Nebraska Ag Climate Update

June 5, 2015

State Summary

May turned out to be quite an interesting and record setting month for some parts of Nebraska (*Table 1*). A dry corridor through central Nebraska divided two areas that received much above normal precipitation (*Figure 1*) and caused some minor to severe flooding. Cool temperatures were also a story and delayed plant growth and ideal planting conditions (*Table 2.*) The second week of May brought freezing temperatures and significant snow to western Nebraska. Average temperatures during the month below normal for the state. Average temperatures were 1-3°F below normal for the eastern two-thirds of Nebraska and 3-6°F below normal for the western one-third.

Severe weather also made it's debut this month, even though the number of storm reports were lower than the last few years. Nebraska had 108 storm reports in May (*Figure 2*), compared to 115, 244, and 252 in 2014, 2013, and 2012, respectively. The first week of May brought a number of tornadoes and heavy rain to south central and southeast Nebraska. This was the beginning of a long stretch of wet weather for portions of southeast Nebraska. The continued wet pattern delayed planting, flooded fields, and caused other related issues. A few days later, the same situation prevailed in the Panhandle. Severe weather, heavy rainfall, and snow delayed field operations, and these delays have continued into June.

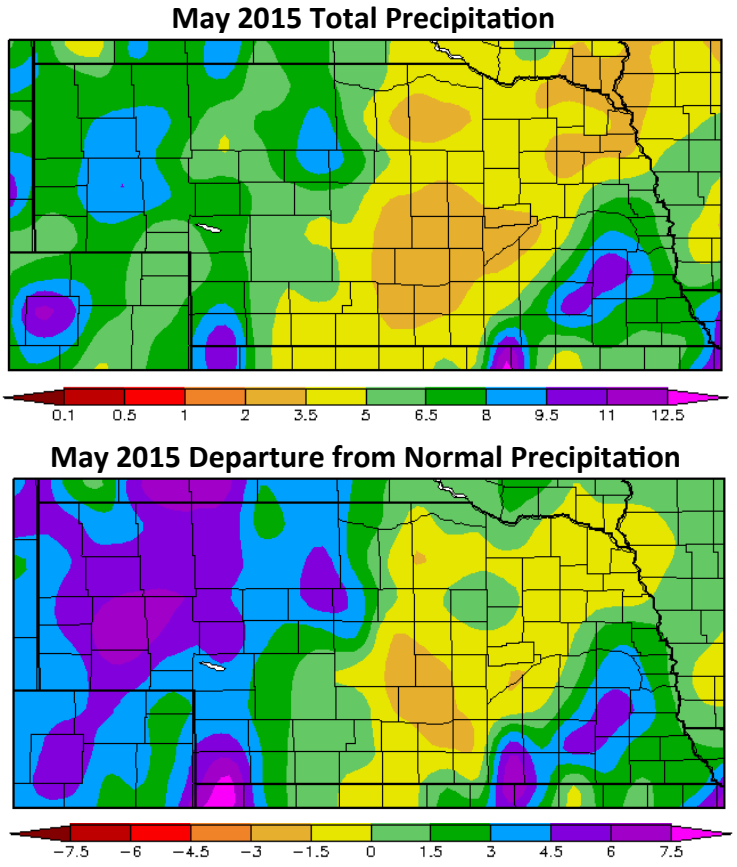

Figure 1.Total Precipitation (top) and Departure from Normal Precipitation (bottom) for May 2015 for Nebraska. Maps from the High Plains Regional Climate Center—www.hprcc.unl.edu

Table 1. Record events in May 2015 for select Nebraska weather stations.

Location	Record	New	Old
Alliance	May 9th Daily Precipitation	1.39"	1.17" - May 9, 1972
Alliance	May 15th Daily Precipitation	1.51"	0.96" - May 15, 1941
Chadron	May 10th Daily Precipitation	0.61"	0.58" - May 10, 1933
Chadron	May 15th Daily Precipitation	0.73"	0.56" - May 15, 1925
Hastings	May 3rd Daily High Temperature	91°F	89°F - May 3, 1959
Lincoln	Monthly Precipitation	10.90"	10.72" - May 1903
Lincoln	Daily Maximum May Precipitation	3.77" - May 7, 2015	3.35" - May 5, 2007
Lincoln	May 7th Daily Precipitation	3.77"	1.71" - May 7, 1995
North Platte	May 21st Daily Low Temperature	30°F	30°F - May 21, 1963
Scottsbluff	May 9th Daily Precipitation	2.65"	1.57"- May 9, 1918
Scottsbluff	May 10th Daily Snowfall	3.5"	2.3" - May 10, 1946
Valentine	May 9th Daily Precipitation	1.08"	0.97" - May 9, 1890

Data from the National Weather Service Record Event Report—http://www.weather.gov/

Table 2. Temperature (°F) and precipitation (inches) overview for May 2015 for 13 Nebraska locations.

Station	Avg. Max Temp	Max Temp	Avg. Min Temp	Min Temp	Total Precip
Ainsworth	66.4	83	46.1	33	5.22
Alliance	60.5	81	41.6	21	5.27
Ashland	71.3	86	49.8	35	9.19
Auburn	65.8	85	39.6	29	7.01
Benkelman	70.2	87	47.4	31	10.75
Callaway	66.3	87	46.4	32	5.12
Central City	70.2	92	48.3	35	2.68
Curtis	70.5	89	47.0	32	6.50
Geneva	72.6	91	51.6	37	4.24
Holdrege	68.1	88	46.3	31	3.85
Norfolk	68.3	86	47.9	33	3.55
Ogallala	66.5	86	44.2	32	6.68
Valentine	65.4	84	45.1	32	4.45

Data from NOAA Applied Climate Information System - http://drought.rcc-acis.org/

The soil moisture change over the last couple months has been substantial for western and southeastern portions of the state. *Figure 3* shows the soil moisture anomaly compared to normal during this past month and the change in soil moisture anomaly since March 31. At the end of March, most of the state had below normal soil moisture anomalies. The narrow band of drier than normal conditions from central Nebraska through Minnesota is still evident in the soil moisture values. The forecast for soil moisture continues to have above normal values for Nebraska through June, and below normal values begin to show up in northeast Nebraska later this summer.

This weeks Drought Monitor (*Figure 4*) was relatively unchanged for Nebraska. The Drought Monitor last week showed improvement in south central and southwest Nebraska after a few days of heavy rainfall. Northeast Nebraska is the only location showing Moderate Drought conditions in the state. The most significant change took place in the southern plains, which will play a role in our moisture availability this summer. The Monthly Drought Outlook through June (*Figure 5*)has the drought areas east of the Rockies improving, except for a few New England states. The western states look to remain very dry with drought development expected in western Oregon and Washington (yes, Seattle is in a drought). The drought conditions in the northwest are not only due to low rainfall amounts, but are in large part due to the abnormally warm temperatures.

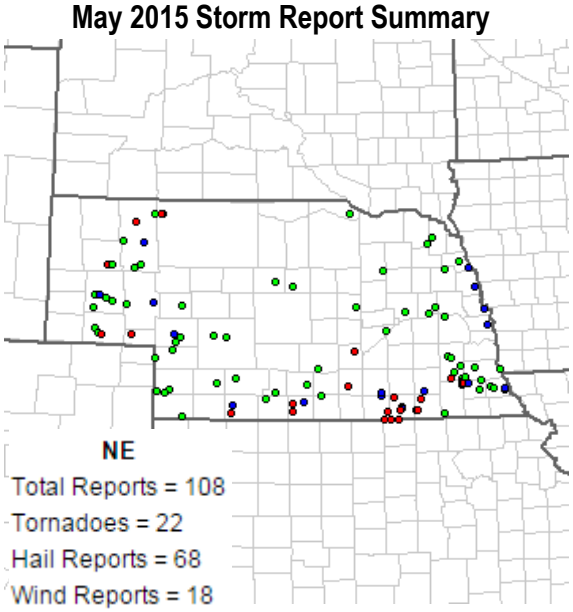

Figure 2. May 2015 storm reports for Nebraska. Map from the Storm Prediction Center— http://www.spc.noaa.gov/

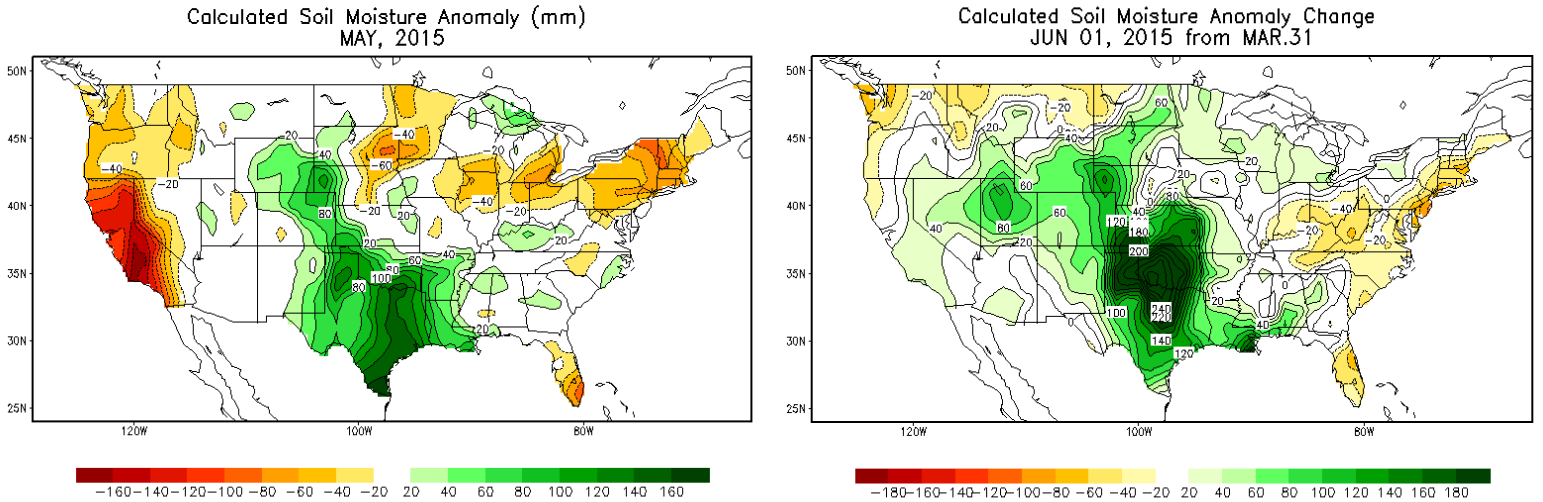

Figure 3. Soil moisture anomaly for May 2015 (left) and soil moisture anomaly change from March 31—June 1 (right). Soil moisture anomalies are compared to normal values for the time period. Maps from Climate Prediction Center—www.cpc.ncep.noaa.gov

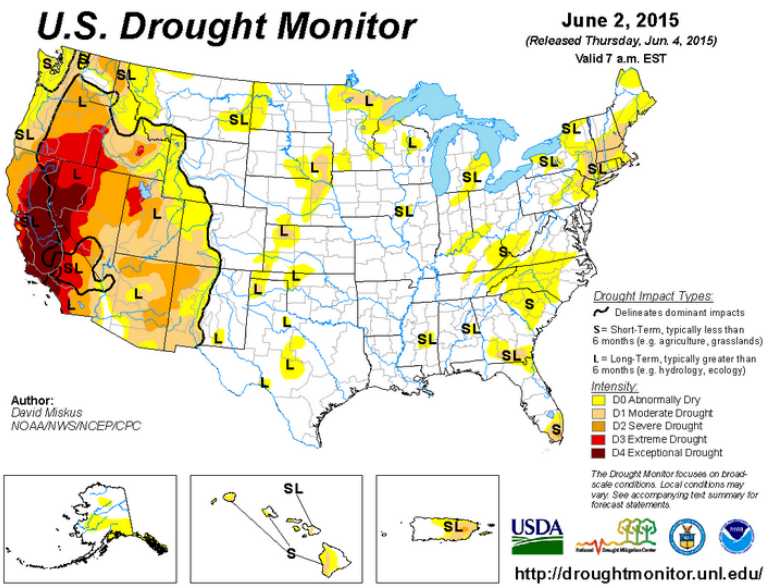

Figure 4. U.S. Drought Monitor on May 5, 2015 for the High Plains. Map from the National Drought Mitigation Center—http://droughtmonitor.unl.edu/

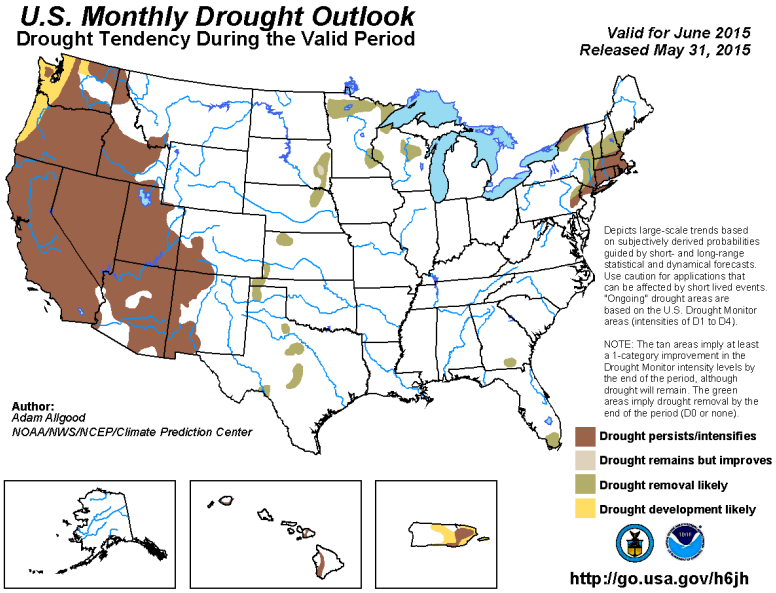

Figure 5. U.S. Monthly Drought Outlook through June 2015. Map from the Climate Prediction Center—www.cpc.ncep.noaa.gov/

Looking ahead

The forecast for the weekend is positive, if you are looking for precipitation. Areas in central and northeast Nebraska would welcome some moisture, while other areas would prefer a drying period. The precipitation chances remain in the forecast through the beginning of the week as a number of disturbances pass through Nebraska. The main weather-maker for us has been the trough over the western U.S. and that begins to diminish towards the middle of the week. A ridge will set-in and bring in drier air mid-week, but another system moves through by the end of next week and into the weekend. This system will bring in more chances for precipitation for most of the state.

On the temperature side, temperatures should remain near to just below normal through the weekend, but will vary based on the location of precipitation and cloud cover. The incoming ridge next week should allow temperatures to warm up and be slightly above normal by mid-week. It doesn't look like we will see a heat wave and temperatures will be pleasant. The temperatures may cool back down with the passing of a cold front sometime next weekend. A few days of above normal temperatures may be beneficial to speed up crop and pasture growth, as well as dry out some of the saturated areas of Nebraska.

The extended outlook through June is projected to be wet and cool (*Figure 6*). The elevated soil moisture in the central and southern plains will contribute to the atmospheric moisture content, which will aid in the potential for precipitation in our area. The current projection from the Climate Prediction Center (CPC) for June, July, and August is for the trend for above normal precipitation to continue for central and southern plains. The Soil Moisture Outlook (*Figure 7*) from the CPC through August is predicting some drying over northeast Nebraska, Iowa, and Minnesota towards the end of the summer. The current El Niño is also playing a role in the long-term temperature forecast, which is expected to continue through the 2015 summer. The typical El Niño pattern produces below normal temperatures during the summer and early fall in Nebraska. This switches to above normal temperatures in December, if the El Niño persists.

Tyler Williams
Nebraska Extension Educator—Lancaster County
lancaster.unl.edu
twilliams2@unl.edu
Twitter: @tylerw_unl
http://agclimatenebraska.weebly.com/

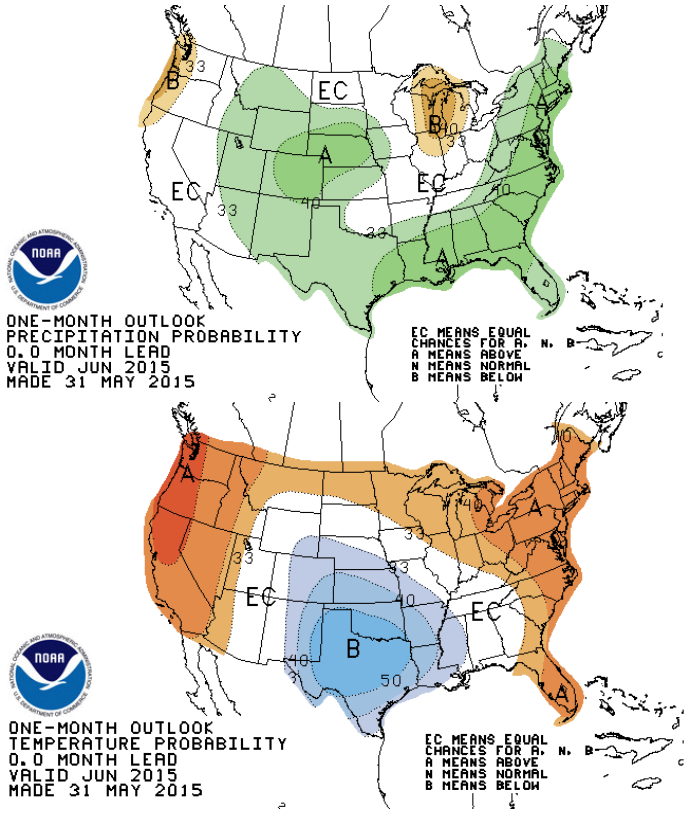

Figure 6. One-Month Precipitation (top) and Temperature (bottom) Outlooks for June from the Climate Prediction Center. Source: Climate Prediction Center—www.cpc.ncep.noaa.gov

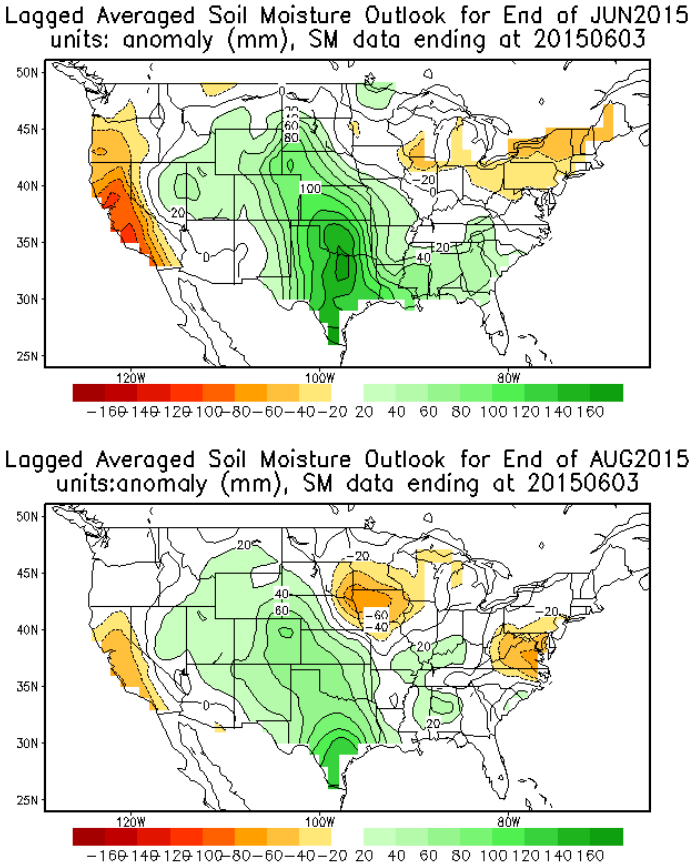

Figure 7. Soil Moisture Outlook for the end of June (top) and August (bottom). Anomalies (mm) based on normal soil moisture values. Map from Climate Prediction Center—www.cpc.ncep.noaa.gov