

Packerland Weather News



Volume 11, Issue 1

Spring/Summer 2013

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Are You Ready for Severe Weather this Season?

2012 was slow when it came to tornadoes in north-central and northeast Wisconsin. There was only one confirmed tornado, which is the 2nd lowest ever recorded for a year. The confirmed tornado touched down near Rib Mountain in Marathon County on May 24th (image on the right) and the intensity was an EF0. On average, there are 7 tornadoes across north-central and northeast Wisconsin. The state of Wisconsin also had a slow year for tornadoes, registering only 4. Severe weather reports were also below average, with 129 hail and wind damage reports for the year. On average, we receive around 140 reports for a season.



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.
- ◆ Use a weather app on your smart phone to monitor severe weather.
- ◆ 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.

www.weather.gov/grb/prepare



Upcoming Spotter Training Classes

Day	City	Time	Location
April 4	Manitowoc	6:00pm CDT	1024 S. 9th Street (EOC, Rooms 111 and 112) Call the Emergency Mgmt office to register. Contact Information: EM Office: 920-683-4207
April 10	Wautoma	6:00pm CDT	County Courthouse, Demo Room 209 S. Saint Marie Street
April 11	Antigo	6:00pm CDT	High School, Volm Theater 1900 Tenth Avenue
April 13	Appleton/Grand Chute	10:00am CDT	Grand Chute Town Hall 1900 Grand Chute Boulevard
April 16	Waupaca	6:30pm CDT	Live web seminar County Courthouse
April 30	Green Bay	7:00pm CDT	UW-Green Bay Union-Christie Theatre
May 9	Luxemburg (Kewaunee Co.)	6:30pm CDT	EOC, Fairgrounds 625 Third Street
May 22	Rhinelanders	6:00pm CDT	Oneida Co. Law Enforcement Center 2000 E. Winnebago Street

Please visit <http://www.crh.noaa.gov/grb/?n=spotterschedule> for the up-to-date spotter classes schedule.

Ice from the Sky: Measuring Hail for the National Weather Service

Hail is a form of frozen precipitation that falls from a thunderstorm or vigorous shower. It consists of balls or irregular lumps of ice and can, in extreme storms, reach four inches or more in diameter. The largest hailstone ever recorded in the U.S. fell on July 23, 2010, in Vivian, South Dakota; it measured 8 inches in diameter and weighed almost 2 pounds!

When hail falls, you can report the size of the hail to the National Weather Service. Find the largest stone (when it is safe to do so) and measure its diameter. Hailstones can be oblong in shape, so make sure to measure the largest diameter and report that to the NWS. If you are unable to measure the hail safely, you can describe the hail's size by comparing it to an object of similar size (coins, golf balls, etc.). Avoid comparing hail size to marbles, as marbles can come in many different sizes.



Hail just over 3 inches in diameter that fell with a severe thunderstorm in Wisconsin Rapids on June 7, 2007.

Lightning Kills, Play it Safe!

Summer is the peak season for one of the nation's deadliest weather phenomena—lightning. If you are outdoors and a storm approaches, move to a sturdy building or metal vehicle immediately. Remember, if you can hear thunder, you are close enough to that storm to be struck by lightning.

Coaches, sports officials, and others responsible for outdoor groups should have a NOAA Weather Radio handy for the latest weather information.

www.lightningsafety.noaa.gov



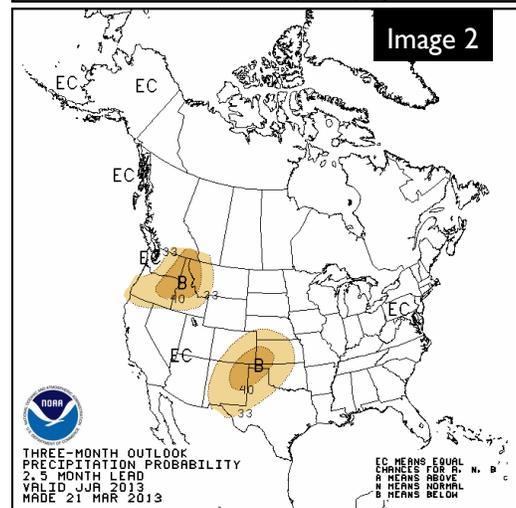
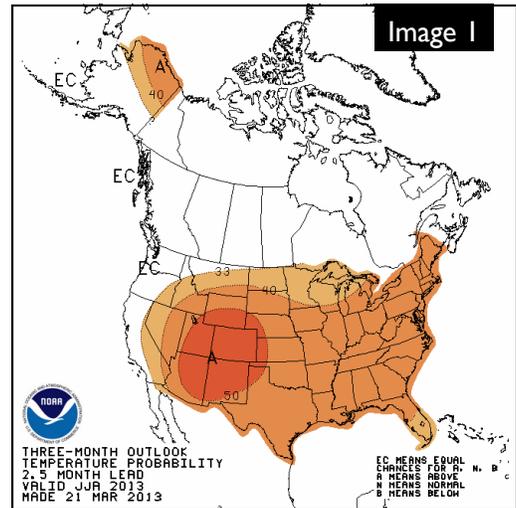
Climate Corner — Summer 2013 Outlook

By Roy Eckberg, Forecaster

The Climate Prediction Center (CPC) is forecasting a greater likelihood of above normal temperatures (Image 1) across much of the nation, including north-central and northeast Wisconsin for the upcoming summer (June through August). The official CPC forecast is calling for equal chances for above, normal or below normal precipitation. (Image 2) The climate models did not show a clear trend for the upcoming summer precipitation across the western Great Lakes. The climate models usually have a harder time forecasting precipitation amounts due to smaller scale features like slow moving thunderstorms or thunderstorm complexes that can significantly impact precipitation totals in a large or small area depending on the weather pattern.

www.cpc.ncep.noaa.gov/

What is a normal summer in north-central and northeast Wisconsin? The table below lists the normal high, low and precipitation for the summer months of June, July and August. Despite the summer solstice around the 21st of June, June can still have some pretty cool days with highs in the 40s and 50s in extreme cases. Long-time residents of northern Wisconsin can remember a few flurries that fell in Rhinelander on June 2-3, 1945. Summertime temperatures on rare occasions can climb to over 100 degrees, which happened several times last summer across the southern half of the state. Overall, average summer high temperatures are the middle to upper 70s. Night time lows average from the lower to middle 50s north, and in the upper 50s to around 60 from the Fox Cities east to the lakeshore. On average, ten to thirteen inches of rain falls across the region with the lowest amounts across northeast Wisconsin.



	June High	June Low	June Precip	July High	July Low	July Precip	Aug High	Aug Low	Aug Precip	Summer High	Summer Low	Summer Precip
Antigo	73.3	51.0	3.90	77.8	55.5	3.29	76.2	53.9	3.85	75.8	53.5	11.04
Appleton	76.8	57.7	4.01	81.2	62.5	3.64	78.9	60.7	3.79	79.0	60.3	11.44
Green Bay	75.3	54.1	3.88	79.8	58.4	3.50	77.7	56.9	3.37	77.6	56.5	10.75
Manitowoc	72.1	55.3	3.54	77.1	61.4	3.35	75.6	61.0	3.59	74.9	59.3	10.48
Marshfield	75.1	54.1	4.46	79.4	58.6	3.99	77.3	57.0	4.29	77.3	56.6	12.74
Merrill	75.5	51.6	3.86	79.8	56.0	3.73	77.8	53.9	4.18	77.7	53.9	11.77
Oshkosh	77.7	56.1	4.17	81.5	60.4	3.87	79.8	59.2	3.75	79.7	58.6	11.79
Rhinelander	74.3	50.3	3.89	79.0	54.5	4.02	76.9	52.8	3.29	76.8	52.6	11.20
Stevens Point	75.6	55.2	4.38	79.8	59.7	3.92	77.8	57.8	3.91	77.8	57.6	12.21
Sturgeon Bay	73.5	52.8	3.64	78.7	58.6	3.38	77.4	58.3	3.47	76.6	56.6	10.49
Wausau	75.8	53.9	4.31	80.0	58.6	3.83	77.7	57.0	4.16	77.9	56.5	12.30
Wisc. Rapids	77.5	53.6	4.31	82.2	58.6	3.89	79.6	56.8	3.98	79.8	56.3	12.18

What a Difference a Year Makes!!

By Roy Eckberg, Forecaster

March 2012 went down in the record books with unprecedented warmth for so early in the season as numerous record high temperatures or record warm minimum temperatures were set between the 6th and 22nd. March 2012 broke previous March records by an astounding 4 to 7 degrees. The snowpack was non-existent by the middle of the month, even across the far north.

March 2013 was the complete opposite of 2012. Unusually cold weather persisted throughout much of the month. A deep snow cover lingered across the far north with snow depth readings still around 20 inches and a frost depth of several feet on the 31st. March 2013 will go down in the record books as one of the top 25 coldest on record, a sharp contrast to the warmth of 2012.

Location	Normal	2012 Ave March Temp	2013 Ave March Temp	2013 Ave Compared To 2012 Ave	March 2012 Ranking	March 2013 Ranking	Max Temp Mar 2012	Max Temp Mar 2013
Antigo	26.5	42.1	20.8	-21.3	Warmest	T 6 th Coldest	75	43
Appleton	31.3	46.4	25.7	-20.7	Warmest	10 th Coldest	83	48
Brillion	31.0	44.7	24.5	-20.2	Warmest	Coldest	82	46
Chilton	31.6	46.2	25.3	-20.9	Warmest	4 th Coldest	84	48
Clintonville	29.9	45.6	25.3	-20.3	Warmest	T 7 th Coldest	82	48
Florence	25.2	40.0	18.5	-21.5	Warmest	Coldest	80	46
Green Bay	30.8	46.4	26.4	-20.0	Warmest	32 nd Coldest	82	48
Hancock	31.3	47.6	M	M	Warmest	M	81	40
Kewaunee	30.6	42.3	25.1	-17.2	Warmest	2 nd Coldest	65	45
Laona	26.2	41.1	16.4	-24.7	Warmest	Coldest	78	44
Manitowoc	31.8	42.6	27.9	-14.7	Warmest	T 19 th Coldest	65	44
Marinette	30.4	43.1	26.2	-16.9	Warmest	10 th Coldest	82	48
Marshfield Airport	30.4	46.3	22.9	-23.4	Warmest	T 9 th Coldest	80	48
New London	30.5	46.1	24.7	-21.4	Warmest	T 12 th Coldest	82	49
Oconto	29.9	44.5	M	M	Warmest	M	83	49
Oshkosh Airport	32.3	47.4	25.7	-21.7	Warmest	10 th Coldest	82	46
Peshtigo	27.6	42.6	24.4	-18.2	Warmest	2 nd Coldest	81	47
Rhineland	27.1	42.9	21.9	-21.0	Warmest	T 20 th Coldest	78	48
Shawano	30.0	44.1	25.0	-19.1	Warmest	T 13 th Coldest	82	51
Stevens Point	30.3	46.0	23.9	-22.1	Warmest	9 th Coldest	79	48
Sturgeon Bay	30.3	42.0	24.9	-17.1	Warmest	14 th Coldest	75	48
Two Rivers	31.0	41.1	26.1	-15.0	Warmest	2 nd Coldest	63	45
Washington Island	28.6	38.9	25.5	-13.4	Warmest	13 th Coldest	63	44
Waupaca	31.3	46.4	25.5	-20.9	Warmest	T 11 th Coldest	83	49
Wausau	30.0	45.8	24.4	-21.4	Warmest	27 th Coldest	78	46
Wisc. Rapids Airport	31.7	47.7	24.6	-23.1	Warmest	16 th Coldest	81	49

T = Tied under March 2013 Ranking.

Ice Jams Across Northeast Wisconsin

By Tom Helman, Senior Forecaster

Ice jams occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of the river. The ice layer often breaks into large chunks, which float downstream and often pile up near narrow passages in the river as well as near bridges, dams and bends in the river. Some ice jams are minor, briefly producing a modest rise in the water upstream with a minor release of water when the ice breaks loose. But some ice jams can produce significant damming of the water resulting in flooding upstream, followed with the sudden release of a flash flood of water when the ice finally gives way.



Minor ice jam on Duck Creek in Brown County in the spring of 2005

Winter conditions which potentially can produce the most significant ice jams include a winter of below normal temperatures where there is significant river ice formation. This thick ice formation is then followed with heavy rain and/or snowmelt. In northeast Wisconsin, some of the more common ice jams include the location downstream of the Pemene Falls on the Menominee River. A slushy ice accumulation at the falls freezes just downstream to create a minor ice jam. Another ice jam, which is usually brief, is along Duck Creek at the Highway FF Bridge (a few miles west of Green Bay). The combination of a bridge and also a bend in the river at this location provides several mechanisms to produce an ice jam.



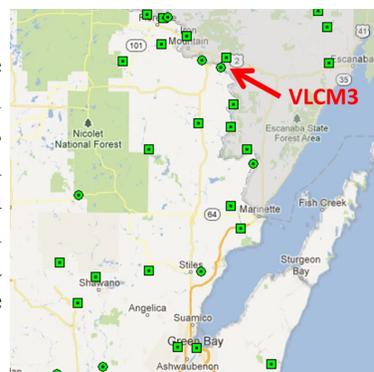
Minor ice jam during breakup on the Spirit River in Lincoln County in the spring of 2004

The ice jam season for northeast Wisconsin occurs between March and April, depending on temperature and precipitation averages. If you see an ice jam, please report this event to the National Weather Service in Green Bay.

New River Forecast Service for the Menominee River

By Tom Helman, Senior Forecaster

Beginning late fall 2012, a new river stage flood forecast became available for the Menominee River near Vulcan, Michigan, courtesy of the North Central River Forecast Center (NCRFC) in Chanhassen, Minnesota. The river site is located just south of the Sturgeon River inflow into the Menominee River and is operated by the United States Geological Survey (USGS). The name Vulcan is rather unique with some Star Trek fans thinking this may be a planet Vulcan outpost on the planet Earth. Instead, the town of Vulcan was named after a series of mines in this iron ore-rich region of Upper Michigan. Vulcan was the Greek God for metal working.



The river stage forecasts will be issued during times of high water and any statements or warnings will be issued by NWS Green Bay. The reach of this service will include the Wisconsin and Michigan sides along the Menominee River, and river points from just south of Niagara to Chalk Hill Dam. The new Vulcan (VLCM4) river site joins the already established forecast points at or near Florence (FLOW3), Niagara (NIAW3) and McAllister (MCAW3). River information can be viewed on the National Weather Service Green Bay web page, <http://www.crh.noaa.gov/grb>, select Rivers and Lakes.

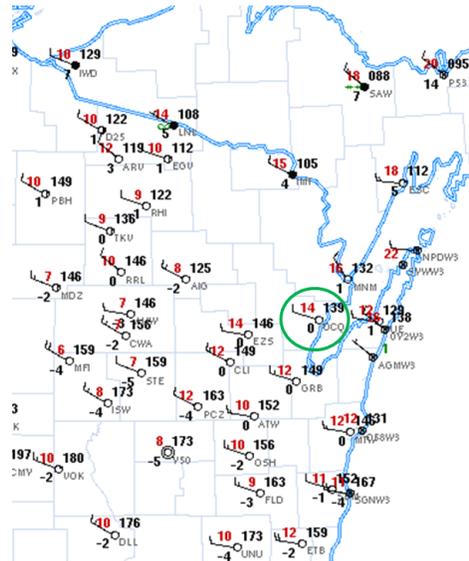
May this river site live long and prosper.

New Weather Observing Equipment at Oconto

By Rich Mamrosh, Senior Forecaster

A new automated weather observing station was recently installed at the J. Douglas Bake Airport in Oconto, Wisconsin. The system measures temperature, dewpoint, wind, barometric pressure, cloud height and visibility every twenty minutes. It will supply pilots with reliable weather information needed to conduct safe takeoffs and landings at the airport, and will assist meteorologists by filling a gap that existed in weather reports between weather stations in Menominee, Michigan and Green Bay. Its location three miles west of the bay should also make it helpful in determining wind direction and wave height on Green Bay. The new station at Oconto joins several others that were added in the past few years, and include Shawano, Waupaca, Waushara and Manitowish Waters.

Click [here](#) for the current Oconto surface observation. For previous observations go to: <http://w1.weather.gov/obhistory/KOCQ.html>



An automated weather observing station (AWOS)



The J. Douglas Bake Airport in Oconto. The AWOS is located in the upper left of the image. You can see the bay just above the tree line near the top of the image.

HMT Dan Clark Retires from the NWS

By Linda Skowronski, Administrative Support Assistant

Hydrometeorological Technician Daniel Clark retired from the National Weather Service on November 3, 2012, with over 36 years of service to the federal government.

After serving his country in the U.S. Navy, Dan worked for the National Climatic Data Center in Asheville, North Carolina. Shortly thereafter, he was able to realize his dream and joined the National Weather Service at its office in Alpena, Michigan. Dan spent the last 28 years of his career stationed at the Green Bay office of the National Weather Service. A native of Gladstone, Michigan, Dan and his wife Debbie reside in Ashwaubenon. They have two adult children.



While Dan will be missed, we wish him well in retirement!

CoCoRaHS - Every Drop Counts!

By Ashley Wolf, Meteorologist Intern

Picture this: It's a hot summer afternoon, and you hear a rumble of thunder. You go to the window and notice while your house is still dry, the house across the street is in the middle of a heavy downpour! We've all been in this scenario and have seen how widely rain and snowfall amounts can vary from location to location. While the National Weather Service has specialized equipment in the field to report rain and snow totals, they are usually too far apart to document these localized situations. That is why we need you to fill in these gaps!

Precipitation observers are needed across Wisconsin to volunteer for the Community Collaborative Rain, Hail, and Snow Network, also known as CoCoRaHS. You don't need to be a scientist to join; anyone from young to old with an interest in weather can become a CoCoRaHS observer! All you need is a rain gauge, a snowboard, and a few minutes every morning to take a measurement. Your observations will be used by a variety of people including the National Weather Service, media, farmers, gardeners, city planners ... the list continues. By participating, you will be helping people from your own neighborhood to researchers nationwide.

If you are interested in being the next volunteer weather observer for your community, please visit www.cocorahs.org for free online training and information on how to join.



Remember: Every Drop Counts!

Severe Weather Word Puzzle

B I M W A T E R S P O U T I K Y
 Y F P G N I N R A W I W P E B X
 D V A F Y Q P M F R O N T L A Z
 T O P S Z T R K S F O W Y L K Z
 Y X W W M S I X R I H G L E Z D
 A G P N Z R W L T J V I W C Y I
 D A N J D L O C I P C G H R S Q
 G U U I K R E T O B S F B E W D
 Y R A I N V A E S F A O D P A V
 G T O U N T R F Q R P T S U T M
 W R Q O P T H E T I E S S S C L
 I E C P W D D G T A G D B N H W
 C D Z R Z O R J I T Z B N C I S
 X L W N O D Q A A L O G H U J D
 T S O L H F H T F D G P A C H X
 D U F O D A N R O T X J S T F T

Convection
 Downdraft
 Flood
 Front
 Instability
 Lightning
 Rain
 Spotter
 Supercell
 Thunderstorm
 Tornado
 Updraft
 Warning
 Watch
 Waterspout

The Packerland Weather News

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