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

Weekly Report - Snowpack / Drought Monitor Update Date: 5 June, 2008

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: Preliminary snowpack conditions as of 1 June 2008 reveals conditions in some northern river basins exceed 130% of the values expected for this time of year. However, there is a lot of variability between basins (Fig. 1). Snow-water equivalent percent for this Water Year as of 4 June shows well above normal values continuing over the Cascades, Idaho Panhandle, into western Montana and over parts of Colorado, Wyoming, and Montana. Cooler weather continued over parts of the West this past week resulting in a slower melt off (Fig. 1a).

Temperature: For the past seven days, average temperature anomalies were up to 10 degrees F below average across the Sierra. Above normal temperatures occurred parts of the Rockies, Northern Cascades, and Uinta Ranges (Fig. 2). Specifically, the greatest negative temperature departures occurred over scattered parts of Oregon, Idaho, Utah, California, and Arizona (<-6F) and the greatest positive departures occurred over southeast New Mexico (>+10F) (Fig. 2a).

Precipitation: Preliminary precipitation totals for the 7-day period ending 4 June shows an abundant amount of precipitation falling over the Pacific Northwest and Great Basin. Little if any precipitation fell over the Central and Southern Rockies and the Southwest, including California (Fig. 3). Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of Colorado, central Arizona, parts of Oregon, and northern Wyoming. Parts of Nevada and southern New Mexico are experiencing significant shortfalls (Fig. 3a).

WESTERN DROUGHT STATUS

The West: The dryness continued this past week for the entire Southwest and most of California. This was somewhat tempered by cooler-than-normal temperatures that occurred across the Great Basin, Arizona, and California as well. New Mexico saw an expansion of D2 to the west across the extreme southern counties of the state. Precipitation has been pretty dismal for most time frames out to the Water Year (October 1), with only 25-50% of normal being reported in that period.

In California, many locations recorded a record or near-record dry spring. In fact, on June 4, Governor Schwarzenegger declared a statewide drought. On the heels of last winter's low totals, the water strain has been increased after a disappointing finish to this winter. Final snow water content levels statewide were only around 67% of average and thus streamflow runoff forecasts are only calling for a little more than 50% of normal. As a result of the past 90 days, D0 and D1 have pushed north up the valley and along the coast north of Santa Barbara up to Eureka.

To the north, this same dryness has started to have an effect on parts of eastern Washington and southern Idaho as well. D0 has now advanced into eastern Washington. According to the USDA-NRCS, the February-May precipitation in the Big Lost basin was the second lowest since 1982, while the Little Wood basin experienced their third lowest total. This came after both basins recorded 180% of normal precipitation in January. This has led to the expansion of D0-D1 in southern Idaho this week. Author: Mark Svoboda, 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. 4, 4a, and 4b).

SOIL MOISTURE
Soil moisture (Figs. 5 and 5a), 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 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 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.

VEGETATION HEALTH
Associated with vegetation health are pasture and rangeland conditions (Fig. 8), as noted at: http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf. ***Remarks:*** *Difference exists in 'condition' categories used by NASS, NOAA, etc., compared to NRCS definitions. The condition in this report only considers present grass growth. NRCS often considers 10 - 17 indicators as appropriate for vegetation health.*

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

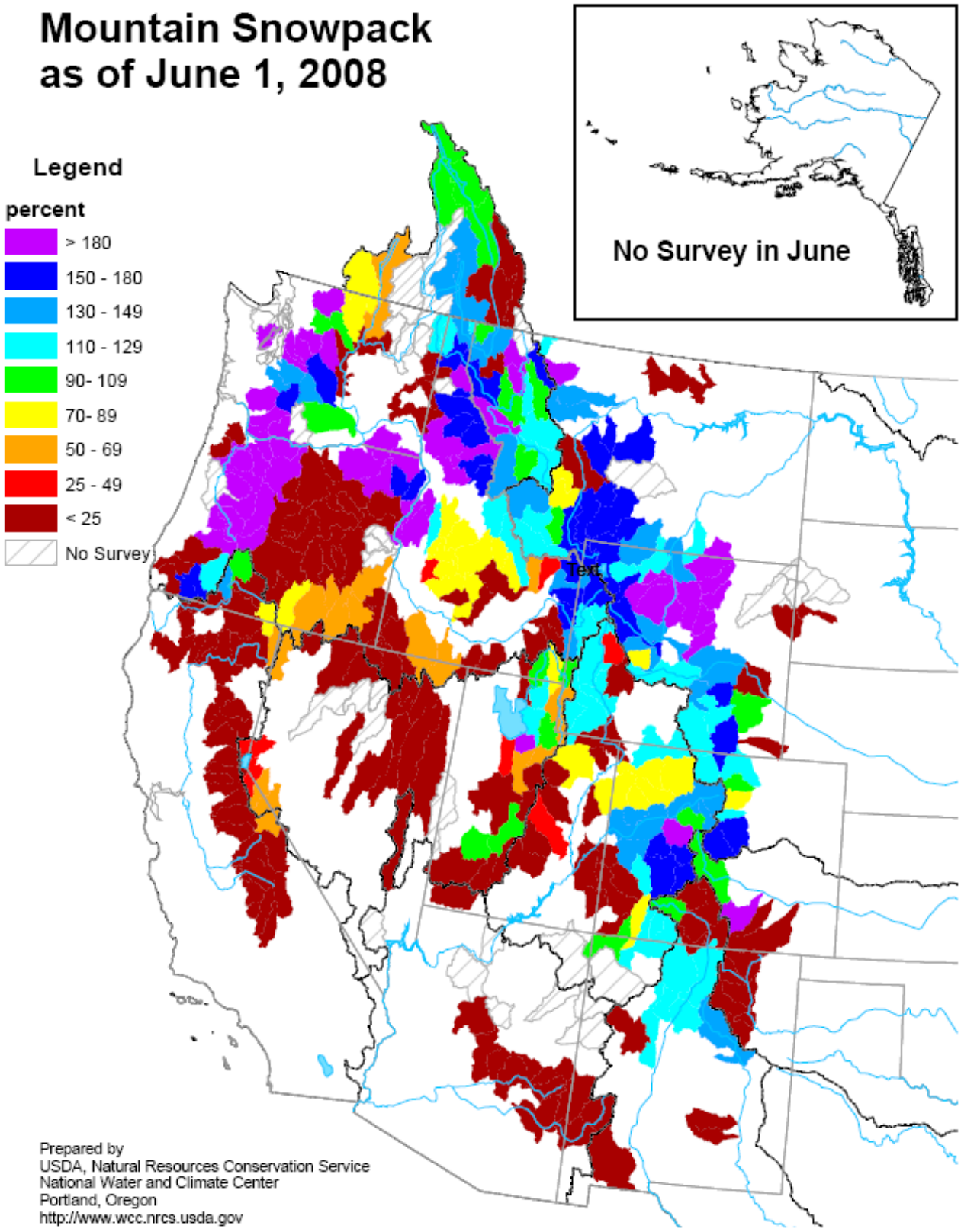


Fig. 1. Preliminary snowpack conditions as of 1 June 2008 reveal conditions in some northern river basins exceed 130% of the values expected for this time of year. However, note that there is a lot of variability between basins.

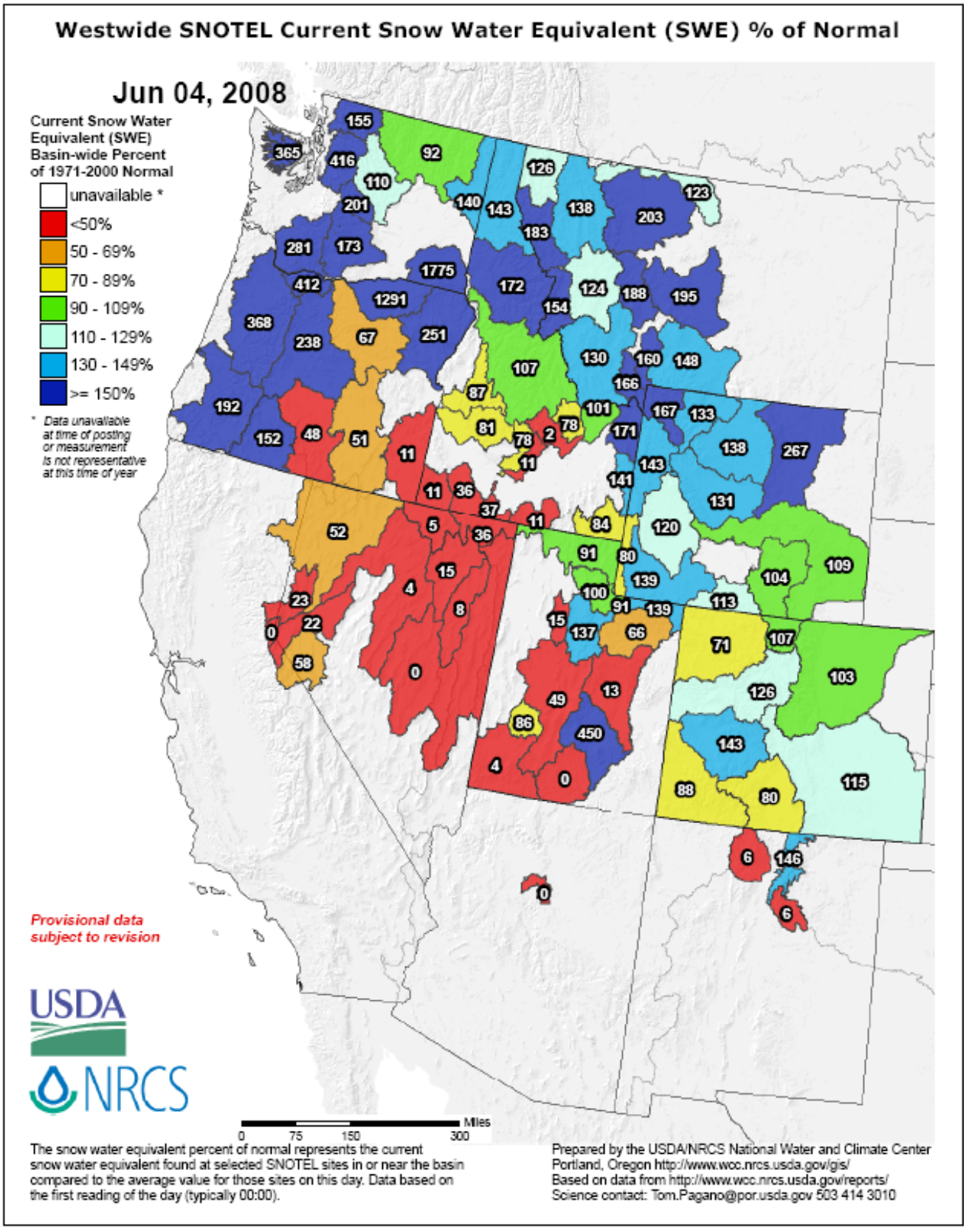


Fig. 1a. Snow-water equivalent percent for this Water Year as of 4 June shows well above normal values continuing over the Cascades, Idaho Panhandle, into western Montana and over parts of Colorado, Wyoming, and Montana. Cooler weather continued over parts of the West this past week resulting in a slower melt off.

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

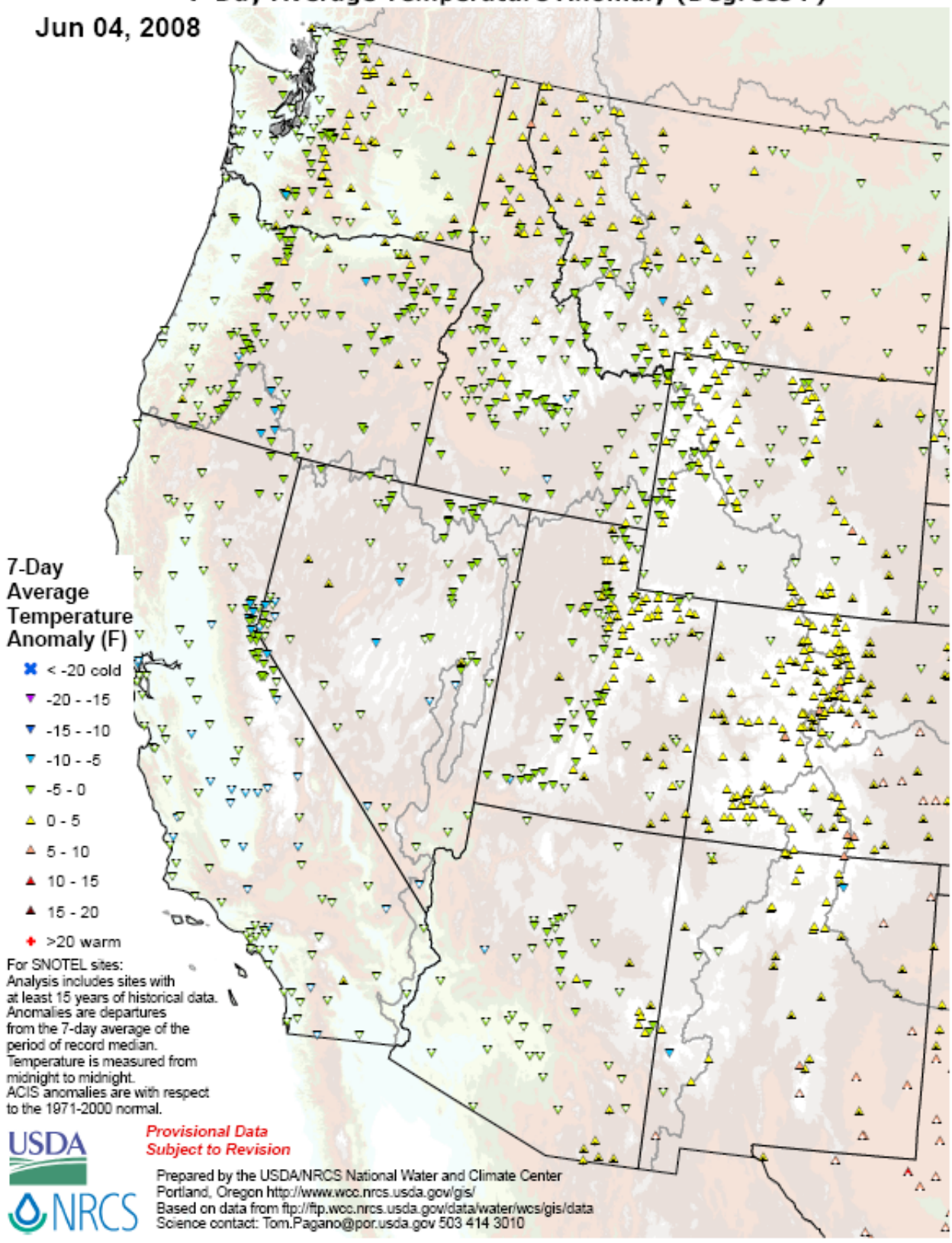


Fig. 2. SNOTEL & ACIS 7-day station average temperature anomalies were up to 10 degrees F below average across the Sierra. Above normal temperatures occurred parts of the Rockies, Northern Cascades, and Uinta Ranges.

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

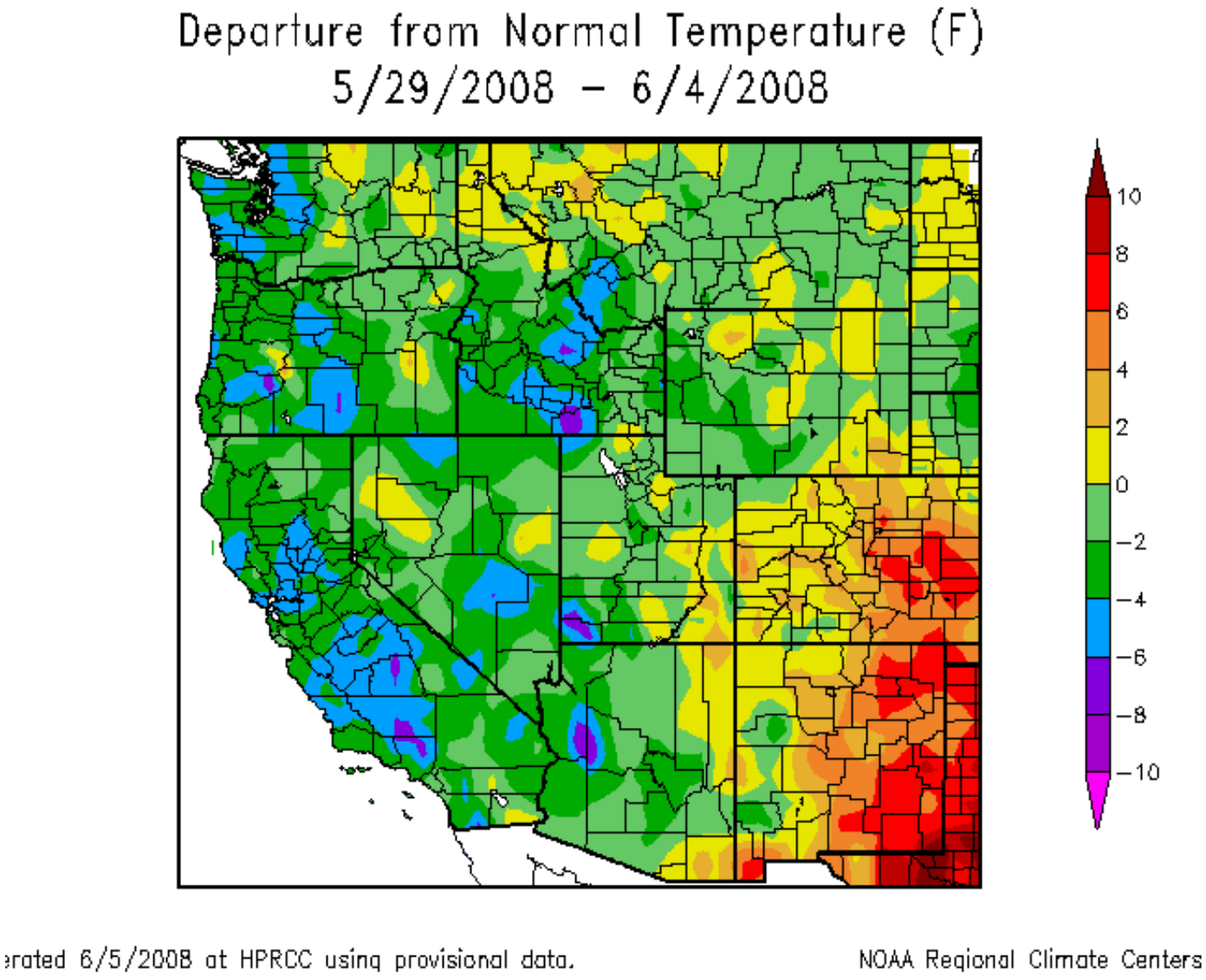


Fig. 2a. ACIS 7-day average temperature anomalies: Greatest negative temperature departures were scattered over parts of Oregon, Idaho, Utah, California, and Arizona (<-6F) and greatest positive departures over southeast New Mexico (>+10F).

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

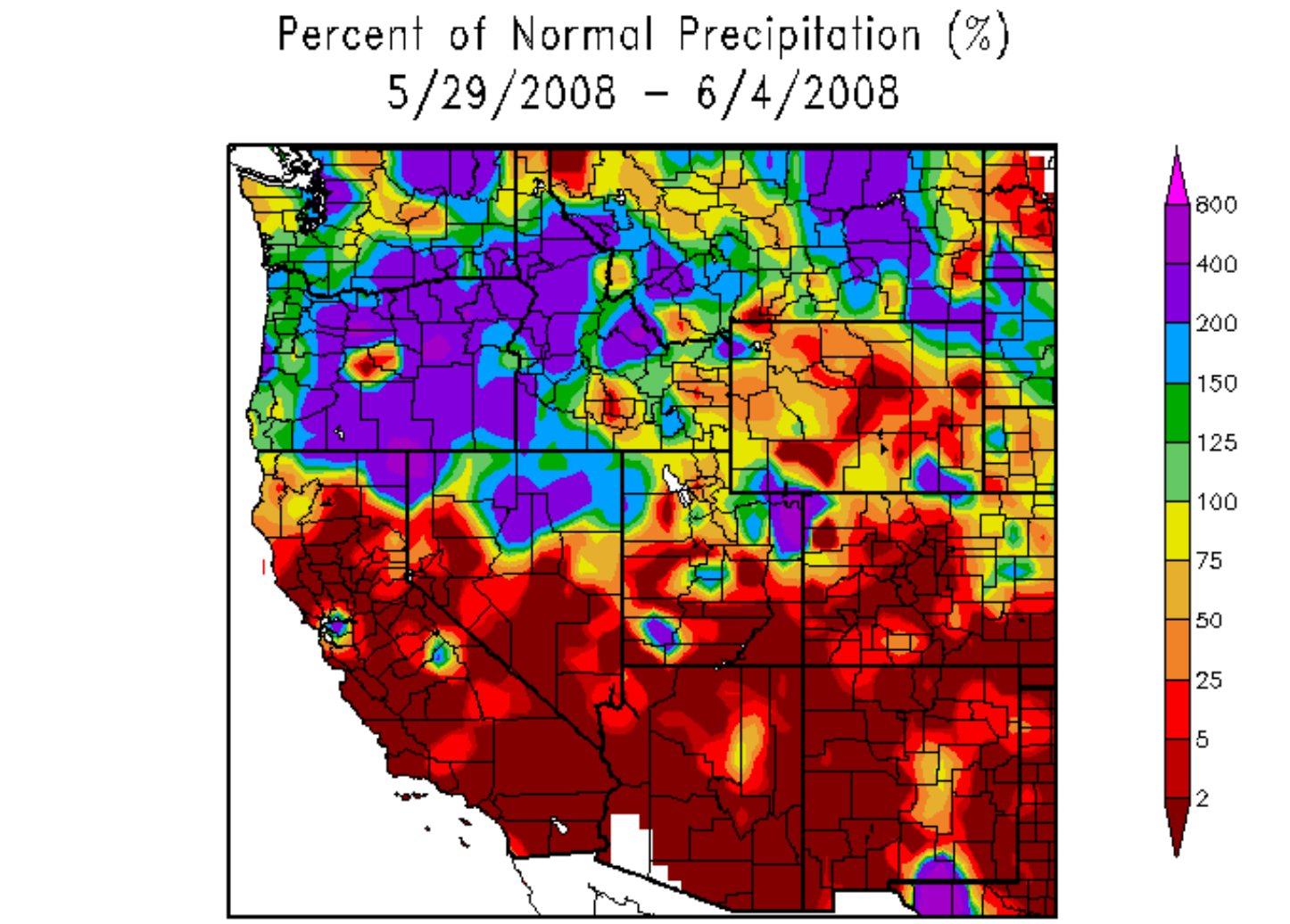


Fig. 3. ACIS 7-day average precipitation anomaly: Preliminary precipitation totals for the 7-day period ending 4 June shows an abundant amount of precipitation falling over the Pacific Northwest and Great Basin. Little if any precipitation fell over the Central and Southern Rockies and the Southwest, including California.

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

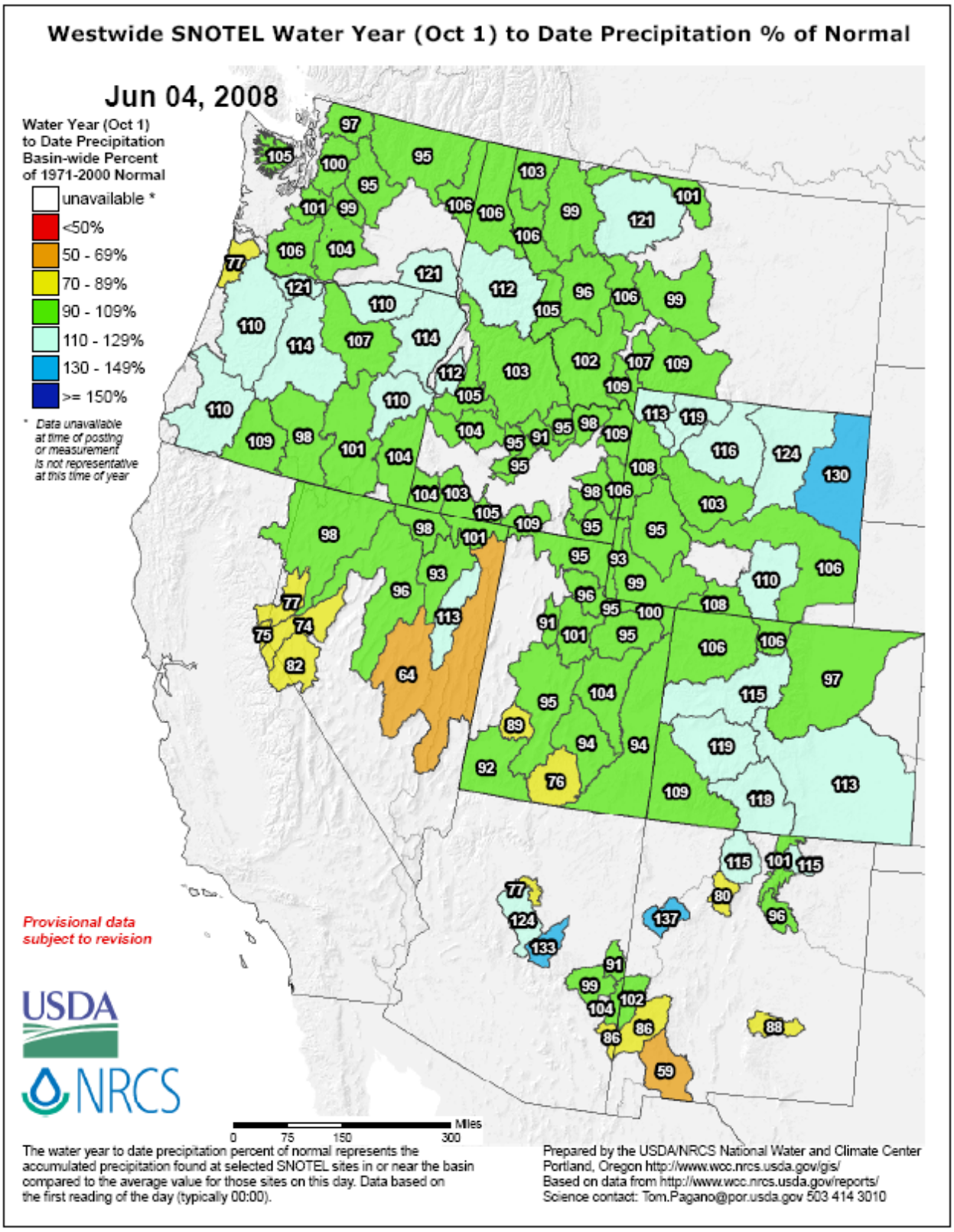


Fig 3a. Seasonal precipitation (rain & snow water equivalent) as a percent of normal for the 2008 Water Year that began on October 1, 2007 shows above normal totals over much of Colorado, central Arizona, parts of Oregon, and northern Wyoming. Parts of Nevada and southern New Mexico are experiencing significant shortfalls.

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

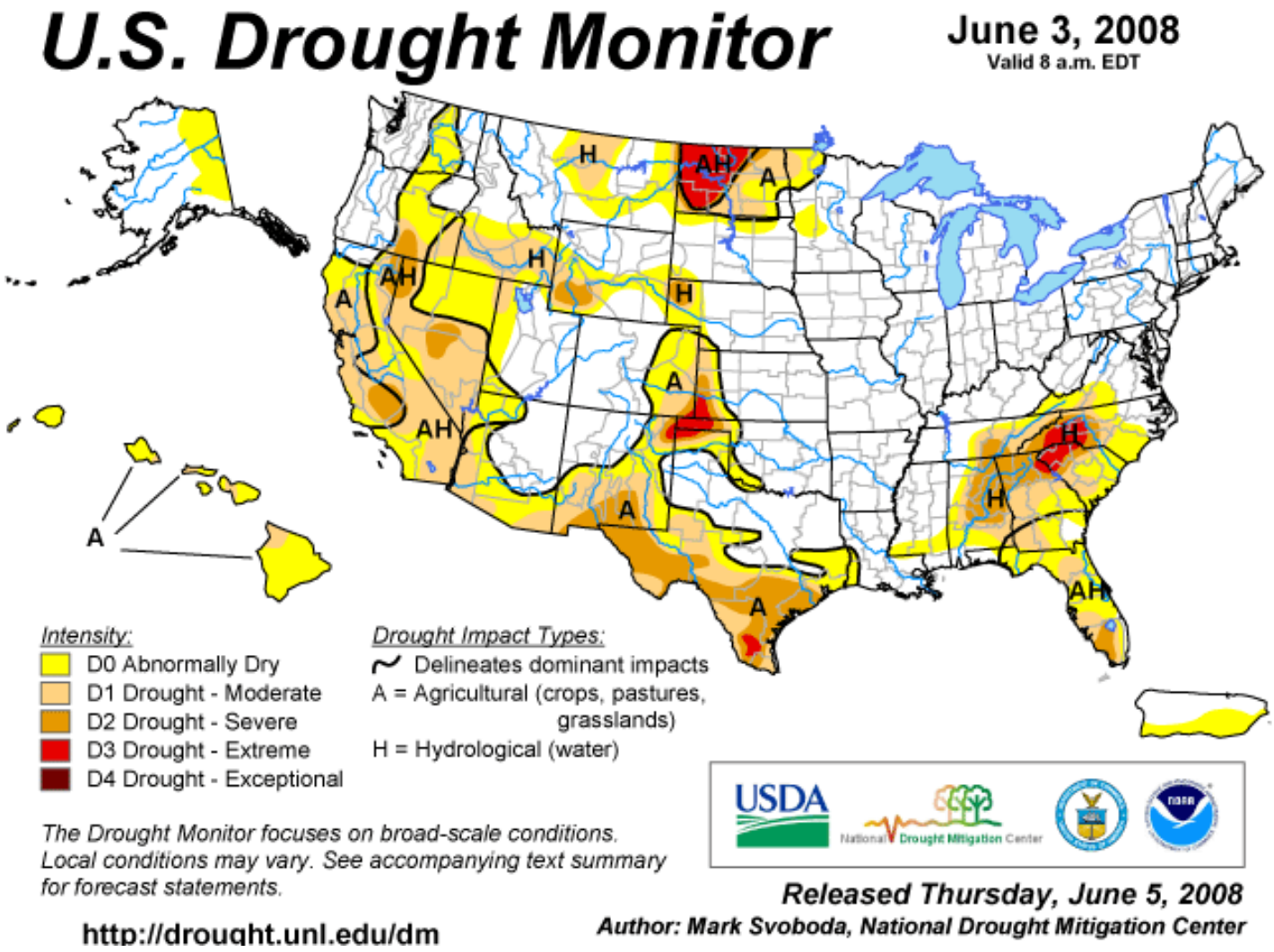


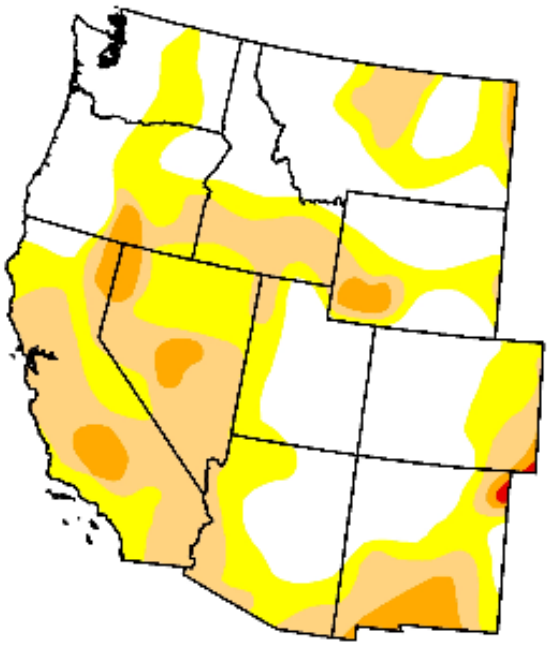
Fig. 4. Current Drought Monitor weekly summary.
Ref: National Drought Mitigation Center (NDMC) - http://www.drought.unl.edu/dm/monitor.html

U.S. Drought Monitor
West

June 3, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	43.0	57.0	29.2	5.3	0.1	0.0
Last Week (05/27/2008 map)	45.9	54.1	26.2	4.7	0.1	0.0
3 Months Ago (03/11/2008 map)	42.3	57.7	34.2	16.0	0.0	0.0
Start of Calendar Year (01/01/2008 map)	26.3	73.7	54.7	33.1	2.7	0.0
Start of Water Year (10/02/2007 map)	22.0	78.0	62.3	44.7	12.4	0.0
One Year Ago (06/05/2007 map)	33.0	67.0	49.6	25.6	7.8	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

http://drought.unl.edu/dm

Released Thursday, June 5, 2008
Author: Mark Svoboda, National Drought Mitigation Center

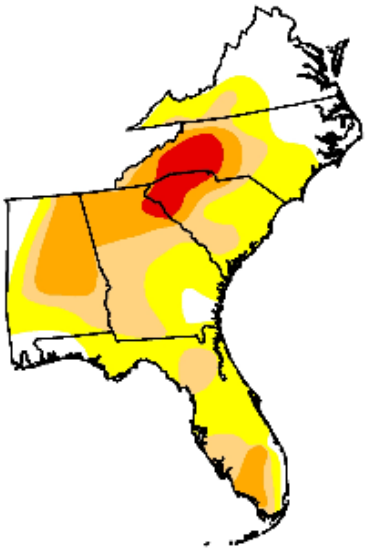
Fig. 4a. Drought Monitor for the Western States with statistics over various time periods. Note some worsening since last week. Ref: http://www.drought.unl.edu/dm/DM_west.htm

U.S. Drought Monitor
Southeast

June 3, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	20.3	79.7	43.7	21.9	5.2	0.0
Last Week (05/27/2008 map)	25.5	74.5	39.7	23.9	5.9	0.0
3 Months Ago (03/11/2008 map)	23.8	76.2	58.0	40.3	18.8	1.6
Start of Calendar Year (01/01/2008 map)	9.6	90.4	74.3	58.5	41.0	22.0
Start of Water Year (10/02/2007 map)	10.1	89.9	77.9	63.8	45.2	24.0
One Year Ago (06/05/2007 map)	11.2	88.8	68.1	39.9	24.0	3.9



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

http://drought.unl.edu/dm

USDA National Drought Mitigation Center

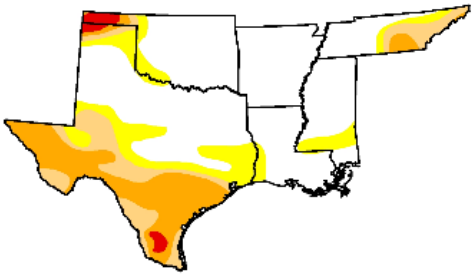
Released Thursday, June 5, 2008
Author: Mark Svoboda, National Drought Mitigation Center

U.S. Drought Monitor
South

June 3, 2008
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	60.0	40.0	26.7	16.2	1.5	0.0
Last Week (05/27/2008 map)	62.3	37.7	26.5	14.3	1.5	0.0
3 Months Ago (03/11/2008 map)	55.4	44.6	26.9	16.2	3.9	1.3
Start of Calendar Year (01/01/2008 map)	57.5	42.5	12.9	4.3	3.8	1.6
Start of Water Year (10/02/2007 map)	77.6	22.4	12.6	10.2	7.5	4.9
One Year Ago (06/05/2007 map)	63.9	36.1	20.0	12.1	5.8	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

http://drought.unl.edu/dm

USDA National Drought Mitigation Center

Released Thursday, June 5, 2008
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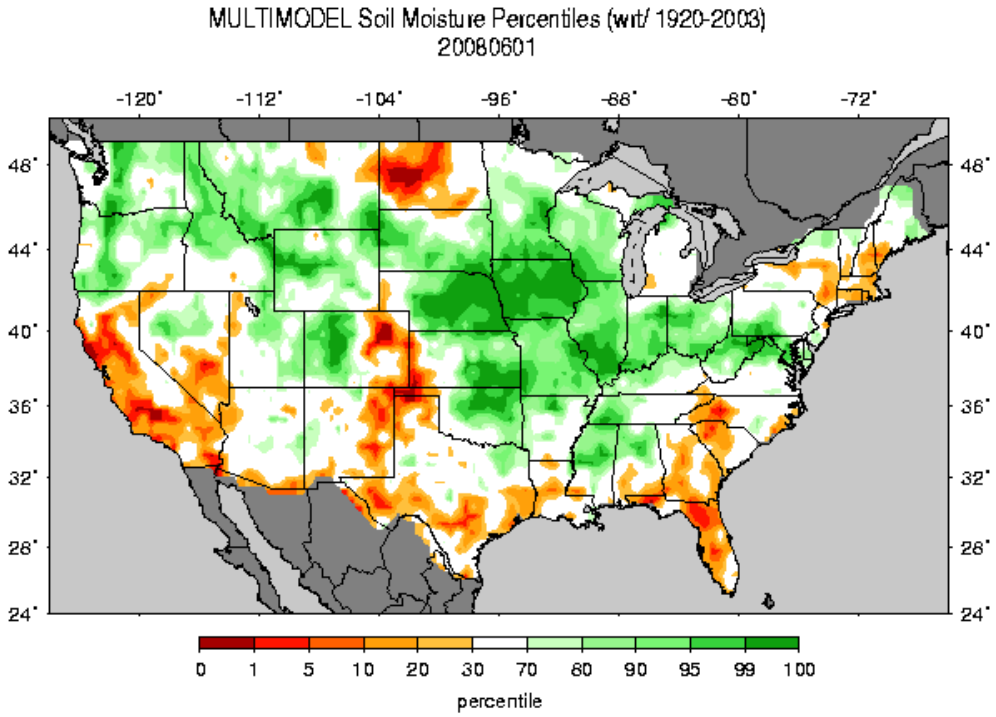
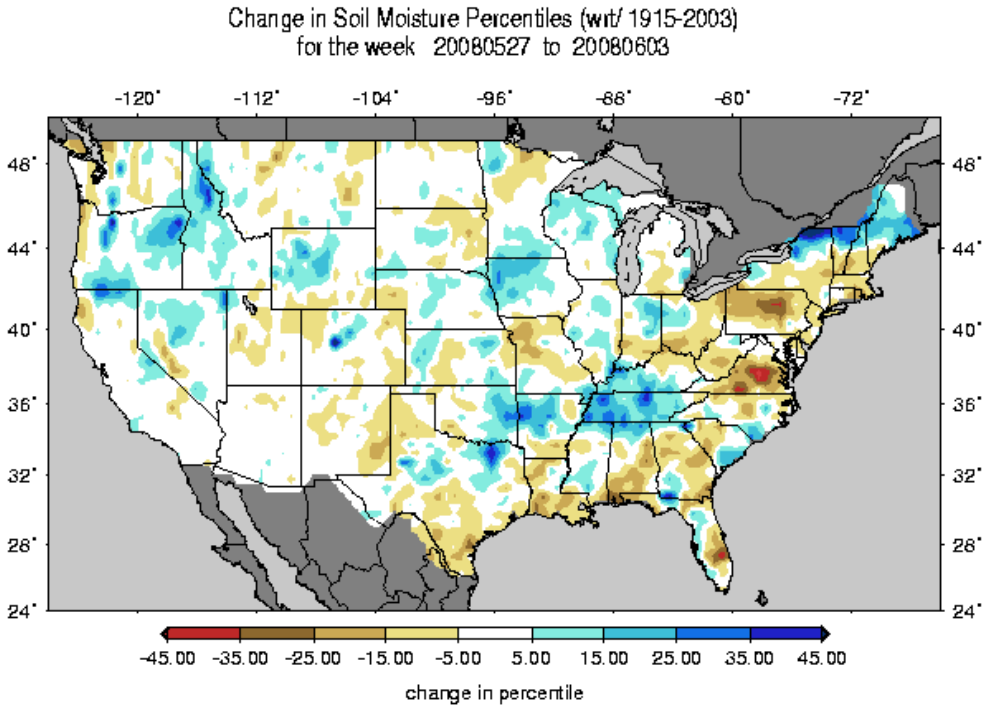
Fig. 4b: Drought Monitor for some areas across the US with worst drought conditions include the Southeastern and Southcentral States with statistics over various time periods. Note worsening conditions over the Panhandle of Oklahoma.

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





Figs. 5 & 5a: Soil Moisture Ranking and change in percentile based on 1915-2003 climatology for this past week. Excessively moisture dominates the mid section of the nation while dryness dominates California, North Dakota and from the Colorado High Plains to western Texas. The Southeast (especially Florida) has been predominately dry as well (Fig. 5). Last week saw a significant increase in soil moisture over the Pacific Northwest and from the Central Plains to the Tennessee River Valley while much of the Gulf and Eastern States were drying out (Fig. 5a).

Ref: http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.multimodel.sm_qnt.gif
http://www.hydro.washington.edu/forecast/monitor/curr/CONUS.sm_qnt.1wk.gif

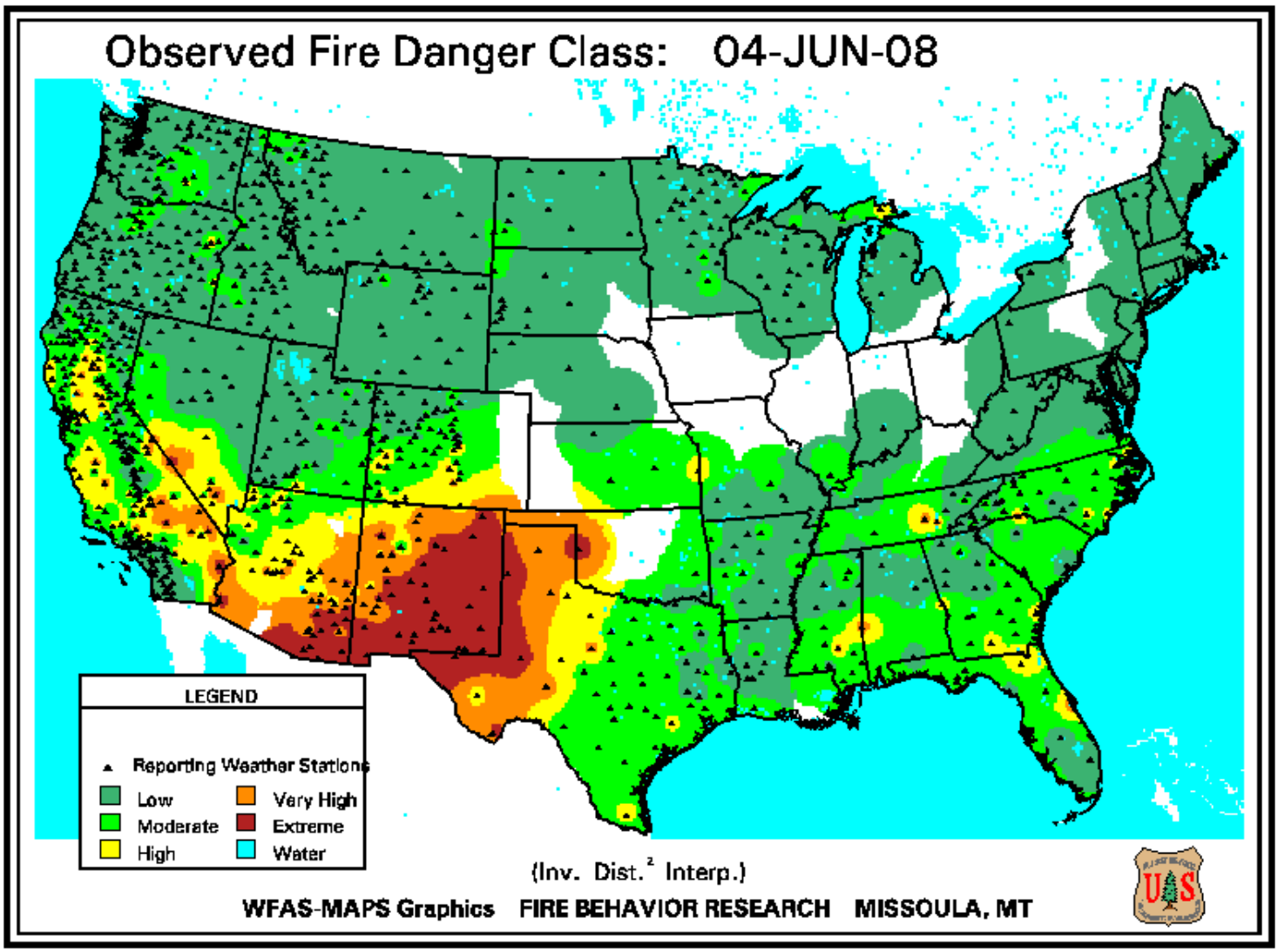


Fig. 6. Observed Fire Danger Class. Note extreme fire danger over the Southwest (especially New Mexico). Conditions are slowly worsening over the Southeast since last week. Source: Forest Service Fire Behavior Research – Missoula, MT.

Ref: http://www.fs.fed.us/land/wfas/fd_class.gif

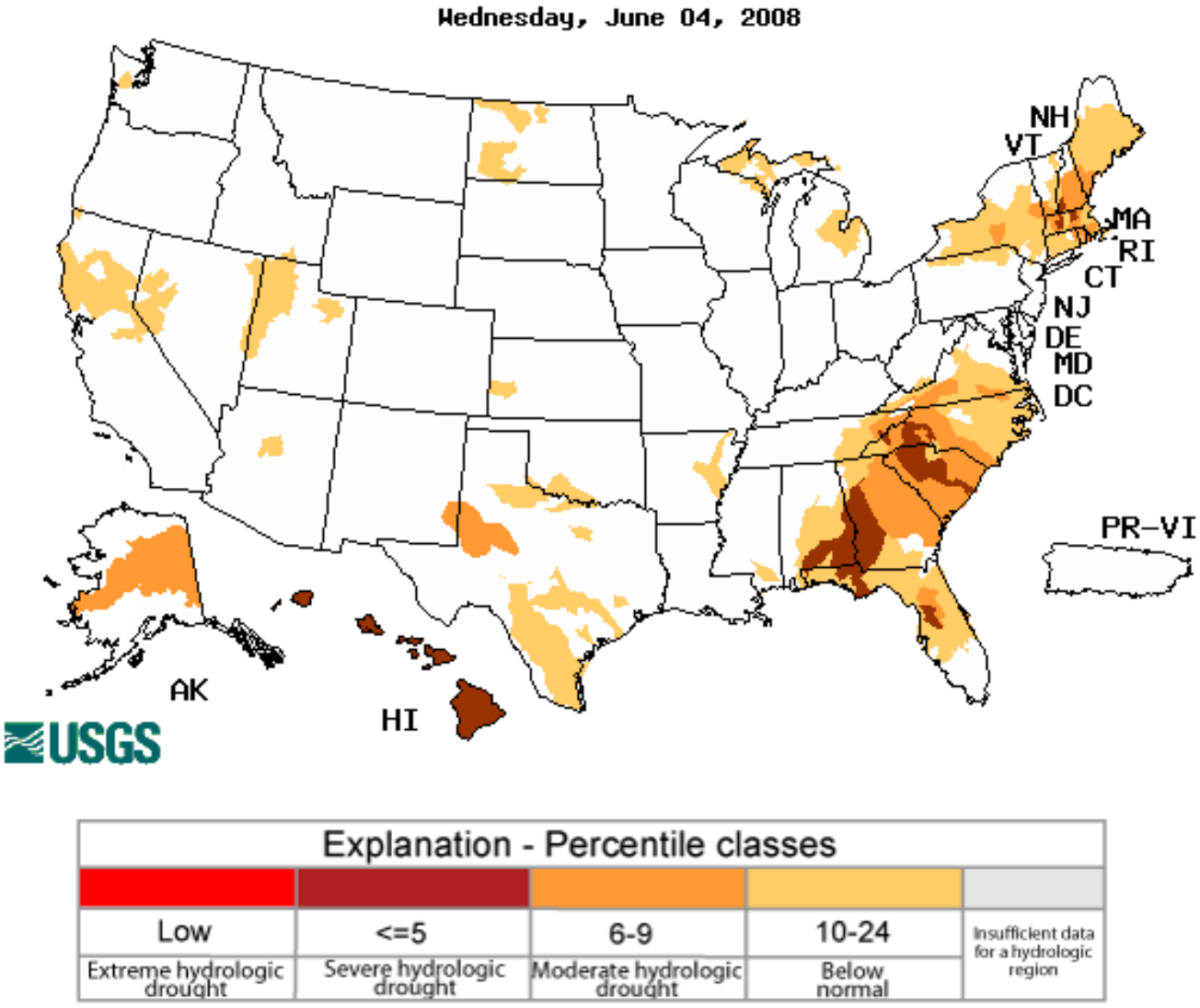


Fig. 7. This week's map shows continued low stream flow over parts of the Southeast. A slight worsening is also noted over northern California and western Utah since last week.
Ref: USGS http://water.usgs.gov/waterwatch/?m=dryw&w=map&r=us

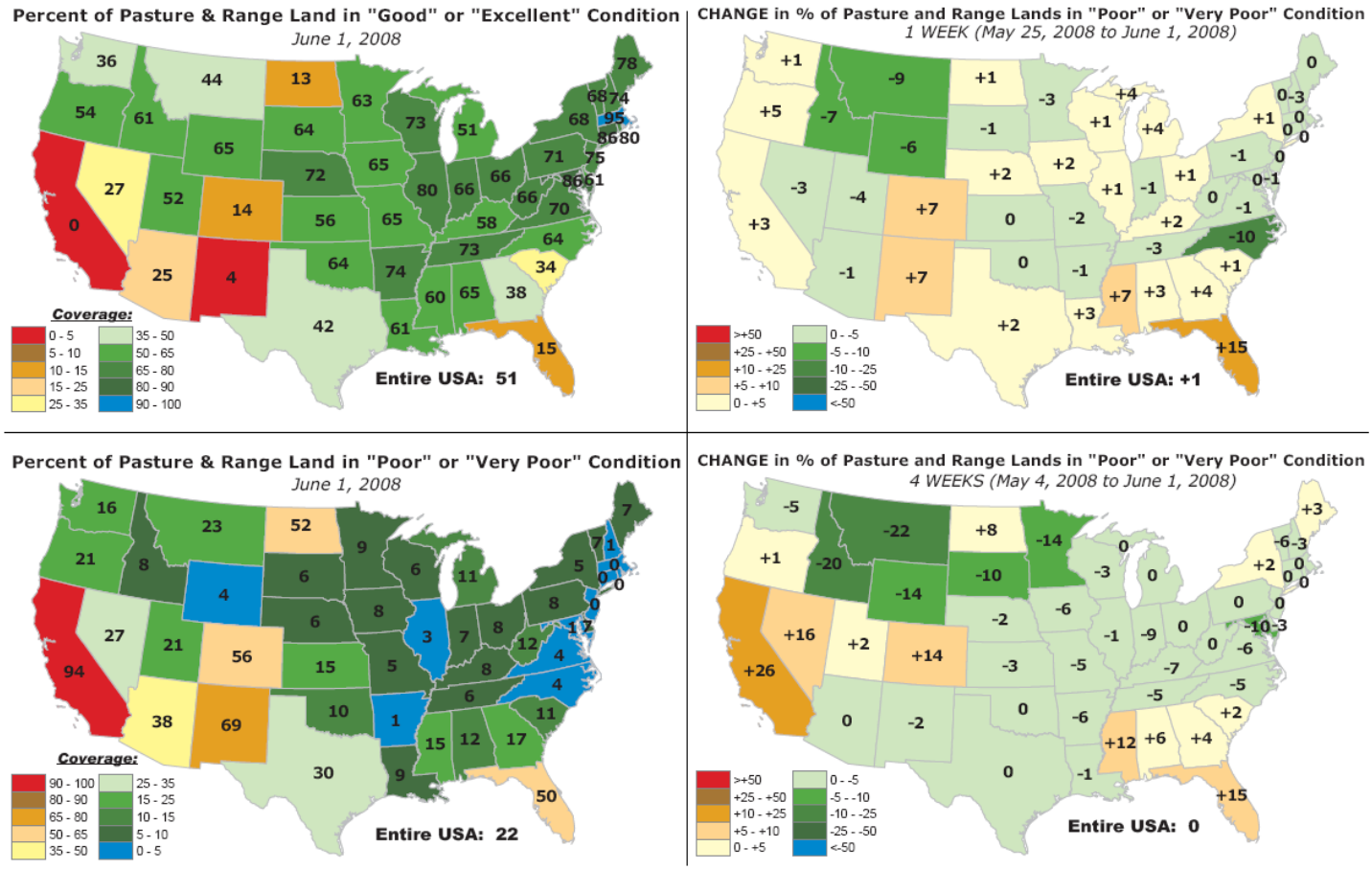


Fig. 8: Pasture and rangeland conditions and changes for various periods. Note poor conditions over California and New Mexico (lower left) and worsening conditions over Nevada and Colorado since last week (upper right). During the past four weeks, conditions have worsened significantly over North Dakota (lower right).
Ref: http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/pasture-range-statewide-conditions.pdf

Remarks: Feedback from the field in California indicates that for most places in the state, forage production is significantly higher than last year but still less than desirable. Several areas of the state are in a state of severe drought from a forage production perspective while much of the state's surface water is still displaying the effects of last year's record drought conditions. This is a considerable problem for those operators dependent upon surface water for livestock use since while forage production may be close to "normal", availability of forage may approach zero late in the grazing season as surface water is depleted.

Jon Gustafson
California State Rangeland
Management Specialist
USDA, Natural Resources Conservation Service

National Drought Summary -- June 3, 2008

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 mid-Atlantic and Southeast: Warmer, seasonal temperatures returned to most of the region last week. However, precipitation was a bit spotty, leading to some improvements and some areas that took a turn for the worse. The relatively good news is that rains continued to fall in some of the areas that need it the most. Parts of eastern Tennessee, northern Alabama and northwestern Georgia saw rains on the order of 2 to 4 inches. A one-category improvement is the result along the western and northern areas of drought in Alabama, Tennessee and Georgia. Worth noting this week is that D3 was removed from northern Alabama. Before this week, they hadn't been D3-free statewide since March 2007. Severe drought (D2) still persists in these areas, though. In Georgia, some improvement on the heels of rains last week is evident in the west-central counties along the Alabama border, but for the most part, dryness and drought pushed south and east this week toward the coast. To the south, notable dryness (25-50% of normal) over the past 30-60 days has once again led to some expansion of D0-D1 into north-central Florida. Indicative of persistent drought, stream flow levels remain quite low for many parts of this region. Conditions remain unchanged this week in the Carolinas.

The Plains and Upper Midwest: An active storm track across parts of the Pacific Northwest and northern Great Plains brought rain and cooler temperature readings last week. On the heels of last week's stormy weather, parts of the Dakotas and western Minnesota shared the rains. This has brought some improvement to some parts, but long-term deficits and dry soils have tempered the effects of these rains, and more precipitation is needed. This has led to the trimming of the D0 in northern South Dakota and removal of D0 in extreme southeastern North Dakota. The rains were not as plentiful in the western and northern reaches of North Dakota along the international border, leading to a slight expansion of D2 and D3 to the east. A slight reduction of D1 and D2 occurred in extreme eastern Montana along the border with North Dakota.

In the southern Plains, D0 has expanded south and east into southwestern Oklahoma along the Red River border region with Texas. Texas saw a dry week over most of the drought areas, leading to a push north of both D1 and D2 in southern Texas as well as a complete push of D2 south to much of the Gulf Coast.

The West: The dryness continued this past week for the entire Southwest and most of California. This was somewhat tempered by cooler-than-normal temperatures that occurred across the Great Basin, Arizona, and California as well. New Mexico saw an expansion of D2 to the west across the extreme southern counties of the state. Precipitation has been pretty dismal for most time frames out to the Water Year (October 1), with only 25-50% of normal being reported in that period.

In California, many locations recorded a record or near-record dry spring. In fact, on June 4, Governor Schwarzenegger declared a statewide drought. On the heels of last winter's low totals,

the water strain has been increased after a disappointing finish to this winter. Final snow water content levels statewide were only around 67% of average and thus streamflow runoff forecasts are only calling for a little more than 50% of normal. As a result of the past 90 days, D0 and D1 have pushed north up the valley and along the coast north of Santa Barbara up to Eureka.

To the north, this same dryness has started to have an effect on parts of eastern Washington and southern Idaho as well. D0 has now advanced into eastern Washington. According to the USDA-NRCS, the February-May precipitation in the Big Lost basin was the second lowest since 1982, while the Little Wood basin experienced their third lowest total. This came after both basins recorded 180% of normal precipitation in January. This has led to the expansion of D0-D1 in southern Idaho this week.

Hawaii, Alaska and Puerto Rico: Hawaii experienced another dry week across most all of the islands, resulting in no changes this week. Streamflow levels remain low and impacts are becoming notable in the agricultural sector.

In Alaska, a dry week leads to the status quo this week as well.

Puerto Rico did experience some scattered rains across most of the northern half of the island but more will be needed to erase the abnormally dry (D0) conditions that persist in the southern locales.

Looking Ahead: During the next 5 days (through June 9) a ridge should continue to set up and strengthen across the southern Plains in more of a summer-type pattern. This should bring the best chances of rain to the north of that line, and an active storm pattern should continue across the Pacific Northwest, northern Plains, Great Lakes region and the Northeast. That ridge should result in much warmer temperatures from the Southwest, central Great Plains, Midwest and East as well. Temperatures are expected to be below normal across northern California, parts of the Intermountain West, and the Pacific Northwest and then eastward into the western Great Lakes region as well.

The CPC 6-10 day forecast (June 10-14) is calling for a greater likelihood of warmer temperatures across the Southwest, the southern Plains and the entire eastern United States except for Florida, where they are expecting more seasonable readings. Below-normal temperatures are expected in Alaska and the Pacific Northwest and over into the Dakotas. As for precipitation, the best chances for precipitation appear to be in the central Plains, lower Mississippi Valley, western Great Lakes region and southern Florida. Below-normal totals are more likely in Alaska, the coastal regions of Oregon and Washington and also in the Mid-Atlantic region up into southern New England.

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
H ... Hydrological

Updated June 4, 2008