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Packerland Weather News



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Thanks to Our Volunteers!

By Gary Austin, Meteorologist-in-Charge,
NWS Green Bay

NOAA's National Weather Service (NWS) in Green Bay is most appreciative of the time volunteered by you, our cooperative observers and severe weather spotters, in support of our operations.

Cooperative observers assist us every day of the year in recording temperatures and precipitation—that's incredible dedication! Your observations not only provide us with information that is invaluable on a daily basis, to permit us to know what has truly happened "on the ground," but also are the components of a national climate database. This database permits the study and identification of long-term trends of weather patterns, which are used by a wide variety of organizations, both in government and in the private sector.

Severe weather spotters assist us during significant hazardous weather events, in real-time in any season of the year, providing us with information about hazardous weather. In spite of all of our high-technology equipment, like radars and satellites, we still rely on the eyes of the spotters to let us know what is happening in their community, which helps the NWS make appropriate warning decisions.

Many spotters are amateur radio operators, too, using both their weather training and communication skills to get critical information to the NWS. Volunteers also work at our office during severe weather, taking reports from amateur radio spotters.

Without the volunteer service of our observers and storm spotters, we could not do our job properly. Your efforts are an invaluable complement to the service we provide to our tax-paying community. Thank you very much!



A cooperative observer checking the temperature in a Cotton Region Shelter.



Skywarn Net Controller Andy Nemecek (KB9ALN) and Christian Reynolds (KC0ARF) at the NWS Green Bay office.

Comments or Suggestions?

If you have any suggestions for articles or have comments about the **Packerland Weather News**, feel free to contact us at:

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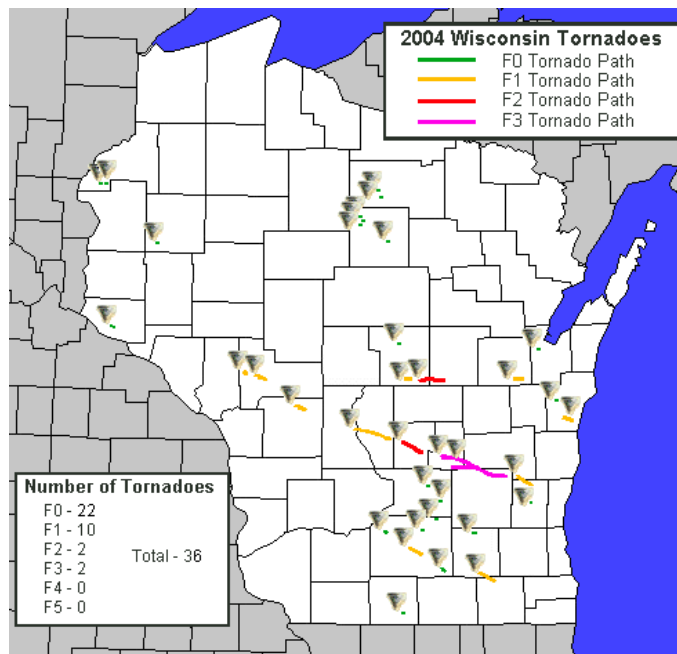
or by e-mail: jeff.last@noaa.gov

36 Tornadoes Reported in 2004

By Jeff Last, Warning Coordination Meteorologist,
NWS Green Bay

Thirty-six tornadoes touched down in Wisconsin in 2004, well above the average of 21. Although most of the tornadoes were weak, four were rated strong (F2 or F3 on the Fujita scale). The twisters resulted in one fatality and 17 injuries.

The largest outbreak of tornadoes in over a decade occurred on June 23, as three complexes of thunderstorms rolled across the state. Seventeen tornadoes were reported on this day alone, ranking it as the fourth all-time highest tornado day in Wisconsin's recorded weather history. A tornado near Lake Maria in Green Lake County killed one person. Total property damage on June 23 was estimated at nearly \$30 million. Another \$3 million in crop damage was also recorded.



Tornadoes in Wisconsin during 2004.

Keeping an Eye on Severe Weather

By Jeff Last, Warning Coordination Meteorologist,
NWS Green Bay

On July 13, 2004, a violent tornado flattened the Parsons Manufacturing Plant just west of Roanoke, Illinois. Nearly 150 employees were working in the plant when the twister hit.

About ten minutes before the tornado hit the building, the designated weather watcher heard a warning on NOAA All-Hazards Weather Radio and began watching the sky. When he noticed a large funnel cloud moving toward the plant from the west, he immediately instituted the plant's emergency action plan. An alert was broadcast on the building's public address system, and all employees went to their designated shelters.

When the tornado moved out of the area, the employees emerged to see the destruction—the entire business was heavily damaged, beams were twisted, parts and machinery were strewn everywhere, and

more than 50 autos were launched into the buildings. The most startling fact was no one at the plant was killed or injured. All 150 people were safe and accounted for. By responding to the initial Severe Thunderstorm Warning (before the Tornado Warning was issued), the building's weather watcher gave himself and all employees extra time to prepare for the approaching storm.

Three months prior to the tornado, the plant successfully conducted their semi-annual tornado drill—everyone got to their shelter in less than four minutes. The preparation paid off.

This type of planning should be considered for any location where a large number of people are gathered. Churches, hospitals, schools, businesses, and public gatherings should have a designated "weather watcher" and a NOAA All-Hazards Weather Radio available when severe weather threatens. It could save a life.

NWS Green Bay Welcomes Staff Member

By Linda S. Karman, Administrative Support Assistant,
NWS Green Bay

Teresa M. Havel joined the staff at WFO Green Bay on July 25, 2004, as Information Technology Officer. A 19-year veteran of NOAA's National Weather Service, Havel came to Green Bay from the Radar Operations Center in Norman, Oklahoma, where she was a Meteorologist/Hotline Specialist since 1993. Havel graduated from the University of Wisconsin-Madison with a degree in Atmospheric Science. During her Weather Service career, Havel held positions as a Meteorologist/Computer Specialist, WSR-57 Network Radar Intern, and Senior Instructor at the NWS Training Center.

The information technology officer (ITO) at a weather forecast office supports software and hardware computer equipment as well as ensures the security of information technology. As technology advances, the ITO, in conjunction with the electronics



Teresa Havel is the new Information Technology Officer at NWS Green Bay.

staff, works with the forecast staff to provide them with the tools they need to continue to produce accurate forecasts and timely watches and warnings.

A native of Adams-Friendship, Wisconsin, Havel now resides in Green Bay.

Severe Weather Season is Fast Approaching

Last year's tornadoes and severe thunderstorms were vivid reminders that Wisconsin is not immune from severe weather. As the warm weather approaches, now is the time to prepare as you plan summer activities and vacations.

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

- Develop a safety plan for you and your family.
- Identify a safe place in your home to take shelter, and have frequent drills.
- Know the county name in which you live or visit.
- Keep a highway map nearby to follow storm movements from weather bulletins.
- Make sure you know where to go in your hotel, park or campground if severe weather threatens.
- Have a NOAA All-Hazards Weather Radio with a warning alarm and battery back-up.



Door County tornado, August 23, 1998. Photo by Mel Pfister.

- Check the weather forecast before leaving for extended periods outdoors.
- When going outdoors, bring along a portable weather radio.
- Watch and listen for telltale signs of approaching storms, such as dark skies and distant thunder.



On the Web

www.crh.noaa.gov/grb/prep.html

The Cooperative Observer Corner

By Allen LaGree, Data Program Manager,
NWS Green Bay

The Wastewater Treatment Plant in Stevens Point received a 50 year award from NOAA's National Weather Service on August 5, 2004. The employees at the plant began taking weather observations for the NWS in 1954.

Those from the plant honored were Dan Ryckoski, Frank Suchon, Plant Superintendent Eric Niffenegger, Plant Director Kim Halverson, Lee Gostomski, Jeremy Cramer, and Dale Sobczak. Presenting the award from the NWS was Pat Hein of the Green Bay office.

The act of Congress that established the NWS (known then as the Weather Bureau) in 1890 also created the first extensive network of cooperative observation stations. Today, the Cooperative Observer Program has more than 11,000 volunteer observers



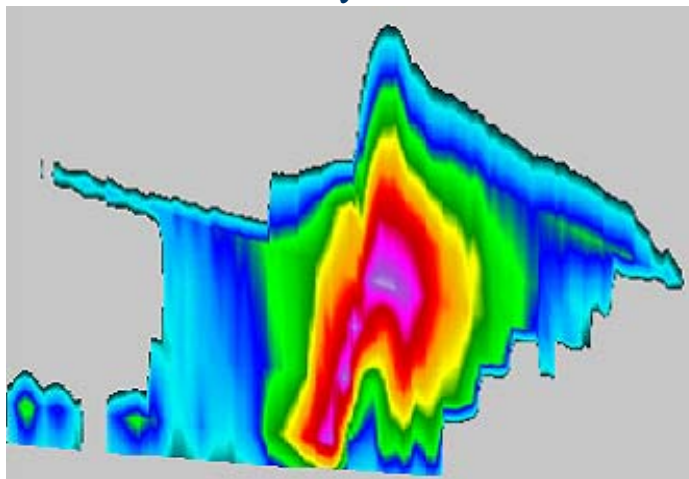
The presentation of the 50 year award to the Wastewater Treatment Plant in Stevens Point.

who record daily temperature and precipitation readings providing researchers and Weather Service meteorologists with continuous observational data.

Fifth Anniversary of Wisconsin's Most Costly Storm

During the late morning of May 12, 2000, a single supercell thunderstorm developed in west-central Wisconsin and moved east across the central and east-central part of the state. Hail up to the size of baseballs, driven by hurricane force winds, produced incredible damage in Waushara, Winnebago, Calumet, and Manitowoc counties. The cities of Chilton and St. Nazianz were particularly hard-hit by hail and wet microbursts. A brief tornado touched down in western Manitowoc County, but damage from the tornado itself was minimal.

The storm became the costliest single thunderstorm in 150 years of Wisconsin weather history. Total damage from the severe thunderstorm was nearly \$125 million. In Calumet and Manitowoc counties alone, over \$80 million in damage was reported. In Manitowoc County, over 100 homes were destroyed by the combination of wind and hail, and thousands of others sustained some sort of damage. Thirty people were injured in the storm, most in St. Nazianz at a mobile home park.



Vertical cross-section of reflectivity of the supercell storm as it was entering Waushara County shortly before 10:30 a.m. on May 12, 2000. The purple and white areas indicate where large hail exists in the thunderstorm. The top of the storm reached over 50,000 feet into the atmosphere. View is from the south looking north.

The storm provided ample proof that you don't need a tornado to produce widespread, significant damage.

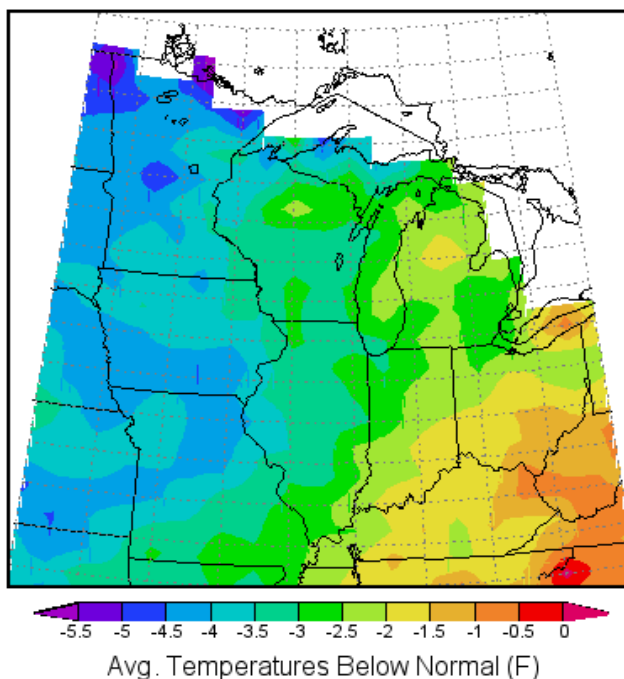
Summer of 2004: Unseasonably Cool

By Roy Eckberg, Forecaster,
NWS Green Bay

The summer of 2004 went into the record books as one of the coolest summers in Wisconsin history. The summer was characterized by exceptional cool spells as cold fronts pushed southeast out of Canada. At Green Bay, the warmest temperature of the season was only 88 degrees which occurred on June 8. The heat was short-lived as a strong cold front moved through the area on the 9th. By June 10 and 11, highs only climbed into the upper 50s to middle 60s. The remainder of the month remained in the 60s and 70s, with only a few days in the 80s. There was only one muggy night, with lows around 70 degrees on June 8. The rest of June saw low temperatures in the 40s and 50s, with a few 30s recorded across north-central Wisconsin. June averaged 2 to 4 degrees F below normal across the area. In Green Bay, the average June temperature was 63.3 F, well below the normal of 65.4 F.

In July, another cool spell made it feel more like early October than early July. Highs from July 6-9 only reached the middle 50s to middle 60s, with many locations recording record cool maximum temperatures on the 6th and 7th. High temperatures for the remainder of the month were in the 70s to middle 80s, as the oppressive heat and humidity remained well south of Wisconsin.

The first nine days of August were more typical of summer. Then on August 10, another strong cold front brought unseasonably cold air to the Badger State. On the 11th, clouds and rain made it feel more like late October than early August. Highs on this date included: 52 F at Antigo, Merrill, and Rhinelander; 55 F at Stevens Point and Wausau; 56 F at Marshfield and Wisconsin Rapids; 57 F at Appleton; 59 F at Manitowoc, Oshkosh, and Sturgeon Bay; and 61 F at Green Bay which were all record cool maximum temperatures for the date. Yet another cool snap brought scattered frost and agricultural losses to portions of north-central and northeast Wis-



Summer temperature departure across the Midwest. Graphic from the Midwestern Regional Climate Center.

consin on the morning of August 21.

Overall, the summer of 2004 averaged 2 to 4 degrees below normal. At Green Bay, the average summer temperature of 65.0 F made it the 9th coolest summer on record. The coolest summer on record is 63.1 F set in 1915. Interestingly, Green Bay recorded more 80 degree high temperatures in September (15) than in June, July, or August. At Rhinelander, the summer average of 61.2 F tied the record for third coolest, just short of the all time record of 60.7 F set in 1915. In Wausau, the summer of 2004 was the 9th coolest on record.

The cool weather from Canada also resulted in a relatively dry summer. After a wet June, the weather pattern turned to a cool and dry northwesterly flow, which led to below normal precipitation in July and August. Rainfall totals for the summer were one to three inches below normal, or 75 to 90 percent of normal over much of the area. Locations across north-central Wisconsin only received about half of their normal rainfall.

Autumn of 2004: “Summer” Finally Arrives

By Roy Eckberg, Forecaster,
NWS Green Bay

After one of the coolest summers on record, the weather pattern abruptly changed to a warm and dry pattern across the upper Midwest. Temperatures in September averaged 5.8 F above normal at Green Bay, +5.2 F at Wausau, and +5.1 F at Rhinelander. In Green Bay, the high temperature failed to reach 70 degrees on only two days during the month. This is impressive considering the fact that the normal high by the first of October is 65 F. Although September was warm, a cool spell on the 28th and 29th sent a friendly reminder that old man winter was not far behind. Temperatures on September 29 dropped to 26 F at Rhinelander and 31 F in Green Bay, bringing an end to the growing season across north-central and far northeast Wisconsin. Precipitation for the month averaged one to three inches below normal. The abnormally dry weather during July and August continued to worsen. By the end of September, conditions in northeast and east-central Wisconsin was classified as a “moderate drought.”

In October, the above normal temperatures continued throughout the month. Temperatures averaged around one degree above normal across central and north-central Wisconsin, while locations across the northeast were 1 to 3 F above normal.

A hard freeze occurred on the morning of October 5, with Rhinelander and Green Bay reaching 24 F and Wausau falling to 26 F.

The cold spell was brief, as temperatures on the 6th warmed to 76 F at Wausau, 77 F in Rhinelander, and 80 F at Green Bay. Much needed rain fell across the area during October, with monthly totals ending up an inch or two above normal across most locations. The first snowflakes of the season were reported on October 4 at Rhinelander and on the 16th at Green Bay. No snow was reported at Wausau during the month.

November was mild and slightly drier than normal. Temperatures for the month averaged 3.9 F above normal at Rhinelander and Wausau, and 5.0 F above normal in Green Bay. Green Bay recorded the 18th warmest November on record. (Weather records for Green Bay date back to 1886.) Precipitation averaged about one-half inch to one inch below normal. The first measurable snow of the season was recorded at Rhinelander on November 26-27 (4.6 inches) and at Wausau on November 25-27 (1.2 inches). A trace of snow fell in Green Bay during the month, making it the 2nd least snowiest November on record. As a matter-of-fact, the autumn snowfall total for Green Bay of only a trace was the 2nd least snowiest fall on record. No snow fell in Green Bay during autumn 1963.

Overall, autumn 2004 averaged 3 to 5 F above normal. The average temperature of 51.2 F at Green Bay made it the 7th warmest fall on record. The season’s precipitation generally ran about an inch or two below normal.

Wanted: Severe Weather Spotters

NOAA’s National Weather Service relies on a group of volunteers who, during severe weather, keep an eye on the sky. Their information, in concert with NWS Doppler radar analysis, allows meteorologists to make decisions on the severity of thunderstorms and other types of significant weather.

Severe weather spotters attend annual training given by the NWS. The 90 minute seminar concentrates on the identification

of significant cloud features that are associated with severe weather. Spotters also learn how to measure snow, estimate hail size and wind speed, and learn how to report this information to the NWS.

Timely reports from weather spotters mean faster and more accurate warnings and forecasts for the citizens of Wisconsin. If you would like more information on the weather spotter program, please visit the NWS Green Bay Spotter website.



On the Web

www.crh.noaa.gov/grb/spotters.html

Skywarn Recognition Day Held at NWS Office

Skywarn Recognition Day was developed in 1999 by NOAA's National Weather Service and the American Radio Relay League. It celebrates the contributions that volunteer amateur radio operators make to the NWS and their community during significant weather events. The sixth annual Recognition Day was held December 4, 2004.

At NWS Green Bay, over one hundred contacts were made with spotters and other amateur radio operators from north-east Wisconsin and all over the U.S. Tours of the office were also conducted during the event.



Storm spotter Lance Dickinson's vehicle made an appearance during Skywarn Recognition Day.

Cloudscape Stamps Released

The world's most popular hobby rose to greater heights when the U.S. Postal Service issued the 37-cent Cloudscapes commemorative postage stamps, postal cards and philatelic collectables on October 4, 2004. The theme for the commemorative stamps, "Reach for the Sky and Collect Stamps!" was an alliance with The Weather Channel, the American Meteorological Society and NOAA's National Weather Service to educate stamp collectors about atmospheric sciences.

Locally, the NWS Green Bay office and the USPS unveiled the stamps to the public at Wilder School in Green Bay on October 27, 2004.



NWS at Einstein Science Expo

NWS Green Bay was invited to participate at the third annual Foth & Van Dyke Einstein Science Expo, held on January 15 in Green Bay. Over 3000 children and parents attended the day-long "hands-on" event.

The theme of the NWS booth was "How NOAA's National Weather Service Measures the Weather." Nearly 150 children stopped by the booth to measure air pressure, snowfall, and watch a weather balloon release. Science teacher (and former NWS meteorologist) Jill Last assisted Warning Coordination Meteorologist Jeff Last at the booth.



Jill Last measuring "snow" with a future weather observer at the Science Expo.

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in Green Bay, Wisconsin

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The **Packerland Weather News**

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