



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

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**Weekly Report - Snowpack / Drought Monitor Update**      **Date: May 17, 2007**

## **SNOTEL SNOWPACK AND PRECIPITATION SUMMARY**

**Snowpack:** For the 2007 Water Year, snow water-equivalent (SWE) remains near normal over isolated regions of the Northern Cascades (WA) and along the Front Range of Colorado. Across the West, many more stations have melted out since last week (Fig. 1). During the week, high pressure was the dominating weather pattern that helped with the rapid decrease in SWE over the Rockies and Southern Cascades (Fig. 1a).

**Temperature:** During the past seven days, temperatures were up to 15°F above normal over the Intermountain West and Eastern Great Basin (UT) (Fig. 2). Closer to normal readings occurred over the Southern Rockies and Cascades.

**Precipitation:** During this report period, scattered thunderstorms influenced the Rockies with isolated areas receiving between 1.5 to 2.5 inches (Fig. 3). Elsewhere, little if any rainfall occurred. For the Water Year, near normal totals exist over the Cascades, Bighorn Mountains (WY), and Front Range of the Colorado-New Mexico Rockies. Below normal amounts dominate elsewhere (Fig. 3a).

## **WESTERN DROUGHT STATUS**

**The West:** It was a pretty quiet week overall for much of the West, with unseasonably warm temperatures bringing on early snow melt-out in many places and very little in the way of precipitation stealing the headlines. Wyoming's statewide snow water equivalent numbers, which were already low this year, took a major hit, dropping from 69% of average to just 44% of average. This is 22% below last year's numbers for this week, which was also well below average. An expansion of D1, D2, and D3 is noted this week in western Wyoming and along the Idaho border as a result. Farther west, conditions this week show a worsening of the dryness and drought found in California as the dry season begins to settle in. Impressive deficits on the year (16 to 20 inches/ 50-70% of normal) in northern California have led to a pushing north of D0, D1 and D2 in the valley up toward the Cascade Range and the Oregon border. The D2 in the Sierra Nevada has now pushed farther east and north through Nevada and up into southeast Oregon this week as well. The heat hasn't helped matters here either with the majority of upper elevation SNOTEL sites being snow free (Figs. 4, 4a, and 4b).

***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

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developing in streams, reservoirs, or wells, and some damage to crops and pastures (Fig. 4, 4a, and 4b).

### 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).

### OBSERVED FIRE DANGER CLASS

The National Interagency Coordination Center provides a variety of products that describe the current wildfire status for the U.S. - <http://www.nifc.gov/information.html>. The latest Observed Fire Danger Class is shown in Fig. 6.

### 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.

[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).

### PASTURE & RANGE LANDS

These maps (Fig. 8) show good to excellent and poor to very poor grazing lands for various time periods. <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf>

### 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

Acting Director, Conservation Engineering Division

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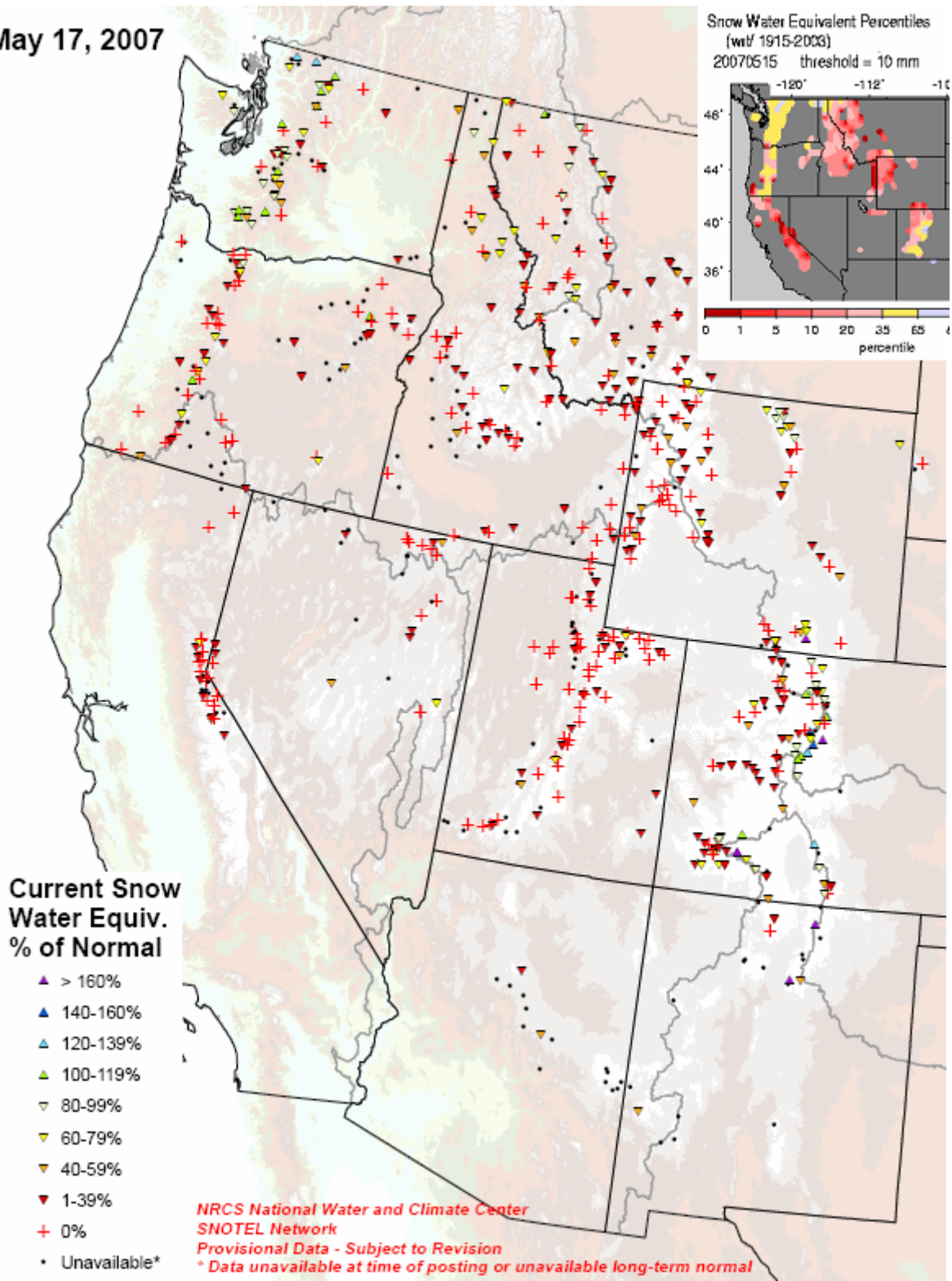


Fig. 1: Snow Water-Equivalent as a percent of normal for Water Year 2007.

Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideSWEPercent.pdf>  
(insert) [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.swe\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.swe_qnt.gif)

## Weekly SWE Change

Snow Water Equivalent: Change in Percentiles (wrt/ 1915-2003)  
for the week 20070508 to 20070515 threshold = 10 mm

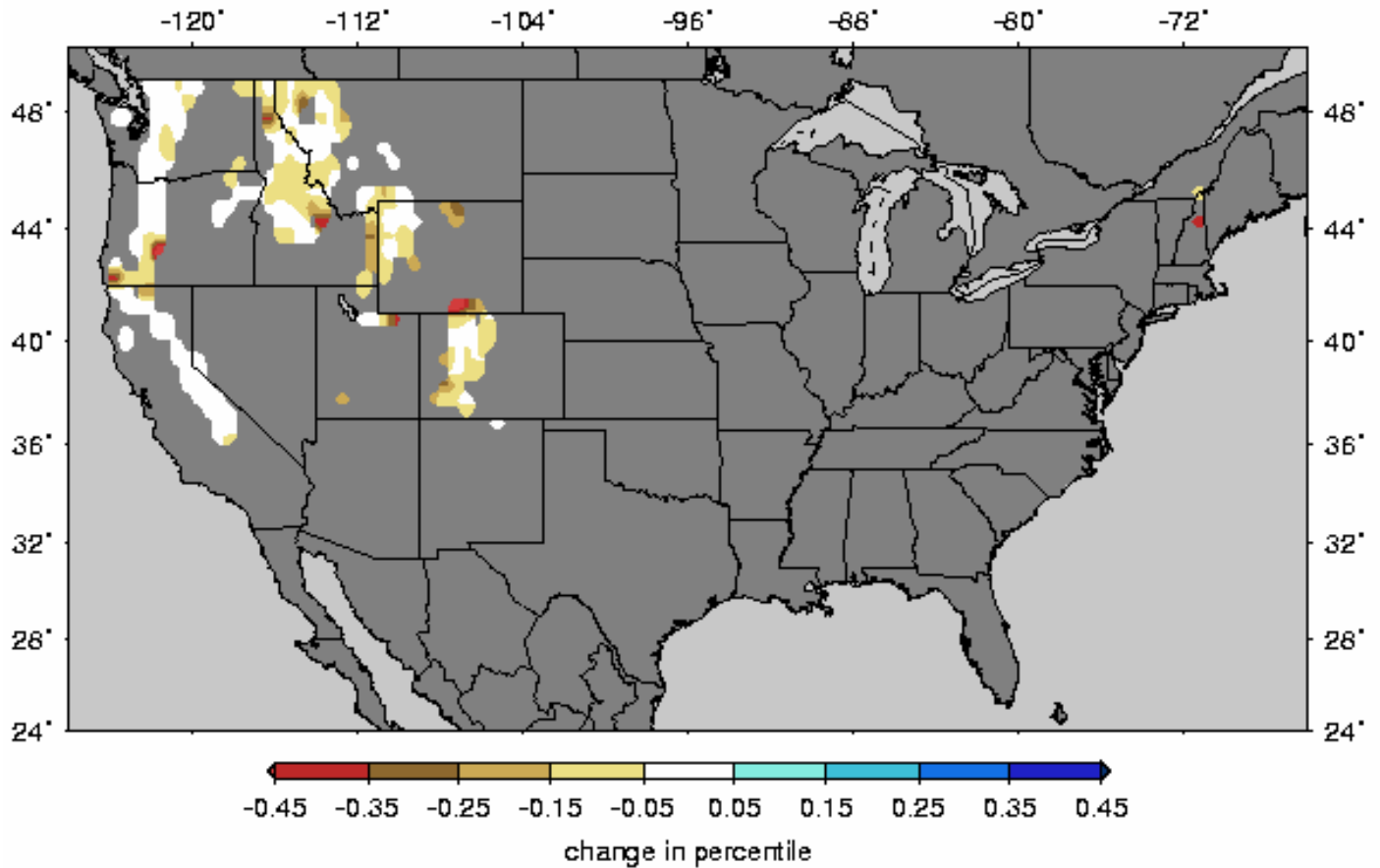


Fig. 1a. Snow Water-Equivalent changes as a percent during the period 8 to 15 May 2007 based on 1915-2003 climatology. Note the general decrease SWE over the Rockies and Southern Cascades. Ref: <http://www.hydro.washington.edu/forecast/monitor/index.shtml>



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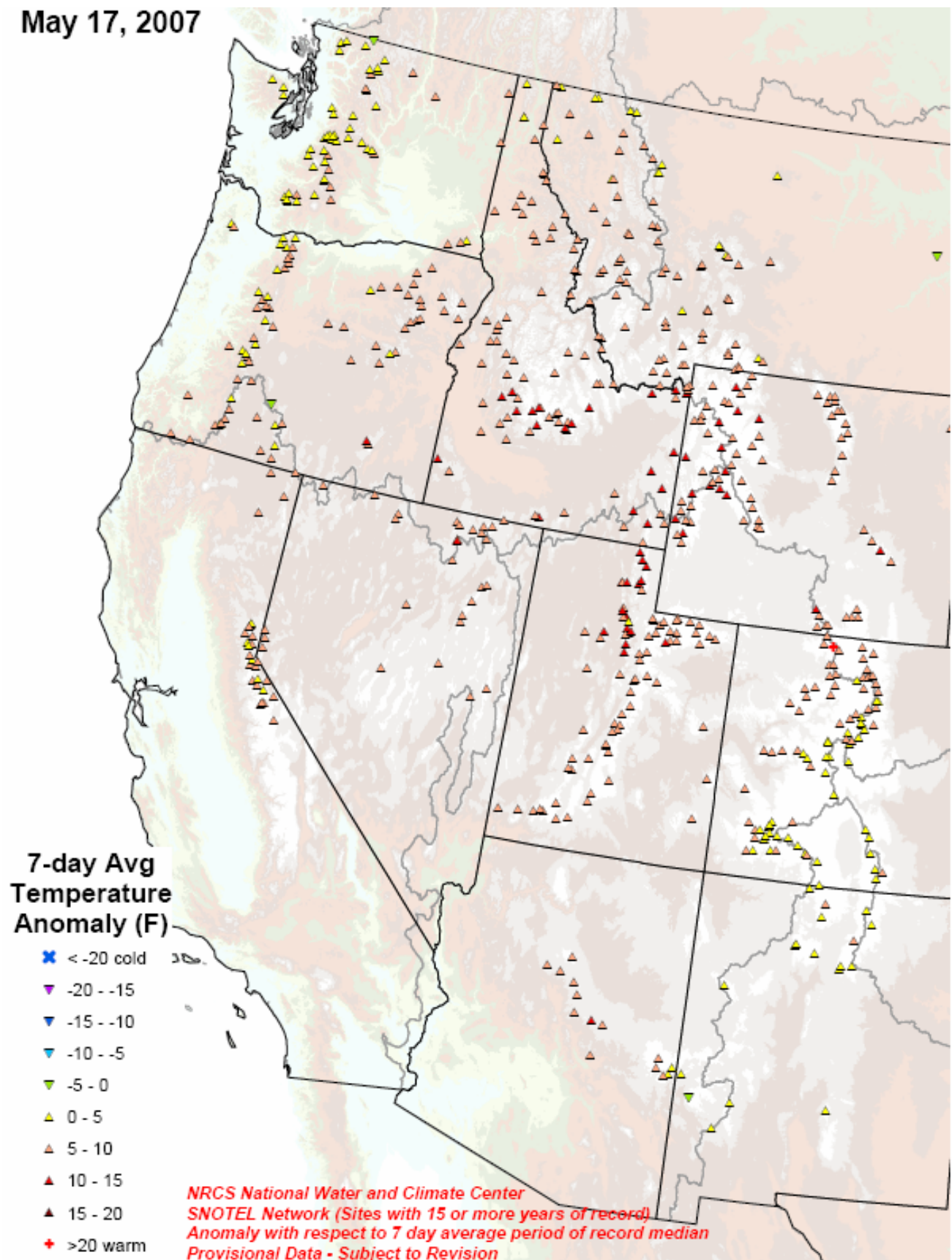
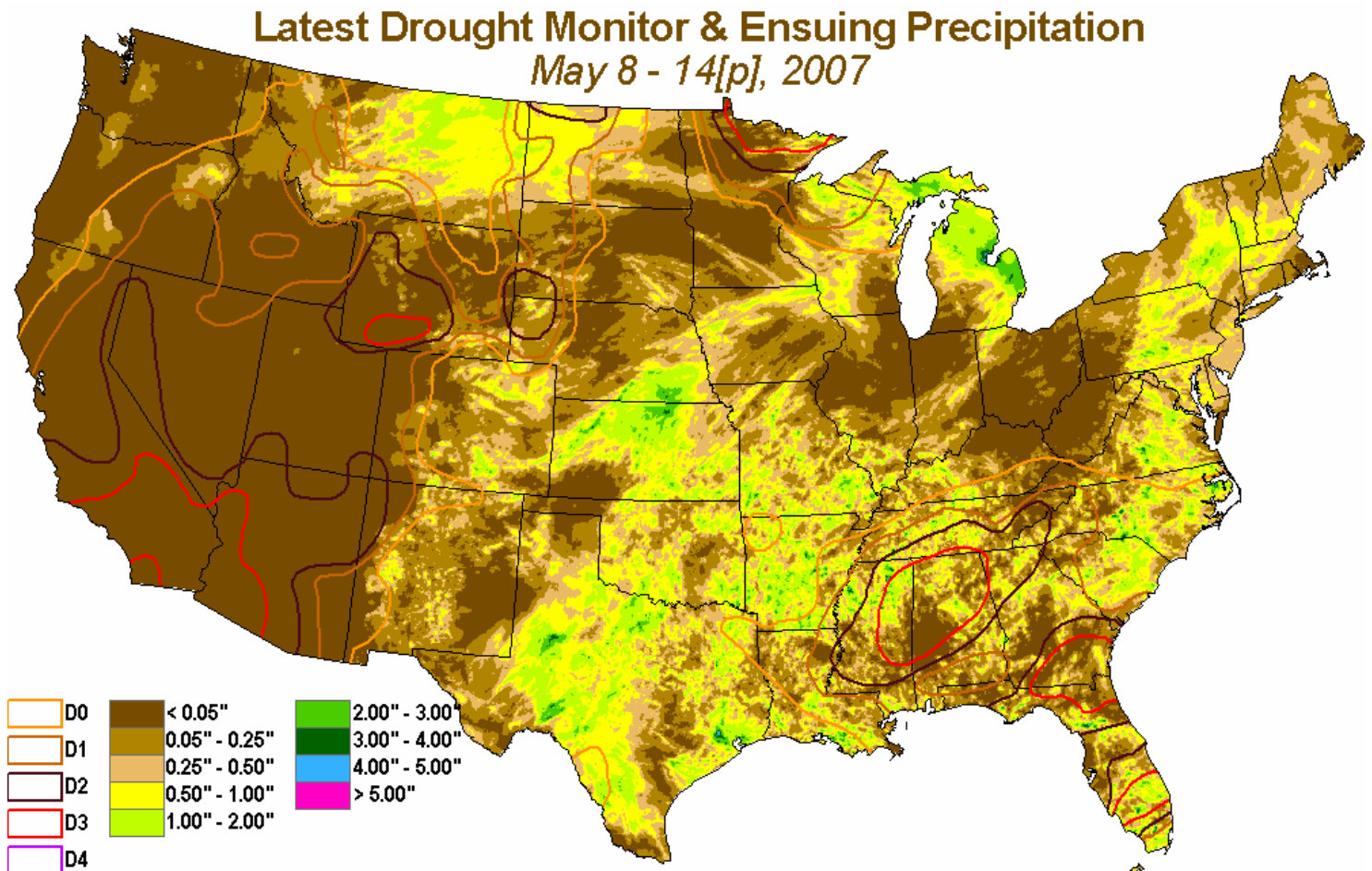


Fig. 2. SNOTEL 7-day average temperature anomaly.

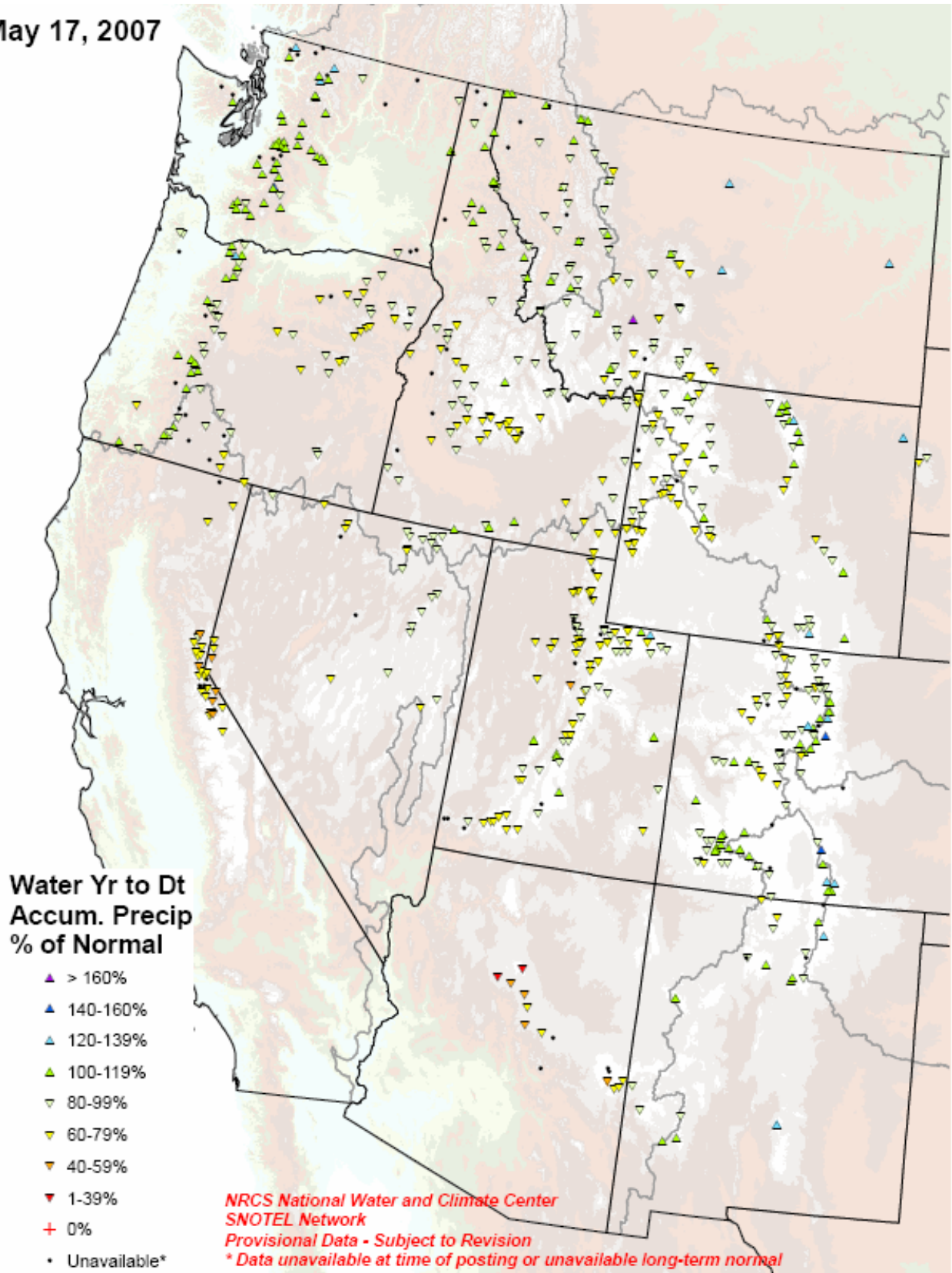


**Fig. 3. Preliminary precipitation totals as a percent of normal for the 7-day period ending 14 May 2007. Note that except for Montana and scattered thunderstorms over the Central Rockies, little precipitation fell over the West.**

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/USDM-radobsprcp-overlay.gif>

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**Fig. 3a. SNOTEL station water year (since October 1) precipitation as a percent of normal.**

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



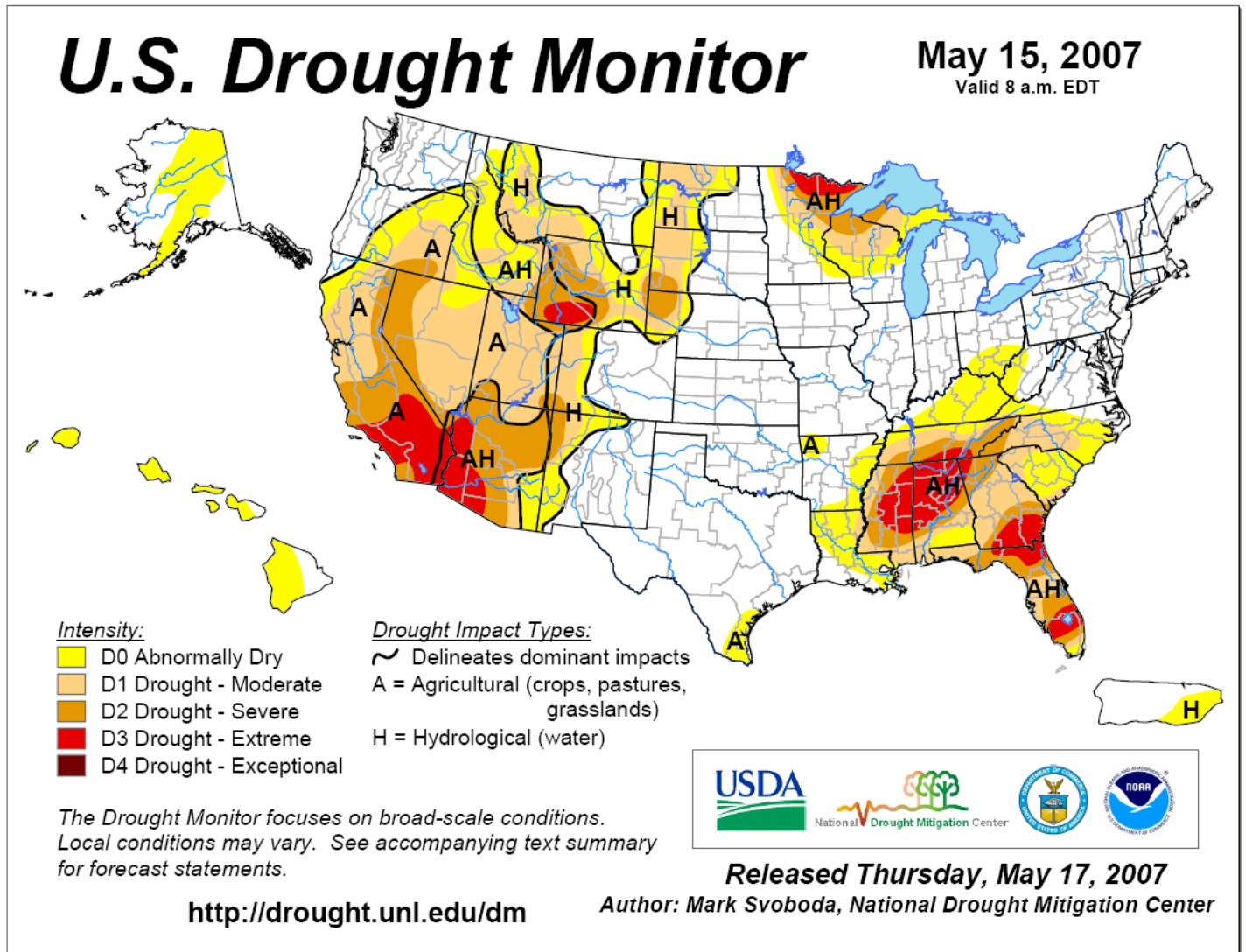
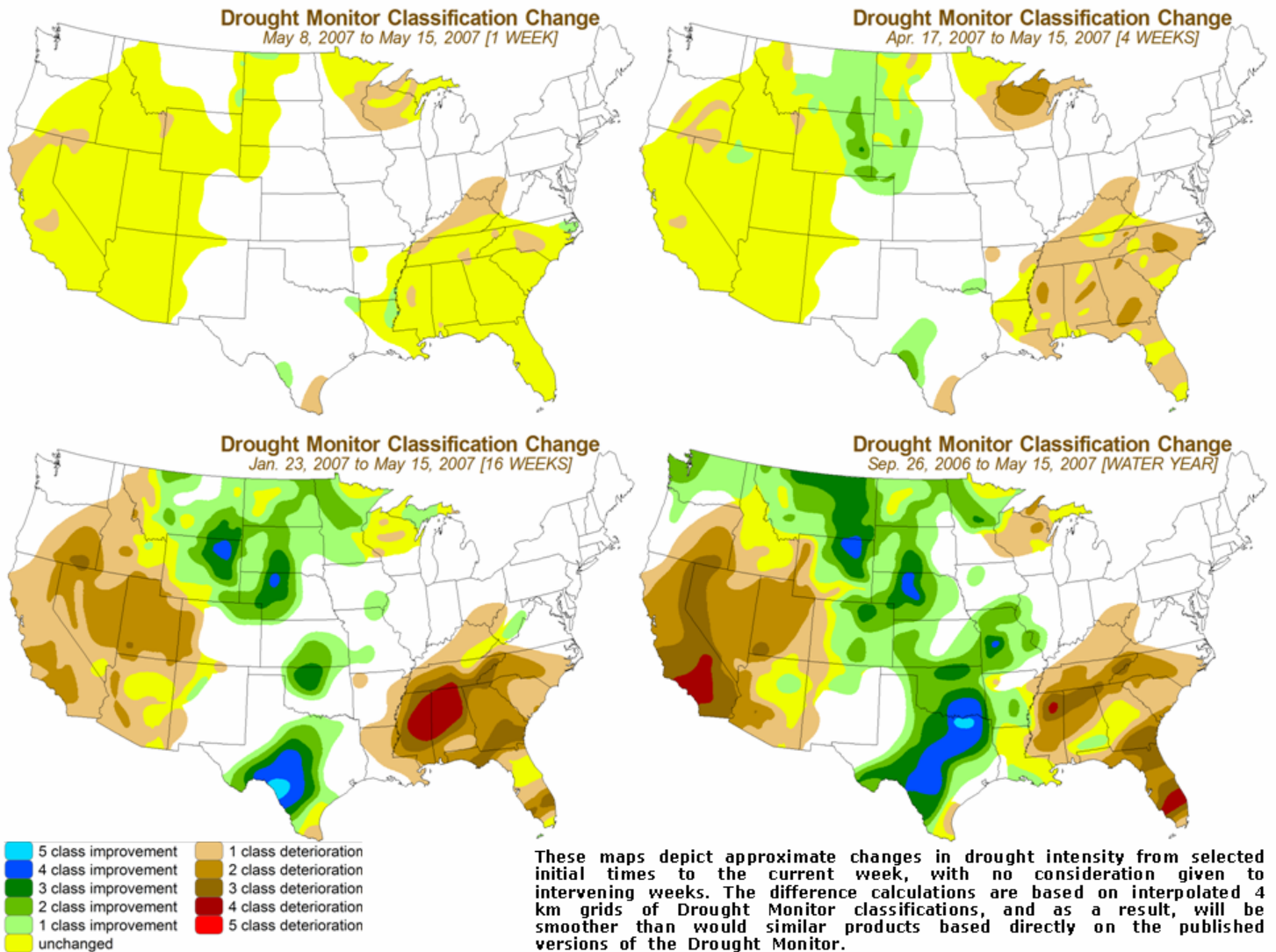


Fig. 4. Current Drought Monitor weekly summary.

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



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**Fig. 4a. Drought Monitor classification changes over various time periods.**

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/dm-change-4maps.png>

# U.S. Drought Monitor

## West

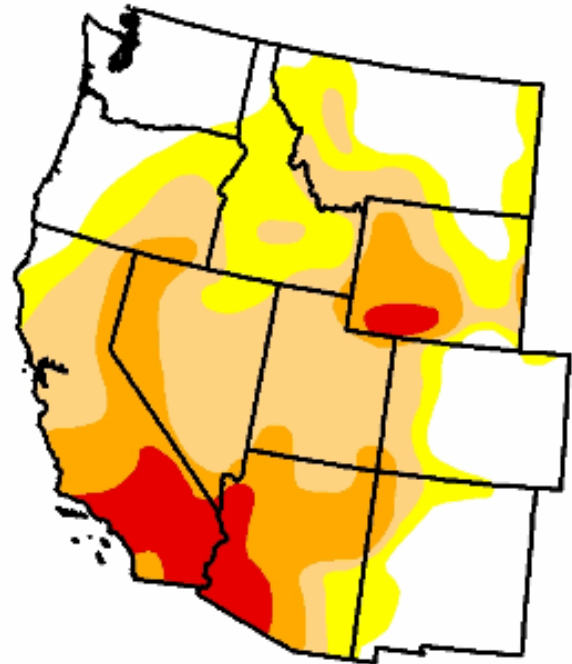
May 15, 2007

Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	30.5	69.5	50.5	23.7	6.7	0.0
Last Week (05/08/2007 map)	31.1	68.9	49.3	21.2	6.5	0.0
3 Months Ago (02/20/2007 map)	40.4	59.6	34.2	18.9	4.8	0.0
Start of Calendar Year (01/02/2007 map)	51.2	48.8	25.8	9.4	4.0	0.0
Start of Water Year (10/03/2006 map)	43.5	56.5	33.5	16.9	5.2	0.0
One Year Ago (05/16/2006 map)	61.8	38.2	28.0	18.6	11.3	1.7

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 17, 2007

Author: Mark Svoboda, National Drought Mitigation Center

Fig 4b. Drought Monitor for the Western States with statistics over various time periods.

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

Soil Moisture Percentiles (wrt/ 1915-2003)  
20070515

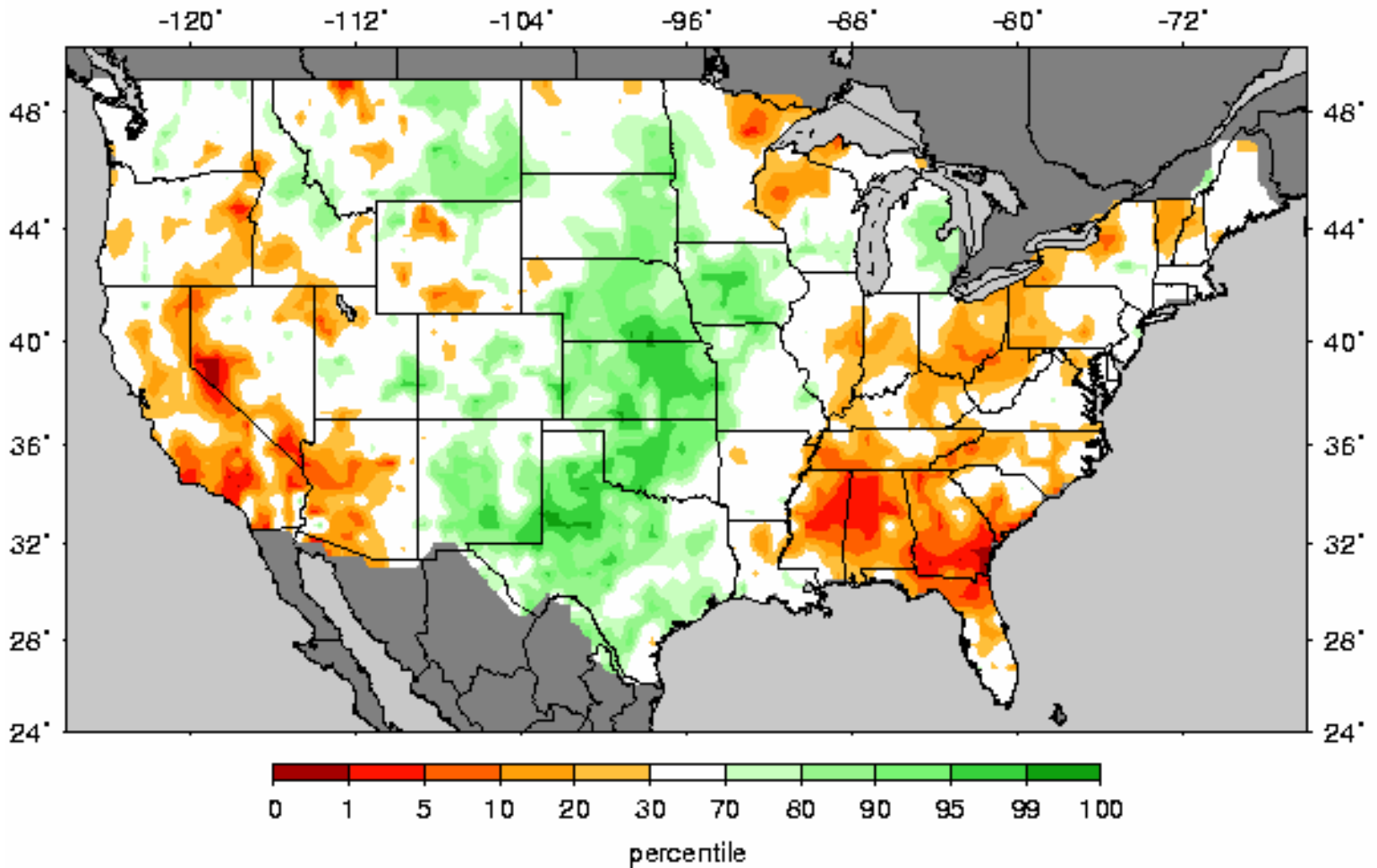


Fig. 5: Soil Moisture Ranking Percentile based on 1915-2003 climatology. (source: Univ. of Washington). Ref: [http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm\\_qnt.gif](http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.gif)

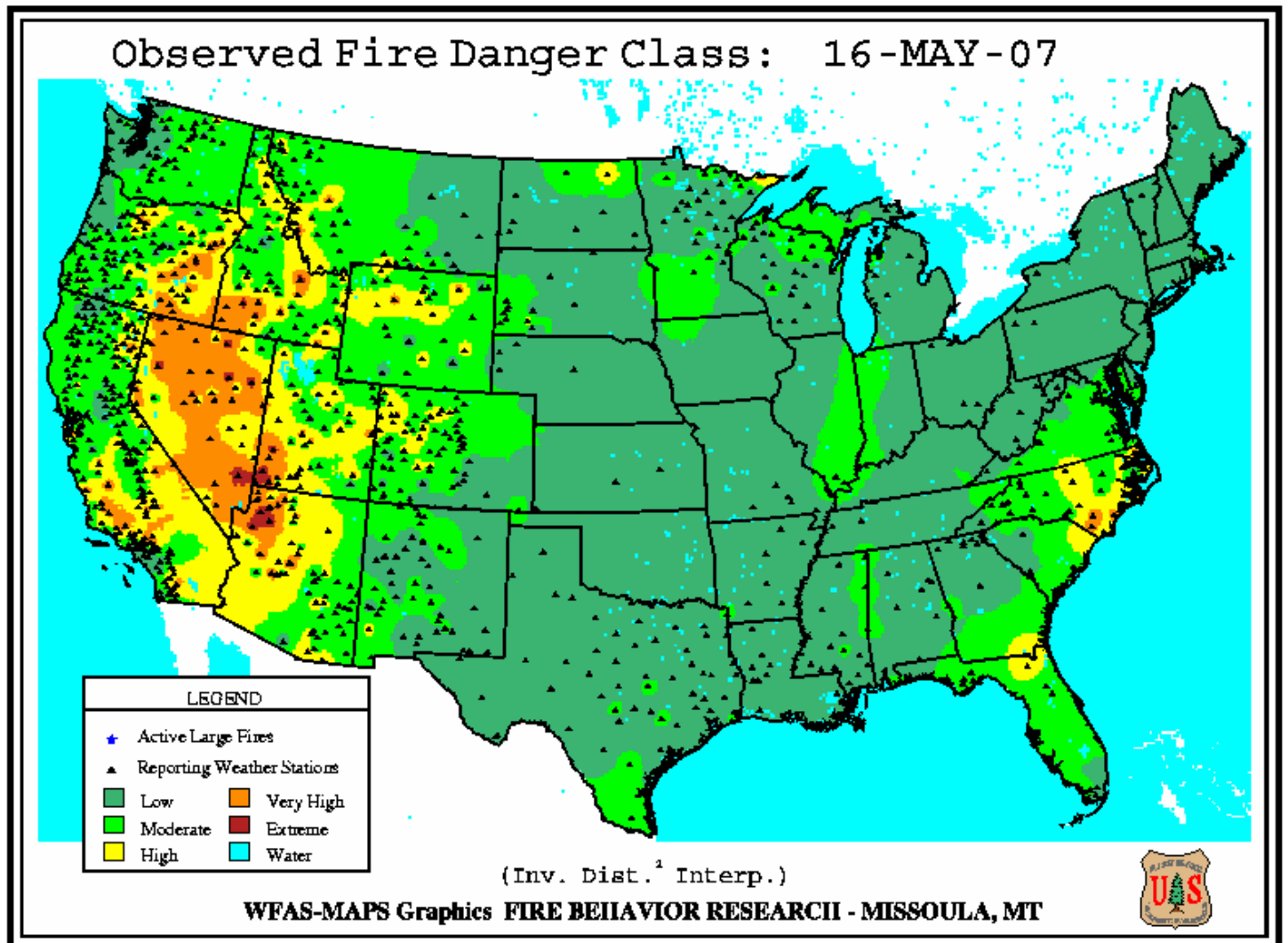


Fig. 6. Observed Fire Danger Class. Source: Forest Service Fire Behavior Research – Missoula, MT  
Ref: [http://www.fs.fed.us/land/wfas/fd\\_class.gif](http://www.fs.fed.us/land/wfas/fd_class.gif)



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Wednesday, May 16, 2007

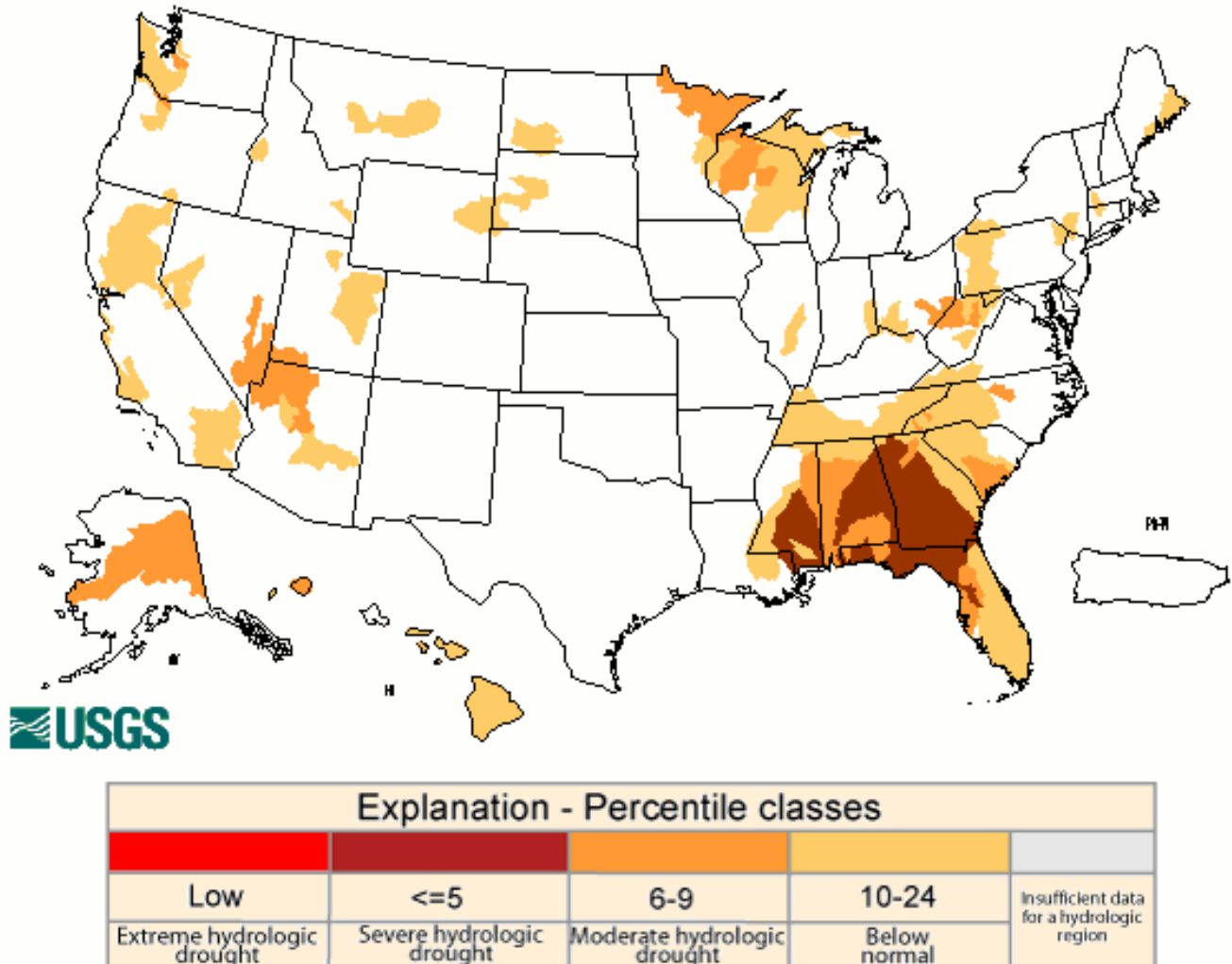


Fig. 7. Map of below normal 7-day average streamflow compared to historical stream flow for the day of the year. Note the extremely low streamflows over the Southeast.

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

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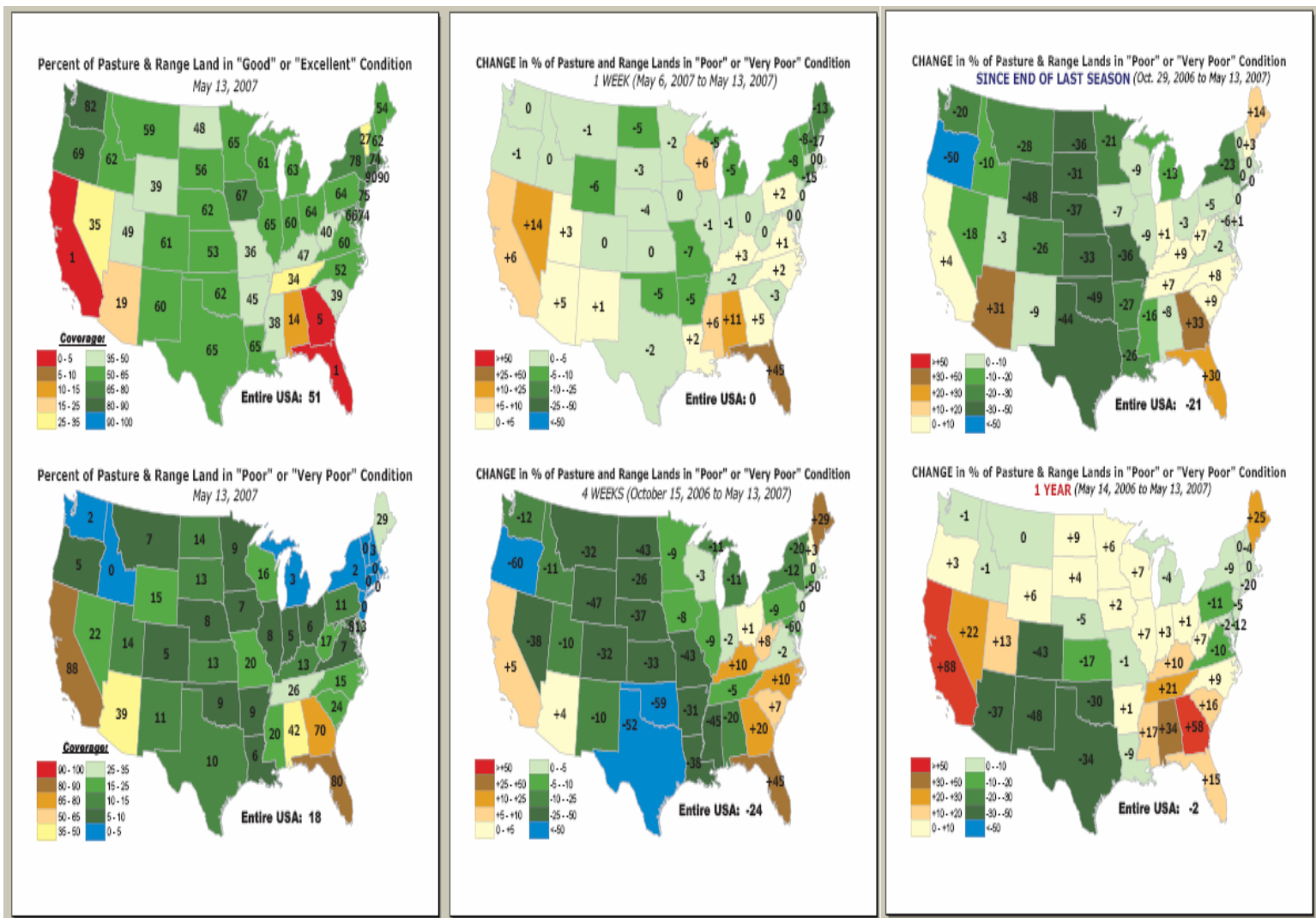


Fig. 8. Pasture and range land conditions for various time periods. Note that currently very poor conditions exist over California, and to a less extent over Arizona. Spring time has created very favorable conditions over the Rockies.

Ref: <http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf>

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### National Drought Summary -- May 15, 2007

*The discussion in the Looking Ahead section is simply a description of what the official national guidance from the National Weather Service (NWS) National Centers for Environmental Prediction is depicting for current areas of dryness and drought. The NWS forecast products utilized include the HPC 5-day QPF and 5-day Mean Temperature progs, the 6-10 Day Outlooks of Temperature and Precipitation Probability, and the 8-14 Day Outlooks of Temperature and Precipitation Probability, valid as of late Wednesday afternoon of the USDM release week. The NWS forecast web page used for this section is:*  
<http://www.cpc.ncep.noaa.gov/products/forecasts/>.

**The West:** It was a pretty quiet week overall for much of the West, with unseasonably warm temperatures bringing on early snow melt-out in many places and very little in the way of precipitation stealing the headlines. Wyoming's statewide snow water equivalent numbers, which were already low this year, took a major hit, dropping from 69% of average to just 44% of average. This is 22% below last year's numbers for this week, which were also well below average. An expansion of D1, D2, and D3 is noted this week in western Wyoming and along the Idaho border as a result. Farther west, conditions this week show a worsening of the dryness and drought found in California as the dry season begins to settle in. Impressive deficits on the year (16 to 20 inches/ 50-70% of normal) in northern California have led to a pushing north of D0, D1, and D2 in the valley up toward the Cascade Range and the Oregon border. The D2 in the Sierra Nevada has now pushed farther east and north through Nevada and up into southeast Oregon this week as well. The heat hasn't helped matters here either, with the majority of upper elevation SNOTEL sites being snow free.

**The Plains and Upper Midwest:** Across the Plains, the recent rains, now coupled with good above-normal year-to-date and water year numbers, continue to lead to the erosion of D1 in eastern Montana and western North Dakota. This has also brought about the removal of D2 conditions along the U.S./Canadian border in northwestern North Dakota. More rains in the southern Plains led to the removal of the small pockets of D0 that were remaining in northeast TX and southwest TX along the Rio Grande. However, the multi-year drought has left many marks, and the southern Plains remain vulnerable to the reemergence of drought or flash droughts later this summer if the rains don't continue in a timely manner. Missing out on this recent wetness has been the extreme southern tip along the Gulf Coast, where persistent dryness on both short- and long-term time frames has led to the re-introduction of D0 in the Brownsville region and up the coast, engulfing Kingsville and Corpus Christi.

Lots of changes occurred in the Midwest this week as the high temperatures (10+ degrees above normal in many places) were felt across all of Minnesota, Wisconsin, and the Upper Peninsula of Michigan into the Houghton area. Conditions continue to worsen in these areas, with D2 expanding south and east through Wisconsin and into the Upper Peninsula, where many locales are running at about 50-75% of normal on the year. In line with the changes above, D0 has spread into southeastern Minnesota and central Wisconsin and D1 has advanced into central Wisconsin as well.

**The Delta and Southeast:** The dryness continues its hold over much of the Southeast, fanning fires and beginning to worsen and expand over more of the region. Precipitation departures for the year to date are running 8 to 16+ inches below normal (these values fall at, or below, 50% of normal) across large parts of Mississippi, Alabama, Tennessee, Kentucky, the western Carolinas, Georgia, and Florida. Soil moisture and streamflows are feeling the brunt of it as we head into the high demand season. The Huntsville, AL, area has recorded its lowest year-to-date precipitation amount (10.35") on record since the period of record began in 1894.

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Consequently, D2 and D3 have expanded to the northeast and the southwest into more of Tennessee and Mississippi, respectively. In addition, the unseasonably dry weather has brought about a D0 expansion covering most of Kentucky, southern Ohio, and western West Virginia. To the east, D1 has now pushed a bit north and east into North Carolina's upper Yadkin and lower Cape Fear River basins.

To the south, in just the past two weeks alone, nearly 500 fires have been reported in Florida, accounting for the burning of more than 170,000 acres as of May 14. This latest two-week total represents more than the total number of acres burned (159,407) in the state between January and the end of April. Spotty rains haven't been enough to alleviate concerns as several of their coastal well fields are now threatened by saltwater intrusion. The South Florida Water Management District (from Lake Istokpoga and Lake Okeechobee and points southward) has Phase II and Phase III water shortage emergency conservation measures in place, limiting watering to just once or twice a week. The rainy season can't come soon enough.

**Alaska and Hawaii:** Conditions remain unchanged over the existing D0 regions in both Hawaii and Alaska this week.

**Looking Ahead:** During the next 5 days (May 17-21), temperatures look to be well above normal over a good portion of the interior West. At the same time, the South and the eastern half (east of the Mississippi River) of the country can expect to see cooler than normal readings. Precipitation is most likely to fall over the border waters region between Minnesota and Canada, the southern Rockies, western Texas, along the coastal regions of the Gulf States, and within the Mid-Atlantic region.

The 6-10 day outlook (May 22-26) shows the likelihood of above-normal temperatures across most of interior Alaska, all of California, southern Oregon, and the western reaches of Nevada and Arizona. The warmth will be shared by those in the Great Lakes region and into the Northeast. Cooler weather is expected in the northern Rockies region and across most of the Great Plains. In terms of precipitation, interior Alaska looks to be dry, although the Aleutian Chain could see wetter times. In the lower 48, below-normal precipitation is expected in the Pacific Northwest and along the Atlantic Seaboard from the Carolinas up to Maine. A large area of the country's midsection is expected to again see above-normal precipitation from Texas to the Mississippi Delta north across all of the Great Plains and into the Great Lakes region.

**Author:** [Mark Svoboda, National Drought Mitigation Center](#)

### 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

Updated May 16, 2007

H ... Hydrological