



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

Weekly Report - Snowpack / Drought Monitor Update Date: 5 November 2009

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL and ACIS-day station average weekly temperature anomalies show well above normal temperatures over the Sierras and below normal values over the Colorado Rockies (Fig.1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures occurred over parts of the Great Basin and Sierras (>+4F) and the greatest negative departures occurred over Colorado (<-8F) (Fig. 1a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 4 November shows the bulk of the heaviest precipitation fell over the Northern Cascades. In terms of percent of normal precipitation, much of the Central and Southern Rockies had the greatest percentages (Fig 2 and 2a). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2010 Water Year that began on October 1, 2009 shows the emergence of a wetter pattern over the Northern Tier States and a drier pattern over Utah, Arizona, and New Mexico (Fig. 2b).

WESTERN DROUGHT STATUS

The West: A quiet week in the western United States allowed for just a few changes on the drought depiction. D0 was expanded southward in northern California because of continuing water issues in the area. D1 was expanded out of Arizona and connected to the D1 in southern California. The D1 expansion also included the southern tip of Nevada. Improvements were made to the D0 in Montana, Idaho and Washington as good precipitation since the start of the water year has allowed for conditions to improve. Author: Brian Fuchs, National Drought Mitigation Center

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. 3, 3a, 3b, and 3c).

SOIL MOISTURE

Soil moisture (Figs. 4a and 4b), 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:

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<http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>.

OBSERVED FIRE DANGER CLASS

The [adjective class rating](#) is a method of normalizing rating classes across different fuel models, indexes, and station locations. It is based on the primary fuel model cataloged for the station, the fire danger index selected to reflect staffing levels, and climatological class breakpoints. This information is provided by local station managers. About 90% use the Burning Index (BI); others use Energy Release Component (ERC). Staffing class breakpoints are set by local managers from historical fire weather climatology (Figs. 5).

U.S. HISTORICAL STREAMFLOW

http://water.usgs.gov/cgi-bin/waterwatch?state=us&map_type=dryw&web_type=map.

This map, (Fig. 6) 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/cgi-bin/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/ NOLLER HERBERT
Director, Conservation Engineering Division

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SNOTEL (solid) and ACIS (dot-filled) Networks 7-Day Average T

Nov 05, 2009

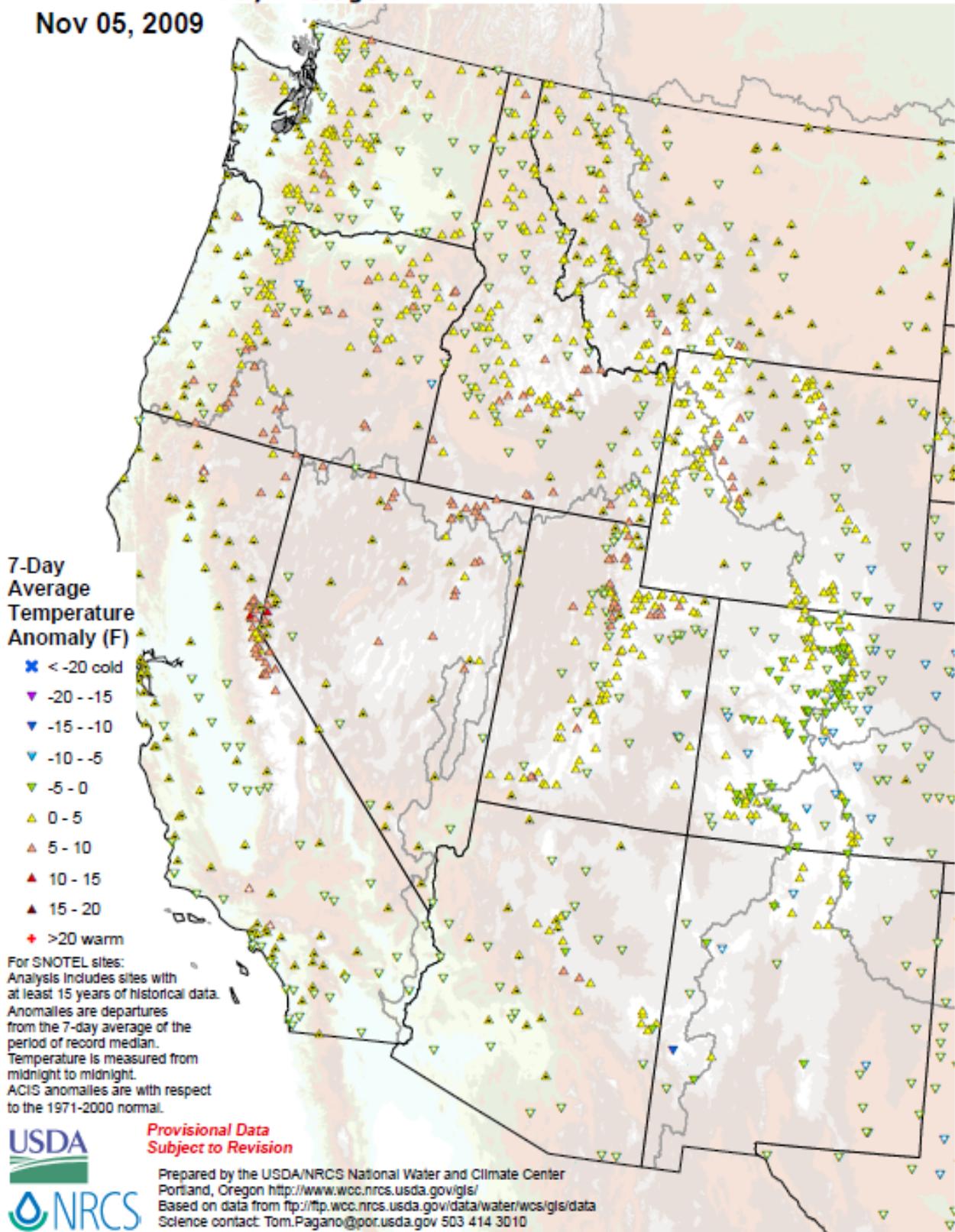
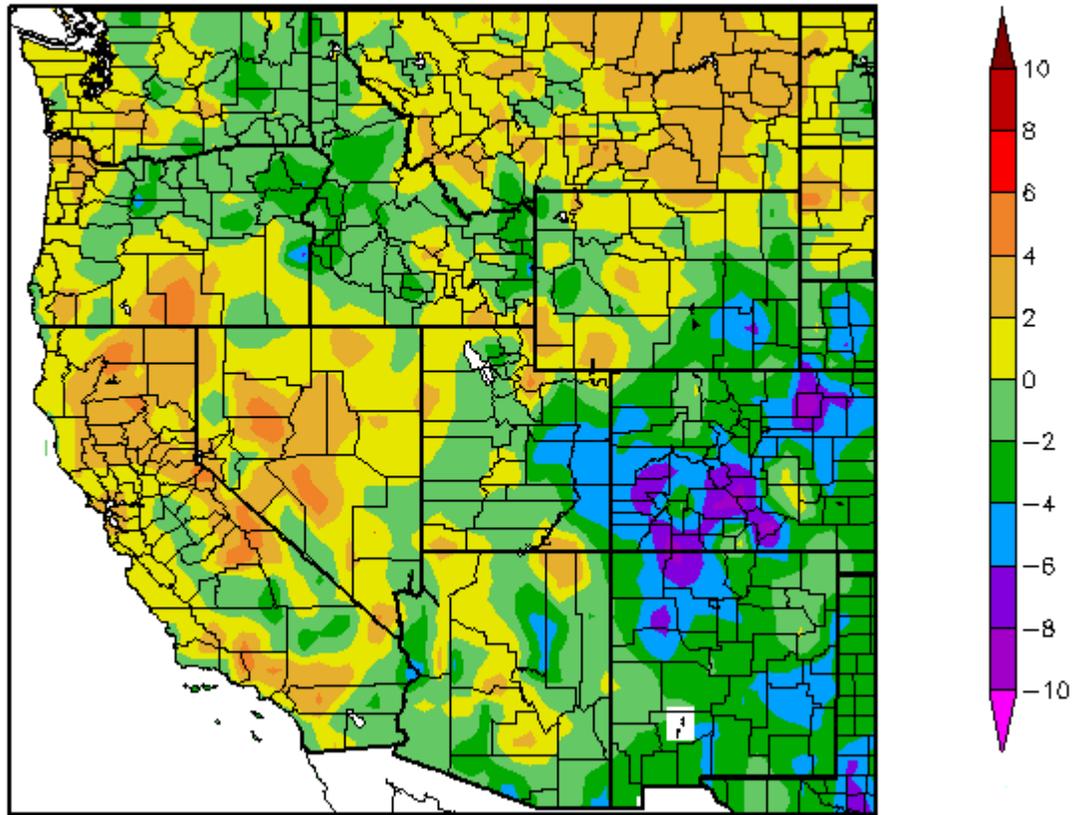


Fig. 1. SNOTEL and ACIS-day station average weekly temperature anomalies show well above normal temperatures over the Sierras and below normal values over the Colorado Rockies.

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

Departure from Normal Temperature (F)
10/29/2009 – 11/4/2009



Generated 11/5/2009 at HPRCC using provisional data.

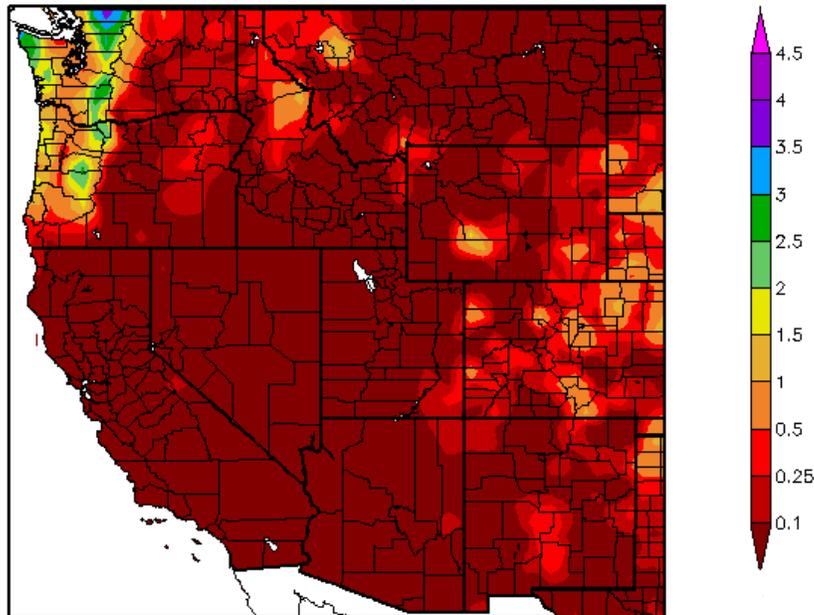
NOAA Regional Climate Centers

Fig. 1a. ACIS 7-day average temperature anomalies show that the greatest positive temperature departures occurred over parts of the Great Basin and Sierras (>+4F) and the greatest negative departures occurred over Colorado (<-8F).

Ref: http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=TDept

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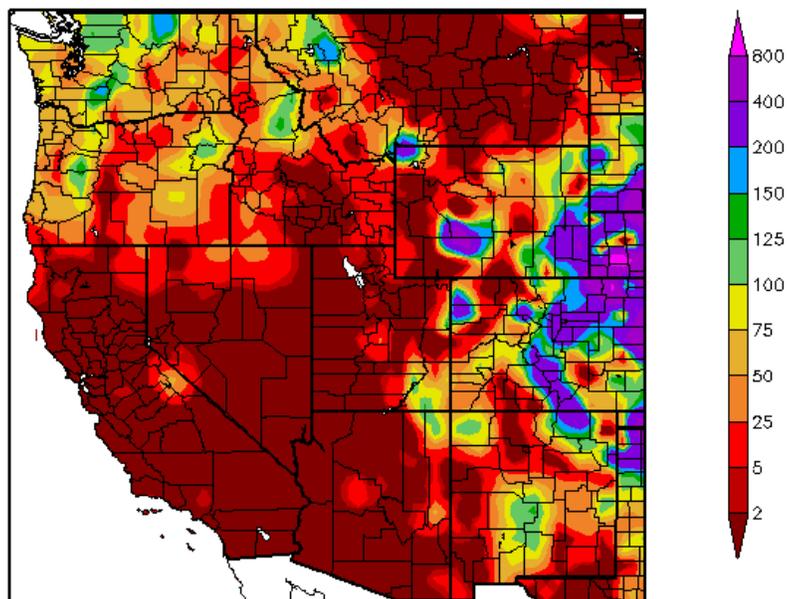
Precipitation (in)
10/29/2009 – 11/4/2009



Generated 11/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
10/29/2009 – 11/4/2009



Generated 11/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 2. and 2a. ACIS 7-day average precipitation amounts for the period ending 4 November shows the bulk of the heaviest precipitation fell over the Northern Cascades. In terms of percent of normal precipitation, much of the Central and Southern Rockies had the greatest percentages. Ref: <http://www.hprcc.unl.edu/maps/current/>.

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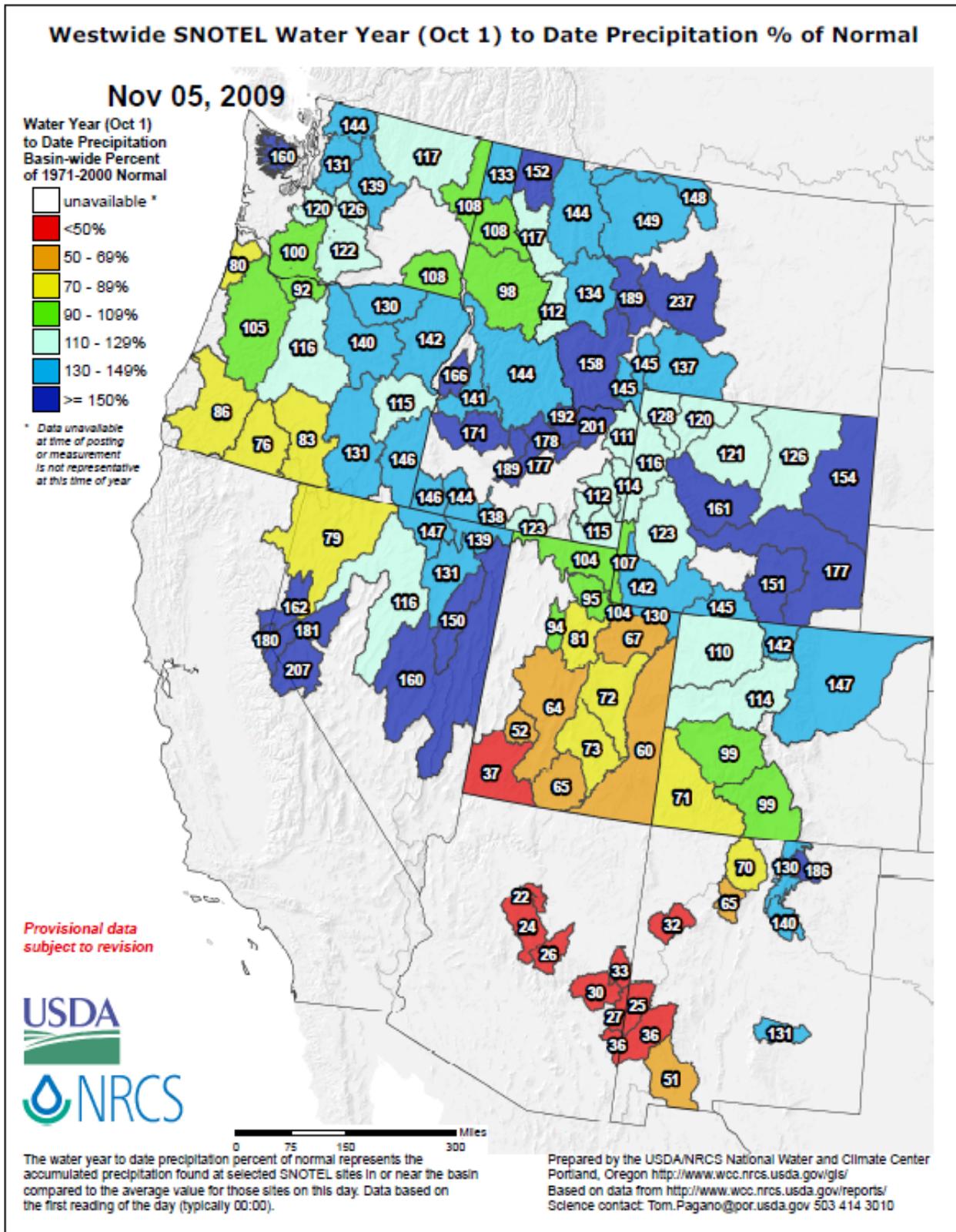


Fig 2b. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2010 Water Year that began on October 1, 2009 shows the emergence of a wetter pattern over the Northern Tier States and a drier pattern over Utah, Arizona, and New Mexico.

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

U.S. Drought Monitor

November 3, 2009
Valid 8 a.m. EDT

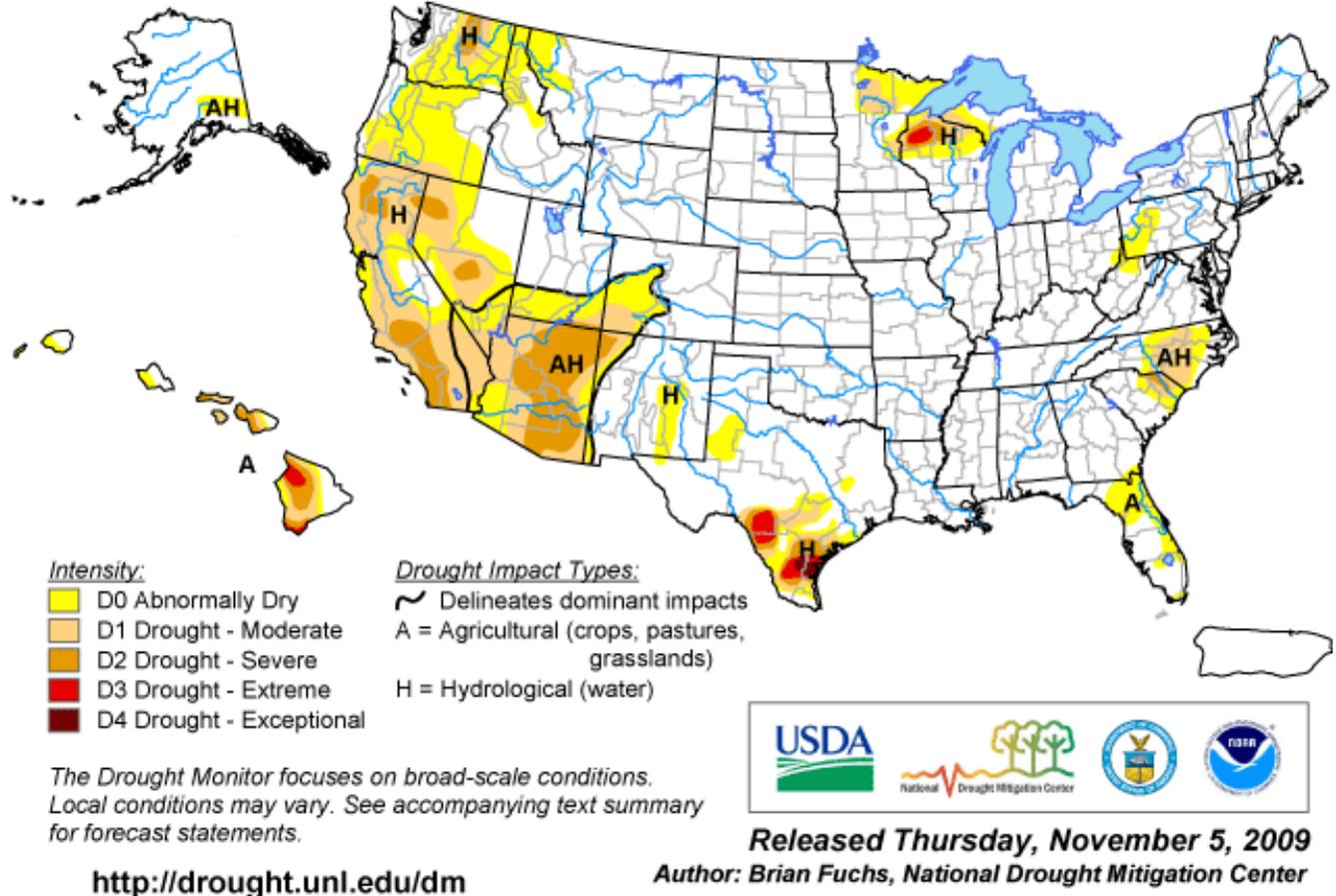


Fig. 3. Current Drought Monitor weekly summary.

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

U.S. Drought Monitor

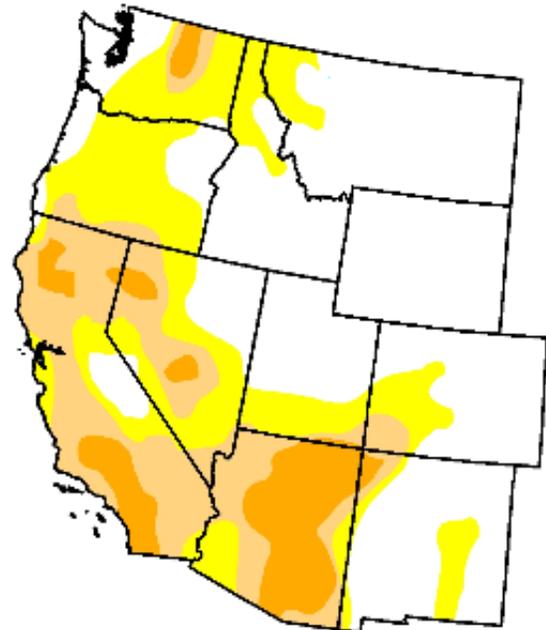
West

November 3, 2009

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	52.4	47.6	25.4	8.9	0.0	0.0
Last Week (10/27/2009 map)	51.0	49.0	22.9	8.9	0.0	0.0
3 Months Ago (08/11/2009 map)	53.6	46.4	16.8	7.1	0.0	0.0
Start of Calendar Year (01/06/2009 map)	37.4	62.6	28.9	8.8	0.4	0.0
Start of Water Year (10/06/2009 map)	42.1	57.9	25.4	8.5	0.0	0.0
One Year Ago (11/04/2008 map)	39.9	60.1	29.6	8.5	0.0	0.0



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, November 5, 2009

Author: Brian Fuchs, National Drought Mitigation Center

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

Fig. 3a. Drought Monitor for the Western States with statistics over various time periods. Regionally, there was little change during the past week.

Ref: http://www.drought.unl.edu/dm/DM_west.htm.

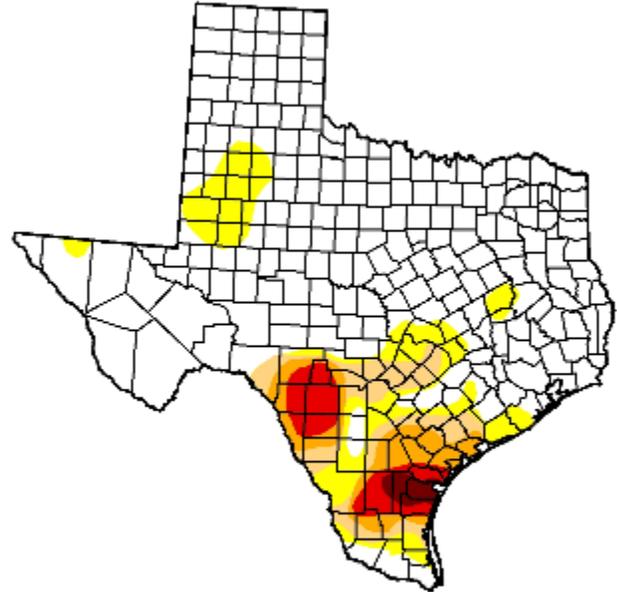
U.S. Drought Monitor

Texas

November 3, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	75.4	24.6	14.0	8.7	4.3	0.9
Last Week (10/27/2009 map)	73.6	26.4	14.8	8.7	4.3	0.9
3 Months Ago (08/11/2009 map)	50.0	50.0	34.1	28.9	26.6	16.8
Start of Calendar Year (01/06/2009 map)	41.7	58.3	24.5	15.0	9.1	4.2
Start of Water Year (10/06/2009 map)	66.1	33.9	22.4	14.5	6.8	1.5
One Year Ago (11/04/2008 map)	52.9	47.1	23.6	15.2	6.8	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
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<http://drought.unl.edu/dm>



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Fig. 3b: Texas is the only state with D4 drought condition in the US, although less than one percent of the total area of the state. Significant category improvements occurred this week.
Ref: http://www.drought.unl.edu/dm/DM_state.htm?TX,S

Drought Monitor Classification Changes for Selected Time Periods

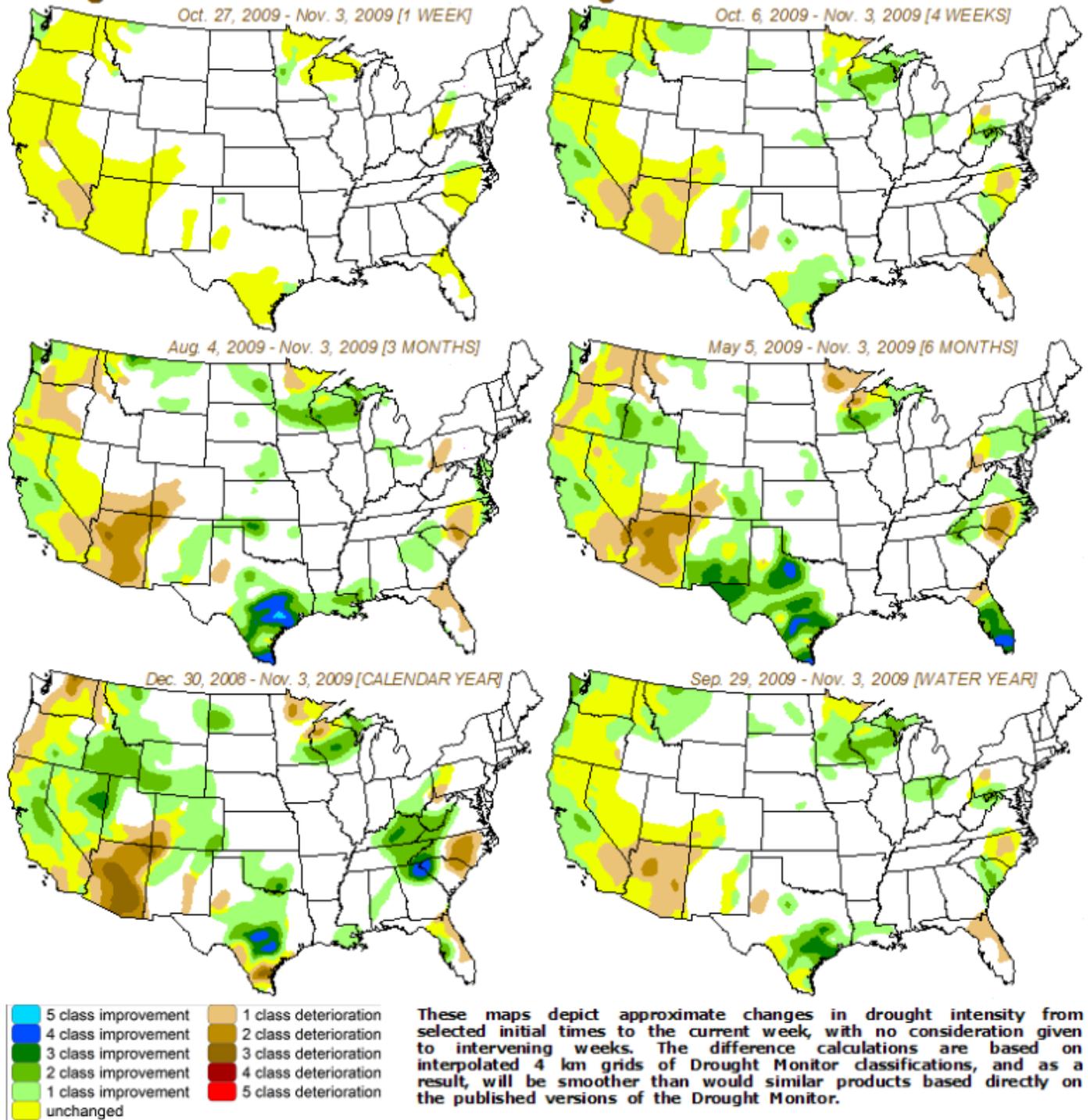
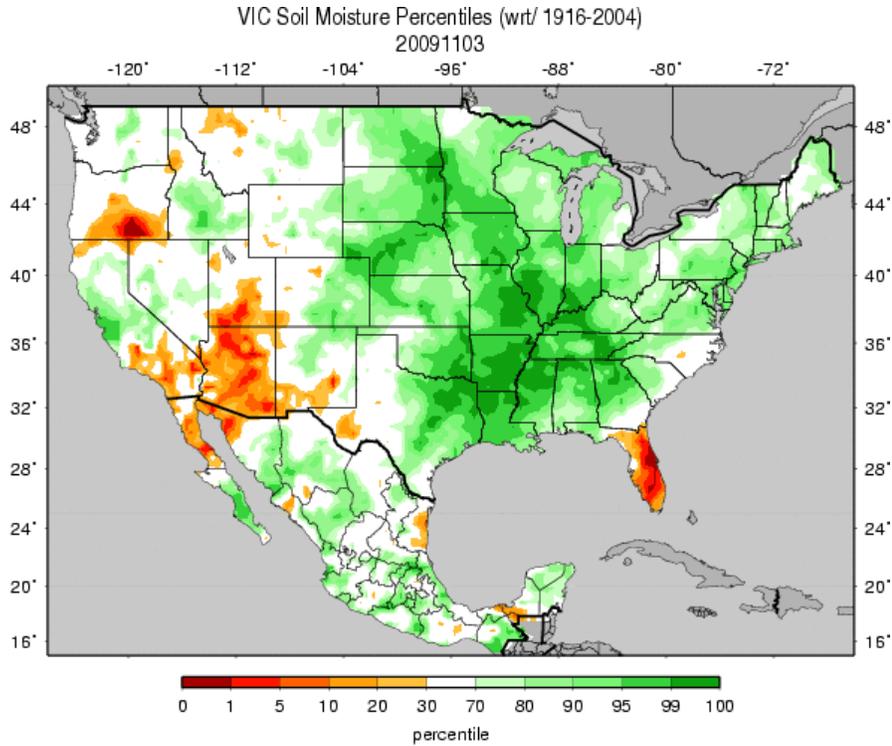


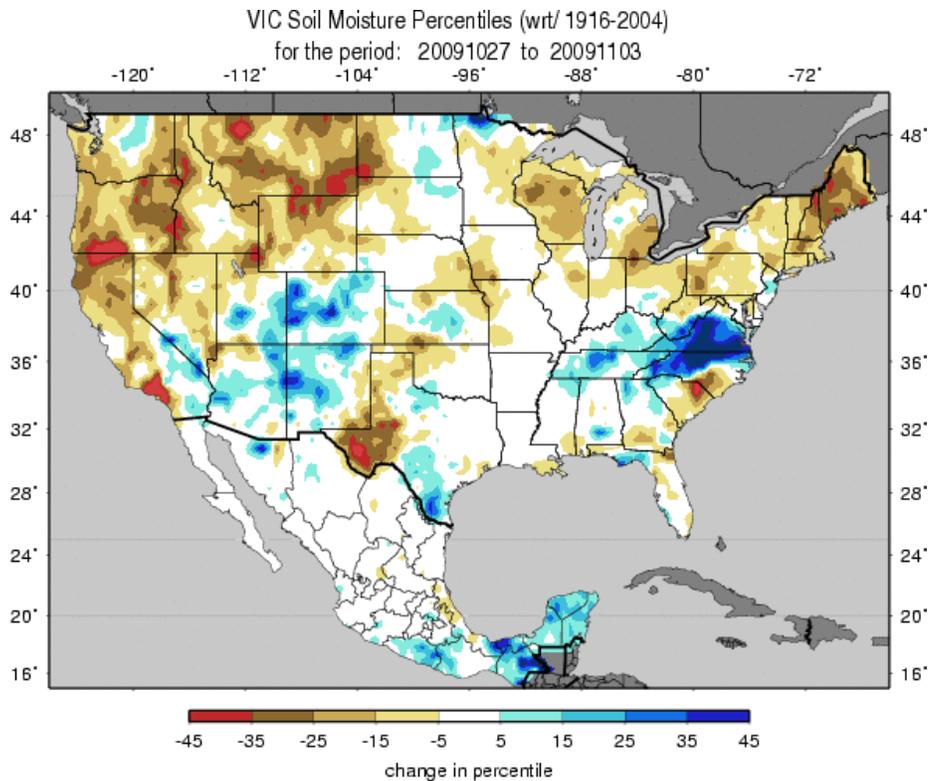
Fig. 3c: Drought Monitor classification changes for select time periods. Note marked improvement over Texas during the past 3 months.

Weekly Snowpack and Drought Monitor Update Report



Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 3 November. Arizona-Utah, southern Oregon, and Florida are the driest states this week.

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_gnt.gif



Figs. 4b: Soil Moisture change in percentile based on 1916-2004 climatology for this past week. Much of the northern West, New England, and much of California shows significant drying while the Carolinas shows significant moistening.

http://www.hydro.washington.edu/forecast/monitor/curr/conus.mexico/CONUS.MEXICO.vic.sm_gnt.1wk.gif

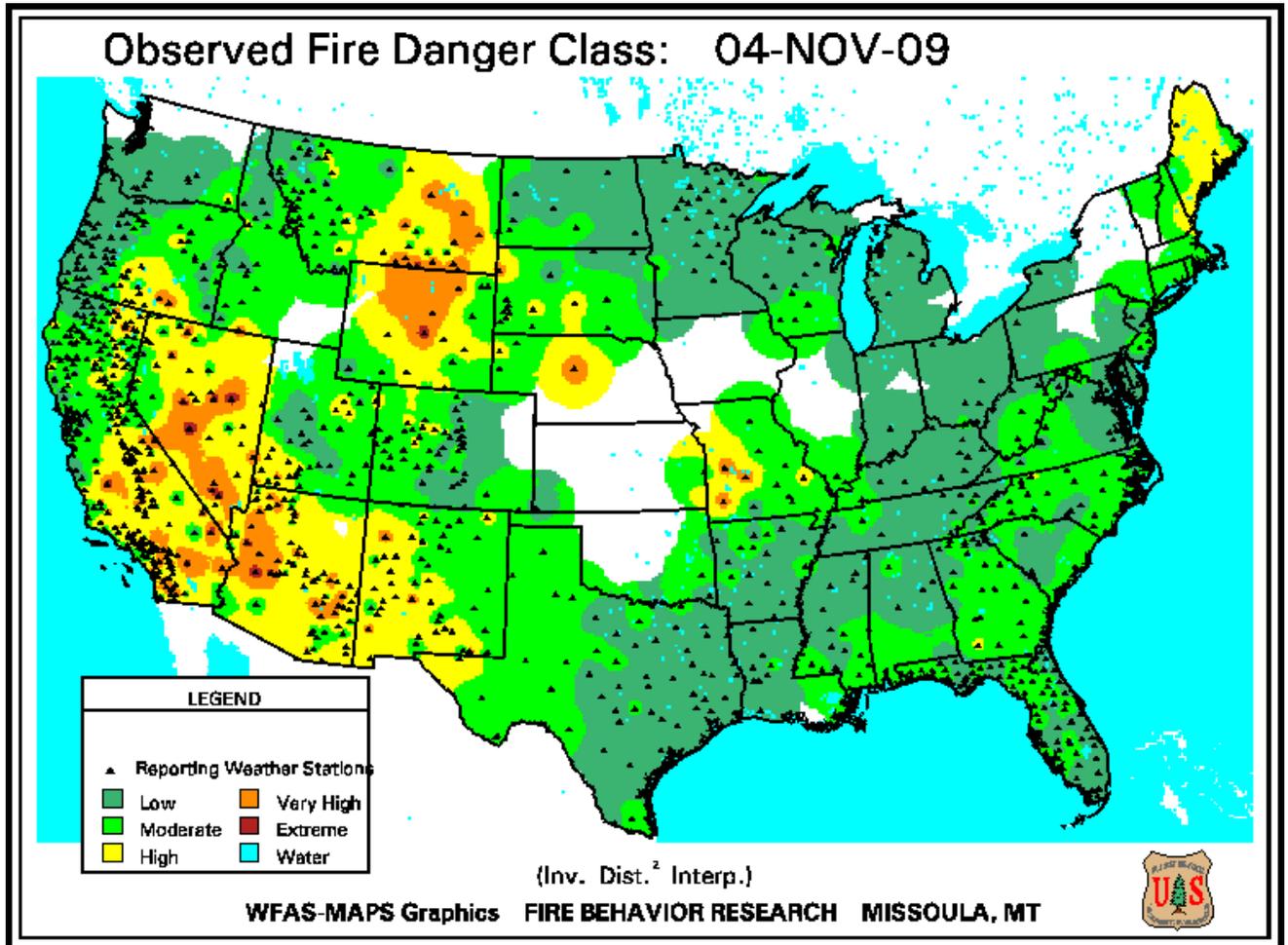
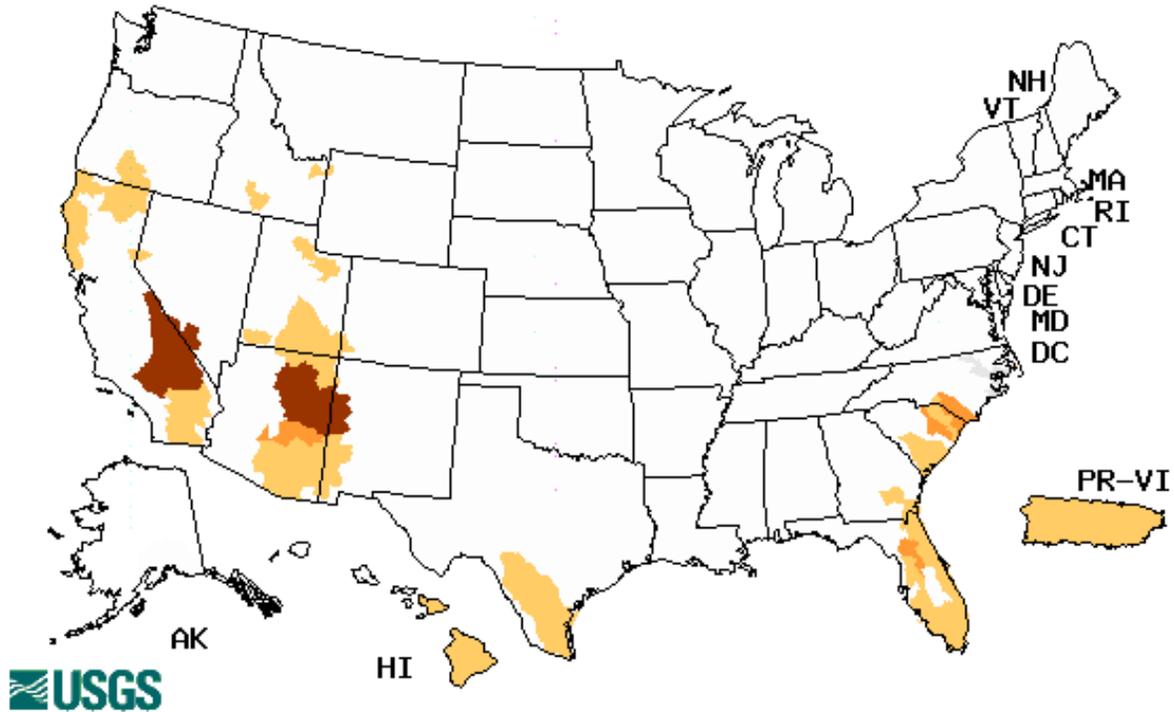


Fig. 5a. Observed Fire Danger Class.

Ref: http://www.wfas.net/images/firedanger/fd_class.gif

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Hednesday, November 04, 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. 6. Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Conditions are severe over Arizona and southern California.

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

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National Drought Summary -- November 3, 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/>.

Northeast and Mid-Atlantic, and Carolinas: Another wet week over much of the region, continuing the trend of a wet fall for most locations. Improvements were made to the D0 in New York and into Pennsylvania. Improvements were also made to the northwest area of the D0 and D1 in North Carolina while the D0 was removed completely from Virginia, pushing the DO boundary into north central North Carolina. Because of lingering dryness along the coast of South Carolina, an expansion of DO was considered, but was not made at this time.

Florida: The last few months have been dry over much of the Florida peninsula. There was an expansion of D0 along the eastern coast and a new area of D0 in extreme south Florida. The lack of any serious impacts at this time has prevented the introduction of D1. Many areas of Florida are still showing a wet signal out to 6 months with the influence of widespread heavy rains that took place in late May, helping to ease concerns about the recent dry stretch as Florida transitions into their dry season.

Midwest: A wet week over much of the Midwest has many agricultural producers eager to harvest their crops. Wet fields and standing water, along with a late-maturing corn crop, have delayed the grain harvest for many. Improvements to the D0/D1 over Minnesota and Wisconsin were made, with all of western Minnesota considered drought free at this time. The recent rains have replenished soil moisture and helped with river and stream levels, but there are continuing long-term hydrological issues that are not showing much response yet to the wet weather.

The Southern Plains: Mostly status quo for the region this week. Improvements were made in southeast Texas to the D0/D1 conditions as this area has shown enough improvement from recent rains to pull back some of the drought. The area around Lubbock is starting to show more dryness, but the introduction of D1 was held off this week as the dryness has not persisted long enough to impact the wheat crop and there are no other impacts being reported at this time.

The West: A quiet week in the western United States allowed for just a few changes on the drought depiction. D0 was expanded southward in northern California because of continuing water issues in the area. D1 was expanded out of Arizona and connected to the D1 in southern California. The D1 expansion also included the southern tip of Nevada. Improvements were made to the D0 in Montana, Idaho and Washington as good precipitation since the start of the water year has allowed for conditions to improve.

Alaska and Hawaii: No changes for Alaska this week. For Hawaii, Kauai and Oahu saw improvements to the D0 over the northeastern portions of those islands as the onset of the wet season has produced normal to above-normal rainfall. On the Big Island, the Pohakuloa area is still having poor pasture and vegetation conditions, leading to an expansion of the D3 there. On the southern end of the Big Island, upslope rainfall has

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allowed for improvements to pastures in the upper elevations, but the lower elevations are still poor, allowing D3 to be improved slightly this week for the upper elevation locations.

Looking Ahead: During the next 5 days (November 4-8), a warming trend will occur over much of the United States, centered over the High Plains. Temperatures should be 6-12 degrees Fahrenheit above normal, with the greatest departures over Nebraska and South Dakota. Precipitation chances look to be greatest over the Great Lakes and Upper Midwest and along the coast of the Pacific Northwest. Precipitation chances also look good over portions of the Gulf Coast and portions of south Florida. The Climate Prediction Center 6-10 day forecast (November 9-13) temperatures continue to be well above normal over the eastern half of the United States, with the warmest temperatures centered over the Great Lakes. Below-normal temperatures are anticipated over California, Nevada and Alaska during this time. Precipitation chances are projected to be greatest over the Plains and Mississippi Valley and Pacific Northwest. The western portions of Alaska should have above-normal precipitation as well.

Author: [Brian Fuchs, 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

H ... Hydrological

Updated November 4, 2009