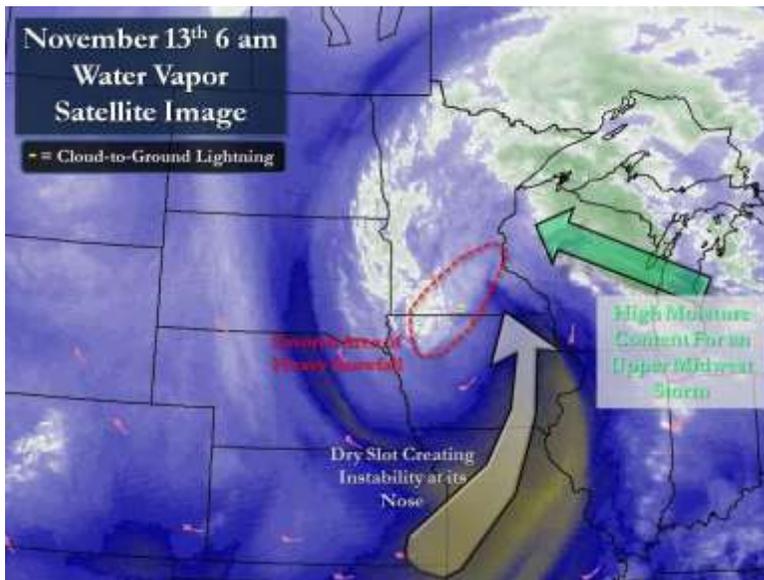


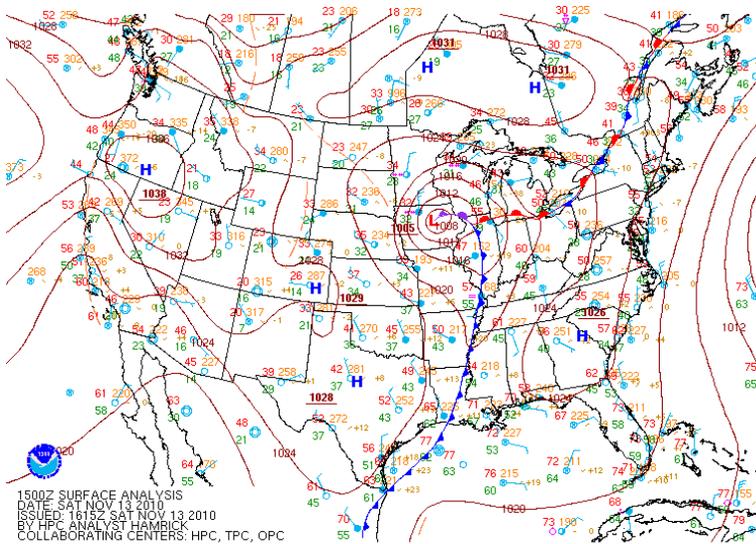
November 13th, 2010 Winter Storm

Overview

Three days after a record high temperature of 68° in the Twin Cities, the weather turned around quite fiercely with the first winter storm of the season. A low pressure area moved from northern Missouri on the night of the 12th to western Wisconsin by the morning of the 14th. This was near to a classic path of what is called a "Panhandle Hooker" low pressure area for Minneapolis to receive at least six inches of snow. Snow would begin late the night of the 12th and persist through the day on the 13th for much of central and southern Minnesota into northwestern Wisconsin. As for near Eau Claire, snow changed to rain by daybreak Saturday morning, and the rain persisted for much of the day on Saturday. Precipitation of nearly two inches was observed during the weekend there. The snowfall rates across southern and eastern Minnesota were most explosive between 5 am and noon on the 13th. During that time window, lightning was observed across southern and eastern Minnesota into western Wisconsin with very heavy snowfall rates. Very high moisture content created a wet and heavy snowfall. While ground temperatures were warm and led to some melting, the heavy snowfall rates quickly overcame that. While snowfall began to taper Saturday evening, moisture wrapping around the low pressure area in Wisconsin helped to continue sporadic bursts of accumulating snow.



Nov 13th: 6 am Water Vapor Image

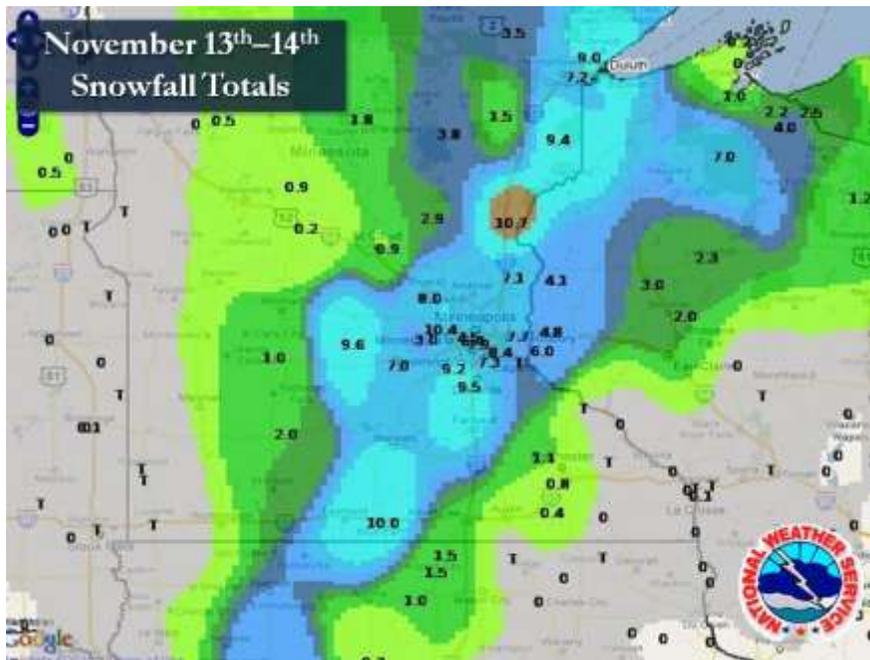


Nov 13th: 9 am Surface Weather Map

Event Climate Facts

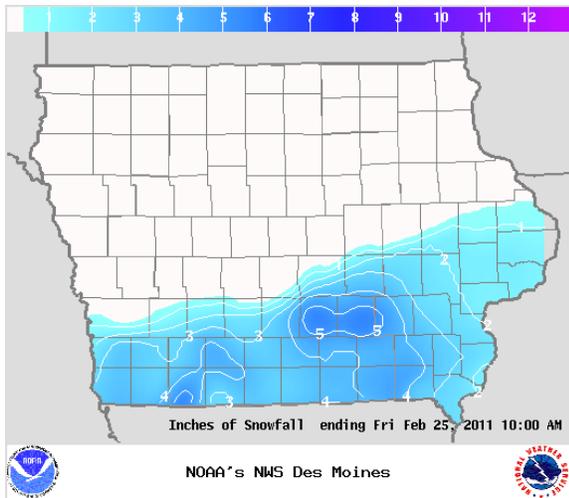
- 8.0" was officially observed at the Minneapolis/St. Paul International Airport.
- This was the largest pre-Thanksgiving, as well as November snowfall, for the Twin Cities since the "Halloween Blizzard" of October 31-November 2, 1991.
- Since 1997, this was only the third six inch or greater official snowfall in the Twin Cities during meteorological autumn (Sept-Nov).

Snowfall Totals

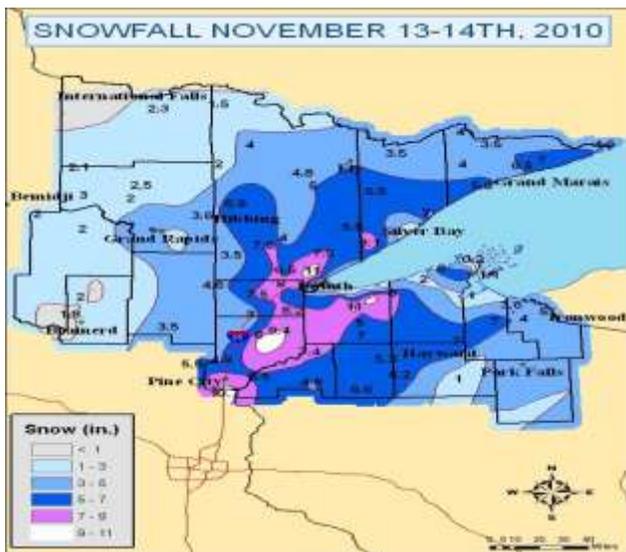




Axis of Heaviest Snow Across the Local Area

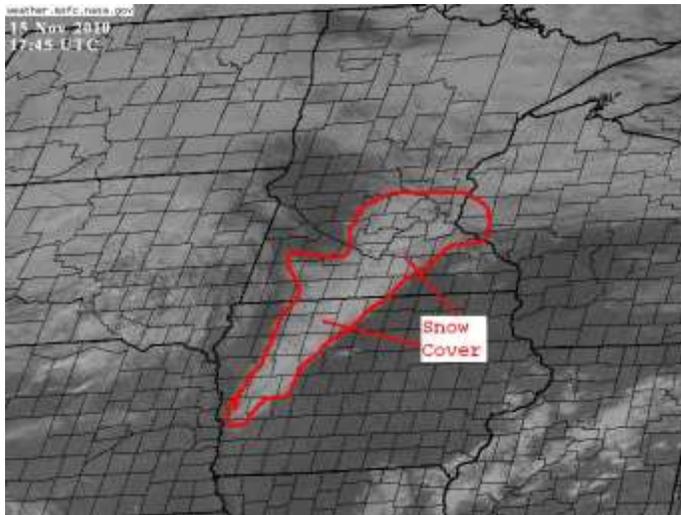


Iowa Snow Totals



Northeast Minnesota Snowfall Totals

Below is a visible satellite image from Monday November 15. Clear skies over parts of southern Minnesota and northwest Iowa allow the snow cover to be seen. Areas to the northeast were covered by clouds at the time thus the snow is not visible.



Text Listing Of Snowfall Amounts From the Local Area

PUBLIC INFORMATION STATEMENT
 NATIONAL WEATHER SERVICE TWIN CITIES/CHANHASSEN MN
 110 AM CST MON NOV 15 2010

...SNOWFALL REPORTS FROM THE NOVEMBER 13TH WINTER STORM...

LOW PRESSURE DEEPENED AS IT MOVED FROM CENTRAL IOWA EARLY ON THE 13TH TO NORTHERN WISCONSIN BY EARLY ON THE 14TH. THIS FAVORED WIDESPREAD PRECIPITATION ACROSS MUCH OF MINNESOTA AND WISCONSIN. ATMOSPHERIC TEMPERATURES WERE COLD ENOUGH FOR THIS TO BE SNOWFALL ACROSS MUCH OF MINNESOTA...AND WAS THE FIRST SIGNIFICANT ACCUMULATION OF THE SEASON FOR CENTRAL AND SOUTHERN MINNESOTA AND NORTHWEST WISCONSIN.

THE TOTALS BELOW ARE SEPARATED BY AMOUNT...AND ARE NOT NECESSARILY THE FINAL AMOUNT FOR EACH LOCATION.

SNOW REPORTS LISTED BY AMOUNT

INCHES	LOCATION	ST	COUNTY	TIME
12.00	3 WSW MAPLE GROVE	MN	HENNEPIN	1111 PM
11.00	WINNEBAGO	MN	FARIBAULT	0700 AM
11.00	EDEN PRAIRIE	MN	HENNEPIN	1030 AM
11.00	1 SSW WYOMING	MN	CHISAGO	0400 PM
10.70	RUSH CITY	MN	CHISAGO	0231 PM
10.40	WSW LONG LAKE	MN	HENNEPIN	0600 AM
10.40	CHANHASSEN	MN	CARVER	0600 AM
10.10	NEW HOPE	MN	HENNEPIN	0102 PM
10.00	3 N FOREST LAKE	MN	CHISAGO	0104 PM
10.00	SW BURNSVILLE	MN	DAKOTA	0216 PM

10.00	MANKATO	MN	BLUE EARTH	0951 AM
10.00	MONTGOMERY	MN	LE SUEUR	1130 AM
10.00	AMBOY	MN	BLUE EARTH	0930 AM
9.60	HUTCHINSON	MN	MCLEOD	0700 AM
9.50	NORTH BRANCH	MN	CHISAGO	0819 AM
9.50	VADNAIS HEIGHTS	MN	RAMSEY	0708 PM
9.50	NEW MARKET	MN	SCOTT	0258 PM
9.20	2 W PRIOR LAKE	MN	SCOTT	0600 AM
9.20	ST LOUIS PARK	MN	HENNEPIN	0703 PM
9.20	NORTH BRANCH	MN	CHISAGO	0703 PM
9.10	WACONIA	MN	CARVER	0700 AM
9.00	1 NE MINNESOTA LAKE	MN	BLUE EARTH	0953 PM
9.00	3 NNW MINNEAPOLIS	MN	HENNEPIN	1243 PM
9.00	CHISAGO CITY	MN	CHISAGO	0301 PM
8.60	1 W CARVER	MN	CARVER	0600 AM
8.60	MADELIA	MN	WATONWAN	1025 AM
8.50	1 SE CHASKA	MN	CARVER	0148 PM
8.50	EDINA	MN	HENNEPIN	0505 PM
8.40	1 SE HENDERSON	MN	LE SUEUR	0600 AM
8.30	5 SE ELK RIVER	MN	ANOKA	0148 PM
8.20	INVER GROVE HEIGHTS	MN	DAKOTA	0715 PM
8.00	MINNEAPOLIS	MN	HENNEPIN	1200 PM

MEASURED AT THE MINNEAPOLIS/ST PAUL
INTERNATIONAL AIRPORT.

8.00	SHAKOPEE	MN	SCOTT	0703 PM
7.70	3 NW AFTON	MN	WASHINGTON	0726 AM
7.70	4 NE WOODBURY	MN	WASHINGTON	0600 AM
7.30	3 SE LAKE ELMO	MN	WASHINGTON	0800 AM
7.20	ROCKFORD	MN	HENNEPIN	0700 AM
7.00	HAMBURG	MN	CARVER	0800 AM
6.70	LAKEVILLE	MN	DAKOTA	0703 PM
6.50	6 NW RICE LAKE	WI	BARRON	1024 AM
6.50	FARMINGTON	MN	DAKOTA	0700 AM
5.50	3 N QUAMBA	MN	KANABEC	0712 AM
5.00	1 E CUMBERLAND	WI	BARRON	0205 PM
5.00	CANNON FALLS	MN	GOODHUE	0700 AM
5.00	1 SSW RIVER FALLS	WI	PIERCE	0600 AM
4.80	ROBERTS	WI	ST. CROIX	0800 AM
4.00	BALDWIN	WI	ST. CROIX	0700 AM
4.00	ZUMBROTA	MN	GOODHUE	0700 AM
3.00	STILLWATER	MN	WASHINGTON	0712 AM
3.00	REDWOOD FALLS	MN	REDWOOD	0700 AM
3.00	2 SE CHETEK	WI	BARRON	0600 AM
3.00	7 S HILLMAN	MN	MORRISON	1111 PM
2.90	MILACA	MN	MILLE LACS	0700 AM
2.50	RED WING	MN	GOODHUE	0813 AM
2.50	OWATONNA	MN	STEELE	0700 AM
2.30	3 WNW LADYSMITH	WI	RUSK	0600 AM
2.10	SPRING VALLEY	WI	PIERCE	0800 AM
2.00	RICE	MN	BENTON	0700 AM
2.00	JIM FALLS	WI	CHIPPEWA	0600 AM
2.00	2 NNW SPRINGFIELD	MN	BROWN	0600 AM
1.10	ELK MOUND	WI	DUNN	0700 AM
1.10	N WILLMAR	MN	KANDIYOHI	0700 AM
0.90	ST CLOUD	MN	STEARNS	1201 AM

Text Listing Of Snowfall Amounts Across the Plains and Midwest From This Storm

STORM SUMMARY NUMBER 5 FOR CENTRAL U.S. WINTER STORM
NWS HYDROMETEOROLOGICAL PREDICTION CENTER CAMP SPRINGS MD
255 PM CST SUN NOV 14 2010

...SELECTED STORM TOTAL SNOWFALL IN INCHES FROM 700 AM CST FRI NOV
12 THROUGH 300 PM CST SUN NOV 14...

...WISCONSIN...	
HAWTHORNE	11.0
MAPLE	10.5
POPLAR	9.5
OULU	8.0
SOUTH RANGE	8.0
SOLON SPRINGS	7.2
CLAM LAKE 4 W	7.0
GRANTSBURG 4 N	6.5
SARONA	6.5
HAYWARD 8 S	6.2
BENNETT	6.0
DRUMMOND	5.3
CUMBERLAND	5.0
...IOWA...	
EMMETSBURG	14.0
ALTA 5SW	8.0
ARTHUR 4S	8.0
SPENCER	6.0
SPIRIT LAKE	6.0
LITTLE SIOUX	4.0
...KANSAS...	
MORROWVILLE 8N	2.0
...MICHIGAN...	
WATTON	3.5
...NEBRASKA...	
GRETNA 4NE	4.0
...TEXAS...	
BUSHLAND	5.5
AMARILLO 5W	5.0
VEGA 3NW	5.0
WILDORADO 6S	5.0

Thundersnow and Heavy Snowfall Rates

As a strong area of low pressure moved from Iowa into the far southeast corner of Minnesota, banded heavy snow developed across southern and east central Minnesota. **Snowfall rates of at least 2 inches per hour** were observed at several locations. This was driven by thundersnow in places, where heavy precipitation rates (just as with rain in summertime thunderstorms) made for rapid accumulating snow and low visibilities. Cloud-to-ground lightning was detected in the Twin Cities metropolitan area near the same time heavy snow was observed at the airport (see image below). The thundersnow originated in areas of larger vertical instability aloft than is seen

in most winter storms. Lightning was observed from northwest Missouri, through Iowa, into Minnesota. The heavy bands could be seen on radar such as to the right, and on satellite as seen below. Meteorologists use these instruments combined with observations at area airports and from trained spotters, to know when heavy snowfall is occurring.



Nov. 13th: 8:30 am NWS Chanhassen Radar Image. Heavier snow bands in the Twin primarily highlighted by >35 dBZ return echoes

