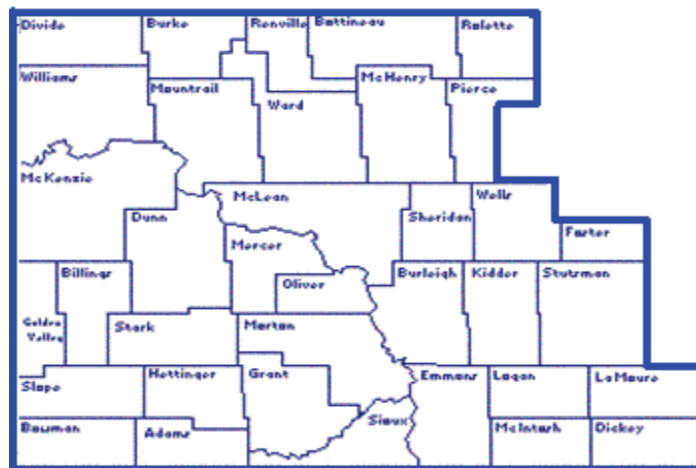


Fall
2007

Dakota Skies

Bismarck North Dakota National Weather Service

A map of the Bismarck CWA (County Warning Area) or area of responsibility. We issue weather products such as warnings and forecasts for 36 counties in western and central North Dakota. The office has 23 employees of which 13 are meteorologists. We are staffed 24 hours a day, seven days a week, year round.



NOAA's NWS Bismarck web site at...
www.weather.gov/bis

FALL 2007 TABLE OF CONTENTS

- **Page 1...Map of NWS Bismarck County Warning Area**
- **1...NOAA Logo**
- **1...NWS Bismarck Web Site Address**
- **2...Table of Contents**
- **2...Winter Weather Awareness Week**
- **2...About this Publication**
- **3...Winter Weather Terminology**
- **3...Wind Chill Table**
- **3...Be Prepared**
- **4...Winter 2007-2008 Outlook**
- **4...Detailed Map of Temperature Outlook**
- **4...Detailed Map of Precipitation Outlook**
- **5...Valuable Web Sites**
- **5...Don't Be Late...or Early**
- **5...Call 511 for Road Report Information**
- **5...Winter Officially Begins**
- **5...Spring Officially Begins**
- **5...NWS Open House a Huge Success**
- **6...Severe Summer Weather 2007**
- **6...The 15 Tornadoes in the BIS CWA**
- **7...Consolidated Telcom Leads the way to Getting Scranton on-air**
- **7...Scranton Recognition and Dedication Ceremony is set for November 15**
- **7...A New Face at Bismarck**
- **8...SKYWARN Recognition Day 2007**

Winter Weather Awareness Week is October 29 through November 2

“Severe Winter Weather Awareness Week” in North Dakota is October 29 through November 2. You should...Get a Kit...Make a Plan...and Be Informed. Keep a high level of situational awareness by listening to the forecast every day. When snow, sleet, or freezing rain is in the forecast expect that it will impact your day to day routine.

Now is a good time to re-familiarize yourself with winter terms and safety rules. Prepare now for winter!

About this Publication

Dakota Skies is published twice each year, in the spring and in the fall, by the WCM (Warning Coordination Meteorologist) at your National Weather Service in Bismarck, North Dakota. Its purpose is to heighten awareness about safety for the coming severe weather season, whether it be summer or winter, and to relay information on any changes at the Bismarck NWS (National Weather Service). Additionally, other educational and useful information will be provided as space allows. If you have any comments or suggestions contact us.

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Winter Weather Terminology

Watch is issued when the risk of a hazardous winter weather event has increased, but its occurrence, location, and/or timing is still uncertain.

Warning or Advisory is issued when a hazardous winter weather event is occurring, is imminent, or has a high probability of occurrence. A warning is used when there is a threat to life or property. An advisory is for less serious conditions that cause inconvenience, and, if caution is not used, could lead to situations that may threaten life or property.

Snow criteria for a warning is 6 inches or more in 12 hours or less, OR, 8 inches or more in 24 hours or less. Snow criteria for an advisory is 3 to 5 inches.

Winter Storm Warnings and Winter Weather Advisories may be issued for a combination of elements like snow coupled with wind and blowing snow, or snow coupled with sleet and freezing rain.

Sleet is pellets of ice. Sleet bounces when it hits the ground.

Freezing Rain is rain that freezes when it hits the ground or objects on the ground. It forms a sheet or glaze of ice.

Ice Storm is used to describe occasions when the ice from freezing rain is significant enough (1/4 inch thick or more) to cause damage.

Blizzard is a storm with winds of 35 mph or higher AND visibility frequently below 1/4 mile in snow and/or blowing snow AND these conditions last three (3) hours or longer. There is no set temperature requirement for a blizzard.

Wind Chill is that part of the cooling of a human body caused by moving air. Moving air accelerates the rate of heat transfer away from a human body.

Wind Chill Advisory is issued for wind chills of 20 to 40 below zero with a wind speed of at least 10 mph.

Wind Chill Warning is issued for wind chills lower than 40 below zero with a wind speed of at least 10 mph.

wind chill table

wind speed down left side - temperature across top

	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Be Prepared

In the cold dress in layers of loose fitting clothes. Wear a hat, gloves or mittens, and a scarf. Have as little skin as possible exposed to the elements.

When shoveling snow go slow, take breaks, and don't get too tired. Keep fire hydrants near your home or business visible and free of snow.

Carry a winter survival kit in your vehicle. Include extra clothing, a blanket, and high energy food like candy bars, peanuts, and raisins. Have a flash light with fresh batteries, paper towels, sand, and a shovel. Keep the gas tank and windshield washer bottle full.

Before you set out on a trip let someone know the time you leave, the route you will take, and the time you plan to arrive. Check the latest forecast and road report. Take a cell phone and be sure the vehicle windows, headlights and taillights are clear of snow, ice, and frost.

If you get stuck, raise the vehicle antenna and tie a brightly colored cloth to it so that others passing by will see you. Keep the exhaust pipe clear of snow but do not overexert yourself by trying to push or shovel the vehicle out of deep snow. Keep a window open about a half inch. Clap your hands and rub your legs. Move your body around in the vehicle. Stay inside the vehicle. Do not try to walk away from the vehicle unless you can see a place of safety at a close distance. Do not fall asleep! Stay awake!

Winter 2007-2008 Outlook

NOAA's (National Oceanic and Atmospheric Administration) CPC (Climate Prediction Center) 2007-2008 Winter Outlook issued October 18 calls for normal temperatures and precipitation for North Dakota. However, there is some indication that we could end up colder and snowier...read on!

This CPC outlook is an average over the three month period called Meteorological Winter, namely December 2007, and January and February 2008, so we need to watch that March and April time period that can bring big storms through the state.

Remember that although this long term forecast is firmly based on the science of meteorology, along with climatology factored in, as with any forecast it is subject to change.

The CPC forecast is based on expected developing La Nina conditions. La Nina is characterized by an unusually cold ocean temperature in the eastern equatorial Pacific Ocean, as compared to El Nino which is characterized by unusually warm ocean temperatures.

A weak to moderate La Nina would typically result in a pretty average winter season for North Dakota. The question becomes, how strong will this La Nina episode be? If it turns out stronger than expected, it could result in a colder and snowier North Dakota winter season, like in the winters of 1988-89, and 1995-96!

The average snowfall for a winter season for the Bismarck area is 39.7 inches. The year 1988 was a La Nina year, and in the winter season of 1988-89 Bismarck had 47.8 inches of snow. The year 1995 was a La Nina year, and in the winter season of 1995-96 Bismarck had 80.1 inches of snow!

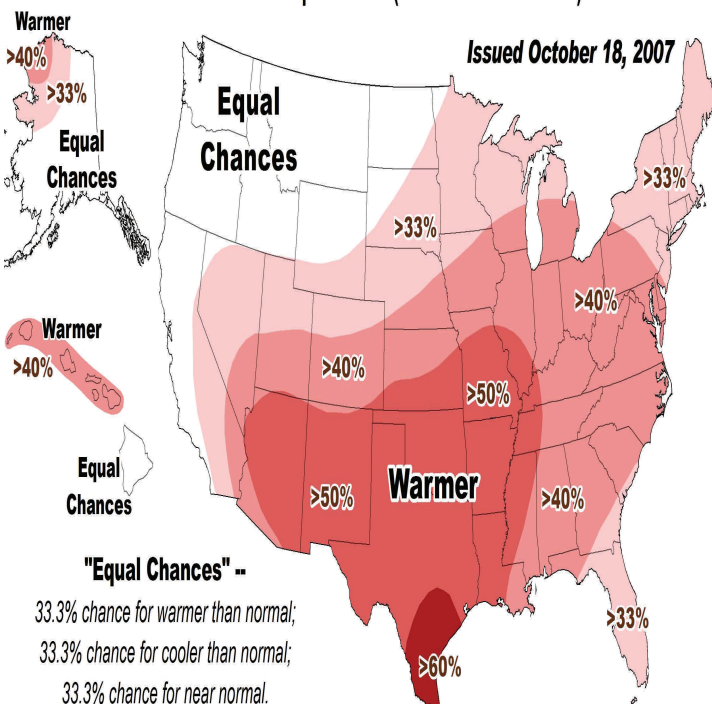
Keep in mind that the CPC forecast is for the three month period, averaged. CPC is not forecasting each day to be normal. As we all know, it would not be winter in North Dakota without a few big storms and some bitterly cold arctic outbreaks. There will be snowy days and cold days, just like every winter in North Dakota.

CPC Website:
<http://www.cpc.ncep.noaa.gov>



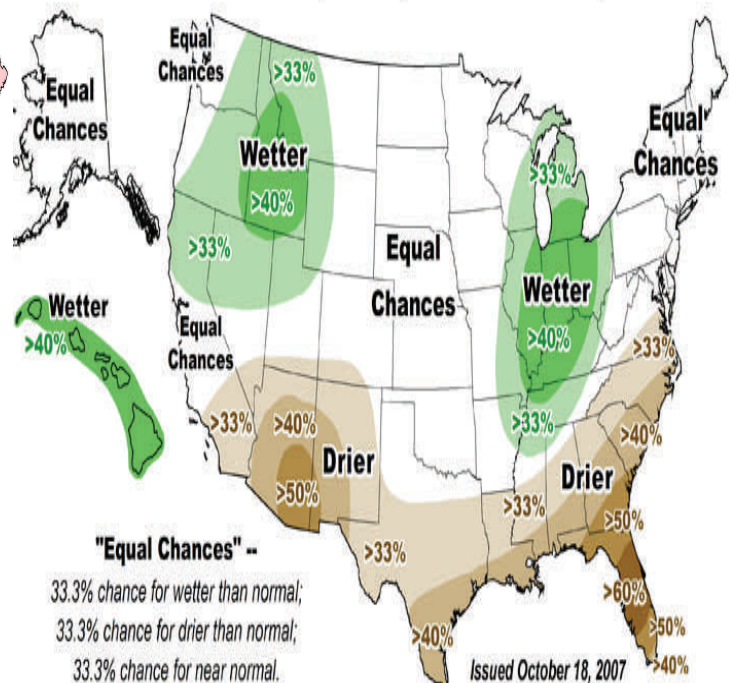
Temperature Outlook December 2007 - February 2008

Chances for **Cooler Than Normal**, **Warmer Than Normal**, or Near Normal Temperatures (based on 1971-2000)



Precipitation Outlook December 2007 - February 2008

Chances for **Wetter Than Normal**, **Drier Than Normal**, or Near Normal Precipitation (based on 1971-2000)



Valuable Web Sites

NWS Bismarck at
www.weather.gov/bis

NWS Grand Forks at
www.weather.gov/fgf

North Dakota Department of Emergency Services at
www.nd.gov/des

North Dakota Department of Transportation at
www.dot.nd.gov

North Dakota Highway Patrol at
www.nd.gov/ndhp

North Dakota Game and Fish at
www.gf.nd.gov

North Dakota Parks & Recreation Department at
www.parkrec.nd.gov

North Dakota State Fire Marshal at
www.ag.state.nd.us/FM/FM.htm

Citizen Corps at
www.citizencorps.gov

Don't Be Late...or Early

Sunday, November 4, 2007...2 AM CDT becomes 1 AM CST. Fall BACK one hour.

Sunday, March 9, 2008...2 AM CST becomes 3 AM CDT. Spring AHEAD one hour.

The Energy Act of 2005 changed the time change dates for DST (Daylight Savings Time) in the United States. DST begins on the second Sunday of March and ends on the first Sunday of November.

Road Reports and other DOT information...dial **511**

Winter Officially Begins at 12:08 AM CST on December 22, 2007	Spring Officially Begins at 12:48 AM CDT on March 20, 2008
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NWS Open House a Huge Success

The National Weather Service in Bismarck held an open house on Saturday, August 25, 2007. We estimated that around 400 people came out to learn more about the inner workings of their NWS and where we fit in NOAA, the Department of Commerce, and the Federal Government in general.

The highlights for many were the tours of the facility and grounds, the special release of the weather balloon, and the awards presentation to cooperative weather observers. By all measures a good time was had by all.

Winners of the rain gages were Kathleen Kuntz of Bismarck, and Morgan Doll of Mandan. Brian Glatt of Bismarck won the NOAA Weather Radio.

A special thank you to everyone who took the time to come out. It was our pleasure to serve you at the open house, and we consider it an honor and a privilege to serve you daily. Again, thanks!

Severe Summer Weather 2007

By definition a *severe thunderstorm* is one that produces a 58 mph (50 knot) wind gust and/or 0.75 inch diameter hail. A penny is 0.75 inch diameter.

A *tornado* is a violently rotating column of air in contact with the ground (visible funnel not necessary).

A *Flash Flood* results from too much water in a short period of time where flooding occurs very quickly, or in a "flash".

The Enhanced Fujita (EF) tornado damage scale:

<u>EF-rating</u>	<u>tornado intensity</u>	<u>wind speed</u>
EF0	weak	65 to 85 (mph)
EF1	weak	86 to 110
EF2	strong	111 to 135
EF3	strong	136 to 165
EF4	violent	166 to 200
EF5	violent	201(+) mph

During the 2007 severe weather season the National Weather Service in Bismarck officially logged the following reports for the Bismarck CWA (County Warning Area) (see map page 1):

- 162 large hail (0.75 inch diameter or larger)
- 89 high wind (58 mph or higher)
- 15 tornadoes
- 8 flash floods

The first report of severe summer weather in 2007 was 1.00 inch diameter hail (quarter size) 1/2 mile east of

Max, McLean County, on March 28.

The highest thunderstorm wind gust was estimated at 96 mph. There were two episodes. The first was on July 9, 10 miles south of **Solen, Sioux County**. It did significant damage to a farm there. The second was estimated at 96 mph on July 15, 1 mile west of **Monango, Dickey County**, and did significant damage to a farm there. Actually, the thunderstorm moved from LaMoure County, across Dickey, and into Brown County, South Dakota. It did extensive damage from about 5 miles northeast of **Merricourt** to 4 miles south of **Ellendale**. The storm produced high wind and large hail, damaging buildings and devastating crops in a 4 mile wide swath from one end of Dickey County to the other.

The largest hailstone was 3.50 inches diameter. There were several episodes. The first was from 3 miles north to 5 miles north-northeast of **Harvey, Wells County**, on June 17. The other reports were from a supercell thunderstorm that pummeled **Logan County** on August 26. This storm dumped large hail from the **Napoleon** area to 20 miles east of Napoleon, with several reports of 3.50 inch hail along the way. It also produced two tornadoes in Logan County on August 26. The largest hail reports came from 5 and 7 miles northeast of Napoleon, and from 17 miles east of Napoleon. There was extensive structural and crop damage from the hail, while the tornadoes impacted no structures.

Many counties in west and central North Dakota were very hard hit by severe weather this past season.

Details on the 15 tornadoes: (rating-date-county-location-deaths-injuries-damage)

- 1 EF0 May 21 Morton County 4NE-4.3NE Glen Ullin
- 2 EF0 May 21 Morton County 10ENE-10.2ENE Glen Ullin
- 3 EF0 May 25 Sioux County 7N-7.3N Selfridge
- 4 EF1 June 11 Divide County 21SW-18SW Crosby (damage...no deaths or injuries)
- 5 EF0 June 11 Divide County 1W-1N Crosby
- 6 EF0 June 12 McLean County 8SSW-2SW Max
- 7 EF0 June 12 Ward County 1N-5NE Sawyer
- 8 EF0 June 17 Burleigh County 8E-9E Moffit
- 9 EF0 June 17 Burleigh County 5NE-6NE Sterling
- 10 EF1 June 22 McHenry County 6S-6.5S Upham (damage...no deaths or injuries)
- 11 EF1 July 9 McLean County 6S-8SSE White Shield (4 injuries...no deaths...significant damage)
- 12 EF1 July 15 LaMoure County 8N-7N Edgeley (damage...no deaths or injuries)
- 13 EF0 Aug 10 Williams County 7.5SSE-8.5SSE Alamo
- 14 EF0 Aug 26 Logan County 6NNW-3NNE Napoleon
- 15 EF0 Aug 26 Logan County 5NE-6NE Napoleon

Consolidated Telcom Leads the way to Getting Scranton on-air

The new NOAA Weather Radio transmitter at Scranton, Bowman County, came on the air September 17. The call sign is WNG-658 and it is broadcasting on a frequency of 162.525 MHZ (MegaHertz).

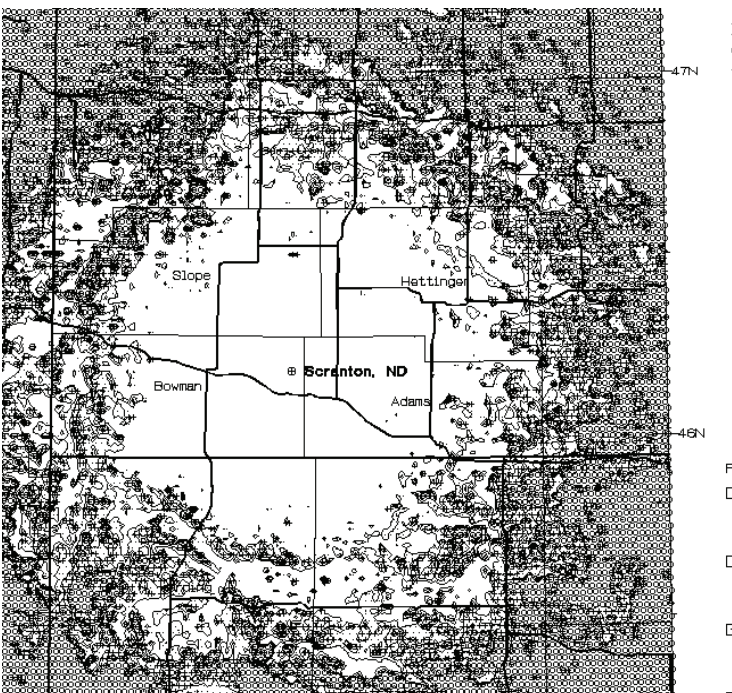
The transmitter is located about 4 miles northeast of Scranton on a tower owned by **Consolidated Telcom** of Dickinson. **Consolidated** was the driving force behind getting Scranton on line. They obtained a \$54,767 matching grant from the **US Department of Agriculture Rural Development**. **Consolidated** donated the use of their tower and also funded part of the installation cost. They have provided a potentially life saving service to people in southwest North Dakota and northwest South Dakota.



This new transmitter will serve Bowman, Slope, Hettinger, and Adams counties in ND, and parts of Perkins and Harding counties in SD.

The Scranton transmitter is 1,000 watt power output, equal in power to existing transmitters serving other major cities in North Dakota, like Dickinson, Bismarck, Williston, Minot, and Jamestown.

Coverage map for the new Scranton transmitter.



A recognition and dedication ceremony is set for 1:30 PM MST, Thursday, November 15, 2007 at the Bowman County Courthouse, in Bowman.

Representatives will be on hand from Consolidated Telcom and from various local, county, state, and federal agencies.

A New Face at Bismarck

Ken Simosko became a forecaster at the National Weather Service Bismarck office this past summer.

Ken was born and raised in Ambridge, Pennsylvania. In 1989 he earned a Bachelor of Science Degree in Meteorology from Millersville University, in southeast Pennsylvania.

Ken spent six years as a Weather Officer in the United States Air Force, followed by six years as a broadcast meteorologist in Idaho Falls, Idaho. Following that he joined the National Weather Service in Pocatello, Idaho. Ken also served the NWS in Fairbanks, Alaska, before coming to Bismarck in June.

Ken and his wife, Ginger, have two sons, Zachary, three years old, and Skyler, three months old.

Ken has already acclimated to forecasting on the Northern Plains, and will serve the Bismarck office well in its Warning and Forecast programs.

Welcome to Bismarck, Ken!





SKYWARN Recognition Day 2007

SRD (SKYWARN Recognition Day) for 2007 has been set for December 1. It will run from 0000 UTC (Universal Coordinated Time) to 2400 UTC. That corresponds to 6 PM CST on November 30 to 6 PM CST on December 1st. This will be the 9th annual SRD.

SKYWARN is a national network of severe weather spotters. It is basically volunteers, who are trained in severe weather observing, and report information to the National Weather Service. In this way the spotters become a critical component of the Warning and Decision making process that goes on at the NWS. SKYWARN really is one neighbor helping another in the protection of life and property.

SKYWARN Recognition Day celebrates the contributions that amateur radio operators make to the National Weather Service severe weather operations, and consequently to the public welfare.

U.S. Department of Commerce National Oceanic and Atmospheric Administration

NOAA-National Weather Service
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**Official Business
Penalty for private use, \$300**