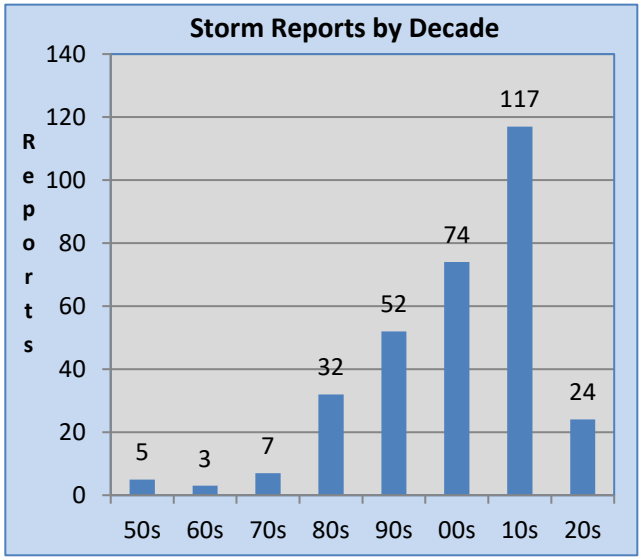
Waupaca County Severe Weather Facts (1950-2023)

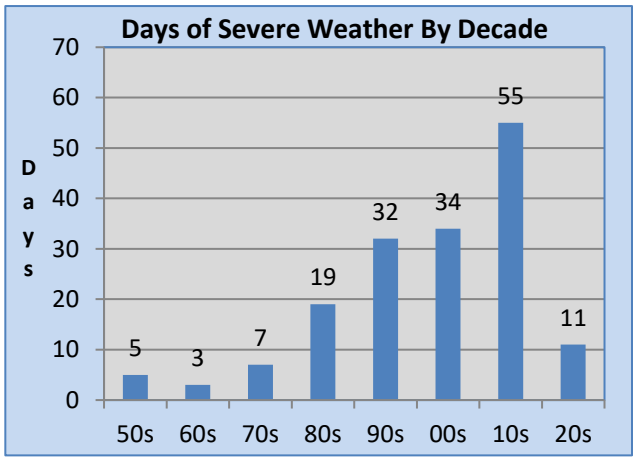
Updated: 01/01/24: Next Update January 2025

Storm Reports by Decade

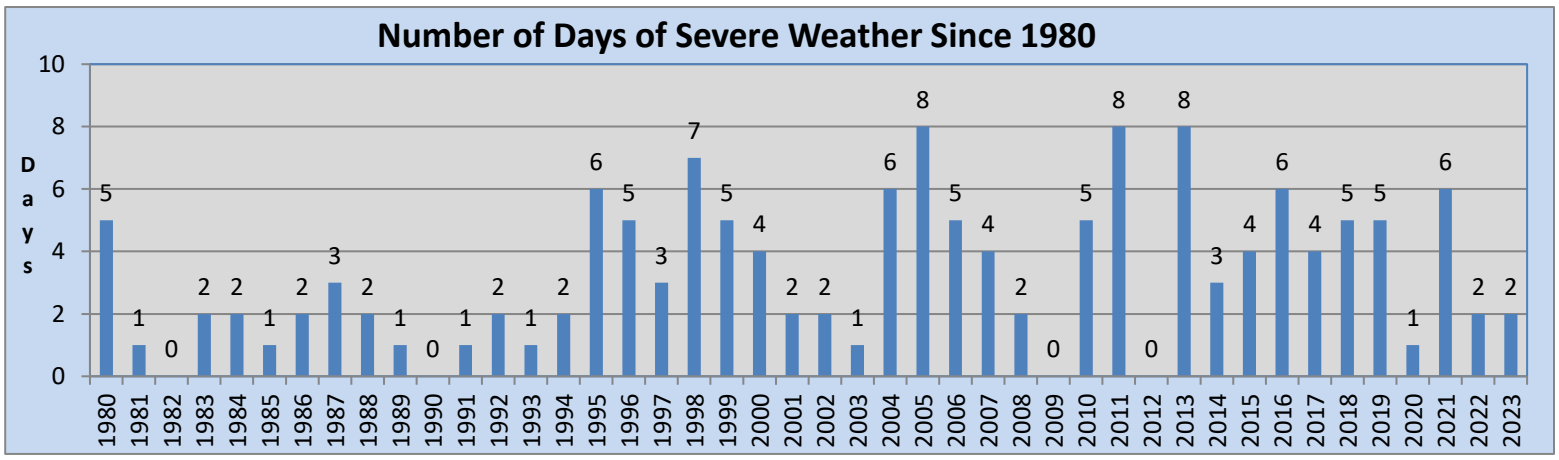


Since 1950 there have been 314 documented reports of large hail, damaging winds and tornadoes across Waupaca County. The population boom of the 1980s and 1990s combined with the SKYWARN program led to an increase in the number of reports of severe weather during both decades. The number of reports increased 60% from the 2014-2023 period compared to the 1990s, one can't say for sure there has been an increase in severe weather across northeast Wisconsin. One possible reason for the apparent increase in reports is that in some instances, multiple reports were received from a single location for the same storm due to more spotters today. Another reason for the increase in storm reports has been the focus by the National Weather Service (NWS) to improve warning verification. The most active year was 2007 and 2011 with 17 reports followed by 16 reports in 2005 and 2012, 15 reports in 1998 and 2013, and 13 reports in 2016 and 2021, and 10 reports in 2006 and 2010. Since 1980, there were no reports of severe weather in a given year in: 1982, 1990 and 2009. In 2023, there was one report of large hail on July 28, and one report of strong winds/wind damage on August 11.

Days of Severe Weather by Decade



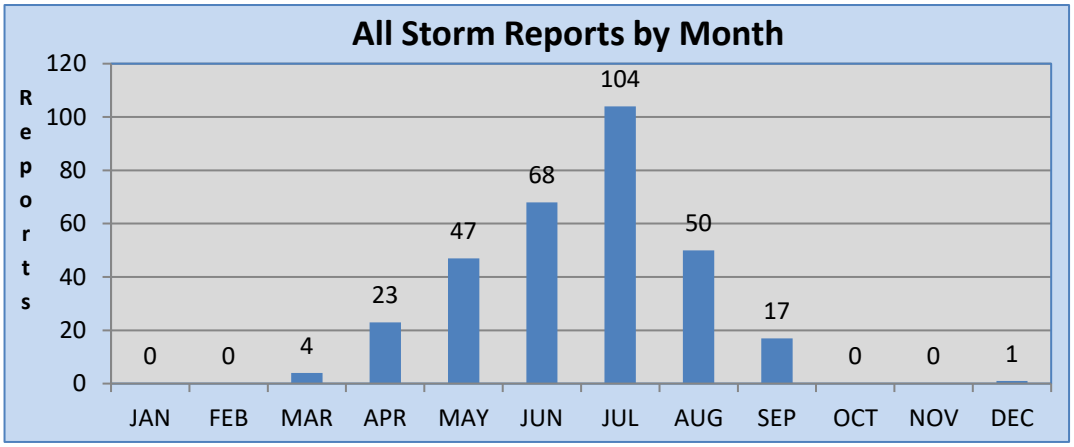
In order to address the impact of multiple reports for the same storm, the data was examined by the number of severe weather days. Since the reports were sporadic during the 1950s through the 1970s, only data from 1980 to present was used. There has been an 19% increase in the number of days of severe weather from the 2014-2023 period compared to the 1990s. This trend can be attributed to the increase in population, technology advances in reporting severe weather, and greater severe weather awareness by the public. Since 2010, Waupaca County averages 4.2 days of severe weather a given year. The long-term average from 1980-2023 is 3.4 days. The most active years were 2005, 2011 and 2013 with eight days of severe weather; followed by seven days of severe weather in 1998 and 2012, and six days in 1995, 2004, 2016 and 2021. In 2023, there was one report of large hail on July 28, and one report of strong winds/wind damage on August 11.

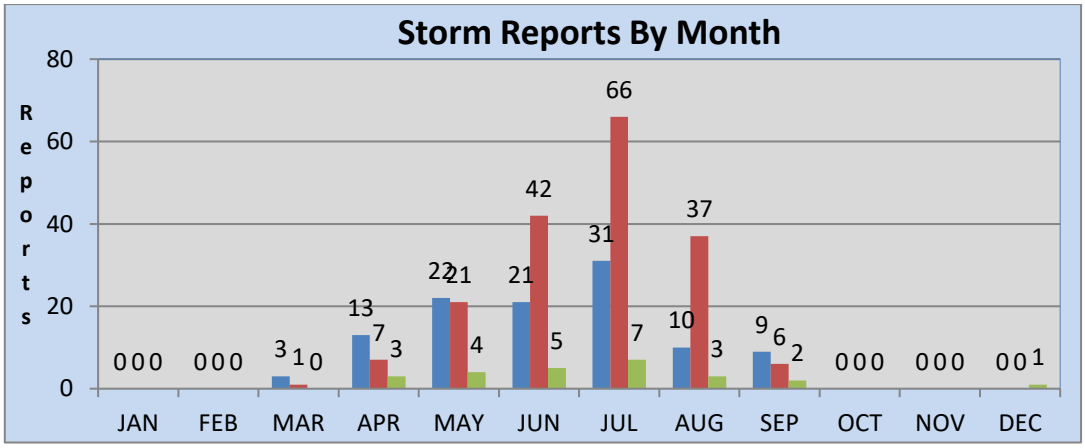


Waupaca County Severe Weather Facts (1950-2023)

Storm Reports by Month

Severe weather has been recorded in Waupaca County from March through September with a very rare tornado event in December (1970). Isolated reports of severe weather have been noted in March. The earliest documented report of severe weather during the year occurred on March 8, 2000. On this date, golf ball size hail was reported two miles west of Waupaca, while one inch hail was reported at Ogdensburg. The severe weather season begins in earnest in April. The convective season peaks in July, then quickly wanes by September. The warm season period of May through September accounts for 91% of all severe weather reports during the year. Severe weather can occur from time to time in September. The latest report of severe weather during the year occurred on December 1, 1970. On this date, a F2 tornado developed four miles northwest of Iola and moved to near Pella in Shawano County before dissipating.



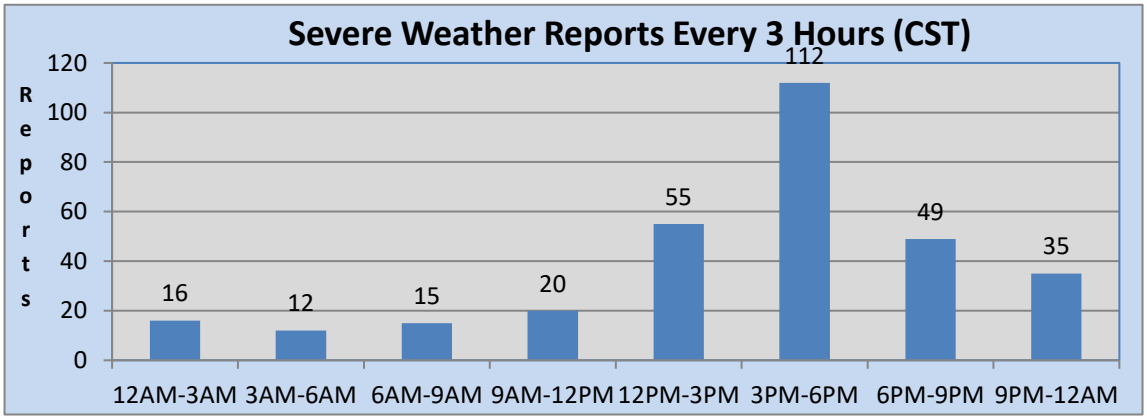


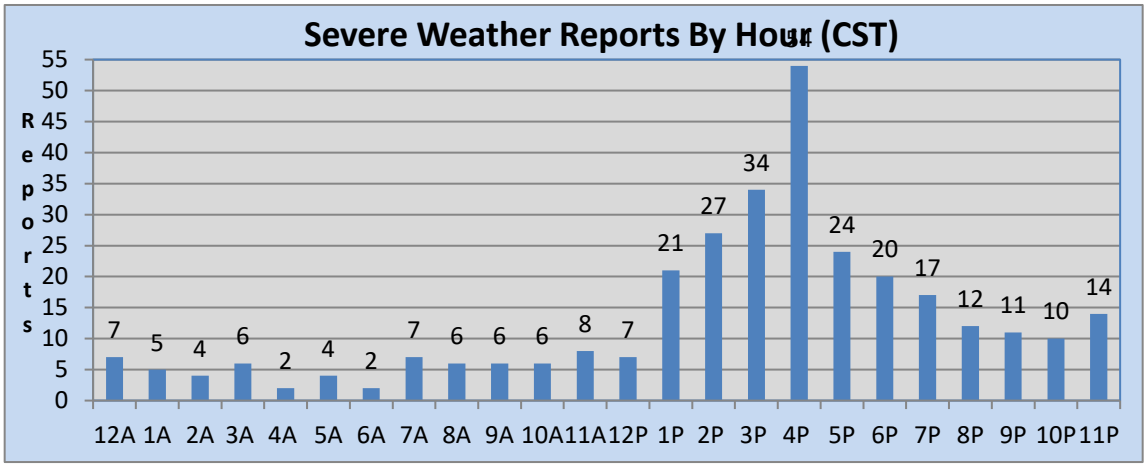
NOTE: The chart depicts storm type by month: (hail, wind/wind damage, tornadoes).

Waupaca County Severe Weather Facts (1950-2023)

Storm Reports by Time of Day

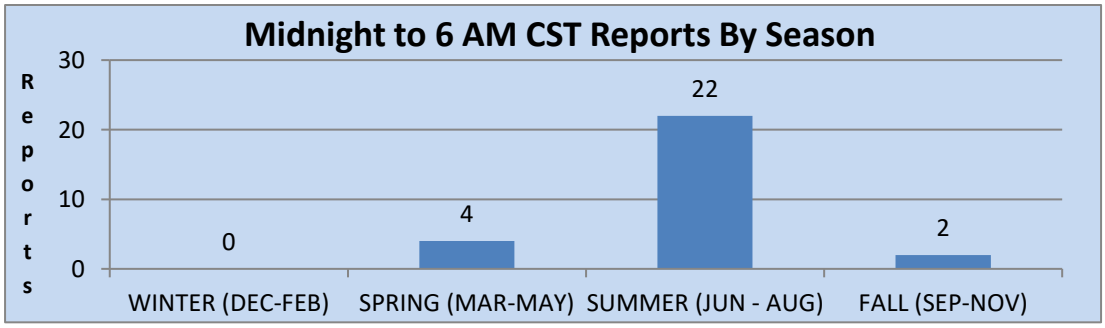
No matter the season, the afternoon and early evening hours are the peak time for severe weather across Waupaca County. Overall, 66% of all severe weather reports occur between 1 PM and 9 PM CST. In Waupaca County, severe weather reports increased sharply after 1 PM CST with a peak in reports between 3 PM and 6 PM CST. The peak in the storm activity corresponds to peak afternoon heating when the atmosphere is most unstable. There was another peak in the number of reports between midnight and 6 AM CST between May and August. The later reports overnight correspond to thunderstorms that develop across Minnesota and Dakotas and moves into the county.





Severe Weather Reports from Midnight to 6 AM CST

Overnight severe weather reports are most prominent during the summer (June through August) due to nocturnal convection along warm fronts, or from complexes of storms that develop across the Dakotas and Minnesota and roll through northeast Wisconsin during the early morning hours. The summer months of June through August account for 79% of all overnight severe weather reports during the year.



Waupaca County Severe Weather Facts (1950-2023)

Waupaca County Tornadoes

Since record keeping began in 1950, there have been 25 documented tornadoes across the county. Three tornadoes were rated an F/EF3 or greater intensity. The strongest tornado was a F4, which touched down three miles west of Clintonville and moved northeast to five miles northwest of Clintonville on September 26, 1951. Two other tornadoes rated F/EF3 have struck the county. The first F3 touched down two miles north of Waupaca and moved to near Weyauwega on September 18, 1950. The second F3 developed near Union and moved to near Legend Lake on April 27, 1984. Six tornadoes were rated F/EF2, nine tornadoes were rated F/EF1, and six tornadoes were rated F/EF0. The most active year was in 2019 when three tornadoes touched down on July 20th. Two tornadoes were reported in 1970, 2005 and 2013. On July 6, 2015 an EF1 tornado touched down just west of Marion. What made this tornado unusual was there was no lightning (thunder) associated with it. The last tornadoes to strike the county occurred on June 15, 2022 when an EF1 tornado touched down one mile west of Manawa and travelled nearly three miles before dissipating two miles south southeast of Symco. A tornado was reported in consecutive years in 1950 and 1951, 1955 and 1956, 1969 and 1970, 2004 and 2005, and 2015 and 2016. Since 1950, tornadoes have touched down in 20 different years. A tornado strike in Waupaca County usually occurs on average about every three years.

Event		Date			Time		F/EF
#		Month	Day	Year	(CST)	Start / End Location	Rank
1		9	18	1950	14:30	2 N Waupaca - Weyauwega	3
2		9	26	1951	15:45-16:08	9 SSW Amherst - Bear Creek	4
3		5	28	1955	15:05	3 W Clintonville	1
4		4	6	1956	13:45	Ogdensburg - Symco	2
5		5	6	1959	03:20	Symco - Clintonville	2
6		5	8	1964	17:00	Iola - 1 W Clintonville	2
7		7	2	1969	16:00	Symco	0
8		7	14	1970	12:30	Marion	1
9		12	1	1970	10:30	4 NW Iola - Pella	2
10		6	14	1980	12:30	5 NW Manawa - Manawa	1
11		4	27	1984	14:55-15:40	Union - Legend Lake	3
12		5	16	1992	18:30	2.5 NE Northland	1
13		7	4	1994	16:49	4 W Fremont	0
14		6	23	2004	18:56-19:06	9 W Waupaca - 2 SW Lind Center	2
15		6	10	2005	15:10	2 W Clintonville	0
16		8	18	2005	18:38-18:41	4 SSW - 3.4 SW New London	0
17		4	10	2011	18:06-18:32	1 SW Saxeville - 1 SE Hortonville	1
18		8	6	2013	23:22-23:30	4 NNE Partridge - 0.8 S New London	1
19		8	6	2013	23:24-23:33	1.2 W New London - 0.4 WSW Greenville	2
20		7	6	2015	15:38-15:40	3.4 W Marion - 2.7 W Marion	1
21		6	26	2016	01:30-01:35	4.2 ESE Symco - 6.4 NNE Northport	1
22		7	20	2019	09:55-10:03	1.4 SSE Waupaca - 2.1 ESE White Lake	1
23		7	20	2019	10:00-10:02	0.6 SSW Weyauwega - 1.1 E Weyauwega	0
24		7	20	2019	10:09-10:10	1.8 SSW New London - 1.4 SSE New London	0
25		6	15	2022	16:52-16:56	1 W Manawa - 2 SSE Symco	1

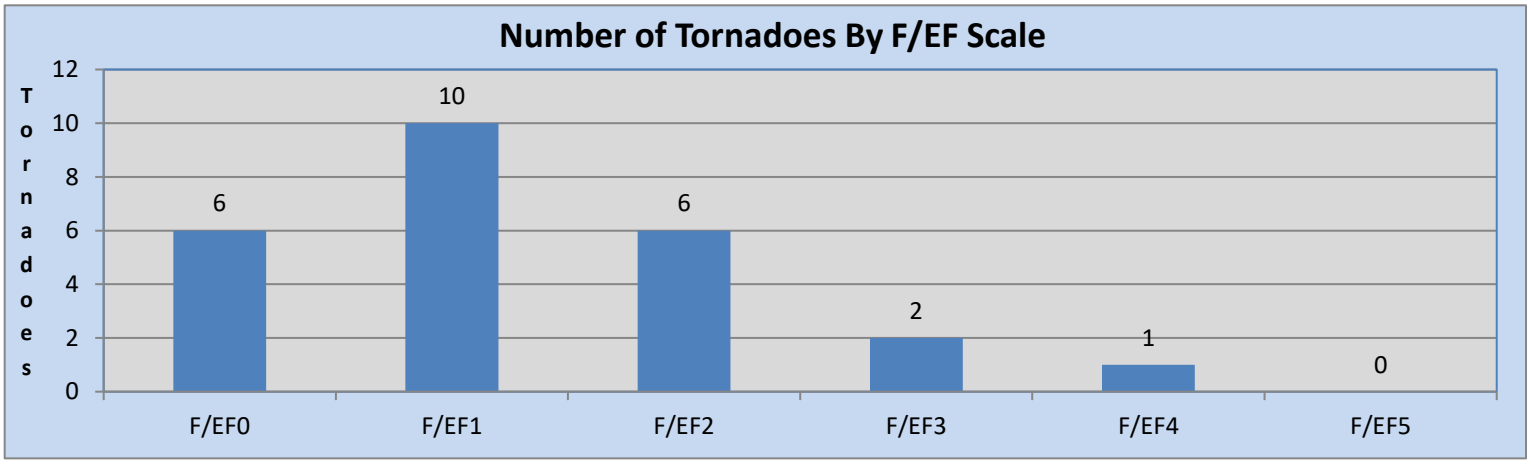
Additional tornado data can be found on the NWS Green Bay webpage at: **http://www.weather.gov/grb/severeclimate**

Waupaca County Severe Weather Facts (1950-2023)

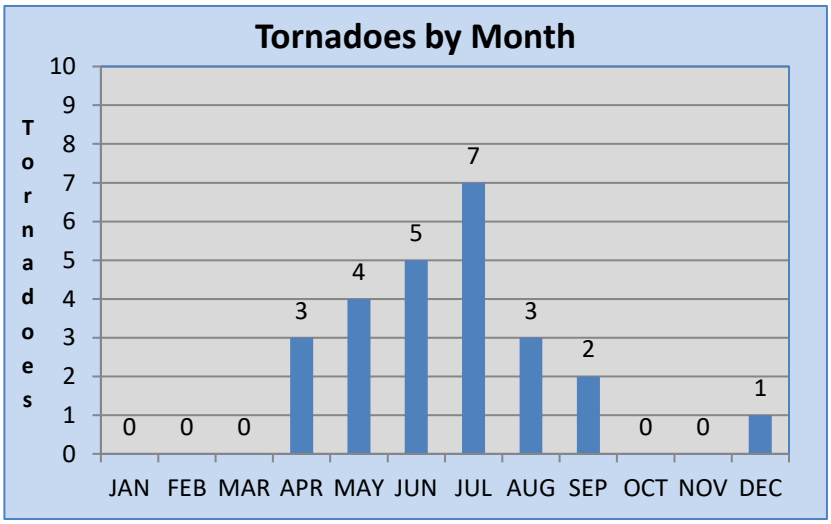
Waupaca County Tornadoes

F/EF2 or Greater Tornadoes in Waupaca County

Event		Date			Time		F/EF
#		Month	Day	Year	(CST)	Start / End Location	Rank
1		9	18	1950	14:30	2 N Waupaca - Weyauwega	3
2		9	26	1951	15:45-16:08	9 SSW Amherst - Bear Creek	4
3		4	6	1956	13:45	Ogdensburg - Symco	2
4		5	6	1959	03:20	Symco - Clintonville	2
5		5	8	1964	17:00	Iola - 1 W Clintonville	2
6		12	1	1970	10:30	4 NW Iola - Pella	2
7		4	27	1984	14:55-15:40	Union - Legend Lake	3
8		6	23	2004	18:56-19:06	9 W Waupaca - 2 SW Lind Center	2
9		8	6	2013	23:24-23:33	1.2 W New London - 0.4 WSW Greenville	2



Tornadoes by Month

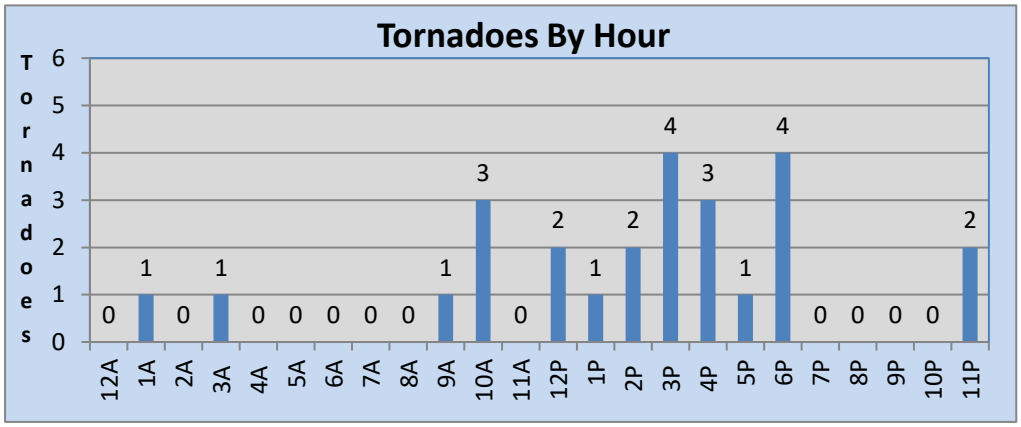


Documented tornadoes have occurred from April to September with a very rare event in December. The earliest documented tornado during the year occurred on April 6, 1951, a violent F4 tornado developed nine miles south southwest of Amherst which moved across central Waupaca County until it dissipated near Bear Creek in western Outagamie County. In 2011, the county experienced the 2nd earliest tornado to start the year on April 10th when an EF1 clipped far southeast Waupaca County. The warm season months of May through September account for 84% of all tornadoes during the year. The latest tornado on record during the year occurred on December 1, 1970. On this date, a F2 tornado developed four miles northwest of Iola and moved to near Pella in Shawano County before dissipating.

Waupaca County Severe Weather Facts (1950-2023)

Tornadoes by Hour

In Waupaca County, seventeen documented tornadoes (68%) have occurred between NOON and 7 PM CST. There have been no documented tornadoes between 7 PM and 10 PM, and from 4 AM to 9 AM CST. In 2013, Waupaca County recorded two tornadoes between 11 PM and midnight CST on August 6, 2013. Before this event, there were no documented tornadoes between 7 PM and 2 AM CST. In 2016, a tornado touched down between 1:30 AM CST and 1:35 AM CST between Symco and Northport.



Predominant Storm Reports – Wind and Hail Only

Between March and May, large hail is the dominant weather report. During the spring, the atmosphere is colder aloft to support large hail reaching the ground. Over the remainder of the convective season, the dominant reports (six out of ten) are strong wind gusts and wind damage. This is especially true in August when nearly 8 out of 10 reports are strong wind gusts/wind damage compared to large hail.

Month	% Hail Reports	% Wind or Wind Damage	Month	% Hail Reports	% Wind or Wind Damage
Jan	0.0	0.0	Jul	32.0	68.0
Feb	0.0	0.0	Aug	21.3	78.7
Mar	75.0	25.0	Sep	60.0	40.0
Apr	65.0	35.0	Oct	0.0	0.0
May	51.2	48.8	Nov	0.0	0.0
Jun	33.3	66.7	Dec	0.0	0.0
			Year	37.7	62.3

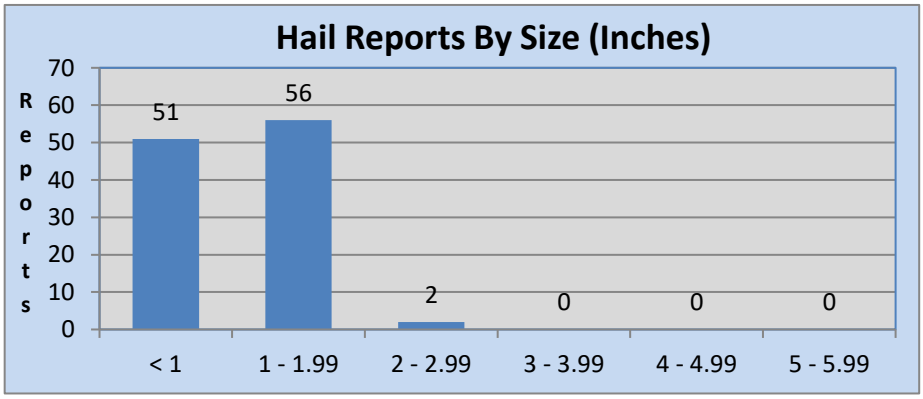
Waupaca County Severe Weather Facts (1950-2023)

Large Hail in Waupaca County

There have been only two documented report of hail two inches or greater in diameter across the county. The largest hail stone reported in the county was 2.75 inches in diameter which occurred one mile south of Manawa on August 18, 1972. Two inch hail was observed three miles northwest of Scandinavia on July 26, 2007. Overall, hail ranging in size from three quarters to one inch accounted for 72% of the documented large hail reports. Large hail reports of two inches or greater only accounted for 2% of the total hail reports.

Hail over 2 inches

Rank		Date			Time		Hail
#		Month	Day	Year	(CST)	Start / End Location	(Inches)
1		8	18	1972	16:30	1 S Manawa	2.75
2		7	26	2007	15:49	3 NW Scandinavia	2.00



Waupaca County Severe Weather Facts (1950-2023)

Waupaca County Summary

In Waupaca County, the severe weather season begins in earnest in April, peaks in July and then wanes quickly by September. Severe weather usually occurs in the afternoon and early evening hours, with a secondary peak between midnight and 6 AM CST during the summer months. If you do experience severe weather, you are likely to see large hail in the spring. Damaging winds or reports of strong wind gusts are the dominant severe weather report during the remainder of the convective season. In the NWS Green Bay County Warning Area which includes 22 counties from central to northeast Wisconsin, Waupaca County ranks tied 6th in the total number of storm reports and tied for 9th in the number of tornado reports since 1950.

Green Bay Forecast Area Severe Weather Climatology Summary

Across the Green Bay forecast area which covers 22 counties in north-central and northeast Wisconsin, severe weather has been documented in every month except February. This includes a rare event on January 24, 1967, in which a line of thunderstorms produced damaging winds across Brown, Winnebago, and Outagamie counties during the early evening hours. Another rare late season thunderstorm produced one inch hail in Florence County on December 5, 2001, while one inch hail was reported four miles west of St. Nazianz in Manitowoc County on December 20, 1967.

Tornadoes have occurred from March through December, with an extremely rare tornado outbreak occurring on December 1, 1970. On this date four tornadoes were reported across central and northeast Wisconsin during the morning. A strong area of low pressure brought unseasonably mild temperatures and severe thunderstorms to portions of central and northeast Wisconsin as a cold front swept across the state. The first tornado was reported twelve miles southeast of Marshfield in Wood County around 7 AM CST while another tornado was reported in the town of Hull in Portage County around 9 AM CST. Later that morning, a F2 tornado was reported in Waupaca and Shawano counties, from four miles southwest of Iola to near Marion and Pella. The last and strongest tornado occurred around 9:45 AM CST. The F3 tornado travelled from Medina in southwest Outagamie County to far southeast Shawano County, destroying about 20 barns and five homes.

Here are the strongest documented tornadoes in the Green Bay forecast area which covers 22 counties in central, north-central and northeast Wisconsin.

F/EF4 Tornadoes

Event	Date			Time		Tor in GRB Service Area
#	Month	Day	Year	(CST)	Start / End Location	County or Counties
1	6	25	1950	21:00	1 W Woodboro - 5 NE Rhinelander	Oneida
2	9	26	1951	15:45-16:08	9 SSW Amherst - 2 SW Bear Creek	Portage-Waupaca
3	4	3	1956	13:45-13:53	Berlin - 2 W Omro	Waushara-Winnebago
4	8	19	1968	16:10	3 SW Pound – Marinette	Marinette
5	4	21	1974	14:40-15:08	5 S Ripon – Oshkosh	Winnebago
6	4	27	1984	15:20-15:40	1 NE Winneconne - Freedom	Winnebago-Outagamie
7	7	5	1994	15:43-15:55	2.5 NW Maribel - 0.5 W Cooperstown	Manitowoc

Waupaca County Severe Weather Facts (1950-2023)

Green Bay Forecast Area Severe Weather Climatology Summary

The state record for the largest documented hail stone in Wisconsin occurred in Wausau on May 22, 1921. The hailstone measured 5.7 inches in diameter. More recently, a hailstone of 5.5 inches in diameter was reported in Port Edwards in southeast Wood County on June 7, 2007. In 2021, there were three reports of hail four inches in diameter or greater across northeast Wisconsin.

Hail	Month	Date	Year	Time (CST)	Start / End Location	County
5.70	5	22	1921	??	Wausau	Marathon
5.50	6	7	2007	15:23	Port Edwards - Wisconsin Rapids	Wood
4.50	9	7	2021	07:47-07:48	2 W Apple Creek	Outagamie
4.50	7	16	1997	14:15	8 NE Merrill	Lincoln
4.25	5	22	2011	15:05	0.8 NW Winchester	Winnebago
4.25	5	22	2011	14:35	0.5 E Redgranite	Waushara
4.10	9	7	2021	07:45-07:46	3 NE Greenville	Outagamie
4.00	9	7	2021	08:13-08:14	2 E Apple Creek	Outagamie
4.00	8	2	2015	13:32	2.8 S Brookside	Oconto
4.00	8	2	2015	13:24	0.5 E Abrams	Oconto
4.00	4	25	2008	17:50	0.8 SW Kings	Lincoln
4.00	7	1	2006	14:31	1 N Hayes - Suring	Oconto
4.00	3	29	1998	12:25	St. John	Calumet
3.75	9	7	2021	07:47-07:48	1 NW Little Chute	Outagamie
3.50	6	8	2000	22:30	10 W Middle Inlet	Marinette
3.25	7	1	2006	15:05	Oconto - 6 SE Oconto Falls	Oconto
3.00	10	24	2023	08:50-08:51	Nasonville	Wood
3.00	8	2	2015	14:06	Rudolph	Wood
3.00	5	22	2011	17:35	Plover	Portage
3.00	6	7	2007	15:50	5 W Langlade	Langlade
3.00	7	1	2006	19:29	Branch - Manitowoc	Manitowoc
3.00	4	18	2002	15:30	7 WSW Bloomville - 7 NW Bradley	Lincoln
3.00	8	9	2001	12:50	1S Sturgeon Bay	Door
3.00	6	5	1999	18:24	3 S - 8 SE Eagle River	Vilas
3.00	7	27	1989	10:50	1 N Oshkosh	Winnebago
3.00	8	19	1968	16:15	2 E Harmony	Marinette
3.00	7	19	1963	15:00	4 S Rhinelander	Oneida
3.00	7	1	1956	11:00	5 E Green Bay	Brown