

# Packerland Weather News



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Spring/Summer 2009

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## 25th Anniversary of Killer Tornadoes

By Scott Cultice, Hydrometeorological Technician  
NWS Green Bay

During the late afternoon of April 27, 1984, multiple supercell thunderstorms developed ahead of a strong cold front that moved across Wisconsin. Ten tornadoes were reported across the state, including three killer tornadoes: one in northern Wisconsin near St. Germain, one west of Appleton, and the third in southeast Wisconsin in Waukesha County. This series of killer tornadoes was one of the bigger outbreaks in northeast Wisconsin since accurate tornado records began in 1950.

Around 3:20 pm, a tornado formed near the town of Butte des Morts in northern Winnebago County and quickly intensified into a destructive tornado. The violent storm moved northeast across the town of Clayton, killing one person and destroying many houses. The tornado continued to track northeast toward the northwest side of the city of Appleton. By about 3:40 pm, the tornado wreaked havoc across the western edge of the Outagamie County Airport and near the town of Greenville. The tornado finally dissipated near Freedom.

An estimated two dozen homes were destroyed and many more were damaged across the Fox Valley that afternoon. The storm killed one person and injured 19 more. Total cost of the destruction over the Fox Valley was \$2.5 million (\$15 million in today's dollars). The tornado traveled across the area at 40 mph and was on the ground for 17 miles. For a short time the twister was one quarter mile wide. It was classified as an F4 tornado, now referred to as an EF4 on today's Enhanced Fujita Scale (wind speeds of 166-200 mph).



Photo of the April 27, 1984 tornado near Greenville on the west side of Appleton. The tornado killed one person and injured 19 others. It was on the ground for 17 miles and caused \$2.5 million in damage. Credit: Donald Dorn, Greenville, WI.

## Comments or Suggestions?

If you have suggestions for articles, have comments about the newsletter, or would like to be removed from the mailing list, please contact us at:

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## Hortonville High School is StormReady Supporter

National Weather Service officials recognized Hortonville High School for enhancing public safety by promoting the principles and guidelines of StormReady®, a hazardous weather and safety awareness program. Hortonville High School becomes only the third public school in the nation to earn the StormReady Supporter recognition.

“StormReady encourages communities to take a proactive approach to improving local hazardous weather operations and public awareness,” said Jeff Last, warning coordination meteorologist at the Green Bay NWS forecast office. “StormReady Supporters, like Hortonville High School, establish severe weather safety plans and actively take part in and promote severe weather safety awareness activities.”

The nationwide community preparedness program uses a grassroots approach to help communities develop plans to handle local severe weather and flooding threats. The program is voluntary and provides communities with clear-cut advice from a partnership between local NWS offices and state and local emergency managers. StormReady started in 1999 with seven communities in the Tulsa, Oklahoma, area. There are now more than 1,400 StormReady communities across the country. More than 75 businesses and schools have been desig-



From L-R: NWS Green Bay WCM Jeff Last, Hortonville High School principal Bob McIntosh, high school science teacher Steve Shelton, and NWS Green Bay meteorologist-in-charge Gary Austin. Inset: StormReady cake that was served at the recognition ceremony.

nated as StormReady Supporters.

“Hortonville High School is honored to have received the StormReady Supporter recognition,” said principal Bob McIntosh. “Hortonville High School strongly believes in putting our children’s safety first in order to create a safe and secure learning environment.”



On the Web

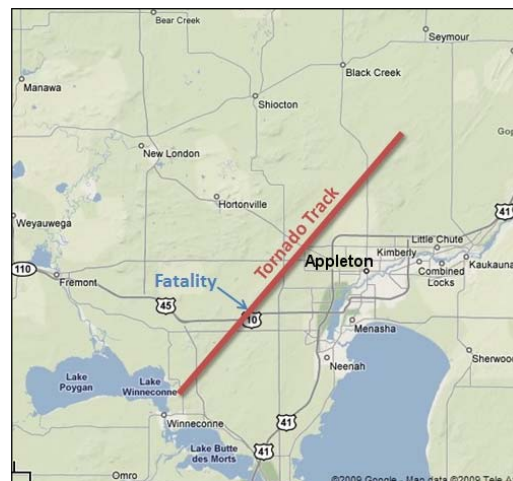
[www.weather.gov/stormready](http://www.weather.gov/stormready)

## Killer Tornadoes

Pictured at right is the track of the Fox Valley tornado and location of the fatality.

In addition to that twister, five other tornadoes were reported across central and northeast Wisconsin on April 27, 1984. An F3 tornado, with winds estimated near 140 mph, tore through Oneida and Vilas counties, killing one person south of St. Germain and injuring eight others. Another F3 tornado was reported across Waupaca, Shawano, and Menominee counties causing considerable damage. Weaker tornadoes were observed over Wood, Portage, and Langlade counties.

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## Public Service Award Given to Amateur Radio Operator

Andy Nemec, KB9ALN, was presented with an NWS Central Region Public Service Award on December 3, 2008, for dedicated service to the NWS Green Bay office. Nemec recently “retired” as leader of the volunteer NWS Green Bay amateur radio desk after 15 years serving the NWS and the amateur radio community.

Amateur (ham) radio operators are an important part of severe weather operations in the NWS. These trained weather spotters relay reports of significant weather via ham radio from out in the field to the NWS Green Bay ham radio desk. From there, the reports are forwarded directly to meteorologists who use these observations as part of analyzing thunderstorms and other types of significant weather.



Andy Nemec (L) receiving a Public Service Award from NWS Green Bay Meteorologist-in-Charge Gary Austin.

## Are You Ready for Severe Weather this Season?

Even though spring has been relatively quiet, this is the time of year when the severe weather season starts in earnest. It's never too late to prepare for severe summer storms.

Each year across the U.S., many people are killed or seriously injured by tornadoes and severe thunderstorms despite advance warning. Some do not hear the warning, while others receive the warning but do not believe it will happen to them. Preparing before the storms strike could save your life.

Here's what you can do before severe weather hits:

- Develop a plan for you and your family at home, work, school, and outdoors.
- Identify a safe place to take shelter.
- Have frequent drills.
- Know the county name in which you live or visit.
- Keep a highway map nearby to follow storm movement from weather bulletins.
- Have a NOAA Weather Radio with a warning alarm and battery back-up.
- Check the weather forecast before leaving for extended periods outdoors.
- When going outdoors, bring along a portable weather radio. Watch for signs of approaching storms.



When conditions are favorable for severe weather to develop, the National Weather Service issues a severe thunderstorm or tornado WATCH. A severe weather watch is usually issued two to six hours before storms develop. When a watch is in effect, keep an eye to the sky and stay tuned to weather radio or local media for weather updates.

When severe weather begins to develop, WARNINGS are issued to alert the public and emergency officials. Warnings for severe weather are usually issued 10 to 60 minutes before the storms hit. When a warning is issued for your area, put your emergency weather plan into action.



*On the Web*

[www.weather.gov/grb/prepare](http://www.weather.gov/grb/prepare)

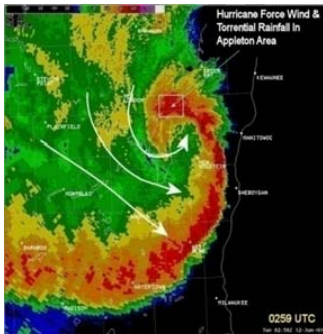
## Northeast Wisconsin's Wild Summer Weather

By Gene Brusky, Science and Operations Officer  
NWS Green Bay

Northeast Wisconsin experiences a variety of severe weather ranging from isolated tornadic supercell thunderstorms, to large long-lived squall-lines which produce wide swaths of damaging straight-line winds. Now that severe weather season is once again upon us, let's revisit a few classic severe weather events to illustrate the fascinating spectrum of storms that impact northeast Wisconsin during the summer. Accompanying each event are actual radar images from storms that have affected the region.

### A Hurricane in Wisconsin? – June 11, 2001 Derecho

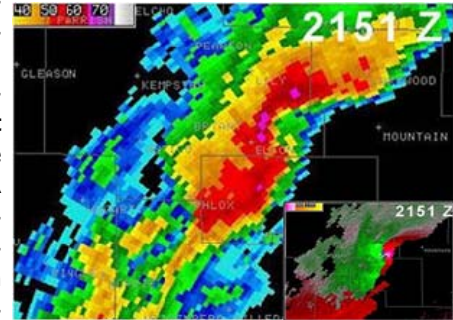
A derecho (Spanish for "straight") is a large and long-lived thunderstorm complex primarily accompanied by severe straight line winds that can be more than 100 mph.



A derecho is really a monster storm in which the radar signature takes on a "bowing" (or convex) structure. Strong winds originating aloft at the rear of the storm descend to the surface at the leading edge creating the classic bowing radar structure. The comma head of the derecho is sometimes associated with **hurricane-like conditions**. On June 11, 2001, Oshkosh and Appleton experienced sustained winds of 50 to 70 mph for nearly 30 minutes, accompanied by nearly 3 inches of rain! Persistent northwest winds gusting to 80 mph on Lake Butte des Morts (west of Oshkosh), caused the lake water level to rise several inches (a phenomenon known as a seiche) which resulted in boats being tossed and piled in a heap on the downwind shoreline.

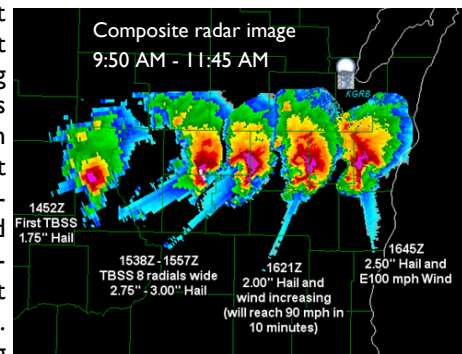
### Oklahoma-Style Storms – June 7, 2007 Tornadic Supercells

On this day, rare Oklahoma-style tornadic thunderstorms ripped across central and northern Wisconsin producing the **second longest tornado track** in the United States in 2007! A supercell is a single thunderstorm with a persistent, rotating updraft. The rotation wraps water droplets counterclockwise around the storm updraft producing the classic hook-shaped radar signature. The strongest supercell produced an EF3 intensity tornado that raced northeast at nearly 60 mph! It produced a continuous damage path nearly 40 miles long and up to a 1/2 mile wide across north-central Wisconsin. The tornado flattened nearly 14,500 acres of forest and produced devastation at the Bear Paw Resort near White Lake.



### A Hybrid Storm with an Attitude – May 12, 2000 Hail & Wind Storm

This was an isolated but intense thunderstorm that produced a devastating combination of strong winds and large hail. The storm had an identity crisis in that it appeared to morph between classic supercell and bow echo radar characteristics during its lifetime. It was a prolific hail producer. The appendage extending from the storm is called a "hail spike" and is an excellent radar indicator of large hail. The combination of large hail driven by winds near 100 mph made it **one of the most costly single storms** in Wisconsin weather history. At the height of the storm, wind-driven hail shredded the siding on hundreds of homes in Calumet and Manitowoc counties.



## Drought Conditions Show Slow Improvement

By Roy Eckberg, Forecaster  
NWS Green Bay

Much of northeast and north-central Wisconsin has been experiencing varying degrees of drought conditions since last summer. Conditions have shown slow improvement in the last few weeks, but rainfall is still needed across many parts of the area.

Abnormally dry conditions were first detected in August 2008. The region experienced well below normal precipitation during that month, a trend that would continue for many more months. Rainfall totals in August were generally from one half to one and a half inches, or nearly 3 inches below normal for the month.

Drought conditions continued to worsen during September as monthly rainfall totals were one to two inches below normal for the month. By the end of the month, abnormally dry conditions spread southward into Green Bay and the Fox Cities, east to Lake Michigan. Moderate to severe drought conditions had developed north and west of a line from Sturgeon Bay and Green Bay to Wautoma.

October also experienced dry conditions. Precipitation totals were generally a half inch to one inch below normal. Severe drought conditions continued to spread across north-central and portions of northeast Wisconsin north of Green Bay.

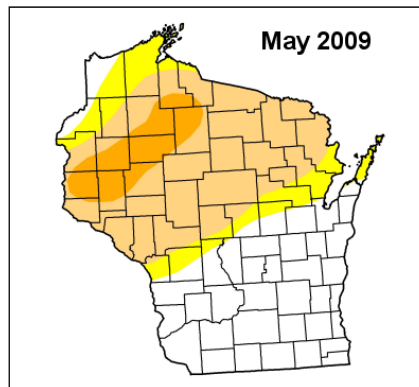
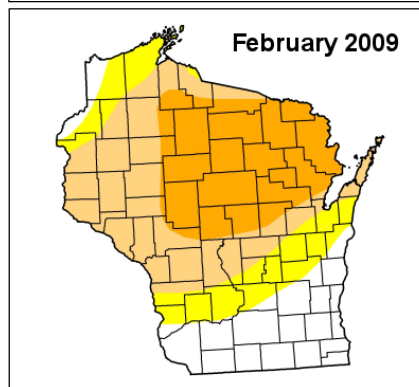
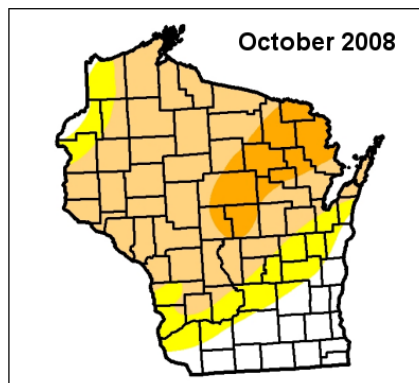
November was the fourth consecutive month with below normal precipitation across the region. Between August 1 and November 30, precipitation totals included: Green Bay 5.56 inches or 49 percent of normal, Wausau 5.75 inches or 43 percent of normal, and Rhinelander 5.70 inches or 43 percent of normal.

December brought snow and more snow, and also the first month of above normal precipitation since the summer. Record snowfall totals were reported across the region with many locations reporting over 3 feet of snow during the month. Precipitation totals for the month were generally from three quarters of an inch above nor-

mal across the north, to over two inches above normal across northeast Wisconsin. Unfortunately, due to the low water content of the snow, the drought situation changed little.

Precipitation totals for the first three months of 2009 were generally near normal to around a half inch above normal. However, little change was noted on the overall drought situation during this period. The first half of April brought very little precipitation to the region as only a trace of precipitation was reported at Green Bay and amounts over the remainder of the region were under a quarter of an inch.

The weather pattern finally changed with abundant precipitation reported from April 19 to April 26. Rainfall during this period reached 1 to 3 inches. Moisture conditions improved during the end of April and early May and severe drought conditions no longer existed across northeast Wisconsin. While conditions have improved as of mid-May, abnormally dry conditions or moderate drought still existed over about the northern half of the state.



Drought monitor for Wisconsin for October 2008, February 2009, and May 2009.

 On the Web  
[www.drought.gov](http://www.drought.gov)

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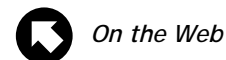
## New Flood Forecast Service Available Near Oconto

By Tom Helman, Senior Forecaster  
NWS Green Bay

On April 1, 2009, flood forecasts became available for portions of southern Oconto County, adjacent to the Oconto River. Data has been monitored by the National Weather Service for years using a U.S. Geological Survey river gage station, located just upstream from the City of Oconto near the Highway J bridge. As a means of enhancing flood service to this area, seven day river stage forecasts are now available during high river levels, courtesy of the NWS North Central River Forecast Center in Minneapolis. Flood stage for this location of the river is at 9 feet, and forecasts will be issued whenever river stages reach or are forecast to reach 7 feet or higher. River gage information and forecasts during high water can be seen on the Advanced Hydrologic Prediction Service (AHPS) on the NWS Green Bay web site.



*Flooding at Holt Park in the City of Oconto during the spring of 2004.*



*On the Web*

[www.weather.gov/ahps](http://www.weather.gov/ahps)