



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



Snow Melts off the Roads in Rural Lancaster County, NE - Photo by Ken Dewey  
<http://www.nebraskaweatherphotos.org>

# January 2008 Climate Summary

## Region Breakdown

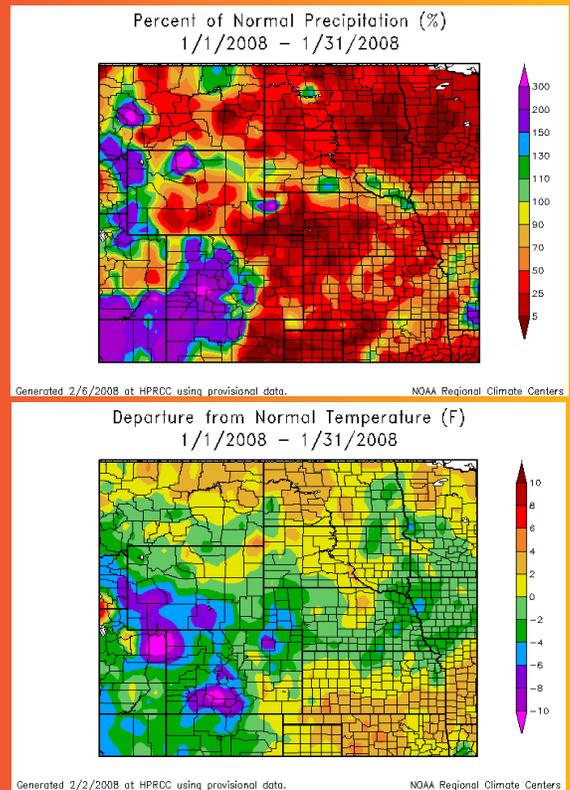
Cold temperatures dominated most of January for Colorado and Wyoming, with beneficial snows in the mountains of central and western Colorado and Wyoming. For Southwest and South Central Colorado the average temperature for January was 8-10F below the 1971-2000 normal

In Nebraska and the Dakotas, a period of unusually warm weather in the last week of January moderated the average temperature for January, with highs reaching into the 50's for several locations before a dramatic drop of close to 60F with the passing of a cold front on January 28.

Most of Kansas saw near-normal temperatures on average, but experienced large temperature swings similar to Nebraska and the Dakotas.

Eastern Colorado, Western and Central Nebraska, and North/South Dakota were below normal with very little precipitation, if any, falling, while areas along the NE/SD border received near normal amounts of precipitation. Cold temperatures allowed snow cover from December, along with some snowfall associated with the frontal passage in late January to persist in Central/Northeastern Nebraska for almost all of January.

Departure from 1971-2000 Normal Mean Average Temperature (bottom) and Percent of Normal Total Precipitation (top) for January 2008 in the High Plains Region. Map by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>



# Precipitation Summary

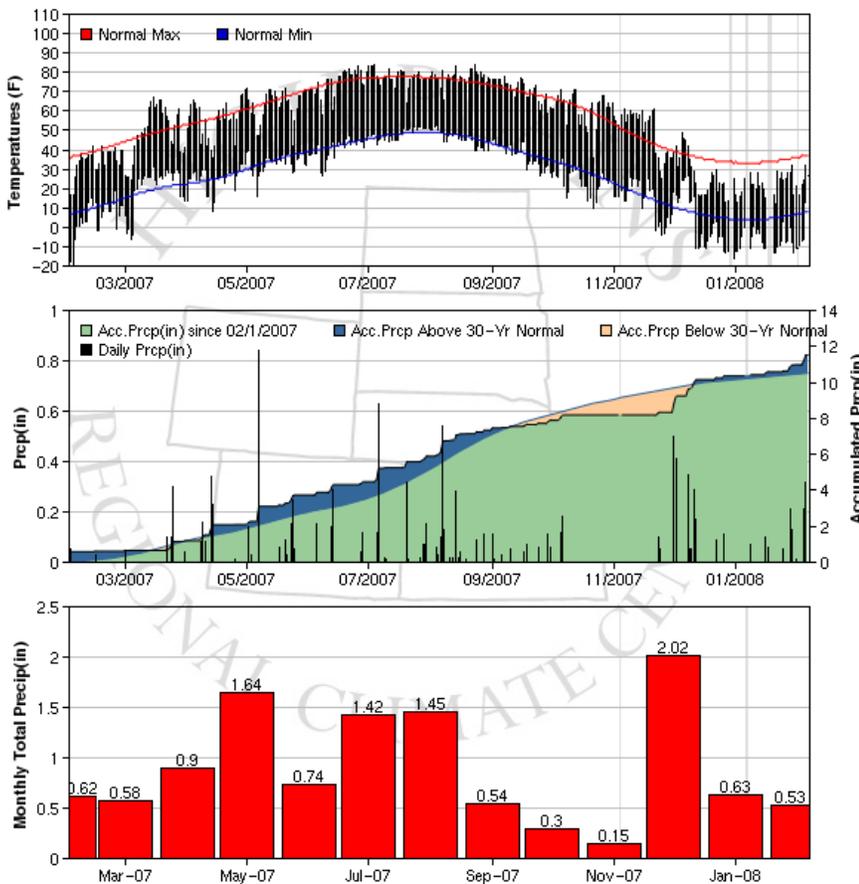
January 2008 was dry for portions of Central/Western Nebraska, eastern Colorado, and the Dakotas. Colorado was a state divided. The mountain regions of west-central CO received 150-200% of normal precipitation, while the high plains of eastern CO received next to nothing.

Although Nebraska appears dry for much of January, the cold temperatures that dominated for half of the month, coupled with snowfall from December 2007 allowed many locations to retain snow cover for the entire month of January, with the exception of the urban areas of Lincoln and Omaha, where warm temperatures at the end of January made a rapid dent in the snow cover.

Most locations in Colorado had their biggest snowfall day of the month January 7th - 9th, with the Colorado Drainage Basin as the big winner, with most locations at 150%-200% of Normal. Crested Butte, Colorado in the Colorado Drainage Basin reported 73.7 inches of snowfall in January 2008.

Areas of Western Wyoming also won out, with 150-200% of normal precipitation. Moose, WY (near Yellowstone) saw an impressive 5.93 inches of liquid precipitation, helping to fill a rainfall deficit that accumulated there in 2007.

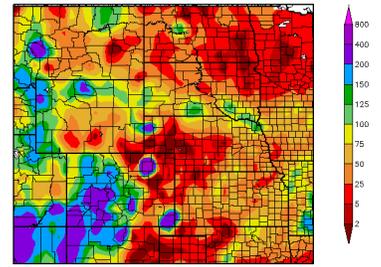
## DEL NORTE 2E, CO



Normals based up 1971-2000 Normals, if available  
 Grey Shading indicates where data are flagged as "Missing"  
 Accumulated Precip (where available) may not reflect actual deviations from normal if data are missing <http://hprcc.unl.edu>

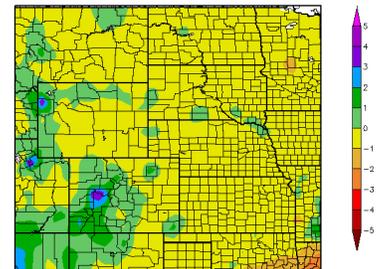
"Experimental" May Contain Preliminary Data  
 High Plains Regional Climate Center

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



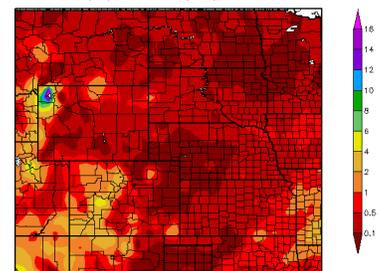
Generated 2/2/2008 at HPRCC using provisional data. NOAA Regional Climate Centers

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



Generated 2/2/2008 at HPRCC using provisional data. NOAA Regional Climate Centers

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



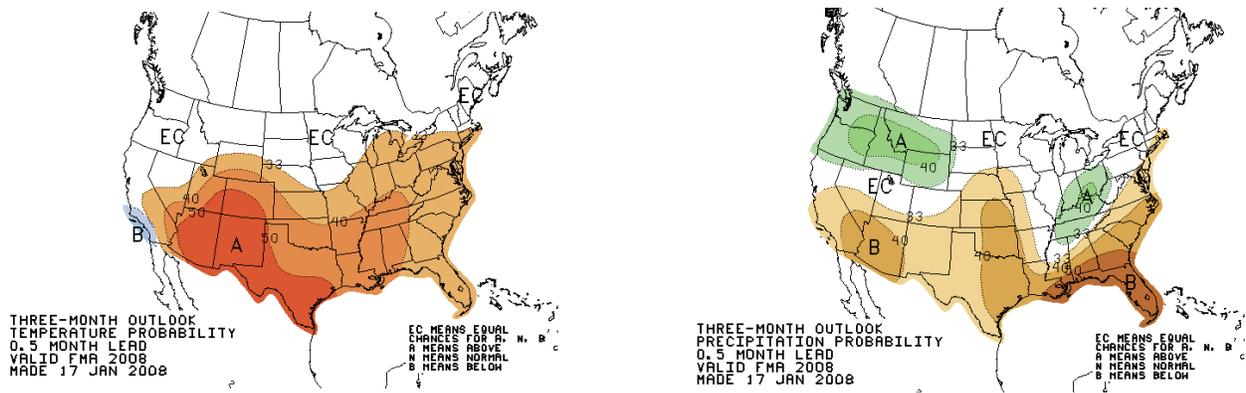
Generated 2/2/2008 at HPRCC using provisional data. NOAA Regional Climate Centers

From Top: Percent of Normal Precipitation (using 1971-2000 Normals), Departure from Normal Precipitation (in inches), and Precipitation Amounts (in inches) for January 2008 in the High Plains Region. These maps are produced by HPRCC and can be found on the Current Climate Summary Map page at: <http://hprcc.unl.edu/maps/current>

Left: Climatological Diagram of Del Norte 2E Cooperative Observer Station from SW Colorado. The impressive cold period that dominated the SW Colorado region can be clearly seen.

# Climate Outlook

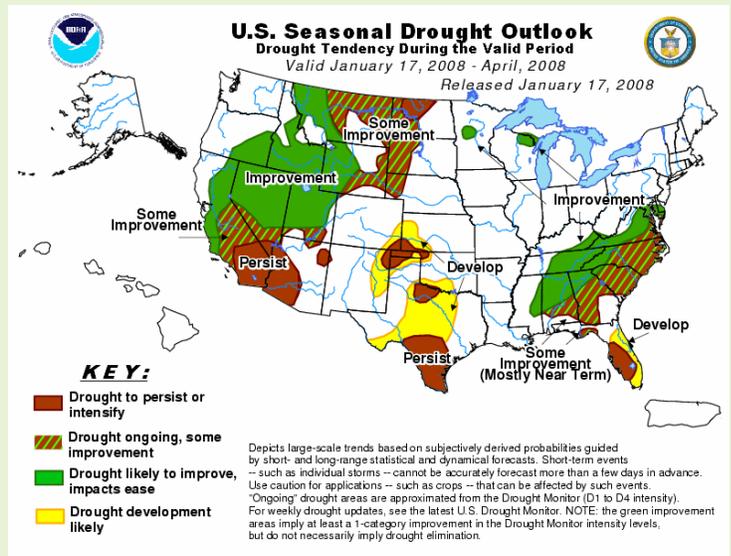
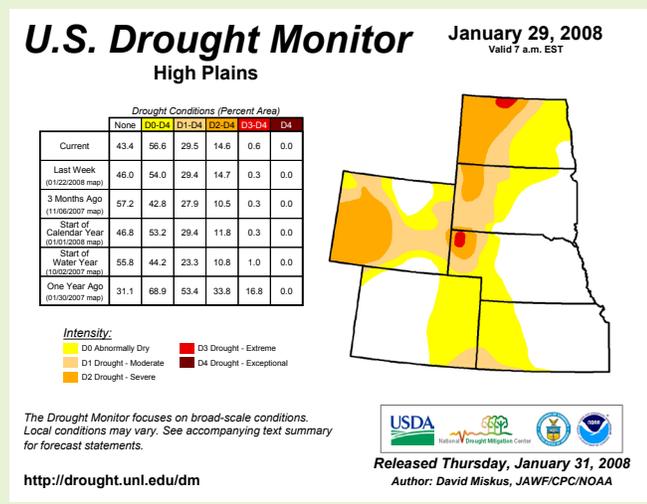
With La Nina ENSO conditions expected for the remainder of the cold season, as NOAA forecasters continue to call for above-average temperatures and dryer than normal conditions for much of the southern High Plains. A greater chance of above normal precipitation is expected in Wyoming. This winter outlook 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 some 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 high plains, with an increased probability of below normal precipitation across the states of Nebraska, Kansas and southern Colorado.

## Drought Watch

Continued degradation occurred in portions of western ND as January remained dry. Some categorical improvement is expected in western portions of the Dakotas in through April 2008, according to the U.S. Seasonal Drought Outlook released January 17. 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.



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	23.5	-12.2	5.6	-9.1	40	1/5	-32	1/17	0.29	0.04	116
Akron Washington County Airport	32.5	12.0	22.3	-4.8	51	1/27	-10	1/21	0.05	-0.28	15
Colorado Springs Municipal Airport	39.4	14.0	26.7	-1.4	63	1/27	-7	1/17	0.34	0.06	121
Grand Junction Walker Field Airport	31.3	11.7	21.5	-4.6	47	1/5	-1	1/17	0.63	0.03	105
Pueblo Memorial Airport	44.8	10.1	27.5	-1.8	69	1/27	-9	1/17	0.19	-0.14	58

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	36.0	16.7	26.4	-0.3	71	1/28	-3	1/24	0.34	-0.32	52
Dodge City Regional Airport	45.6	20.0	32.8	2.7	74	1/28	4	1/22+	0.17	-0.45	27
Goodland Renner Field	40.7	14.9	27.8	0.2	67	1/27	-4	1/22	0.12	-0.31	28
Topeka Municipal Airport	39.4	17.9	28.7	1.5	62	1/28	-6	1/19	0.66	-0.29	69
Wichita Mid-Continent Airport	44.3	20.9	32.6	2.4	64	1/28+	4	1/24	0.39	-0.45	46

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Muni Airport	30.9	6.6	18.8	-4.0	51	1/5	-16	1/22	0.01	-0.45	2
Grand Island Airport	30.4	11.4	20.9	-1.5	48	1/28	-6	1/19	0.34	-0.20	63
Lincoln Municipal Airport	32.8	12.4	22.6	0.2	60	1/28	-10	1/24	0.44	-0.23	66
Omaha Eppley International Airport	29.8	10.0	19.9	-1.8	57	1/28	-8	1/24+	0.29	-0.48	38
Norfolk Karl Stefan Airport	28.3	8.1	18.2	-2.2	47	1/28	-17	1/24	0.41	-0.16	72
North Platte Regional Airport	37.4	9.0	23.2	0.0	60	1/28	-8	1/22	0.03	-0.36	8
Valentine Miller Field	34.1	6.4	20.2	-0.6	54	1/28+	-20	1/24	0.24	-0.06	80

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	24.1	-0.7	11.7	1.5	48	1/27	-21	1/19	0.11	-0.34	24
Dickinson Municipal Airport	29.9	3.6	16.8	2.6	56	1/4	-23	1/29	0.00	-0.37	0
Fargo International Airport	15.5	-2.6	6.5	-0.4	38	1/6	-25	1/20	0.09	-0.67	12
Grand Forks International Airport	13.2	-6.2	3.5	-1.8	39	1/6	-26	1/30	0.05	-0.63	7
Williston International Airport	24.0	-2.3	10.9	2.9	48	1/4	-28	1/29	0.19	-0.35	35

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>.

# January 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	20.2	-5.7	7.2	-3.8	42	1/28	-25	1/24	0.07	-0.41	15
Huron Regional Airport	25.6	2.5	14.0	-0.1	53	1/28	-19	1/24	0.17	-0.32	35
Rapid City Regional Airport	34.6	8.3	21.4	-1.0	60	1/5	-17	1/22	0.34	-0.03	92
Sioux Falls Joe Foss Field Airport	23.5	3.9	13.7	-0.3	43	1/6	-19	1/24	0.23	-0.28	45

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	30.7	10.3	20.5	-1.8	48	1/5	-11	1/21	0.30	-0.28	52
Cheyenne Airport	34.1	12.8	23.4	-2.5	54	1/27	-8	1/22	0.02	-0.43	4
Lander Hunt Field Airport	--	--	--	--	--	--	--	--	0.21	-0.31	40
Laramie Regional Airport	27.5	4.9	16.2	-4.2	43	1/27+	-18	1/22	0.05	-0.33	13
Rawlins Municipal Airport	24.2	7.3	15.7	-7.3	39	1/5	-19	1/22	0.02	-0.54	4
Sheridan County Airport	--	--	--	--	--	--	--	--	0.70	-0.07	91

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Source: National Weather Service Cooperative Observation Network Data

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

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## State Spotlight - South Dakota

**Dennis Today- State Climatologist**  
**South Dakota State Climate Office, South Dakota State University**



January was a month of extremes in temperature across the state. Both very warm and very cold temperatures occurred during the month. All of the state experienced very cold temperatures for several days with nearly the whole state falling below -10 F and much of the state going below -20 F. In contrast much of the state also experienced temperatures above 40 and above 50 F. During the month average temperatures were within 2 F of average over the whole state with the eastern quarter and areas in an adjacent to the Black Hills below average and the rest of the state above average.

The most extreme case of this variability was a cold frontal passage on January 28. Pre-frontal temperatures reached into the 50s in western South Dakota. But after the cold frontal passage, winds rapidly switched to the northwest bringing much colder air temperatures. Temperatures dropped by over 60 F in less than 24 hours. Antelope Range Research farm experienced the most extreme swing dropping 67 F in 20 hours. While temperatures did become very cold during two stretches in the month only one record was tied at -26 F Yankton on January 24.

Current snow cover is similar to December with most of the cover in the east and far west with some along the southern border with Nebraska. Snow cover was minimal or non-existent in some of the winter wheat areas during the periods of extremely cold temperatures introducing the possibility of damage to these crops.

Overall precipitation totals were relatively modest. A few locations reported over a half inch for the month. While above average for January, this will do little to change ongoing drought conditions. Most locations received much less than this, though.

For more information on the South Dakota State Climate Office, Please see: <http://climate.sdstate.edu>

The SDSU's AWDN is a part of the High Plains Automated Weather Data Network (AWDN). Data is available through SDSU or the High Plains Regional Climate Center.

## State Spotlight - Nebraska

**Al Dutcher - State Climatologist**

**Nebraska State Climate Office, University of Nebraska - Lincoln**

Preliminary climate data for the month of January 2008 indicates colder than normal temperatures and below normal precipitation were the rule of thumb. However, deeper inspection of the temperature data reveals that the first 15 days were dominated by unusual warmth, only to be followed by bitter cold. Average temperatures for the first two weeks of January came in at 3 to 6 degrees above normal, while the final two weeks came in at 5 to 10 degrees below normal.

For the month of January, average temperatures ranged from 0.5 degrees above normal across extreme southern locations to 5 degrees below normal for the northeastern corner of Nebraska. The maximum temperature recorded during the month was 65 F at Merna on the 27th, while the minimum temperature recorded was -23 F at Agate on the 27th. Therefore, a 88 F swing in temperatures was observed across the state within a 24-hour period. No less than 68 stations had a least one day of minimum temperatures of -10 F or lower, with 19 stations reaching at least -15 F.

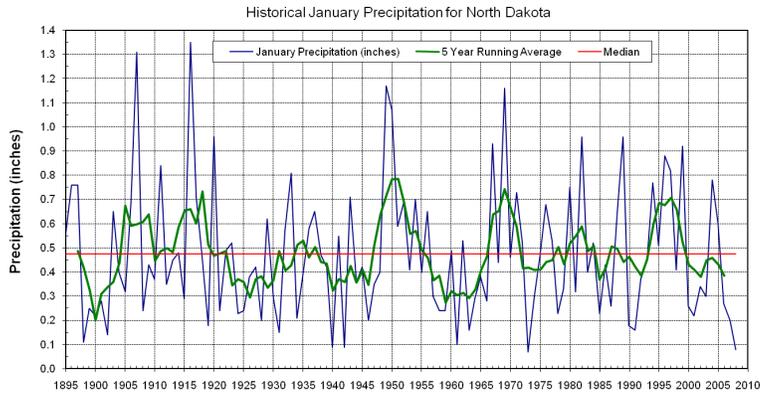
Little significant moisture was recorded during the first 15 days of the month as much of the central Plains remained under the dominance of high pressure. A strong polar jet developed during the middle of the month and brought reinforcing shots of cold air with frequent clippers in the northwesterly flow aloft. The maximum 24-hour snowfall currently reported was 6.7 inches at Butte on the 21st, but unofficial reports approached 10 inches with the same storm system across northeastern Nebraska. The vast majority of stations failed to recorded more than 2 inches of snow with any individual frontal passage.

Preliminary cooperative observation data indicates that only 3 recording sites across the state received above normal moisture (Agate, David City, and Wakefield). The driest region of the state continues to be the Panhandle and western Sandhills with total liquid moisture amounts averaging less than 0.10 inches. Eight stations failed to received measurable moisture across the Panhandle, with 17 of 22 reporting sites receiving less than a tenth of an inch of moisture. The greatest monthly moisture total was 1.03 inches at Agate, with the next highest total being 0.88 inches at Wakefield.

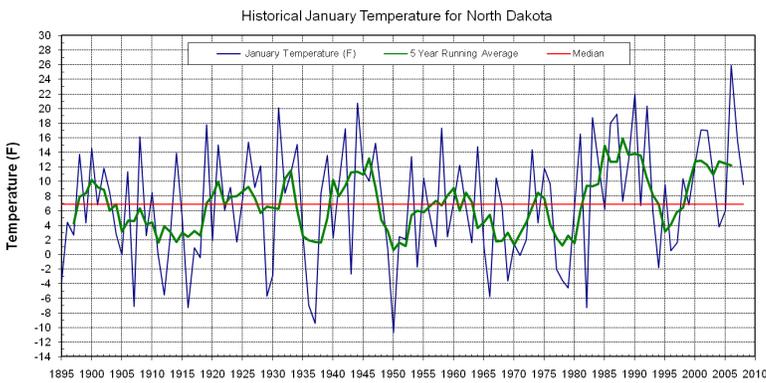
# State Spotlight - North Dakota



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

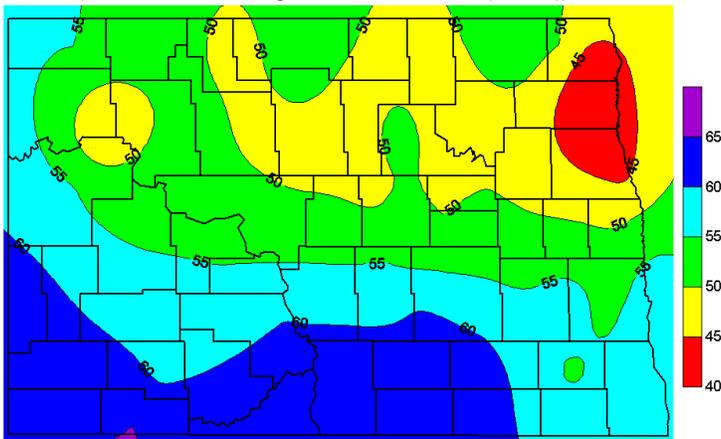


The January state average precipitation was 0.08 inches which was well below the 1971-2000 normal state average of 0.50 inches. The first 10 days of January were dry with very little snowfall, while the middle had scattered snow. The last few days of January were relatively dry except for the 28th and 29th in which snow fell in some areas. Nearly the entire state had 50% or less percent of normal precipitation. January precipitation ranked the 2nd driest in the past 114 years. The maximum precipitation was 1.35 inches in 1916 and the minimum was 0.07 inches in 1973.



January began with roughly six days of a warming trend where average temperatures rose into the 20's and 30's. After the sixth, the temperatures gradually trended cooler until around the 20th. A sharp warming took place on the 27th putting maximum air temperatures in the 30's and 40's across the state. On the 28th an arctic cold front past through North Dakota that dropped temperatures from the morning of the 28th to the morning of the 29th by 63 degrees in the southwest to 43 degrees in the northeast (see figure). Even with the cold air, the state average January air temperature was 9.6 °F which is above the 1971-2000 normal state average temperature of 7.9 °F. January 2007 ranked the 46th warmest in the past 114 years. The maximum state average was 25.9 °F in 2006 and the minimum was -10.7 °F in 1950.

**North Dakota January 28, 2008 Cold Snap**  
 28th Daily Maximum minus 29th Daily Minimum Temperature (F)  
 (Data from North Dakota Agricultural Weather Network (NDAWN))



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>



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

## Author Information

For questions, comments or suggestions, please contact:  
Christy Carlson - Regional Climatologist - High Plains Regional Climate Center  
(402) 472-6709 - [ccarlson6@unl.edu](mailto:ccarlson6@unl.edu)  
712 Hardin Hall  
3310 Holdrege Street  
Lincoln, NE 68583-0997