

Nebraska Ag Climate Update

June 20, 2014

State Summary

The latest severe weather has left quite a mark on Nebraska and my condolences go out to those impacted by the tornadoes and the damaging wind and hail.

The large hail, damaging winds, and large tornadoes left destruction across many parts of the state. Severe weather is not uncommon in June, but the extremely large hail and multiple tornadoes we saw this month will put June 2014 in the record books. The synoptic pattern, which included a trough over the Western U.S. and a ridge over the Eastern U.S., put the Central Plains in the region of incredible instability. The alignment of upper level winds, warm temperatures, and high dewpoints allowed tornado-producing supercells to grow and sustain for long periods of time.

The good news that can come from these storms is the precipitation that comes with them (Figure 1). The eastern two-thirds of Nebraska received above normal precipitation, with some areas receiving three to four times the average monthly totals within the first 15 days. Even though most of this excess moisture ran off the surface, most areas are heading into the official summer season with a full or nearly full soil profile.

The rainfall in June was much needed after a very dry May (Table 1). Most of Nebraska was much below normal and the drought situation was at a critical moment. The most recent Drought Monitor has shown improvement for many parts of the state. Over the last four weeks, many parts of Nebraska and the Central Plains have shown a one to two class improvement in the Drought Monitor (Figure 2).

Total Precipitation

June 1– June 18

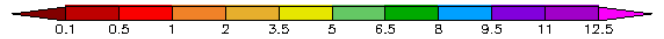
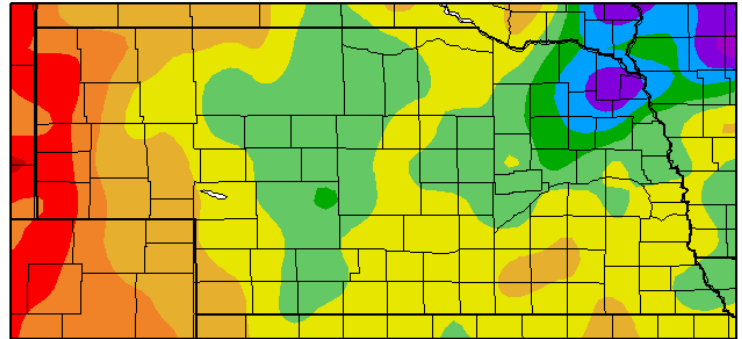


Figure 1. Total precipitation received from June 1 through June 18 in Nebraska. Map from the High Plains Regional Climate Center.

May 2014 Temperature and Precipitation

AWDN Station	Avg. High Temp (°F)	Avg. Low Temp (°F)	Total Precip. (in)
Alliance West	68	40	3.68
Arthur	70	44	2.91
Beatrice	78	50	1.42
Central City	76	47	1.13
Holdrege	75	46	2.17
McCook	76	46	2.00
Mead	76	51	4.39
Concord	72	47	3.44
Ainsworth	71	46	1.59

Table 1. The May 2014 average temperatures and total precipitation for nine AWDN stations in Nebraska. Data from the High Plains Regional Climate Center.

Drought Monitor 1-Month Class Change

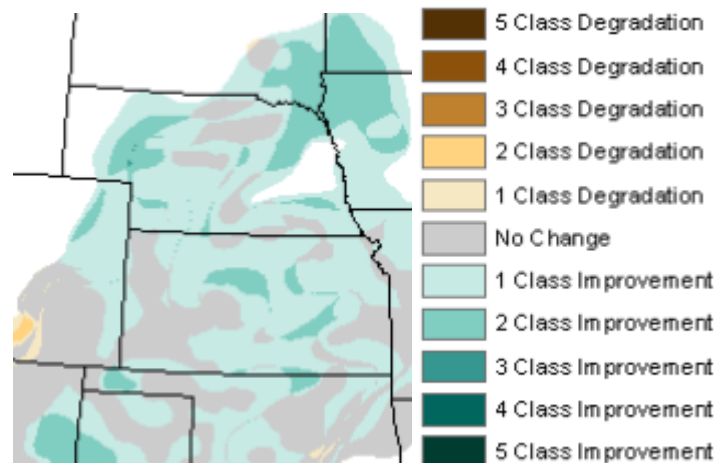


Figure 2. The Drought Monitor 1-Month Class Change shows a one to three class improvement in Nebraska and the Central Plains over the most recent 1-month period. Map from the National Drought Mitigation Center.

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Summer Winds Can Bring Pest Infestations

Southerly winds are not uncommon in Nebraska during the spring and summer. While these wind currents often bring moisture, they also can be a conduit for diseases and insects.

Some of these insect pests are early arrivals, such as black cutworm moths early in the spring. Other insects that ride the winds into Nebraska in late spring and summer include potato leafhoppers, green stinkbugs, webworms and green cloverworms. Spores of fungal pathogens that don't overwinter in Nebraska, such as rusts, also utilize winds to move from south to north across the country throughout the summer.

One new pest to be monitoring is the sugarcane aphid (*Figure 3*). While this insect isn't known to be present in Nebraska, it has become a major pest of grain sorghum in Texas this winter and spring. Aphid numbers for this species are currently extremely high in Texas. Aphids can have wings and ride the wind currents, and could make it to Nebraska in just a few hours.

Agriculture producers in Nebraska need to continue to monitor their fields for pests, both diseases and insects, that can ride the winds and cause economic loss when established in Nebraska crops.

—**Michael Rethwisch, UNL Crops Extension Educator-Butler County**



Figure 3. Sugarcane aphid outbreak in sorghum in summer 2013 in Texas (top left), fall population on johnsongrass (bottom left). Severe whole plant damage (top right) and sooty mold/honeydew damage (bottom right). Photo from Texas A&M Agrilife Extension Service ENTO-035.

Looking Ahead

The next few days will bring some chances of precipitation and warm temperatures. Thunderstorms are expected Saturday and Sunday, and high temperatures could reach into the 90s. A cold front will pass through on Sunday and high temperatures will stay in the 80s through the first part of next week. The models are predicting a number of upper level disturbances moving through the state next week that could produce some thunderstorms, but the timing and location is all over the place at this point.

Looking ahead into the last few days of June and first few days of July, we are expected to be in between a trough over the Southern Plains and a weak ridge over the Northern Plains. The Climate Prediction Center (CPC) has us in the area of equal chances for above or below normal temperatures and increased odds for below normal precipitation, due to our location between the

Historical July 4 Temperature and Precipitation

Station	Avg. Max Temp (°F)	Avg. Min Temp (°F)	Avg. Precip. (in)	% of Days with Precip. (%)
Alliance	86.4	56.7	0.07	29
Ainsworth	87.5	61.5	0.11	30
West Point	87.7	63.6	0.13	32
Broken Bow	87.4	60.2	0.13	29
Ashland	88.5	65.3	0.13	32
Imperial	89.9	60.1	0.08	24
Holdrege	90.6	62.8	0.19	32
Falls City	89.3	65.9	0.29	36

Table 2. Temperature and precipitation averages for July 4 for nine NWS weather stations in Nebraska. Data from the last ~100 years.

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trough and the ridge (Figure 4).

The long-term outlook for July from the CPC has increased odds for below normal temperatures for the Northern Plains and above normal temperatures for the West Coast and Southeast U.S. (Figure 4) They are also predicting increased chances for above normal precipitation for the Northern and Central Rockies, which does include the Panhandle of Nebraska. The three-month outlook from the CPC is very similar to the pattern expected in July. Warm temperatures in the southeast and the west, with higher chances of above normal precipitation from the Southern Rockies up through the Northern Plains.

There is still a 70% chance of an El Nino developing late this summer and an 80% chance of an El Nino by this fall, and this plays a role in the long-term outlooks. Most areas of Nebraska typically see slightly cooler temperatures and increased precipitation during the late summer months during an El Nino event, so this is something to keep an eye on.

Tyler Williams
UNL Extension Educator—Phelps/Gosper Counties
twilliams2@unl.edu
<http://phelps-gosper.unl.edu/>

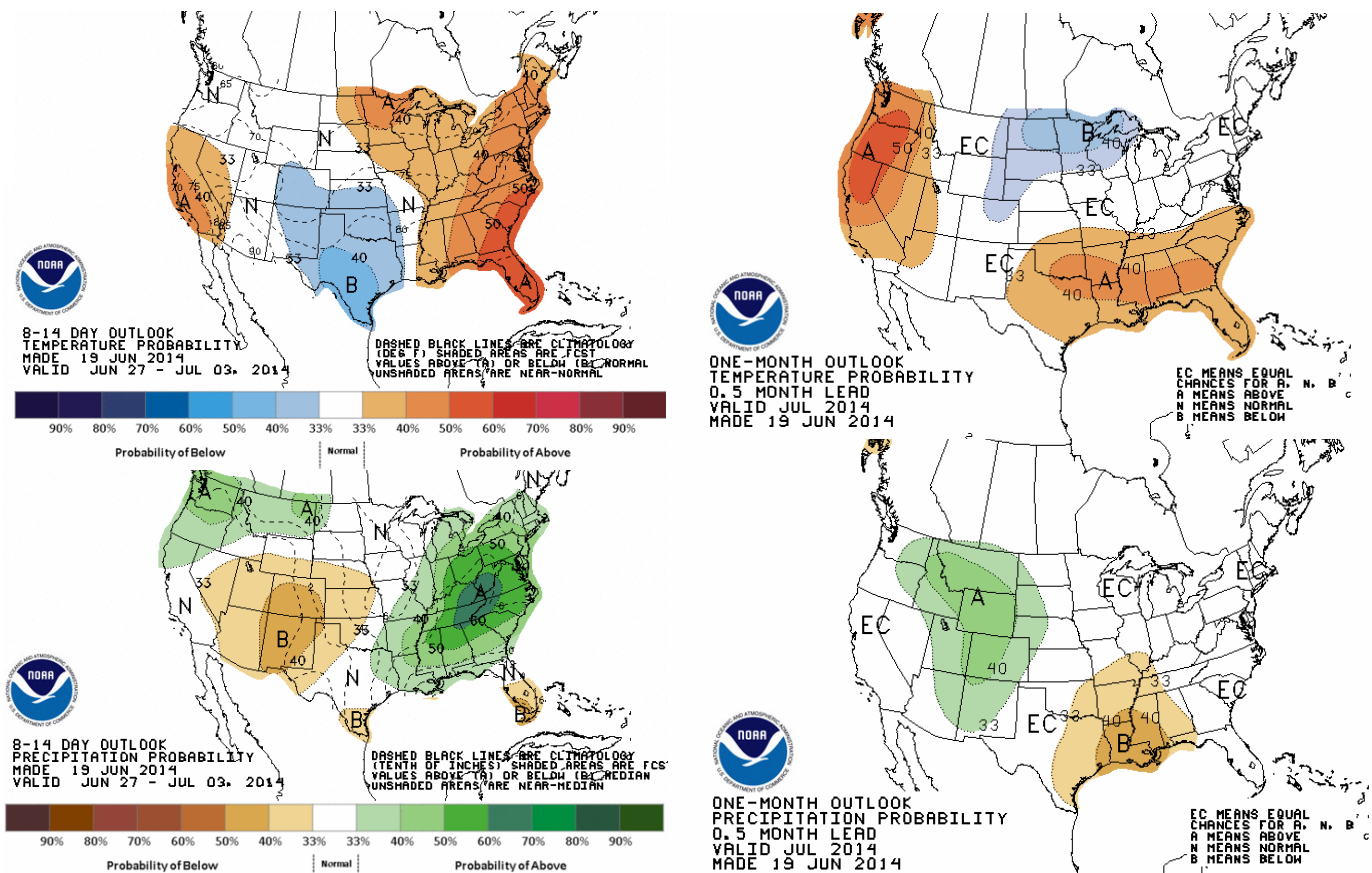


Figure 4. The maps on the left are the June 27-July 2 outlooks for temperature (top) and precipitation (bottom). The maps on the right are the July outlooks for temperature (top) and precipitation (bottom). Maps from the Climate Prediction Center.

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