



727 Hardin Hall
3310 Holdrege Street
Lincoln, NE 68583-0997
402 472-6706
Fax 402 472-8763
<http://hprcc.unl.edu>



Peonies in Lincoln, Nebraska - Photo by Holly Lussenden
<http://hprcc.unl.edu>

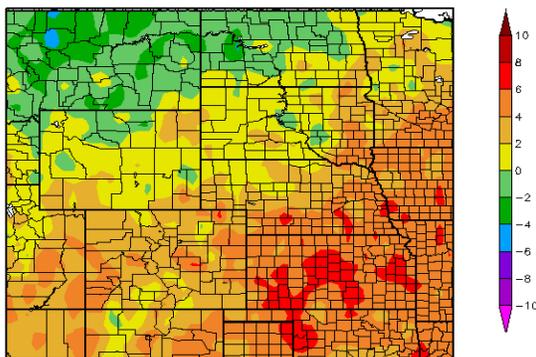
May 2012 Climate Summary

Region Breakdown

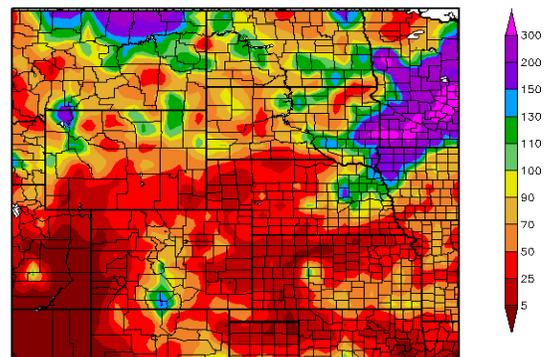
May 2012 was largely warm and dry across the High Plains Region. The largest temperature departures occurred in southern portions of the Region, where the departures from normal temperature ranged from 4.0-8.0 degrees F (2.2-4.4 degrees C) above normal. The only areas in the Region to have lower than normal temperatures were central and western North Dakota and pockets of Wyoming and South Dakota. Many locations across the Region were ranked in the top 10 warmest Mays on record. For instance, Topeka, Kansas had its 2nd warmest May on record with an average temperature of 71.4 degrees F (21.9 degrees C). The record of 72.7 degrees F (22.6 degrees C) was set back in 1962 (period of record 1887-2012).

Many locations set daily records as temperatures soared near the end of the month. Some locations even had their earliest 100 degrees F (37.8 degrees C) day on record. Scottsbluff, Nebraska set a daily record of 100 degrees F (37.8 degrees C) on May 22nd, absolutely crushing the old record of 91 degrees F (32.8 degrees C) set back in 1939 (period of record 1893-2012). Not only was this a new daily record, this was also the earliest 100 degrees F (37.8 degrees C) day on record in Scottsbluff. On average, temperatures there do not reach 100 degrees F (37.8 degrees C) until July 3rd. Prior to this new record, the earliest 100 degrees F (37.8 degrees C) day was May 28th (1934).

Departure from Normal Temperature (F)
5/1/2012 - 5/31/2012



Percent of Normal Precipitation (%)
5/1/2012 - 5/31/2012



Departure from 1971-2000 Normal Average Temperature (left) and Percent of Normal Precipitation (right) for May 2012 in the High Plains Region. Maps produced by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

May 2012 Climate Summary

According to the National Agricultural Statistics Service, the earliest start to the wheat harvest in Kansas since records began in 1952 has occurred this year. By the end of the month, at least 4 percent of the wheat harvest was complete. The earliest harvest prior to this year occurred in 1962 when 1 percent of the crop had been harvested by June 2nd. The dry, hot, and windy weather in Nebraska led to low soil moisture which caused producers to turn on pivots to aid in crop germination. Although rain was a welcome sight to some, the tornadoes and hail that accompanied the storms led to crop damage which will require producers to replant in some areas of Nebraska.

This spring (March, April, and May) was a record breaker across the entire High Plains Region. Average temperatures were above normal at all locations in the Region and the largest temperature departures occurred in the east as areas of South Dakota, Nebraska, and Kansas had average temperatures which were over 8.0 degrees F (4.4 degrees C) above normal. Most locations set new records or were at least ranked in the top 5 warmest springs on record. Some of the impressive records include those set in Lincoln, Nebraska and Wichita, Kansas. Lincoln had an average temperature of 59.3 degrees F (15.2 degrees C) which was 8.5 degrees F (4.7 degrees C) above normal and beat its old record of 56.1 degrees F (13.4 degrees C), set in 1977, by 3.2 degrees F (1.8 degrees C) (period of record 1887-2012). Wichita had an average temperature of 64.4 degrees F (18.0 degrees C), which was 9.0 degrees F (5.0 degrees C) above normal and beat its old record of 59.9 degrees F (15.5 degrees C) by a whopping 4.5 degrees F (2.5 degrees C) (period of record 1888-2012).

Spring 2012 Records - Highlights

Spring Temperature Records (March, April, and May)			
Temperature in degrees F			
Location	New Record	Old Record/Year	Period of Record
Colorado Springs, CO	53.4	51.1/1934	1894-2012
Denver, CO	54.3	53.3/1934	1872-2012
Concordia, KS	61.4	57.2/1977	1885-2012
Dodge City, KS	60.3	58.5/1977	1874-2012
Goodland, KS	56.1	55.8/1934	1895-2012
Topeka, KS	63.8	60.0/1977	1887-2012
Wichita, KS	64.4	59.9/2006	1888-2012
Grand Island, NE	59.0	56.1/1934	1895-2012
Lincoln, NE	59.3	56.1/1977	1887-2012
Norfolk, NE	57.4	55.0/1977	1893-2012
North Platte, NE	54.7	53.4/1934	1874-2012
Omaha, NE	60.6	58.4/1977	1871-2012
Scottsbluff, NE	54.4	52.1/1981	1893-2012
Valentine, NE	53.4	50.9/1910	1889-2012
Fargo, ND	50.2	49.3/1977	1881-2012
Aberdeen, SD	50.4	50.1/1977	1893-2012
Huron, SD	53.5	51.4/1987	1881-2012
Rapid City, SD	51.3	49.8/1985	1942-2012
Sioux Falls, SD	54.4	52.6/1910	1893-2012
Cheyenne, WY	49.3	47.4/1992	1872-2012

All Data are Preliminary and Subject to Change.

* indicates multiple records, latest year is listed

Source: National Weather Service Cooperative Observation Network Data

The High Plains Regional Climate Center is one of the Regional Climate Centers, and is involved in the Applied Climate Information System (ACIS) development and management effort. Data found throughout this publication were derived using products built on the ACIS framework.

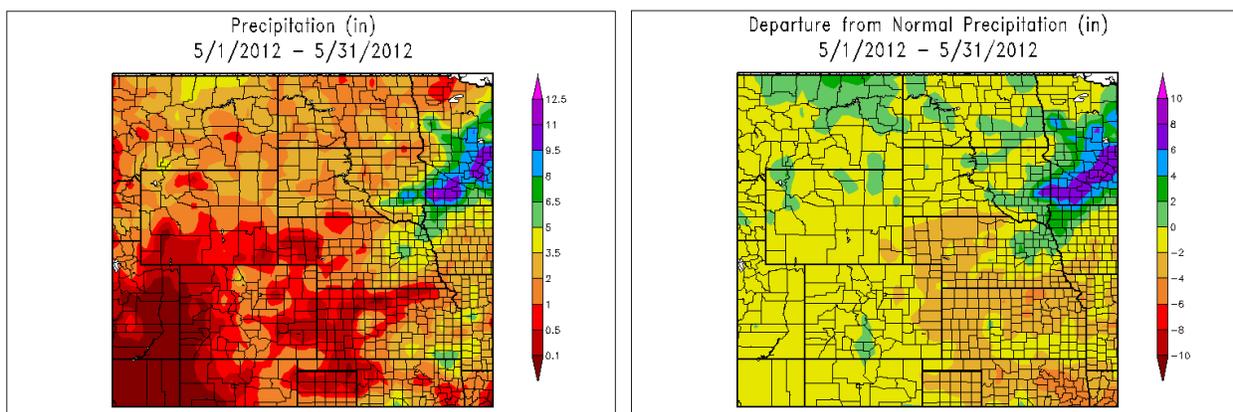


Precipitation Summary

May 2012 was dry for much of the High Plains Region. A large area encompassing southern Wyoming, western and southern Nebraska, northern and western Kansas, and the east and west sides of Colorado had precipitation totals which were less than 50 percent of normal. In addition, many locations within that area received only 25 percent or less of normal precipitation and ranked in the top 10 driest Mays on record. Goodland, Kansas had its 2nd driest May on record with only 0.45 inches (11 mm) of precipitation, which was 13 percent of normal precipitation (period of record 1895-2012). The 1927 record held at 0.31 inches (8 mm). Snowpack in Colorado and Wyoming continued to decline. According to the Natural Resources Conservation Service, by the end of the month, the state-wide snowpack was just 5 percent of average in Colorado and 22 percent of average in Wyoming. According to the *Denver Post*, the low snowpack has raised concerns about potential impacts on river recreation in Colorado.

Although the majority of the Region was drier than normal, a few areas had above normal precipitation totals including eastern South Dakota, northeastern Nebraska, south-central Colorado, and a few pockets of North Dakota and Wyoming. The highest precipitation amounts were located in eastern South Dakota where totals exceeded 200 percent of normal. Extremely heavy rain fell in eastern South Dakota during the May 5-6 timeframe. The 24-hour precipitation total, ending May 6th, for Madison 2 SE, South Dakota was 4.81 inches (122 mm)! This crushed the old daily record of 3.44 inches (87 mm) set back in 2007 and also set a new 1-day May precipitation record (period of record 1961-2012). The old 1-day precipitation total was 3.79 inches (96 mm), set on May 1, 1972. By the end of the month, this had become the wettest May on record for Madison 2 SE with a total of 9.97 inches (253 mm). The old record of 8.53 inches (217 mm) occurred in 1972. In addition, this also became the wettest month on record for Madison 2 SE, beating out the old record of 9.57 inches (243 mm) which occurred in June 1984.

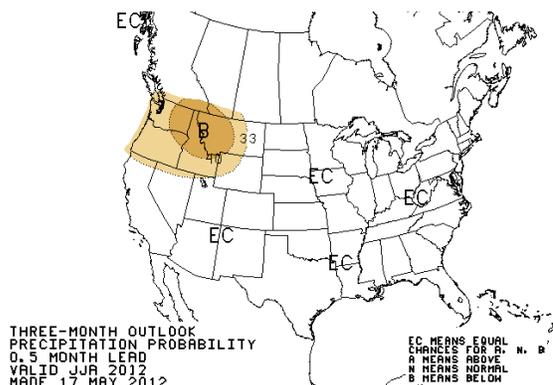
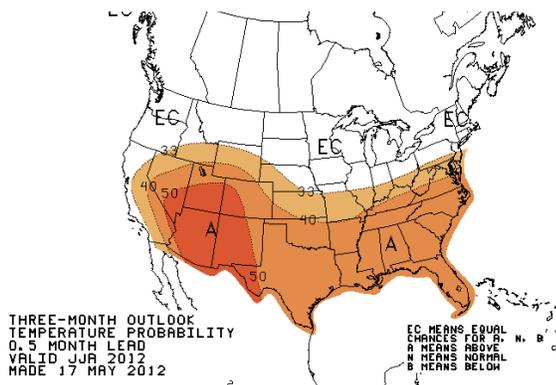
Spring (March, April, and May) precipitation and snowfall totals were some of the lowest on record in the western part of the High Plains Region. A large area of the Region had precipitation totals which were 25-50 percent of normal including southern Wyoming, the panhandle of Nebraska, and western and northern Colorado. Some examples of the dryness include Cheyenne, Wyoming and Boulder, Colorado. Cheyenne had its 2nd driest spring on record with only 0.69 inches (18 mm) of liquid equivalent precipitation. This was not far off from the record 0.67 inches (17 mm) which was set in the spring of 1880 (period of record 1871-2012). In addition, Cheyenne had its least snowy spring on record with only 0.6 inches (2 cm) of snowfall. This beat the old record of 3.5 inches (9 cm) which occurred in 2007 (snowfall period of record 1883-2012). Similarly, Boulder, Colorado had its 3rd driest spring with 3.10 inches (79 mm) of precipitation. The record 2.21 inches (56 mm) which fell in 1925 was able to hold on (period of record 1893-2012). Boulder also had its least snowy spring on record with a mere 1.6 inches (4 cm) of snowfall. This easily beat the old record of 3.5 inches (9 cm) which fell in 1982 and was incredibly lower than the average spring snowfall, which in Boulder is 29.5 inches (75 cm).



Above: Total precipitation (inches) (left) and Departure from Normal Precipitation (inches) (right) for May 2012 in the High Plains Region. These maps are produced by HPRCC and can be found on the Current Climate Summary Maps page at: <http://hprcc.unl.edu/maps/current>.

Climate Outlook

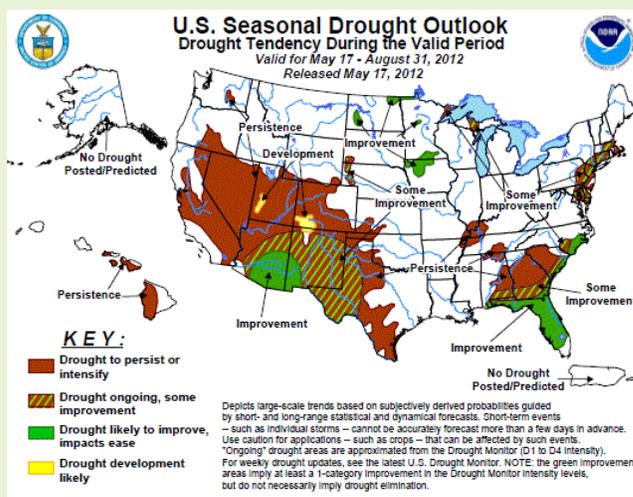
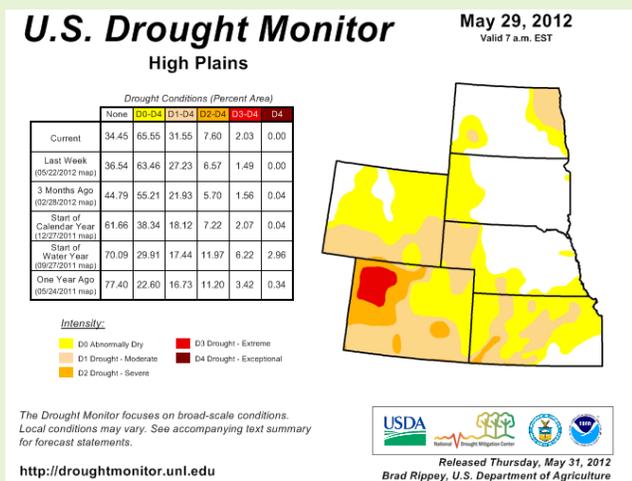
ENSO-neutral conditions are present and these conditions are expected to continue through the summer. The temperature outlook indicates a higher probability of above normal temperatures for all of Colorado, the majority of Wyoming, all of Kansas except the far northeast corner, western and south-central Nebraska, and the far southwestern corner of South Dakota. The precipitation outlook indicates a higher probability of below normal precipitation for northwest Wyoming. Equal chances of above, near, or below normal precipitation and temperature are predicted elsewhere in the Region. The seasonal outlooks combine the effects of long-term trends, soil moisture, and when applicable, the El Niño Southern Oscillation cycle (ENSO).



Above: 3-Month Outlook Maps Courtesy the NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>
(left) The Three-Month Temperature Probability Outlook, (right) The Three-Month Precipitation Probability Outlook

Drought Watch

There were many changes again to the U.S. Drought Monitor this month. Improvements were made in eastern South Dakota and Nebraska as drought conditions were eliminated due to ample precipitation. Only small areas of abnormally dry conditions (D0) remained there. Moderate drought conditions (D1) were erased from western South Dakota and the majority of western North Dakota as well. Unfortunately, drought conditions elsewhere either emerged or worsened over the course of the month. D1 conditions in eastern North Dakota expanded towards the south. New D0 and patches of D1 have emerged across Kansas. D1 conditions also expanded further across southern Colorado and also across the panhandle of Nebraska and into southern Wyoming and northwestern Colorado. The big story this month was the development of extreme drought conditions (D3) in northwestern Colorado due to extremely low precipitation. According to the U.S. Seasonal Drought outlook released on May 17th, drought conditions were expected to improve in areas of North Dakota and the panhandle of Nebraska. Drought conditions in Colorado, southern Wyoming, and southwestern Kansas were expected to persist.



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 Regional Climate Centers are 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://droughtmonitor.unl.edu/>
Portions of this Drought Watch are courtesy the Drought Monitor Text Discussion found on the Drought Monitor webpage.

State Summaries

Colorado	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Alamosa San Luis Airport	73.2	34.0	53.6	3.2	83	05/22	21	05/28	0.88	0.18	126
Akron Washington County Airport	75.7	44.9	60.3	3.3	95	05/26	34	05/11	0.82	-2.33	26
Colorado Springs Municipal Airport	74.1	45.5	59.8	5.2	90	05/26+	37	05/14	0.78	-1.61	33
Grand Junction Walker Field Airport	81.6	49.2	65.4	4.9	94	05/22	39	05/27	0.09	-0.89	9
Pueblo Memorial Airport	80.0	45.2	62.6	2.9	97	05/26	40	05/28+	0.92	-0.57	62

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	83.4	55.5	69.5	6.5	98	05/26	42	05/09	0.39	-3.81	9
Dodge City Regional Airport	85.2	53.0	69.1	5.3	101	05/25	39	05/09	0.61	-2.39	20
Goodland Renner Field	80.1	45.9	63.0	4.3	97	05/26	39	05/20+	0.45	-3.01	13
Topeka Municipal Airport	83.7	59.1	71.4	7.0	93	05/28+	46	05/09	2.58	-2.28	53
Wichita Mid-Continent Airport	84.7	60.8	72.8	7.8	95	05/26	47	05/08	2.10	-2.06	50

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	75.1	40.4	57.7	0.9	99	05/22	24	05/12	2.11	-0.91	70
Grand Island Airport	80.9	52.5	66.7	6.1	100	05/26	38	05/09	2.29	-1.78	56
Lincoln Municipal Airport	80.5	53.4	66.9	4.9	96	05/26	39	05/09	3.00	-1.23	71
Omaha Eppley Airfield	80.3	56.5	68.4	6.2	95	05/26	44	05/09	3.56	-0.88	80
Norfolk Karl Stefan Airport	78.6	50.6	64.6	4.3	94	05/26+	36	05/16+	4.33	0.41	110
North Platte Regional Airport	78.1	45.6	61.9	3.6	97	05/26	31	05/09+	0.74	-2.60	22
Valentine Miller Field	74.0	44.5	59.3	1.8	94	05/22	28	05/09	0.69	-2.51	22

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	69.1	41.3	55.2	-0.8	87	05/17	31	05/31+	1.98	-0.24	89
Fargo International Airport	74.0	47.5	60.8	3.4	96	05/18	35	05/30	3.03	0.42	116
Grand Forks International Airport	70.6	44.2	57.2	0.6	89	05/18	32	05/09	1.75	-0.46	79
Theodore Roosevelt Airport	67.8	39.5	53.6	-0.9	88	05/17	28	05/11	1.65	-0.63	72
Williston International Airport	66.5	40.5	53.5	-1.1	88	05/16	28	05/12	2.46	0.58	131

All Data are Preliminary and Subject to Change. + indicates multiple dates, latest date listed.

Source: National Weather Service Cooperative Observation Network Data

Data are retrieved through the Applied Climate Information System (ACIS).

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

May 2012 Climate Summary

South Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Aberdeen Regional Airport	72.1	45.6	58.9	1.0	93	05/18	30	05/12	1.11	-1.58	41
Huron Regional Airport	73.0	49.2	61.1	2.9	93	05/17	35	05/12	1.92	-1.08	64
Pierre Regional Airport	71.4	45.1	58.3	-0.6	93	05/22	32	05/09	2.04	-1.10	65
Rapid City Regional Airport	70.3	41.5	55.9	0.9	91	05/22+	30	05/12	2.12	-0.84	72
Sioux Falls Joe Foss Field Airport	73.6	49.8	61.7	3.9	91	05/18+	37	05/13	4.60	1.21	136

Wyoming	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Casper Natrona County International AP	70.4	37.4	53.9	1.8	88	05/16	24	05/12	1.75	-0.63	74
Cheyenne Municipal Airport	69.2	40.4	54.8	3.5	87	05/22	29	05/08	0.30	-2.18	12
Lander Hunt Field Airport	68.8	40.6	54.7	1.3	86	05/16	27	05/06	1.84	-0.54	77
Laramie Regional Airport	65.9	33.3	49.6	2.6	81	05/22	19	05/12	0.71	-0.96	43
Rawlins Municipal Airport	69.2	35.7	52.4	1.5	82	05/22	21	05/06	0.59	-0.90	40
Sheridan County Airport	66.8	36.7	51.8	-0.7	87	05/16	26	05/12	2.42	0.01	100

All Data are Preliminary and Subject to Change. + indicates multiple dates, latest date listed.

Source: National Weather Service Cooperative Observation Network Data

Data are retrieved through the Applied Climate Information System (ACIS).

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

State Spotlight - North Dakota

F. Adnan Akyüz - State Climatologist, Barb Mullins
 North Dakota State Climate Office, North Dakota State University



Precipitation:

The North Dakota Agricultural Weather Network (NDAWN) May percent of normal precipitation was up to ~130% of normal in the northwest and a few scattered areas in the eastern half. The remaining areas were below normal with the driest areas of ~50% of normal precipitation in the southeast and north central regions. (Figure 1 North Dakota State Climate Office). The first one third of the month had scattered showers with the heavier amounts falling in the northwest corner. The middle of the month was dry with roughly six days of no precipitation across the state. The last one-third of the month had the greatest total amount of rainfall. The US Drought Monitor May 29, 2012 report had moderate (D1) drought listed for the northeast corner, moderate (D1) to mostly Abnormally Dry (D0) for the southwest corner, and no drought conditions elsewhere.

Temperature:

NDAWN May monthly average air temperatures ranged from 51 °F to 61 °F. NDAWN departure from normal average temperatures ranged from -3 °F to 4 °F (Figure 2. North Dakota State Climate Office). Daily average air temperatures hovered near normal across the state for the first half of the month. From roughly the 12th through the 19th average air temperatures climbed to 10 and 20 °F above normal. From the 24th through the end of the month there was seasonably cooler weather as average daily air temperatures dropped to between 10 °F and 20 °F below normal.

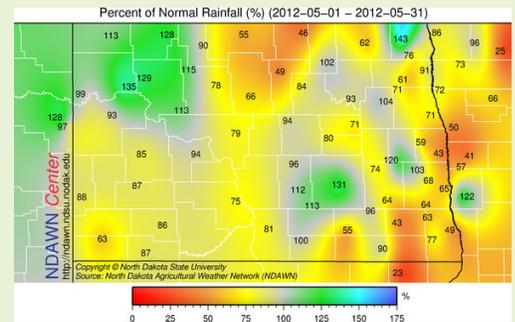


Figure 1. Percent of Normal Precipitation in May 2012 for North Dakota (North Dakota State Climate Office)

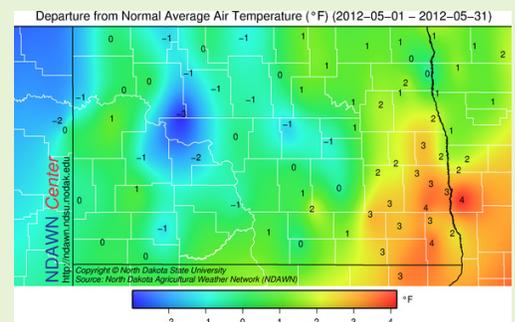


Figure 2. Temperature Departure from Normal in May 2012 for North Dakota (North Dakota State Climate Office)

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 throughout the nation, 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 services 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>

Regional Climate Centers and ACIS: <http://www.rcc-acis.org>

National Weather Service: <http://www.weather.gov>

National Climatic Data Center: <http://ncdc.noaa.gov>

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>



Photo of the Nebraska Sandhills by Bill Sorensen - Senior Programmer - HPRCC

Author Information

For questions, comments, or suggestions, please contact:

Natalie Umphlett - Regional Climatologist - High Plains Regional Climate Center

(402) 472-6764 - numphlett2@unl.edu

712 Hardin Hall

3310 Holdrege Street

Lincoln, NE 68583-0997

