



Skyscanner

National Weather Service
Aberdeen, South Dakota



January 2009

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Goodbye 2008...A Look Back

The early and mid part of the winter of 2007-2008 was not very active as far as snowfall, with much more snowfall late in the winter and early spring. However, there was not a shortage of cold air across central and northeast South Dakota, as well as west central Minnesota, throughout the winter and spring of 2007-2008. With an active La Nina for most of 2008, average temperatures across the region were from 2 to 5 degrees below normal for the year. Drought across all of central and northeast South Dakota, as well as west central Minnesota, has completely gone away due to 2 to 5 inches of above normal yearly precipitation across the area. The summer brought some significant wind events with the most devastating wind event occurring on July 31st across northeast South Dakota and west central Minnesota. The winter of 2008-2009 has made a dramatic entrance with several bouts of bitter cold air along with above normal snowfall. Following are a few of the more significant weather events of 2008 across central and northeast South Dakota along with west central Minnesota.

April 25th-26th

Widespread heavy snow across northeast South Dakota and west central Minnesota occurred with amounts of 6 to 20 inches reported. The 19 inches that fell in Watertown set an all time 24 hour snow total record. Interstate 29 was closed from Brookings to North Dakota for 24 hours. Highway 12 was also closed from Webster to Minnesota.

July 31st

A strong windstorm known as a derecho tracked across northeastern South Dakota into Minnesota during the early morning hours. Wind speeds between 70 and 120 mph occurred, with the Webster and Waubay areas receiving the most significant damage.

November 6th-7th

The first blizzard of the new winter season affected central and northeast South Dakota and west central Minnesota. At the beginning of the event, freezing rain occurred with heavy ice accumulation west of the Missouri River. Wind speeds of 30 to 50 mph occurred and 3 to 8 inches of snow had fallen across the region by the time the event ended. Impressive snow



amounts occurred across far western South Dakota as well, with Deadwood receiving 46 inches of snow.

December 13th-15th

Another blizzard occurred...this one combined with bitterly cold wind chills. 30 to 60 mph winds were common across central and northeastern South Dakota and west central Minnesota. Snow amounts of 2 to 12 inches combined with the strong winds to produce widespread blizzard conditions. Wind chills were in the 35 below to 50 below zero range throughout the event.



Record Cold Temperatures on January 15, 2009

The coldest air of the season overspread the Dakotas and west-central Minnesota on 14-15 January 2009. The combination of a fresh and deep snowpack, clear skies, and calm winds allowed low temperatures to fall to record low levels at many locations. This was the coldest air that most areas experienced since the early 1970s!

Below is a listing of the record low temperatures recorded on 15 January 2009, the previous record, and the year of the previous record.

City	Low Temperature on 15 January 2009	Previous Record	Year of Previous Record
Pollock	-47 F	-40 F	1972
Aberdeen	-42 F	-35 F	1972
Columbia 8N	-39 F	-36 F	1972
Mobridge	-33 F	-30 F	1972
Milbank	-32 F	-31 F	1994
Browns Valley	-32 F	-31 F	1994
Sisseton	-31 F	-29 F	1972

The table below lists the low temperatures for other cities across northern and northeastern South Dakota and west-central Minnesota. While not records, these were bitterly cold temperatures nonetheless.

City	Low Temperature on 15 January 2009	Record Low	Year of Record Low
Watertown	-34 F	-35 F	1972
Roscoe	-32 F	-37 F	1972
Wheaton	-30 F	-32 F	1917
Redfield	-29 F	-37 F	1963
Victor	-29 F	-34 F	1994
Gettysburg	-25 F	-32 F	1972
Pierre	-24 F	-27 F	1972

A couple other interesting cold weather facts:

In Aberdeen, the low temperature of -42F was tied for the third coldest temperature ever recorded. The coldest temperature is -46F.

The coldest temperature ever recorded in South Dakota is -58F. This occurred in McIntosh on 17 February 1936.

The coldest temperature ever recorded in continental US is -70F. This occurred in Rogers Pass, Montana on 20 January 1954.

What Happens to Hot Liquid at 42 degrees below zero

When the temperature fell to 42 degrees below zero on the morning of January 15th, 2009...National Weather Service employees used the rare opportunity to conduct an interesting experiment. When hot liquid is thrown into the air at bitterly cold temperatures, an unusual reaction takes place. Here is what happens and why: the rate of heat transfer is proportional to the temperature difference between the air and the water, so hot water will lose heat faster than cold water when tossed in the air at bitterly cold temperatures. But that is not all. Hot water is also close to the boiling point and will jump to vapor in the extremely dry air. That the act of throwing it into the air causes it to break up into tiny droplets which allows for a great deal of evaporation and the evaporation causes the water to cool quickly. Also, these rapidly cooling droplets are so small that they readily freeze in the extremely cold air. All of this happens before the water hits the ground. Cold water evaporates slower, loses heat slower and thus will not work for this experiment. The series of pictures below shows the process as it was being conducted on the morning of January 15th.



One



Two



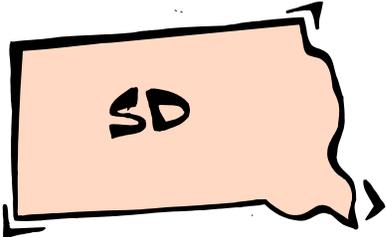
Three



Four

2008 Climate Summary

Below are climate summaries for select locations across South Dakota and west-central Minnesota.



ABERDEEN, SD

HIGHEST TEMPERATURE (F): 94 (7/11)
 COLDEST TEMPERATURE (F): -26 (2/20)
 2008 AVERAGE YEARLY TEMPERATURE (F): 41.6
 NORMAL (F): 43.8
 DEPARTURE FROM NORMAL: 2.3 DEGREES BELOW NORMAL
 2008 YEARLY PRECIPITATION (IN): 24.44"
 NORMAL (IN): 20.22"
 DEPARTURE FROM NORMAL: 4.22 ABOVE NORMAL
 WETTEST DAY (IN): 2.81" (7/19)
 SNOWIEST DAY (IN): 6.6" (4/06, 12/14)



PIERRE, SD

HIGHEST TEMPERATURE (F): 99 (8/30)
 COLDEST TEMPERATURE (F): -16 (12/16, 12/22)
 2008 AVERAGE YEARLY TEMPERATURE (F): 45.3
 NORMAL (F): 47.5
 DEPARTURE FROM NORMAL: 2.2 DEGREES BELOW NORMAL
 2008 YEARLY PRECIPITATION (IN): 23.66"
 NORMAL (IN): 19.88"
 DEPARTURE FROM NORMAL: 3.78" ABOVE NORMAL
 WETTEST DAY (IN): 3.32" (6/2)
 SNOWIEST DAY (IN): 4.0" (12/14)

WATERTOWN, SD

HIGHEST TEMPERATURE (F): 94 (7/11)
 COLDEST TEMPERATURE (F): -28 (2/20)
 2008 AVERAGE YEARLY TEMPERATURE (F): 40.6
 NORMAL (F): 42.0
 DEPARTURE FROM NORMAL: 1.4 DEGREES BELOW NORMAL
 2008 YEARLY PRECIPITATION (IN): 25.32"
 NORMAL (IN): 21.94"
 DEPARTURE FROM NORMAL: 3.38" ABOVE NORMAL
 WETTEST DAY (IN): 2.05" (8/10)
 SNOWIEST DAY (IN): 19.0" (4/25)



WHEATON, MN

HIGHEST TEMPERATURE (F): 95 (7/12)
 COLDEST TEMPERATURE (F): -28 (2/20)
 2008 AVERAGE YEARLY TEMPERATURE (F): 40.2
 NORMAL (F): 44.7
 DEPARTURE FROM NORMAL: 4.5 DEGREES BELOW NORMAL
 2008 YEARLY PRECIPITATION (IN): 25.84"
 NORMAL (IN): 22.54"
 DEPARTURE FROM NORMAL: 3.30" ABOVE NORMAL
 WETTEST DAY (IN): 2.70" (6/05)
 SNOWIEST DAY (IN): 12.0" (3/21)

Think It's Been A Long Winter?

To many people, the winter of 2008-2009 has been a long and cold one so far. But, has it truly been a long winter? How has this winter stacked up against some of the winters of the past?

We'll examine snowfall and snow depth first. So far, here at the Aberdeen Regional Airport, 29.9 inches of snow has fallen since October 1, 2008. The maximum snowfall recorded for the period of 10/1 to 1/26 is 54.9 inches of snow, which occurred from October 1, 1993 to January 26, 1994. That was followed closed by 53.5 inches of snow that occurred from October 1, 1996 to January 26, 1997. Our 29.9 inches of snowfall is tied for 5th in this category.

As for snow depth, the Aberdeen Regional airport has had 44 consecutive days with at least an inch of snow on the ground. The record number of consecutive days with at least an inch of snow on the ground is 141 days,

which was set from November 8, 2000 to March 29, 2001. Putting that into perspective, we would need to keep an inch of snow on the ground through May 3rd in order to achieve 141 days of snow cover.

How do temperatures compare? In the 30 years from 1979 to 2009, the November average temperature is 30 degrees, December is 17.3 degrees and January is 12.4 degrees. This gives a 3 month (N,D,J) average temperature of 19.9 degrees. November 2008 had an average temperature of 31.9 degrees, December 2008 an average temperature of 8.8 degrees, and to date, January 2009 an average temperature of 5.2 degrees. So, the 3 month (N,D,J) average temperature is 15.3 degrees. The coldest 3 month average from November 1 to January 26 is 9 degrees, which occurred from November 1996 to January 1997. However, if we remove November 2008 from these numbers, we see that the December 2008 and to

date January 2009 average temperature is 7 degrees. This would rank as the 3rd coldest December-January 26th coldest average temperature. The coldest average for that period would be 4 degrees which occurred from December 1996 to January 26th 1997, followed by 5.8 degrees which occurred from December 1983 to January 26th 1984.

So far, the winter of 2008-2009 ranks in the top 5 of some categories, but really isn't as worse as some of the winters we have seen. We still have February and March to get through before we can really begin ranking this winter.

“the record number of consecutive days with at least an inch of snow on the ground is 141”



Skywarn Spotter Training Coming Soon

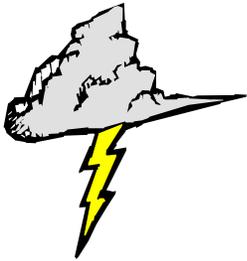


It may be difficult to think about spring severe thunderstorms in the middle of winter, but the season will be here before you know it. Skywarn™ Spotter classes are coming to a community near you! Classes start in March and continue through May.

What is the Skywarn™ program? The National Weather Service program is comprised of a group of volunteers who report significant

or severe weather whenever it occurs. Severe weather spotters are people like you who come from all walks of life. They are your neighbors, friends or family, schools, amateur radio operators, law enforcement, emergency responders, and countless other volunteers! So how do you join the program? All that you have to do is attend a Severe Weather Spotter training session taught by the National Weather

Service – Aberdeen. Visit <http://weather.gov/aberdeem> to view a list of classes in your area. Remember to check back often as classes are still forming. If you have any questions, please contact Warning Coordination Meteorologist Jennifer Zeltwanger at jennifer.zeltwanger@noaa.gov or 605-225-0519.



Post Storm Survey Project

This winter season will be the first year the Aberdeen weather forecasting office participates in the Post Storm Survey project. Be sure to check the Aberdeen NWS homepage at

www.weather.gov/aberdeen after a winter storm to take the survey! The online survey will ask a few specific questions about how you received the winter storm information, how you perceived the threat of the storm, what steps you took to prepare, and how your plans changed due to the storm. You are encouraged to take this short survey following each winter storm that affected you.

The objective of this Post Storm Survey is to gain insight into decision making related to hazardous winter weather, as well as provide a critical tool in bridging the gap between the weather community and

users. This information will be vital for the weather forecasting community to improve communicating the threat of hazardous winter weather.

The survey was created by Matt Taraldsen, a meteorology student at St. Cloud State University, under the guidance of Earth and Atmospheric Sciences professor Dr. Anthony Hansen, Communication Studies professor Suzanne Stangl-Erkens, and meteorologists from the National Weather Service Forecast Office in Duluth, Minnesota.

Although the survey was produced and is maintained by St. Cloud State University, the responses and findings will greatly enhance the National Weather Service's ability to convey winter weather threats in the future.



New Skywarn™ E-newsletter

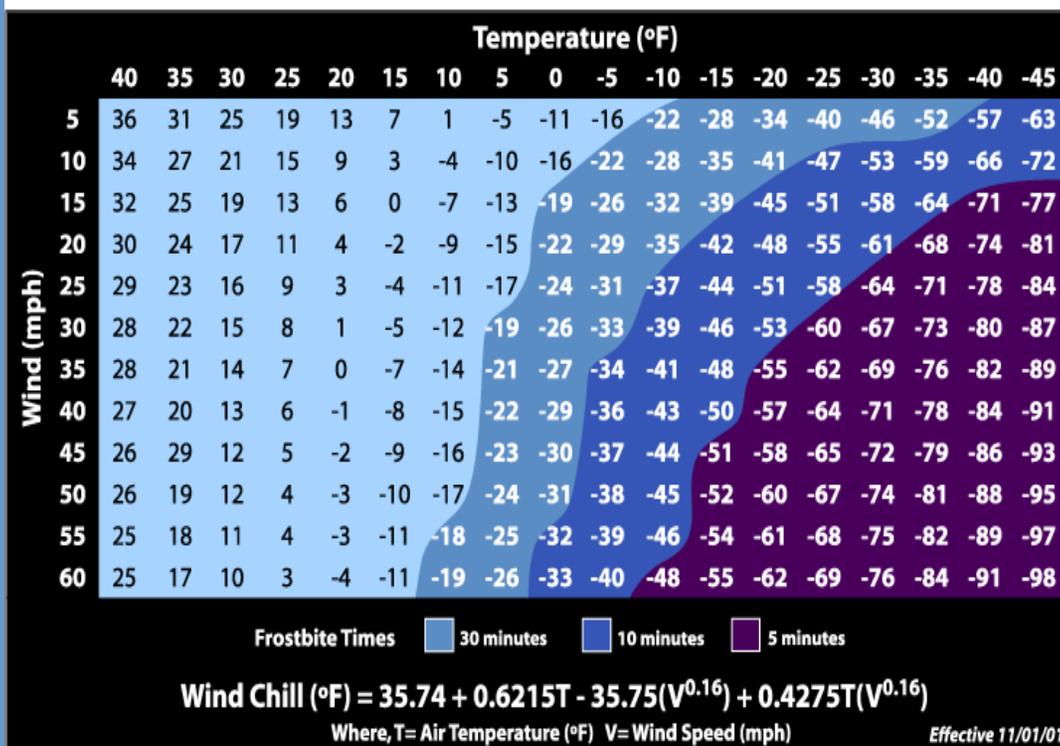
If you haven't already signed up for our new Skywarn Spotter e-newsletter, you can do so by going to <https://ocwvs.weather.gov/lists/list.php?id=70>. (You can also unsubscribe from the list at that same link if you decide it isn't for you.) These short but more frequent updates (usually monthly or less) cover a wide variety of topics with a

focus on weather and weather preparedness. We currently have about 350 subscribers, but there is room to grow! If you have any questions on the e-newsletter, please contact Warning Coordination Meteorologist Jennifer Zeltwanger at jennifer.zeltwanger@noaa.gov or 605-225-0519.

The word "New" written in a large, stylized, pink-to-purple gradient font with a 3D effect and a shadow.



Wind Chill Chart



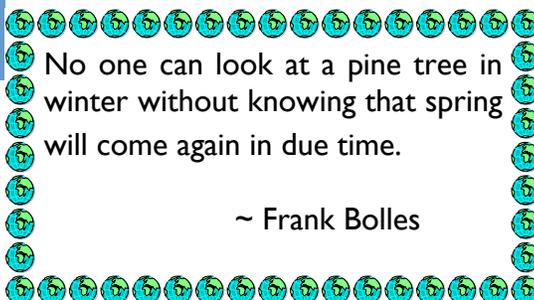
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 No one can look at a pine tree in winter without knowing that spring will come again in due time.
 ~ Frank Bolles

www.weather.gov/aberndeen