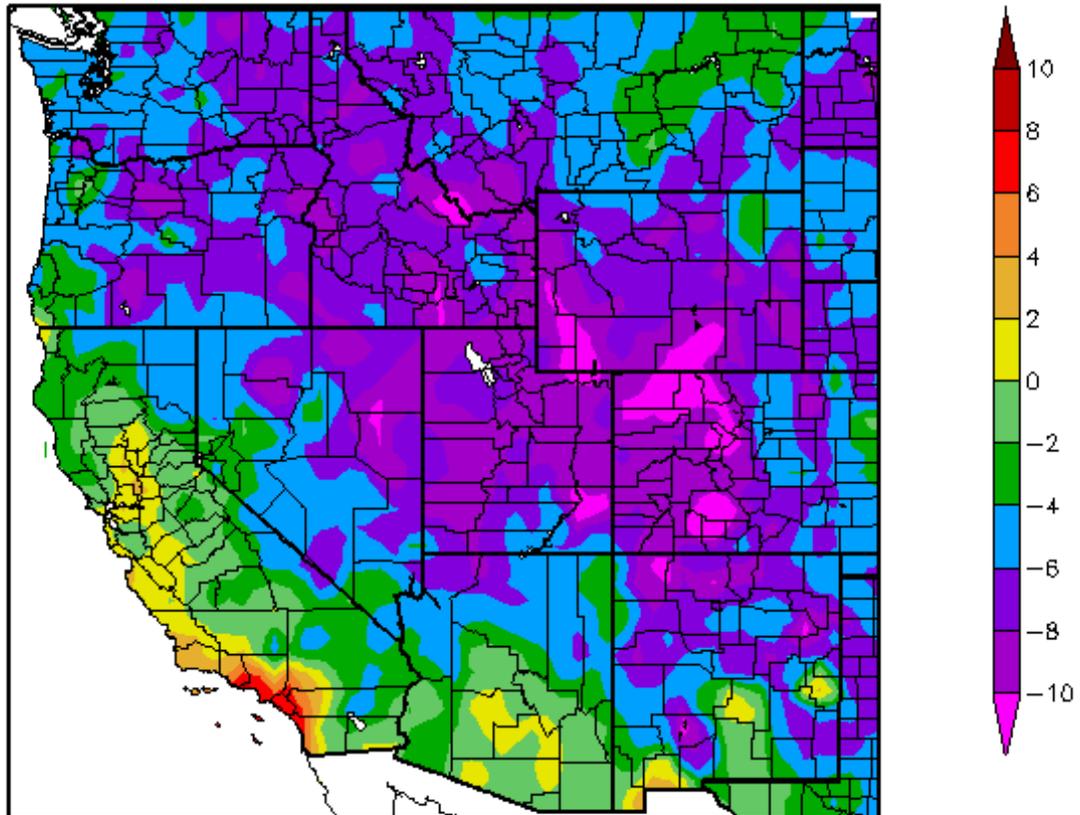
**SNOTEL (solid) 7-Day Average Temperature Anomaly (Degrees F)  
May 05, 2011**



**Fig. 2: SNOTEL 7-day average temperature anomalies show that the greatest negative temperature departures across Utah and Colorado. For the remainder of the West, temperatures were below normal. This has helped slow the snowpack melt runoff for now.**

Ref: <http://www.wcc.nrcs.usda.gov/gis/temp.html>

Departure from Normal Temperature (F)  
4/28/2011 – 5/4/2011



Generated 5/5/2011 at HPRCC using provisional data.

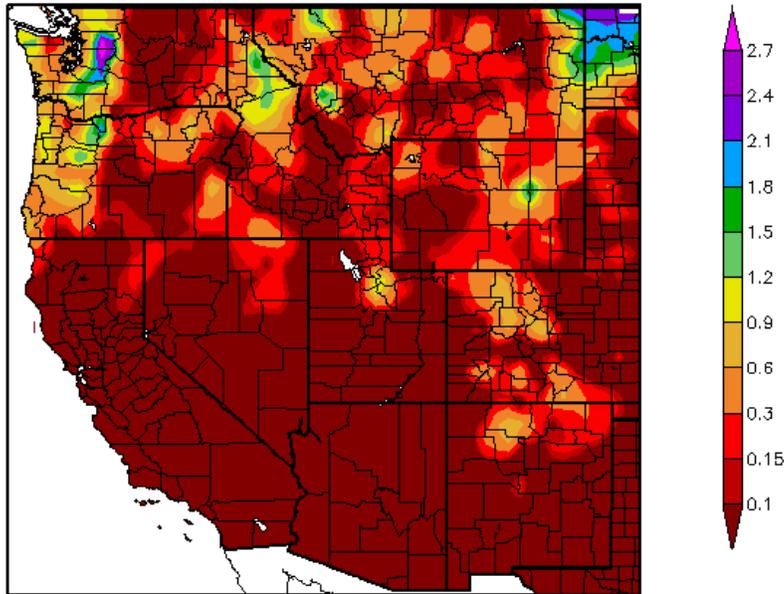
Regional Climate Centers

**Fig. 2a: ACIS 7-day average temperature anomalies show that the greatest positive temperature departures across the Los Angeles Basin (>+6°F) and the greatest negative departures over the Central Rockies (<-10°F). This latest season chill has been enhanced by the result of the negative North Atlantic Oscillation and negative Arctic Oscillation indexes and their associated weather patterns.**

Ref: [http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_daterange&daterange=7d](http://www.hprcc.unl.edu/maps/current/index.php?action=update_daterange&daterange=7d)

## Weekly Snowpack and Drought Monitor Update Report

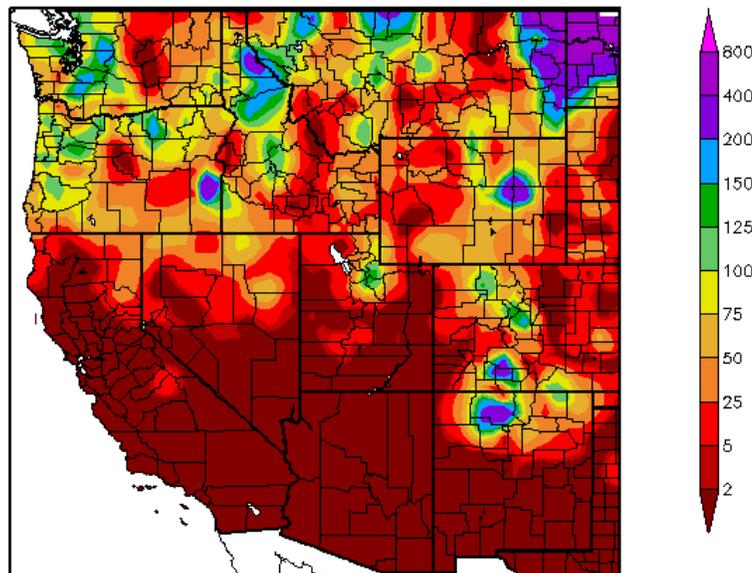
Precipitation (in)  
4/28/2011 - 5/4/2011



Generated 5/5/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)  
4/28/2011 - 5/4/2011



Generated 5/5/2011 at HPRCC using provisional data.

Regional Climate Centers

**Fig. 3 and 3a: ACIS 7-day average precipitation amounts for the period ending 4 May shows the bulk of the heaviest precipitation confined to Northern Cascades and the Western Slope of the Northern Rockies (Fig. 3). In terms of percent of normal, the precipitation was highest over a scattered region of the Northern Tier States. An exception occurred over northern New Mexico where an unusually late season system moved through. However, total amounts were generally less than half an inch (Fig 3a). Ref: <http://www.hprcc.unl.edu/maps/current/>**

Weekly Snowpack and Drought Monitor Update Report

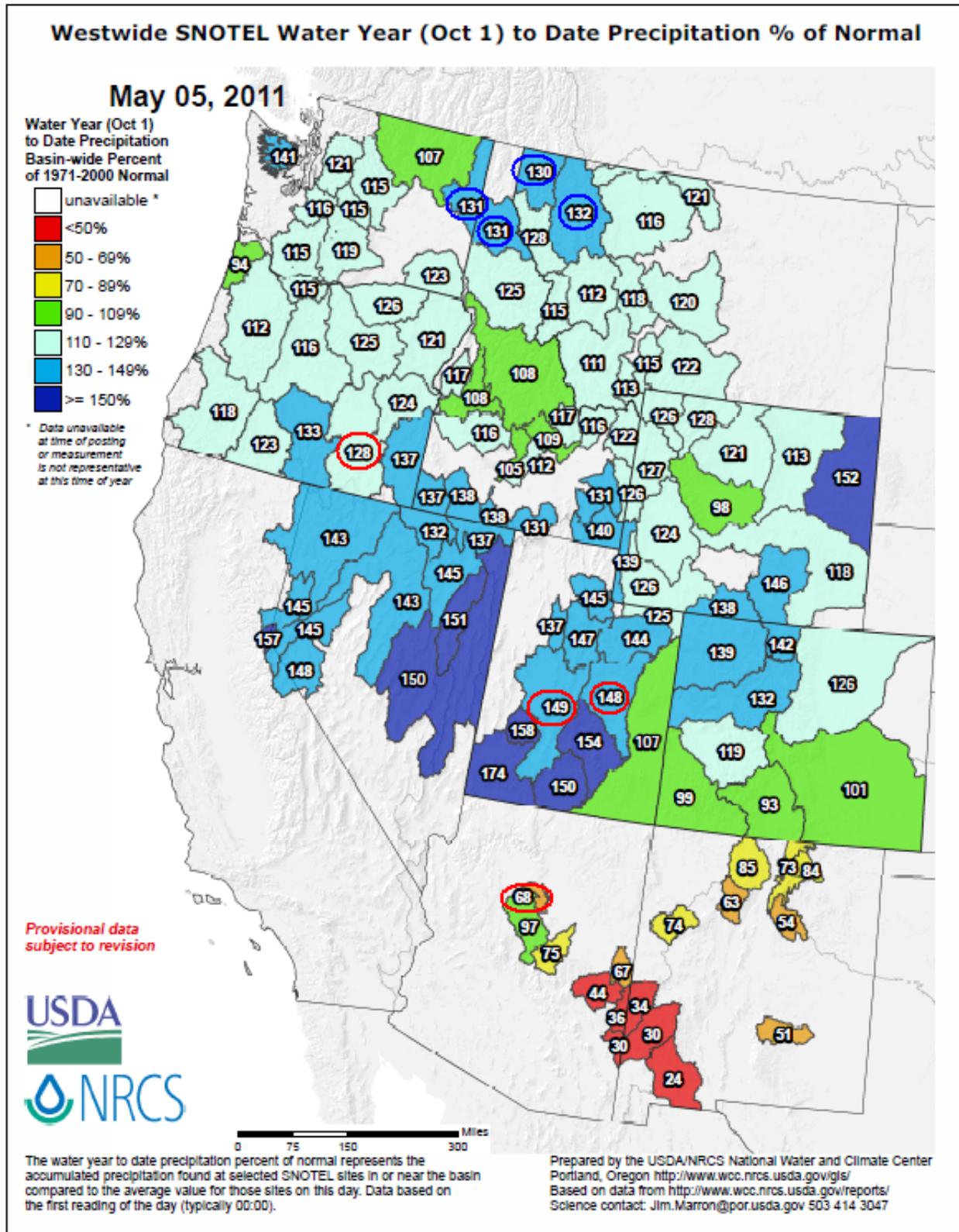


Fig 3b: For the 2011 Water-Year that began on 1 October 2010, the greatest deficits are found over the extreme southern reaches of the Southwest. Areas with the highest values are found over the Great Basin and parts of Northern and Central Rockies. Marginal one-category positive changes are denoted by the blue circles. Red circles reflect a one-category decrease. Ref: [http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west\\_wytdprecpcnormal\\_update.pdf](http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)

# U.S. Drought Monitor

May 3, 2011  
Valid 8 a.m. EDT

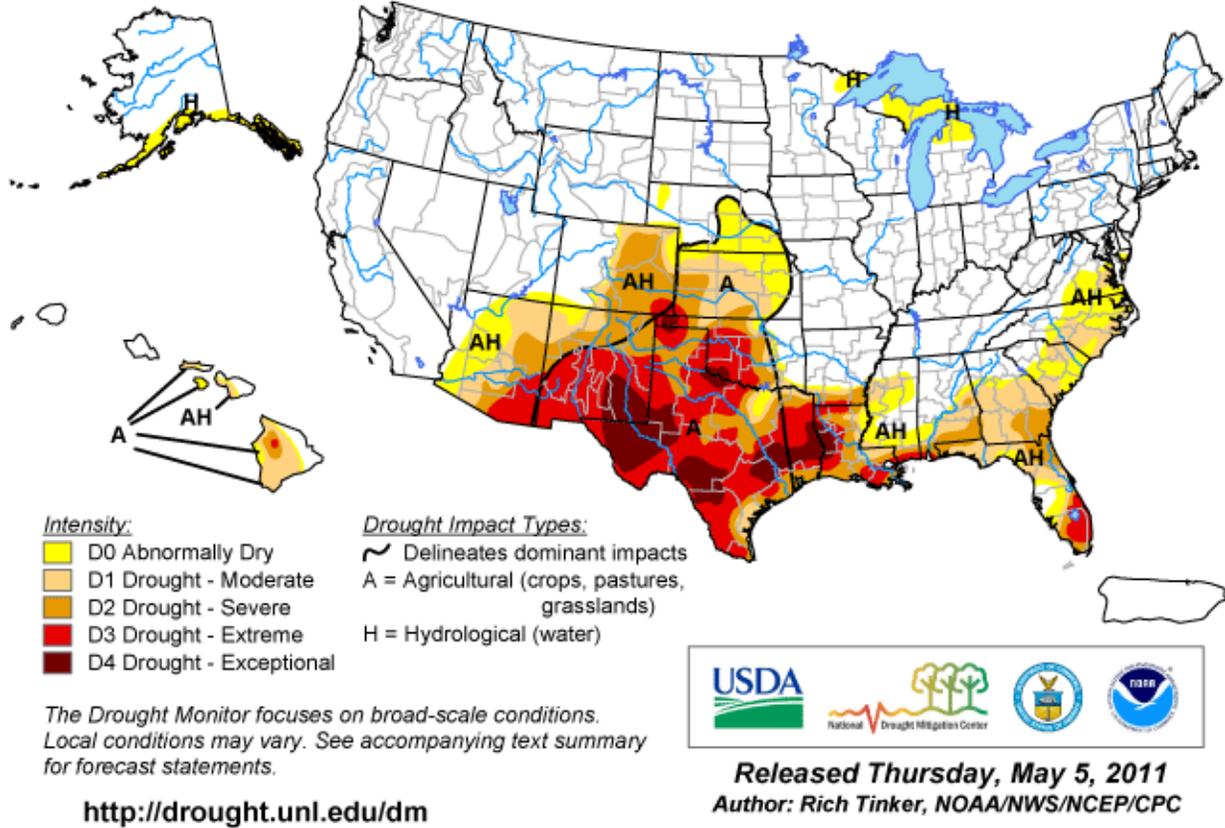


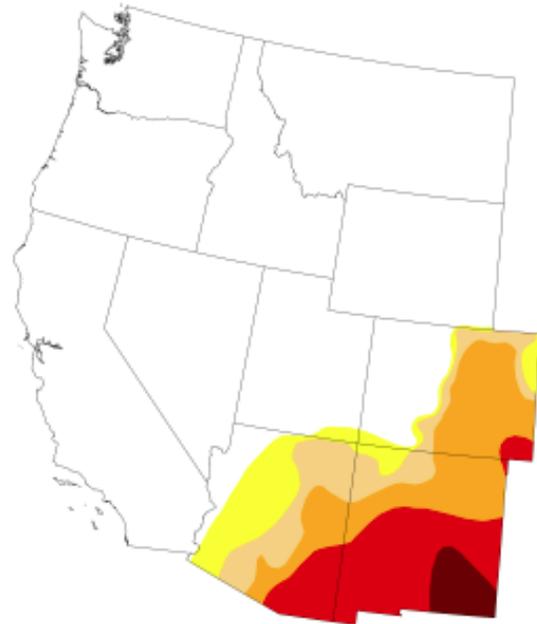
Fig. 4: Current Drought Monitor weekly summary. The exceptional D4 levels of drought are found over New Mexico, Texas, Oklahoma, and Louisiana. Ref: <http://www.drought.unl.edu/dm/monitor.html>

# U.S. Drought Monitor

## West

May 3, 2011  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	75.92	24.08	20.07	15.56	8.04	1.40
Last Week (04/26/2011 map)	75.48	24.52	20.07	13.35	7.09	0.00
3 Months Ago (02/01/2011 map)	75.68	24.32	12.70	4.44	0.00	0.00
Start of Calendar Year (12/28/2010 map)	73.26	26.74	11.98	0.89	0.00	0.00
Start of Water Year (09/28/2010 map)	62.50	37.50	8.14	0.56	0.00	0.00
One Year Ago (04/27/2010 map)	44.91	55.09	19.44	4.92	0.00	0.00



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.



Released Thursday, May 5, 2011  
Rich Tinker, NOAA/NWS/NCEP/CPC

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

Fig. 4a: Drought Monitor for the Western States with statistics over various time periods. Regionally there was some deterioration the D3 and D4 categories during the past week. Ref: [http://www.drought.unl.edu/dm/DM\\_west.htm](http://www.drought.unl.edu/dm/DM_west.htm)

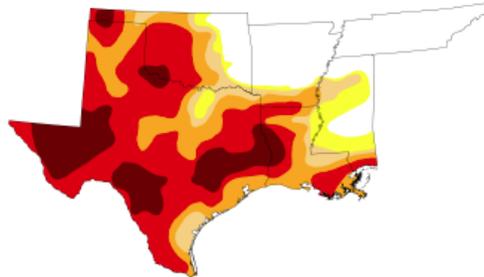
# U.S. Drought Monitor

## South

May 3, 2011  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.71	77.29	71.52	64.13	46.58	14.68
Last Week (04/26/2011 map)	17.47	82.53	74.25	64.80	44.26	9.51
3 Months Ago (02/01/2011 map)	14.66	85.34	58.97	31.56	6.59	0.00
Start of Calendar Year (12/28/2010 map)	8.86	91.14	67.65	35.21	10.17	0.00
Start of Water Year (09/28/2010 map)	54.23	45.77	20.04	6.79	0.83	0.00
One Year Ago (04/27/2010 map)	83.06	16.94	1.26	0.00	0.00	0.00



**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.



Released Thursday, May 5, 2011  
Rich Tinker, NOAA/NWS/NCEP/CPC

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

**Fig. 4b: Drought Monitor for the South-Central States with statistics over various time periods. This region has shown some increases in all drought categories over the past week.**

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

## U.S. Winter Wheat Areas Experiencing Drought

Reflects April 26, 2011  
U.S. Drought Monitor data

Approximately 34% of the winter wheat grown in the U.S. is within an area experiencing drought, based on historical NASS crop production data.



Major and minor agricultural areas are based on averaged NASS county-level crop production data from 2000 to 2004. Additional information on these agricultural data can be found at: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Start/](http://www.nass.usda.gov/Data_and_Statistics/Quick_Start/)

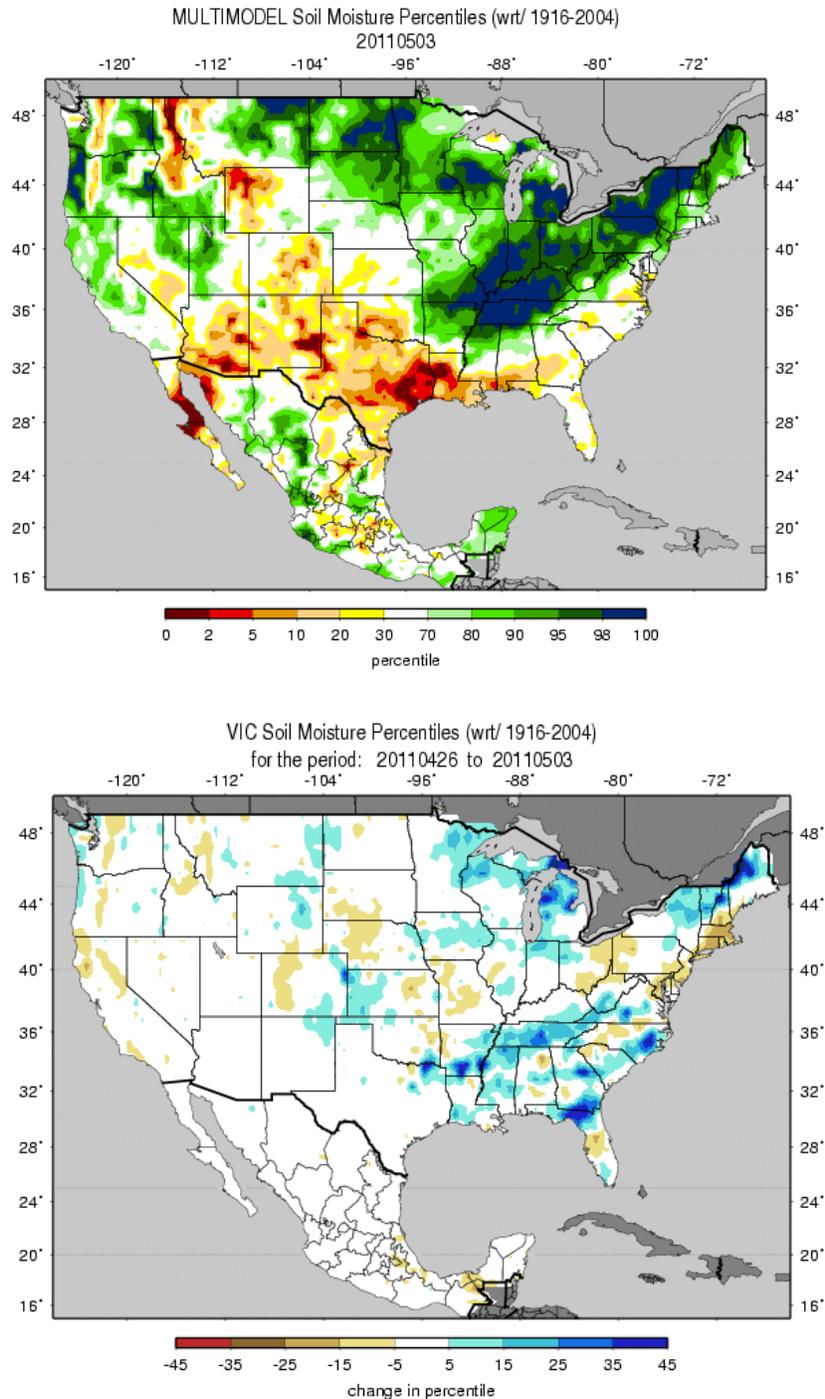
Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://www.drought.unl.edu/dm/monitor.html>

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

USDA Agricultural Weather Assessments  
World Agricultural Outlook Board

**Fig. 4c: The current over the South-Central US drought is impacting the Winter Wheat.**

## Weekly Snowpack and Drought Monitor Update Report

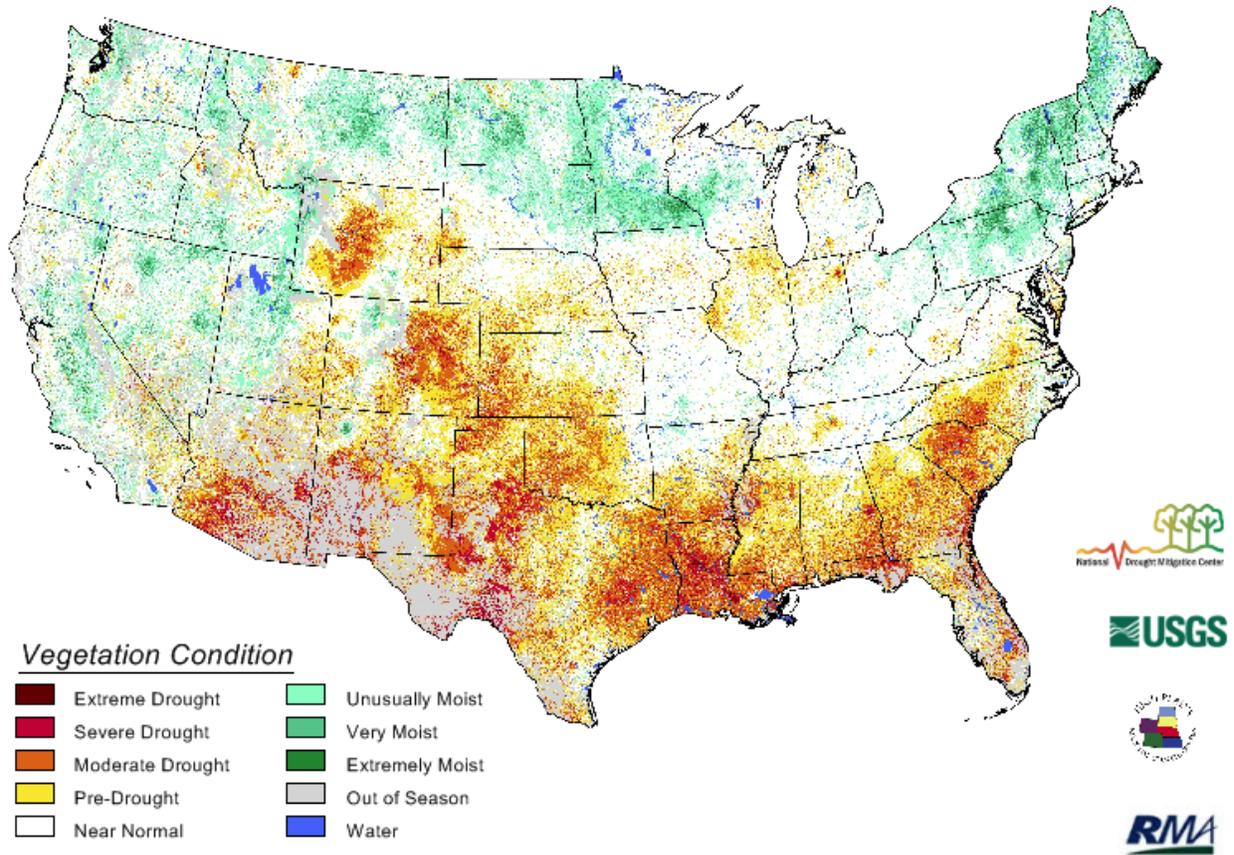


**Figs. 5a and 5b: Soil Moisture ranking in percentile as of 3 May (top) shows moist conditions over much of the Northern Tier States (with the exception of western Montana) and the Appalachians with dryness over Arizona and across much of the Lower Mississippi River (top). For the past week, the Southeast, Great Lakes, and northern New England experienced the greatest increases in soil moisture while the Southern New England and Ohio Valley have dried out.**

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

**Vegetation Drought Response Index  
Complete**

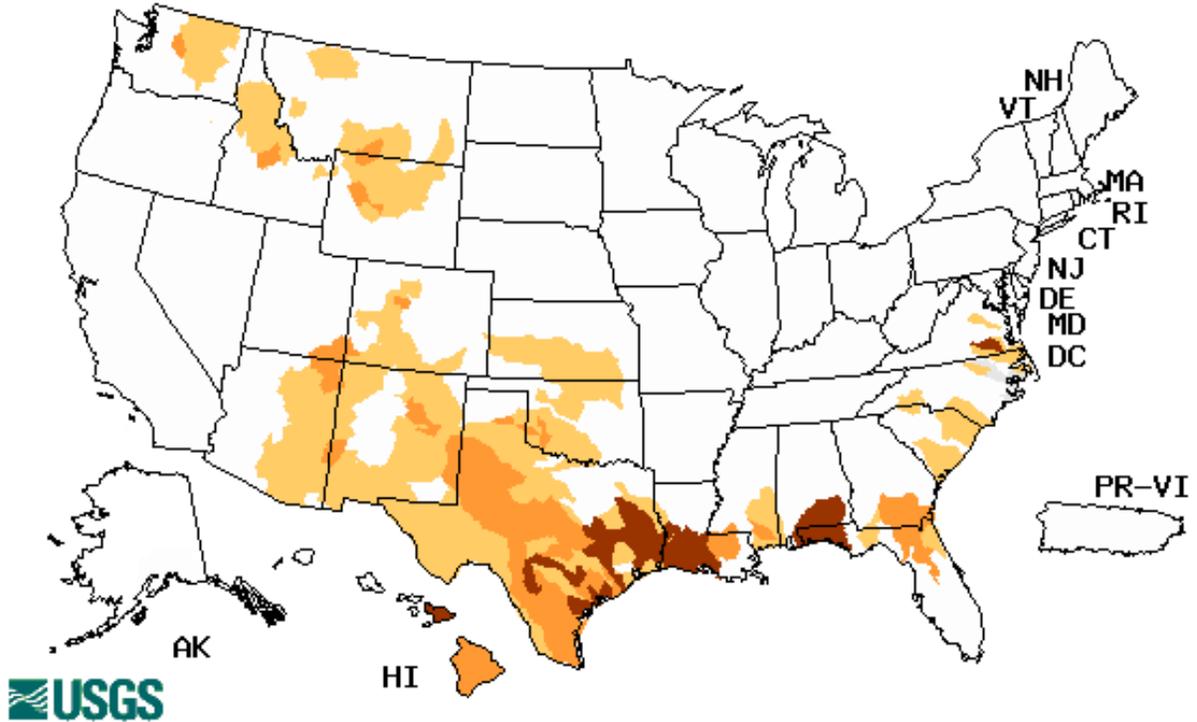
May 2, 2011



**Fig. 6: The VegDRI depicts worsening stress over much of the Southern Tier States (typical of a La Niña pattern). Ref: [http://www.drought.unl.edu/vegdiri/VegDRI\\_Main.htm](http://www.drought.unl.edu/vegdiri/VegDRI_Main.htm)**

# Weekly Snowpack and Drought Monitor Update Report

Wednesday, May 04, 2011



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. Portions of the eastern Texas, Louisiana, Alabama, and the Panhandle of Florida are indicating severe conditions. Note: northern-most gauges are becoming more reliable as rivers and streams start to thaw. Ref: <http://waterwatch.usgs.gov/?m=dryw&r>

## Weekly Snowpack and Drought Monitor Update Report

### National Drought Summary -- May 3, 2011

*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/>.*

**Southeast:** While an historic tornado outbreak and areas of flooding rainfall slammed areas to the northwest and north, the areas of dryness and drought from Alabama eastward to the central and southern Atlantic coast generally received only light rainfall, maintaining or worsening conditions. Only parts of central Georgia, northern Florida, and southeastern most Florida recorded over an inch of rain, improving D1 to D0 in a small part of central Georgia. Elsewhere, moderate drought was extended from the central Carolinas eastward to the Atlantic coast, and deteriorating short-term conditions led to the expansion of abnormal dryness and the introduction of an area of moderate drought in southeastern Virginia. Elsewhere, the status quo was maintained. Some areas along and near the northeastern Gulf coast have received 12 to 20 inches less than normal rainfall over the past 6 months, and deficits of 6 to 12 inches affect many areas farther northeast thru the southern Atlantic coast into southeastern Virginia.

**Plains and Lower Mississippi Valley:** Heavy rainfall from last week's historic storm system impinged on the northern tier of the dry areas from eastern Oklahoma through northern Alabama, with significant precipitation extending as far south as northern Louisiana and northeastern Texas. As a result, dryness and drought classifications improved by 1 to locally 2 categories throughout this region. The areas of dryness and drought that recorded the most rainfall extended from southeastern most Oklahoma through most of central and southern Arkansas and across northern Mississippi, where totals exceeded 5 inches in many areas. Parts of the adjacent areas farther south and southwestward through north-central Texas reported numerous amounts in the 2 to 5 inch range. Many of these areas also saw drought improvement into the D0 to D2 range, although D3 was maintained through northern Louisiana and adjacent areas where dry conditions have been observed for a considerably longer period of time. Other areas declining into D3 or D4 included relatively small swaths of central and northwestern Texas, and part of east-central New Mexico. Finally, a dry week and increasing short-term moisture deficits prompted expansion of D0 and D1.

The remaining areas along the central Gulf coast westward through most of Texas and eastern New Mexico, and northward through the central Plains, reported only light precipitation, if any. As a result, dryness and drought either persisted or intensified. Of note, a large area from western Texas into southeastern New Mexico deteriorated into the most severe D4 category. Most of this region has only received about 10 percent of normal precipitation over the last six months. In addition, D4 was introduced in parts of the Oklahoma Panhandle and adjacent areas where again 6-month totals were only about 10% of normal amounts. Other areas declining into D3 or D4 included relatively small swaths of central and northwestern Texas, and part of east-central New Mexico. Finally, a dry week and increasing short-term moisture deficits prompted expansion of D0 and D1 from central Kansas northward through central Nebraska.

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Much farther north, recent precipitation eliminated the moderate drought that had covered parts of the northern Great Lakes region and northeastern most Minnesota, but was insufficient to affect the extent of abnormally dry conditions.

**Rockies and Southwest:** Only scattered light precipitation fell on the region, maintaining or worsening dryness and drought classifications in the region. D2 and D3 conditions expanded in the northeast quarter of New Mexico and the southeast quarter of Arizona due to slowly declining surface moisture conditions.

**Hawaii, Alaska, and Puerto Rico:** Another week of moderate to heavy precipitation in the former D0 areas of Puerto Rico eliminated abnormal dryness throughout the Commonwealth.

Although precipitation has recently been observed across southern Alaska, continuing deficits on 90-day to 1-year time scales led to the expansion of D0 throughout southern coastal regions of the state, including the Panhandle. In contrast, a re-assessment of conditions farther north led to the removal of abnormal dryness across the northern tier of the former D0 region.

One to locally over three inches of rain fell along the southeastern tier of the Big Island, but lesser amounts fell on other areas of dryness and drought. What rain fell was not enough to change the classifications of dryness and drought that persist over the southeastern half of the state.

**Looking Ahead:** During May 5 – 9, 2011, light to locally moderate rain is forecast across North Carolina and Virginia, the Gulf coasts of Texas and Louisiana, through parts of Kansas and Nebraska, and across the northern Great Lakes region. None or very little is anticipated through the remaining areas of dryness and drought in the contiguous 48 states.

The outlook for May 10 – 14, 2011 brings enhanced chances for above-normal precipitation through the dry areas in Arkansas and across the northern Great Lakes, but in most areas of dryness and drought in the continental 49 states, near or below normal precipitation is favored.

**Author:** [Rich Tinker, NOAA/NWS/NCEP/CPC](#)

### 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

Updated May 4, 2011