Weather Brew

NWS Milwaukee/Sullivan

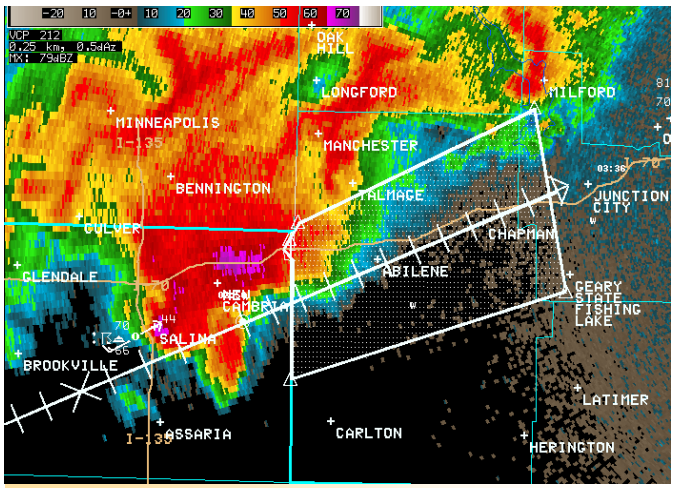
Spring/Summer 2010

Volume 2, Issue 1

Anatomy of a Warning

Every year, the warmer winds of spring energize the atmosphere and light up the sky with thunderstorms. Although a majority of storms pose little threat to life and property, a small percentage of these grow strong enough to produce large hail, damaging straight-line winds and tornadoes. It is the core mission of the National Weather Service (NWS) to protect the American people and their property. In order to accomplish this mission, the NWS must provide accurate and timely warnings.

The NWS issues three types of thunderstorm-related warnings: Severe Thunderstorm, Flash Flood and Tornado. The process of creating a warning often begins well before thunderstorms form. A day or two before severe weather events, high-powered computers produce forecasts, which are interpreted by meteorologists. Forecasters analyze the output from these models and determine the potential for strong thunderstorms, including if the atmosphere will support individual rotating storms, known as "supercells" or large complexes of storms, such as "bow echoes."



Supercell thunderstorm is tracked (line with hash-marks)

Ideally, several hours before severe weather occurs, the Storm Prediction Center (SPC) in Norman, OK, coordinates the issuing of Tornado and Severe Thunderstorm Watches with local NWS forecast offices. The watches are issued as a kind of heads up, which suggest atmospheric conditions are currently or will shortly become favorable for severe weather. The type and timing of watches are created using a combination of numerical forecast guidance and real-time observations of the environment.

Once thunderstorms form, the forecast office really comes to life. On a quiet weather day, there are usually two or three meteorologists working on the forecast. During a major severe weather event, there can be between five and ten meteorologists performing a number of tasks in the forecast operations area.

The first signs of thunderstorm formation will show up on satellite and radar. The forecasters assigned to issuing warnings track the newly formed thunderstorms and look for clues that tell forecasters which storms are strengthening and may be approaching severe levels. By far, the NWS Doppler Radar (WSR-88D) is the most important tool used during severe weather. The radar provides a three-dimensional view of thunderstorms by ob-

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MKX National Weather Service

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Warning Anatomy Cont.

taining data at multiple levels throughout the atmosphere. The radar can make a complete scan of the atmosphere every four to five minutes, and provides forecasters with information on thunderstorm intensity, shape, structure and the motion of rain and hail within the storm. From the radar data, an experienced meteorologist can decide which hazard is likely associated with the thunderstorm.

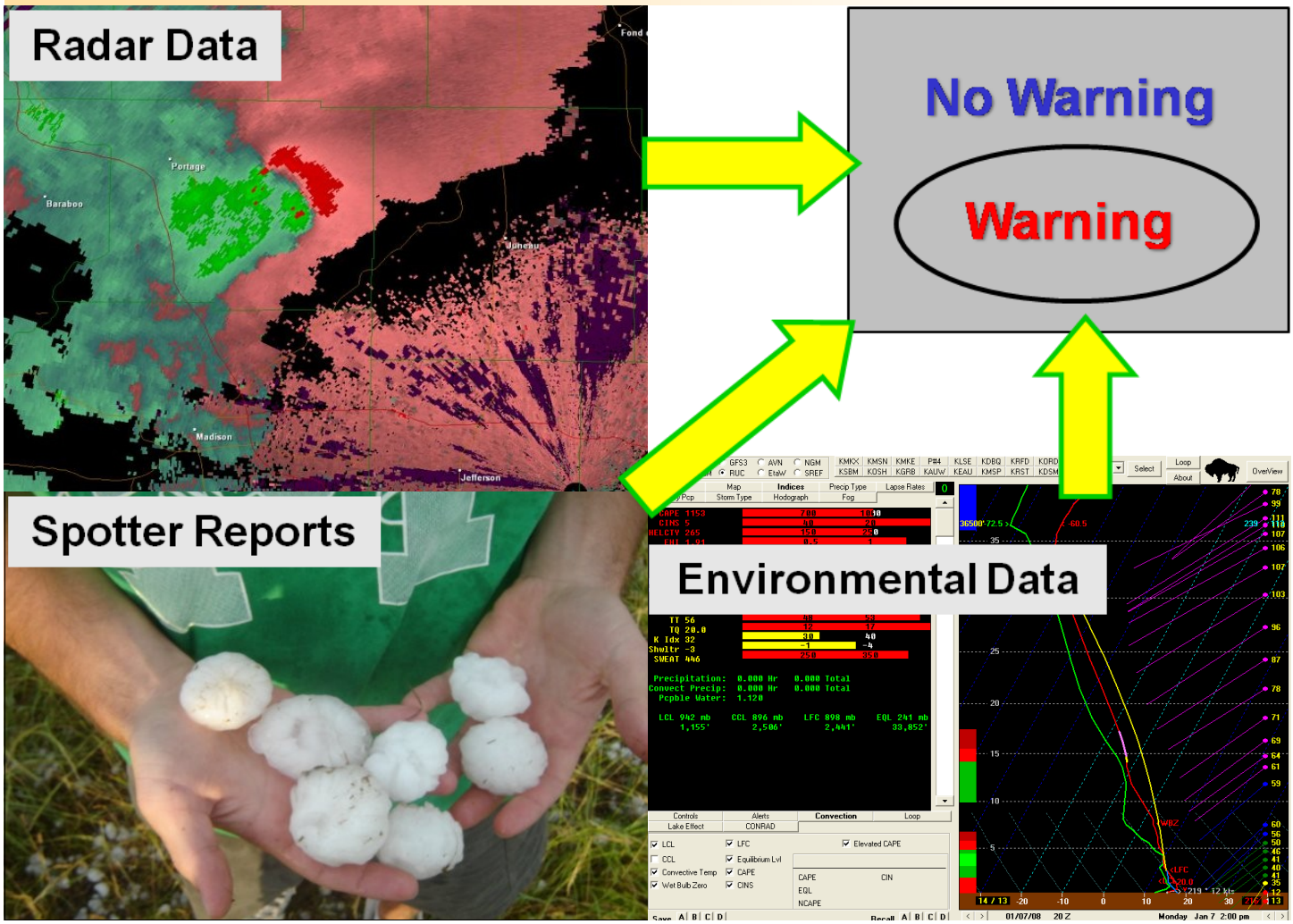
However, what we see on radar is only part of the puzzle. Even after storms form, environmental data still remains important. Surface observations, wind profilers, weather balloons, and satellite data are analyzed throughout the event. Meteorologists must constantly be aware of the environment surrounding the thunderstorm; different environments support differing types of severe weather and the environment is constantly changing. Meteorologists rely on experience and training to decipher environmental clues hidden in the data. More specifically, the environmental data helps forecasters determine the location of frontal boundaries, likely thunderstorm type, and the overall potential for tornadoes, hail, heavy rain or damaging winds.

After it becomes apparent that a thunderstorm will produce large hail (greater than one inch in diameter or quarter size) or winds of 58 mph or greater, a severe thunderstorm warning is issued. If radar indicates strong deep rotation in a favorable area of a thunderstorm, and the surrounding environment is supportive of tornado development, then the forecaster will issue a tornado warning.

Furthermore, strong rotation indicated by radar is often insufficient to induce the issuance of a tornado warning. Many thunderstorms rotate, while extensive research has shown that only a small percentage possess the environmental and storm characteristics required to actually produce a tornado.

The third and final piece to the warning puzzle is spotter reports. Whether it comes from law enforcement, trained spotters or the general public, these reports supply the ground truth to support or rebuke what we are seeing in the radar and environmental data.

Below is a graphic that illustrates the three components that factor into the decision to issue a warning. As a general rule, if 2 out of 3 components support a severe thunderstorm, then a warning is issued.



New Employee Migrates North

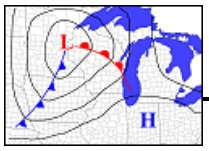
The Milwaukee/Sullivan office welcomed a new meteorologist to the staff in November. Ashley Sears comes to us from the Houston, Texas area where she previously worked as a meteorologist for a marine forecasting company where she forecasted the weather for locations around the world.

Ashley is a graduate of Texas A&M University with a bachelors degree in Atmospheric Sciences and a minor in Oceanography. She also has a Masters degree in Geosciences from Texas A&M focusing on meteorology, oceanography and GIS.

A Texas native, Ashley has lived in the hot and humid climate of east Texas her entire life. Snow isn't completely foreign to her though, as she and her family are avid travelers, and have journeyed far and wide.

"The weather in Wisconsin is a welcome change to what I grew up with in Texas. I finally got to experience a true white Christmas!"

Ashley is filling a spot left open by Bill Borghoff, who accepted a position at the NWS office in Memphis, Tennessee last fall.



Improve Your Weather Knowledge

What Exactly Does "Chance of Rain" Mean?

The PoP, or probability of precipitation forecast, is one of the most confusing parts of the weather forecast. There are many opinions out there of what exactly the PoP means. If you asked five different people, you'd quite likely get five different answers.

The two most common opinions of what a 30% PoP means is a) that precipitation will fall 30% of the time in that period, and b) that 30% of the forecast area will receive precipitation.

The true definition of probability of precipitation is neither of these, however. A 30% PoP means that on 100 days with similar atmospheric conditions, 30 of those 100 days would have recorded precipitation.

Now to make these numbers a little bit easier to visualize, the NWS has categories for the PoP values. Below is a table of these values and the terms associated with them.

Percent PoP	Category
10-20%	Slight Chance
20-50%	Chance
60-70%	Likely
80-100%	Definite

Partly Cloudy vs. Mostly Sunny?

How often do you hear a meteorologist on TV forecast "partly sunny" skies for the day? Why do they say partly sunny instead of mostly cloudy? Isn't that the same thing?

The chart below details the appropriate usage of each sky condition term. The terminology used based upon the amount of sky coverage due to opaque cloud cover. In other words, how much of the sky is covered by clouds that do not allow the sun/moon light to shine through. Note that the terms "Sunny", "Mostly Sunny" and "Partly Sunny" should be used only during the daylight hours.

Sky Condition	Percent Cloud Cover
Fair (mainly night time)	< 40% opaque cloud cover, no precip & no extremes of temp, visibility, or wind.
Clear/Sunny	≤ 10% opaque cloud cover
Mostly Clear/Mostly Sunny	11 – 30% opaque cloud cover
Partly Cloudy/Partly Sunny	31 – 60% opaque cloud cover
Mostly Cloudy/Considerable Cloudiness	61 – 90% opaque cloud cover
Cloudy	> 90% opaque cloud cover

Storm Spotter Training Classes

Are you interested in being a trained weather spotter? If so, make plans to come to one of our storm spotter training classes! Being a storm spotter doesn't take a lot of time out of your busy day. It just means that you are trained to watch for severe weather. We may call you during weather events to ask if you have seen any hail or wind damage, or other significant weather in your area. You also have the opportunity to call us or submit a severe weather report online.

The classes last about two hours, and participants are taught how to recognize what makes a storm severe or tornadic, what to look for, and what to not be fooled by.

One or more staff members of MKX NWS will provide this training. There is no charge and most classes are open to the public. This year, we're also providing a limited number of advanced spotter training courses that are a little more in-depth than most classes.

If you are interested in becoming a trained storm spotter, or simply want to learn a little bit about severe weather, please join us at one of the training classes in your area. Plan to arrive 15-20 minutes prior to the start time of the class, as some classes fill fast, and we ask that everyone sign in at the door.

For more information and a schedule of this year's classes, visit http://www.crh.noaa.gov/mkx/?n=spotters.

April 19-23, 2010 - Wisconsin Tornado and Severe Weather Awareness Week
Drill Day is Thursday April 22, 2010 from 1 to 2 PM.

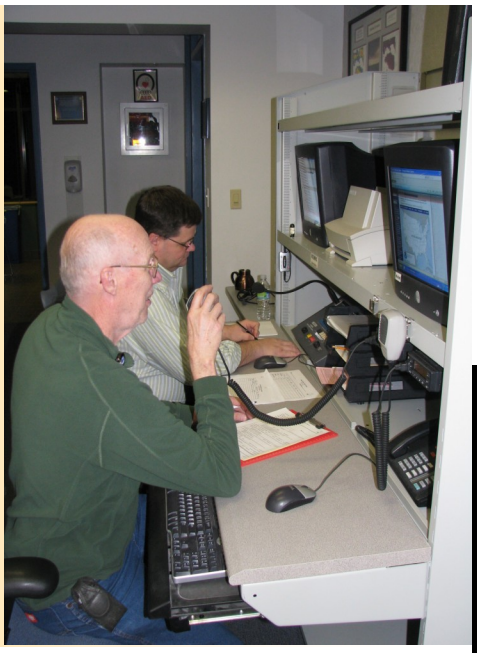
County	Date	City
Columbia	March 9	Wisconsin Dells, Portage
Dane	March 18, April 7, 13	Verona, DeForest, Madison
Dodge	March 10	Beaver Dam
Fond du Lac	March 3	Fond du Lac
Green	March 22	Monroe, Browntown
Green Lake	March 2	Green Lake
Iowa	March 16	Dodgeville
Jefferson	March 24	Jefferson
Kenosha	April 12, 22	Bristol
Lafayette	March 17	Darlington
Milwaukee	April 5, 6	Glendale, Greenfield
Marquette	March 1	Montello
Ozaukee	March 15	Port Washington
Racine	April 20	Racine
Rock	March 23	Janesville, Clinton
Sauk	March 8	Baraboo
Sheboygan	March 4	Sheboygan
Walworth	March 25	Elkhorn
Washington	April 8	Germantown
Waukesha	April 29	Waukesha

Behind the Scenes with Ham Radio

Here at the National Weather Service in Sullivan, we are lucky to have a group of people who volunteer their time to help pass along important weather information on a daily basis, and during severe weather. These individuals are amateur radio operators all across southern Wisconsin.

There are currently three programs using the Amateur Radio Service that support our forecast office, with around 300 participants.

- The Badger Weather Net was developed in 1964 to provide daily observations of high and low temperatures, as well as precipitation. The "net" (like a conference call on radios) is conducted every morning between 5a.m. and 7:15a.m., where operators from around the state and other various parts of the country provide observations, which are then forwarded along to the NWS.
- SulCom (The Sullivan Committee) was developed in 1997 as a way of getting 8 different field teams involved in supporting the Milwaukee/Sullivan office. Today, the number of teams involved has grown to 13. This group supports the Sullivan office with observations and severe weather events, but also is a resource for any program requiring team collaboration to support the NWS office in Sullivan.
- SWARA (Sullivan Weather Amateur Radio Associated) was developed in late 1998 as an approach to internal support needs using Amateur Radio. Representatives of each group are part of SWARA.



Tom Kucharksi and Bill Hollister receive severe weather reports from other ham radio operators.

While the Badger Weather Net collects daily observations to provide the Sullivan office, SulCom and SWARA are geared toward support of convective weather in southern Wisconsin.

Members of SWARA are at our office at least monthly for meetings and training sessions. During the severe weather season, at least one SWARA member is "on-call" around the clock, and may be asked to come in to the office to help gather severe weather reports at any time of the day.

We at the Milwaukee/Sullivan office appreciate everything the amateur radio operators of southern Wisconsin do in supporting our operations. These individuals willingly give their own free time to do what they can to help us collect weather information that not only provides useful information in issuing severe weather warnings, but also in producing our daily forecasts.

Contributions by Amateur Radio for convective weather activity in the Milwaukee CWA over time has averaged about 2,400 man-hours per year. Additionally, contributions by Amateur Radio for daily weather activity in the CWA is estimated to be around 6,000 man-hours per year.

The Amateur Radio groups in southern Wisconsin are always looking for more participants who are willing to learn new things and contribute to the goals of the groups.

For more information or to participate:

Badger Weather Net

http://www.crh.noaa.gov/mkx/?n=badger-weathernet

or contact Don Michalski at dem@sal.wisc.edu.

SulCom:

http://www.sulcom.info or webmaster@sulcom.info

SWARA:

Email Tom Kucharski tjkuch@execpc.com

General information on Amatueur Radio:

www.wedothat-radio.org

Winter 2009-2010 Recap

After back-to-back winters with some of the highest season snowfalls ever recorded in southern Wisconsin, the winter of 2009-2010 provided a break. We are currently in the midst of a strong El Niño episode, which is forecast to last through the spring. Historically, moderate to strong El Niño episodes lead to drier and warmer winters with less snowfall in Wisconsin.

The first notable accumulations of snow did not occur in southern Wisconsin until December. On December 3rd, a narrow band of snow brought accumulations up to 5 inches from Madison to south of Milwaukee. Five days later, on December 8 and 9, a major winter storm impacted southern Wisconsin. The low pressure system generated heavy snow up to 18 inches in south central Wisconsin while some locations near Lake Michigan barely reached 2 inches. The storm became a blizzard in many areas and left over a foot of snow from the Central Plains into the Great Lakes. December 2009 ended up being 5th snowiest on record for Madison as the month ended with 26.8 inches of snow. Milwaukee recorded significantly less snow (12.0 inches) than Madison in December. From the beginning of January through February 28, an additional 20 to 22 inches fell across southern Wisconsin bringing the seasonal snowfall totals to 37.2 inches in Milwaukee and 48.9 inches in Madison. Normals for October through February are 42.3 inches for Milwaukee and 39.2 inches for Madison.

15-18 inches of snow in Dane County December 8-9. Photo by Sarah Hussin, Oregon, WI.

In comparison to the previous couple winters, temperatures were not nearly as cold. Madison was very close to normal for the winter and experienced only slightly below normal temperatures in December and January. December finished 0.8 degree below normal and January finished 0.4 degree below normal. Madison finished 0.5 degree above normal for February. Milwaukee also experienced a mild winter with temperatures near normal for the season. December finished 0.2 degree above normal and January finished 1.7 degrees above normal. The month of February finished 2.1 degrees above normal in Milwaukee.

Spring Flood Outlook

Each spring, River Forecast Centers across the country issue outlooks for spring flooding potential. A number of factors go into spring flood forecasting, including snow pack, soil temperatures, seasonal precipitation and streamflow. The following information comes from the North Central River Forecast Center outlook issued on February 19. An updated flood outlook will be issued on March 5.

Eastern Wisconsin Streams:

Precip: Fall: Near normal, Winter– above normal

Streamflow: Much above normal throughout the winter

Soil Moisture: 10-20% above normal

Snow cover: 4-10", water equivalent: 1.2-2.8"

Wisconsin River Basin:

Precip: Fall: Below normal central and northern WI

Streamflow: Below normal through fall and winter

Snow cover: North: 12-20" water equiv: 2-3.5"

South: 6-10", water equiv: 2-3"

Illinois River Basin:

Snow cover: 3-6" in southern WI, water equiv: 1-2.5"

Rock River Basin:

Precip: Fall: Above normal, Winter– above normal

Streamflow: Much above normal

Snow cover: 5'12", water equivalent: 1.5-3.5"

The report also shows probability of reaching flood stage for a number of forecast points in southern Wisconsin. Many of these locations have a greater than normal chance of reaching flood stage before May 25. A major factor in this is the snowpack that has persisted across Wisconsin. Many locations have had snow on the ground since early in December.

For more information and to see the full report, see **http://www.crh.noaa.gov/ncrfc/?n=sproutlookcurrent** or check out our AHPS page to get the latest flood information: **http://www.weather.gov/ahps/**.

National Weather Service Marine Program

By Marc Kavinsky, Lead Forecaster

Few people are affected more by the weather than the mariner (boater). An unexpected change in winds, waves, or visibility can reduce the effectiveness of marine operations and threaten the safety of a vessel and its crew. The National Weather Service (NWS) provides marine weather warnings and forecasts to serve all mariners who use the Great Lakes for their livelihood or recreation. This is part of the NWS's mission to protect life and property from extreme weather.

The warning and forecast program is at the core of the NWS's responsibility to mariners. These warnings and forecasts help the mariner plan and make crucial decisions. The NWS also provides information through weather statements and outlooks that supplement these warnings and forecasts.

The basic forecast products for the Great Lakes include the **Open Waters Forecast** and the **Nearshore Marine Forecast**. These two products are forecasts of winds, waves and weather conditions, and are issued four times a day, with updates as necessary. They are primarily used as tools for planning purposes to support and promote safe transportation across the Great Lakes.

During rapidly changing extreme weather, the NWS will issue Special Marine Warnings for potentially hazardous events on the water. Special Marine Warnings cover the near shore waters of the Great Lakes and provide advanced notice to mariners of potentially hazardous weather conditions of short duration (up to 2 hours). These events can include strong thunderstorms, waterspouts, severe wind shifts and other short-lived extreme conditions.

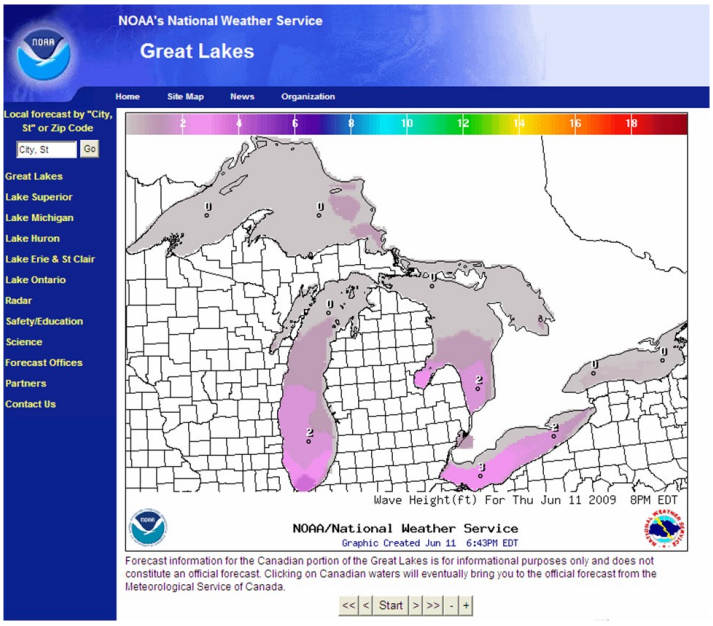
A **Marine Weather Event** is a meteorological phenomenon that can have a hazardous impact on marine safety, transportation and/or commerce. The event occurs over a longer period of time (more than 2 hours). When a marine weather event is expected or possible, the NWS uses the multi-tiered concept to increase mariner awareness to promote a proper response. This multi-tiered concept consists of:

Outlook – used to indicate a hazardous marine weather event may develop in the period beyond 48 hours.

Watch – used when the risk of a hazardous marine weather event has increased in the next 12 to 48 hours, but its occurrence, location and/or timing is still uncertain.

Warning – used when a hazardous marine weather event is occurring, imminent, or has a very high probability of occurrence in the next 36 hours.

Advisory – used for less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property in the next 36 hours.



These text products are available on all NWS Great Lakes websites. Forecasts of wave height, wave period, winds, weather and temperature for the Great Lakes are available graphically from the Great Lakes web portal, located at www.weather.gov/greatlakes as depicted in the image to the left.

For more information on the suite of marine products and services offered by the NWS, check out our frequently asked question page at www.nws.noaa.gov/om/marine/faq.htm.

"A smooth sea never made a skilled mariner."
-English Proverb

Did You Know...Rain Drops Start as Ice-Crystals?

By Rusty Kapela, Warning Coordination Meteorologist

It's a hot, muggy Saturday afternoon, and you're preparing the outdoor grill for some brats and hamburgers. The temperature is 95, and the dewpoint is 75, producing a heat index value of 108. You see thunderstorms off in the distance moving toward your location. Eventually the storms roll through your neighborhood, and you get a downpour that pushes water over the curb. You may not realize it, but every rain drop that fell that afternoon started as an ice crystal in the upper reaches of a thunderstorm where temperatures are well below the freezing mark!

What's going on? How can a rain drop start off as an ice crystal?

The answer is simple. The upper portions of a thunderstorm have temperatures well below freezing, from 0F to -40F (-18 to -40C) or colder. Even on some of the hottest days in summer, the freezing level in the atmosphere is only 14,000 to 16,000 feet above the ground level. Thunderstorms in Wisconsin typically grow to heights of 30,000 to 60,000 feet above the ground level. Therefore, much of the thunderstorm cloud has a temperature well below the freezing mark.

Thunderstorm clouds are made up of small water droplets, water vapor that has condensed on very small dust, dirt, salt, or clay particles suspended in the air. As the cumulus cloud grows above the freezing level, the small water droplets do not automatically freeze. These droplets become what meteorologists refer to as "super-cooled." They remain in the liquid "super-cooled" state until the cumulus cloud grows tall enough to reach the level where the temperature is 14F (-10C). At this temperature, ice crystals start to form within the growing cumulus cloud. These ice crystals serve as a nucleus for super-cooled water droplets to freeze upon. Eventually enough super-cooled water droplets collide with the ice crystal to allow the crystal to grow into a snow flake. The snow flake eventually melts into a rain drop as it falls below the freezing level in the atmosphere.

There is a temperature range, or sweet spot, where a lot of ice crystals are present and growing at their maximum rate. This is in the 0F to +5F (-15C to -18C) range. Once the cumulus cloud grows to the heights where temperatures are in the sweet spot the precipitation process is maximized and you get a decent downpour of rain at the ground level when the thunderstorm moves overhead.

In general, when the temperature inside the top of the thunderstorm cloud is -40F (-40C), there are no super-cooled water droplets present. Consequently, the upper reaches of a thunderstorm tend to have more ice crystals than super-cooled water droplets. In the lower portion of a thunderstorm, just above the freezing level, one finds mostly super-cooled water droplets and few ice crystals. If an airplane flies through the portion of a cloud that is below freezing, but where mostly super-cooled water droplets are present, it encounters icing problems. The super-cooled water droplets freeze upon contact with the airplane's wings, etc.

We have a Top News of the Day story describing the rain-snow process on our website in the Top News Archive section: **http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=mkx&storyid=14075&source=2.**

Find us on Facebook!

The National Weather Service has developed a fan page on the social networking site, Facebook.

The site is not specific to a single office, but rather is nationwide. Stories and photos are occasionally posted about the weather and about events going on at different offices across the county.

To become a Facebook fan, search for National Weather Service, and look for the page with 9,000+ fans.

www.facebook.com

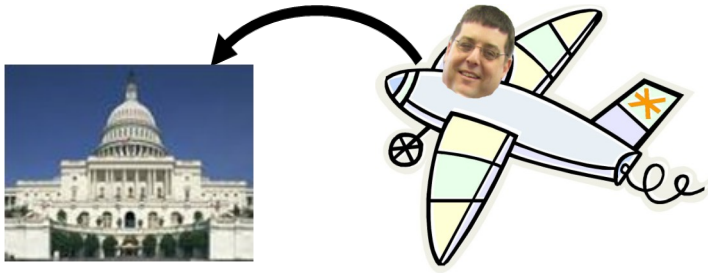
MKX SOO Heads to DC

Jeff Craven, the Science and Operations Officer at the NWS in Milwaukee/Sullivan, is working on a national project in Washington D.C. Jeff's temporary assignment runs from February 8 through April 9.

Jeff will provide NWS Headquarters with field office-based input and help develop a comprehensive vision for future NOAA/NWS operations.

The project will incorporate emerging technologies into the day-to-day operations of offices across the country.

Jeff was the only local office representative from across the weather service selected to travel to NWS Headquarters to work on this project.



Rusty's Roundup

By Rusty Kapela, Warning Coordination Meteorologist

Have you ever seen a scary-looking cloud?

All of us have experienced thunderstorms during the warm part of the year. As you guessed, no two thunderstorms look the same, and some look meaner or scarier than others. When some storms become severe (produce winds 58 mph or higher or hail 1" in diameter or larger), they typically have some low-hanging, dark, scary-looking cloud fragments attached to their bases.

Human nature being what it is, some scary-looking clouds resemble funnel clouds or even tornadoes for some folks. However, if that scary-looking cloud isn't persistently rotating, then it can't be a funnel cloud or a tornado. Of course, if the scary-looking cloud feature you are looking at is many miles away, you'll be unable to determine if it rotating anyway.

Here's one of my favorite pictures of a scary-looking cloud.

For the record, it wasn't rotating. Most people who are not trained severe weather spotters would think they are looking at a tornado or a funnel cloud when they first see such a cloud feature. In fact, even some trained severe weather spotters might mistakenly identify this scary-looking cloud as a tornado or funnel cloud.

Yes, given enough moisture, some cloud fragments can form very close to the ground and move along with the storm. Throw in a grove of tall trees between you and the scary-looking cloud fragment, and you have what might appear to be a tornado or a funnel cloud.

The very core of the issue is determining if the cloud feature you are looking at is actually showing signs of persistent rotation. As elementary as it sounds, this simple fact is forgotten by many people, and even some trained severe weather spotters. During storm situations people get excited and their adrenaline levels rise. At this point in time, they forget their elementary facts: look, observe, see if there are signs of persistent rotation, take a deep breath, double-check, and then radio or telephone in your report.

On our web site, we have a story about the Scary-Looking Cloud (SLC) club; check it out. You can access the SLC Club on our SkyWarn page (**http://www.crh.noaa.gov/mkx/?n=spotters**), or by clicking on "Other Useful Links" (**http://www.crh.noaa.gov/mkx/?n=additional-links**).

Understanding Fire Weather

By Mark Gehring, Lead Forecaster

Fire danger typically peaks in southern Wisconsin during spring, with the most significant fire activity occurring from April to early May, prior to green-up. During this same period, it is common for large, dry air masses from the Hudson Bay region to reside over the western Great Lakes for several days, resulting in low humidity and very dry fuels (vegetation). In addition, the northward migration of the jet stream can lead to the development of strong low pressure systems, which subsequently track through the Upper Mississippi River Valley, bringing warm, windy and continued dry conditions.

This unique set of circumstances occurs infrequently, but will produce dangerous wildland fire conditions over Wisconsin when it does occur. Last spring, there were several days of extremely low relative humidity in the teens along with mild temperatures that contributed to numerous marsh and grass fires across southern Wisconsin. Luckily, synoptic conditions led to limited periods of strong winds, and thus a limited number of wind-driven fires. A second peak in fire danger can occur in early fall after a killing frost.

Weather and fuel conditions conducive to dangerous wildland fire behavior are known as "Red Flag" conditions within the NWS and forest fire fighting communities. In Wisconsin, Red Flag criteria are met when all of the following conditions occur: relative humidity falls to 25% or less, sustained wind speeds are 15 mph or higher, temperatures rise to 75 degrees or warmer and fuels become critically dry. These values are subjective, and may occasionally be adjusted in certain situations. The NWS predicts and monitors the weather, and coordinates with the Wisconsin Department of Natural Resources to determine the state of the fuels.

When Red Flag criteria are expected to be met within the next 24 to 72 hours, the NWS will issue a **Fire Weather Watch**. This product is broadcasted on NOAA Weather Radio, and is accessible on NWS web sites.

When Red Flag conditions are already occurring, or are imminent within the next 24 hours, the NWS will issue a **Red Flag Warning**. This product will be broadcast on NOAA Weather Radio, and be accessible on NWS web sites.

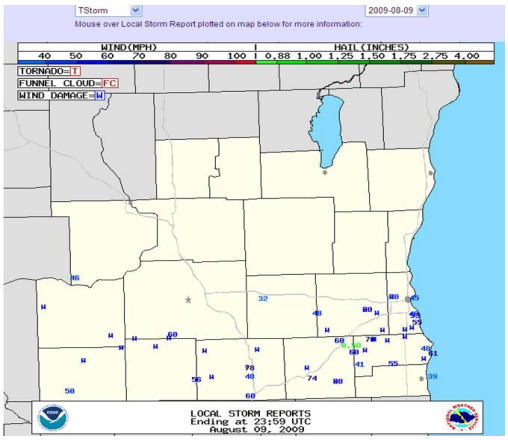
When a Red Flag Warning has been issued, residents in the affected areas are urged to take precautions to avoid starting fires. Campfires, outdoor grills, smoking materials, chain saws and all-terrain vehicles have the potential to throw a spark and ignite a fire. In addition, any burning with WDNR issued burn permits is prohibited when a Red Flag Warning is in effect.

Find It On Our Web Site!

We're starting a new column in this newsletter that will be a regular column with each issuance. Here, we'll show you where to find certain things on our website

In this issue, we introduce you to our Local Storm Report Map. This map is automatically updated as we issue a local storm report. You be able to view severe weather events (wind, hail, and tornadoes/funnel clouds), heavy rain reports, non-thunderstorm winds, or winter weather reports. The date being viewed can also be changed in the upper right corner of the page. The date here is in UTC or Greenwich Mean Time, which means the new day will start at 6 p.m. in CST and 7 p.m. during DST. If you can't find the report you're looking for, be sure to check the day before or after to see additional reports.

If you hold your mouse over any of these reports, a box will be displayed with more information. To get to this map from our website, near the bottom of the page, is a pull-down menu, look for "Local Storm Report Map" and then click the "Pick Then Click" button.



MKX at Wisconsin State Fair

By Marc Kavinsky, Lead Forecaster

For the second year, the National Weather Service serving south central and southeast Wisconsin will be staffing an exhibition booth at the Wisconsin State Fair. With cooperation from the Wisconsin Department of Natural Resources Air Quality Division, the NWS will continue to share space in the south pavilion of the DNR Park at the state fairgrounds. The DNR Park is located just west of the Wisconsin Exposition Center.

The 2010 Wisconsin State Fair runs from Thursday, August 5 through Sunday, August 15. The DNR Park and pavilions will be open from 9 a.m. to 9 p.m. daily.

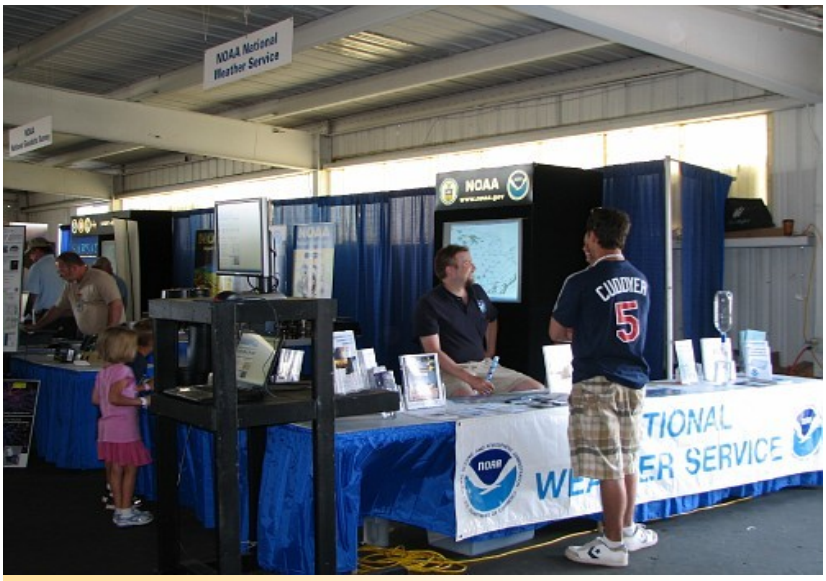
Meet members of the National Weather Service, share a story, and get the latest forecast. We will demonstrate how to navigate our website and make use of its many features, including generating an hour by hour forecast of weather conditions and examining the latest graphical weather forecast. We can also show you how to sign up to receive weather forecasts via your cell phone. You'll be able to view a simulated tornado in our tornado chamber and examine our All Hazard NOAA Weather Radio display. You'll also be able to learn about the unique relationship the National Weather Service shares with the Wisconsin DNR Air Quality Program. We hope to see you there!

Meteorologist J.J. Wood explains the tornado machine to a visitor at the fair booth in 2009.

MKX at 2010 EAA AirVenture

By Marcia Cronce, Forecaster

The Experimental Aircraft Associate (EAA) is an organization comprised of members with a wide range of aviation interest and backgrounds. Each year, there is a large gathering of pilots, general aviation enthusiasts and anyone interested in watching planes do amazing stunts and fly-bys at daily air shows. The "World's Greatest Aviation Celebration" takes place for one week in Oshkosh, WI, usually from the last week of July into the first week August. During that week, the Wittman Regional Airport in Oshkosh becomes the busiest airport in the world.



NWS booth at EAA 2009.

Representatives from different areas of the National Weather Service attend EAA AirVenture each year. National Weather Service Headquarters out of Washington, D.C. supports a large booth in the Federal Pavillion at the EAA AirVenture grounds. The booth contains plenty of brochures explaining aviation services provided by the NWS, as well as information about various weather hazards. There are plenty of NWS employees from the WI offices, as well as the Aviation Weather Center and NWS Headquarters attending the booth to answer questions from the product users and general weather enthusiasts. Last year, there was a hurricane simulator and a tabletop tornado simulator.

Observations Carry Weight

Our nation's Cooperative Weather Observers are citizens throughout the country from almost every walk of life, that have a genuine interest in observing and reporting the ever changing weather. This group includes, but is not limited to, farmers, retirees, local officials, police and fire departments, water treatment plants, high school students, radio stations and our neighbors. These observers are volunteers Equipment to gather this data is provided and maintained by the National Weather Service. Data forms are sent monthly to the National Climatic Data Center in Asheville, North Carolina. The data is digitized, quality controlled, and subsequently archived. Volunteer weather observers regularly and conscientiously contribute their time so that their observations can provide vital information needed. This data is invaluable in learning more about floods, droughts and heat and cold waves, which inevitably affect everyone. They are used in agricultural planning and assessments, engineering, environmental-impact assessments, utilities planning and litigation. The data plays a critical role in efforts to recognize and evaluate the extent of human impacts on climate from local to global scales. In addition to climate studies, the observations are used immediately as input into hydrologic models to help with river forecasting and also to generate maps at our office.

Comments and suggestions are always welcome. Your feedback is very important to us!

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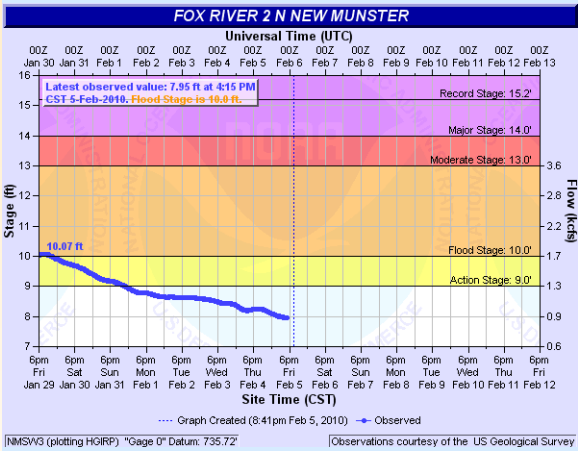
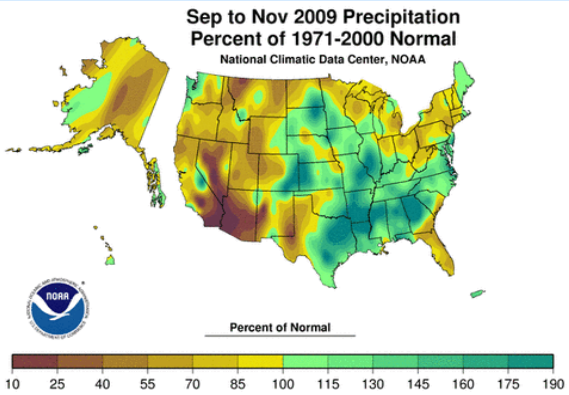
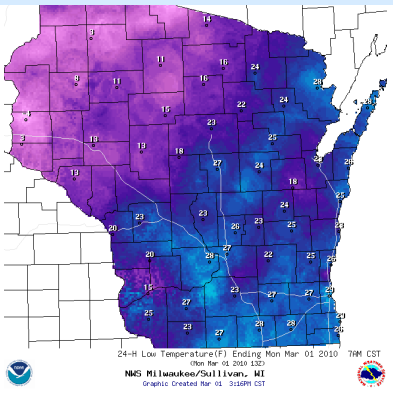


Standard 8 Inch Rain Gauge

http://www.ncdc.noaa.gov/oa/ncdc.html



http://www.crh.noaa.gov/mkx/



All of our COOP observers are instrumental in the daily operations of the NWS office, and we thank each of our more than 80 co-op observers in southern Wisconsin!