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July 21, 2008: Storms build south of Lincoln, NE, near the Kansas border – Photo by Ken Dewey
<http://nebraskaweatherphotos.org>

July 2008 Climate Summary

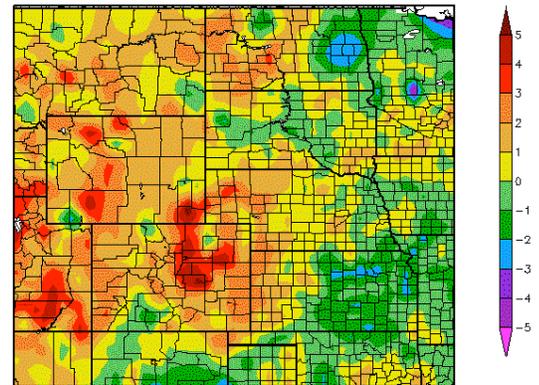
Region Breakdown

Temperatures through the region returned more towards normal versus the below normal spring and early summer the entire region experienced. Most areas had average temperatures within 2 °F (1.1 °C) of their July normals. The exceptions within the region occurred in Northeastern Colorado, Southwestern Wyoming, and the Panhandle of Nebraska where average temperatures ranged 3-5 °F (1.7-2.8 °C) above normal through the month. Areas of well below normal average temperatures occurred in Eastern North Dakota and small portions of Northeastern Kansas where average temperatures ranged 2-3 °F (1.1-1.7 °C) below normal.

Precipitation amounts for the High Plains Region resulted in scattered areas of above average precipitation and widespread areas of well below average precipitation. Above average locations included the Nebraska Panhandle, portions of Eastern Wyoming, North Central South Dakota, Eastern North Dakota, portions of Southeastern Nebraska, and North Central Kansas. Those areas had 150%-200% their normal precipitation for the month of July. The remainder of the High Plains Region experienced predominantly below average precipitation (approx 60%) with the most extreme areas being Southwestern Wyoming and the majority of Colorado (<50%).

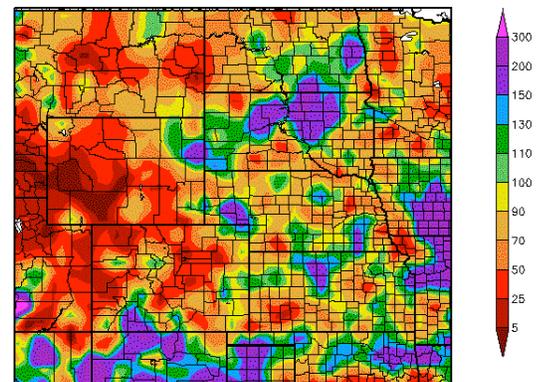
North Dakota had been seeing improved drought conditions through the early portions of the summer, but July brought in extreme drought conditions to the Western half of the state. The Colorado – Kansas border remained in extreme drought with exceptional drought creeping into the area. Eastern Colorado saw some increase in drought conditions (D0 – D1). Western Wyoming has begun to experience some drought conditions (D0) through the month of July. No significant areas saw improved drought conditions over the last month.

Departure from Normal Temperature (°F)
 7/1/2008 – 7/31/2008



Above: Departure from 1971-2000 Normal July Average Temperature (°F)
 For more, please visit: <http://hprcc.unl.edu/maps/current>

Percent of Normal Precipitation (%)
 7/1/2008 – 7/31/2008



Above: Percent of 1971-2000 Normal July Total Precip
 For more, please visit: <http://hprcc.unl.edu/maps/current>

Precipitation Summary

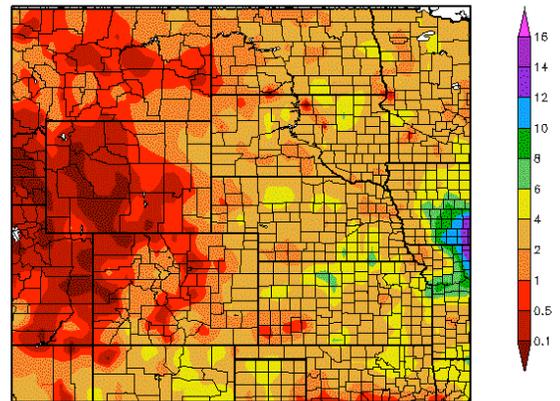
Precipitation amounts for the High Plains Region took on a different pattern through July versus what the region had seen through late spring and early summer. Through July few organized systems dropped large areas of precipitation with the exception of South Dakota. When looking at the month of July for the region, it is easy to see that isolated convection and small areas of organized convection dominated the small areas that experienced above normal precipitation amounts.

With the intrusion of warmer temperatures into the region, strong and organized systems pushed their influence further north and left large areas of Colorado, Nebraska, and Kansas with below normal precipitation amounts. Besides the northward movement of many systems, moisture flow from the Gulf of Mexico during the month of July was more pronounced to the east of the region, where well above normal precipitation occurred over wide spread areas.

North Dakota had the largest areas of above average precipitation with Roscoe, SD as a prime example. Roscoe, SD received 5.98 in (151.9 mm) of precipitation through the month, which resulted in 214% their normal precipitation for the month of July. Other areas of above average precipitation included Gettysburg, SD with 5.45 in (138.4 mm) or 206% their normal and Dalton, NE with 4.87 in (123.7 mm) or 205% their normal.

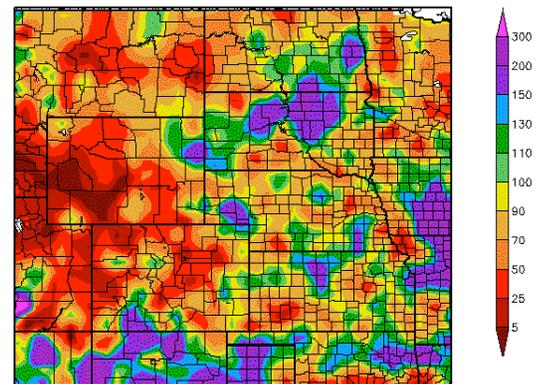
On the other end of both the spectrum and region were Boulder, CO and Northglen, CO. Boulder, CO received only 0.09 in (2.3 mm) during July, resulting in 5% the normal for the month. Even worse was Northglen, CO that received 0.00 in (0 mm) of precipitation for the month while their normal for July is 1.71 in (43.4 mm).

Precipitation (in)
7/1/2008 - 7/31/2008



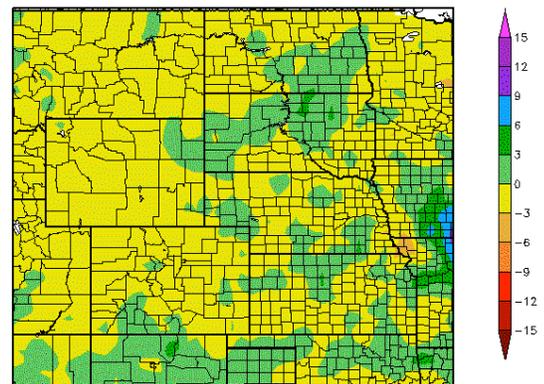
Above: Total Liquid Precipitation (in) for July 2008
For more, please visit: <http://hprcc.unl.edu/maps/current>

Percent of Normal Precipitation (%)
7/1/2008 - 7/31/2008



Above: Percent of 1971-2000 Normal July Total Precip
For more, please visit: <http://hprcc.unl.edu/maps/current>

Departure from Normal Precipitation (in)
7/1/2008 - 7/31/2008

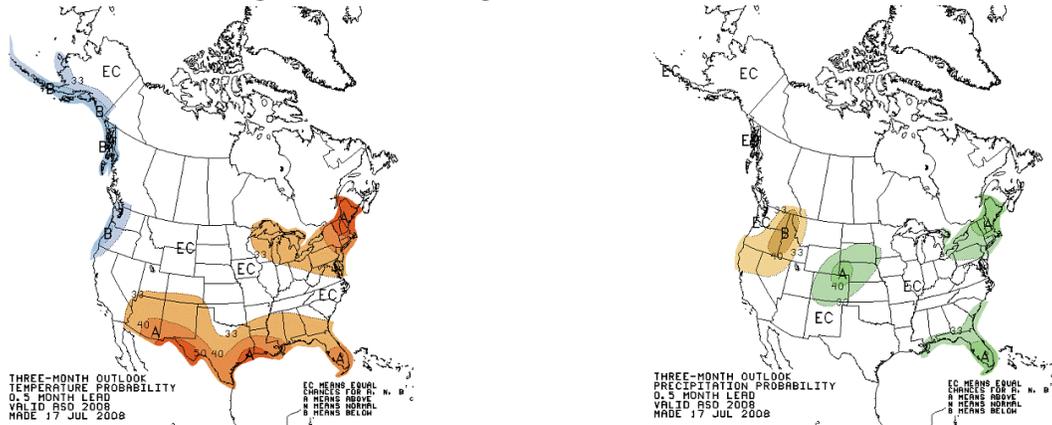


Above: Departure from 1971-2000 July Total Precip
For more, please visit: <http://hprcc.unl.edu/maps/current>

July 2008 Climate Summary

Climate Outlook

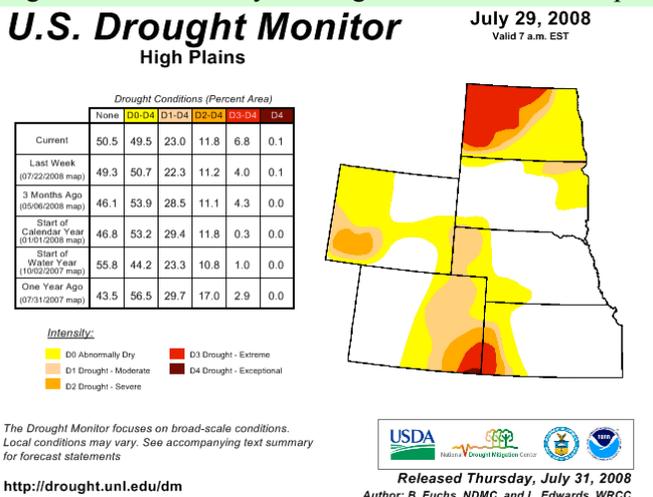
ENSO conditions are currently neutral. ENSO neutrality is expected to persist through the fall. Concerning the High Plains Region, the NOAA Climate Prediction Center is predicting chances of above average temperatures in extreme Southern Colorado while the remainder of the High Plains Region is expected to experience near average temperatures during the months of August – October. Precipitation is predicted to be above average in South Dakota, Central and Western Nebraska, Southeastern Wyoming, extreme Northwestern Kansas, and Colorado. The highest probability of above average precipitation is expected in the Panhandle Region of Nebraska, extreme Southeastern Wyoming, and extreme Northeastern Colorado during the months of August – October.



Above: 3-Month Outlook Maps Courtesy the NOAA Climate Prediction Center – <http://www.cpc.ncep.noaa.gov>
 Left: The Three-Month Temperature Probability Outlook covering July, August, and September
 Right: The Three-Month Precipitation Probabilities Outlook covering July, August, and September

Drought Watch

The big story over the last month for the High Plains Region has been the expanding and rapidly increasing drought conditions in North Dakota. North Dakota had been seeing improved drought conditions through the early portions of the summer, but July brought in extreme drought conditions to the Western half of the state. The Colorado – Kansas border remained in extreme drought with exceptional drought creeping into the area. Eastern Colorado saw some increase in drought conditions (D0 – D1). Additionally, Western Wyoming has begun to experience some drought conditions (D0) through the month of July. No significant areas saw improved drought conditions over the last month.



The U.S. Drought Monitor is produced as a joint effort of the U.S. Department of Agriculture (USDA), National Drought Mitigation Center, U.S. Department of Commerce and the National Oceanic and Atmospheric Administration (NOAA). Real-time data provided through ACIS from the NOAA Regional Climate Centers is often used by the agencies involved in the U.S. Drought Monitor when determining the area and intensity of drought conditions, although the product itself is not produced by HPRCC. For current Drought Monitor information, please see: <http://www.ndmc.unl.edu/dm/monitor.html>. Portions of this Drought Watch are courtesy the Drought Monitor Tex Discussion found on the Drought Monitor webpage.

July 2008 Climate Summary

State Summaries

Colorado	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Alamosa San Luis Airport	83.9	47.5	65.7	1.6	90	7/31	41	7/3	0.36	-0.58	38
Akron Washington County Airport	92.1	61.7	76.9	3.2	101	7/20	52	7/3	1.08	-1.85	37
Colorado Springs Municipal Airport	89.6	58.7	74.1	4.5	97	7/11+	50	7/13	0.31	-2.54	11
Grand Junction Walker Field Airport	95	65.6	80.3	3.6	99	7/31+	58	7/13	0.02	-0.64	3
Pueblo Memorial Airport	95.3	59.5	77.4	2	104	7/11	51	7/13+	1.53	-0.51	75

Kansas	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Concordia Municipal Airport	88.4	66.7	77.5	-1.5	96	7/24	55	7/13+	6.39	2.19	152
Dodge City Regional Airport	94.8	65.4	80.1	0.3	103	7/31	48	7/13	1.15	-2.02	36
Goodland Renner Field	93.3	61.6	77.4	2.3	103	7/11	54	7/13+	2.88	-0.66	81
Topeka Municipal Airport	89.2	68.5	78.9	0.5	100	7/21	55	7/13	3.67	-0.16	96
Wichita Mid-Continent Airport	90.4	69.9	80.2	-0.8	100	7/22	59	7/14	3.82	0.51	115

Nebraska	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Chadron Municipal Airport	93.2	59.3	76.2	2.1	100	7/30+	41	7/13	1.39	-0.72	66
Grand Island Airport	88.8	65.9	77.4	1.6	97	7/27	54	7/13	2.63	-0.51	84
Lincoln Municipal Airport	89.6	67.6	78.6	0.8	97	7/11	57	7/4	3.58	0.04	101
Omaha Eppley Airport	87.2	67.3	77.2	0.5	93	7/31+	58	7/3	3.04	-0.82	79
Norfolk Karl Stefan Airport	86.5	64.5	75.5	0.7	93	7/31	53	7/13+	0.64	-3.1	17
North Platte Regional Airport	89.9	61.8	75.9	1.6	98	7/28+	46	7/13	2.23	-0.94	70
Valentine Miller Field	89.5	60.9	75.2	1.5	99	7/30+	46	7/13	3.66	0.29	109

North Dakota	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Bismark Municipal Airport	86.9	57.5	72.2	1.8	96	7/14	42	7/3	2.84	0.26	110
Dickinson Municipal Airport	87.6	54.2	70.9	1.5	100	7/10	45	7/13	1.67	-0.44	79
Fargo International Airport	81.7	58.8	70.3	-0.4	91	7/11	46	7/3	1.78	-1.1	62
Grand Forks International Airport	80.3	54.9	67.6	-1.8	91	7/1	43	7/3	4.19	1.13	137
Williston International Airport	86.8	55.9	71.4	2.1	98	7/10	47	7/13+	1.22	-1.06	54

All Data are Preliminary and Subject to Change

Source: National Weather Service Cooperative Observation Network Data

Data is retrieved through the Applied Climate Information System (ACIS)

This data is available for the entire period of record through the CLIMOD system. For more information please see <http://hprcc.unl.edu/services>.

July 2008 Climate Summary

South Dakota	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Aberdeen Regional Airport	85.6	58.9	72.3	0.1	94	7/11	45	7/3	6.26	3.34	214
Huron Regional Airport	85.8	61.4	73.6	0.2	96	7/11	44	7/3	2.28	-0.58	80
Rapid City Regional Airport	85.9	57.3	71.6	-0.1	95	7/10	45	7/12	2.25	0.22	111
Sioux Falls Joe Foss Field Airport	85.7	63.4	74.5	1.5	96	7/15+	50	7/3	2.52	-0.41	86

Wyoming	Temperature (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	Pct Norm
Casper Natrona County International AP	90.6	52.5	71.6	1.6	99	7/27	37	7/13	0.66	-0.63	51
Cheyenne Municipal Airport	88.1	56.3	72.2	4.5	95	7/20	45	7/12	0.43	-1.83	19
Lander Hunt Field Airport	90.1	56.8	73.4	2.5	96	7/27+	44	7/12	0.21	-0.63	25
Laramie Regional Airport	82.6	48.2	65.4	2.2	89	7/20	40	7/12	0.59	-0.97	38
Rawlins Municipal Airport	87.2	51.5	69.3	1.4	93	7/27+	41	7/13	0.72	-0.18	80
Sheridan County Airport	87.4	52.3	69.8	1	97	7/30	38	7/12	0.92	-0.19	83

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State Spotlight - Nebraska



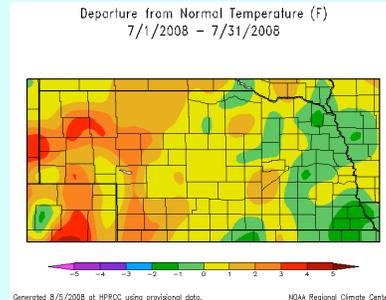
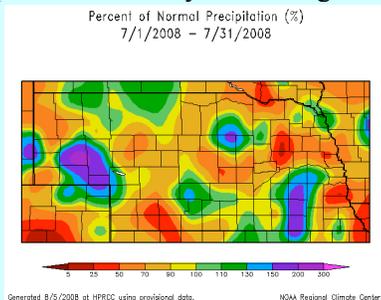
Al Dutcher – State Climatologist
Nebraska State Climate Office – University of Nebraska–Lincoln

A mixed bag of weather across was observed across the state of Nebraska during the month of July. The upper air pattern saw the mean southern Plains upper air ridge build northward throughout the month. Widespread precipitation occurred during the first half of the month, only to be replaced by scattered to isolated thunderstorm activity during the second half of July. As a rule, temperatures were cooler than normal in early July, near normal during mid-July, and above normal at the end of the month.

Average temperatures for the entire month of July came in below normal across much of the eastern 1/3 of the state, while above normal temperatures dominated western Nebraska. The state high temperature was 106 F at Imperial on the 23rd, while the state low of 35 F was recorded at Agate on the 12th. Climate division average temperatures and departures were as follows: Northwest (74.0 F, 1.8 above normal), North Central (74.5 F, 1.0 F above normal), Northeast (74.3 F, 0.6 F below normal), Central (75.4 F, 0.5 F above normal), East Central (76.2 F, 0.3 F below normal), Southwest (76.7 F, 1.5 F above normal), South Central (75.7 F, 0.3 F above normal), Southeast (76.1 F, 1.0 F below normal). At least 42 out of 159 temperature reporting locations reported at least one day of 100 F or greater maximum temperatures. Every location reached a maximum temperature of at least 95 F.

Precipitation averaged below normal for every Nebraska climate district, but two major precipitation events brought heavy rain to portions of central, south central, and southeastern Nebraska during mid-July. Extensive flooding was reporting within the lower Blue river basin, resulting in severe bank erosion, low land flooding and isolated crop losses. The largest monthly precipitation total was recorded at Fairbury with 10.49 inches, as was the single greatest 24-hour total of 5.00 inches on the 18th. Climate division average July precipitation and percentage of normal are as follows: Northwest (2.01 inches, 96% of normal), North Central (3.18 inches, 92% of normal), Northeast (2.49 inches, 72% of normal), Central (2.97 inches, 86% of normal), East Central (3.39 inches, 94% of normal), Southwest (1.97 inches, 63% of normal), South Central (3.17 inches, 87% of normal), Southeast (3.99 inches, 92% of normal). Over 80% of the reporting locations across the eastern 1/3 of Nebraska failed to report measurable precipitation during the last 14 days of July.

Agricultural crops managed to survive the warm-dry conditions during the second half of July due to the abundance of rainfall recorded during the May-June period. Entering the month of July, every soil moisture monitoring site across the eastern 3/4 of Nebraska had a full profile down to four feet. Some stress was reported across portions of eastern Nebraska at the end of July, but overall both corn and soybean crop health ratings were above last years end of July ratings. The most significant improvement to these ratings were attributed to the dryland region of eastern Nebraska. Although crop development was still behind normal due to significant planting delays in May, corn and soybeans were only 5-7 days behind normal compared to 7-10 days at the beginning of July.



Above: Current Climate Summary Maps showing Average Temperature (°F) for June 2008 (left) and February 2008 Departure from 1971-2000 Normal Average February Temperature. Current Climate Summary Maps are available from the High Plains Regional Climate Center website at: <http://hprcc.unl.edu/maps/current>.

The Nebraska State Climate Office is a part of the School of Natural Resources, University of Nebraska – Lincoln

For more information about the School of Natural Resources at UNL, visit: <http://www.snr.unl.edu>

For more information on the University of Nebraska-Lincoln, visit: <http://www.unl.edu>

About the High Plains Regional Climate Center



The High Plains Regional Climate Center (HPRCC) operates out of the University of Nebraska – Lincoln (UNL) in Lincoln, Nebraska. As one of 6 regional climate centers operated under the National Oceanic and Atmospheric Administration (NOAA), HPRCC works closely with other organizations such as the National Climatic Data Center (NCDC), Local and Regional National Weather Service (NWS) Offices, and other climate services organizations such as the National Drought Mitigation Center (also located at UNL) to provide climate data service and specialized climate products.

For More Information Online

High Plains Regional Climate Center: <http://hprcc.unl.edu>
High Plains Regional Climate Services: <http://hprcc.unl.edu/services>
CLIMOD: <http://climod.unl.edu>
NOAA Regional Climate Centers and ACIS: <http://www.rcc-acis.org>
North Dakota State Climate Office: <http://www.ndsu.edu/ndsco>
North Dakota Agricultural Network: <http://www.ndawn.ndsu.nodak.edu>
National Weather Service: <http://www.weather.gov>
National Climatic Data Center: <http://ncdc.noaa.gov>
School of Natural Resources – University of Nebraska – Lincoln: <http://snr.unl.edu>
University of Nebraska – Lincoln: <http://www.unl.edu>
National Drought Mitigation Center: <http://drought.unl.edu>
Climate Prediction Center: <http://www.cpc.noaa.gov>
NOAA Storm Prediction Center: <http://www.spc.noaa.gov>
National Agricultural Statistics Service (USDA): <http://www.nass.usda.gov>
Weather Photos: <http://www.nebraskaweatherphotos.org>



July 10th, 2005 – Central Nebraska – Photo by Ken Dewey
<http://www.nebraskaweatherphotos.org>

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