HIGH PLAINS REGIONAL CLIMATE CENTER

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Thousands of Canadian Geese Near Cozad, Western Nebraska Late February 2008- Photo by Ken Dewey
http://www.nebraskaweatherphotos.org

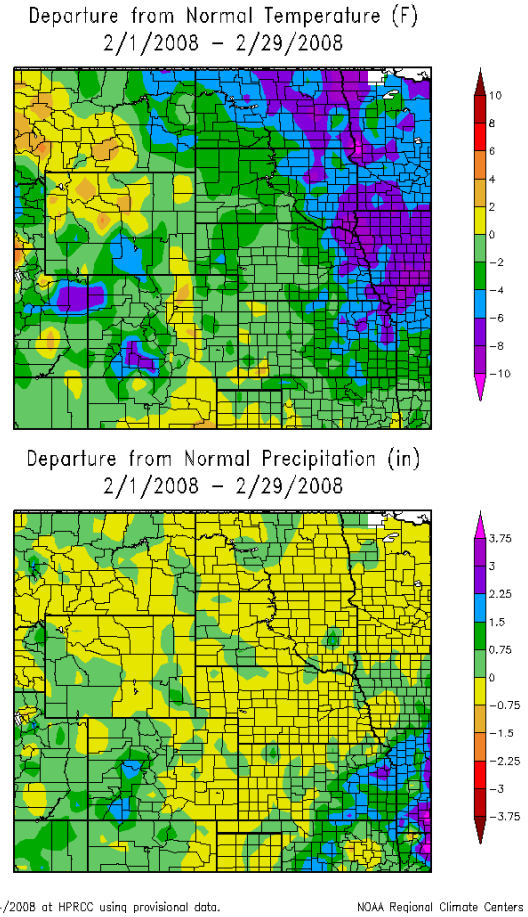
February 2008 Climate Summary

Region Breakdown

Colder than normal temperatures were prevalent in eastern portions of North Dakota, South Dakota, Nebraska, and northeastern Kansas. Average February Temperature departures from the 1971-2000 Normals ranged from -4F (-2C) to -10F (-6C) for much of this area. These depressions were aided by snow cover which present for much of February throughout this entire region, with the deepest snow depths in portions of eastern North Dakota and northeast Kansas.

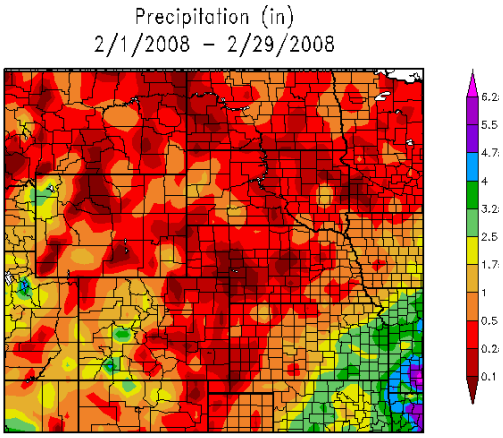
The Nebraska Panhandle and areas west of Kearney, western Kansas and the plains of Colorado and Wyoming were very close to normal temperatures, with some areas between 2F (1C) and 4F (2.2C) above Normal on the lee side of the Rockies in Colorado and Wyoming.

Early in February, several low pressure systems passed bringing snow and moisture to the eastern high plains, with the most liquid precipitation in falling southeastern Kansas. Total precipitation amounts in southeast Kansas for February 2008 ranged from 2.5 inches (6 cm) to 4 inches (9.5 cm), which were greater than 200% of the 1971-2000 liquid precipitation total Normal for February. Also benefiting from above Normal liquid precipitation amounts were the Rockies in southwest Colorado and portions of southwest Wyoming.



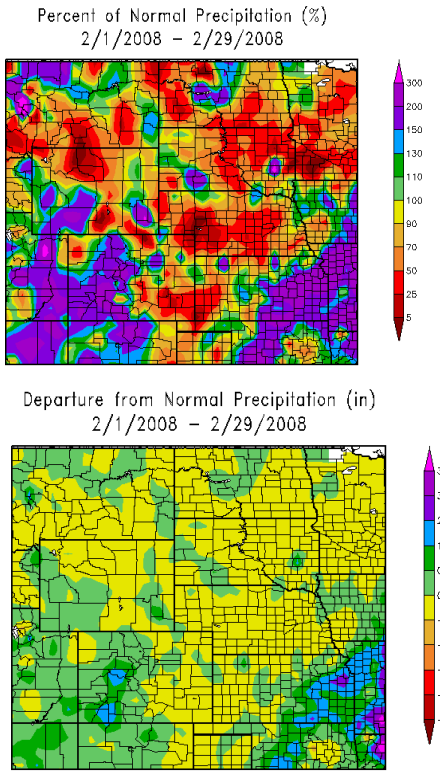
From Top: Departure from 1971-2000 Normal February Average Temperature (F) for February 2008 and Departure from 1971-2000 Normal February Total Liquid Precipitation (in) for February 2008 in the High Plains Region.

Precipitation Summary



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

Early in February, two strong low pressure systems passed (5th/10th) bringing snow and moisture to the eastern high plains, with the most liquid precipitation falling in southeastern Kansas. Total precipitation amounts in southeast Kansas for February 2008 ranged from 2.5 inches (6 cm) to 4 inches (9.5 cm), which were greater than 200% of the 1971-2000 liquid precipitation total Normal for February. Topeka, KS experienced its second wettest February on record, and its wettest winter on record (Dec-Feb). Also benefiting from above Normal liquid precipitation amounts were the Rockies in southwest Colorado and portions of southwest Wyoming. The remainder of the High Plains region was normal or near normal, with some pockets of dry in western North Dakota and western Nebraska. Below is a table with precipitation and snowfall amounts and ranking within historical record from select locations in the High Plains region.



From Top: Percent of 1971-2000 Normal February Total Liquid Precipitation, and Departure from 1971-2000 Normal February Total Liquid Precipitation (in); all for February 2008.

	February 2008				Winter 07-08 (Dec, Jan, Feb)			
Location	Precip (in)	Rank (#/Years)	Snowfall (in)	Rank (#/Years)	Precip(in)	Rank (#/Years)	Snowfall (in)	Rank (#/Years)
Topeka, KS	3.32	2/62	10.5	8/62	8.11	1/62	31.7	5/62
Wichita, KS	1.57	14/55	3.9	19/55	4.58	9/55	19.5	10/55
Crested Butte, CO	4.31	9/96	60.4	9/97	16.03	3/95	209.6	4/96
Grand Junction, CO	0.61	47/109	4.6	32/109	3.29	3/108	21.9	20/108
Bismark, ND	0.41	58/134	8.0	34/122	0.75	117/134	15.7	73/122
Grand Forks, ND	0.61	10/42	9.8	10/42	1.41	30/41	29.8	10/41
Fargo, ND	0.67	19/67	8.7	18/67	2.35	17/66	30.8	12/65
Lincoln, NE	0.55	28/43	5.1	21/43	3.08	11/42	18.9	16/41
North Platte, NE	0.05	55/61	1.7	42/61	0.92	36/60	13.0	32/60
Omaha, NE	0.59	46/73	6.4	25/58	2.67	27/73	22.1	21/57
Sioux Falls, SD	0.57	54/116	7.5	42/110	2.10	47/115	23.0	36/110
Rapid City, SD	0.51	27/60	6.2	26/53	1.36	27/59	21.2	10/52
Cheyenne, WY	0.17	78/94	2.7	75/94	1.20	47/93	21.0	38/93
Moose, WY	2.49	12/46	38.1	10/48	10.81	5/46	142.2	8/47

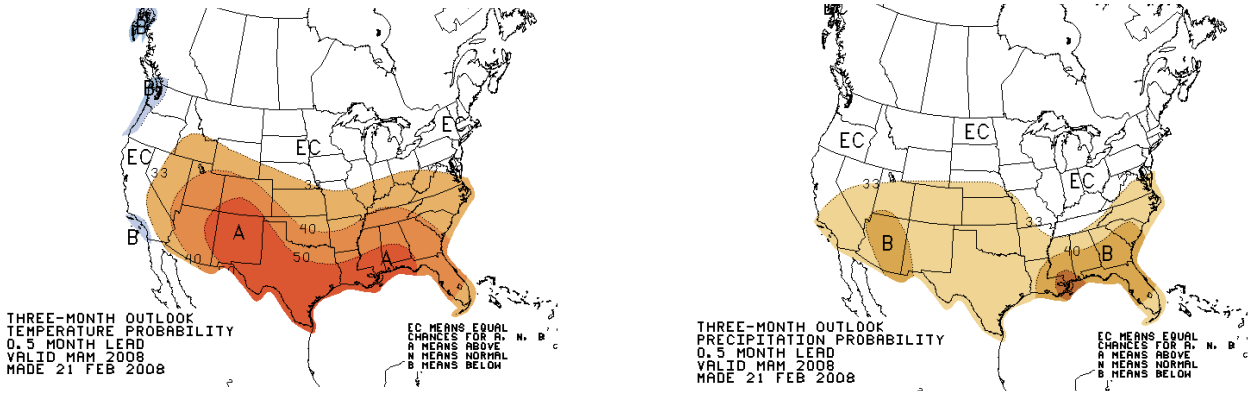
Rankings are for the period of record for each station, which may vary in the number of years. Only years at least 90% complete for the calculated time period were used for each station. The number of years and the appropriate ranking for each variable are given. Ranks are from Highest (1) to Lowest (n)

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

ACIS
Applied Climate Information System - NOAA Regional Climate Centers

Climate Outlook

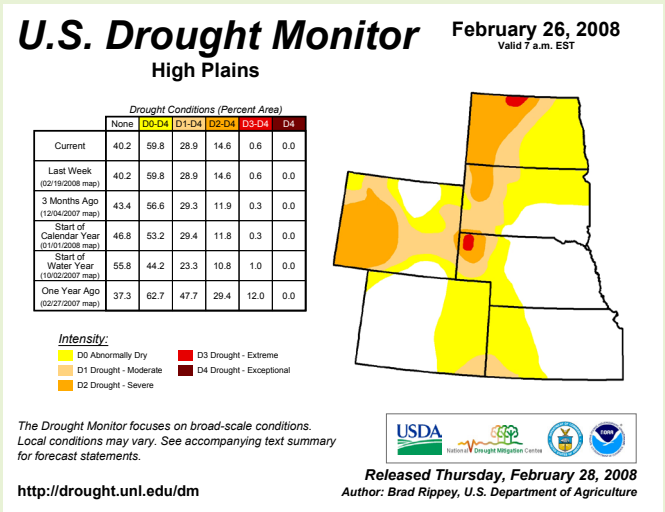
With La Nina ENSO conditions expected for the remainder of the cold season, as NOAA forecasters continue to call for above-average temperatures and dryer than normal conditions for much of the southern High Plains, extending from Central Nebraska south through Kansas and Colorado. This winter outlook is produced by scientists at the NOAA Climate Prediction Center. More information can be found here: http://www.cpc.ncep.noaa.gov/.

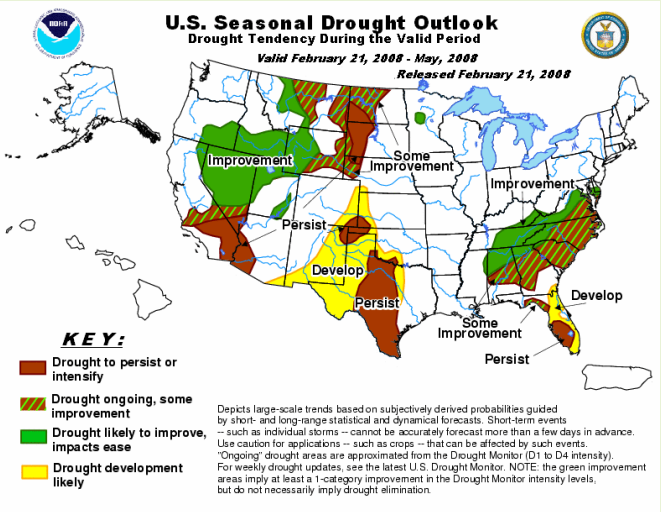


Above: 3-Month Outlook Maps Courtesy the NOAA Climate Prediction Center - http://www.cpc.ncep.noaa.gov
(left) The Three-Month Temperature Probability Outlook showing a higher probability of above-normal temperatures for southern parts of the High Plains region, decreasing probabilities as we head north. (right) The Three-Month Precipitation Probabilities showing equal chances of above or below normal precipitation for most of the Northern High Plains, but increased probabilities of drier than normal conditions in portions of Central Nebraska south through Colorado and Kansas.

Drought Watch

Almost no changes to the Drought Monitor during the month of February for the High Plains region. Some categorical improvement is expected in western portions of the Dakotas in through May 2008, according to the U.S. Seasonal Drought Outlook released February 21. An even higher likelihood of categorical improvement is expected in western Wyoming. Persisting drought conditions are expected in North Central ND, with possible intensification in portions of Southwest Kansas and Southeast Colorado. A change from expected improvement to continued drought persistence occurred between the January Drought Outlook and the February release, possibly a result of a drier than expected February conditions for western South and North Dakota.





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 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	33.2	0.0	16.6	-6.0	47	2/29	-24	2/7	0.57	0.35	259
Akron Washington County Airport	41.9	20.0	31.0	-1.3	60	2/29	5	2/7+	0.01	-0.37	3
Colorado Springs Municipal Airport	47.0	18.3	32.7	0.9	63	2/13	3	2/6	0.19	-0.18	51
Grand Junction Walker Field Airport	40.9	23.0	32.0	-2.3	59	2/29	7	2/7	0.61	0.09	117
Pueblo Memorial Airport	52.7	15.1	33.9	-0.8	68	2/13	-6	2/6	0.25	-0.03	89

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	40.1	19.8	29.9	-2.6	59	2/19	7	2/20	0.34	-0.44	44
Dodge City Regional Airport	49.0	21.7	35.3	-0.8	64	2/28	8	2/6	0.61	-0.09	87
Goodland Renner Field	45.4	18.4	31.9	-0.6	63	2/24	4	2/6+	0.49	0.02	104
Topeka Municipal Airport	39.9	20.0	29.9	-3.6	68	2/24	6	2/7+	3.32	2.08	268
Wichita Mid-Continent Airport	45.7	23.9	34.8	-1.7	68	2/4	2	2/1	1.57	0.49	145

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Scottsbluff Helig Airport	41.7	16.7	29.2	-0.9	60	2/29	0	2/6	0.33	-0.28	54
Grand Island Airport	37.5	17.9	27.7	-0.7	59	2/24	-1	2/20	0.29	-0.43	40
Lincoln Municipal Airport	36.5	14.6	25.6	-2.9	55	2/24	-3	2/20	0.55	-0.15	79
Omaha Eppley International Airport	31.5	12.6	22.0	-6.1	49	2/24	-8	2/20	0.59	-0.26	69
Norfolk Karl Stefan Airport	32.6	12.2	22.4	-4.2	55	2/24	-9	2/20	0.33	-0.47	41
North Platte Regional Airport	44.3	13.9	29.1	-0.4	63	2/24	-5	2/6	0.05	-0.49	9
Valentine Miller Field	38.9	12.0	25.4	-1.3	59	2/23	-11	2/12	0.48	-0.02	96

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	26.1	2.8	14.4	-3.8	44	2/24	-23	2/20	0.41	-0.12	77
Dickinson Municipal Airport	30.8	5.0	17.9	-3.4	51	2/23	-11	2/20+	0.04	-0.40	9
Fargo International Airport	17.2	-2.3	7.4	-6.8	35	2/16	-31	2/20	0.67	0.05	108
Grand Forks International Airport	14.9	-7.0	4.0	-9.3	35	2/16	-33	2/20	0.61	0.00	100
Williston International Airport	26.2	-1.4	12.4	-4.6	45	2/29	-22	2/10	0.27	-0.14	66

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.

February 2008 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	24.0	0.01	12.1	-6.8	41	2/29+	-26	2/20	0.24	-0.27	47
Huron Regional Airport	29.3	6.0	17.7	-3.5	55	2/28	-20	2/20	0.24	-0.36	40
Rapid City Regional Airport	39.1	13.1	26.1	-1.3	56	2/28	-1	2/10+	0.51	0.03	106
Sioux Falls Joe Foss Field Airport	24.9	4.8	14.8	-6.2	42	2/29	-19	2/20	0.57	0.03	106

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	37.9	17.6	27.8	0.9	51	2/29+	3	2/15+	0.37	-0.30	55
Cheyenne Airport	40.8	19.1	30.0	1.1	58	2/13	6	2/5	0.17	-0.29	37
Lander Hunt Field Airport	36.7	14.0	25.3	-0.4	51	2/28+	-1	2/5	0.69	0.13	123
Laramie Regional Airport	32.3	10.8	21.5	-1.9	48	2/29	-13	2/15	0.16	-0.32	33
Rawlins Municipal Airport	29.2	12.6	20.9	-5.3	41	2/29	-11	2/5	0.00	-0.53	0
Sheridan County Airport	38.7	14.9	26.8	-0.2	51	2/27	-4	2/10+	0.35	-0.25	58

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February 2008 Climate Summary

State Spotlight - Nebraska

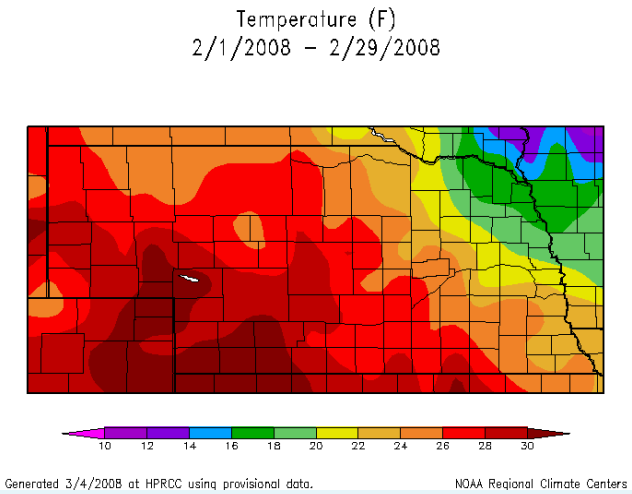
Al Dutcher - State Climatologist
Nebraska State Climate Office, University of Nebraska - Lincoln

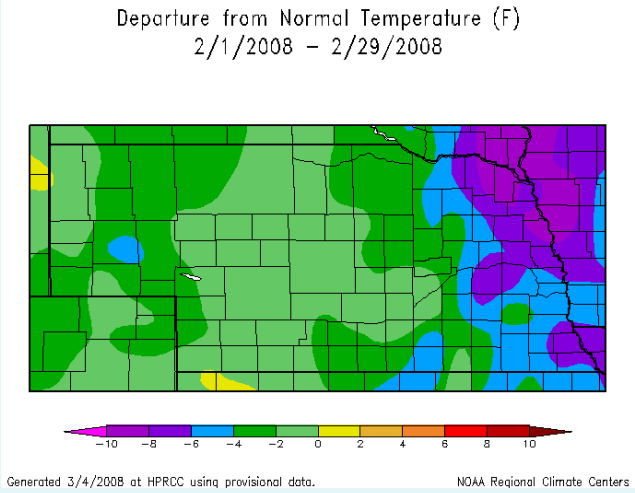
February average temperatures came in below normal across Nebraska, continuing the trend of December and January. Extreme eastern Nebraska experienced departures in the 6 to 8 F range, 3 to 6 F for the eastern third of the state, and less than 3 F for the remainder of Nebraska. Preliminary reports indicate that the lowest recorded temperature -16 F at the Northeast Research and Extension Center located in Concord on the 24th, while the highest recorded temperature was 67 F at Big Springs on the 14th.

Precipitation during the month of February was generally below normal, as only 12 of 82 locations with preliminary data recorded above normal values. Although numerous frontal boundaries swept through the state on a predominately northwest flow, significant moisture remained east of Nebraska. The greatest monthly snowfall total came Salem with 7.5 inches, which is located in southeastern Nebraska. Southeastern Nebraska was on the western fringe of several strong low pressure systems that brought significant snow activity to Iowa and Illinois.

With February marking the end of the winter (NWS standard), temperature statistics from the six present or former NWS field office attest to this winters severity. The following summary lists the station name, mean winter temperature, rank (1 = coldest), and valid years of comparable data: Lincoln (24.1 F, 12/42); Omaha (21.6 F, 9/73); Norfolk (20.2 F, 12/60); Grand Island (23.8 F, 29/112); North Platte (24.3 F, 21/60); Scottsbluff (22.6 F, 4/110); Valentine (22.5 F, 45/118).

Energy demand as measured by Heating Degree Day units, base 65 F, also were greater than the 1971-2000 normal for all six locations and greater than the previous winter at 5 of the 6 locations. The following summary lists the station name, December-February energy demand as compared to normal, and December-February energy demand as compared to last winter: Lincoln (4.0%, 9.3%); Omaha (8.7%, 11.8%); Norfolk (8.1%, 12.4%); Grand Island (5.0%, 8.8%); North Platte (3.6%, -2.9%); Scottsbluff (12.4%, 11.0%); Valentine (2.0%, 1.7%).





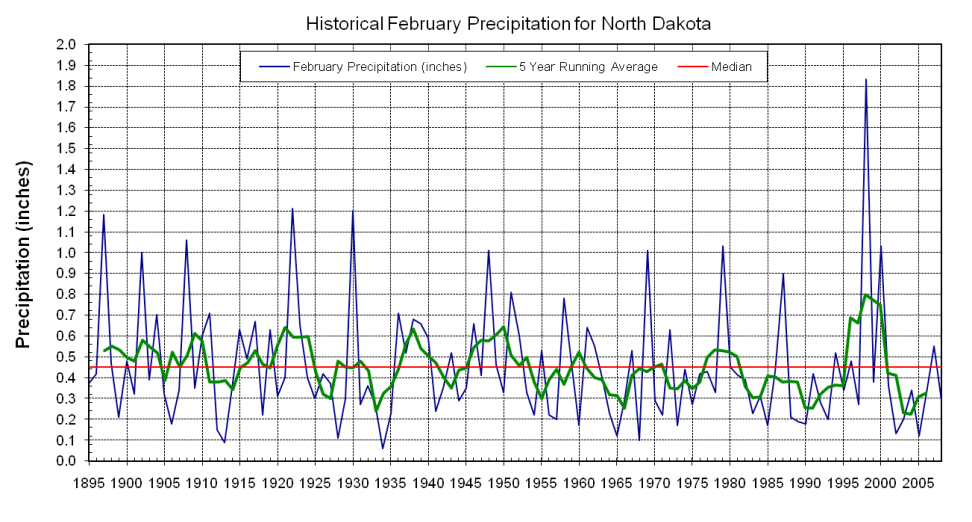
Above: Current Climate Summary Maps showing Average Temperature (F) for February 2008 (left) and February 2008 Departure from 1971-2000 Normal Average February Temperature. Current Climate Summary Maps are available from the High Plains Regional Climate Center Website at: http://hprcc.unl.edu/maps/current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

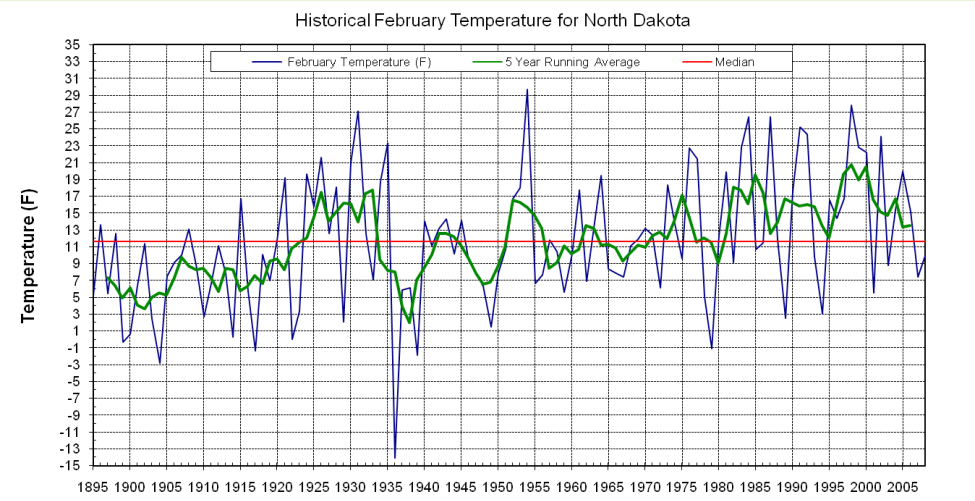
State Spotlight - North Dakota

Barb Mullins
North Dakota State Climate Office, North Dakota State University

The western region was extremely dry with most areas receiving a tenth to a quarter of an inch of liquid precipitation. A couple of isolated western locations received around a half inch. Areas in the central and north central regions had from 0.5 to 0.8 inches of precipitation. One isolated snow storm on the 14th produced up to 6 inches of snowfall in the north central region. The south central region had precipitation amounts around a quarter inch and less. The eastern central regions had 0.5 to 0.7 inches of liquid precipitation. The north eastern and south eastern regions had around a quarter inch. The U.S. drought monitor indicates that the western half of North Dakota is in severe drought with the northwest in extreme drought. The eastern region is abnormally dry with the southeast corner in moderate drought conditions. The February state average precipitation was 0.29" which is below the 1971-2000 normal state average of 0.45". The month ended as the 33rd driest in the past 114 years. Historically, the February state average precipitation ranged from the highest value of 1.83" in 1998 to the lowest amount of 0.06" in 1934.

The average daily air temperatures from February 1st through the 8th were near normal. A cold streak ran from February 9th through the 22nd, minus a brief warm up on February 16th and 17th. Record low temperatures were set on the 20th at Grand Forks, Devils Lake, and Fargo of -33, -34, and -31˚F, respectively. Record lows were also set on the 21st at Grand Forks and Fargo of -10 and -9 ˚F, respectively. The average daily air temperatures from the 23rd through the end of the month were near normal. Overall, average monthly air temperatures were below normal across the State. Departure from normal average air temperatures ranged from -1 in the Southwest to -9 in the Northeast. The February state average air temperature was 9.9˚ F which is below the 1971-2000 normal of 15.4˚ F. The month ended as the 49th coolest in the past 114 years. In the past 114 years, the state average air temperature ranged from a maximum air temperature of 29.7 ˚F in 1954 and a minimum of -14.1 ˚F in 1936.





All graphs in this section courtesy the North Dakota State Climate Office
For more information about the North Dakota State Climate Office: http://www.ndsu.edu/ndsco
For more information on the North Dakota Agricultural Network: http://www.ndawn.ndsu.nodak.edu
The North Dakota Agricultural Network is a part of the Automated Weather Data Network (AWDN).

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 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
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

Elk Mountain, Wyoming AWDN Station February 2008 - Photo taken by Rod Oliver, Wyoming State Engineer's Office

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