

## State Summary

The main weather story over the last 30 days has been the fluctuations in temperature. The month started with near normal temperatures in the upper 80s and lower 90s, which continued until the middle of the month when a large, upper-level trough moved through the region and dropped average temperatures 10-15°F below normal. Highs were in the upper 50s in the west to lower 70s in the southeast. Low temperatures were in the mid 30s in the west and upper 40s in the southeast (Table 1). These cool temperatures lasted about a week and slowly climbed back into the 90s to start September. Overall, the central U.S. saw monthly average temperatures 2-5°F below normal, including Nebraska (Figure 1).

August precipitation was below normal for most locations in the state (Figure 2). Portions of western, southwest, and southeast Nebraska, as well as some scattered locations in the central part of the state saw less than an inch of precipitation. The heaviest precipitation fell in portions of northeast, east central, and south central Nebraska.

Over the past 30 days, some dry areas in Nebraska have started to show some drought stress and have been upgraded to “Abnormally Dry” in the latest Drought Monitor (Figure 3). Portions of southwest, central and northeast Nebraska have been the drier parts of Nebraska this summer, although, severe drought stress has not been evident. Over the most recent one to two weeks, some areas have started to show some stress with the lack of rainfall and infiltration of warmer than normal temperatures. Portions of southeast, south central and the panhandle of Nebraska are the new areas included in the most recent drought monitor, which was color-free a week ago.

## August 2015 Departure From Normal Temperature

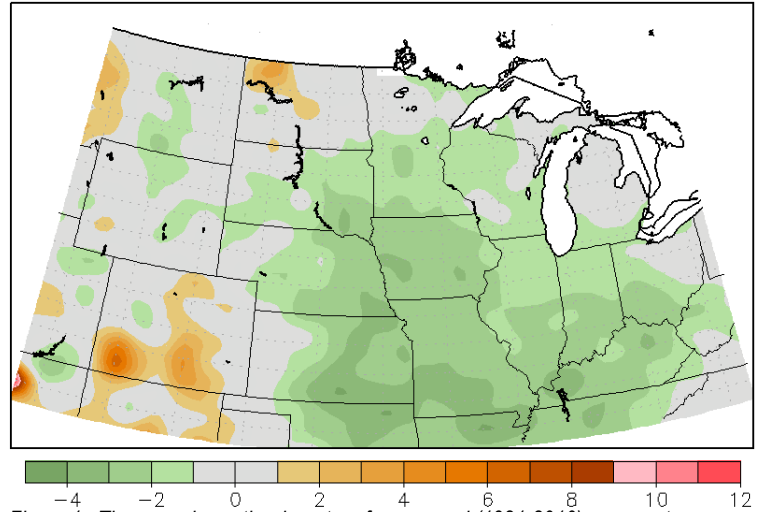


Figure 1. The map shows the departure from normal (1981-2010) average temperature for August 2015 for the central U.S. Map from the Midwestern Regional Climate Center—<http://mrcc.isws.illinois.edu/>

## August 2015 Observed Precipitation (in)

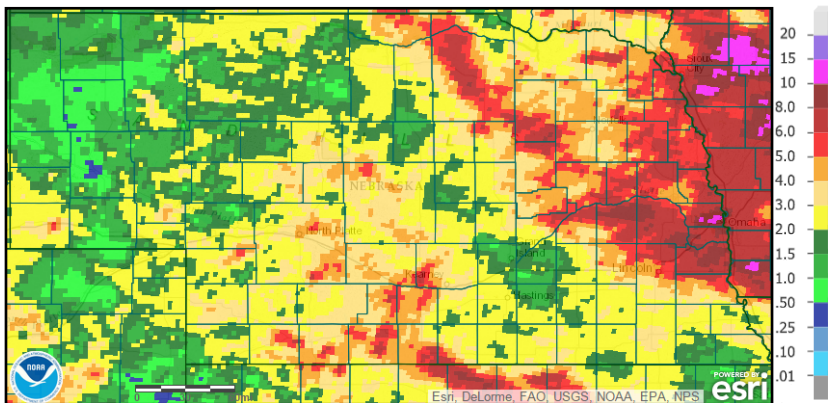


Figure 2. Observed precipitation for August 2015 for Nebraska base on radar and satellite estimated rainfall. Map from the National Weather Service Precipitation Analysis — <http://water.weather.gov/precip/>

Table 1. Temperature (°F) and precipitation (inches) overview for August 2015 for 13 Nebraska locations, using nearby COOP stations.

Station	Avg. Max Temp	Max Temp	Avg. Min Temp	Min Temp	Total Precip
Ainsworth	83.8	92	59.7	45	2.58
Alliance	85.4	98	55.5	39	0.86
Ashland	81.7	93	61.3	47	7.36
Auburn	82.1	93	59.3	44	1.86
Benkelman	89.5	103	59.5	44	1.11
Callaway	82.8	93	57.7	43	3.42
Central City	83.0	94	60.4	48	4.02
Curtis	86.7	99	61.7	48	3.27
Geneva	82.9	93	61.7	50	2.71
Holdrege	83.2	94	58.8	44	4.09
Norfolk	80.5	90	59.2	46	3.08
Ogallala	85.5	99	59.4	48	1.87
Valentine	86.5	94	60.9	46	1.69

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

**Vegetation Drought Response Index**  
Complete: Nebraska

August 24, 2015

**U.S. Drought Monitor**  
High Plains

September 1, 2015  
(Released Thursday, Sep. 3, 2015)  
Valid 8 a.m. EDT

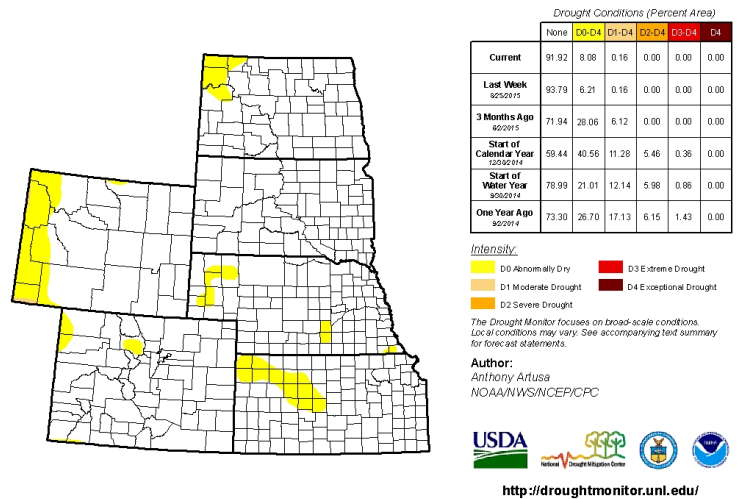
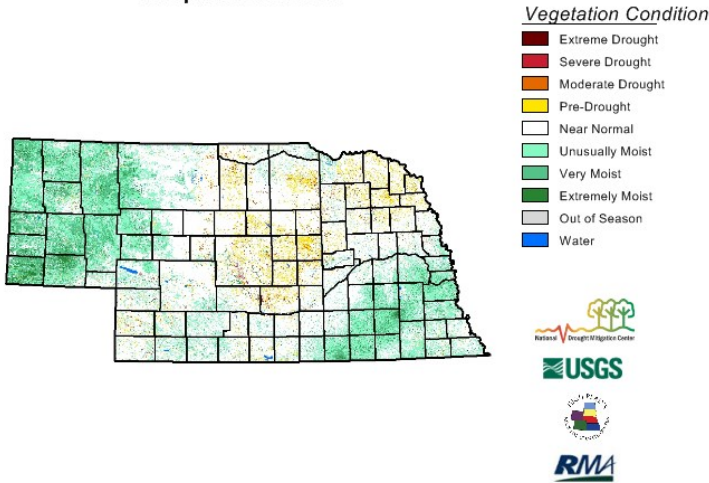


Figure 3. Vegetation Drought Response Index (VegDRI) (left) as of August 24, 2015 and the U.S. Drought Monitor for the High Plains (right) as September 1, 2015. Maps from the National Drought Mitigation Center—<http://drought.unl.edu/>

**Husker Harvest Days**

Husker Harvest Days (HHD) is only days away and attendees are likely remembering last year and wondering what it will be like this year. Last year’s event was quite unusual with about 1.5 inches of precipitation falling on saturated soils on Day 1. This led to mud drags in the parking lot and canceling of Day 2. It was also quite cool with the temperatures reaching 50°F on the final day. As bad as it was, it doesn’t rank in a Top 5 most unpleasant.

To put it in perspective I looked at the temperature and precipitation patterns from September 9-17 before (1938-1977) and after 1978 (1978-2014), when Husker Harvest Days started, at the Grand Island weather station (Table 2). Before HHD began, the average daily high temperature was 77.8°F and average low was 52.7°F between September 9 and 17. After 1978, the average high was 78.2°F and average low was 53.7°F. We have actually experienced slightly warmer temperatures, on average, over the last 37 years. For precipitation, the weather station received measureable rainfall, on average, 37% of the days before 1978 and 40% of the days after 1978.

I looked at the weather for all of the events and created a Top 5 most unpleasant events. The most unpleasant event since 1978, when looking at weather conditions, was 1989. The average 3-day high was 59°F and average low was 39°F. Day 1 in 1989 had a high of 46°F, a low of 42°F and received 0.77 inches of precipitation. This is considered (to me) the single most unpleasant day. The rest of the top five 3-day events:

- #2: 2011—Avg. High-59°F, Low-45°F, rain-3 days
- #3: 1994—Avg. High-92°F, Low-66°F, rain-trace
- #4: 1990—Avg. High-92°F, Low-61°F, rain-none
- #5: 1982—Avg. High-60°F, Low-49°F, rain-3 days

Table 2. Average high temperature, low temperatures and percent for daily measurable precipitation from 1938-2014 during the typical Husker Harvest Days (September 9-17) date range.

<b>Before 1978</b>	<b>High °F</b>	<b>Low °F</b>	<b>Precip %</b>
Average	77.8	52.7	37%
1-Day Maximum	100	77	
1-Day Minimum	44	33	
<b>After 1978</b>			
Average	78.2	53.7	40%
1-Day Maximum	99	76	
1-Day Minimum	46	33	
<b>Overall</b>			
Average	78.0	53.2	38%
1-Day Maximum	100	77	
1-Day Minimum	44	33	

Data from Applied Climate and Information Services—<http://drought.rcc-acis.org/>

**UNL at HHD: Successfully Weathering Extremes**

The University of Nebraska theme for Husker Harvest Days this year is “Successfully Managing Extremes,” which focuses on managing extreme weather events and variability within our challenging Nebraska climate. Booths will cover climate forecasting, cover crops for forage, and managing livestock heat stress, among many other topics. We will also have experts on hand to discuss ag economic issues, leases, rental rates, and more. I encourage you to visit the University of Nebraska Big Red building on 3rd street. The event begins on Tuesday, September 15 and concludes Thursday, September 17.



## Looking Forward

The recent warm weather looks to continue through the weekend. Although we won't see temperatures in the upper 90s like we have seen over the past few days, high temperatures will be in the upper 80s to low 90s. We will experience a pattern shift the beginning of next week. The trough over the west coast will begin to move over the Northern Plains and set-up over the Great Lakes region. This will bring in northwest flow next week and a significant drop in temperatures.

Small chances of precipitation are forecasted for the state over the next few days ahead of the upper level trough, especially for the western half of Nebraska. A better chance for precipitation in eastern and southeast Nebraska comes next week with the passing of the cold front. Amounts look to be fairly light with the best chance for significant moisture near and east of the Missouri River.

The forecast for the end of next week looks to remain cooler than normal with numerous chances for precipitation. High temperatures might only reach in the upper 70s the middle to end of next week. The Climate Prediction Center (CPC) has increased odds for below normal temperatures for Nebraska and the entire Northern Plains through the next two weeks which would extend into Husker Harvest Days. The trough pattern moving over the Great Lakes is expected to persist and bring in cool air from the north. The precipitation will be hit or miss, but the bulk of the moisture is expected to be in the eastern and southeastern portions of the U.S.

The One-Month (Figure 4) CPC outlook for September and the Three-Month Outlook for September-October-November have increased odds for above normal precipitation. The dominant weather pattern is expected to provide moisture from the southwest U.S. up into the Central and Northern Plains. The long-term temperature pattern is not as confident; however, average temperatures through September are expected to be below normal. The three-month outlook for temperatures have equal chances for above or below normal temperatures, but I could easily see cooler than normal temperatures persisting into October.

In summary, the gain we have seen in heat units over the last few days may be short-lived. The expected cool weather will again slow down crop maturity. We can expect near-normal to below-normal temperatures to prevail over the next couple weeks.

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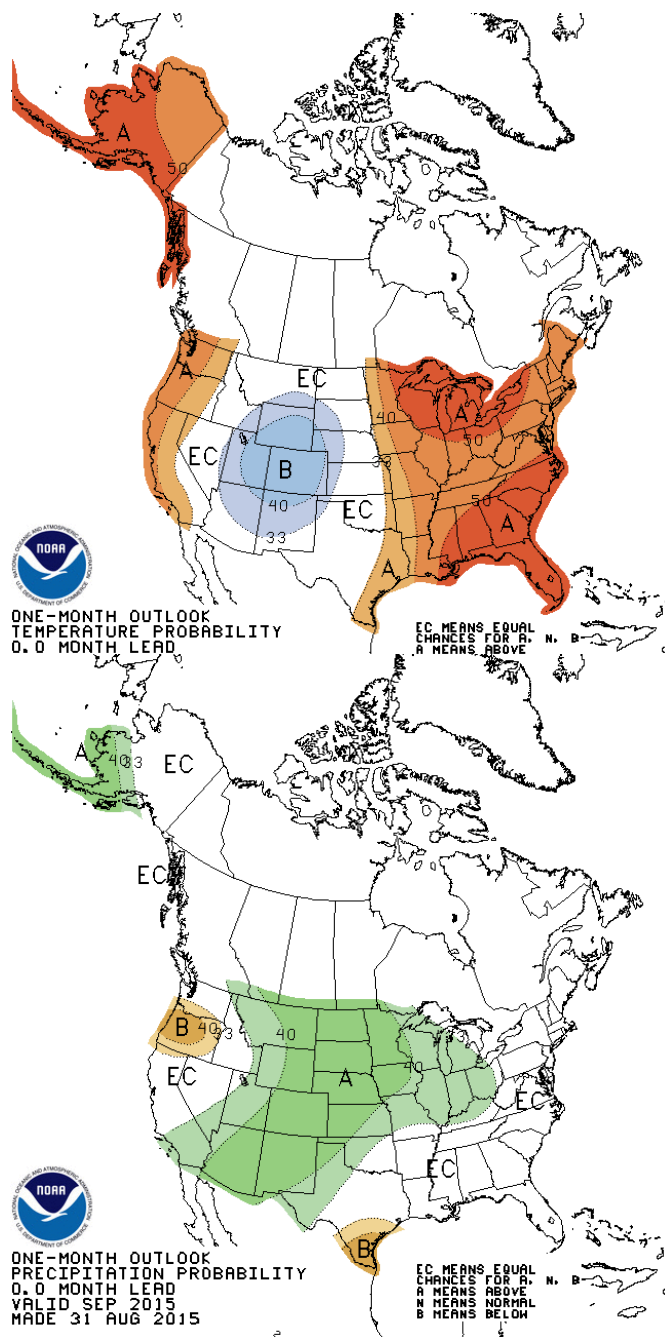


Figure 4. Temperature (top) and Precipitation (bottom) Outlooks for September 2015 from the Climate Prediction Center. Source: Climate Prediction Center—[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

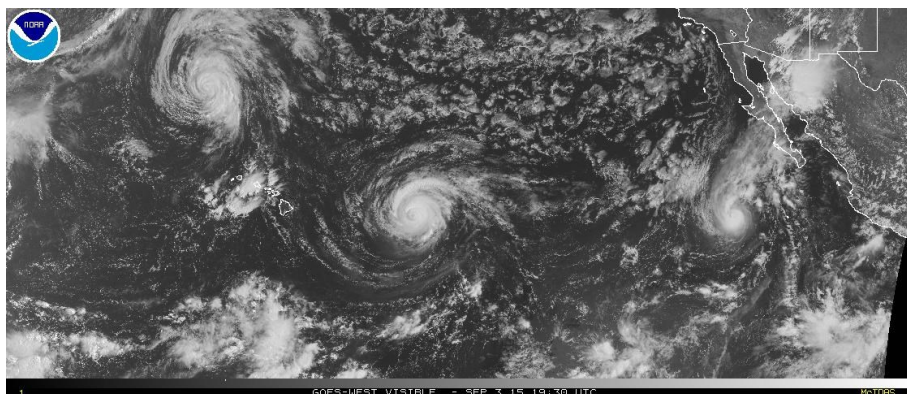


Figure 4. Satellite image of the Pacific Ocean just north of the equator on September 3, 2015. The image shows three hurricanes/typhoons, which may be due to the warm water in the Eastern Pacific. Image from NOAA Satellite and Information Service—<http://www.ssd.noaa.gov/>