Nebraska Ag Climate Update

December 4, 2015

State Summary

November turned out to be the third month in a row with above normal temperatures for Nebraska (*Figure 1*). As you may recall, this summer provided mostly below normal temperatures and we have been primarily experiencing above normal temperatures in the Midwest since Labor Day. November was the only month where almost all of Nebraska saw normal to above normal precipitation. Even though the average November precipitation ranges from 2 inches in the southeast to about 0.5 inches in the northwest, the storm systems this month provided locations in central and eastern Nebraska with 200%-300% of normal monthly precipitation (*Figure 2*). The warm temperatures allowed most of the Nebraska precipitation to fall as rain, which is uncommon for November (*Table 1*).

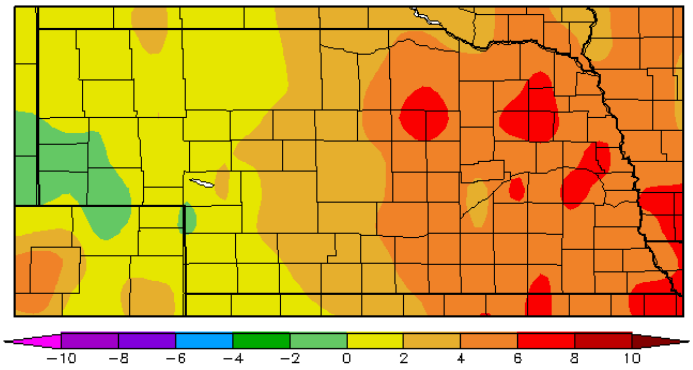
The weather pattern last month also brought severe weather to Nebraska and a large portion of the Midwest. Two tornadoes were confirmed on November 16 in south central Nebraska (*Figure 3*), which were the first November tornadoes reported since 2003, according to the NOAA Storm Prediction Center (SPC). Last month, Nebraska saw nine severe storm reports (includes tornadoes, wind, and hail), which is more

Table 1. Temperature (°F) and precipitation (inches) overview for November 2015.

Station	Average Temperature		Temperature Range		Total Precip	Total Snowfall
	Max	Min	Max	Min		
Ainsworth	50.7	30.1	75	9	1.71	5.5
Alliance	48.3	21.4	75	-13	0.49	1.9
Ashland	55.4	34.4	79	20	2.07	Trace
Auburn	58.4	33.9	80	23	4.43	Trace
Benkelman	53.1	27.2	82	17	1.34	3.2
Callaway	52.1	28.2	76	13	1.57	2.8
Curtis	62.1	33.5	81	23	2.51	3.0
Geneva	55.2	34.3	79	18	2.51	2.3
Holdrege	52.7	29.4	78	17	2.45	2.8
Norfolk	51.7	30.3	77	12	2.03	8.8
Ogallala	51.5	24.9	77	14	1.64	7.8
Valentine	52.3	26.9	74	9	1.62	11.8

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

November 2015 Departure From Normal Temperature (°F)



September—November 2015 Departure From Normal Temperature (°F)

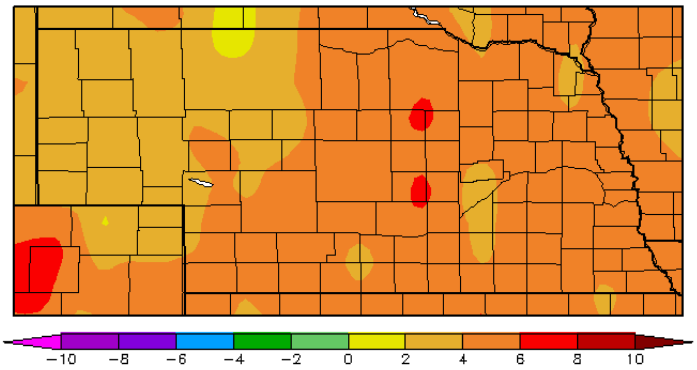


Figure 1. Departure from normal temperature for November (top) and September through November (bottom) 2015 for Nebraska. Maps from the High Plains Regional Climate Center—www.hprcc.unl.edu

November 2015 Percent of Normal Precipitation

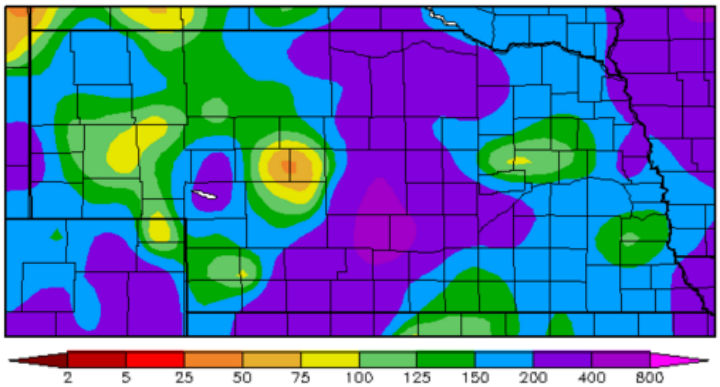


Figure 2. November 2015 Percent of Normal Precipitation for Nebraska. Map from the High Plains Regional Climate Center—www.hprcc.unl.edu

than any November since 2000 (year storm reports started from SPC). These large weather systems continued to move through Nebraska and eventually brought snow, ice and hazardous driving conditions to the area.

The soil temperatures across the state remain at or above freezing for most locations (*Figure 4*). Extreme northwest Nebraska has the coldest temperatures and they gradually warm as you move southeast. These soil temperature values are 1 to 5 °F below normal for this time of year, which is somewhat surprising after the warm fall we experienced. This may be due to the dry soils we had heading into November, which allowed soil temperatures to easily decrease. The recent moisture was also very cold and possibly dropped the temperatures even more; however, this moisture will serve as a buffer to reduce the rate of decreasing soil temperatures as we move further into the winter.

The precipitation this past month allowed for some improvement to the Drought Monitor. On October 20, 35% of the state was in the D-0 (Abnormally Dry) category and less than 8% of the state is currently in D-0. The biggest changes in the Drought Monitor were in the Southern Plains and the southeast U.S. (*Figure 5*). Over the last six weeks, the percent of area in the U.S. in "Extreme Drought" has dropped 6%. Many climate forecasters have attributed this pattern to the El Niño in the Pacific Ocean. This pattern is common for El Niño conditions due to the enhanced jet stream over the southern plains.

Figure 3. Photo of the tornado damage in Furnas County on November 16, 2015. The tornado was estimated as an EF-1 with winds up to 95 mph. Photo from the National Weather Service in Hastings Storm Survey Team—http://www.weather.gov/gid/nov16172015

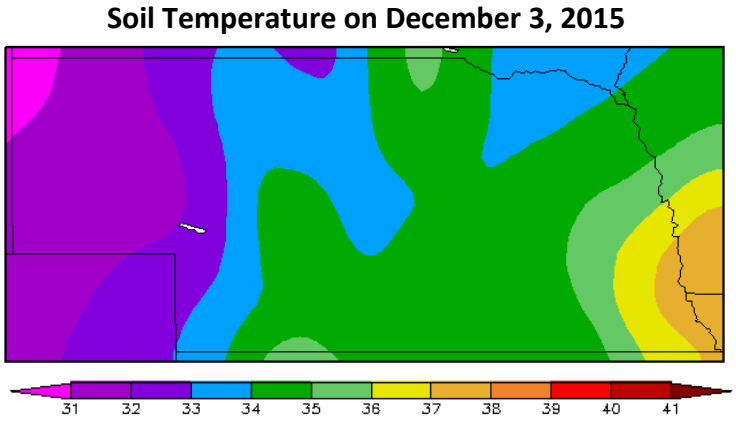
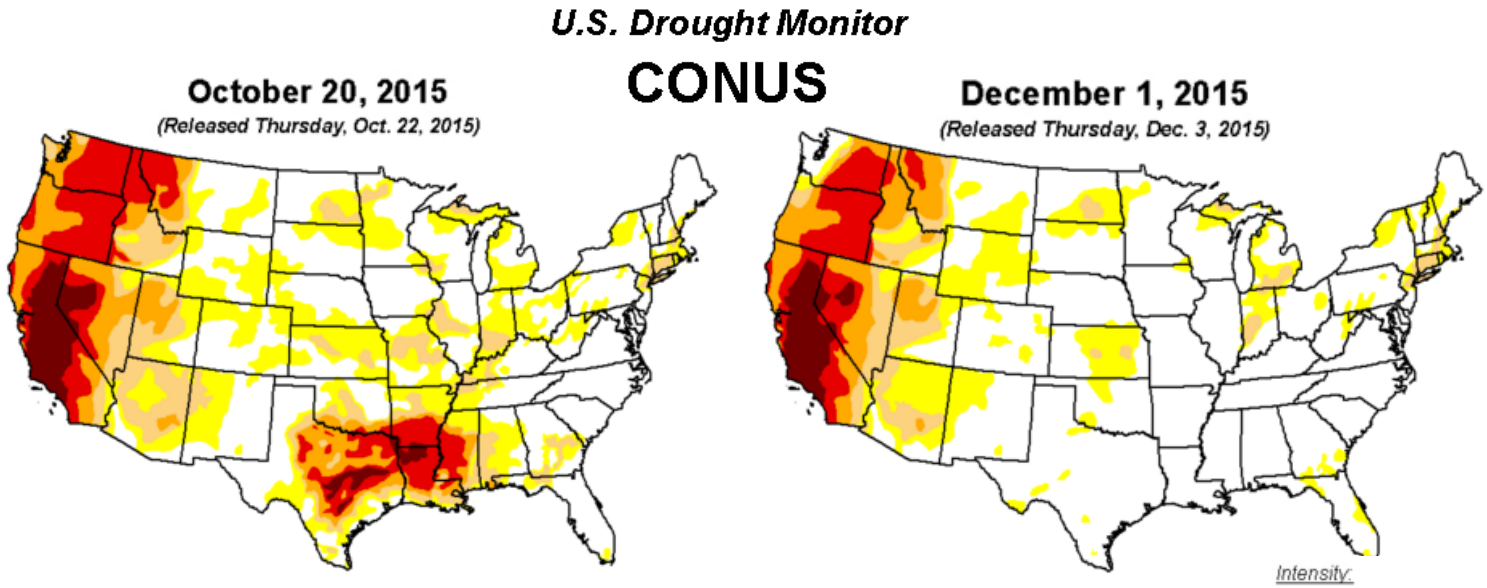


Figure 4. Nebraska Soil Temperature as of December 3 at a depth of 4 inches. Map from the High Plains Regional Climate Center—www.hprcc.unl.edu



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2015-10-20	41.04	58.96	34.78	23.23	14.42	3.76
2015-12-01	63.26	36.74	20.58	14.68	8.34	2.70

Figure 5. National Drought Monitor for the U.S. on October 20, 2015 (left) and December 1, 2015 (right). The statistics for the percentages of area in the U.S. in each drought category for each week are found in the table. Map from the National Drought Mitigation Center—drought.unl.edu

Looking Forward

The abnormally warm weather the last couple days looks to continue for another week or so. An expansive ridge over most of the U.S. will keep the cold temperatures in Canada, which will allow warm air to settle over most of the country. Our weather will remain fairly uneventful through the weekend and most of next week. Temperatures will warm into the mid 50s by the weekend and into next week. Lows will drop into the teens this weekend in the west with lows in the 20s and 30s in the southeast. Portions of southwest Nebraska may even reach into the 60s next week. There is a slight chance of moisture this Saturday, due to a quick shortwave moving through, but amount and coverage area will be quite small.

The next change in the weather system could come next weekend and into the following week. The weather models look very messy toward the end of next week, so it is difficult to say what that might look like; however, another deep low pressure system might find it's way through Nebraska between December 11-13. This storm track currently looks to track south of Nebraska, but will move from the southwest toward the northeast. This is significant because this track will most likely allow relatively warm temperatures to come in behind the system and will keep the cold, Canadian air to our north. I'm not suggesting to fill the swimming pools back up, but the models continue to keep the very cold temperatures far to the north. The 8-14 day forecast from the Climate Prediction Center (CPC) is showing very high chances for above normal temperatures for areas east of the Rockies from December 11-17 (*Figure 6*).

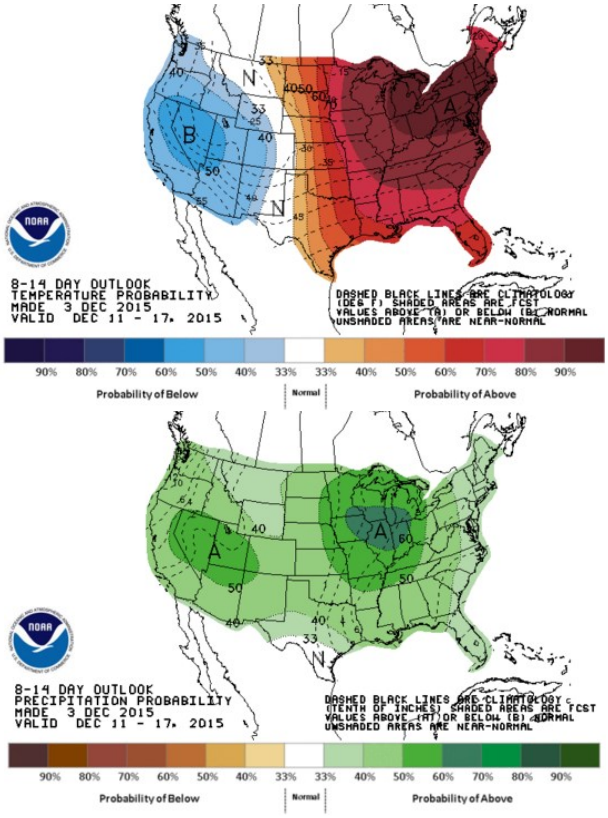


Figure 6. 8-14 Day Outlook for December 11-17 from the Climate Prediction Center—cpc.ncep.noaa.gov

Looking toward the rest of December and the next few months, the warm trend has a good chance to continue. The One Month Outlook from the CPC (Figure 7) shows increased odds for above normal temperatures through December for most of the U.S., except for portions of the southwest and southern Texas. The precipitation pattern, however, is not as confident, at least for Nebraska. The southern tier of the U.S. is expected to receive above normal precipitation, but the biggest question is whether these systems will track further north into Nebraska. My estimation is that we will continue to get these systems to move into our area and will end the month well above normal precipitation, some of which may still fall as rain. I don't know if this weather pattern will continue into January and February, but the forecast for the rest of the winter has remained unchanged for a couple months. Warmer than normal conditions are still expected to continue for the northern part of the U.S., including Nebraska.

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

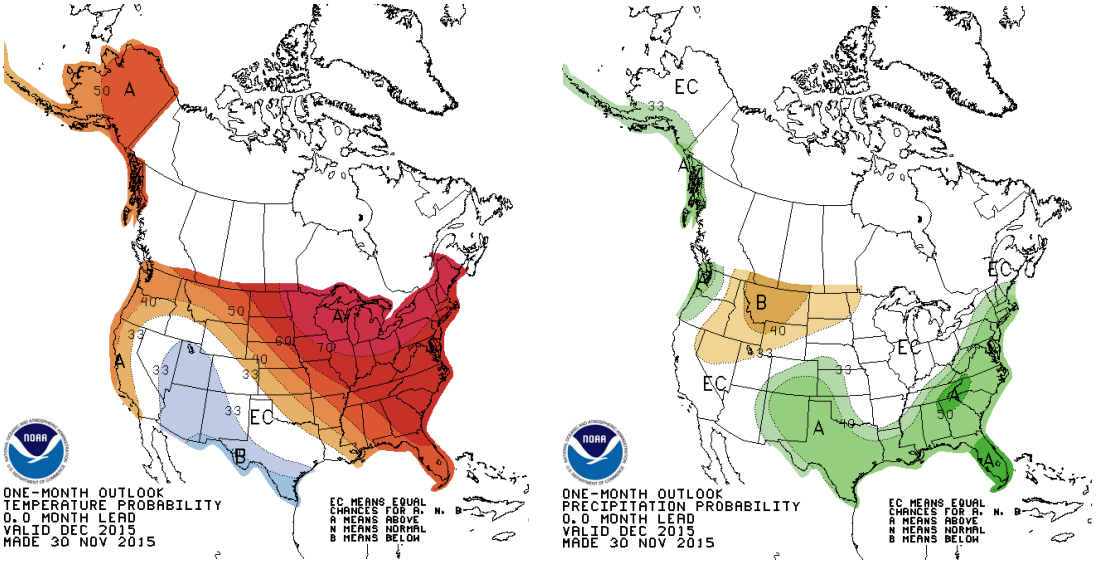


Figure 7. One Month Outlooks for December for temperature (left) and precipitation (right) from the Climate Prediction Center - www.cpc.ncep.noaa.gov/