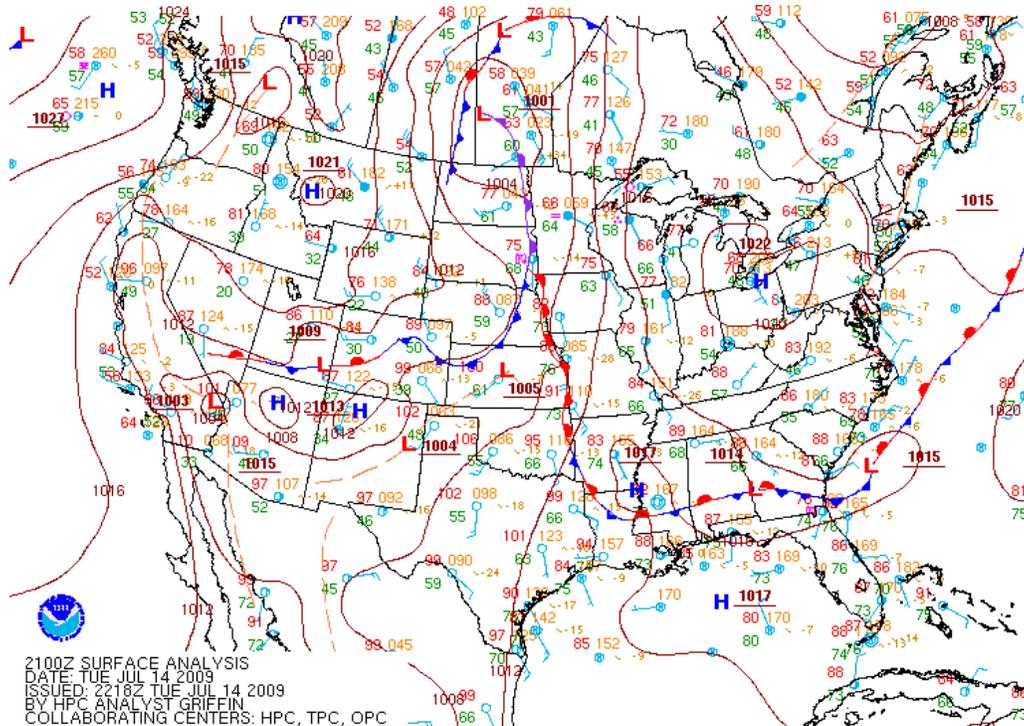


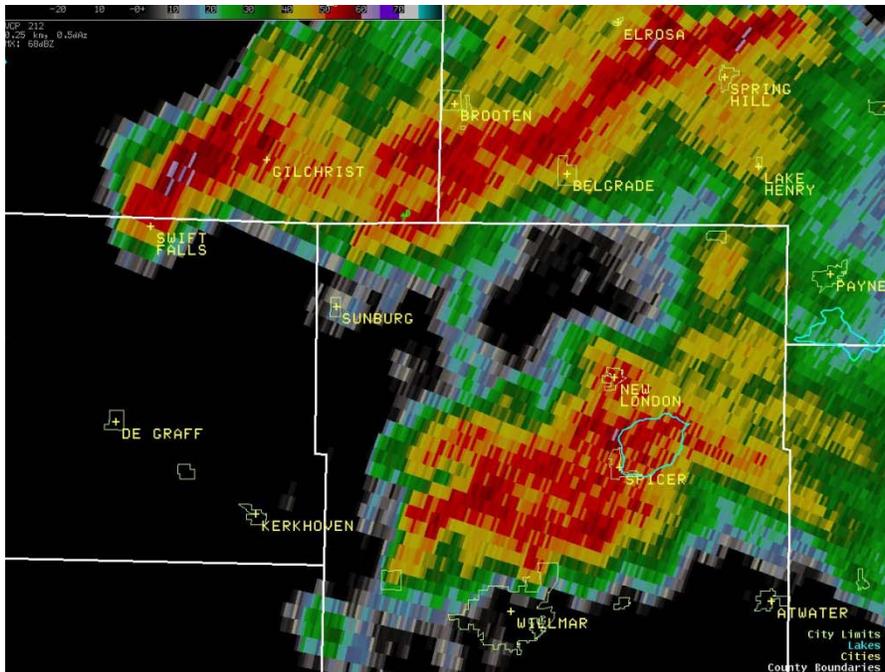
# July 14, 2009: Swift Falls and Spicer Area Tornadoes

## Event Synopsis

Low pressure had organized during July 14th northwest of Minnesota with a secondary low near Sioux Falls. Strong moisture return ahead of this elongated weather system set the stage for afternoon thunderstorm development. Some places actually experienced a 24 hour dew point change of as much as 30 degrees from the prior afternoon, which is quite rare in the summer months for this part of the country. Surface winds were gusty from the south southeast through the day, while winds 15 to 20 thousand feet aloft were from the west southwest at around 70 mph, leading to a favorable wind profile for supercell thunderstorms. Such thunderstorms developed during the mid-afternoon and moved east northeast. Two tornadoes were produced, which tracked through the communities of Swift Falls and Spicer respectively. Flash flooding also occurred in central Minnesota that late afternoon into early evening as the storms evolved into training heavy rain producers.



July 14, 2009: 4 pm Surface Weather Map



July 14, 2009: 4:24 pm Radar Image NWS Chanhassen Doppler Radar reflectivity image of the storm which had a tornado near Swift Falls at the time. To the southeast, one will note the more disorganized storm which 20 minutes later rapidly evolved into the tornado producer near Spicer.

## Tornadoes

National Weather Service personnel from the Chanhassen Forecast Office conducted a damage assessment in the Swift Falls and Spicer, Minnesota areas following the tornadoes on July 14, 2009.

Swift Falls area tornado...

The maximum intensity tornado damage in the Swift Falls area was found to be EF-2, with estimated winds between 110 and 119 mph. There were no reported fatalities or injuries with this tornado. The entire path length was approximately 9 miles, with a maximum width of 350 yards. The tornado began about 3 miles southwest of Swift Falls in far northern Swift County. It tracked northeast through Swift Falls, and ended on the shore (or possibly over) Scandinavian Lake in far southern Pope County. The most significant damage was along the first 1 mile of the tornado path, where 2 large turkey barns were completely destroyed. The next 5 miles of the track were highlighted by EF-1 damage with winds between 85 and 100 mph, which included significant tree damage in Swift Falls. The tornado produced EF-1 damage to 2 residences, destroying 2 garages and other

outbuildings with minor roof damage to their homes. The tornado produced mainly minor crop and tree damage over the last 4 miles of its path. Touchdown time appeared to be 4:21 PM CDT, with an end time around 4:37 PM, for an average movement of around 34 mph.

Spicer area tornado and wind damage...

The tornado that struck Spicer in central Kandiyohi County had a maximum intensity of EF-1 damage with winds estimated between 100 and 109 mph. There were no reported fatalities or injuries with this tornado. The track was approximately 6.5 miles, with a maximum width of 250 yards. The beginning of the path was 2 miles southwest of Spicer. The tornado tracked northeast through Spicer, including the area along the southern shore of Green Lake. It then emerged over the lake and faded soon after moving back over land, about  $\frac{3}{4}$  mile south of the inlet from Calhoun Lake. The most significant damage was roughly 1-2 miles into the tornado path, or just southwest of Spicer, where a home was damaged along with significant tree damage. Within Spicer, the tornado continued to produce EF-1 damage, breaking windows in dozens of vehicles across the Green Lake Mall parking lot, and uplifting a large part of a house and garage roof. The final 4 miles of the tornado track had minor EF-0 tree and shingle damage. Touchdown time appeared to be 4:41 PM CDT, with an end time of 4:53 PM, for an average movement of around 33 mph.

Approximately  $\frac{1}{2}$  mile south of the Spicer tornado was localized but extensive tree damage. The nature, location and timing of this damage was determined to be straight-line winds from the rear flank downdraft of this tornadic thunderstorm. The damage occurred roughly at the same time the tornado was dissipating. Estimated winds were between 90 and 100 mph. Such a phenomena can occur with a strongly rotating thunderstorm and can often happen in the latter period of the tornado cycle.

## Photos

### *Swift Falls Area Tornado Damage*



Garage destroyed southwest of Swift Falls.



Outbuilding heavily damaged southwest of Swift Falls.



Numerous large trees uprooted and in a convergent damage path within Swift Falls.



Tree damage northeast of swift Falls



Property and tree damage, including outbuilding destruction, northeast of Swift Falls.

***Spicer Area Tornado and Wind Damage***



Garage walls collapsed southwest of Spicer.



House partially destroyed southwest of Spicer.



Baseball outfield billboard damaged in Spicer.



House roof heavily damaged in Spicer.

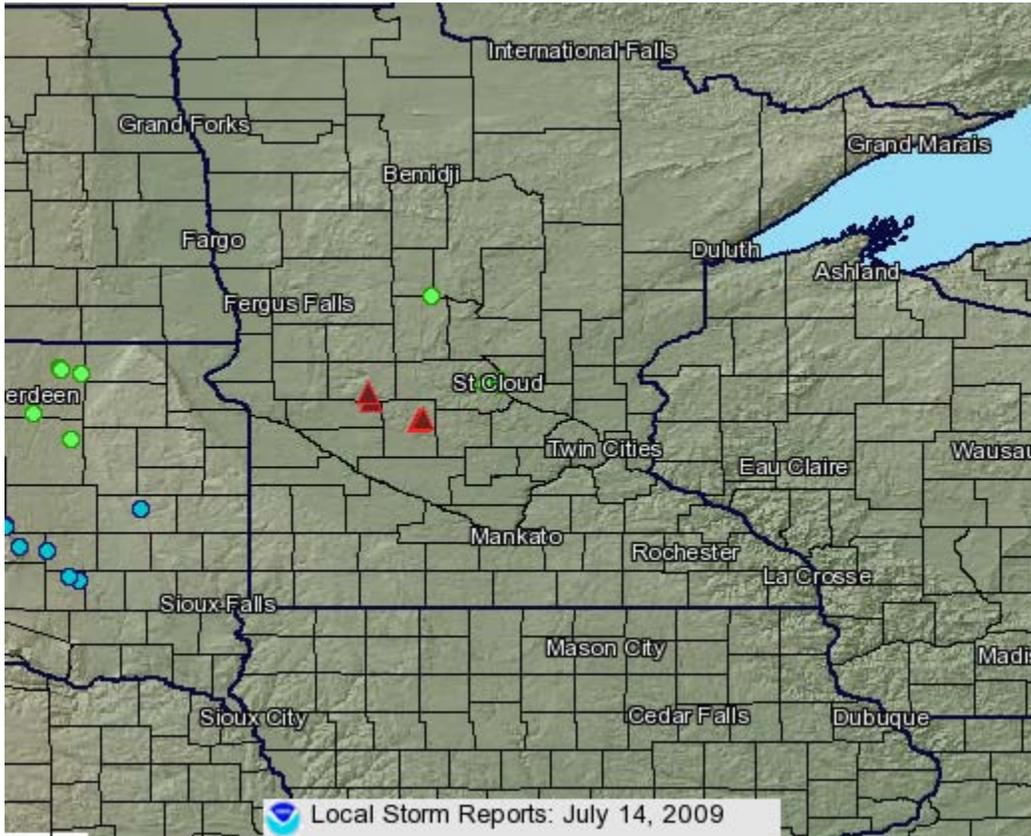


Large tree uprooted near Green Lake.



Straight-line tree damage a few miles east of downtown Spicer.

# Storm Reports



**PRELIMINARY LOCAL STORM REPORT...SUMMARY  
NATIONAL WEATHER SERVICE TWIN CITIES/CHANHASSEN MN**

..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...
..DATE...	....MAG....	..COUNTY LOCATION..ST..	...SOURCE....
	..REMARKS..		
0415 PM 07/14/2009	FUNNEL CLOUD	4 NE BENSON SWIFT MN	45.36N 95.55W TRAINED SPOTTER
0421 PM 07/14/2009	TORNADO	3 SW SWIFT FALLS SWIFT MN	45.37N 95.39W NWS STORM SURVEY

AN NWS STORM SURVEY AND VISUAL REPORTS CONFIRM A TORNADO FROM 3 MILES SOUTHWEST OF SWIFT FALLS TO 6 MILES NORTHWEST OF SWIFT FALLS. MAXIMUM DAMAGE WAS EF-2 WITH ESTIMATED WINDS 110-119 MPH. TORNADO DAMAGE INCLUDED DESTRUCTION OF TWO TURKEY BARNs AND SEVERAL OUTBUILDINGS ALONG WITH EXTENSIVE TREE DAMAGE IN SWIFT FALLS.

0441 PM 07/14/2009	TORNADO	2 SW SPICER KANDIYOHI MN	45.21N 94.97W NWS STORM SURVEY
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AN NWS STORM SURVEY...VISUAL REPORTS...AND VIDEO CONFIRMED A TORNADO FROM TWO MILES SOUTHWEST OF DOWNTOWN

SPICER TO APPROXIMATELY FOUR MILES EAST NORTHEAST OF DOWNTOWN SPICER. MAXIMUM DAMAGE WAS EF-1 WITH ESTIMATED WINDS 100 TO 109 MPH. DAMAGE INCLUDED PARTIAL DESTRUCTION TO THE UPPER LEVEL OF ONE HOUSE...PARTIAL ROOF UPLIFT ON MULTIPLE HOUSES...MAJOR DAMAGE TO A FEW OUTBUILDINGS...AND DOZENS OF CAR WINDOWS BROKEN IN THE GREEN MALL PARKING LOT.

0453 PM TSTM WND DMG 4 E SPICER 45.23N 94.86W  
07/14/2009 KANDIYOHI MN NWS STORM SURVEY

AN NWS STORM SURVEY FOUND STRAIGHT-LINE THUNDERSTORM WIND DAMAGE ASSOCIATED WITH THE REAR-FLANK DOWNDRAFT OF THE TORNADIC THUNDERSTORM WHICH WENT THROUGH SPICER. LOCALIZED EXTENSIVE TREE DAMAGE WAS FOUND. ESTIMATED WINDS WERE BETWEEN 90 AND 100 MPH.

0507 PM TORNADO 1 NW ELROSA 45.96N 95.75W  
07/14/2009 STEARNS MN TRAINED SPOTTER

0508 PM HAIL 5 SW EVANSVILLE 45.96N 95.75W  
07/14/2009 M0.88 INCH DOUGLAS MN TRAINED SPOTTER

0545 PM FLASH FLOOD STAPLES 46.36N 94.80W  
07/14/2009 TODD MN LAW ENFORCEMENT

EVACUATIONS FOR HOMES ON 5TH ST. POWER SHUT OFF TO STAPLES HIGH RISE APTS ON 4TH ST.

0552 PM FUNNEL CLOUD 2 E RICHMOND 45.45N 94.48W  
07/14/2009 STEARNS MN TRAINED SPOTTER

0625 PM FUNNEL CLOUD 2 N ST CLOUD 45.58N 94.17W  
07/14/2009 STEARNS MN TRAINED SPOTTER

HAVE RECEIVED MULTIPLE REPORTS OF FUNNEL CLOUDS IN THE ST CLOUD AREA.

0630 PM FLOOD ST CLOUD 45.55N 94.17W  
07/14/2009 STEARNS MN LAW ENFORCEMENT

CO SHERIFF REPORTED LOCALIZED FLOODING PROBLEMS MAINLY URBAN AREAS IN STREETS

0635 PM FUNNEL CLOUD 4 WNW DUELM 45.58N 94.01W  
07/14/2009 BENTON MN TRAINED SPOTTER

SPOTTERS WERE NORTH OF DUELM LOOKING WEST.

0715 PM HEAVY RAIN ST JOSEPH 45.57N 94.32W  
07/14/2009 M2.80 INCH STEARNS MN CO-OP OBSERVER

RECIEVED 2.8 INCHES OF RAIN FROM AFTERNOON THUNDERSTORMS.

0731 PM HEAVY RAIN 3 N ST CLOUD 45.60N 94.18W  
07/14/2009 M3.00 INCH BENTON MN TRAINED SPOTTER