

# Nebraska Ag Climate Update

February 6, 2015

## State Summary

After a mostly dry January for Nebraska, the month ended with a storm that blanketed the state with snow and brought much-needed precipitation. Even with the big event, most areas reported below normal precipitation for the month (Figure 1).

The temperatures in January went from one extreme to another, which is not all that unusual for this time of the year. We started the month with below 0°F temps, but by the fourth week of the month, the highs were in the 60s and 70s across Nebraska. Southwest Nebraska experienced the widest range during the month with -16°F on the 1st and 79°F on the 28th (Table 1).

The recent blanket of snow benefits soil properties and winter crops, protecting the soil surface and over-wintering crops from extreme cold conditions. The Natural Resource and Conservation Service (NRCS) Soil Climate Analysis Network has two locations in Nebraska where soil moisture and temperature are monitored down to a 40-inch depth. Measurements are taken at the Rogers Farm in Lancaster County and the Johnson Farm in Chase County.

Table 2 shows the soil temperature and soil moisture values at both locations on Feb. 1 and the average from Jan. 1 —Feb. 1, 2015. The soil moisture values on Feb. 1 were higher than the January average at all depths for both locations. This is due in part to the dry conditions that dominated in January and the rain/snow event that moved through on January 31st. The soil temperature values were also higher on Feb. 1 than the January average, due to the extreme cold the first couple weeks of January and the big warm up the last week of January. The timing of the snow on thawed soils will keep the soil warm and allow the melting snow to percolate into the soil and reduce surface runoff. This soil moisture may prove to be valuable come planting season.

When it comes to surface water, the elevation of Lake McConaughy and the amount of snowpack in the mountains play a critical role, especially during the growing season. The water level at Lake McConaughy was at of 3249.4 feet as of February 2nd, which is 75% of capacity and 14 feet higher than this time a year ago. The lake level rose by two feet in January with in-

**Departure From Normal Precipitation (in.)  
January 2015**

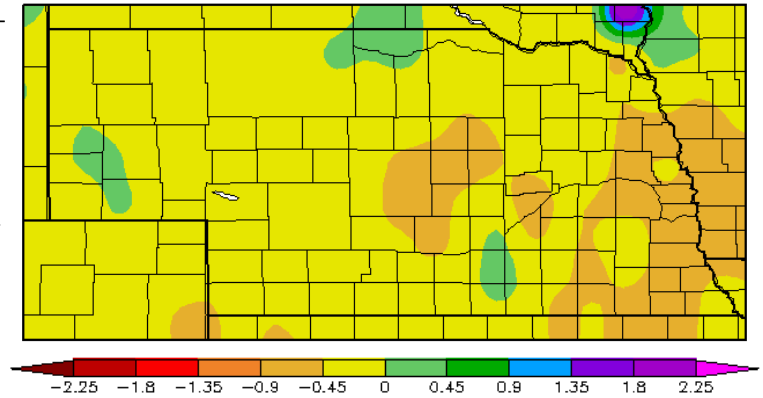
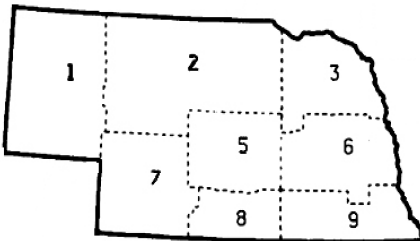


Figure 1. Departure from normal precipitation for January 2015 in Nebraska. Map from the High Plains Regional Climate Center—[hprcc.unl.edu](http://hprcc.unl.edu)

## Nebraska Climate Divisions



**Table 1. Precipitation and temperature analysis for January 2015 for the eight climate divisions in Nebraska. Note: Nebraska does not have a Division 4.**

Climate Division	Temperature (°F)						Precipitation (in)		
	Avg. Max	Avg. Min	Avg.	Dep.	Hi/Day	Lo/Day	Total	Normal	% of Norm
1	37.2	11.5	24.4	-2.3	75./28	-19./1	0.23	0.31	78
2	37.5	13.3	25.4	2.3	75./28	-15./4	0.34	0.46	73
3	35.2	12.5	23.8	2.6	65./28	-18./1	0.49	0.57	85
5	37.7	10.0	23.8	-0.3	70./29	-13./1	0.25	0.51	49
6	37.4	14.3	25.9	2.9	64./28	-14./13	0.64	0.62	101
7	43.1	15.5	29.3	2.6	79./28	-16./1	0.20	0.41	47
8	42.0	14.4	28.2	2.6	74./28	-6./1	0.41	0.51	80
9	41.0	13.3	27.2	1.9	71./29	-9./8	0.81	0.68	115

Data from the High Plains Regional Climate Center - [www.hprcc.unl.edu](http://www.hprcc.unl.edu)

flows just above normal for this time of year. The snowpack in Wyoming and Colorado on Feb. 2 was at 70-110 % of normal at most locations (Figure 2). The impact of snowpack amounts this time of year is often over-shadowed by the snowpack amounts in March and April; however, the lack of extreme dryness is a good sign moving into the spring.

The snowstorm, lake levels, and mountain snowpack all paint a good hydrologic picture for Nebraska heading into the latter part of the winter; however, resources are still recovering from the drought in 2012 and 2013. The recent release of the 2014 Nebraska Statewide Groundwater-Level Monitoring Report showed that areas of Nebraska had a decline of groundwater levels up to 5-10 feet from Spring 2013 to Spring 2014 in some areas of Nebraska. This was primarily due to the drought of 2012 that lingered into 2013. There are also some short-term drought areas in Nebraska as indicated on the February 3 Drought Monitor from the National Drought Mitigation Center. The Monitor shows por-

Table 2. Temperature and moisture analysis of the NRCS SCAN sites at the Rogers Farm (Lancaster County, NE) and the Johnson Farm (Chase County, NE) from 1/1/15 - 2/1/15.

Variable	Rogers Farm		Johnson Farm	
	Feb. 1	1/1- 2/1 Avg.	Feb. 1	1/1- 2/1 Avg.
Soil Moisture - 2 in (%)	31.0	19.6	-	-
Soil Moisture - 4 in (%)	37.0	30.3	12.8	11.9
Soil Moisture - 8 in (%)	43.4	40.3	24.8	20.6
Soil Moisture - 20 in (%)	54.9	38.5	24.5	20.6
Soil Moisture - 40 in (%)	50.0	49.7	5	5.4
Soil Temperature - 2 in (°F)	34	32.4	-	-
Soil Temperature - 4 in (°F)	35	33.6	33	32.8
Soil Temperature - 8 in (°F)	35	33.9	34	33.0
Soil Temperature - 20 in (°F)	37	36.3	37	35.0
Soil Temperature - 40 in (°F)	39	40.5	39	38.7

Data from the Natural Resources Conservation Service (NRCS) Soil Climate Analysis Network (SCAN) Data and Products—[www.wcc.nrcs.usda.gov/scan/](http://www.wcc.nrcs.usda.gov/scan/)

### SNOTEL Current Snow Water Equivalent (SWE) Percent of Normal for Wyoming & Colorado

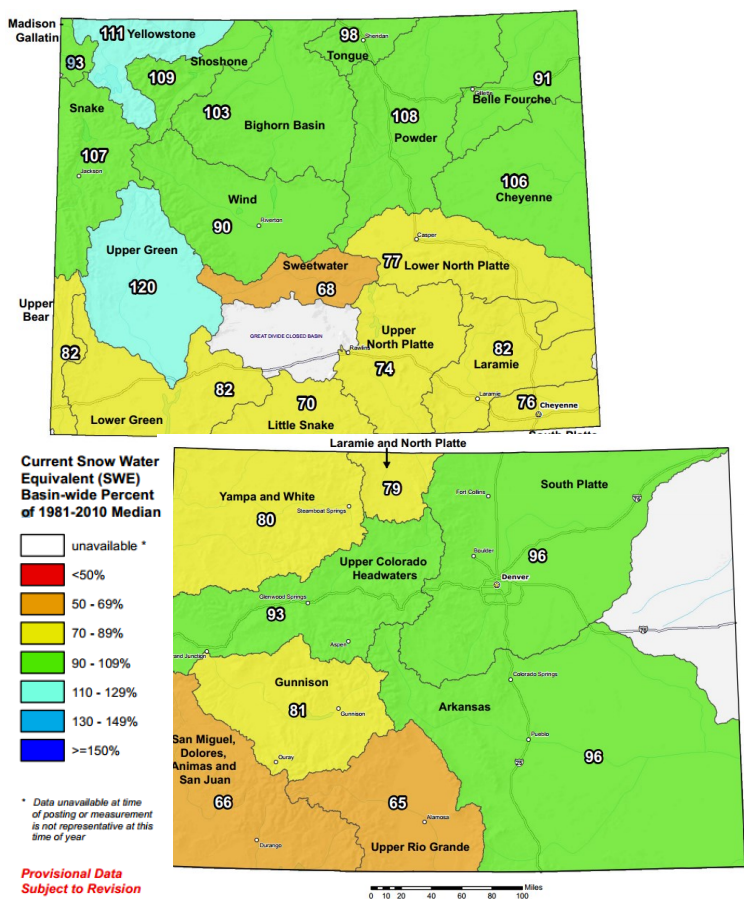
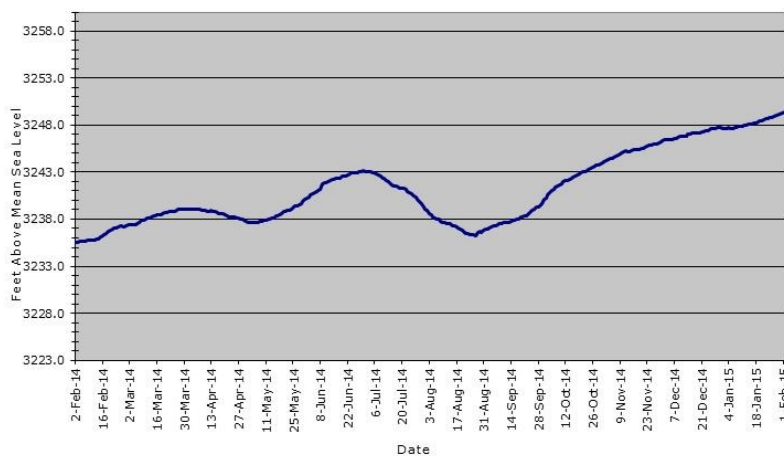


Figure 2. Current Snow Water Equivalent (SWE) Percent of Normal for Wyoming and Colorado as of February 2, 2015. Maps from the NRCS National Water and Climate Center. —[www.wcc.nrcs.usda.gov/gis/snow.html](http://www.wcc.nrcs.usda.gov/gis/snow.html)

Lake McConaughy Elevation  
February 2, 2014 to February 2, 2015



Lake McConaughy Elevation  
January 2, 2015 to February 2, 2015

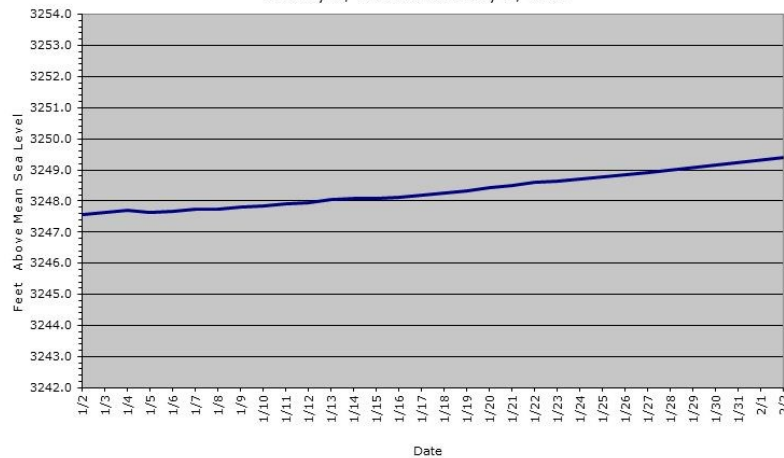


Figure 3. 12-Month (top) and One-Month (bottom) Lake McConaughy Elevation on February 2, 2015. Graphs from the Central Nebraska Public Power and Irrigation District. — [www.cnppid.com](http://www.cnppid.com)

tions of central, south central, and southwest Nebraska in the category of “abnormally dry”.

### Looking Ahead

The forecast for the next week will be fairly mild and quiet. Temperatures will warm up from west to east across the state with the southwest seeing the warmest temperatures and the northeast seeing the coldest. Although, eastern Nebraska won't see the 60s like they will in the west, temperatures will still remain near to above normal. The next cool down will come towards the end of next week with the passing of a cold front. This will also bring in a chance of precipitation, but amounts look to be small at this time. The cool air won't hang around long as a strong ridge will build over the western U.S.

The week two forecast continues to have above normal temperatures in the western half of the U.S. and below normal temperatures on the east coast. An amplified ridge will build over the western Rockies and a low will deepen over the Great Lakes region causing a steep temperature gradient across the U.S. The upper level models continue to show a variable and progressive pattern, with the potential development of a cut-off low over the desert southwest. This is something to watch as it could aid in the development of our next storm system.

The long-term forecasts from the Climate Prediction Center (Figure 4) predict a higher probability for above normal temperatures for the western U.S., including Nebraska, for February. The precipitation forecast is not as confident, as equal chances for above or below normal precipitation dominate the U.S. The three-month outlooks continue the pattern of above normal temperatures in the west with below normal temperatures expanding from Texas up into the southern and central plains.

In review, Nebraska will enjoy a stretch of pleasant weather for the next couple weeks, with a slight cool down next week. We should remain mostly dry, but may change by the end of the month.

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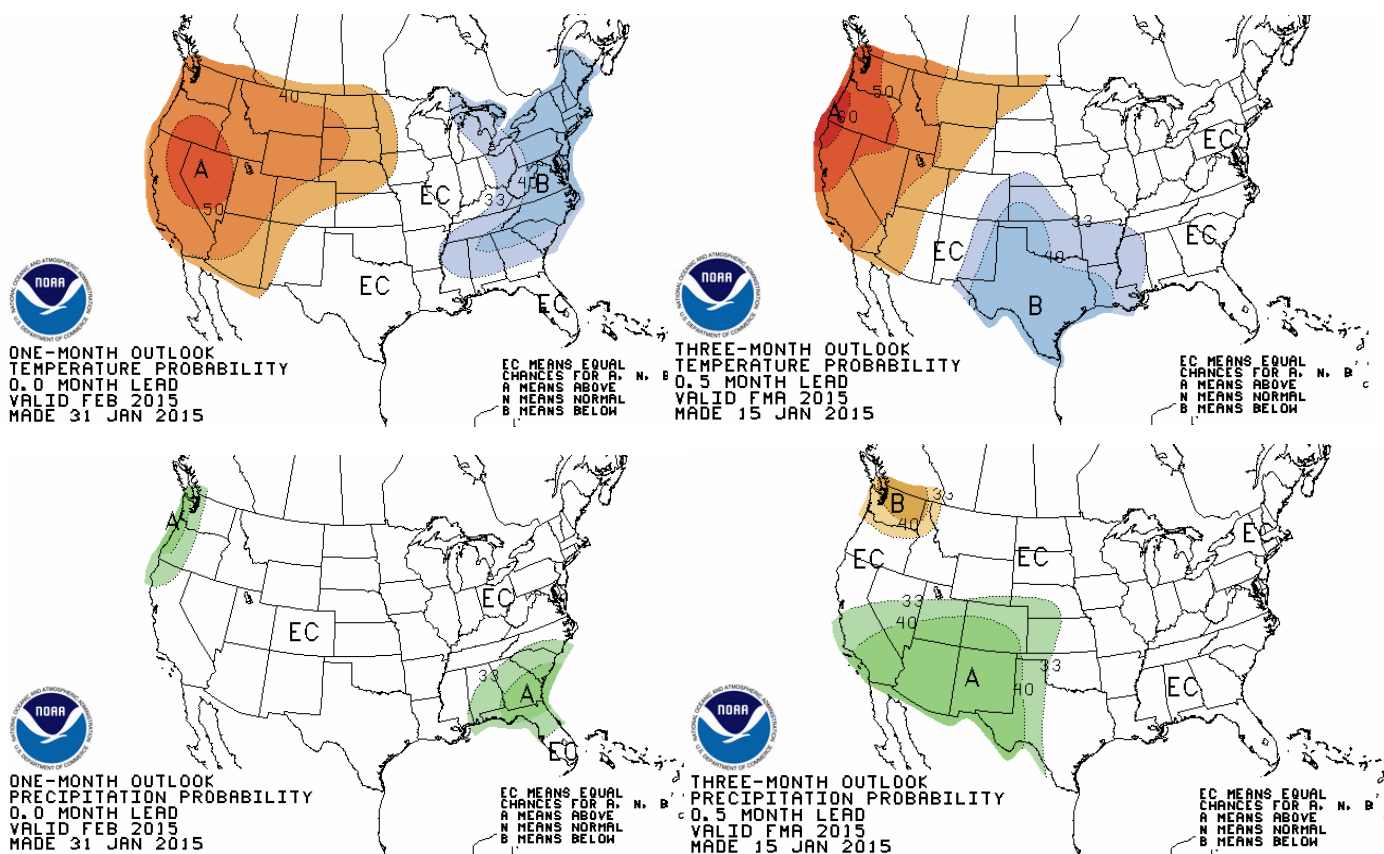


Figure 4. One-month (left) and three-month (right) temperature (top) and precipitation (bottom) outlooks from the Climate Prediction Center release on November 20. Source: Climate Prediction Center—[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)