



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

Weekly Report - Snowpack / Drought Monitor Update Date: 12 November 2009

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Temperature: SNOTEL and ACIS-day station average weekly temperature anomalies show well above normal temperatures over the Colorado Rockies and below normal temperatures along the Pacific Coast (Fig.1). ACIS 7-day average temperature anomalies show that the greatest positive temperature departures was scattered across the eastern slope of the Rockies (>+12F) and the greatest negative departures occurred over the Cascades and California Coastal Ranges (<-1F) (Fig. 1a).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 11 November shows the bulk of the heaviest precipitation fell over the Northern Cascades and Washington Coast Mountains. In terms of percent of normal, much of the western Oregon and Washington and northern Idaho had the greatest amounts (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). Although still early into the snow accumulation season, some SNOTEL sites have up to two feet of snow on the ground (Fig 2c).

WESTERN DROUGHT STATUS

The West: D0 in Washington and Oregon was improved again this week, pushing the D0 to the east, farther from the coast. In New Mexico, D0 was expanded in the eastern portion of the state as well as along the border with Arizona. D2 was expanded in northern Arizona while D0 and D1 was expanded out of northern Arizona and pushed further into Utah. In Nevada, the area around Lake Tahoe reverted back to how it was depicted in early October. Even after an early October storm, flows on most Lake Tahoe and Truckee River tributary streams are now at or below what they were in early to mid October. This is the earliest that required flow rates have not been met on the Truckee River since 1994.
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).

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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: <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/cqibin/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 Temperature Anomaly (Degrees F)

Nov 12, 2009

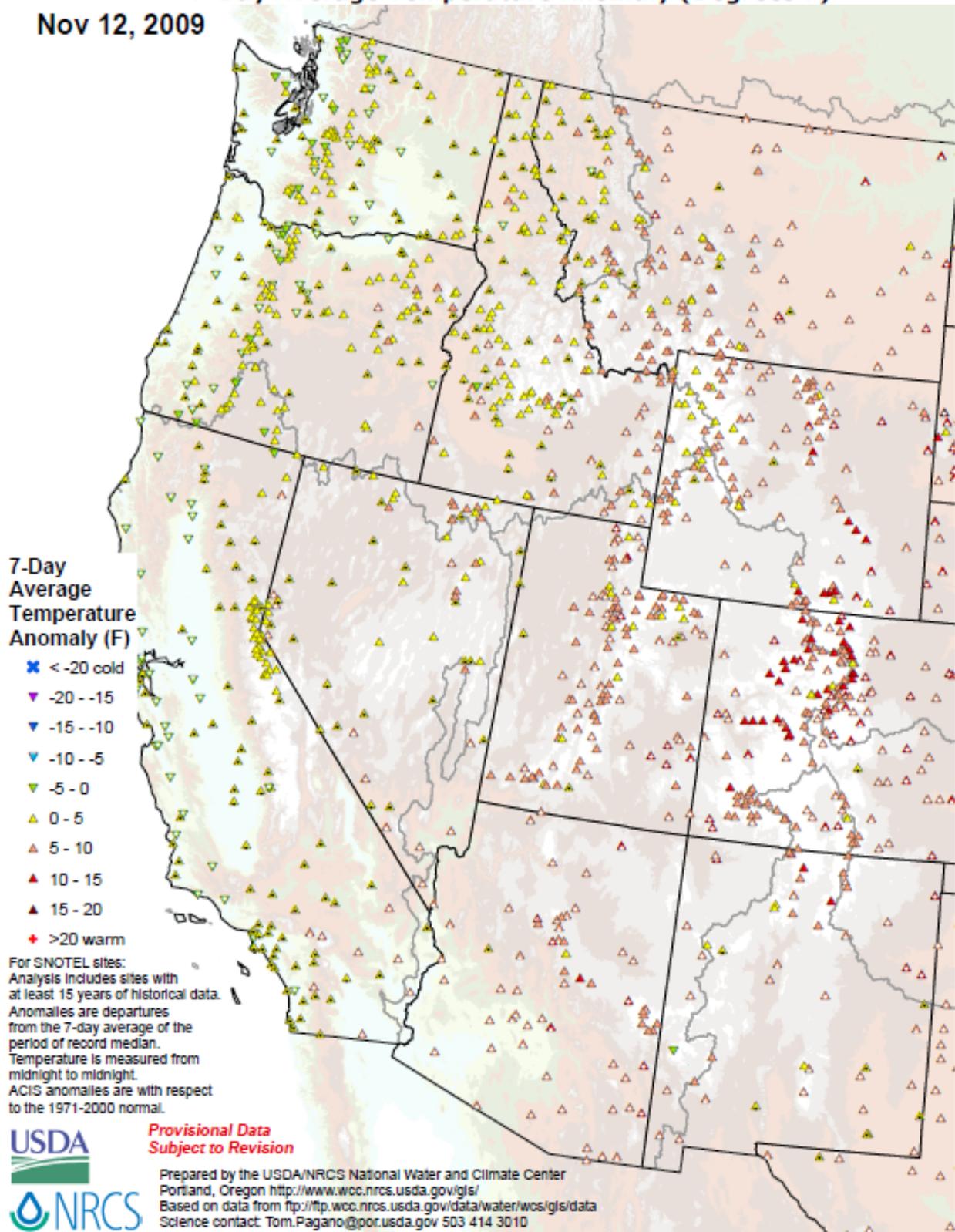
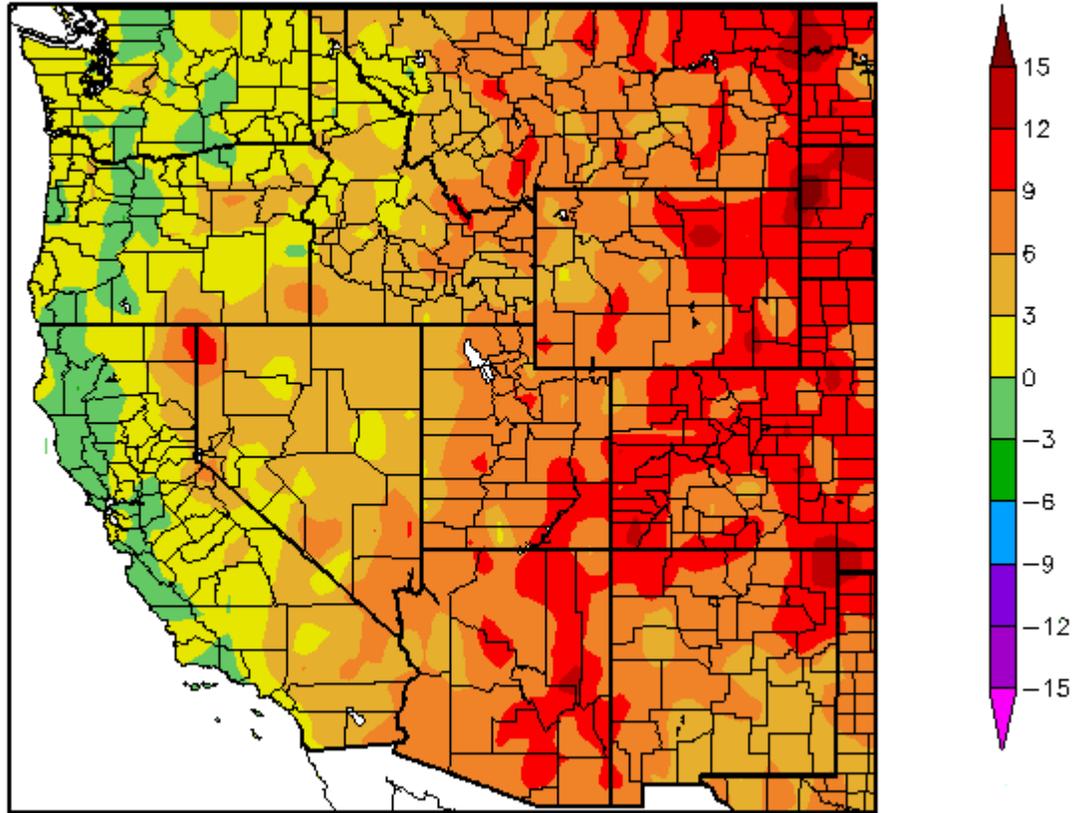


Fig. 1. SNOTEL and ACIS-day station average weekly temperature anomalies show well above normal temperatures over the Colorado Rockies and below normal temperatures along the Pacific Coast. Ref: <ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/WestwideTavg7dAnomalyAcis.pdf>

Departure from Normal Temperature (F)
11/5/2009 – 11/11/2009



Generated 11/12/2009 at HPRCC using provisional data.

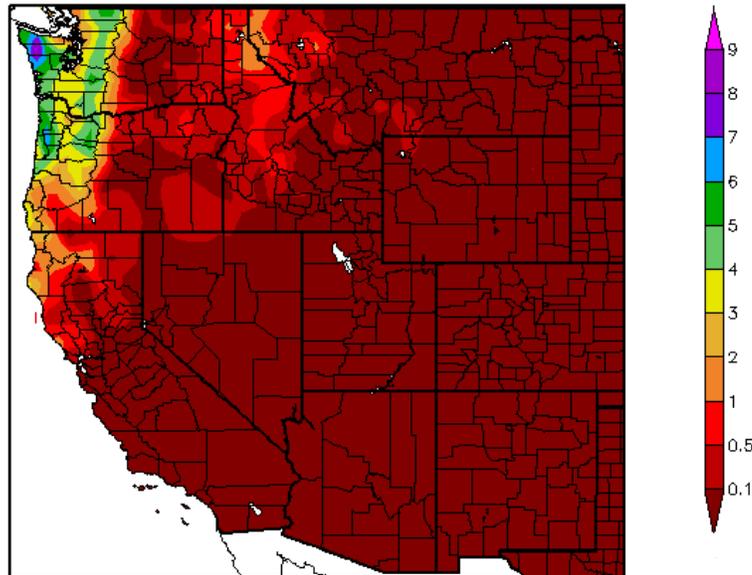
NOAA Regional Climate Centers

Fig. 1a. ACIS 7-day average temperature anomalies show that the greatest positive temperature departures was scattered across the eastern slope of the Rockies (>+12F) and the greatest negative departures occurred over the Cascades and California Coastal Ranges (<-1F).

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

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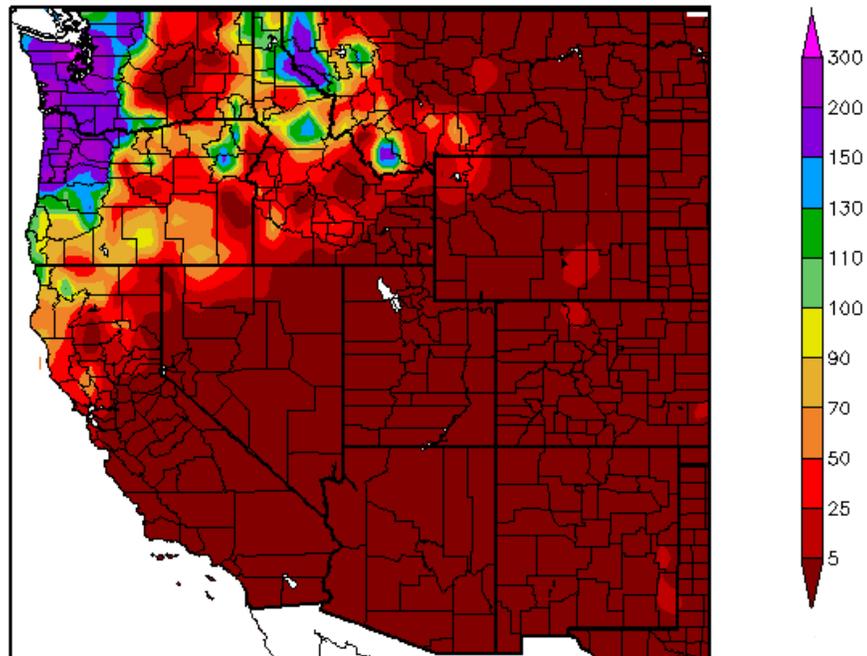
Precipitation (in)
11/5/2009 - 11/11/2009



Generated 11/12/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
11/5/2009 - 11/11/2009



Generated 11/12/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Fig. 2. and 2a. ACIS 7-day average precipitation amounts for the period ending 11 November shows the bulk of the heaviest precipitation fell over the Northern Cascades and Washington Coast Mountains. In terms of percent of normal, much of the western Oregon, Washington, and northern Idaho had the greatest amounts. Ref: <http://www.hprcc.unl.edu/maps/current/>.

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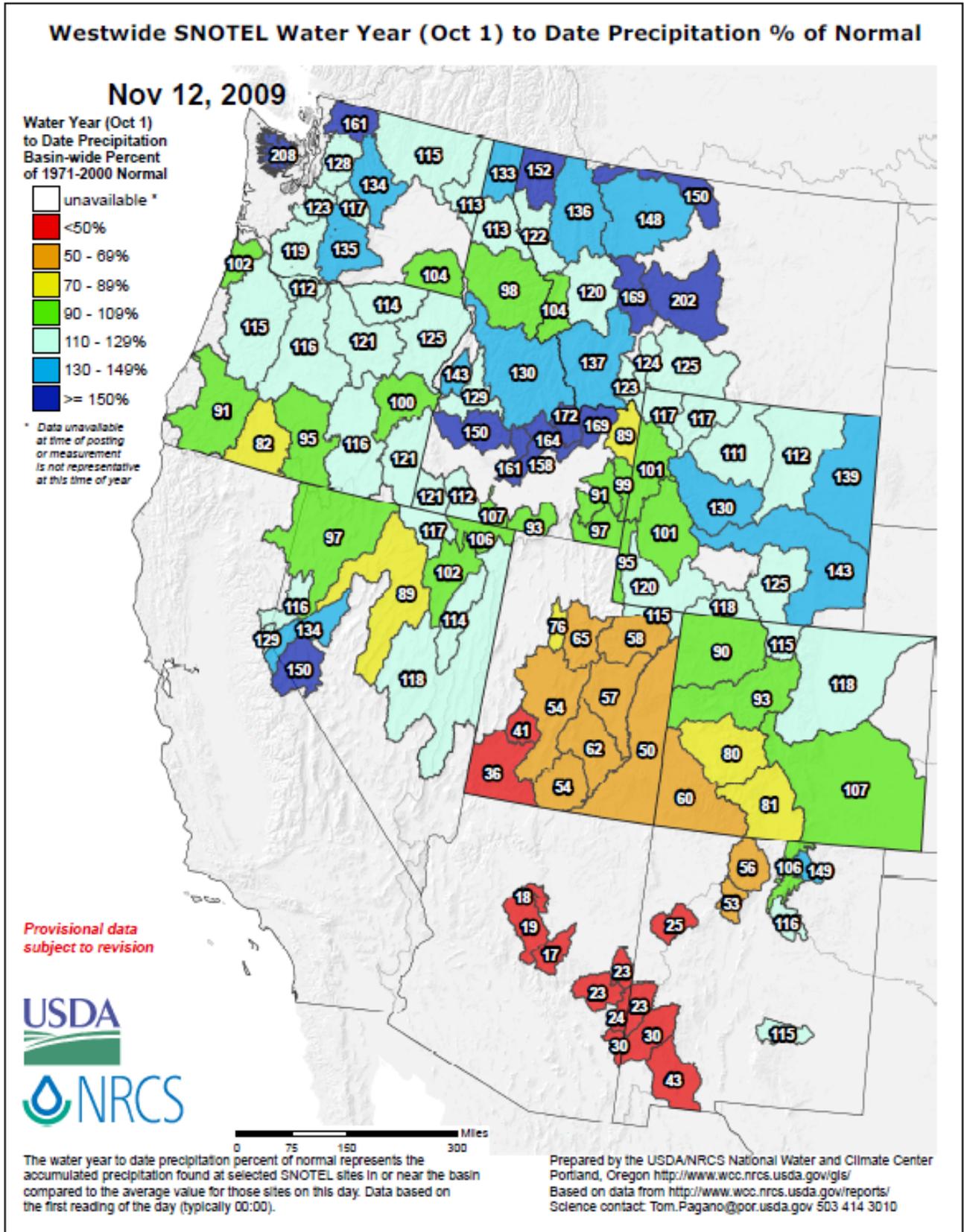


Fig 2b. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2010 Water Year that began on October 1, 2009 shows the emergence of a wetter pattern over the Northern Tier States and a drier pattern over Utah, Arizona, and New Mexico.

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

SNOTEL Current Snow Depth (Inches)

Nov 12, 2009

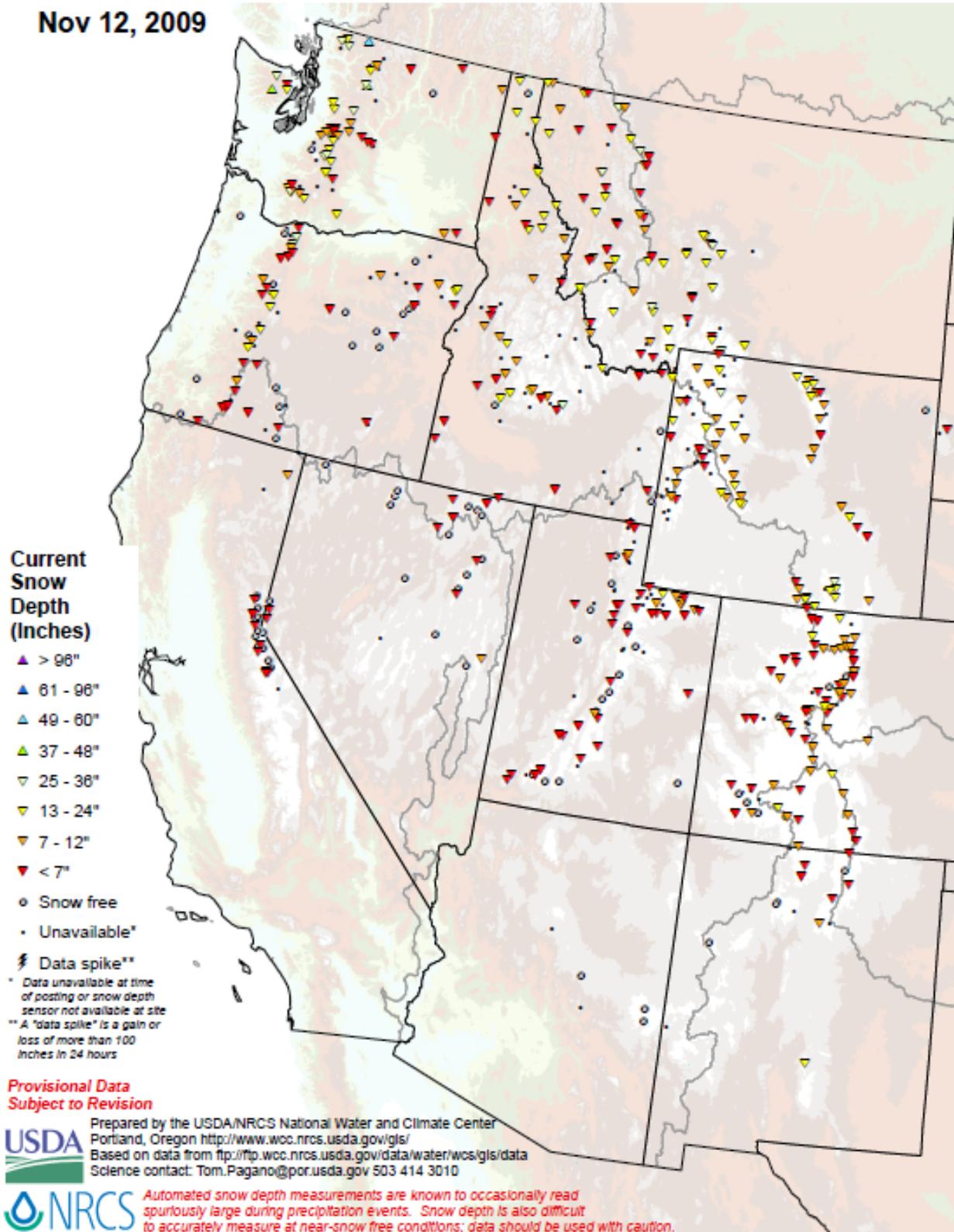
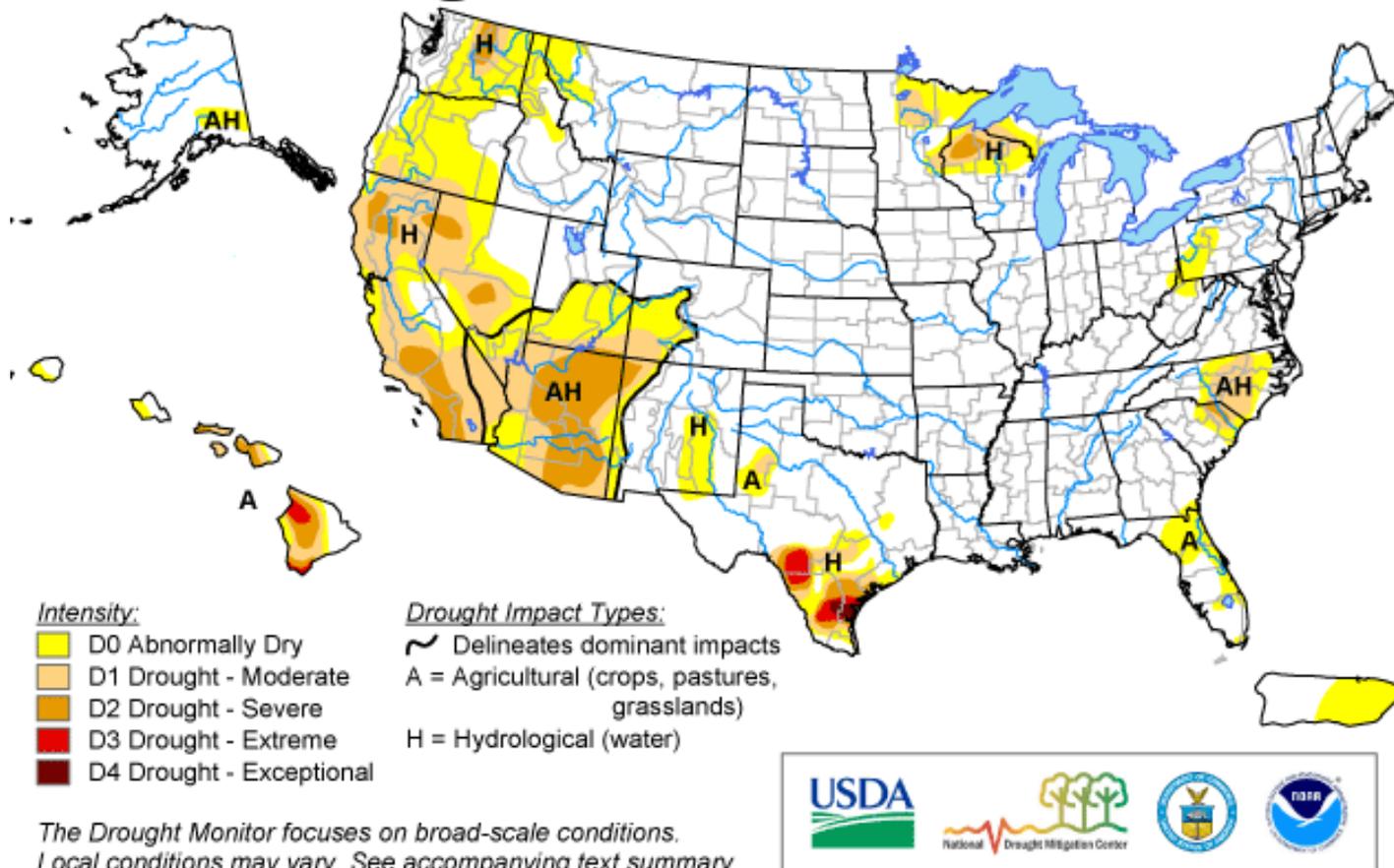


Fig 2c. Although still early into the snow accumulation season, some SNOTEL sites have up to two feet of snow on the ground.

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

U.S. Drought Monitor

November 10, 2009
Valid 7 a.m. EST



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

Released Thursday, November 12, 2009

Author: Brian Fuchs, National Drought Mitigation Center

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

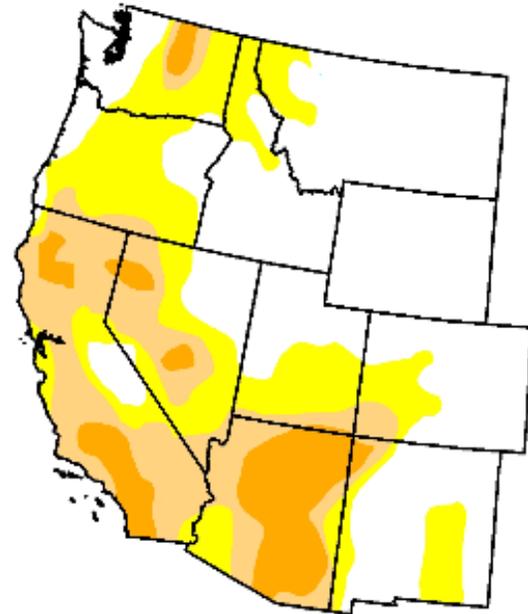
West

November 10, 2009

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	50.6	49.4	26.0	9.0	0.0	0.0
Last Week (11/03/2009 map)	52.4	47.6	25.4	8.9	0.0	0.0
3 Months Ago (08/18/2009 map)	57.5	42.5	17.0	7.2	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 (11/11/2008 map)	41.9	58.1	28.4	8.7	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



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<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 10, 2009

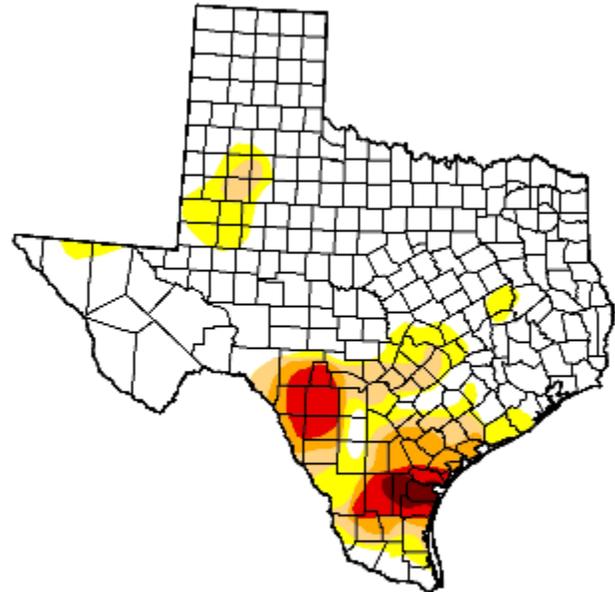
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	75.2	24.8	14.7	8.7	4.3	0.9
Last Week (11/03/2009 map)	75.4	24.6	14.0	8.7	4.3	0.9
3 Months Ago (08/18/2009 map)	49.9	50.1	35.3	28.9	26.7	18.1
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 (11/11/2008 map)	59.2	40.8	22.4	14.5	6.8	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 12, 2009

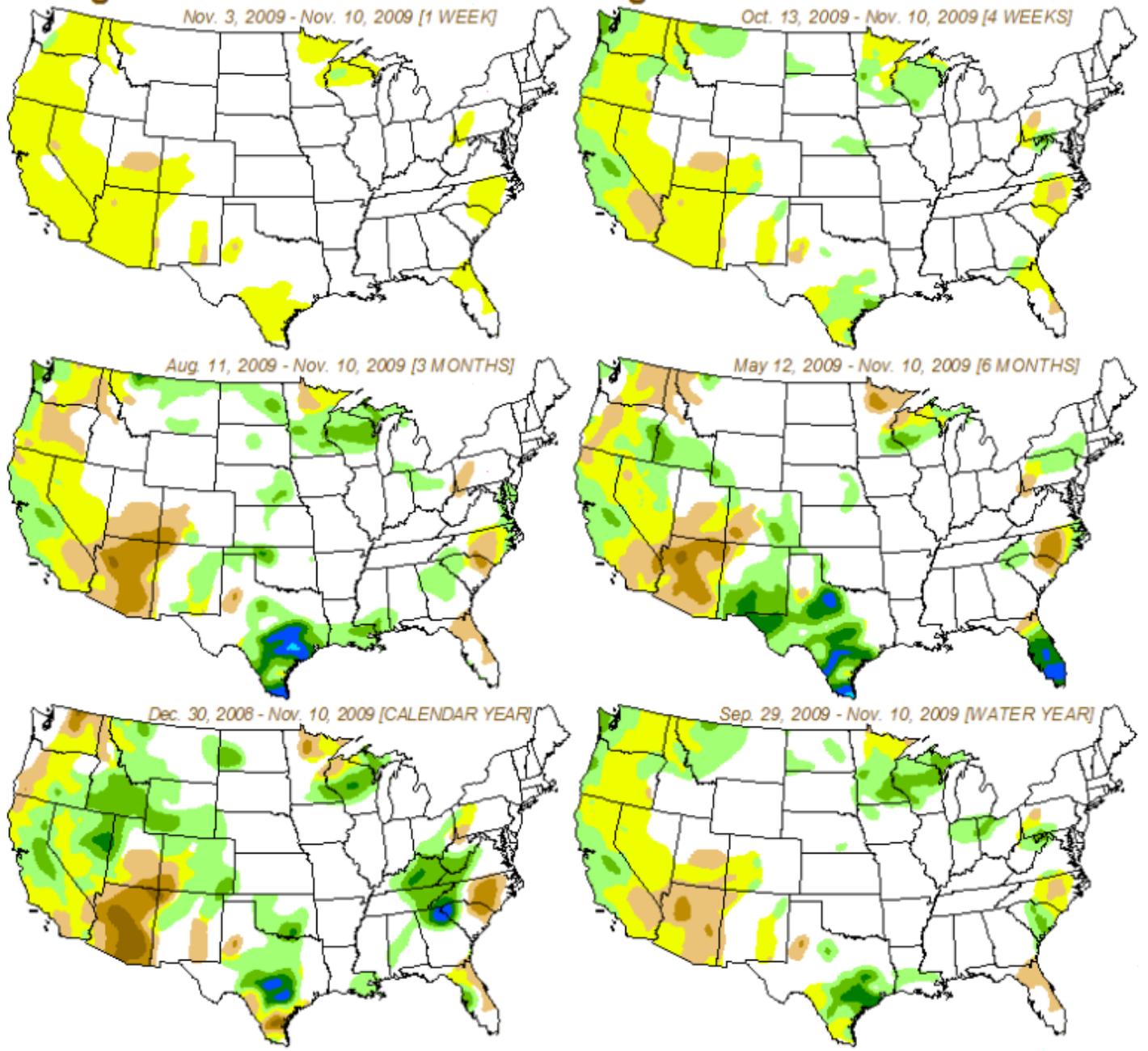
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<http://drought.unl.edu/dm>

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. No significant category improvements occurred this week.

Ref: http://www.drought.unl.edu/dm/DM_state.htm?TX,S

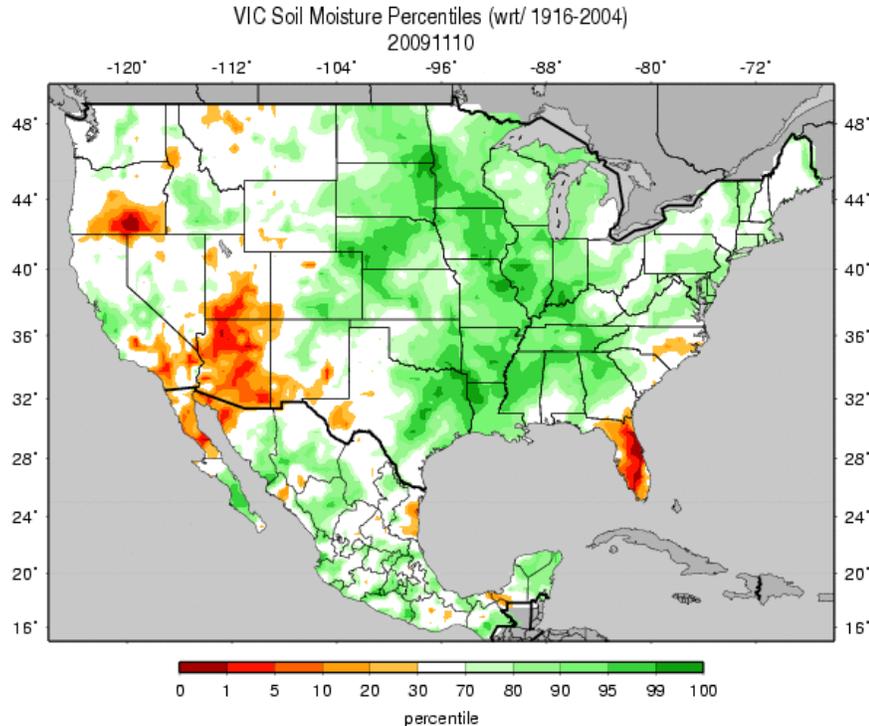
Drought Monitor Classification Changes for Selected Time Periods



These maps depict approximate changes in drought intensity from selected initial times to the current week, with no consideration given to intervening weeks. The difference calculations are based on interpolated 4 km grids of Drought Monitor classifications, and as a result, will be smoother than would similar products based directly on the published versions of the Drought Monitor.

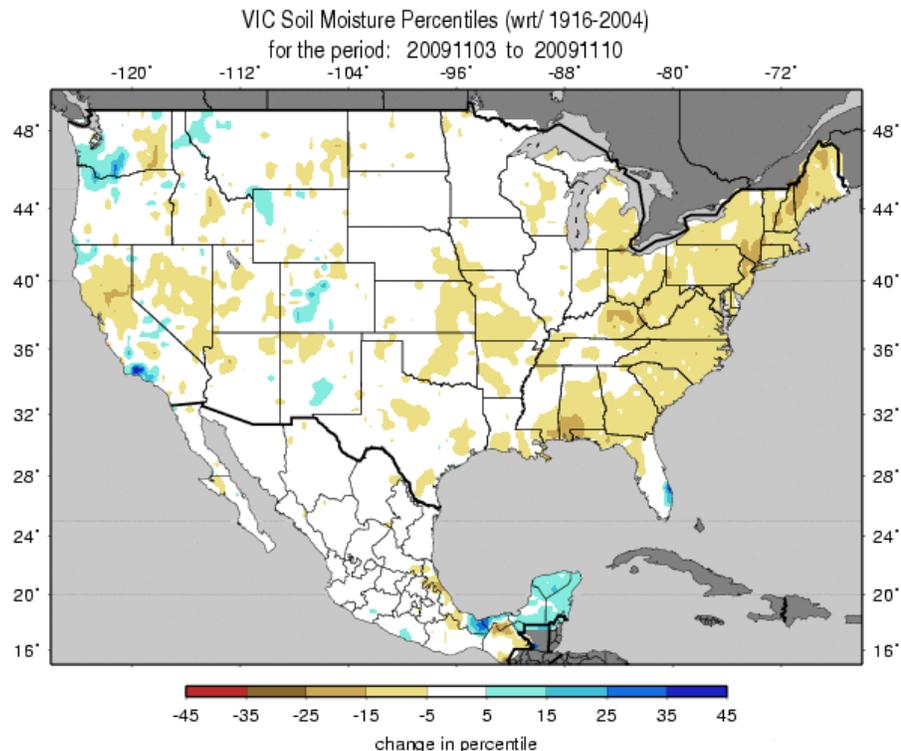
Fig. 3c: Drought Monitor classification changes for select time periods. Note marked improvement over the coastal Pacific States during the past month.

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Figs. 4a: Soil Moisture ranking in percentile based on 1916-2004 climatology as of 10 November. Arizona-Utah, southern Oregon, and Florida continue to be 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 eastern third of the nation shows drying while the Columbia River region (OR-WA) shows some moistening.

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

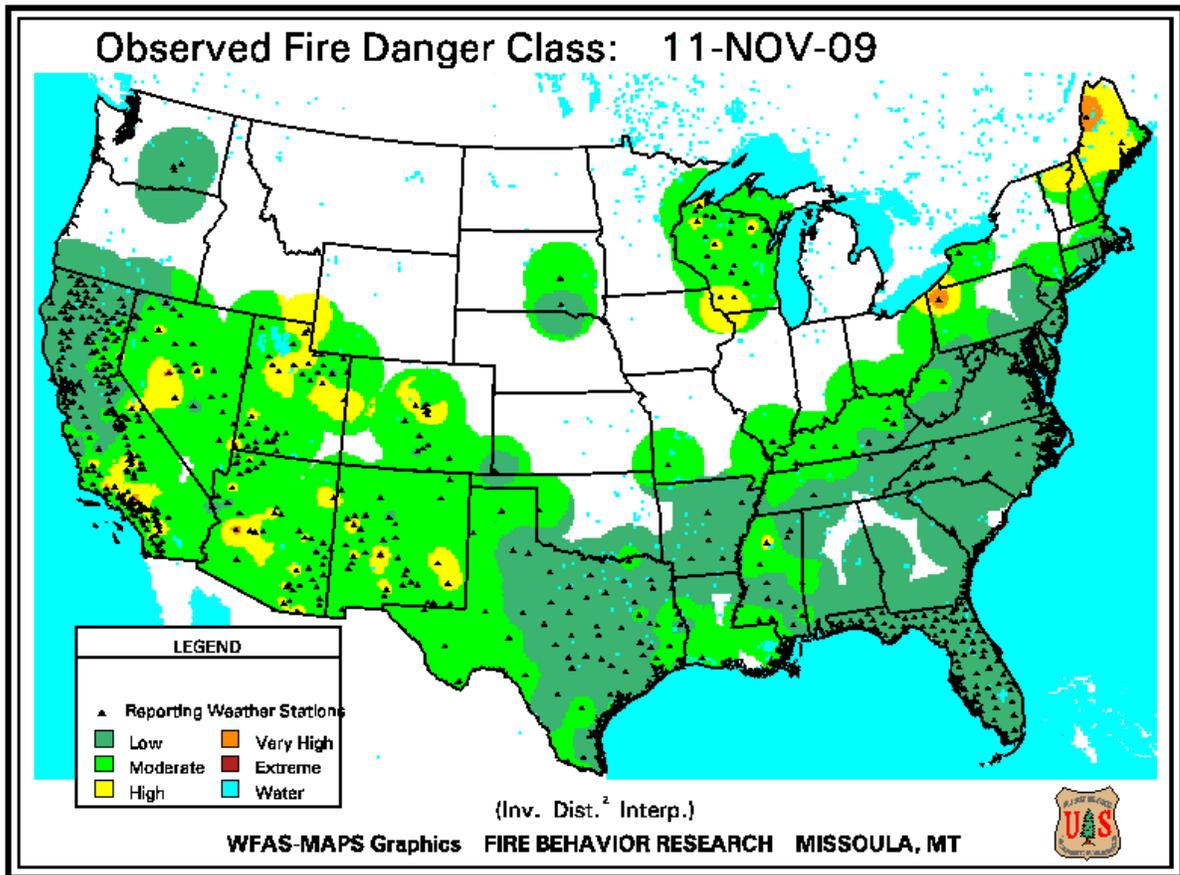


Fig. 5a. Observed Fire Danger Class. Conditions have improved across the West as cooler temperatures dominate.
Ref: http://www.wfas.net/images/firedanger/fd_class.gif

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Hednesday, November 11, 2009

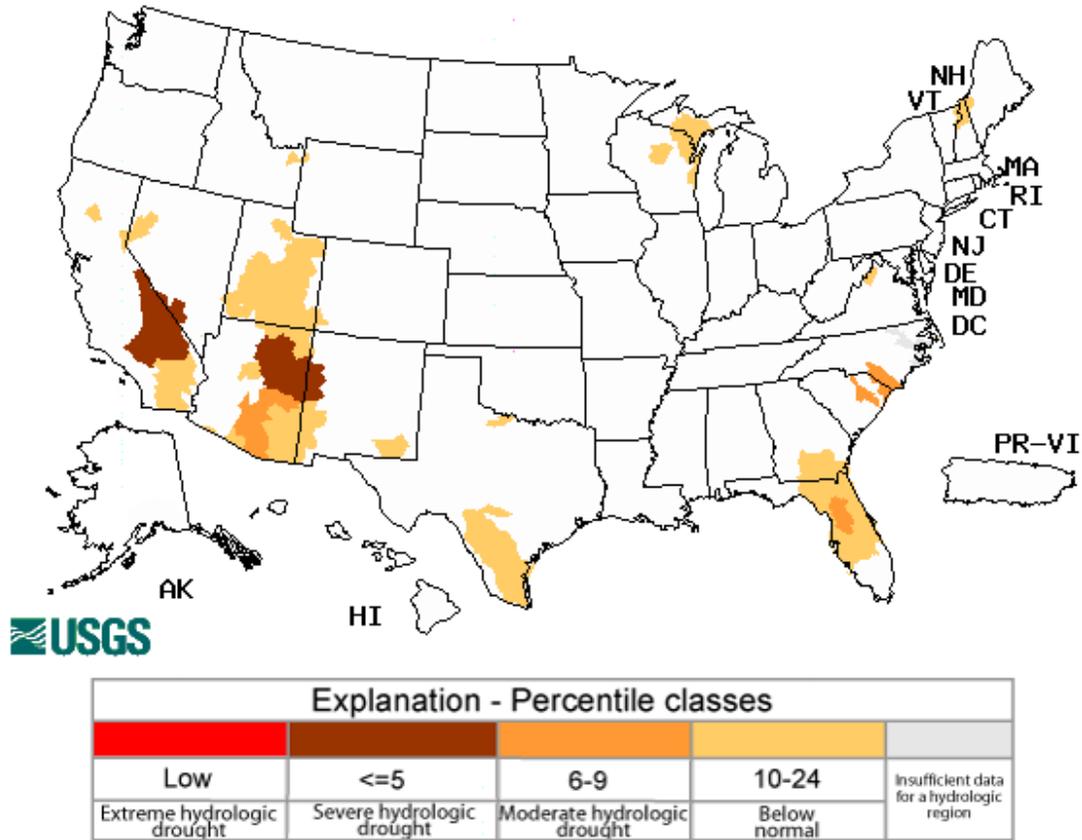


Fig. 6. Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Conditions are severe over Arizona and southeastern California.

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

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National Drought Summary -- November 10, 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: A dry week over the region has allowed the drought status to remain the same as last week. At the end of the current Drought Monitor period, the remnants of Tropical Storm Ida were impacting the Carolinas with heavy rains. This should bring some welcomed relief to the region where dryness was becoming a concern. With the rain falling after the period of consideration for this current Drought Monitor, changes reflecting Ida's impacts will be made next week when a full assessment of the event can be done.

Florida: As Ida impacted much of the Southeast, much of the Florida peninsula did not receive the heavy rains that other areas did. No changes were made this week, but the lingering dryness in many areas will continue to be analyzed in the coming weeks.

Midwest: Considering the time of year and the associated impacts from the long-term dryness in Wisconsin, the D3 was improved to D2 this week. Recent rains have helped conditions in the area, and the full impact on the hydrologic concerns is yet to be known. If the region continues to receive precipitation, this will help improve the hydrological impacts further.

The Southern Plains: D1 was added in the area around Lubbock in west Texas. This area is experiencing dryness on short- and long-term scales that has caused some shortages of surface moisture. The rest of Texas remained unchanged this week as the rainfall that was recorded did not allow for any additional changes.

The West: D0 in Washington and Oregon was improved again this week, pushing the D0 to the east, farther from the coast. In New Mexico, D0 was expanded in the eastern portion of the state as well as along the border with Arizona. D2 was expanded in northern Arizona while D0 and D1 was expanded out of northern Arizona and pushed further into Utah. In Nevada, the area around Lake Tahoe reverted back to how it was depicted in early October. Even after an early October storm, flows on most Lake Tahoe and Truckee River tributary streams are now at or below what they were in early to mid October. This is the earliest that required flow rates have not been met on the Truckee River since 1994.

Alaska and Hawaii and Puerto Rico: No changes for Alaska or Hawaii this week. In response to dryness over the last several months, D0 was added to the eastern half of Puerto Rico this week.

Looking Ahead: During the next 5 days (November 11-15), an active weather pattern should impact much of the country. As the remnants of Ida continue up the coast of North Carolina and into the Mid-Atlantic, precipitation amounts should be quite large, with 6 or more inches not out of the question. The next system coming onshore in the Pacific Northwest will have a trough moving through much of the country, bringing a good chance of precipitation for the Rocky Mountains and Plains states. Temperatures during this time will

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be above normal for the eastern half of the United States in front of this trough, and cooler than normal behind it. Temperatures should average well above normal in the northern Plains, where departures of 6-9 degrees Fahrenheit above normal are expected. Behind the trough, temperatures are going to be 0-3 degrees Fahrenheit below normal. The Climate Prediction Center 6-10 day forecast (November 16-20) establishes a ridge over much of the United States, with temperatures expected to be well above normal for the northern Rocky Mountains, Plains, Great Lakes and New England regions and below normal over Alaska and portions of northern California. Dry conditions look likely over the Plains and Rocky Mountains and northern portions of Alaska. Along the Pacific Northwest and Ohio Valley, wetter than normal conditions are probable during this time.

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 11, 2009