



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

Weekly Report - Snowpack / Drought (& Flood) Monitor Update

Date: 30 June 2011

SNOTEL SNOWPACK AND PRECIPITATION SUMMARY

Snow: SNOTEL Snow-Water Equivalent (SWE) percent of normal values for 30 June 2011 shows very high values for many SNOTEL basins since seasonal snowmelt has been delayed due to cooler than average temperatures for this time of year. Since we are well past the peak SWE, values can increase statistically but the actual “total” SWE is actually less than the preceding week (Fig. 1). 7-Day snow depth changes reflect melting up to 3 feet for SNOTEL sites with snow. It should be noted that there are significantly less sites with snow cover than in last week’s report (Fig. 1a). Most of the heaviest flooding has now moved out of the Western States. For the current map depicting flooding conditions, see:

<http://www.hpc.ncep.noaa.gov/nationalfloodoutlook/>.



The [Las Conchas](#) fire near Los Alamos, NM on 26 June. Photo: taken by author 10 miles south of Santa Fe (30 miles from fire). Flames reached 500 feet high. As of this morning, more than 80,000 acres have burned and is only 3% contained..

Weekly Snowpack and Drought Monitor Update Report

Temperature: SNOTEL and ACIS 7-day temperature anomaly shows a rather cool week over most of the Northern Tier States including California while the Southern Tier States were above normal (fig. 2). ACIS 7-day average temperature anomalies show the greatest positive temperature departures across southeast New Mexico ($>+10^{\circ}\text{F}$) and the greatest negative departures over portions of the Northwest and central coastal California ($<-8^{\circ}\text{F}$) (Fig. 2).

Precipitation: ACIS 7-day average precipitation amounts for the period ending 29 June shows the bulk of the heaviest precipitation confined to northern California and the Northwestern High Plains (Fig. 3). On the 28th, San Francisco broke its daily rainfall: DOWNTOWN: new record: 0.78", old record: 0.22" 1952; INTL AIRPORT new record: 0.52", old record 0.14" 1962. In terms of percent of normal, the precipitation was highest over the same areas where the heaviest rains fell (common occurrence this time of year) (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, Cascades, and parts of Northern and Central Rockies (Fig 3b).

The West: The week was drier than normal across most of the West, with virtually no rain falling over the extreme Southwest where temperatures were well above normal. Scattered showers dropped a few tenths of an inch of rain on eastern parts of New Mexico and Colorado, but not enough to warrant improvement. There were more than 35 reports of record hot maximum temperatures in New Mexico during the past 7 days. D0-D1-D2-D3 expanded in northwest New Mexico and parts of Colorado. D0 expanded across Arizona into parts of southern Nevada and adjacent California. Hot temperatures and unseasonably strong winds continued to desiccate the soil in northeast Arizona where the Navajo and Hopi tribes have declared emergencies to try to deal with failing wells. D0-D1-D2 expanded in northeast Arizona with D0-D1 spillage into adjacent southeast Utah.

June 26 U.S.D.A. reports listed 90 percent or more of the topsoil short or very short of moisture in New Mexico; 80 percent or more of the pasture and rangeland in poor or very poor condition for New Mexico, 60 percent for Arizona, and 40 percent for Colorado. By June 28, several large wildfires were burning in Arizona, New Mexico, Colorado, and California. Author: Richard Heim, NOAA/NESDIS/National Climatic Data 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 through 4d).

SOIL MOISTURE

Soil moisture (Figs. 5a and 5b), 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-

Weekly Snowpack and Drought Monitor Update Report

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/>.

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/

Gregory K. Johnson, Acting Director
Resources Inventory Division

Weekly Snowpack and Drought Monitor Update Report

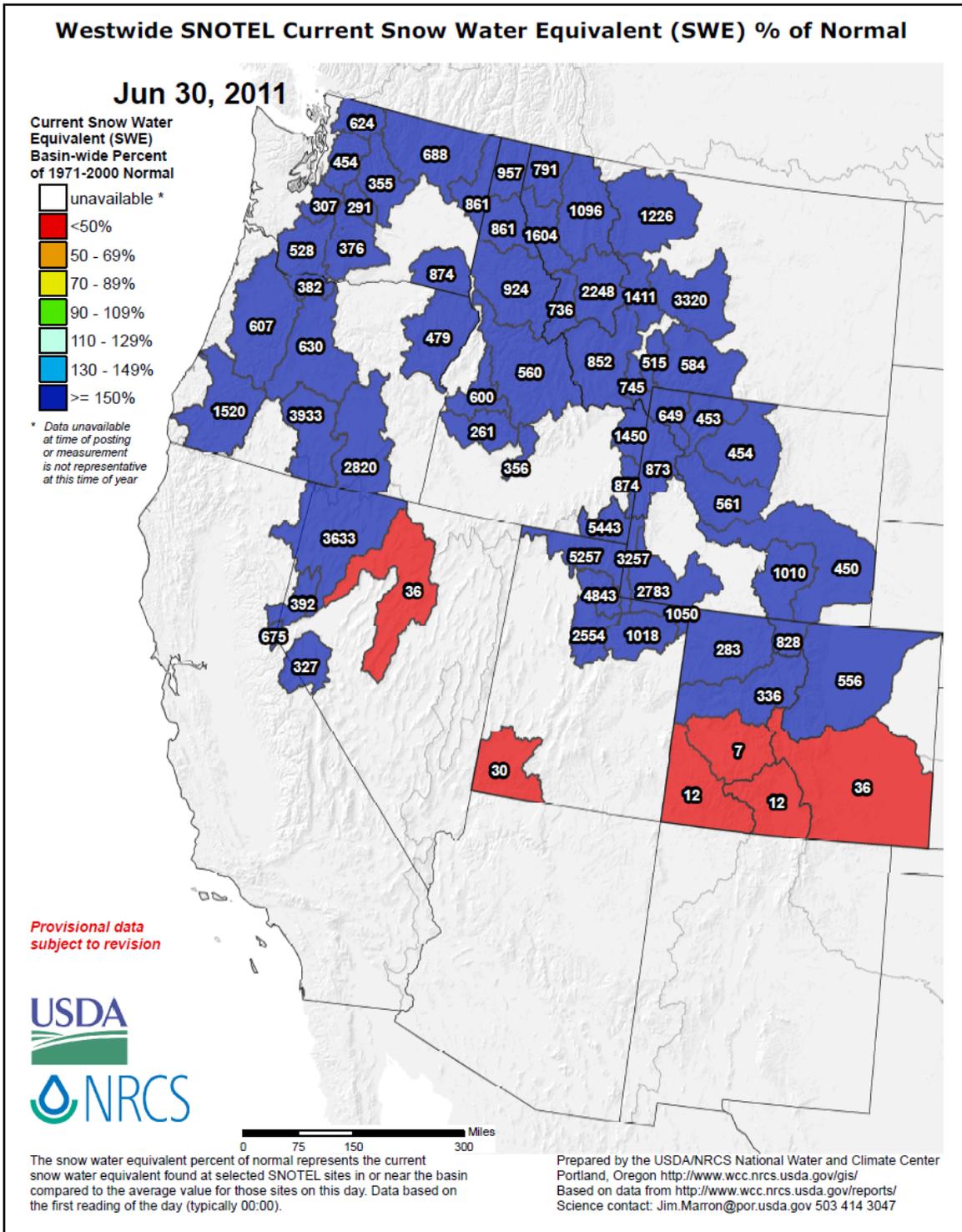


Fig. 1: SNOTEL Snow-Water Equivalent (SWE) percent of normal values for 30 June 2011 shows very high values for many SNOTEL basins since seasonal snowmelt has been delayed due to cooler than average temperatures for this time of year. Since we are well past the peak SWE, values can increase statistically but the actual “total” SWE is actually less than the preceding week.

Ref: http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_swepctnormal_update.pdf

Weekly Snowpack and Drought Monitor Update Report

SNOTEL 7-Day Snow Depth Change (Inches)

Jun 30, 2011

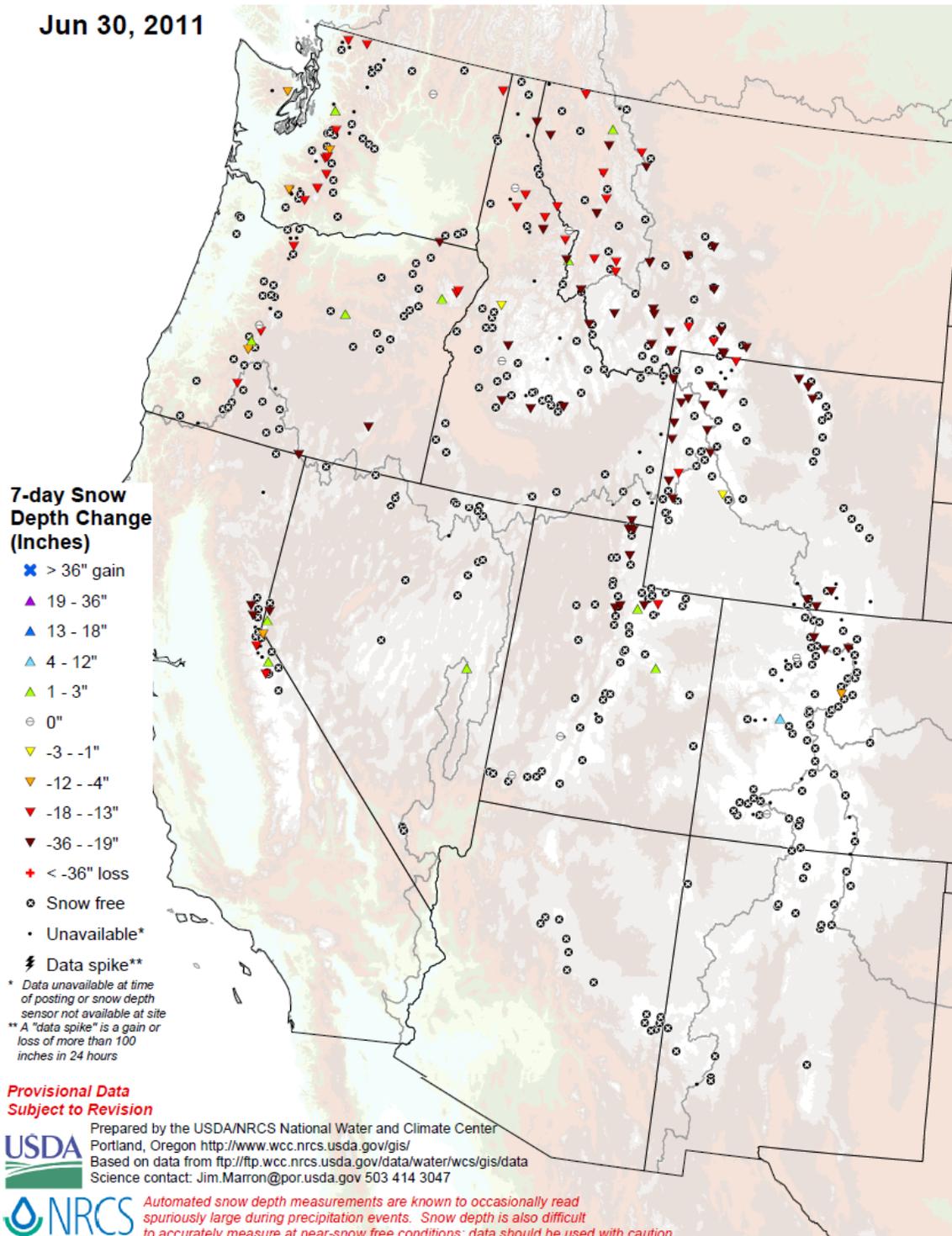


Fig. 1a: 7-Day snow depth changes reflect melting up to 3 feet for SNOTEL sites with snow. It should be noted that there are significantly less sites with snow cover than in last week's report. Most of the heaviest flooding has now moved out of the Western States. For the current map depicting flooding conditions, see: <http://www.hpc.ncep.noaa.gov/nationalfloodoutlook/>.

Ref: http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_snowdepth_7ddelta.pdf

Weekly Snowpack and Drought Monitor Update Report

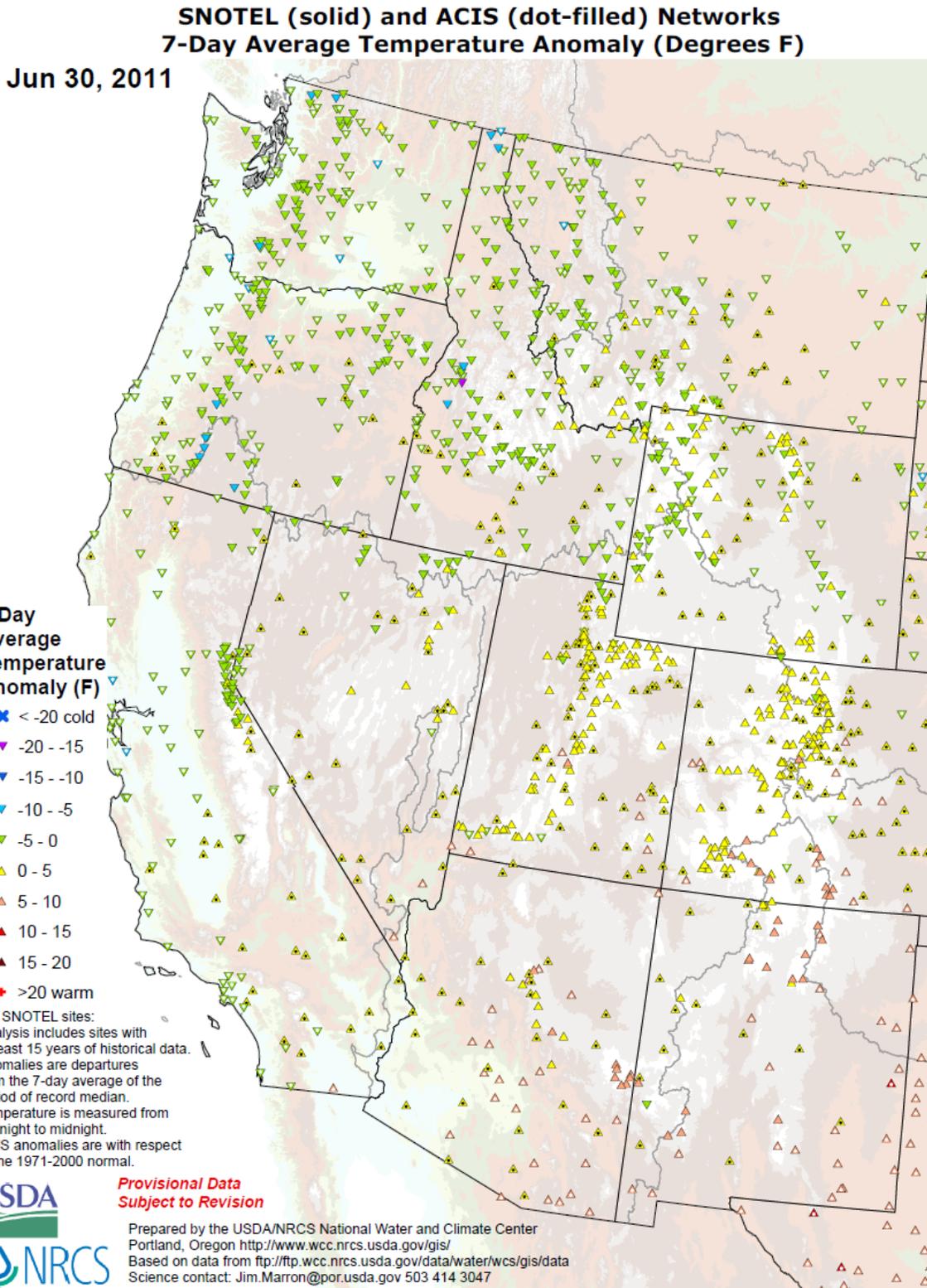
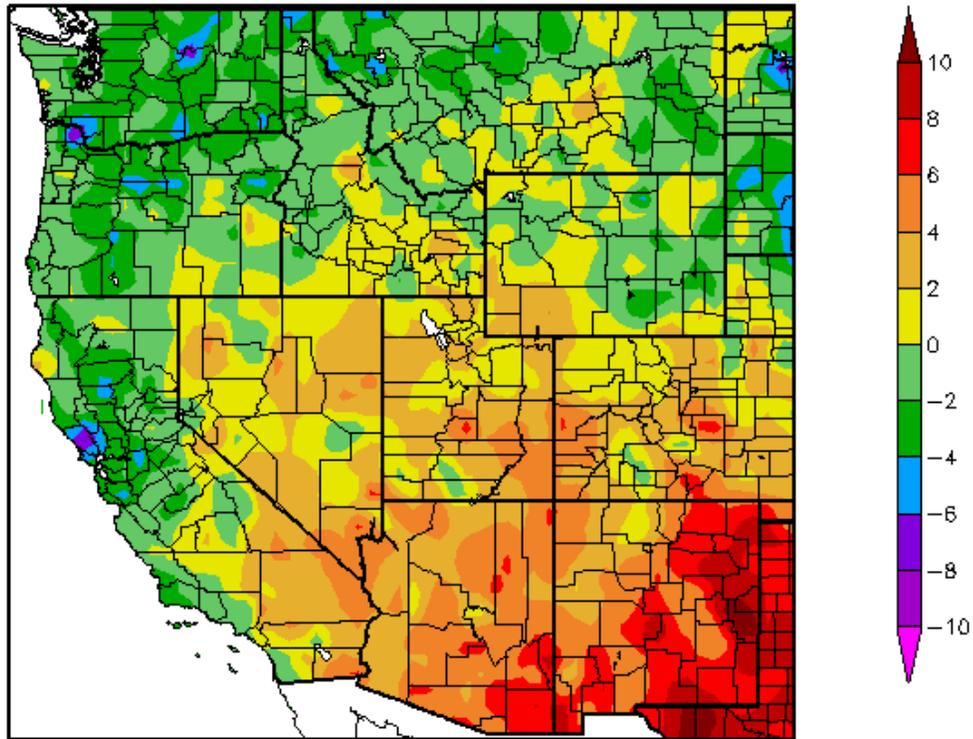


Fig. 2: SNOTEL and ACIS 7-day temperature anomaly shows a rather cool week over most of the Northern Tier States including California while the Southern Tier States were above normal.

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

Weekly Snowpack and Drought Monitor Update Report

Departure from Normal Temperature (F)
6/23/2011 – 6/29/2011



Generated 6/30/2011 at HPRCC using provisional data.

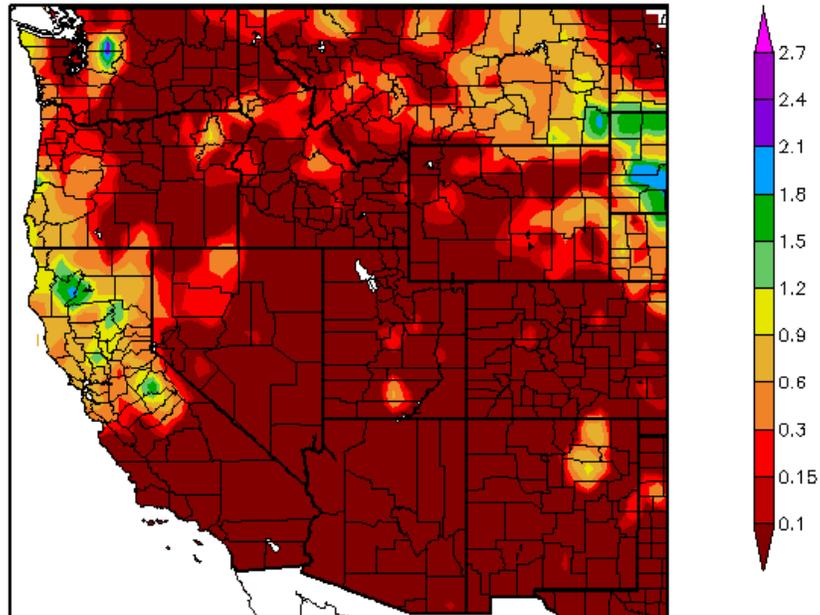
Regional Climate Centers

Fig. 2a: ACIS 7-day average temperature anomalies show the greatest positive temperature departures across southeast New Mexico (>+10°F) and the greatest negative departures over portions of the Northwest and the central coastal California (<-8°F).

Ref: http://www.hprcc.unl.edu/maps/current/index.php?action=update_daterange&daterange=7d

Weekly Snowpack and Drought Monitor Update Report

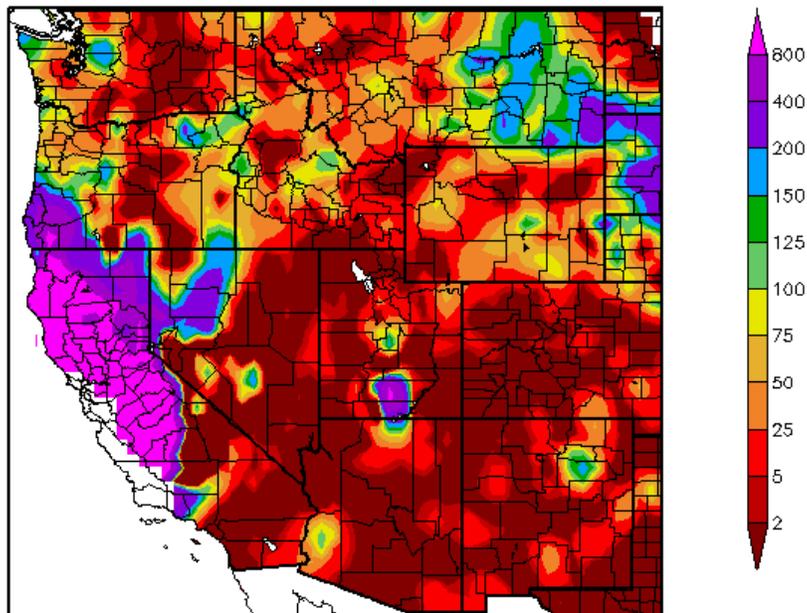
Precipitation (in)
6/23/2011 – 6/29/2011



Generated 6/30/2011 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
6/23/2011 – 6/29/2011



Generated 6/30/2011 at HPRCC using provisional data.

Regional Climate Centers

Fig. 3 and 3a: ACIS 7-day average precipitation amounts for the period ending 29 June shows the bulk of the heaviest precipitation confined to northern California and the Northwestern High Plains (Fig. 3). On the 28th, San Francisco broke its daily rainfall: DOWNTOWN: new record: 0.78", old record: 0.22" 1952; INTL AIRPORT new record: 0.52", old record 0.14" 1962. In terms of percent of normal, the precipitation was highest over the same areas in the top figure (Fig 3a). Ref: <http://www.hprcc.unl.edu/maps/current/>

Weekly Snowpack and Drought Monitor Update Report

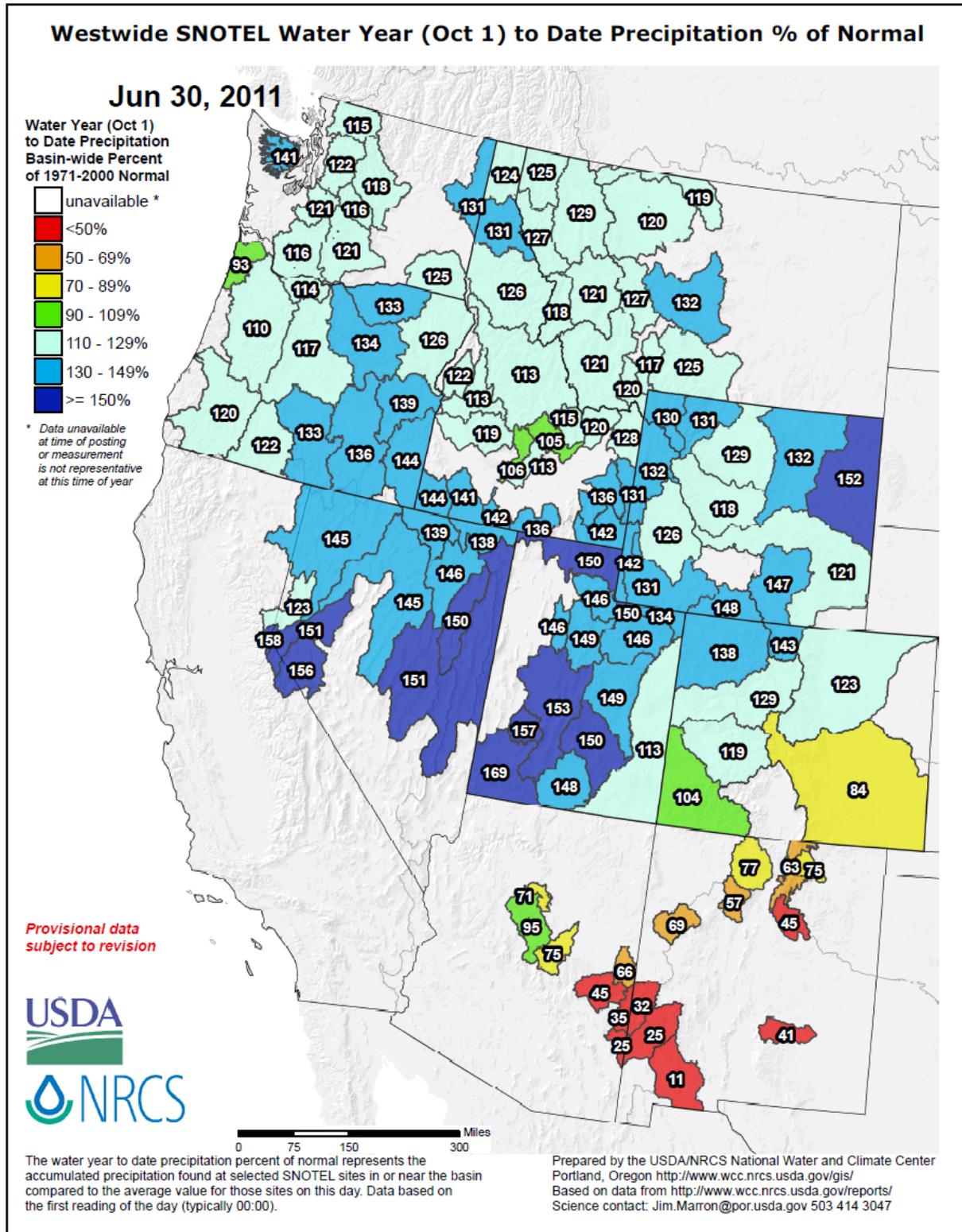


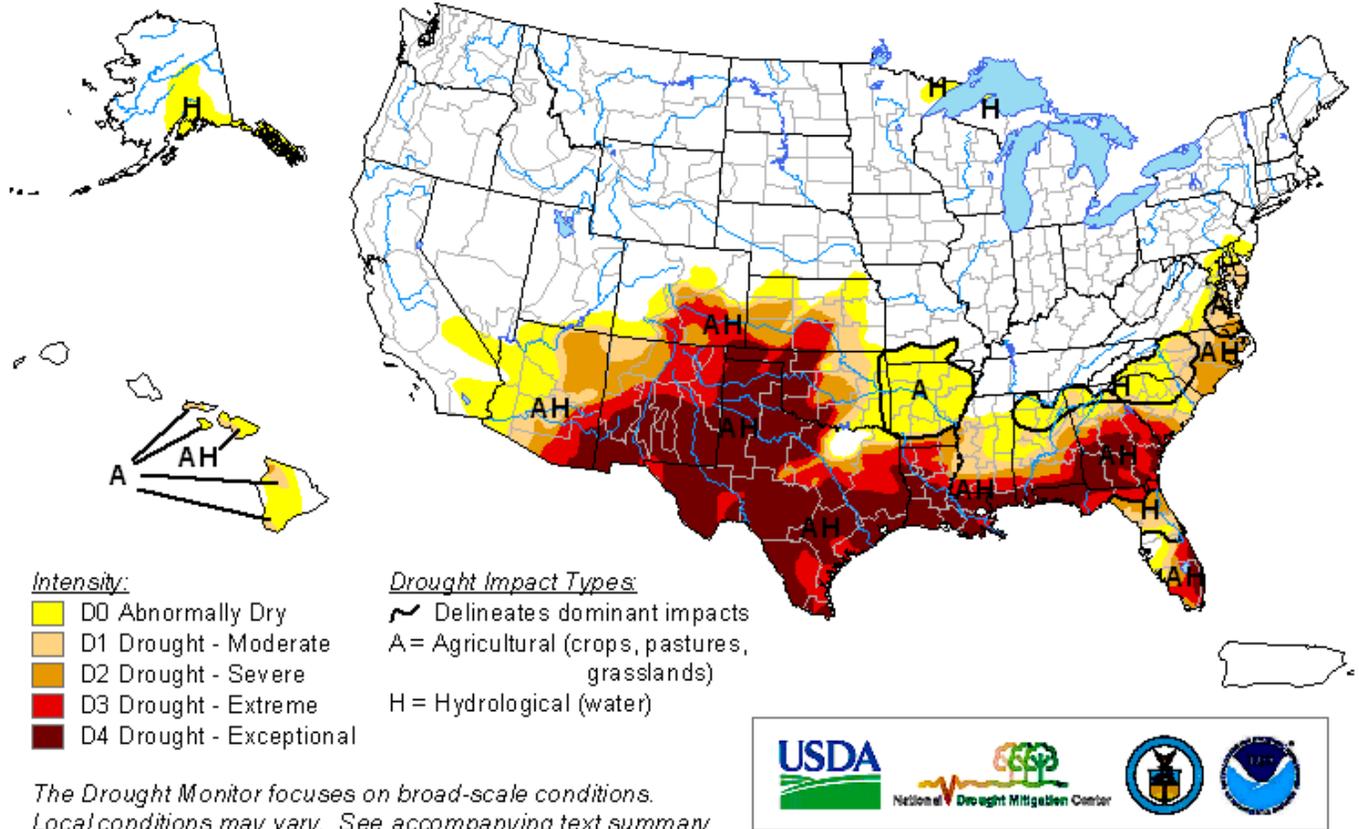
Fig 3b: For the 2011 Water-Year that began on 1 October 2010, the greatest deficits are found over the extreme southern reaches of the Southwest. Areas with the highest values are found over the Great Basin, Cascades, and parts of Northern and Central Rockies.

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

U.S. Drought Monitor

June 28, 2011

Valid 8 a.m. EDT



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

Released Thursday, June 30, 2011

Author: Richard Heim/Liz Love-Brotak, NOAA/NESDIS/NCDC

Fig. 4: Current Drought Monitor weekly summary. The exceptional D4 levels of drought are found over New Mexico, Texas, Oklahoma, Louisiana, Alabama, Georgia, South Carolina, and Florida.

Ref: <http://www.drought.unl.edu/dm/monitor.html>

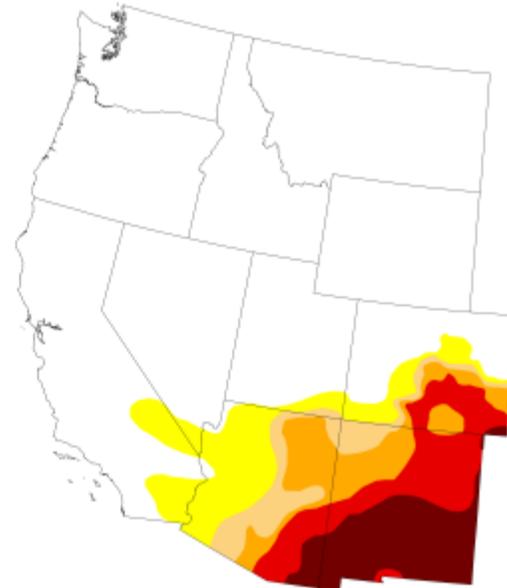
U.S. Drought Monitor

West

June 28, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	73.59	26.41	19.31	16.01	11.35	5.65
Last Week (06/21/2011 map)	78.53	21.47	17.90	13.98	10.10	5.65
3 Months Ago (03/29/2011 map)	76.08	23.92	18.56	13.12	2.12	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 (06/22/2010 map)	66.52	33.48	11.90	1.03	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.

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



Released Thursday, June 30, 2011
Richard Heim/Liz Love-Brotak, NOAA/NESDIS/NCDC

Fig. 4a: Drought Monitor for the Western States with statistics over various time periods. Regionally there was some more deterioration over the Southwest during the past week. Ref: http://www.drought.unl.edu/dm/DM_west.htm

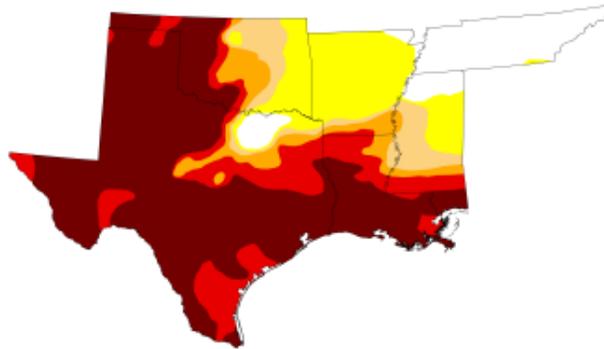
U.S. Drought Monitor

South

June 28, 2011
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	25.52	74.48	59.82	53.42	47.27	47.27
Last Week (06/21/2011 map)	22.27	77.73	72.54	66.68	61.92	46.53
3 Months Ago (03/29/2011 map)	8.33	91.67	79.16	60.10	28.53	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 (06/22/2010 map)	59.25	40.75	12.62	2.41	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.



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<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 improvement in all drought categories over the past week. Ref: http://www.drought.unl.edu/dm/DM_south.htm

Brief drought impact summary:

Forget Fourth of July fireworks and open burning across much of the South since the fire danger is simply too high, resulting in the many wildfires already burning. Livestock producers throughout the southern U.S. continue to struggle to feed their cattle and are increasingly choosing to pare down their herds rather than pay for expensive hay and supplements. Water supplies were in jeopardy, particularly in Texas, as the state Commission on Environmental Quality pushed the state's public water suppliers to activate drought contingency plans, and Florida, where surface and ground water supplies were becoming dangerously low.

Weekly Snowpack and Drought Monitor Update Report

U.S. Drought Monitor Texas

June 28, 2011
Valid 7 a.m. EST

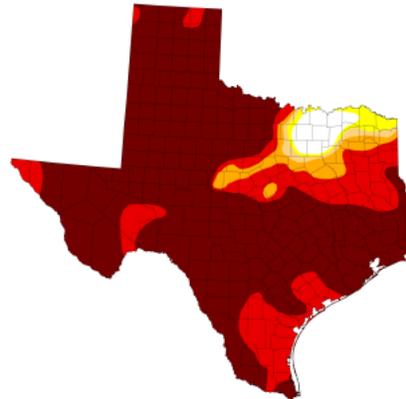
	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.68	97.32	95.71	94.52	90.62	72.32
Last Week (06/21/2011 map)	3.33	96.67	95.71	94.52	91.31	70.61
3 Months Ago (03/29/2011 map)	0.00	100.00	94.87	78.54	43.07	0.00
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/28/2010 map)	75.57	24.43	2.43	0.99	0.00	0.00
One Year Ago (06/22/2010 map)	51.78	48.22	13.00	0.00	0.00	0.00

Intensity:



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 30, 2011
Richard Helm/Liz Love-Brotak, NOAA/NESDIS/NCDC

Fig. 4c: Little change to the drought over the State of Texas this week.

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

U.S. Drought Monitor New Mexico

June 28, 2011
Valid 7 a.m. EST

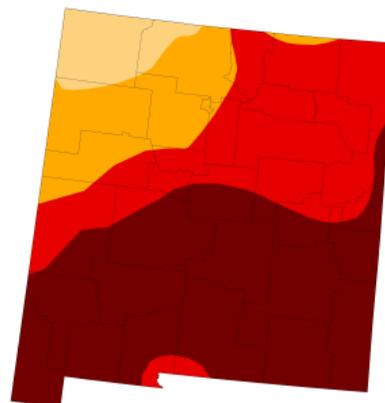
	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	93.96	79.34	49.09
Last Week (06/21/2011 map)	0.00	100.00	93.98	87.35	71.18	49.09
3 Months Ago (03/29/2011 map)	4.81	95.19	91.19	74.00	10.43	0.00
Start of Calendar Year (12/28/2010 map)	6.16	93.84	40.40	0.00	0.00	0.00
Start of Water Year (09/28/2010 map)	76.66	23.34	0.00	0.00	0.00	0.00
One Year Ago (06/22/2010 map)	49.21	50.79	17.27	0.00	0.00	0.00

Intensity:



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 30, 2011
Richard Helm/Liz Love-Brotak, NOAA/NESDIS/NCDC

Fig. 4d: Drought Monitor for New Mexico with statistics over various time periods. Conditions continue to deteriorate in all categories.

Ref: http://www.drought.unl.edu/dm/DM_state.htm?NM,W

Note: Major fires in Arizona are spreading dense smoke over New Mexico:
http://gacc.nifc.gov/swcc/predictive/outlooks/smoke/swcc_smoke_outlook.pdf

Weekly Snowpack and Drought Monitor Update Report

Agriculture

[Crops, people suffering from really hot weather](http://www.whiteville.com/articles/2011/06/23/news/doc4e033e02c5810371977234.txt)

<http://www.whiteville.com/articles/2011/06/23/news/doc4e033e02c5810371977234.txt>

June 23, **Southeastern North Carolina**. Some corn in this area was a total loss as heat and drought took its toll. Some farmers opted to postpone planting soybeans until a little rain falls.

[Dairy Farmer Copes with Severe Drought](http://www.13wmaz.com/news/local/article/132916/175/Dairy-Farmer-Copes-with-Severe-Drought)

<http://www.13wmaz.com/news/local/article/132916/175/Dairy-Farmer-Copes-with-Severe-Drought>

June 21, **Central Georgia**. A farmer was feeding his cattle hay, lamented that his own hay wasn't growing and that his ponds were too low and warm for his cattle to drink.

[Drought causing flood of cattle sales](http://www.leader-news.com/articles/2011/06/18/news/doc4dfbbaeeee8286122645096.txt)

<http://www.leader-news.com/articles/2011/06/18/news/doc4dfbbaeeee8286122645096.txt>

June 18, **Southeastern Texas**. Hay is scarce, and consequently, expensive, leading ranchers to cull their herds.

[Drought conditions grim in Beauregard Parish](http://www.beauregarddailynews.net/topstories/x898076303/Drought-conditions-grim-in-Beauregard-Parish)

<http://www.beauregarddailynews.net/topstories/x898076303/Drought-conditions-grim-in-Beauregard-Parish>

June 21, **Southwestern Louisiana**. Many crops have dried up and water supplies were becoming depleted as this area endured exceptional drought.

[Drought conditions hamper hay production](http://www.troy messenger.com/2011/06/17/drought-conditions-hamper-hay-production/)

<http://www.troy messenger.com/2011/06/17/drought-conditions-hamper-hay-production/>

June 17, **Southeastern Alabama**. Hay was three to four inches tall and brown.

[Drought, dust darken biggest U.S. cotton patch](http://www.cnbc.com/id/43485321)

<http://www.cnbc.com/id/43485321>

June 21, **Texas panhandle**. Heat and dust storms have battered the cotton crop, which was not faring well, whether irrigated or not.

[Drought, heat lead to drastic livestock measures](http://www.walb.com/story/14950826/drought-heat-lead-to-drastic-livestock-measures)

<http://www.walb.com/story/14950826/drought-heat-lead-to-drastic-livestock-measures>

June 21, **Southern Georgia**. One farmer made good use of his unsalable watermelons by feeding them to his cattle, who love watermelon. The farmer had to sell some cattle recently because he didn't have enough pasture or hay for them and wonders how he will sustain them through the winter.

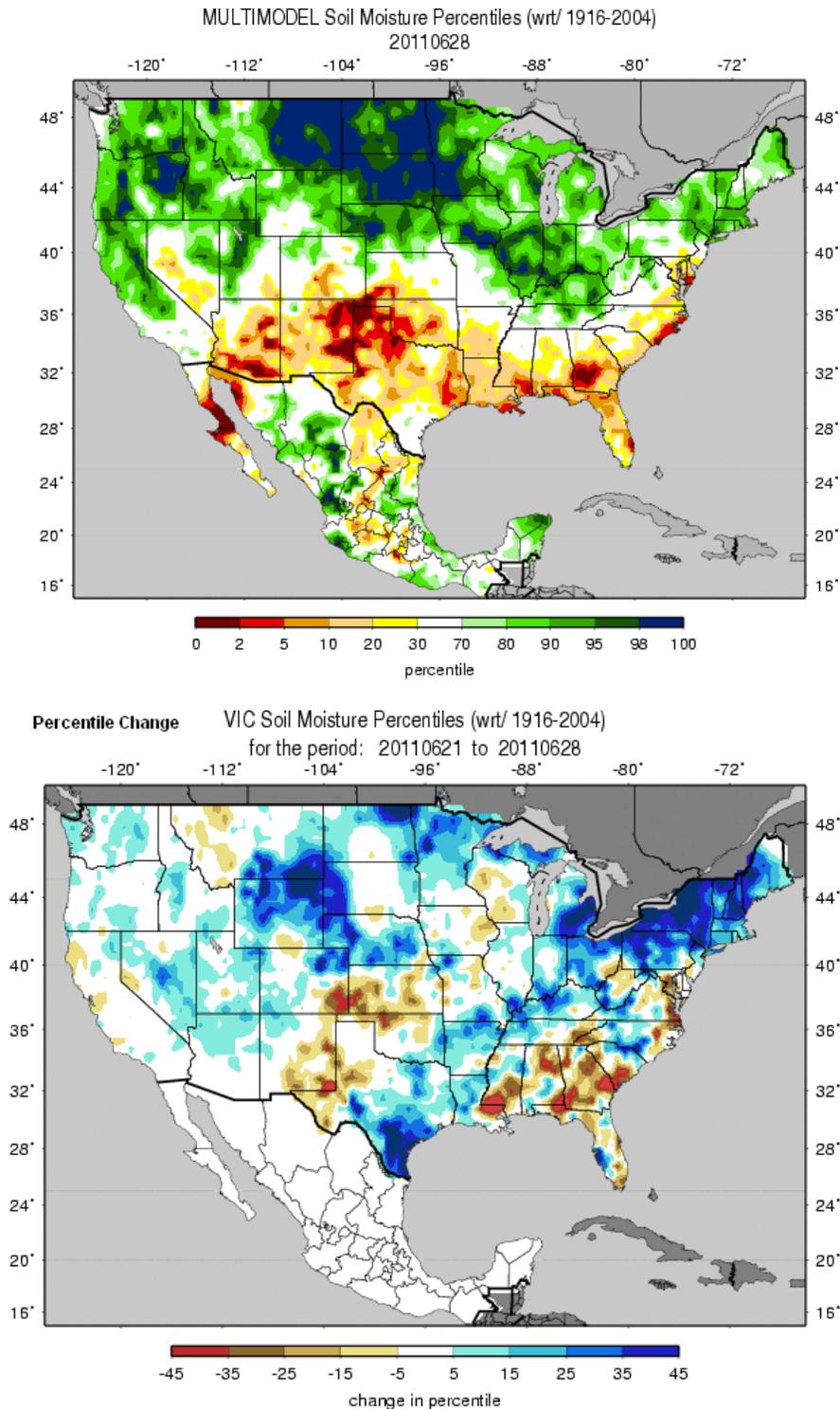
[Drought leads to increased grasshopper population, problems](http://mineralwellsindex.com/local/x947034225/Drought-leads-to-increased-grasshopper-population-problems)

<http://mineralwellsindex.com/local/x947034225/Drought-leads-to-increased-grasshopper-population-problems>

June 21, **West of Fort Worth, Texas**. Grasshopper outbreaks often occur after multiple years of droughty summers and warm autumns.

List 1: Representative list of news related stories about the drought impact on agriculture.

Weekly Snowpack and Drought Monitor Update Report

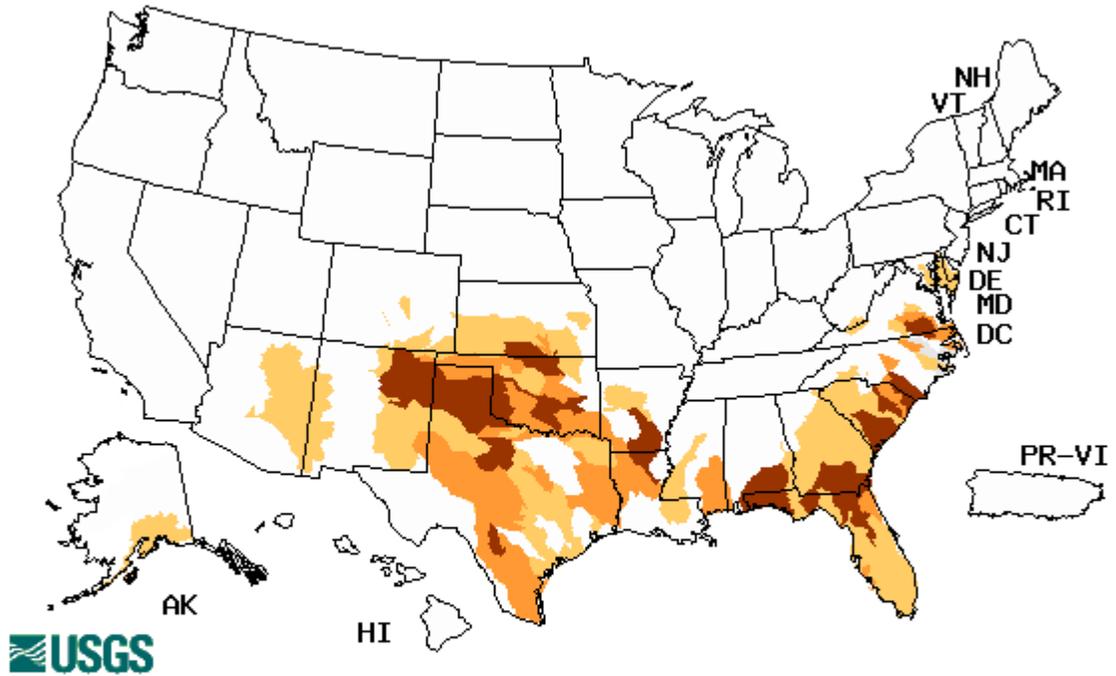


Figs. 5a and 5b: Soil Moisture ranking in percentile as of 28 June (top) shows moist conditions over much of the Northern Tier States with dryness over the Southern Tier States and into the Mid-Atlantic Seaboard (classic La Niña pattern). The moisture improved this week over all but the Southern and Central High Plains and Southeast US (bottom).

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

Weekly Snowpack and Drought Monitor Update Report

Wednesday, June 29, 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. 6: Map of below normal 7-day average streamflow compared to historical streamflow for the day of year. Portions of the Gulf Coast States, the Mid-Atlantic States, and the Southern and Central Plains are indicating severe conditions.

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

Weekly Snowpack and Drought Monitor Update Report

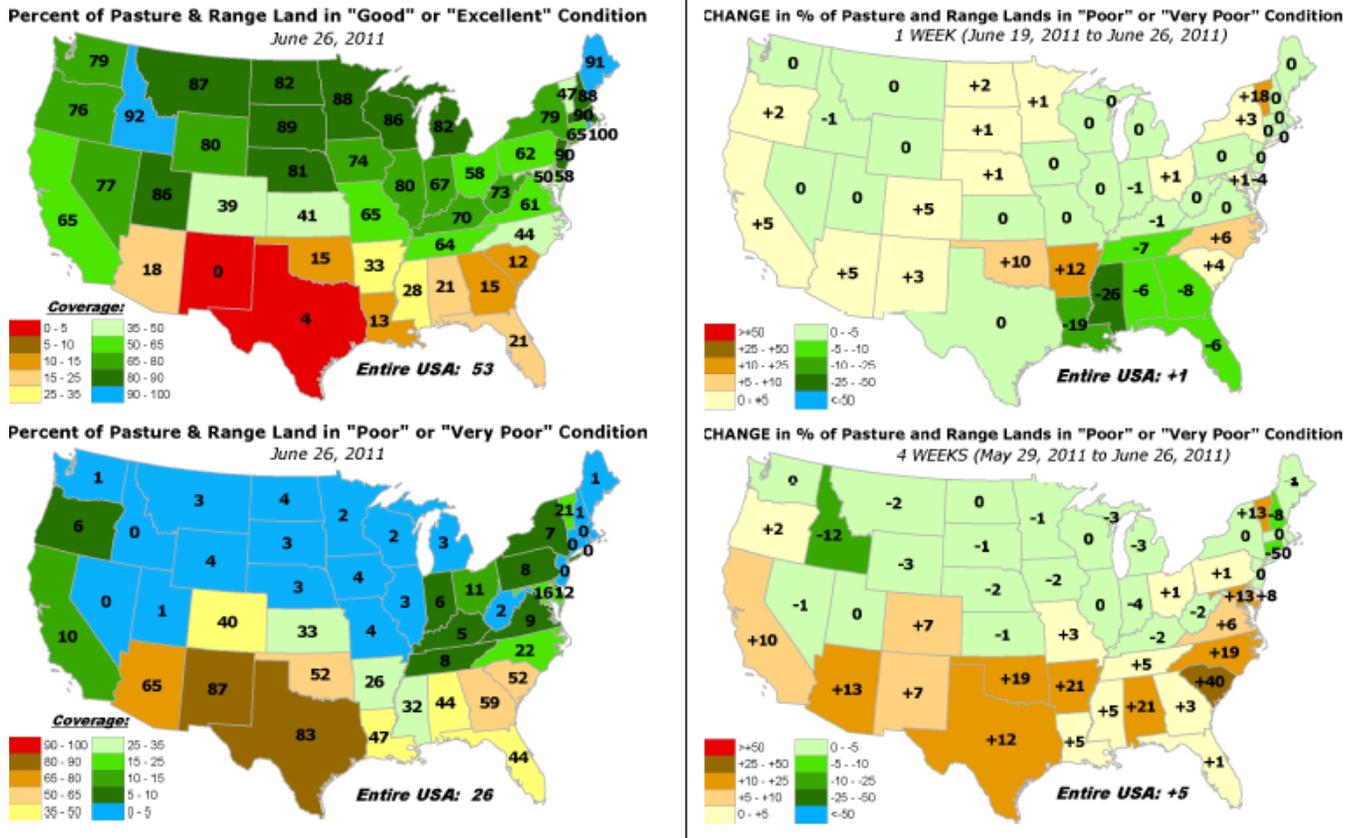
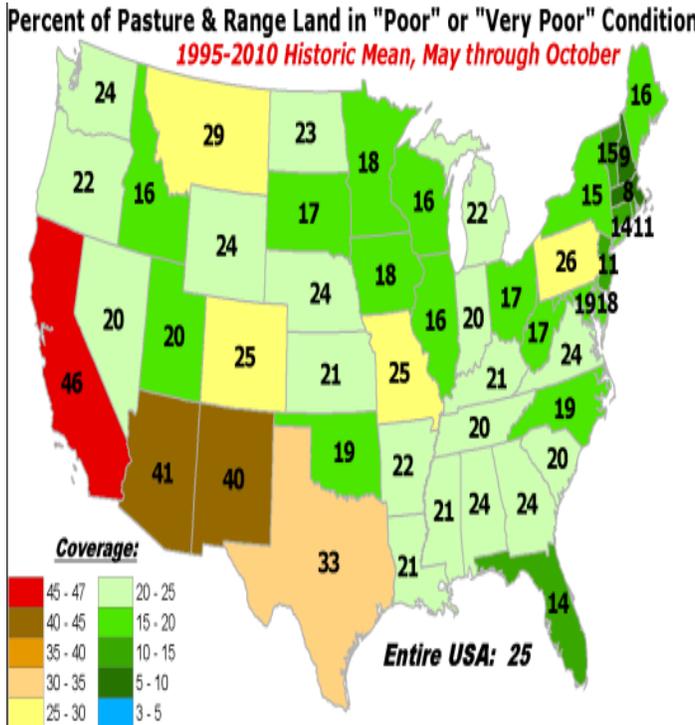


Fig. 7: Pastureland statistics for good and poor/very poor conditions by state. Note that Idaho shows the greatest improvement (lower right), while New Mexico shows the greatest deterioration during the past four weeks.

Weekly Snowpack and Drought Monitor Update Report



Similar to the topsoil map above, the attached graphic shows the mean proportion of each state with pasture/rangeland in poor or very poor condition, both for (a) all weeks in the monitoring season [May-Oct], and (b) weeks near the current time of year [early-June - mid-July].

In almost all states, the extent of p/vp conditions increases from this point in the growing season (evidenced by May-Oct averages higher than the average near the current time of year).

It would be more numerically accurate to show current season versus remainder of season (mid July thru Oct), but the former two sets of numbers make the same point and were easy for me to calculate and plot.

But back to the original point, 42 of 48 states have at least 1% greater extent of p/vp conditions for the whole record relative to the current season, with the biggest expansions of p/vp conditions noted in....

Indiana +11, Missouri +11, Oregon +11, Idaho +10, Pennsylvania +10

For the U.S. as a whole, there is a 6% increase in p/vp proportion
 see map **TYPICAL INCREASES IN P/VP EXTENT IN OTHER STATES CURRENTLY IN DROUGHT....**

Colorado +1, Texas +2, Louisiana +3, Alabama +3, North Carolina +3, Virginia +5, Maryland +5, Kansas +6, Delaware +6, Oklahoma +7

This means that in most current drought states, a static proportion of p/vp conditions from now through the height of the growing season would actually be an improvement relative to seasonally-adjusted climatology, esp. in those states where deterioration is typically marked (say the last 5 states in the list above).

- Rich Tinker, NOAA

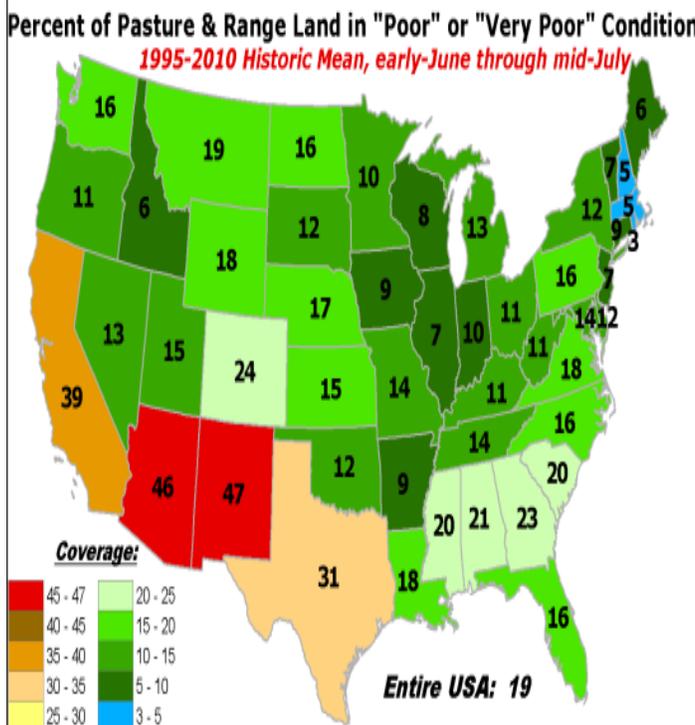


Fig 7a: Another statistical depiction of the current soil conditions compared to a longer term climatology.

Weekly Snowpack and Drought Monitor Update Report

National Drought Summary – June 28, 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/>.

Strong high pressure in the upper levels of the atmosphere dominated the southern U.S. with the storm track over the northern states. This U.S. Drought Monitor (USDM) week began with a strong cyclonic storm system moving through the central U.S. and dragging a frontal zone across the southern Plains and Southeast drought areas. Beneficial rains (2 inches or more) fell in some areas, but long-term precipitation deficits and continued hot temperatures limited improvements to the drought depiction.

The Upper Midwest, Northeast, and Mid-Atlantic: Two-plus-inch rains fell over parts of New York and New England this USDM week, but below-normal amounts fell to the south. D0 expanded further into southern New Jersey and into southeast Pennsylvania and northeast Maryland where the 30 to 60-day Standardized Precipitation Index (SPI) was quite dry. The last 30 days have been dry across Maryland, most of Pennsylvania, and western New York, but the corresponding SPI values have been mixed, indicating that the dry percent of normal precipitation values are not rare occurrences for some stations based on their data history.

Beneficial rains in the western Great Lakes resulted in the removal of the D1 in the Minnesota Arrowhead and contraction of the D0 over the Michigan Upper Peninsula. D0 was left over Michigan's Keweenaw and northern Houghton counties where less rain fell and deficits remained at many time scales.

Southeast: Beneficial (2+ inch with locally 5-inch) rains prompted the contraction of D0 in northern Alabama, northern Georgia, and extreme northwest South Carolina, and slight contraction of the D1 in northwest Georgia. The D4 was dented in central Louisiana over Grant Parish where the rains were enough to make the 30-day SPI wetter than normal. In east-central Florida, D1-D2 were pulled back from Orange to Volusia counties, and in southern Florida areas of D1-D2-D3-D4 contracted. The rainfall helped improve soil moisture conditions on a statewide basis, but June 26 U.S.D.A. reports still had 50 percent or more of the topsoil in each of the Southeast states short or very short of moisture. South Carolina still had over 80 percent of the topsoil short or very short. Long-term precipitation deficits remained, with the last 6 months 15 inches or more behind normal along coastal Alabama and Mississippi and parts of southern Florida, and rainfall deficits of 20 inches or more widespread for the last 12 months. Hot temperatures this week resulted in continued above-normal evaporation, with maximum temperatures in the 90's and low 100's, setting new records in some locations early in the USDM week. A spot of D1 was added around Tuscaloosa County in Alabama, which missed the rainfall this week. While the rainfall helped, several large wildfires still raged across Florida.

The lack of rainfall has resulted in extremely low river and creek levels, with many wells going dry, and has begun to impact southwest Georgia water utilities that rely on groundwater. The dry weather and hot temperatures have ravaged crops, with a fourth to half of several crops

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(corn, cotton, peanuts, sorghum, and soybeans) rated in poor to very poor condition across several southeast states (Louisiana, Mississippi, Alabama, Georgia, South Carolina, and North Carolina). The hard soils and hot temperatures have made successful sprouting of seed difficult and, due to lack of forage, farmers are sending cattle to feedlots or selling cattle.

The Plains: This was another very hot and dry week for much of the southern Plains. Beneficial rains occurred in a few areas of eastern and southern Texas, but deficits have been so large that little change was made to the USDM depiction. Improvement was made where 3 inches or more of rainfall was recorded. D3 was pulled back in Navarro, west Henderson, and southwest Van Zandt counties; D4 was pulled back in Willacy, southern Kenedy, and eastern Hidalgo counties; and D4 shrank around Shelby to San Augustine counties.

There were more than 150 reports of record hot maximum temperatures in Texas, over 20 in Oklahoma, and 15 in Arkansas this week, with the hottest reports including 118 degrees F in Paducah, Texas (June 27), 116 in Castolon, Texas (June 21), and 115 in Castolon and Penwell, Texas (June 26). According to the Electric Reliability Council of Texas, operator of the state's major power grid, electricity demand peaked at 62,752 megawatts on the 27th, a record for June. Several wildfires continued to flame across west Texas into Oklahoma. Through June 27, Del Rio had the driest October to June in the 1906-2011 record, San Antonio had the second driest October-June in a period of record beginning in 1871, and Austin Mabry was third driest for October-June in records going back to 1856. D4 expanded along the Rio Grande River around Laredo and Del Rio to reflect the record to near-record dryness. June 26 U.S.D.A. reports listed 90 percent or more of the topsoil short or very short of moisture in Texas and Oklahoma. For Texas, 80 percent or more of the pasture and rangeland was rated in poor or very poor condition, and half or more of the winter wheat, corn, soybeans, cotton, peanuts, and oat crops were rated poor or very poor.

Hot and dry conditions prevailed north of Texas. D0 expanded across eastern Oklahoma and most of Arkansas, with spillage into southern Missouri and parts of southern Kansas and northeast Texas. May was extremely wet in Arkansas and Missouri, but the last 4 weeks have seen little rain. The recent dryness, coupled with hot temperatures and increased evaporation, dried out the topsoil and shrank stream levels, resulting in the D0 expansion. The U.S.D.A. topsoil moisture statistic for Arkansas jumped from 60 percent last week to 77 percent short-very short this week. In Oklahoma, the statistic jumped from 80 percent last week to 90 percent this week. The U.S.D.A. statistics for percent of pasture and rangeland in poor or very poor condition jumped about 10 percent compared to last week for these states, with 52 percent poor to very poor in Oklahoma and 26 percent in Arkansas. A fifth of the sorghum and two-thirds of the cotton crop were rated poor to very poor in Oklahoma, while in Arkansas a fifth of the soybeans and a fourth of the corn crop were rated poor to very poor. D1 and D2 also expanded in Oklahoma and adjacent parts of Kansas. Localized rain in southeast Nebraska resulted in a shift in the position of the D0 there. D0 expanded in northwest Kansas into southwest Nebraska based on 30-60-day dryness.

With record or near-record long-term precipitation deficits and low stream and groundwater levels, the A impacts designation from the Southwest to central Plains was removed, leaving an AH impacts designation stretching from the Southwest to the Southeast United States. An A impacts area was added to the new D0 in Arkansas and southern Missouri to reflect the short-term nature of the dryness there.

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The West: The week was drier than normal across most of the West, with virtually no rain falling over the extreme Southwest where temperatures were well above normal. Scattered showers dropped a few tenths of an inch of rain on eastern parts of New Mexico and Colorado, but not enough to warrant improvement. There were more than 35 reports of record hot maximum temperatures in New Mexico during the past 7 days. D0-D1-D2-D3 expanded in northwest New Mexico and parts of Colorado. D0 expanded across Arizona into parts of southern Nevada and adjacent California. Hot temperatures and unseasonably strong winds continued to desiccate the soil in northeast Arizona where the Navajo and Hopi tribes have declared emergencies to try to deal with failing wells. D0-D1-D2 expanded in northeast Arizona with D0-D1 spillage into adjacent southeast Utah.

June 26 U.S.D.A. reports listed 90 percent or more of the topsoil short or very short of moisture in New Mexico; 80 percent or more of the pasture and rangeland in poor or very poor condition for New Mexico, 60 percent for Arizona, and 40 percent for Colorado. By June 28, several large wildfires were burning in Arizona, New Mexico, Colorado, and California.

Hawaii, Alaska and Puerto Rico: Above-normal precipitation and streamflow in east central Alaska resulted in contraction of the northeast corner of D0 in the state. In Hawaii, the last 7 days were wetter than normal over the northern islands but drier than normal over the southern islands. Some areas on the south side of the Big Island were drying out, but the current depiction still represented the situation well, so no changes were made. The week was drier than normal across much of Puerto Rico, but rainfall has been above normal for the last 60-90 days.

Looking Ahead: An upper-level ridge will continue to dominate the southern U.S. during the next 5 days (June 29-July 4), with the storm track staying to the north. Tropical Storm Arlene will bring a chance for rainfall to Deep South Texas and an inch or more of rain may fall along the coast from Florida to the Carolinas. Half an inch of rain is expected along the Gulf coast and a few areas in the north, but otherwise the country should have drier than normal weather. Temperatures are expected to be above normal except in the Northwest and near the track of Arlene.

The CPC 6-10 day outlook and 8-14 day outlook indicate above-normal precipitation is expected for July 5-13 from the Northeast and Mid-Atlantic coast to the central Rockies, with below-normal precipitation across the west coast, Arizona to west Texas, and most of Alaska. The northern Great Plains to Great Lakes are expected to be cooler than normal while the southern half of the country will continue warmer than normal beneath the upper ridge. The Pacific Northwest is expected to be warmer than normal, while cooler-than-normal temperatures should dominate over western Alaska and near to warmer-than-normal temperatures are expected over eastern Alaska. Author: Richard Heim, NOAA/NESDIS/National Climatic Data 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

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Drought or Dryness Types

A ... Agricultural

H ... Hydrological

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