

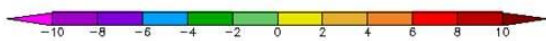
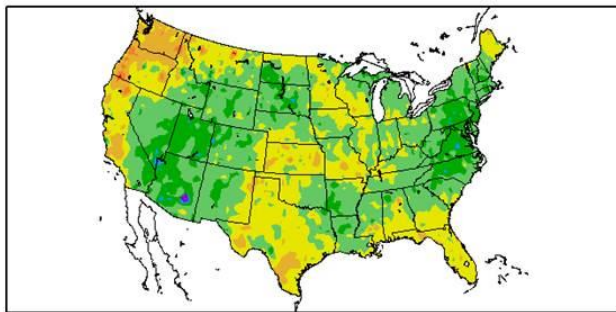
Weather and Climate Summary and Forecast Fall 2014

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Southern Oregon University
September 2, 2014

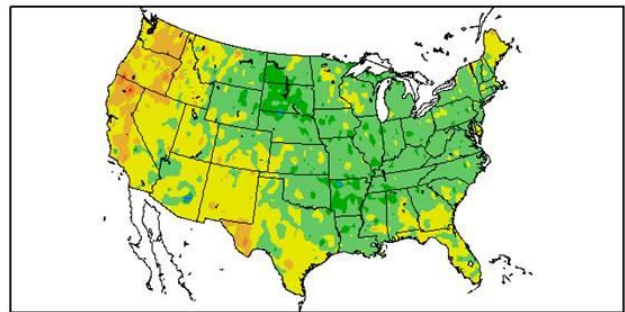
August was mixed across the United States, but dominated by monsoon rainfall and cloudiness throughout the Great Basin and Northern Rockies. The majority of the west coast experienced warmer than average temperatures during August, while a large area of the southwest, into the Rockies, and Great Plains saw much cooler than average temperatures due to cloud cover from the monsoon flow. The eastern half of the US saw generally cooler than average conditions, especially in the mid-Atlantic to New England states. Temperatures within the wine regions in the western and central valleys of California were near normal to slightly warmer than normal, while the western valleys of Oregon and across into eastern Washington during the month were approximately 3 to 8 degrees above normal (see figure below or attached).

Rainfall patterns nationwide during August were dominated by the monsoon flow and Mississippi to Ohio river valley thunderstorm events. Areas from the Sierra Nevadas in California, across the Great Basin, Rockies and into the plains, all saw 200 to over 800% above normal rainfall. However, many other regions in California (north coast, south-central coast and valley) and the western valleys in Oregon and Washington continue to have severe to extreme drought conditions (see figure below or attached).

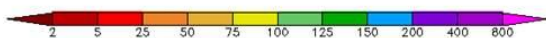
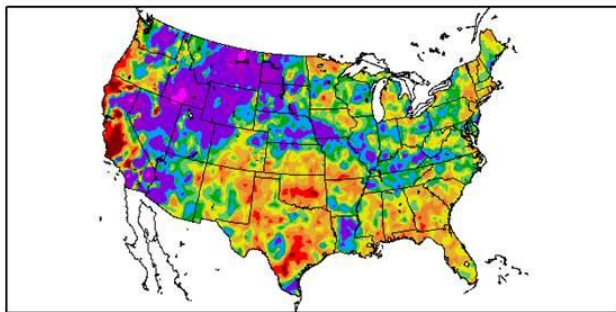
Departure from Normal Temperature (F)
8/1/2014 - 8/31/2014



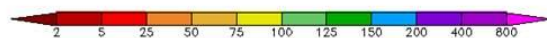
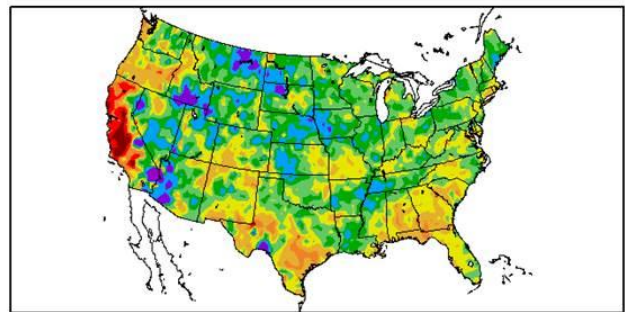
Departure from Normal Temperature (F)
6/1/2014 - 8/31/2014



Percent of Normal Precipitation (%)
8/1/2014 - 8/31/2014



Percent of Normal Precipitation (%)
6/1/2014 - 8/31/2014



The three month period from June through August continued the run of warmer than average conditions over the western US with only a few isolated areas being slightly cooler than normal. Much of the Northern Rockies, Great Plains, Midwest, and into the eastern US continued to have a cooler than normal summer (see figure above or attached). California and parts of Oregon and Washington again saw the greatest warmer than normal departures from average during June through August. Overall the June through August precipitation amounts have been dominated by the stronger than average monsoon flow, bringing significant summer rainfall to many areas in the west including areas far north of the normal monsoon region (e.g., southern Idaho). While monsoon rainfall did bring some relief to parts of California, drier than normal conditions continue for most of the state.

For the month of August in Oregon temperatures in McMinnville, Milton-Freewater, Roseburg and Medford ranged from 2.8 to 4.9°F warmer than average. The continued warmer than normal temperatures brought the 2014 growing degree-day accumulations to near record numbers for all four locations. Degree-days are similar or slightly above the 2013 values on this date (the same in Milton-Freewater to 8% up in McMinnville; see attached). All four locations in the attached plot are running above their 2004-2013 average (11-23%) and their 1981-2010 average (16-27%) for the first five months of the growing season (April-August).

The warm and dry conditions forecast earlier, here and by others, for the summer over the western US have materialized. However, it is interesting to note that preliminary data from many stations suggests that the warmer conditions are coming from higher minimum temperatures, not maximum temperatures. Other data and indicators reveal that this is likely being driven by higher humidity (not much, but enough to matter), mostly from warmer North Pacific sea surface temperatures, but also more moist monsoon airflow, which together have muted daytime temperatures and caused the nights to be warmer.

As we move into September and the harvest period, changes in our weather become more rapid and harder to predict. However, the models are showing that the changes in circulation and the start of more southerly movement of storms across the western US will likely be slow to come. The current short term forecasts are pointing to decent to wonderful conditions over the west. While the models are showing some wiggles in the jet stream, cloud cover and rainfall is currently forecast to be limited to northwest Oregon and Puget Sound northward.

The current 6-10 and 8-14 day outlooks from the Climate Prediction Center and model discussions elsewhere reveal a shifting pattern of warm and dry, followed by some cooler onshore flow, and flipping back to warm and dry. The result is temperatures in California, Oregon, and Washington are projected to stay at or above normal through at least September 15th. Rainfall outlooks over the same time period indicate a greater likelihood of dry conditions in Oregon and California, while the Puget Sound and into British Columbia has a decent chance of rain. The 30 day outlook through the month of September continues to point to warmer than normal conditions in the west, with a greater than average chance of dry conditions in Oregon and Washington, and California showing no clear signal (having an equal chance of slightly above to slightly below amounts). However parts of California and the desert SW are not out of the monsoon flow yet, so some mid to late September rains are likely there.

The longer term forecast extended out to 90 days (Sept-Oct-Nov) from the Climate Prediction Center forecast is also tilting the odds to continued warmer than normal conditions over the west, with dry areas in the PNW and a continued wetter than average desert SW. No further developments in El Niño conditions in the tropical Pacific warrant discussion at this time (more on this later in the month).

In summary, all evidence continues to point to a continued warmer than average September and end of growing season across the west with drier than normal conditions expected in Washington and Oregon, with some possible rain in southern California. **HOWEVER**, at this time last year we were sitting in about the same place, when the remnants of a typhoon and a dip in the jet stream changed everything. Even a 7 day forecast completely missed it. Therefore, I will follow this report up with shorter weekly updates over the next 3-4 weeks or as warranted.

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