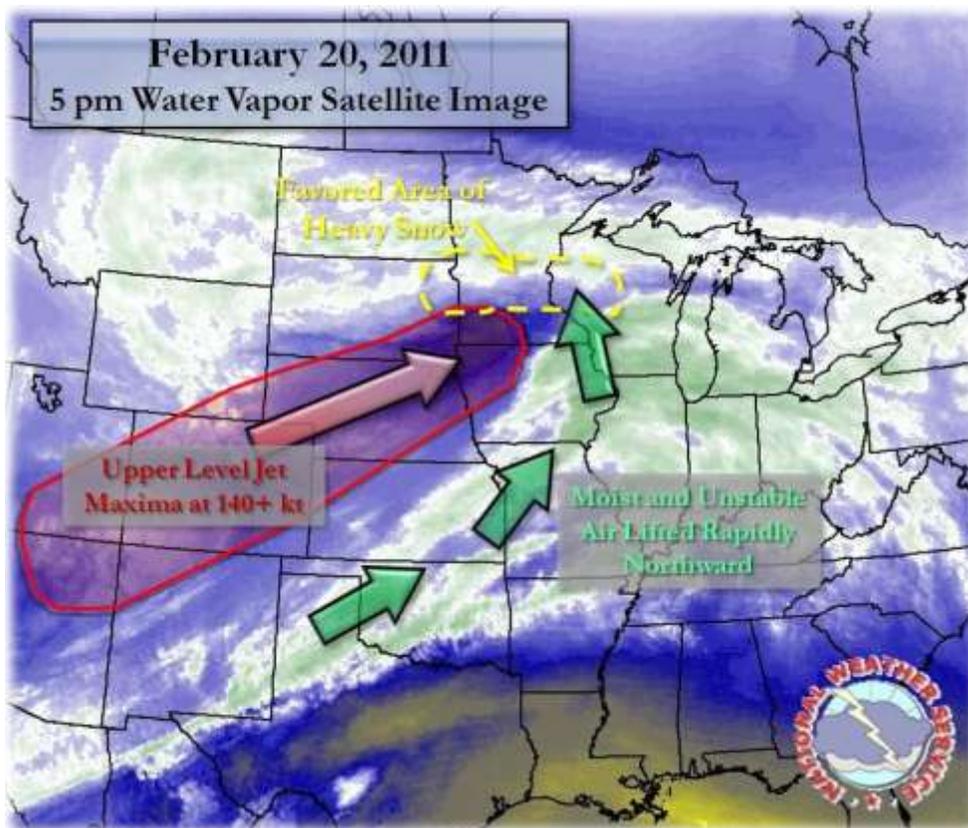
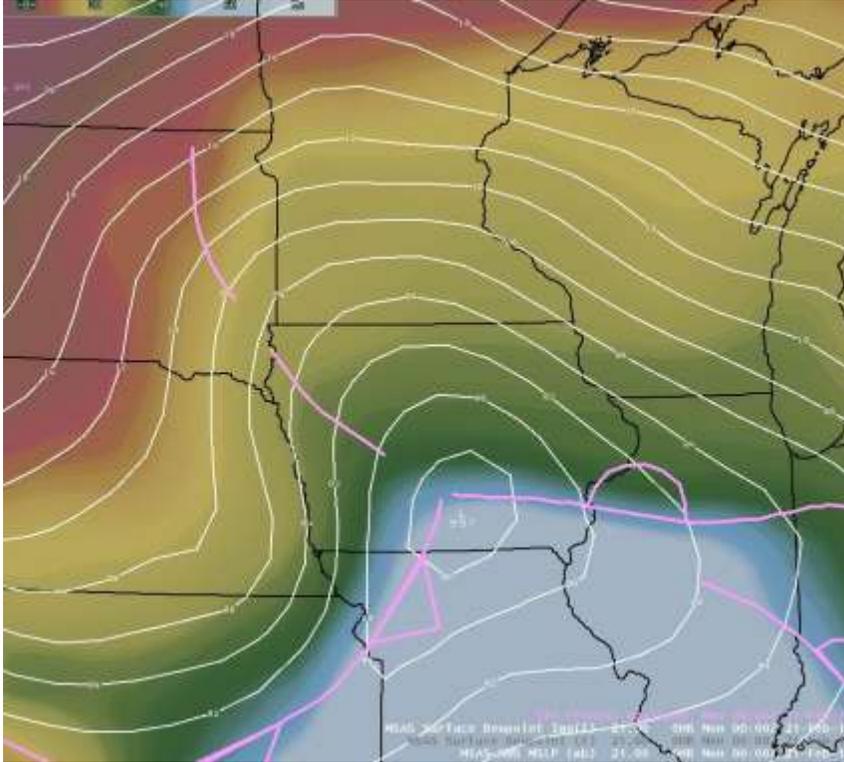


February 20th-21st, 2011 Significant Winter Storm

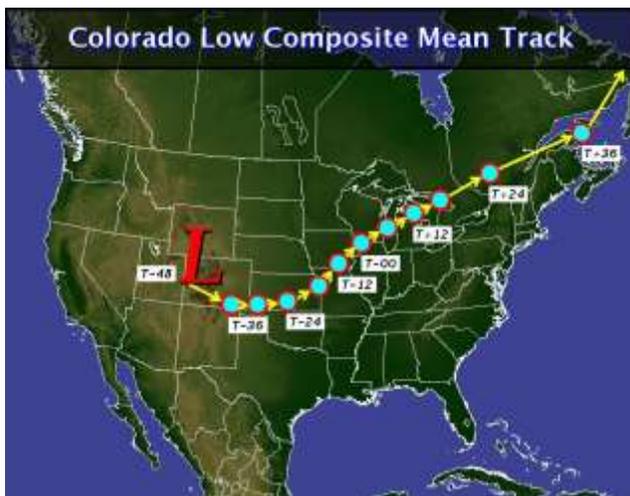
Overview

After a respite of a few weeks in what is becoming one of the most active winters on record, a large and intense winter storm blanketed the region with heavy snowfall, including blizzard conditions in western Minnesota. This system developed quickly late Saturday night (19th) and into the early hours of Sunday (20th), as a strong jet stream moved across the western United States. Well above normal, deep moisture for late February, expanded north across the entire Mississippi River Valley and into the Upper Midwest. Mixed precipitation of snow, sleet, and freezing rain across southwest and south central Minnesota gradually spread northeast Sunday morning. In most areas north of the Interstate 90 corridor, the precipitation either began or quickly turned to heavy snow. Thunderstorms across eastern Nebraska and Iowa on Sunday morning pushed northward into the snowfall region of the system, leading to thundersnow and very heavy snowfall rates at times. The Twin Cities experienced the heaviest snow from late Sunday morning, through the afternoon, and into the middle of the evening.





Feb 20th: 6 pm Surface Weather Map. Low pressure deepening over southern Iowa as it tracks east northeast. A deepening trend of a surface low pressure can often be favorable for heavy precipitation. The image is surface dew points. The abnormally high dew points south of the warm front was a signal to meteorologists how much moisture was being lifted into this system.



Colorado Low Pressure Snow Storm Path. This is a composite, or "average" map of low pressure tracks since 1950 that have originated in Colorado and produced at least six inches of snow at the Twin Cities. Note the low track across southeast Iowa, very similar to the February 20th-21st one. While not shown on this graphic, the average magnitude of the Colorado Lows was surpassed by this storm system, an indication of just how strong it was.



5 pm Surface Observations. The visibility in statute miles is the number underneath the circle. Note the frequent "1/4" and "0", including at MSP International Airport. Those are direct indications of heavy snow (and blowing snow at times). It is an extreme rarity that 0SM is observed at the airport.

Climate Facts

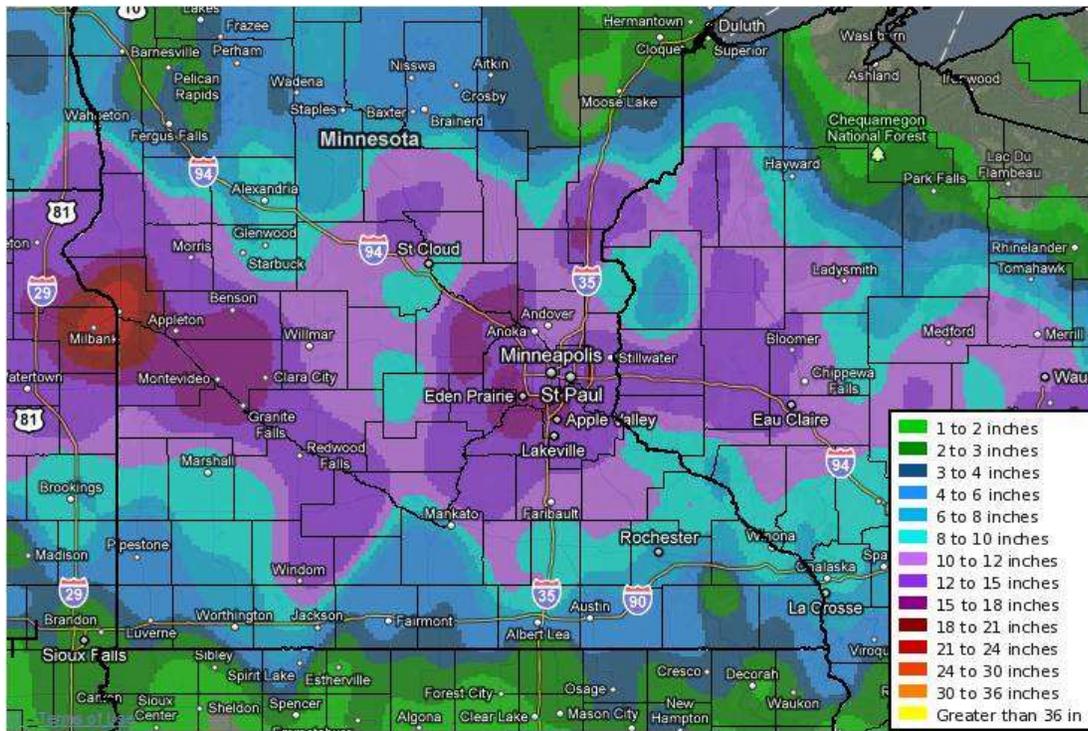
- The official observed 13.8 inches makes this event the **largest February snow storm for the Twin Cities on record**, breaking the old record of February 1-2, 2004. February is traditionally a quieter time in the Twin Cities weather wise, with large snow storms such as this one being somewhat of a rarity. In fact, for the November through March season, February averages the least amount of snow, with an average monthly total of only 8.2 inches (November averages 10.0", December 10.0", January 13.5", and March 10.4"). Not only were the 13.8 inches of snow observed at MSP a new record for snowfall from a single storm in the month of February, it also marks the **first time a single storm has dumped more than a foot of snow on the Twin Cities in February on record**. The table below has the top five February snow storms of all time for the Twin Cities.

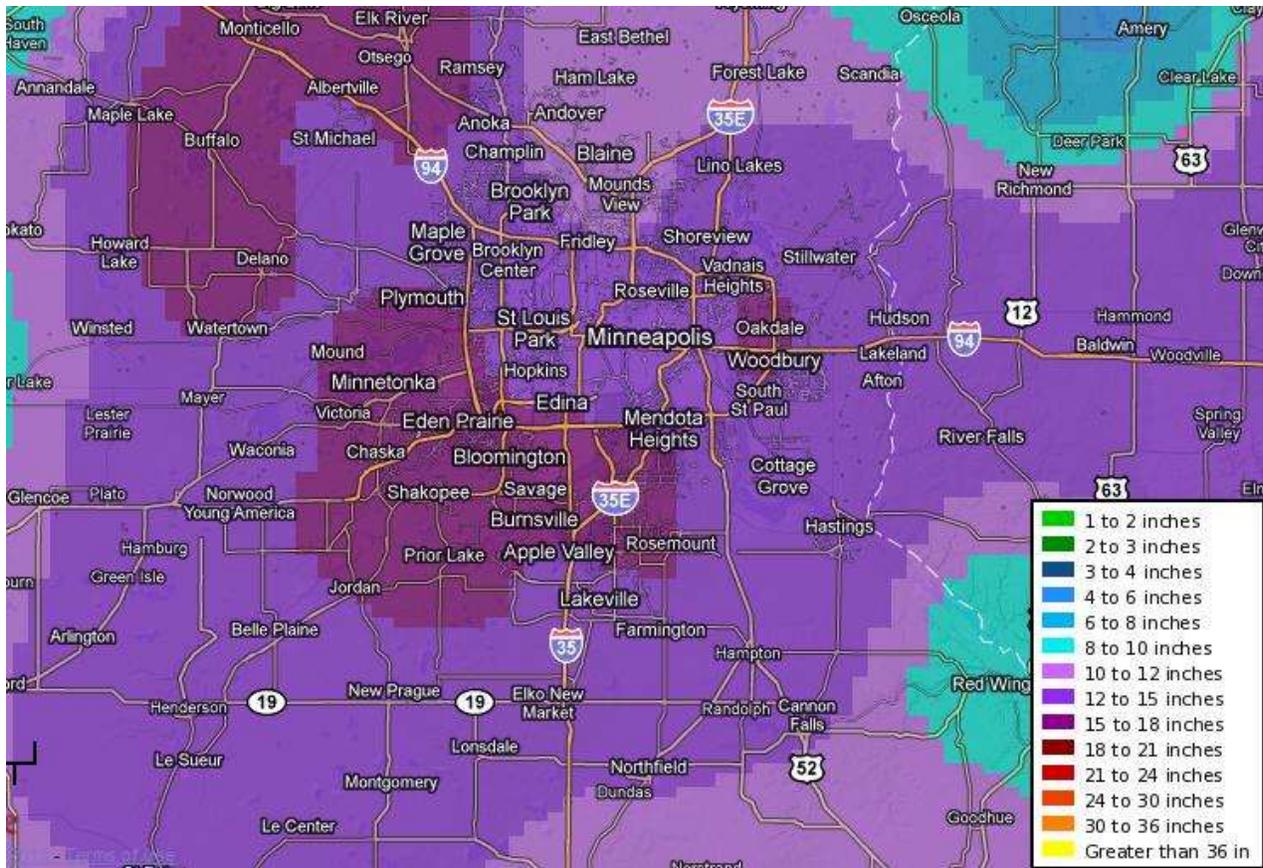
Top 5 February Snow Storms for the Twin Cities		
1)	Feb. 20-21 2011	13.8"
2)	Feb. 1-3 2004	11.2"
3)	Feb. 19-20 1952	10.5"
4)	Feb. 22 1913	8.8"
5)	Feb. 24-25 2007	8.7"

- This event was in the **15th largest snow storm on record for the Twin Cities**. This winter had already seen the fifth largest snow storm on record, on December 10-11, 2010.

- The snow total of 11.8 inches alone on February 20th was the **highest calendar day snowfall total for February on record for the Twin Cities**, surpassing February 9, 1909 when 9.0 inches of snow fell.
- With this event, the Twin Cities were officially up to 74.9 inches of snow for the 2010-2011 winter. This means the **Twin Cities are already in the top ten for snow amounts in a winter**.

Snowfall Amounts





Text Listing of Snowfall Amounts

...SNOWFALL TOTALS FROM THE FEBRUARY 20TH-21ST STORM SYSTEM...

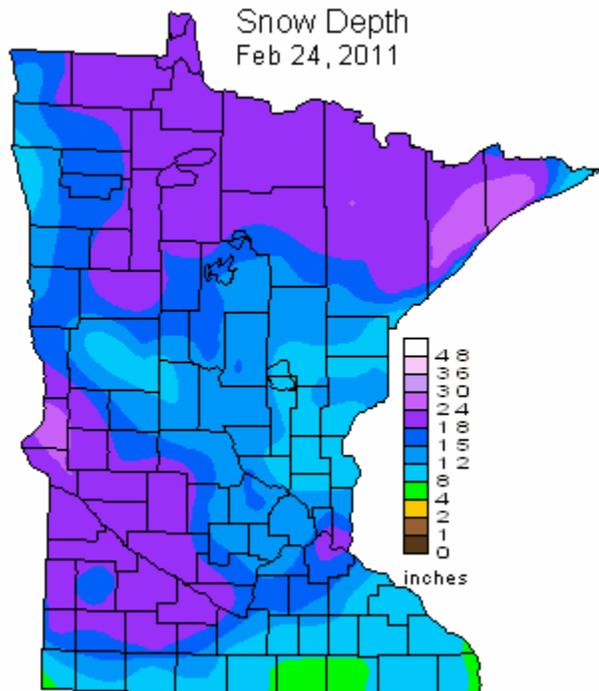
SNOW REPORTS LISTED BY AMOUNT

INCHES	LOCATION	ST	COUNTY	TIME
20.00	MADISON	MN	LAC QUI PARLE	0830 PM
19.60	BLOOMINGTON	MN	HENNEPIN	0825 PM
19.00	3 NW EDEN PRAIRIE	MN	HENNEPIN	0515 PM
18.00	CREDIT RIVER	MN	SCOTT	0937 PM
18.00	BURNSVILLE	MN	DAKOTA	0519 PM
17.50	SPRINGFIELD	MN	BROWN	0840 AM
16.30	1 SSW MONTEVIDEO	MN	CHIPPEWA	0700 AM
15.50	2 W PRIOR LAKE	MN	SCOTT	0900 AM
15.10	LAKEVILLE	MN	DAKOTA	0814 PM
15.10	RICHFIELD	MN	HENNEPIN	0820 PM
15.00	OSCEOLA	WI	POLK	0500 PM
15.00	MENOMONIE	WI	DUNN	0552 PM
15.00	3 SSW BURNSVILLE	MN	DAKOTA	0845 AM
14.20	1 N PRIOR LAKE	MN	SCOTT	0930 PM
14.00	INVER GROVE HEIGHTS	MN	DAKOTA	1002 PM

14.00	WOODBURY	MN	WASHINGTON	0800 AM
14.00	EDEN PRAIRIE	MN	HENNEPIN	0809 PM
14.00	RED WING	MN	GOODHUE	0730 PM
13.60	ANDOVER	MN	ANOKA	1024 PM
13.50	MAPLEWOOD	MN	RAMSEY	1210 PM
13.80	MINNEAPOLIS (MSP AIRPORT)	MN	HENNEPIN	1240 AM
13.70	CHANHASSEN (NWS OFFICE)	MN	CARVER	1240 AM
13.30	ST PAUL	MN	RAMSEY	0610 AM
13.00	GRANITE FALLS	MN	CHIPPEWA	1013 AM
12.90	3 WNW RICE	MN	STEARNS	0700 AM
12.70	EDINA	MN	HENNEPIN	0203 PM
12.70	1 NW BURNSVILLE	MN	DAKOTA	0700 PM
12.60	COON RAPIDS	MN	ANOKA	0638 PM
12.50	CARVER	MN	CARVER	0700 AM
12.40	HASTINGS	MN	DAKOTA	0907 PM
12.40	ROBERTS	WI	ST. CROIX	0800 AM
12.30	5 SW ST PAUL	MN	RAMSEY	0845 AM
12.00	1 N CAMERON	WI	BARRON	0500 PM
12.00	MANKATO	MN	BLUE EARTH	0333 PM
12.00	LAKE ELMO	MN	WASHINGTON	0800 AM
12.00	3 N BLOOMER	WI	CHIPPEWA	0730 AM
12.00	BALDWIN	WI	ST. CROIX	0700 AM
12.00	3 SW MINNEAPOLIS	MN	HENNEPIN	0900 PM
12.00	SHAKOPEE	MN	SCOTT	0854 PM
11.60	JORDAN	MN	SCOTT	0710 AM
11.50	MILROY	MN	REDWOOD	0700 AM
11.20	MADELIA	MN	WATONWAN	0300 AM
11.10	BLAINE	MN	ANOKA	0917 PM
11.00	CLAYTON	MN	POLK	0600 AM
11.00	DURAND	WI	PEPIN	1000 PM
11.00	SAUK RAPIDS	MN	BENTON	0800 PM
11.00	MORGAN	MN	REDWOOD	0702 AM
11.00	4 NNE MAPLEWOOD	MN	RAMSEY	0830 PM
11.00	1 ESE CHASKA	MN	CARVER	0800 PM
10.60	3 NNW MINNEAPOLIS	MN	HENNEPIN	0346 PM
10.60	MINNETONKA	MN	HENNEPIN	0803 AM
10.50	CLAYTON	WI	POLK	0616 PM
10.50	LITCHFIELD	MN	MEEKER	0420 PM
10.50	ELK MOUND	WI	DUNN	0600 AM
10.50	REDWOOD FALLS	MN	REDWOOD	0500 AM
10.30	7 S HILLMAN	MN	MORRISON	0335 PM
10.20	OAKDALE	MN	WASHINGTON	0747 PM
10.00	GLENWOOD	MN	POPE	0600 PM
10.00	ST JAMES	MN	WATONWAN	0700 PM
10.00	COMFREY	MN	BROWN	1210 PM
10.00	BROWNTON	MN	MCLEOD	1210 PM
10.00	NW GILMAN	MN	BENTON	0828 AM
10.00	ISANTI	MN	ISANTI	0626 AM
10.00	EAU CLAIRE WQOW	WI	EAU CLAIRE	0500 AM
10.00	2 N MENOMONIE	WI	DUNN	1100 PM
10.00	1 W CARVER	MN	CARVER	0900 PM
10.00	4 SSW MINNEAPOLIS	MN	HENNEPIN	0700 PM
10.00	ST PETER	MN	NICOLLET	0530 PM
9.70	WACONIA	MN	CARVER	0803 AM
9.70	NORTH MANKATO	MN	NICOLLET	0700 AM
9.50	STILLWATER	MN	WASHINGTON	0936 PM
9.00	HAUGEN	WI	BARRON	1200 PM

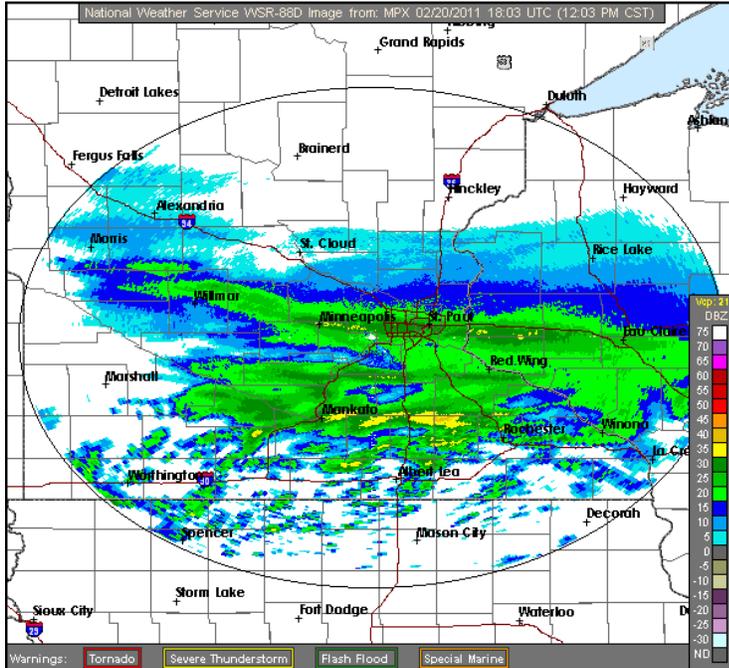
9.00	ELLENDALE	MN	STEELE	0615 PM
9.00	CAMBRIDGE	MN	ISANTI	0540 PM
9.00	HUTCHINSON	MN	MCLEOD	1145 AM
9.00	BARRON	WI	BARRON	0728 AM
9.00	3 ENE MONTGOMERY	MN	RICE	0700 AM
9.00	LONSDALE	MN	RICE	0600 AM
9.00	GLENCOE	MN	MCLEOD	0151 AM
8.90	MONTICELLO	MN	WRIGHT	0915 PM
8.60	NEW HOPE	MN	HENNEPIN	0658 AM
8.60	9 NNE BIRD ISLAND	MN	RENVILLE	0630 AM
8.50	RUSH CITY	MN	CHISAGO	0815 AM
8.60	ST CLOUD	MN	STEARNS	1240 AM
8.30	NEW ULM	MN	BROWN	1038 AM
8.10	BOWLUS	MN	MORRISON	0829 AM
8.00	VESTA	MN	REDWOOD	0200 PM
8.00	3 SE NEW ULM	MN	BROWN	0800 AM
8.00	OWATONNA	MN	STEELE	0800 AM
8.00	2 S ST FRANCIS	MN	ANOKA	0731 AM
8.00	MILACA	MN	MILLE LACS	0730 AM
8.00	RICE LAKE	WI	BARRON	0725 AM
8.00	FARIBAULT	MN	RICE	0700 AM
8.00	ALBANY	MN	STEARNS	0700 AM
8.00	CARLOS	MN	DOUGLAS	0552 AM
8.00	LESTER PRAIRIE	MN	MCLEOD	0338 PM
7.60	RICE	MN	BENTON	0700 AM
7.50	1 NNW COLD SPRING	MN	STEARNS	0600 AM
7.50	FOREST LAKE	MN	WASHINGTON	0554 AM
7.20	JIM FALLS	WI	CHIPPEWA	0610 AM
7.10	STANLEY	WI	CHIPPEWA	0936 AM
7.00	ROCKFORD	MN	HENNEPIN	0203 PM
7.00	5 NE FOREST LAKE	MN	CHISAGO	0441 AM
6.80	CHAMPLIN	MN	HENNEPIN	1015 PM
6.50	LITTLE FALLS	MN	MORRISON	0600 AM
6.30	NEW HOPE	MN	HENNEPIN	0700 PM
6.00	ONAMIA	MN	MILLE LACS	1117 AM
6.00	NORTH BRANCH	MN	CHISAGO	0936 AM
6.00	13 N ALEXANDRIA	MN	DOUGLAS	0936 AM
6.00	3 WSW PRINCETON	MN	SHERBURNE	0630 AM
6.00	2 NNW WAITE PARK	MN	STEARNS	1057 PM
5.50	WELCOME	MN	MARTIN	0600 PM
5.00	MAPLETON	MN	BLUE EARTH	1117 AM
4.80	WILLMAR	MN	KANDIYOHI	0400 PM
4.50	ONAMIA	MN	MILLE LACS	0233 PM
4.00	WINTHROP	MN	SIBLEY	0420 PM
4.00	1 S TRIMONT	MN	MARTIN	1023 AM
3.50	LONG PRAIRIE	MN	TODD	0600 AM
3.50	ALBERT LEA	MN	FREEBORN	1023 AM
3.00	WINNEBAGO	MN	FARIBAULT	0700 PM
3.00	BLUE EARTH	MN	FARIBAULT	1229 PM

Snow Depth as of February 24th

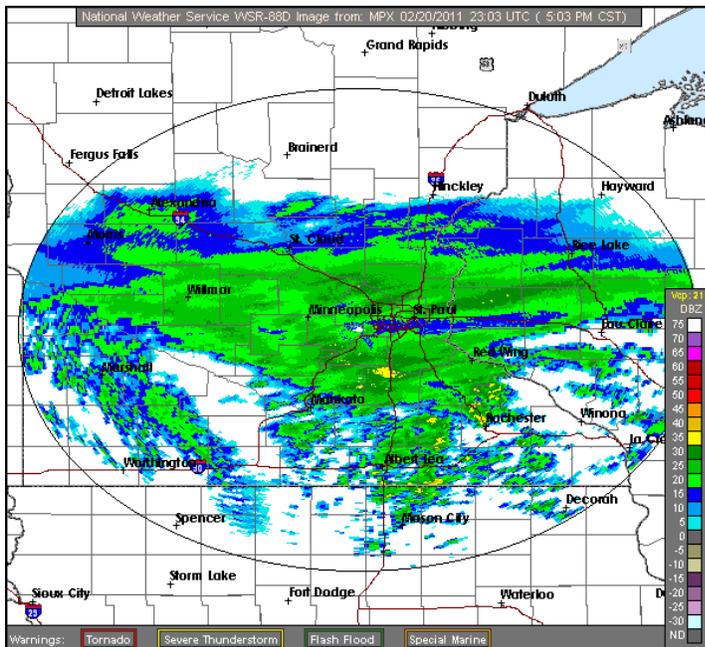


DNR EcoWat - State Climatology Office, 02-24-2011

Radar



NWS Chanhassen Radar: Feb 20th, 12 pm. A combination of freezing rain, sleet, and snow was being observed across southern Minnesota at this time. The high dBZ indicates this transitional precipitation. As this area of instability would move northward into the snow band over the Twin Cities, heavy snow was seen most of the afternoon.



NWS Chanhassen Radar: Feb 20th, 5 pm. West to east snow bands are still in place during the late afternoon from western Minnesota through western Wisconsin, including directly across the Twin Cities metro area. At this time, zero visibility was being observed at MSP Airport. Convective elements as indicated by scattered echoes on radar over southeast Minnesota continue to advect into these bands, indicating the likelihood of heavy precipitation rates.