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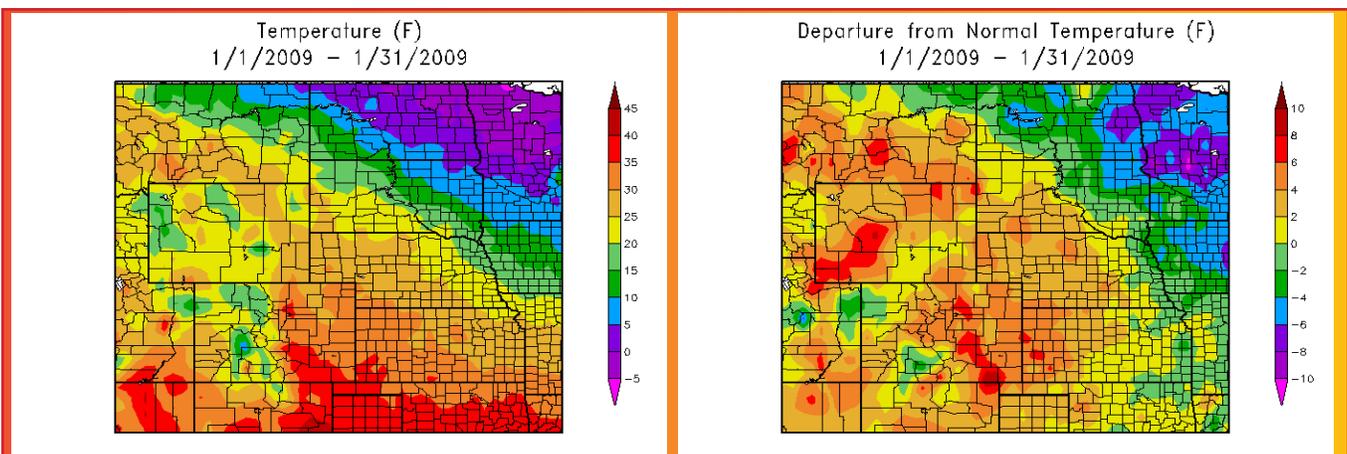
Southeast Nebraska - Photo by Ken Dewey
<http://www.nebraskaweatherphotos.org>

January 2009 Climate Summary

Region Breakdown

The majority of the High Plains region had average monthly temperatures which ranged from 6°F to 8°F above normal. Meanwhile, areas which were dominated by northwest flow had temperature departures of 2°F to 8°F below normal. An intrusion of arctic air in mid-January led to several daily minimum temperature records. One daily record includes Bismarck, ND which recorded a low temperature of -44°F on January 15th.

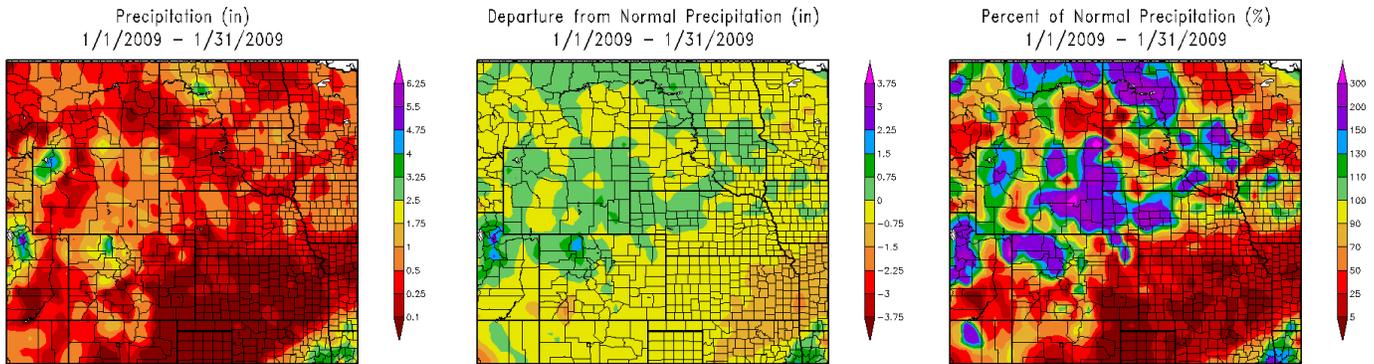
South Dakota was a state divided as the western half had above normal average monthly temperatures and the eastern half had below normal average monthly temperatures. For instance, Spearfish, which is located on the far western edge of the state, recorded an average temperature of 31.3°F which was the 8th warmest January on record. Meanwhile, Victor 4 NNE, which is located in the far northeast corner of the state, recorded an average temperature of 1.8°F which was the 3rd coldest January on record.



Departure from 1971-2000 Normal Mean Average Temperature (left) and Percent of 1971-2000 Normal Total Precipitation (right) for January 2009 in the High Plains Region. Map by High Plains Regional Climate Center. Available at: <http://hprcc.unl.edu/maps/current>

Precipitation Summary

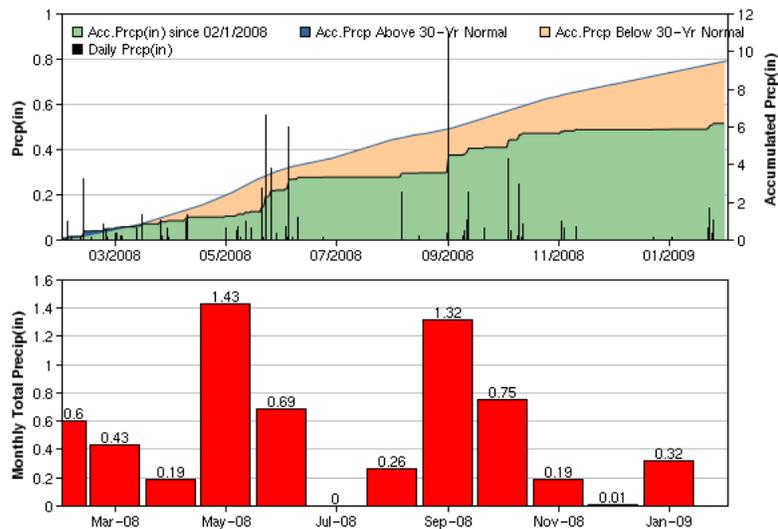
Areas that received above normal precipitation this month included northwestern North Dakota, western South Dakota, eastern Wyoming, northwestern Colorado, and the panhandle of Nebraska. The Waubay National Wildlife Refuge in South Dakota recorded its wettest January and received 2.22 inches of liquid equivalent precipitation, or 396% of normal precipitation.



Above: Total precipitation (in inches) (left), Departure from Normal Precipitation (middle), and Percent of Normal Precipitation (using 1971-2000 Normals) (right) for January 2009 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>.

Little to no precipitation fell across a large area of the High Plains this month as much of the southern portion of the region and areas of the Dakotas and Wyoming received less than 50% of normal precipitation. Because of the dearth of precipitation, drought conditions persist across western North Dakota, western Wyoming, and southeastern Colorado.

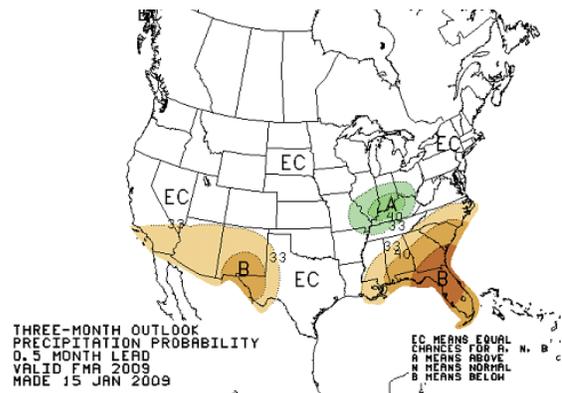
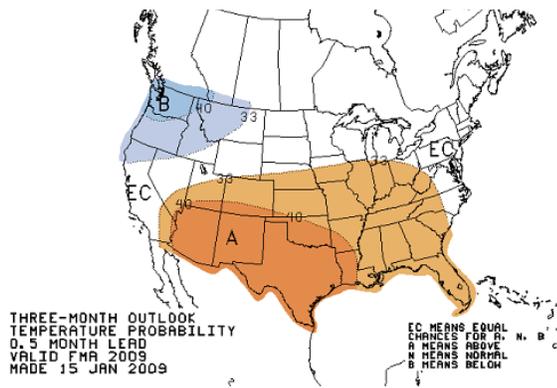
ROCK SPRINGS AP, WY



Above: This graph shows the growing deficit of precipitation as compared to the 1971-2000 Normals for precipitation from January 1, 2008 - January 31 2009 for Rock Springs Airport, WY. While the eastern portion of Wyoming received ample precipitation, this drought stricken area has seen little relief.

Climate Outlook

La Niña conditions have developed and are expected to continue through Spring 2009. NOAA forecasters are predicting chances of above normal temperatures for Kansas, Colorado, and most of Nebraska. Equal chances of above, near, or below normal temperatures are predicted for the remainder of the region. Equal chances of above, near, or below normal precipitation exist for the entire High Plains region. This outlook is produced by scientists at the NOAA Climate Prediction Center. More information can be found here: <http://www.cpc.ncep.noaa.gov/>.

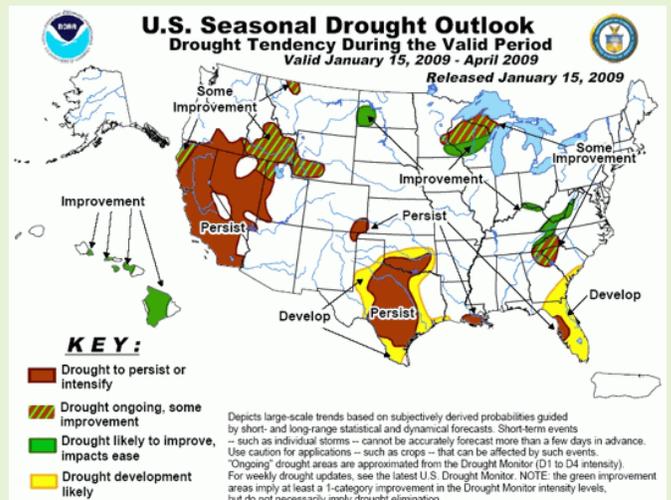
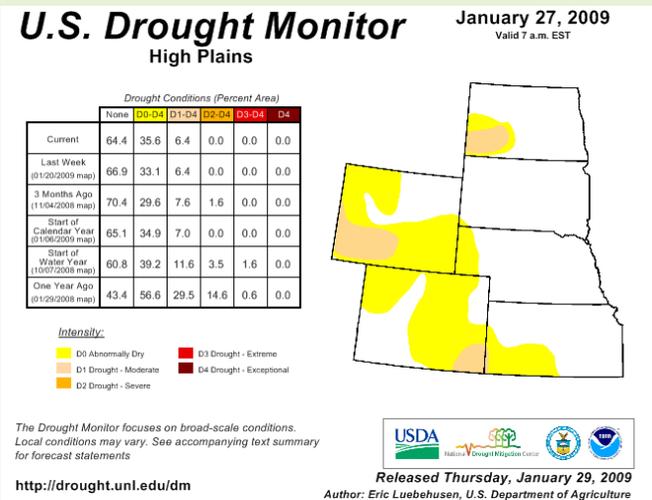


Above: 3-Month Outlook Maps Courtesy the NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>

- (left) The Three-Month Temperature Probability Outlook showing a higher probability of above normal temperatures for a portion of the southern High Plains region.
- (right) The Three-Month Precipitation Probability Outlook showing equal chances of above, near, or below normal precipitation for the entire High Plains region.

Drought Watch

Moderate drought (D1) persists in southwestern North Dakota, southwestern Wyoming, and southeastern Colorado. Some categorical improvement is expected in southwestern Wyoming through April 2009, according to the U.S. Seasonal Drought Outlook released January 15. An even higher likelihood of improvement is expected in southwestern North Dakota. Persisting drought conditions are expected in the southeast corner of 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	36.6	2.5	19.6	4.9	51	1/23	-13	1/10	0.10	-0.15	40
Akron Washington County Airport	44.7	18.5	31.6	4.5	66	1/22	0	1/27	0.03	-0.30	9
Colorado Springs Municipal Airport	47.4	20.5	34.0	5.9	70	1/21	-5	1/27	0.09	-0.19	32
Grand Junction Walker Field Airport	35.2	14.2	24.7	-1.4	50	1/25	-4	1/05	0.31	-0.29	52
Pueblo Memorial Airport	52.6	16.3	34.5	5.2	75	1/21	0	1/27	0.04	-0.29	12

Kansas	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Concordia Municipal Airport	42.2	17.2	29.7	3.1	68	1/31	1	1/15	0.01	-0.65	2
Dodge City Regional Airport	50.1	18.7	34.4	4.3	70	1/22	3	1/27	0.02	-0.60	3
Goodland Renner Field	48.1	17.2	32.6	5.0	73	1/22	-4	1/27	0.11	-0.32	26
Topeka Municipal Airport	41.7	17.3	29.5	2.3	73	1/31	0	1/15	0.12	-0.83	13
Wichita Mid-Continent Airport	44.7	19.6	32.2	2	71	1/31	3	1/28	0.08	-0.76	10

Nebraska	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Chadron Municipal Airport	41.2	11.9	26.5	3.7	69	1/21	-23	1/27	0.17	-0.29	37
Grand Island Airport	39.3	13.8	26.5	4.2	59	1/31+	-6	1/24	0.30	-0.24	56
Lincoln Municipal Airport	36.7	11.1	23.9	1.5	60	1/22	-9	1/15	0.38	-0.29	57
Omaha Eppley International Airport	31.7	9.8	20.8	-1.0	55	1/31	-16	1/15	0.27	-0.50	35
Norfolk Karl Stefan Airport	33.4	9.7	21.5	1.1	52	1/22	-14	1/15	0.64	0.07	112
North Platte Regional Airport	43.1	11.7	27.4	4.2	64	1/08	-4	1/28+	0.33	-0.06	85
Valentine Miller Field	39.6	9.5	24.5	3.7	63	1/21+	-16	1/27	0.41	0.11	137

North Dakota	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	% Norm
Bismark Municipal Airport	19.8	-2.4	8.7	-1.5	43	1/31	-44	1/15	0.83	0.38	184
Dickinson Municipal Airport	23.6	3.0	13.3	-0.9	40	1/31	-27	1/15+	0.15	-0.22	41
Fargo International Airport	11.9	-8.6	1.7	-5.1	44	1/31	-30	1/15	0.55	-0.21	72
Grand Forks International Airport	10.0	-12.1	-1.0	-6.3	44	1/31	-38	1/13	0.30	-0.38	44
Williston International Airport	18.7	-3.2	7.7	-0.3	40	1/31+	-37	1/15	0.90	0.36	167

All Data are Preliminary and Subject to Change.

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>.

January 2009 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	18.5	-6.0	6.2	-4.8	44	1/31	-42	1/15	0.68	0.20	142
Huron Regional Airport	23.0	1.3	12.1	-2.0	46	1/31	-30	1/15	0.49	0.00	100
Rapid City Regional Airport	37.7	12.0	24.8	2.5	64	1/20	-15	1/27	0.37	0.00	100
Sioux Falls Joe Foss Field Airport	24.2	4.4	14.3	0.3	52	1/31	-26	1/15	0.32	-0.19	63

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	35.9	16.0	25.8	3.5	57	1/19	-21	1/26	1.08	0.50	186
Cheyenne Municipal Airport	40.5	20.0	30.3	4.4	61	1/20	-19	1/26	0.70	0.25	156
Lander Hunt Field Airport	40.7	15.0	28.0	7.7	60	1/19	-14	1/27	0.24	-0.28	46
Laramie Regional Airport	36.7	14.0	25.2	4.8	54	1/21	-20	1/27	0.31	-0.07	82
Rawlins Municipal Airport	33.7	13.0	23.4	0.4	49	1/22	-22	1/27+	0.46	-0.10	82
Sheridan County Airport	37.8	14.0	25.9	4.6	61	1/20	-16	1/27+	1.10	0.33	143

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State Spotlight - Nebraska

Al Dutcher - State Climatologist

Nebraska State Climate Office, University of Nebraska - Lincoln

The majority of Nebraska experienced warmer and drier than normal conditions during January. An expansive upper air ridge dominated areas west of Nebraska, while an upper air trough dominated the eastern half of the U.S. For much of the month, a northwest flow aloft kept the Arctic chill north and east of the state. The exception to this general trend was during the January 23-28 time frame, when the ridge broke down and allowed Arctic air to infiltrate the central Plains. Upslope flow conditions developed across western Nebraska and snowfall accumulations approached 13 inches across the northern Panhandle and western Sandhills. The remainder of the state received 3-6 inches of snowfall during the period.

Temperatures

Average temperatures for the month of January show that the greatest departures from normal occurred across the western 1/3 of the state. Temperatures averaged 3 F above normal with a few locations approaching 6 F above normal. Heading eastward, central Nebraska temperatures were 2-4 F above normal, while eastern Nebraska was 2 F above normal to 2 F below normal.

There were four distinct periods where temperatures averaged below normal during the month: January 4-5, 8-10, 14-15, and 23-28. January 4-5 saw departures of 6-10 F across the entire state. During the January 8-10 event, 2-5 F departures were confined to the eastern 1/3 of the state. Temperature departures of 10-20 F were common during the January 14-15 period, while departures approached 30 F during the January 23-28 period.

The highest temperature recorded during January was 74 F at Brule Platte Valley on the 21st, while the state low was -25 F at Chadron 3 SW on the 28th. There were 187 stations reporting temperature data from the National Weather Service and High Plains Automated Weather Data Network stations. At least 14 reported minimum temperatures of -20 F or less, while an additional 75 reached at least -10 F. Ten stations reached at least 70 F during January, while an additional 112 stations reached 60 F or greater.

Precipitation

Each of the cold air intrusions brought snowfall to the state, with the greatest totals accumulated during the January 23-28 period. On January 5th, light snowfall was reported across north central Nebraska with totals generally under an inch. On January 9th, light snow was reported across eastern Nebraska with totals ranging from 0.5 to 1.50 inches. Snowfall during the January 14-15 time frame was in the 0.50 to 4 inch range, with the heaviest totals reported across central Nebraska.

The January 23-28 snow event brought 3-6 inch totals to most of the state outside of the Nebraska Panhandle. A broad swath of 8-13 inches of snow were reported across the northern Panhandle and western Sandhills. The greatest 24-hours totals ranged from 4-6 inches. No major travel problems were reported with this snow event because it occurred over several days allowing road crews to stay ahead of accumulating snowfall.

With the lack of significant snow storm activity across most of the state, precipitation was below normal except for the Panhandle, western Sandhills, and isolated pockets of north central and northeast Nebraska. The driest areas in terms of percent of normal were confined to the southern 1/3 of the state.

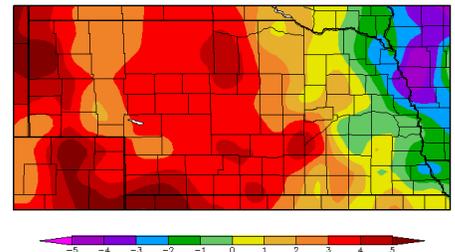
Harrison 4 NW recorded the highest liquid equivalent moisture during January with 1.15 inches of moisture. The greatest 24-hour liquid equivalent moisture was recorded at Scottsbluff 1 E with 0.51 inches on the 26th. The highest monthly snowfall accumulation was reported at Harrison 4 NW with 17 inches, while the greatest 24-hour accumulation 8.5 inches at Scottsbluff 1 E on the 26th. The greatest snow depth reported during January was at Plainsview Ranch in the Panhandle with 14 inches on the 26th.

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

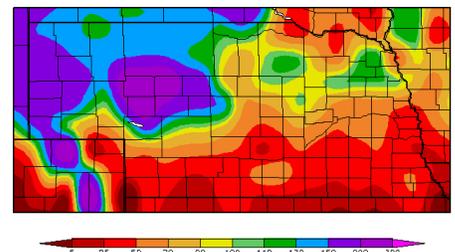
For more information about the School of Natural Resources at UNL: <http://www.snr.unl.edu>.

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

Departure from Normal Temperature (F)
1/1/2009 - 1/31/2009



Percent of Normal Precipitation (%)
1/1/2009 - 1/31/2009



State Spotlight - North Dakota



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

Precipitation:

Heavy snow fell across the State during the first half of January setting National Weather Service (NWS) daily precipitation records at Williston, Bismarck, Fargo, and Grand Forks. The second half of January was dryer with a few light snow showers. The monthly total percent of normal precipitation was 150% to 300% of normal in the northwest, central, and parts of the south central regions. (Figure 1, High Plains Regional Climate Center) The southwest corner and the eastern third of the State was 25% to 70% of normal precipitation. The majority of the monthly total precipitation ranged from 0.1 to 1.5 inches with amounts less than 0.25 inches falling in the southwest and the northeast corners of the State. The northwest, central, and southeast parts of the State had precipitation amounts primarily between 1.0 and 1.5 inches.

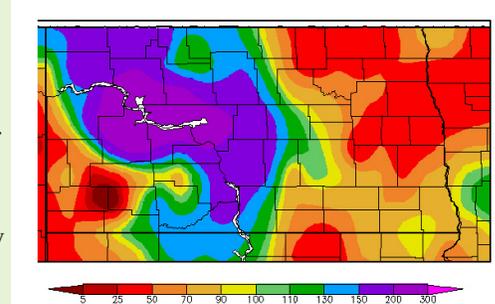


Figure 1. Precipitation Percent of Normal in January 2009 for North Dakota (High Plains Regional Climate Center)

Temperature:

Average air temperatures for the first half of January were near or below normal. The middle of January saw extreme arctic cold temperatures. The National Weather Service (NWS) recorded a record -44°F on January 15th at Bismarck. The cold temperatures were followed by a brief warm up to above normal temperatures before temperatures fell to below normal again. The last couple of days in January saw well above normal temperatures with NWS setting a record 44°F at both Grand Forks and Fargo on the 31st. The monthly average air temperatures ranged from 16°F in the southwest corner to -3°F in the northeast corner. The departure from normal air temperatures ranged from 3°F along the far west edge of the State to -7°F along the eastern edge of the State (Figure 2, North Dakota State Climate Office). Over three-fourths of the State had below normal air temperatures with departures from normal of -2°F to -5°F.

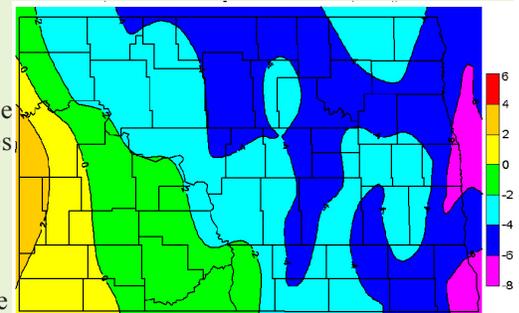


Figure 2. Temperature Departure from Normal in January 2009 for North Dakota (North Dakota State Climate Office)

State Spotlight - South Dakota

Dennis Todey - State Climatologist
Chirag Shukla
South Dakota State Climate Office, South Dakota State University



Two major cold outbreaks (one mid-month, the second around the 24-25 January) hit most of the state with well below 0 F temperatures. The mid-month outbreak brought the coldest temperatures since February 1996 to the southeast part of the state and the coldest since 1972 in the northeast part of the state. The coldest temperature recorded in the state was -47 F at Pollock on the 15th. This single temperature would rank in the top 10 coldest temperatures experienced in the state. During that outbreak record lows were set at:

Sisseton	-24 on the 13th (-18 in 1999)
Mobridge	-33 on the 15th (-30 in 1972)
Sisseton	-31 on the 15th (-29 in 1972)
Aberdeen	-42 on the 15th (-35 in 1972)
Pollock	-47 on the 15th (-40 in 1972)

At least 5 stations reported temperatures at -40 F or below. Another 20+ stations went below -30 F at the coldest. The southwest generally was warmer for the month with Porcupine recording the state high at 66 F on the 21st.

Record high temperatures were set at the Rapid City Airport on the 21st (64 F), which broke the previous record of 63 in 2005. Mitchell tied a record of 55 on the 31st (previous record in 1906).

Snow has greatly impacted the temperature situation for the month. Generally the snowpack has covered about the northeast half of the state, although nearly all areas have received some snow. The most consistently covered area has been east of the river with the deepest amounts in the northeastern corner where areas still have over 12" on the ground. This has helped temperatures stay colder east of the river and be somewhat warmer west of the river. Nearly all stations east of the Missouri River were below average in January. The far northeast corner was 6-8 F below average. Stations west of the river were warmer with areas of the Black Hills into the southern part of the state coming in 4-6 F above average for the month. The recent warming has also helped to reduce the area of snow pack.

Several snowfall events occurred during the month. Areas around the Black Hills and scattered areas east of the river accumulated the most snowfall. A swath from northwest to southeast across the state received below average precipitation for the month.

The Black Hills snow pack continues to run well above average, nearly double average in some locations. Local reports indicated the best snow pack in 10-12 years.

<http://www.rapidcityjournal.com/articles/2009/01/31/news/local/doc4985359d3dfc8630406925.txt>

Drought continues to be a non-issue. An area of D0 in the far southwestern corner remains unchanged since the fall. This area finally did receive snow in a late month event. But the snow has not been sufficient to overcome accumulated deficits since the fall. Thus, the D0 area has held steady for the month.

No major snowstorms affected the state during the month. Most events produced totals up to a few inches. But travel problems occurred several times earlier in the month as very strong winds shifted recent snows reducing visibility and causing drifting across rural roads.

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>

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

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