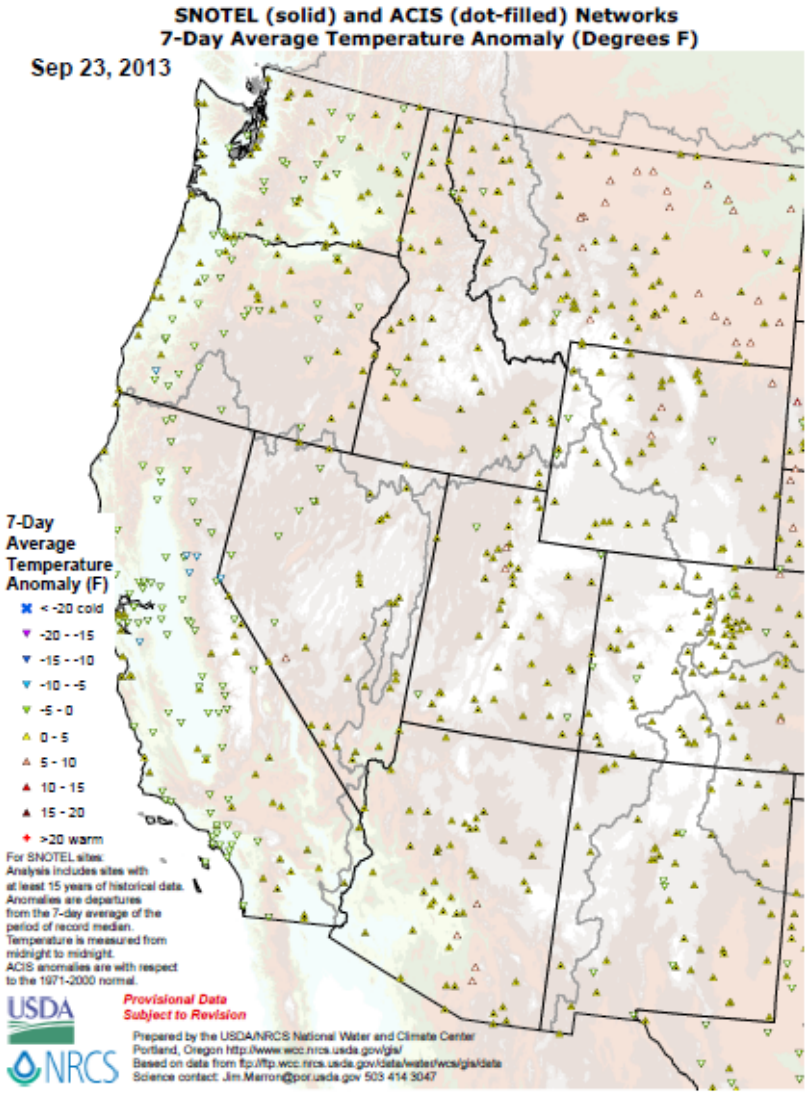
United States Department of Agriculture

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

Weekly Snowpack / Drought Monitor Update

September 23, 2013

Temperature



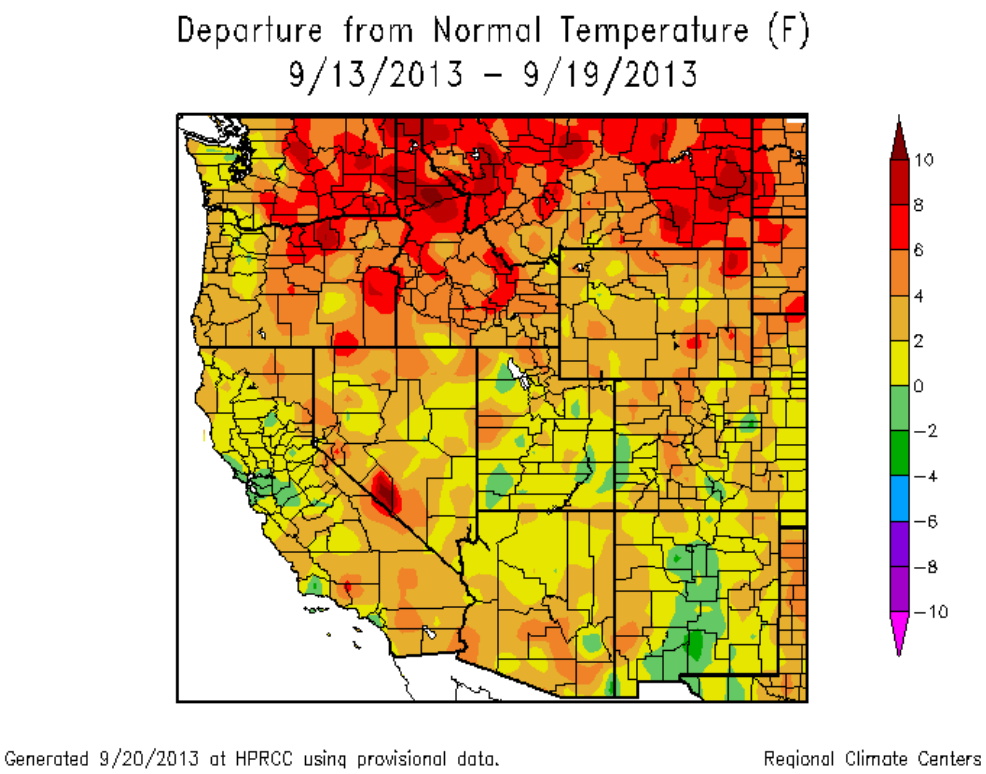
SNOTEL and ACIS 7-day temperature anomaly map shows a warmer than average week across the western states, especially over the northern and eastern regions.

Click on map to see latest available update.

ACIS 7-day average temperature anomalies, ending September 19, show the greatest positive temperature departures confined to the northern tier of the West (>10°F in some local locations). The coolest departures occurred over central New Mexico (>-4°F) due to lingering monsoon conditions.

This map currently does not use SNOTEL data, but is expected to later this year.

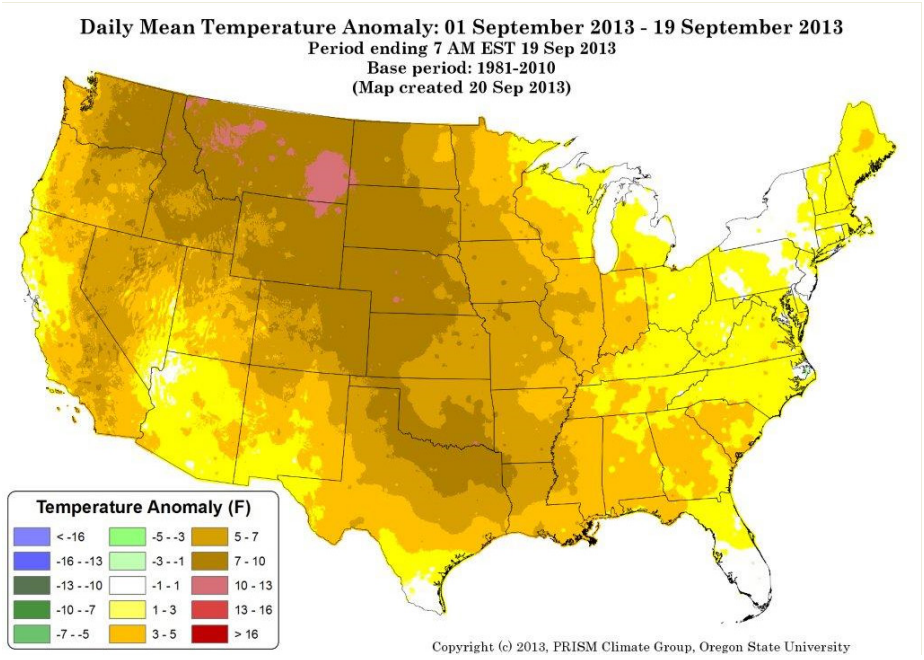
For more figures, see the latest Western Water Assessment's Intermountain West Climate Dashboard. See the Westwide Drought Tracker.



This preliminary PRISM temperature map, updated daily, will be available to the public starting in early October.

Refer to the last page of this report for the August and January through August maps.

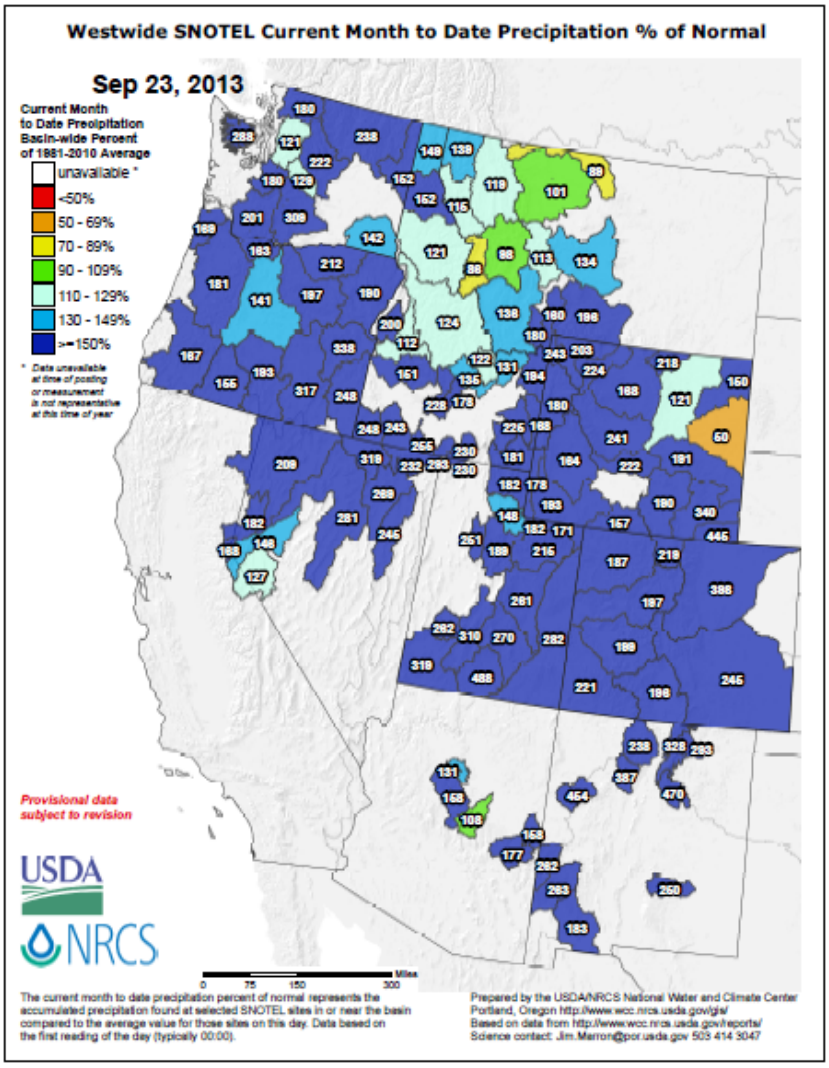
The map contains all available network data, including SNOTEL data, and will be updated periodically as additional data become available and are quality controlled.



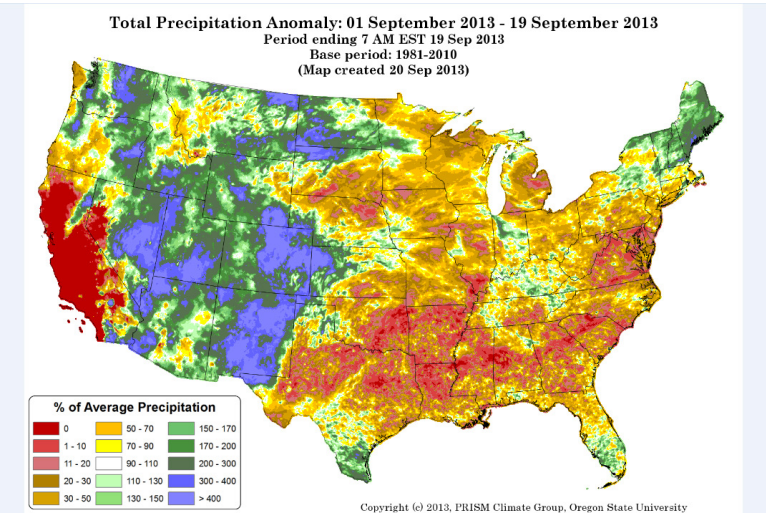
Thus far for September, temperatures have been warmer than normal over almost the entire nation; especially over the upper midwest (e.g., >10°F over southeastern Montana). The only regions with near average temperatures are southern Florida, northwestern Arizona, and parts of New England.

Precipitation

SNOTEL month to date precipitation percent of normal map shows a very wet month thus far across most of the western states, where record flooding caused loss of life and much property damage.



Click images for enlarged latest available update



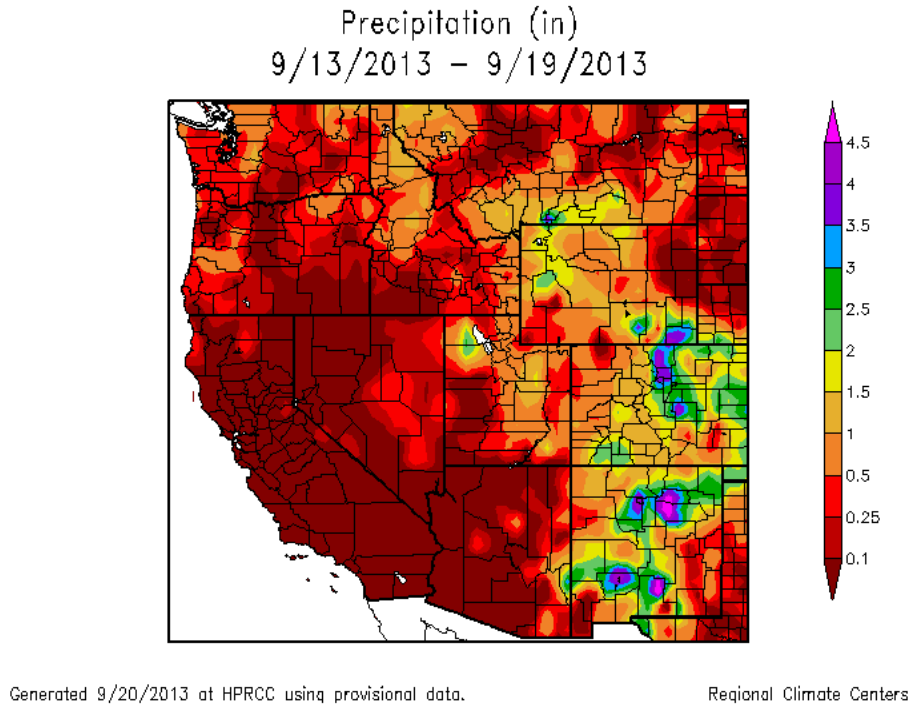
September accumulated total precipitation through 7 a.m. on September 19 shows a rainfall pattern that has favored the entire West (except California), and upper New England. Especially hard hit were New Mexico, Colorado, and SE Wyoming. Drier conditions dominated over most of the eastern portion of the U.S. and California.

This preliminary PRISM precipitation map will be available to the public starting in early October. It contains all available network data, including SNOTEL data, and will be updated periodically as additional data become available and are quality controlled.

ACIS 7-day average precipitation amounts for the period ending September 19 show the effects of record rainfall over localized areas of New Mexico, Colorado, and SE Wyoming. Some stations have reported 10 times their normal September precipitation.

The remainder of the West experienced very little precipitation.

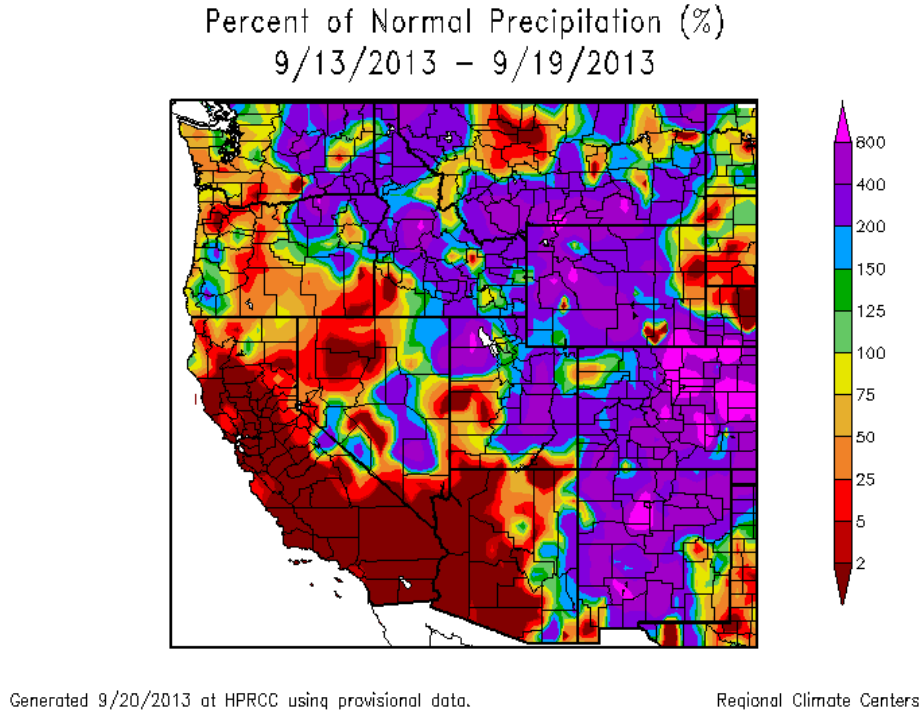
This map currently does not incorporate SNOTEL data, but is expected to later this year.



This map shows the copious precipitation that resulted in very high percentages of normal; easily exceeding four to eight times the expected (average) weekly amounts.

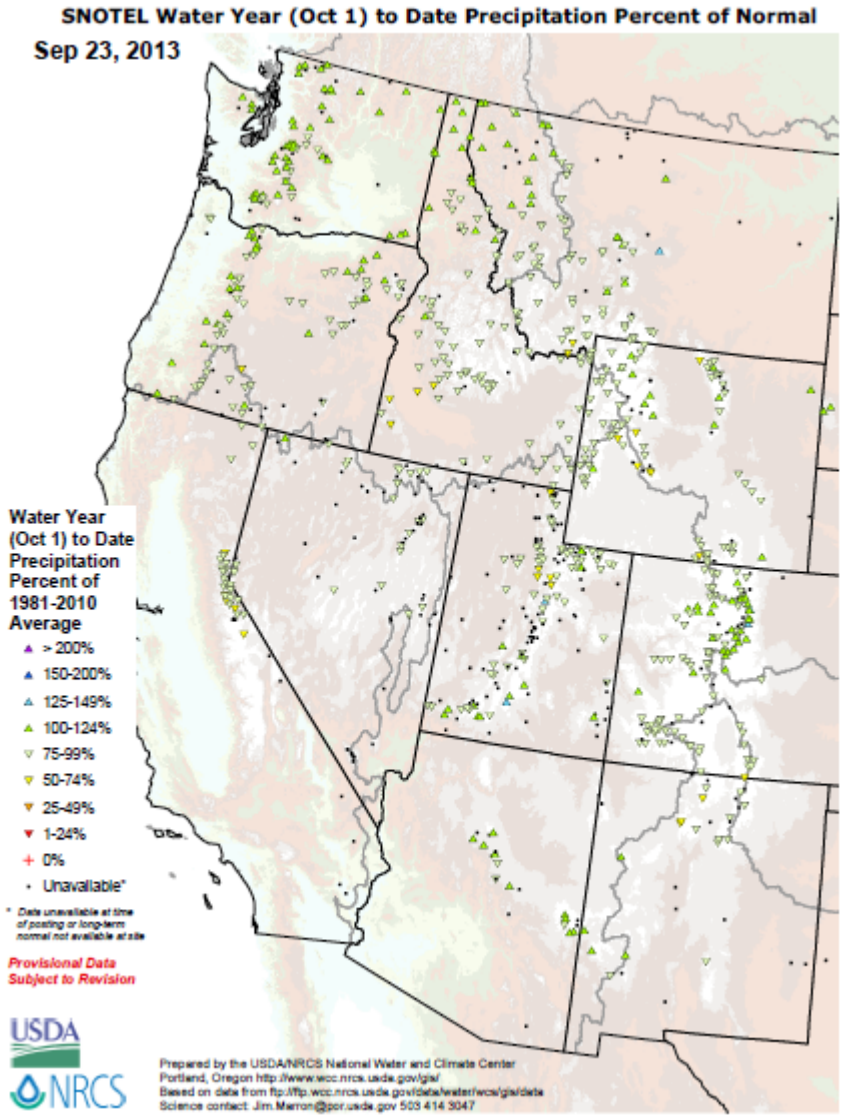
California, northwestern Nevada, and most of Arizona were the exceptions, with little to no rainfall occurring.

This map currently does not use SNOTEL data, but is expected to later this year.



For the 2013 Water Year that began on October 1, 2012, the pattern continues to resemble La Niña (i.e., wetter northern tier). However, the impact of the Southwest Monsoon is apparent from Arizona and New Mexico up through SE Wyoming, with above normal values recorded at many sites. Heavy precipitation over this area has erased most, if not all, of the precipitation deficit from earlier this year.

For additional information, daily reports by SNOTEL sites are available here.



Click image for latest available update

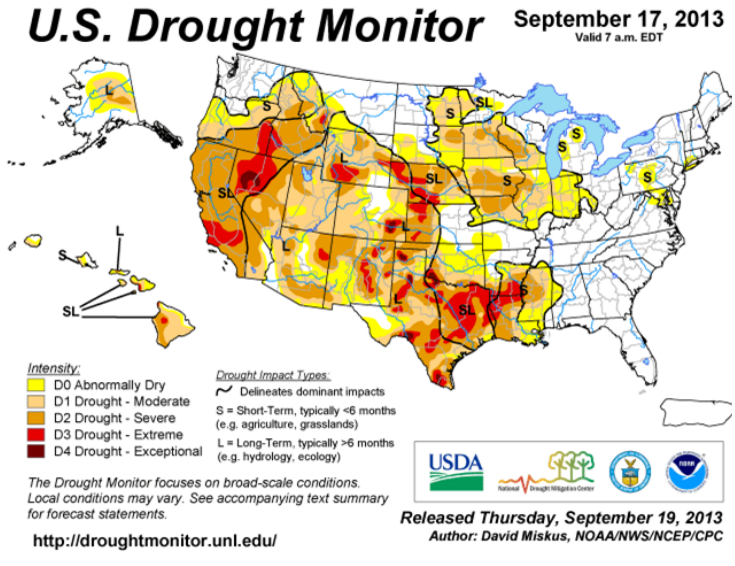
Weather and Drought Summary

National Drought Summary -- September 17, 2013

The following **Weather and Drought** information is provided by this week's NDMC Author: David Miskus, NOAA/NWS/NCEP/CPC.

Weather Summary: "The combination of ample Gulf and Pacific tropical moisture (in part from Tropical Storms Manuel (Pacific) and Ingrid (Gulf) which inundated Mexico), stalled frontal systems, and upsloping conditions produced widespread heavy to copious rainfall (widespread 2 to 6 inches, locally 12 to 18 inches especially near Boulder, CO) and severe flash flooding in parts of New Mexico and Colorado. Moderate to heavy rains (1.5 to 4 inches) also drenched portions of Arizona, eastern Nevada, Utah, Wyoming, south-central Montana, western sections of Nebraska, Kansas, Oklahoma, and northern and southern Texas. September monsoonal rains have generated welcome relief from the drought in the Southwest, central Rockies, and High Plains, but unfortunately have been accompanied by flash flooding. Elsewhere, a pair of cold fronts during the week brought relief from last week's unseasonable heat in the Midwest and Northeast, along with light to moderate rain that generally prevented further deterioration of conditions. Hit and miss (mostly miss) showers occurred in the Southeast, with the most significant rains (more than 2 inches) limited to southern Florida. Warm and mostly dry weather returned to the Northwest after a wet first week of September. Wet weather continued across most of Alaska, while decent windward showers returned to the Hawaiian Islands.

The West: The heavy monsoonal rains that inundated the Southwest and central Rockies bypassed the West, leaving warm and dry weather instead. As this is the normally dry summer and early fall season, no changes were made to much of the region. An exception was made in extreme southern California where isolated heavy showers (1 to 2.5 inches) fell west of the Salton Sea last week, and that was enough to reduce Water Year-To-Date (WYTD) deficits and change D2 to D1. Similarly in eastern Nevada, additional showers (1 to 2.5 inches) continued to diminish the long-term deficits in the region, allowing for some minor improvements to D2 and D3 areas. In contrast, along the coast near San Diego, CA, D2 was expanded as the WYTD percentages were similar to areas just to the north (between 25-50%). In California, the 154 reservoirs are at 79% of average; last year at this time it was 90%. The reservoirs are not at critical levels yet as they need to be in the 30-40% range to be critical. However, the Department of Water Resources were informing water agencies to prepare for a dry 2014 as water deliveries will be less than normal so the reservoir storage can recover. In Nevada, drought declarations continued for a majority of the state, with agriculture the hardest hit from irrigation restrictions and cattle ranchers selling off more of their herd due to lack of grazing land."



Current Drought Monitor weekly summary. The exceptional D4 levels of drought are scattered across the western Corn Belt of the Plains into southeastern Colorado, western Nevada, and portions of Texas.

The latest drought indicator blend and component percentiles spreadsheet is a great resource for climate division drought statistics. This link is for the latest Drought Outlook (forecast). See climatological rankings.

For more drought news, see Drought Impact Reporter.

National Drought Related News (•):

- From hot, dry conditions to flooding - Sept 12, **U.S**.
- Colorado River Hydropower Faces a Dry Future – Sept 20, U.S.

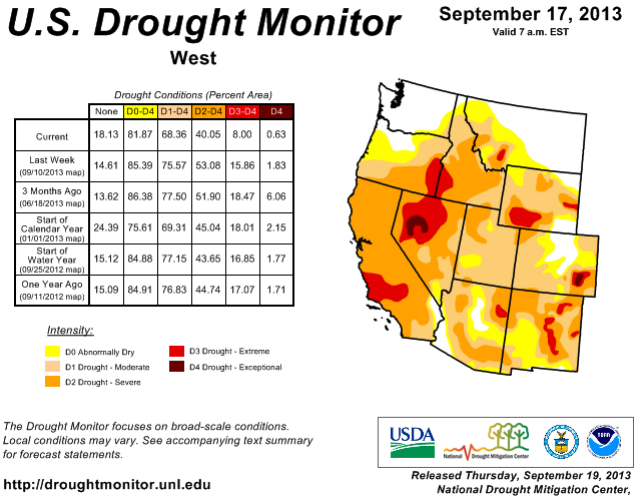
Drought Management Resources (√):

- Watch AgDay TV

- ✓ Drought Monitor for the Western States
- ✓ Drought Impact Reporter for New Mexico
- ✓ California Data Exchange Center & Flood Management
- ✓ NIDIS Upper Colorado River Regional Drought Earlier Warning System
- ✓ Intermountain West Climate Dashboard
- ✓ Great Basin Dashboard

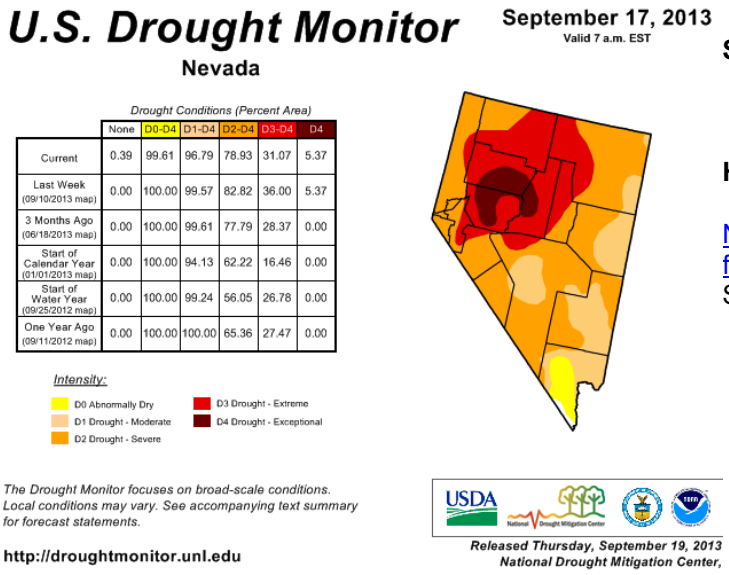
Western Drought News:

- Colorado floods: Business likely to feel brunt of after-effects - Sept 14, Denver**, Colorado**
- Drought conditions continue despite last week's rains - Sept 17, Las Cruces, **New Mexico**
- Missouri sets drought record in August - Sept 20, **Missouri**
- Portrait of a historic deluge in Colorado - Sept 15, **Colorado**
- Towns scurry as water rushes in South Platte communities - Sept 18, SW **Nebraska**



There was significant improvement this week in the Southwest, with the resurgence in the SW Monsoon.

- Rainfall boosts water levels at Elephant Butte, Caballo lakes - Sept 17, southern **New Mexico**



State with D-4 Exceptional Drought

- ✓ Nevada Drought Information.

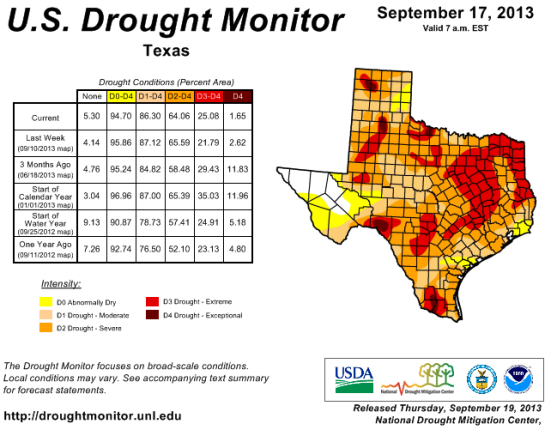
High Plains Drought News:

Nevada drought as 'bad as any seen;' fires, food prices increase amid severe conditions - Sept 9, Reno, **N**

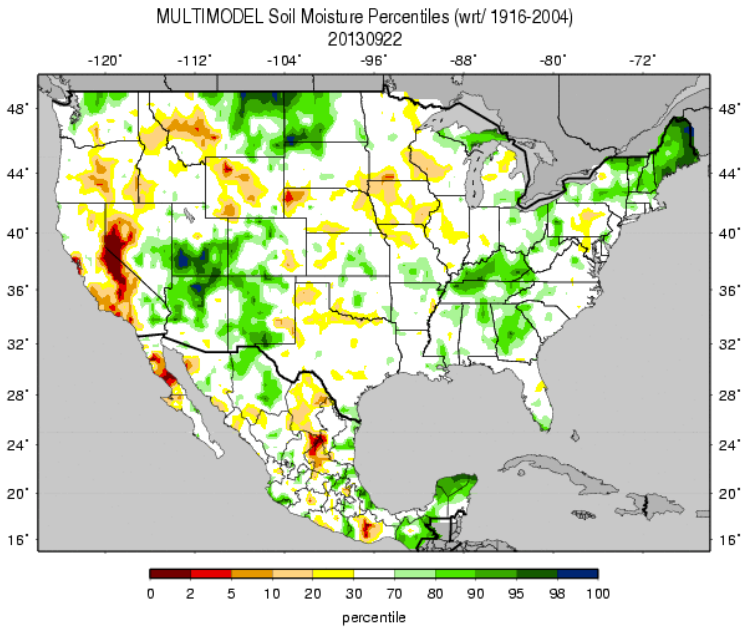
State with D-4 Exceptional Drought

- ✓ Texas Drought Website.
- ✓ Texas Reservoirs.

- Texas public water systems affected by drought - Sept 18, **Texas**
- Like Yogi Berra said "This is like déjà vu all over again." - Sept 19, Brazos Valley **east central Texas**
- Drought reduces Crossroads rivers to trickle – Sept 19, Gulf Coast **Texas**



Soil Moisture

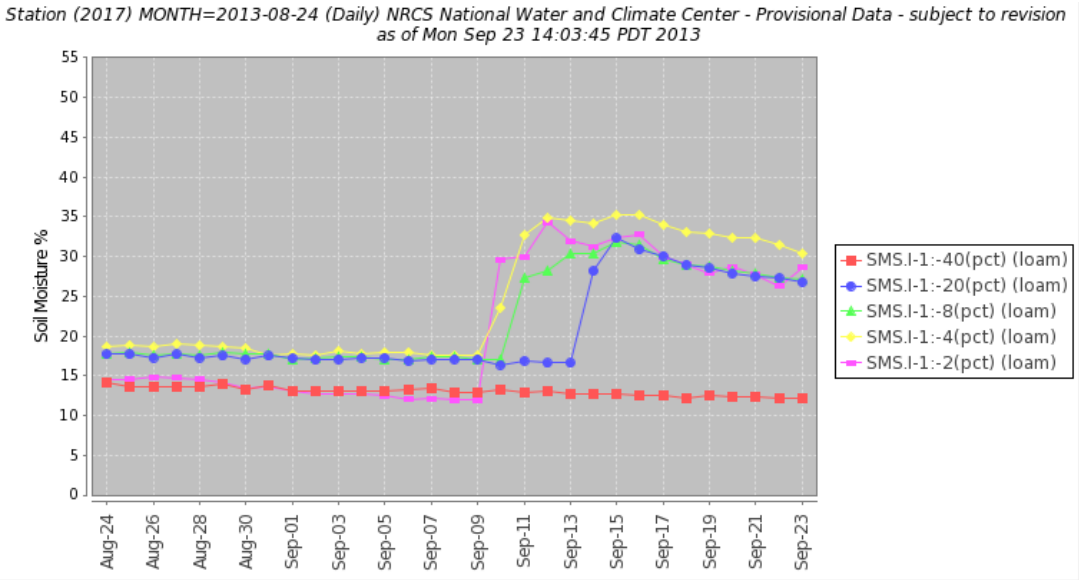


Soil moisture ranking in percentile as of September 22 shows an improvement over the entire West. Excess moisture is noted over the upper plains states, southern Utah, northern Arizona, and over much of northern New England.

Useful Hydrological Links: *Crop Moisture Index*; *Palmer Drought Severity Index*; *Standardized Precipitation Index*; *Surface Water Supply Index*; *Weekly supplemental maps*, *Minnesota Climate Working Group*; *Experimental High Resolution Drought Trigger Tool:* NLDAS Drought Monitor; Soil Moisture.

Soil Health-unlock your farm's potential

Soil Climate Analysis Network (SCAN)



This NRCS resource shows a site in Colorado, northeast of Fort Collins. Soil moisture conditions increased dramatically after the recent record rainfall that caused serious flooding. Note: the deeper 40" soil depth will respond much slower to the rainfall experienced last week.

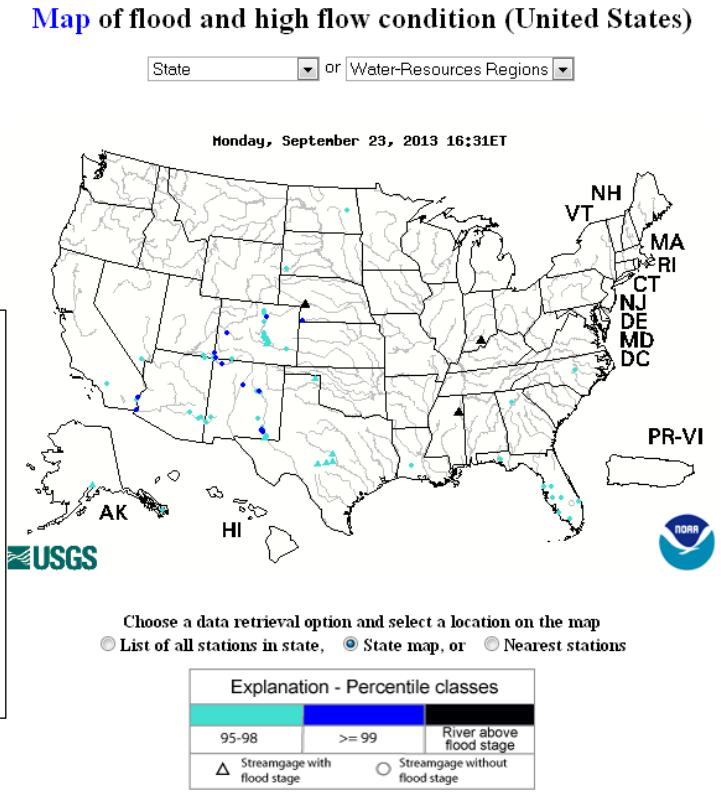
Useful Agriculture Links: *Vegetation Drought Response Index*; *Evaporative Stress Index*; *Vegetation Health Index*; *NDVI Greenness Map*; *GRACE-Based Surface Soil Moisture*; *North American Soil Moisture Network*. *Monthly Wild Fire Forecast Report*.

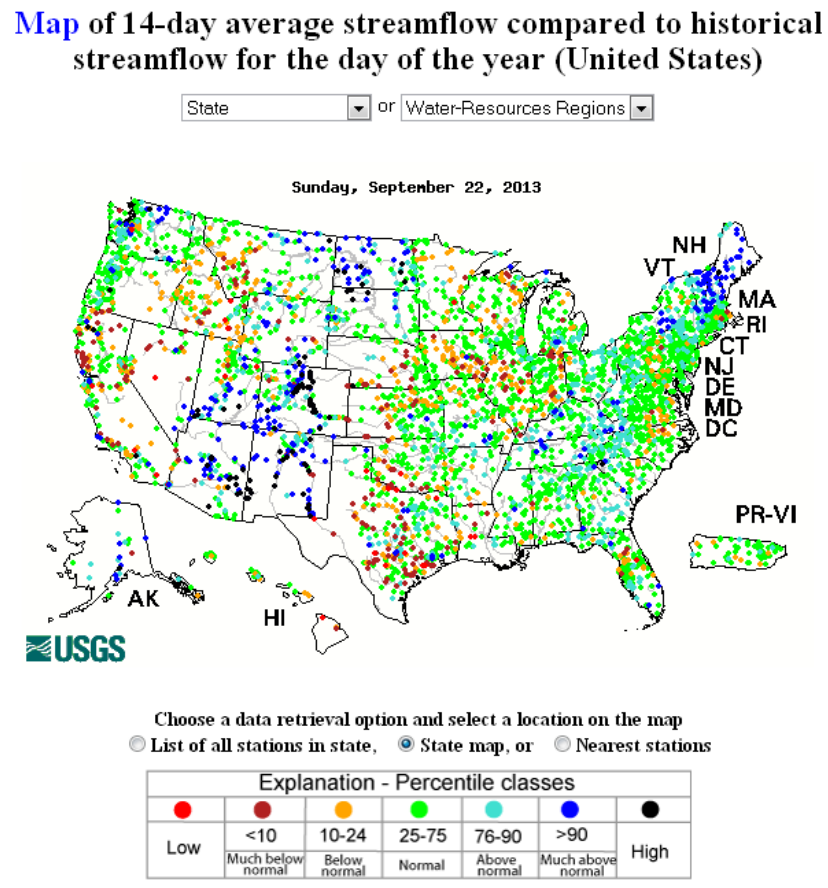
U.S. Historical Streamflow

Flooding and high water conditions have abated somewhat from the recent heavy rainfall in the southwestern states. Rivers and streams along the front range of Colorado are still running high.

See the USGS National Water Information System Mapper.

The "Flood and high flow" map shows the location of stream gages where the water level is currently at or above flood stage (depicted as a black triangle) or at high flow (depicted as blue circles) The high flow conditions are expressed as **percentiles** that compare the current (i.e., within the past several hours) instantaneous flow value to historical daily mean flow values for **all** days of the year. Please note that flood conditions may be more extensive than shown on the map because the National Weather Service (NWS) has not identified a flood stage (for flood forecasting purposes) at all USGS stream gages. Also, the NWS has determined flood stages for some non-USGS stream gages, which are not shown on the map. The most complete depiction of stream gages at or above flood stage is on the NWS River Conditions Map.





This map shows the **14-day average streamflow conditions** of the United States and Puerto Rico for the day of the year. The colors represent 14-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.

Many waterways in the mid-section of the country and portions of the West are flowing much below average. Conversely, rivers and streams in the southwest, upper plains, and New England are running much above average.

Complete National Drought Summary

The complete **Weather and Drought Summary** is provided by this week's NDMC Author: David Miskus, NOAA/NWS/NCEP/CPC.

National Drought Summary -- September 17, 2013

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/.

Weather Summary: "The combination of ample Gulf and Pacific tropical moisture (in part from Tropical Storms Manuel (Pacific) and Ingrid (Gulf) which inundated Mexico), stalled frontal systems, and upsloping conditions produced widespread heavy to copious rainfall (widespread 2 to 6 inches, locally 12 to 18 inches especially near Boulder, CO) and severe flash flooding in parts of New Mexico and Colorado. Moderate to heavy rains (1.5 to 4 inches) also drenched portions of Arizona, eastern Nevada, Utah, Wyoming, south-central Montana, western sections of Nebraska, Kansas, Oklahoma, and northern and southern Texas. September monsoonal rains have generated welcome relief from the drought in the Southwest, central Rockies, and High Plains, but unfortunately have been accompanied by flash flooding. Elsewhere, a pair of cold fronts during the week brought relief from last week's unseasonable heat in the Midwest and Northeast, along with light to moderate rain that generally prevented further deterioration of conditions. Hit and miss (mostly miss) showers occurred in the Southeast, with the most significant rains (more than 2 inches) limited to southern Florida. Warm and mostly dry weather returned to the Northwest after a wet first week of September. Wet weather continued across most of Alaska, while decent windward showers returned to the Hawaiian Islands.

The Northeast: The passage of two cold fronts brought both rain and heat relief to New England and the mid-Atlantic. The rains were more widespread and heavier in New England (2 to 5 inches), but unfortunately less so to the south. Although 0.5 to 1.5 inches fell across the D0 areas in Pennsylvania, Long Island, and the mid-Atlantic, short-term deficits (at 60- and 90-days) continued to accumulate. As a result, a slight expansion of the abnormal dryness was made by linking the two areas in central Pennsylvania and Maryland together where 50-75% of normal precipitation has fallen the past 60 and 90 days, creating shortages of 2 to 4 inches. Fortunately, a wet spring and early summer plus cooler weather has tempered the potential negative impacts of the recent dryness. Most USGS 14- and 28-days average stream flow values in the region are near normal, although some sites in the D0 areas are below the 25th percentile, and a few in Maryland are below the 10th percentile.

The Midwest: After several weeks of rapid deterioration due to "flash drought" conditions in the Midwest (lack of rain + heat), this week finally brought some relief with lower temperatures and light to moderate rain via two separate cold fronts. Locally heavy rains (1.5 to 3 inches) that fell across west-central Minnesota was enough to remove the D0 there, and 2-weeks of moderate rains in west-central Illinois reduced shortages enough to improve to D0. The widespread 0.5 to 1 inches of rain that occurred elsewhere was enough to prevent further deterioration, but not enough to significantly dent the 90-day accumulated deficits. In contrast, rainfall amounts diminished across southern sections of the Midwest, with weekly totals under 0.5 inches. With increasing deficits at 60- and 90-days, abnormal dryness was expanded across most of Indiana, southwestern Ohio, and southern Illinois. D1 similarly increased near St. Louis, MO area, central Illinois, and central Indiana. 60- and 90-day deficiencies have reached 3-6 and 4-8 inches, respectively, in the aforementioned D1 areas. Historically, after a relatively wet June (and spring), the summer months (Jun-Aug) were ranked as the 13th, 32nd, and 36th driest since 1895 (119 years) for Iowa, Minnesota, and Illinois, respectively, according to NCDC, depicting how dry July and August were. Fortunately, summer temperatures averaged below normal. Agriculturally, the recent heat (and Jul-Aug dryness) created declines in potential crop yields while it accelerated the denting and maturity stages of corn to values well above the 5-year averages. Corn and soybean crop conditions rated good to excellent fell from early July highs of 68 and 67% to 56 and 54% by September 1, respectively, according to NASS/USDA.

The Lower Mississippi Valley: Since late July, much of the lower Delta region (Louisiana, southern Arkansas, western Mississippi) has missed out on significant rainfall that has fallen on nearby areas. This week was no exception as Louisiana averaged only 0.24 inches this past week with a departure from normal of -0.85 inches. Many locations received no rainfall, and temperatures averaged 2 to 4 degrees F above normal. Precipitation has been under 25% of normal the past 30 days, and between 50-75% of normal during the past 60- and 90-days, with shortages of 3-6 and 4-8 inches, respectively. The drier weather has started to creep eastward, with western portions of Alabama now below normal at 30- and 60-days. The USGS 1-, 7-, 14-, and 28-day stream flows have dropped below the tenth percentile in central parts of Louisiana and Mississippi. The summer months were also

quite dry in Louisiana, with a ranking of 22nd driest summer (June-August) since 1895, according to NCDC. Accordingly, D0 through D3 was expanded eastward to cover the driest areas during the past 2 to 3 months.

Northern and Central Great Plains: The Dakotas observed opposite conditions as decent rains (2-4 inches) the past two weeks fell on most of North Dakota, easing drought conditions along the western edge and southeastern section as 60-day deficits were reduced while 90-day surpluses were found. In contrast, most of South Dakota was dry, with only half an inch of rain measured in the extreme northeastern part of the state. Although near to surplus rains have fallen across western and southern South Dakota the past 60-days, the northeastern corner has measured less than 25% of normal precipitation. For example, Aberdeen (1.02”), Webster (1.20”), Clear Lake (1.12”), Watertown (0.96”), and Bryant (1.62”) totals since August 1 are at near-record dry levels. This dryness, plus the recent heat that caused loss of potential crop yields (especially soybeans) justified a return of D2 in this area. In Nebraska, rains were limited to the southern half and far western portions of the state. Weekly totals generally ranged around an inch, keeping conditions status-quo. An exception was along the Kansas border and in the extreme southwestern and far western areas where amounts exceeded 2 inches, allowing for some slight drought reductions to be made. In Kansas, heavy rains (more than 2 inches) fell across the northern half of the state, with up to 7 inches falling in the northwestern corner, while decent rains also occurred in western and southern sections. As a result, D4 was eliminated from Kansas (to D3) while a reduction in the eastern D0-D3 edges were made. The D0 edge in eastern and southern Kansas was also pared back. Some small 2-category improvements were done in northwestern Kansas in association with the heaviest rains.

Southern Great Plains: In Oklahoma and Texas, general improvements were made in western sections while eastern portions deteriorated. In the Oklahoma Panhandle, copious monsoonal rains that inundated parts of the Southwest and central Rockies and caused flash flooding also soaked the extreme western Panhandle (and southeastern Colorado) with over 5 inches of rain, enough for a 2-category improvement to D1. With lesser totals (1.5 to 3 inches) just to the east, a 1-category improvement was made to the rest of the Oklahoma Panhandle and in northwestern Oklahoma. Similarly, 2 to 4 inches of rain along the KS-OK border was enough to erase D0 in Kay and Osage counties. However, little or no rain along the Red River Valley continued the dry trend in southern sections of the state as D2 and D3 expanded in extreme southern Oklahoma and across much of eastern Texas (and Louisiana). 30-day rainfall was under 25%, while 60- and 90-day precipitation hovered around 50%, creating 3-6 and 4-8 inch deficits, respectively. In contrast, tropical moisture from Tropical Storm Ingrid in the western Gulf pushed enough moisture northward to dump 2 to 7 inches of rain on southern Texas. Frequent tropical showers have brought Brownsville, TX, 11.29 inches of rain so far this month, with Harlingen at 8.14 inches and McAllen at 5.99 inches. Accordingly, drought was reduced a category where the heaviest rains fell.

The Southwest: The robust southwestern summer monsoon exploded with copious rainfall (6 to 12 inches, locally over 18 inches near Boulder, CO) across portions of New Mexico and Colorado, producing severe flash flooding, loss of lives, and the destruction of property and infrastructure. The combination of ample Gulf and Pacific tropical moisture (in part from Tropical Storms Manuel (Pacific) and Ingrid (Gulf) which inundated Mexico), stalled frontal systems, and upsloping conditions produced the widespread rainfall. Other states in the surrounding region (Arizona, Nevada, Utah, southern Idaho, Wyoming, south-central Montana) and the High Plains also received beneficial moisture from the monsoon, not only this week but in weeks past. In Colorado, widespread flooding was realized from these rains on the Cache la Poudre, South Platte, Big Thompson, and St. Vrain Rivers where communities were stranded as roads collapsed. This was a historic flood (estimates are currently a 100 year flood) for the Front Range, and as such, many improvements are warranted. In some cases, 2-3 category improvements were recommended as 3 inches of rain is approximately 20% of the normal ANNUAL total at many locations. This event was not convective activity, but more tropical in nature, falling for several days in succession. This time of the year is also a huge consideration for improvement as it allows for excellent soil moisture storage going into the fall when evapotranspiration rates are much less as compared to the height of the growing season. In New Mexico, similar 4-10 inch totals (minus the excessive 18 inches) fell, also leading to a widespread 1-category improvement statewide, but due to the prolonged 3-year drought, 2-category improvements were very limited. It will be interesting to see how quickly and how much the major reservoirs in New Mexico react to these rains. Similar 1-category improvements were made in Arizona, Utah, Wyoming, and south-central Montana where 2-4 inches of rain diminished long-term deficits. Numerous flood warnings were issued by the NWS in these states, and with no surprise, most USGS stream flow levels were currently at near or record high flows. Although Arizona saw less rain this week, last week’s downpours were enough to increase flows on the Gila River that raised water levels at the Coolidge Dam by 7 feet, with a few more feet still expected.

The West: The heavy monsoonal rains that inundated the Southwest and central Rockies bypassed the West, leaving warm and dry weather instead. As this is the normally dry summer and early fall season, no changes were made to much of the region. An exception was made in extreme southern California where isolated heavy showers (1 to 2.5 inches) fell west of the Salton Sea last week, and that was enough to reduce Water Year-To-Date (WYTD) deficits and change D2 to D1. Similarly in eastern Nevada, additional showers (1 to 2.5 inches) continued to diminish the long-term deficits in the region, allowing for some minor improvements to D2 and D3 areas. In contrast, along the coast near San Diego, CA, D2 was expanded as the WYTD percentages were similar to areas just to the north (between 25-50%). In California, the 154 reservoirs are at 79% of average; last year at this time it

was 90%. The reservoirs are not at critical levels yet as they need to be in the 30-40% range to be critical. However, the Department of Water Resources were informing water agencies to prepare for a dry 2014 as water deliveries will be less than normal so the reservoir storage can recover. In Nevada, drought declarations continued for a majority of the state, with agriculture the hardest hit from irrigation restrictions and cattle ranchers selling off more of their herd due to lack of grazing land.

Hawaii and Alaska: In Hawaii, a couple of remnant frontal rain bands produced scattered light to moderate showers on the western half of Hawaii (Kauai, Oahu), helping to mitigate the worsening of drought conditions there. In the eastern portion of Hawaii, drier conditions (fewer and lighter showers) were enough to bridge the two separate D2 areas on the western Big Island as lack of rain has forced users on catchment systems to haul water and severely ration usage.

In Alaska, another wet week, especially along the southern (1.5 to 4 inches) and northwestern (0.5 to 1.2 inches) coasts and in central Alaska (1 to 2.5 inches), allowed for another round of improvements to the state. Wet weather started in early August along the south-central coast, and has expanded northward each week. The recent rains and lower temperatures followed a warm and dry summer that produced significant deficits for the warm season. The main impact in the Alaskan interior was the deep drying of soils and another summer of significant stress on the primary tree species of boreal forest. Fortunately, there has been enough rain and a return to seasonable temperatures that the wildfire season is over; however, long-term deficits accumulated during the summer still linger in the interior.

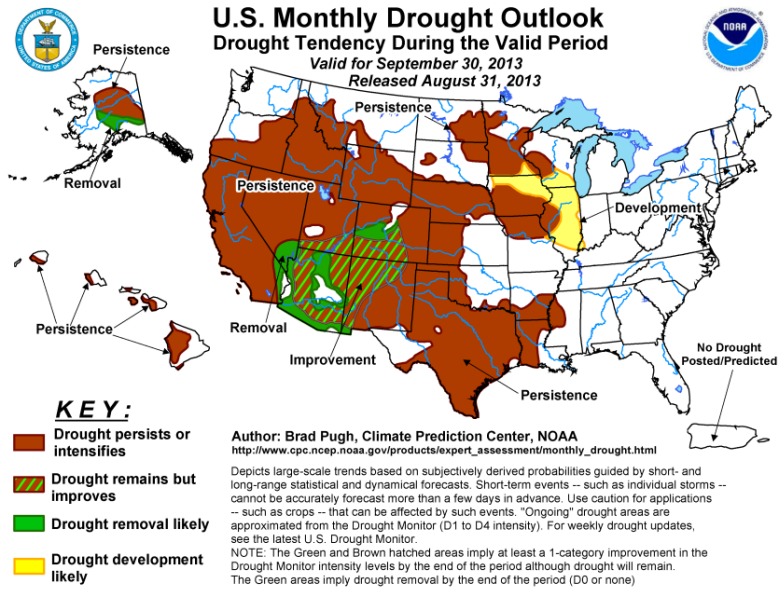
Looking Ahead: During September 19-23, a slow-moving frontal system will trigger showers and thunderstorms from the Great Plains eastward to the Atlantic Coast, with the largest totals (more than 1.5 inches) expected along the Rio Grande Valley eastward along the Gulf Coast and into the Southeast. An inch of rain is also forecasted from the central Great Plains northeastward into the upper Great Lakes region, with unsettled weather returning to the Pacific Northwest. Much drier weather should return to the Southwest, central Rockies, and High Plains, allowing for recovery from flooding. Temperatures should average above normal across the contiguous U.S. except for subnormal readings in the Far West.

For the ensuing 5 days (September 24-28), the odds favor enhanced chances for precipitation from the Pacific Northwest eastward to the upper Midwest, in southern Florida, and along the southern coast of Alaska. Subnormal precipitation is likely in northern Alaska and the Tennessee and Ohio Valleys and eastern Great Lakes region. Above-normal temperatures are probable east of the Rockies and west of the Appalachians and in southeastern Alaska while a tilt toward subnormal readings are forecast for the West and southwestern Alaska."

State Activities

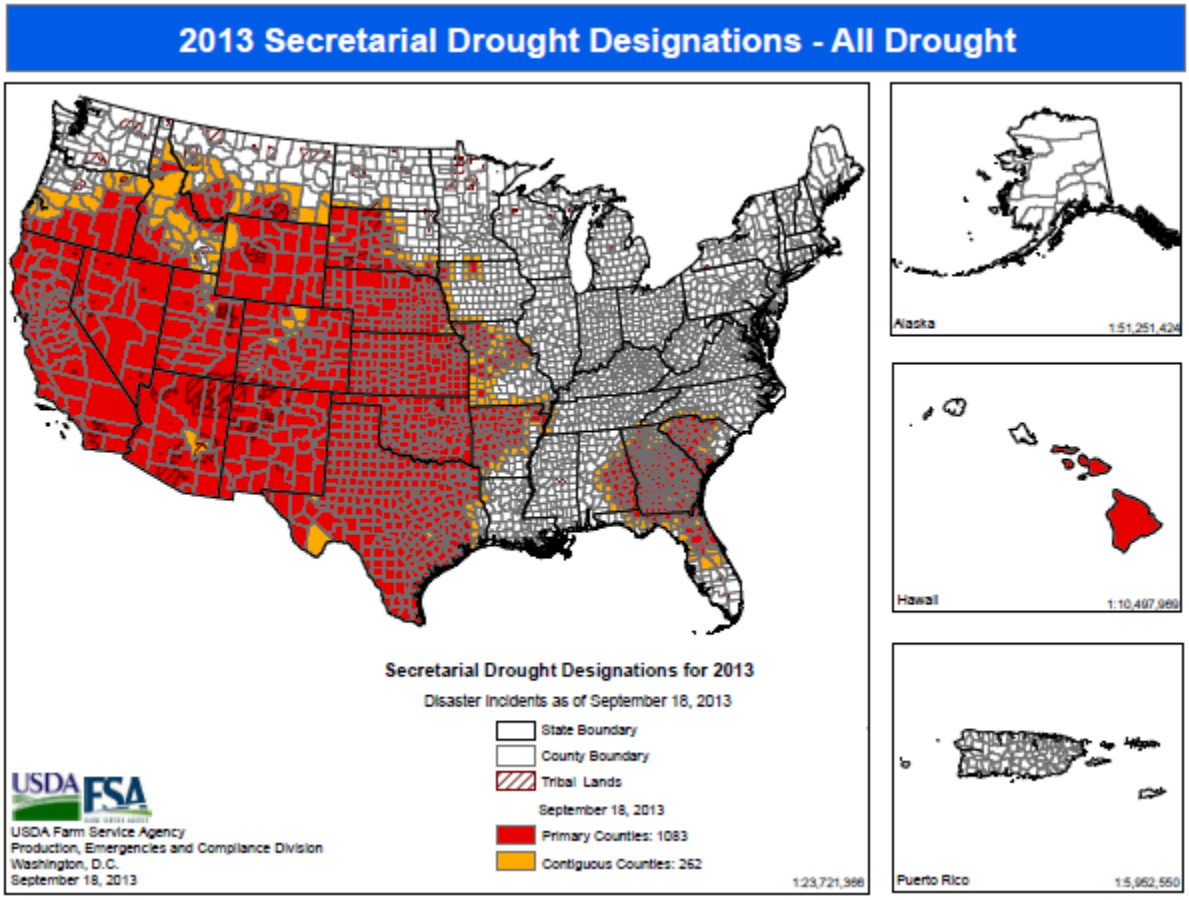
State government drought activities can be tracked through their drought plans. NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SSWSF information. Additional information describing the tools available from the Drought Monitor can also be found at the U.S. Drought Portal.

Drought Outlook (Forecast through November)



U.S. Seasonal Drought Outlook for **October through December**:

- Expect improvements over southern Nevada, Arizona, northwestern New Mexico, and southern Colorado.
- Drought is expected to develop over northern Iowa, southern Wisconsin, and much of Illinois.
- Drought is expected to persist over much of the western Great Lake states, the western High Plains, and parts of the central and northern Rockies, the Great Basin, and California.



Refer to the USDA Drought Assistance website and National Sustainable Agriculture Information Service. Read about the new USDA Regional Climate Hubs.

Supplemental Drought Information

Noteworthy topics in the news this week: Denise Gutzmer dgutzmer2@unl.edu

"The tragic flooding in Colorado and New Mexico and the shooting in Washington, D.C. dominated the news this week, resulting in less coverage of drought issues. Our thoughts and prayers go out to people dealing with the aftermath of these events."

Agriculture

- The wet spring delayed planting in Wisconsin, and then drought took hold during the summer. Fifty-nine percent of the corn, 59 percent of the soybeans and 88 percent of the pasture land were in fair to very poor condition.
- Soybean yields in South Dakota have been affected by drought and heat, similar to other soybeans in the Midwest.
- Drought has prevented dryland farmers in southwestern Kansas from growing crops for the past three years, but rain in August 2013 may make it possible for wheat farmers to finally grow a crop this year.

Energy production in the Southwest

- Drought has lessened the flow through the Colorado River Basin, limiting hydropower generation at dams in the Southwest. Full capacity power production at Hoover Dam is 2,074 megawatts, but low water levels diminished production to 1,735 MW in August.
- With the Colorado River providing less water, resulting in reduced hydropower production, the Western Area Power Administration will shell out an estimated $10 million to purchase power supplies in 2014.

Water in Texas

- Prolonged drought in Texas keeps driving surface and groundwater supplies lower, leading to tighter water restrictions in a number of communities.
- The Lavaca River was not flowing in Lavaca County near the Gulf Coast of Texas; the Navidad River was barely flowing in Jackson County; and the Guadalupe River was flowing at 188 cubic feet per second at Cuero (DeWitt County), down from the annual flow rate of 919 cfs, or at just over 20 percent of normal.
- The Lower Colorado River Authority board requested that the Texas Commission on Environmental Quality temporarily waive the requirement to release water from the Highland Lakes, northwest of Austin, to Matagorda Bay to reduce salinity in the bay. The high salinity is harming wildlife.
- See the graphic below about Texas public water supplies with restrictions on water use.

Water supplies in New Mexico

Elephant Butte and Caballo lakes held just 3 and 2 percent of capacity, respectively, at the end of the irrigation season, which was cut short, due to low water levels. Heavy rains sent 29,400 acre-feet of water into Elephant Butte and 25,200 acre-feet into Caballo Lake, bringing the storage in those lakes to 6 and 17 percent of capacity as of Sept. 17. The influx of water to the reservoirs was a godsend, but is far from guaranteeing a good irrigation season next year.

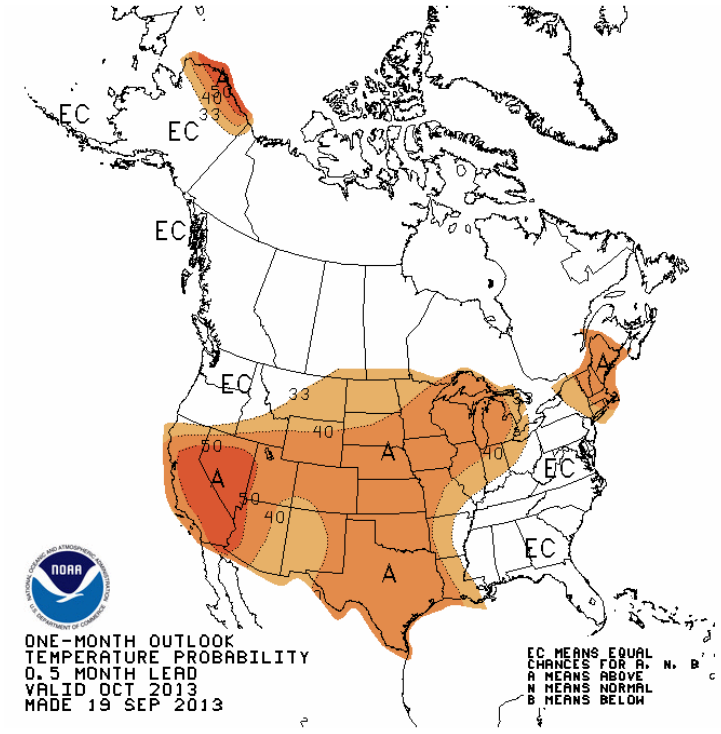
Groundwater, stream flow in Iowa

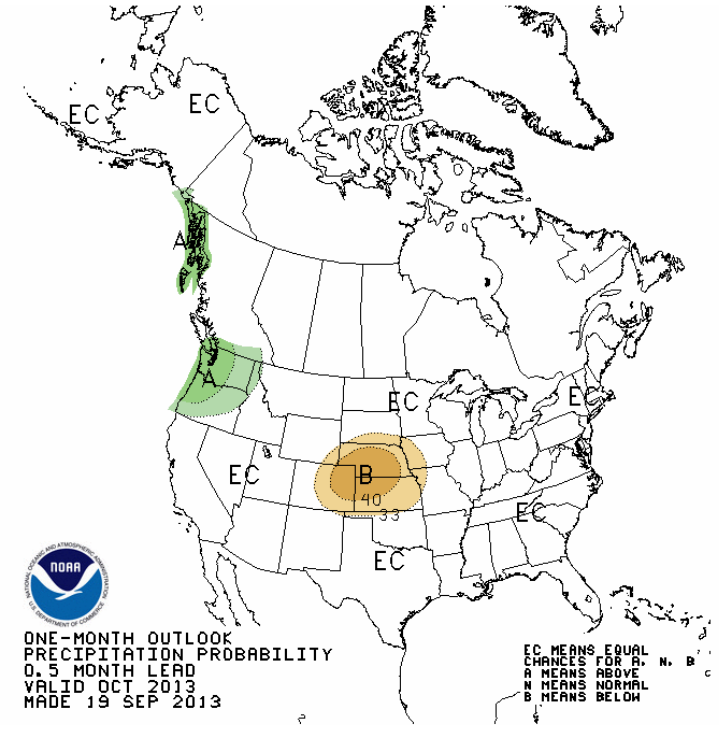
The water summary report produced by the Iowa Department of Natural Resources says that much of the state is in drought and that groundwater and stream flows remain below normal in a band stretching from the north central to the southeastern part of the state.

Texas public water systems affected by drought

The Texas Commission on Environmental Quality produces this map of public water systems with water restrictions. Of the 4,655 water systems in Texas, 1,199 systems—just over 25 percent—have restrictions on water use. Systems with water restrictions are concentrated around Dallas-Ft. Worth, Houston, San Antonio and Austin.

Seasonal Outlook (released 19 September)





The October temperature outlook indicates elevated odds for above normal monthly mean temperatures for much of the Western CONUS, the Great Plains, the western Great Lakes States, New England and northern Alaska.

The precipitation outlook for October 2013 indicates increased probabilities of above normal precipitation stretching from the Alaska Panhandle to the Pacific Northwest with below normal precipitation favored for an area in the central Rockies and Great Plains.

In areas where the likelihoods of monthly mean temperatures and normal precipitation are similar to climatological probabilities, equal chances (EC) is shown.

For More Information

The National Water and Climate Center (NWCC) Homepage provides the latest available snowpack and water supply information. This document is available weekly. Continental U.S. (CONUS) Snowpack and Drought Reports from 2007 are available online. Reports from 2001-2006 are available on request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/
Micheal L. Golden
Deputy Chief, Soil Science and Resource Assessment

****