MidWest Tracker

April, 2009

Important Notes:
Wisconsin Tornado and Severe Weather Awareness Week
April 20-24, 2009

Tornado Drill Day and Times:
Thursday April 23, 2009
1 PM to 2 PM CST

Change of 1 inch hail from 3/4 inch for severe t-storm warnings, but we still want 3/4 or larger for reports to Sullivan

Dale Bernstein, President/CEO
MidWest 107

Welcome to the MidWest Tracker Newsletter! Here we are folks, in the start of the 2009 season. Will history record 2009 as an average year, or will it be one for the books? With the weather, one thing is certain, no one will know until the books are closed for the year. That's why training and experience are so important, so no matter what Mother Nature throws us, we are in position and prepared. Now is the perfect time to brush up on that training.

I offer my personal and professional greetings to all those who believe in honor, duty, commitment, family, and community service. My foremost thought is to express and extend the shared and heartfelt appreciation of many, for what you do for your communities.

It is my personal belief that as we face and endure the great economic challenges that are before us – that those persons whose commitments run deep to the heart, will continue to give back in the means most available to them.

What does that mean for MidWest? Well folks, it means that we all have to work harder. Nobody wants to hear that one has to work harder from less to achieve more. However, that is exactly what MidWest has been doing and continues to do. We do what we have to do, when we have to do it – and it is the member, it is ***You,*** who makes that happen.

The sleepless nights as MOD, AMOD, NCO, being at EOC's, as a field op, a static op, it matters not. WE are the eyes and ears of the many that rely upon us, our expertise and care. One can sit back in the wee hours of an incoming event, looking out our windows, seeing our neighbor's lights off, knowing and yearning of those sleepless times, yet knowing and caring of their care.

What you do, what we do – is not for glory. What we do, what you do, is because ***We Care.*** ***WE*** make a difference. ***You*** make a difference.

We all must take the responsibility of community. The means of fueling up your mobile at 19 cents a gallon are long gone…oops, dating myself. These are real times folks, as they have always been. Yet these are fiscal times that few have ever known. This requires what we do best, to think outside the box.

Get your staging points, know your escape routes, and run when you have to, not *necessarily* when you want to. Should you be mobile or static, know your exposure and know your network. Be trained, be patient, be professional, be confident and above all, be safe to you and yours, and to your community.

Your responsibility is our responsibility, as is our MidWest responsibility is to make that one, - the single difference; so that we are able to make that difference *every day*.

Forward

db

From The Front Office

Dane, Rock *and* Iowa County meetings are now held together at the Monona Community Center.

Dale (left) and Tim (right) in front of Dale's 107 unit

Free Weather Alerts and Announcements

Tim Shriver, Chief Operating Officer, MidWest 122

We have added a new service to the MidWest website. **Free Weather Alerts**! You can receive free tornado/thunderstorm watches/warnings in your regular email/PDA and/or your cell phone/pager.

Right now we need MidWest members and friends of MidWest to give the new system a good testing. Once we are sure all is good to go, we will start promoting it at the spotter classes and to the public as a whole.

The alerts cover Dane, Iowa and Rock counties only. So check it out and let me know what you think. Look for the yellow "New" - Free Alerts link on the website. A special thanks for Brent and Luke for working on this with me and making it possible!

Note the repeater call sign change for Janesville
WB9BJU is now WB9SHS

Next Meeting for MidWest SSTRC-
*DANE*IOWA*ROCK*

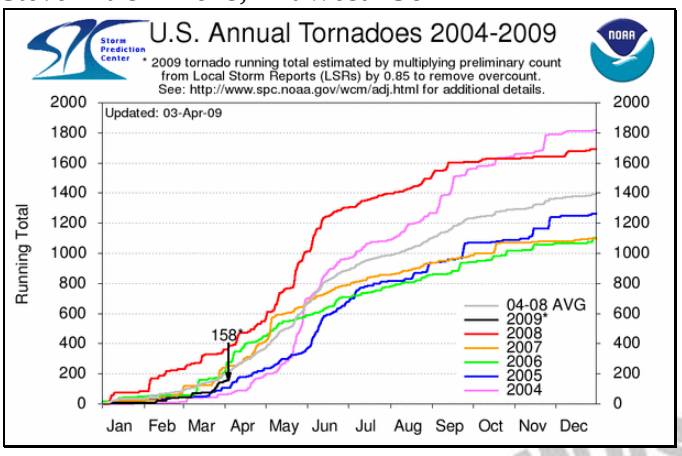
April, 20th 2009
7:00pm CDT

Monona Community Center
1011 Nichols Road
Monona WI

Chad (left) and Tim (right) talking weather on live radio

2008 Season One for Books – 2009 Average So Far

Steve Fitzsimmons, MidWest 136



That red line that looks like a rocket launch was 2008. It took off and kept going to over 1,640 tornadoes. That's 400 over average and 200 under the record setting 2004 season. 2009 looks meek in comparison, but sometimes even meek years can produce some of the strongest tornadoes. Training and preparation is the key to accurate and timely reporting no matter what kind of year it is.

Where can you find training? This month the National Weather Service (NWS) will be conducting spotter training in Madison on …

April 27th at the Alliant Energy Center

Basic Training from 1:30-3:30PM
Advanced Training from 6:30-8:30PM

For additional training classes outside of Dane County please look at the NWS schedule at …
http://www.crh.noaa.gov/mkx/?n=spotter-schedule

Training can also be found on the MidWest SSTRC website at …
http://www.midwestsstrc.org/training.php
Also at Madison Area Science and Technology
And at the Milwaukee Area SkyWarn Assoc.
http://www.mke-skywarn.org/storm_spotters.html

For severe weather spotters….and how is your story going to read?

Rusty Kapela, Warning Coordination Meteorologist

Folks…below you'll find some words of wisdom from Scott Shevey, and advanced severe weather spotter who lives near Watertown. As you know, officially the National Weather Service doesn't recommend storm chasing due to the weather hazards. However, some spotters will go mobile. In these cases you should have a co-pilot who can help navigate and take pictures/video. Going solo is really asking for trouble. As always, your personal safety is your #1 priority – I don't need your severe weather report if you find yourself in a dangerous situation.

One summer afternoon a number of years ago, I was working at my computer when I found out that a tornado warning based on rotation had just been issued for a location in Dodge County about 15 miles west northwest of my location in Watertown. As a new mobile spotter, I of course wasted no time in grabbing up my camera and cell phone and heading out the door.

I found the perfect observation position on a narrow farm road about three miles from this rather impressive and somewhat intimidating storm; lightning cutting through a green-black sky, the clouds rolling and twisting, the wind howling. In viewing the developing storm and with spotter training enabling me to understand the nature of this situation, the logical and scientific approach taught to us was, in my case replaced by sense of vulnerability and of being overwhelmed. As the storm grew somewhat closer, I realized then what was needed: I took a step back, a few deep breaths, cleared my mind of emotion and started to logically access the situation.

A few thoughts for new spotters…

Information: don't ever be without some means of keeping up on what's happening around you. Whether you're mobile or stationary, keeping up on developing storms whose features for whatever can't see is essential to your safety

Knowledge: have exceptional knowledge of the anatomy of a thunderstorm, meaning plan to study thunderstorm mechanics and general meteorology on an ongoing basis. Many years ago I chased a tornadic thunderstorm and approached the system from the northwest to southeast, punching through what I now know to be the rear flank downdraft region: compounding this totally bad idea was the fact that I was driving my wife's new car. A lack of knowledge in this business equals bad information to your local NWS office and worse, endangering your own life: simply put, don't do it.

Escape route: regardless whether you're mobile or stationary, have an escape route planned; this is especially important for mobile spotters. Don't paint yourself into a corner.

Lightning: Understand the characteristics of lightning and how to remain safe in it's presence. I have had a couple of close calls with lightning in my life: as a teenager, I was watching a storm that was passing from the "safety" of my parents' garage. It was a warm summer night and subsequently I was clad in shorts, a tee shirt and no shoes and standing on the concrete garage floor. A short time later, lightning struck a tree that was about 150 yards from where I was standing: a second later I found myself about 10 feet out on the driveway on my butt. What happened you ask? Lightning produces an intense magnetic field that induces a strong electrical current in anything conductive that's isolated from ground, in this case the "conductor" was the car that I was leaning against; my legs completed the circuit to ground from the metal bumper. Bottom line: lightning is an incredibly powerful and indiscriminate killer, deserving of your utmost respect.

Severe weather spotters, mobile and stationary have the opportunity to witness and enjoy some of the most awesome spectacles that nature can provide while performing a valuable service to your community. You'll accomplish nothing if you underestimate these and other severe weather manifestations and become a statistic yourself.

Scott Shevey
Watertown

Please Visit the MidWest Online Store!

Dale Bernstein, President/CEO
MidWest 107

We are excited about having our MidWest Online Store which may be visited at www.createchinc.com/store/msstrc.
The www.createchinc.com/store/msstrc link may also be found at the www.midwestsstrc.org web site.

Birth of a Tornado - MSNBC Slide Show
http://www.msnbc.msn.com/id/9007188

Wednesday Night Nets

Check-ins begin at 7pm on the Ham Radio side on 444.375 MHz. Test your equipment!

Then again at 7:30pm on the Business Band side on 451.275MHz.

The Rear Flank Downdraft

by George E. Hrabovsky
President, Madison Area Science and Technology

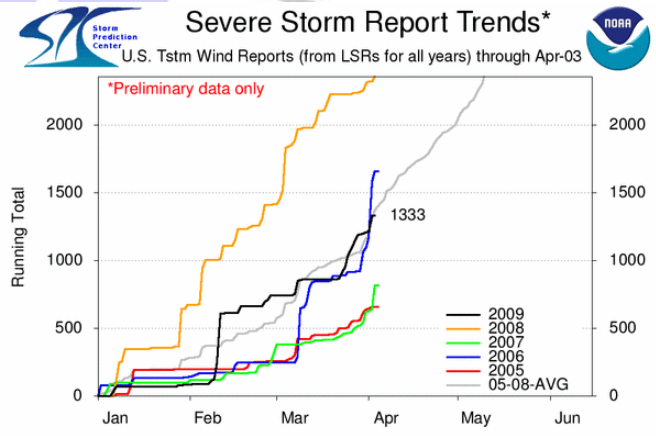
We have all heard of the rear-flank downdraft, or RFD. We know that in supercells a branch of the downdraft can get wrapped around the back side of the mesocyclone and then reach the ground on the back of the thunderstorm.

We have seen photographs and video of cloud matter being cut away as the downdraft mixes drier air into the lower levels, allowing the water droplets to evaporate. The smaller droplets in the clouds evaporate fast and cool the air, the cloud disappears and a clear slot forms digging out the cloud base around the right rear side of the wall cloud.

It might surprise you that there are at least two kinds of RFD. The first, the one that is easiest to understand, is a cool RFD with precipitation embedded. This is a branch of the main downdraft, or FFD, and carries the normal range of precipitation that you would expect. It is cool because of the evaporative cooling that takes place as the dry air descends into the cloud matter. Since the cloud matter is a volume filled with water droplets, as the dry air passes through the volume the water droplets of the cloud go from liquid droplets to gaseous water--thus the cloud matter evaporates. This takes heat out of the volume and cools the air in the volume. When this RFD hits the ground it will feel like a cool wind. If there is a tornado and this cool wind hits it will weaken the updraft by reducing the low level heat energy and moisture feeding up into it. This will weaken and eventually kill any tornado present.

The second kind of RFD is not as well understood. Here it is not cool air that descends, it is warm air. The origins of the warm RFD are not clear. They have been both observed and modeled. When a warm RFD forms it can rapidly enhance the updraft, it can increase the tendency for rotation in the atmosphere, and it can either trigger tornado development, or strengthen an existing tornado.

What does this mean to a spotter? When a cold RFD hits it means that the updraft is going to be occluded and eventually killed. Look for cyclic tornadogenesis. When a warm RFD hits look for tornado development with the possibility of large and long-track tornadoes.



MidWest also has its own forums on the MidWest SSTRC web site at
http://www.midwestsstrc.org/membersbbs/

New MidWest SSTRC Online Store!
http://www.createchinc.com/store/msstrc/

Spotter Safety Do's and Don'ts

Chad Woodward, MidWest 101

Mobile Spotters

1. Have a simple first aid kit and a flashlight.
2. Have a method of communication that you know works in the area you are using it in.
3. Keep a reference card which tells you the location of certain known points.
4. Pick a spotting location that has high visibility in as many directions as possible.
5. Plan an escape route from the location, or locations you are in.
6. SHELTER - Think of sheltering locations on your route.
7. Keep a map (street level) detailing the location(s) you will be spotting.
8. Have a method for receiving alerts (preferably a NOAA all hazards radio).
9. Trace your location by marking a map, or setting automatic waypoints on a GPS unit.

Traffic Hazards

1. Wear your seat belt! Watch out for other drivers.
2. Do not speed.
3. Drive only as fast as conditions allow.
4. Drivers watch the road, not the storm.
5. Front-seat passenger assist driver.
6. Watch for unmarked RR crossings.
7. Do not swerve suddenly to avoid small animals.
8. Avoid Country Roads as much as possible. They may dead end and become extremely slick or impassable when wet. Stick to State, US and prominent County Trunk Highways.
9. Watch out for debris in road or drooping power lines.
10. Do not stray away from your vehicle.
11. Make sure you have a full tank, Do not run low on gas.
12. Do not drive into restricted areas such as military bases. Aside from the potential legal problems, closed gates may trap you.
13. When driving through or near a town that has been hit by a tornado, remember - the power may be out causing traffic disruptions and preventing you from refueling. Be alert for emergency vehicles.
14. Do not drive into smoke or blowing dust that obscures your view. If heavy rain obscures your view, it would be wise to pull over if there is a paved shoulder to avoid being hit from behind.
15. When backing up, have passengers assist you by watching for obstructions.

Power Lines

1. Watch for power lines hanging down across the road (hard to see in poor light).
2. Do not attempt to move "dead" power lines out of the way (because of automatic restart feature). If you must remove a power line from someone, use a long dry tree branch
3. Do not drive over live power lines.
4. If live power lines are in contact with vehicle, stay in vehicle. Do not ground yourself by getting out.

Lightning Hazards

1. Pay attention to approaching areas of lightning.
2. Stay in vehicle if possible.
3. Stay away from wire fences; they carry lightning currents to you.
4. Do not lean on vehicle and act as path to ground.
5. Avoid single trees and being the highest object.
6. If your hair stands up or power lines start crackling, the area is charged and has the potential for a lightning strike. Get in a vehicle or squat on the ground on the balls of your feet.
7. Tripods can shock you due to ground currents.
8. Take a CPR class. Often people can be revived by either rescue breathing or both rescue breathing and CPR to start the heart.

Miscellaneous Hazards

1. Snakes, particularly on shoulders of road.
2. Chiggers, mosquitoes, bees.
3. Dress for all weather contingencies.

Flash Flood Hazards

1. Do not drive into running water unless you are certain that you can get across.
2. Stay alert for flooding, especially after dark (the worst time). Listen to car radio for watches and warnings.
3. Check for road and bridge closings. We will avoid areas already saturated by previous heavy rainfalls.
4. Watch for washed-out roads and bridges.
5. If your vehicle gets stuck, get out and head for higher ground. Remember most people who die in flash floods are in cars.
6. Stay out overnight if necessary.
7. Watch out for snakes flushed out of their habitat.

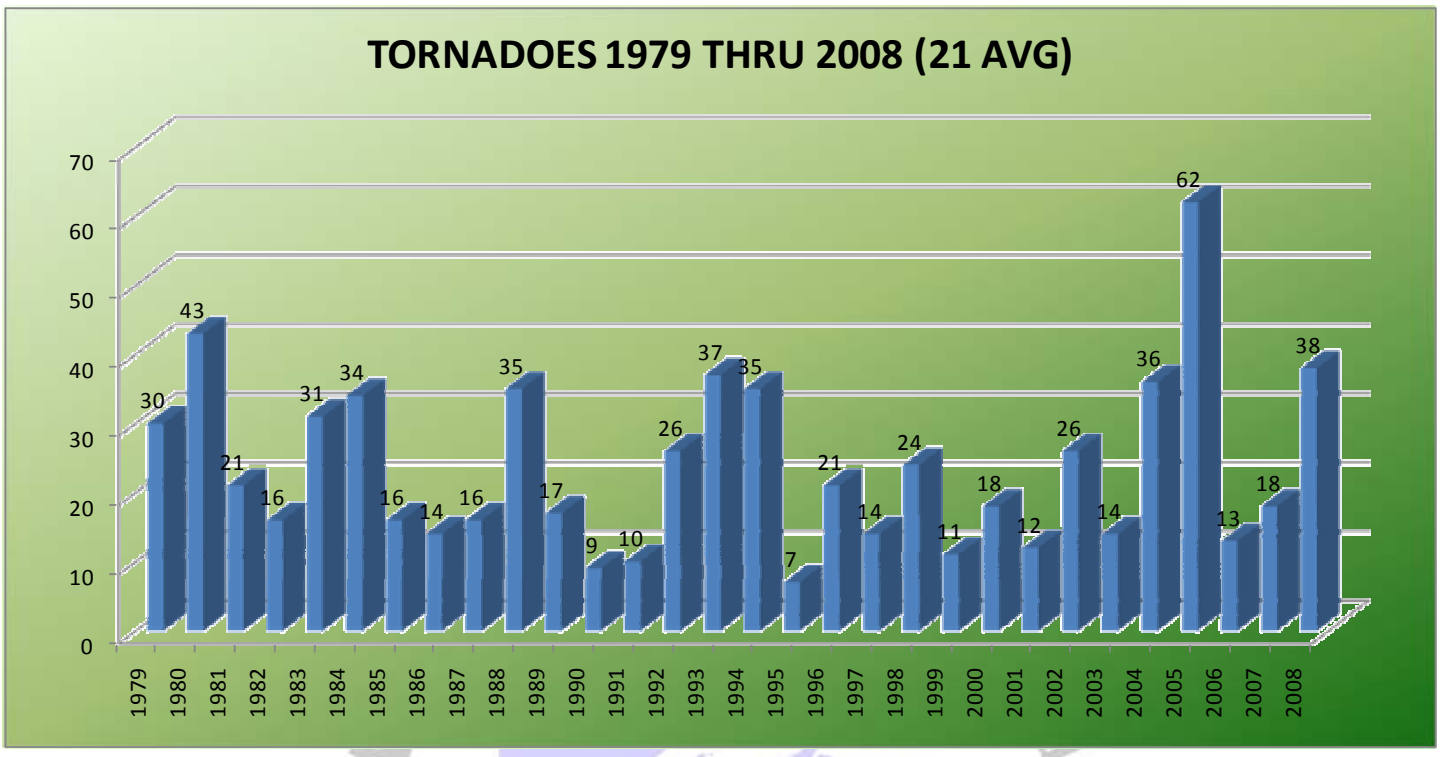
Storm Hazards

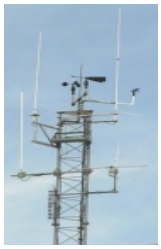
1. Do not crowd other vehicles. Act professionally at all times. Be a team player.
2. Do not get disoriented.
3. Have an escape route.
4. Do not come into the mesocyclone from the wrong direction (through the core or a thick hook echo). Stop, if necessary, to let the mesocyclone cross the road ahead of you.
5. Do not get under wall clouds.
6. Watch out for tornadoes in the rain. Many end their lives in rain, or re-emerge from rain after being engulfed in it. Be alert for sparse large hail, spiraling rain curtains, rotating scud clouds, rotation in the cloud base, debris, the sound of a tornado or your ears popping; all indications that you have managed somehow to get yourself in the wrong spot.
7. Do not get caught in the new mesocyclone core (look overhead), while watching a tornado in the occluded core.
8. Get out of the way of rapidly propagating gust fronts as the storm collapses.
9. Watch out for gustnadoes as you pass through the gust front.
10. Remember that heavy debris is thrown around the right sides and far ahead of violent tornadoes, so don't get too close.
11. Remember that tornadoes in your viewfinder look further away that they actually are.
12. Err on the side of caution. We don't need people almost in the tornado circulation. The last thing we need are dead or injured "heroes" or loose cannons out there. If you don't respect tornadoes, go on a F4 or F5 damage survey with the NWS!
13. If a tornado overtakes you (this shouldn't happen), get out of your vehicle, lay down in a ditch, hang onto something and protect your head.
14. On restricted access, divided highways (interstates and turnpikes), bridges become storm shelters. Be very wary that traffic may come to a halt as people scramble for safety. While an overpass may shield you from hail, they normally offer no real protection from a strong tornado.

As the Mesocyclone Approaches

1. Park safely. Do not stop on a soft shoulder.
2. Keep the engine running. Your peripheral equipment requires power at all times and the battery can be drained quickly causing the engine to not restart.
3. Do not get caught in a town.
4. Do not get trapped at a RR crossing by a passing train, or in a construction zone.
5. Be aware if you are on a divided highway (e.g. Interstate) that you cannot easily turn around. Use frontage roads to the extent possible for intercept work.
6. Always be cognizant of your escape route.

Picture of Chad (left) and Tim (right)





Would You Like To Be A Ham?

Steve Fitzsimmons, MidWest 136

There is a Ham Radio class now forming for June 6th and 7th. The class is *FREE* and you don't need to learn Morse Code. For more information, please email Don Michalski at dem@sal.wisc.edu . Training website http://www.arrl.org/FandES/courses/?section=WI

Educational Links

For information on training and certifications please visit the following web sites…

1. **FEMA:** http://training.fema.gov (ICS 100/700)
2. **MAST:** http://www.madscitech.org
3. **JetStream:** Online school for weather (NWS) http://www.srh.noaa.gov/srh/jetstream/matrix.htm

MidWest SSTRC Inc. Mission Statement

The MidWest Severe Storm Tracking/ Response Center (*MidWest SSTRC Inc.*) is comprised of members whose primary purpose is to assist in providing early detection of severe weather. We communicate this critical information to government officials, other recognized agencies and organizations including the National Weather Service allowing for timely public severe weather warnings and providing emergency response as appropriate. *MidWest SSTRC Inc. endeavors to assist in any way it can in the protection if life and property from any threat, be it natural or man made.* MidWest SSTRC Inc. is a 501c3 Non-Profit Corporation

Spotter Quick Reference Guide

NOAA's National Weather Service (NWS)
http://www.weather.gov/milwaukee rusty.kapela@noaa.gov
http://espotter.weather.gov

Your reports are critical to helping the NWS achieve its mission of saving lives and property through the issuance of timely warnings. NWS needs these reports: tornadoes, funnel clouds, wall clouds, hail ¼ inch in diameter and larger, tstm & non-tstm wind gusts (estimated or measured) of 40 mph or higher, flash flooding (or water over the curb), and extent of damage (property, trees, power-lines, etc). It takes years to be a good spotter. Study and train and attend free NWS spotter classes. Spotting will be very difficult at times, especially at night. When spotting, try to have a partner (two heads are better than one). Below is a set of charts designed to aid you in judging the severity of a weather condition.

Damaging Winds:

Straight-line Wind Gust Estimates	
45-57 mph (39-49 kts)	**Non severe.** Large trees bend; twigs, small limbs break, and a few larger dead or weak branches may break. Old/weak structures (e.g., sheds, barns) may sustain minor damage (roof, doors). A few loose shingles removed from houses.
58-74 mph (50-64 kts)	**Severe.** Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old / weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled.
75-89 mph (65-77 kts)	**Hurricane force.** Widespread tree damage (trees either broken or uprooted). Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roofs may be partially peeled off industrial/ commercial/warehouse buildings. Some minor roof damage to homes. Weak or open structures (e.g. farm buildings, airplane hangars) may be severely damaged.
90+ mph (78+ kts)	**Significant severe.** Groves of trees flattened. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Barns and sheds completely demolished.

Tornado:

Enhanced Fujita Scale (EF-Scale)
EF0: 65 - 85 mph - Light damage – Loss of roofing material, large tree branches broken, some large trees uprooted
EF1:86 -110 mph - Moderate damage – considerable loss of roof material, mobile home flipped to side or over, bent light poles
EF2: 111 - 135 mph - Considerable damage – large roof sections removed, most wall still standing, light pole collapses
EF3: 136 - 165 mph - Svr damage – exterior walls & some interior walls of homes removed, complete destruction of mobile
EF4:166 - 200 mph - Devastating damage – all home walls collapsed, partial destruction of masonry motels and strip malls
EF5: > 200 mph - Incredible damage – destruction of home (or shopping mall), home slab swept clean, steel buildings deformed

Note: You need not give an EF-scale estimate with a tornado report. Tornado intensity is largely determined after NWS damage assessments.

Large Hail:

Hail Sizes	
0.25" - .375 - Pea	0.50" - Small Marble
0.75" - Penny	0.88" - Nickel
1" - Quarter	1.25" - Half Dollar
1.5" - Ping Pong Ball	1.75" - Golfball
2" - Lime	2.5" - Tennis Ball
2.75" - Baseball	3" - Large Apple
4" - Softball	4.5" - Grapefruit
4.75 - 5" - CD/DVD	

Note: **NEVER** report "large marble-sized" hail. Small marble is assumed to be ½"

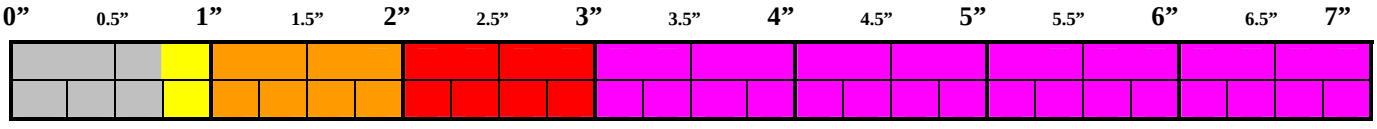
Watch/Warning Definitions

A ***Severe Thunderstorm Watch*** means conditions are favorable for thunderstorms to producing large hail in excess of ¾ inch, and/or damaging winds in excess of 58 mph for the next several hours. An isolated tornado cannot be ruled out. A ***Severe Thunderstorm Warning*** means radar has detected, or a report has indicated, a severe thunderstorm producing large hail or damaging winds is in progress or is imminent.

A ***Tornado Watch*** means conditions are favorable for tornadoes. A ***Tornado Warning*** means radar has indicated a possible tornado (mesocyclone) or a report has indicated a tornado as being in progress.

Personal Notes

Hail Ruler:



Tips for providing useful reports

- Good spotters practice safety first (safety #1 priority, report is #2 priority). Never put yourself or others in harm's way.
- Be sure you know what you're reporting…false reports do more harm than no report at all. Not sure? – Don't report.
- Some tools to help you provide accurate reports include:
  - A NOAA Weather Radio All Hazards
  - Any weather measuring instrument
  - A pad and a pencil or pen
  - A correctly set watch
  - This guide sheet
  - A ruler – lower left

- An accurate report should include the following:
  - A detailed explanation of the particular hazard, including any damage, injuries and fatalities.
  - Exact time of event occurrence and time of call.
  - Location of Event – distance and direction from a village or city within a tenth of a mile (within the same county as the event). If you are stationary, know your location ahead of time!
  - Any additional significant information.
  - Your name and e-mail address so we can contact you with possible questions (optional).
- An example of an accurate report to a 911 center:
  "My name is Joe Smith and I am a trained weather spotter. I observed straight-line wind gusts estimated around 75 mph at 5:58 pm about 1.2 miles south-southeast of Beaver Dam in Dodge County. A tree fell onto a house injuring 2 people in Beaver Dam at 5:58 pm."
- Ways to relay your report to the National Weather Service include:
  - eSpotter (online)
  - Call 911
  - NWS toll free number
  - Amateur Radio

Severe Weather Myths

- The safest place to escape to while traveling as a tornado threatens is under an overpass.
- Tornadoes avoid bodies of water such as lakes and rivers as well as mountains, large hills, swamps, and marshes.
- Large cities are protected from tornadoes because of their high-rise buildings.
- If a thunderstorm is not overhead, you can not be struck by lightning.
- It is safe to take a truck or SUV into flood waters because of their weight.
- Open windows & doors to equalize air pressure so building doesn't explode.
- The southwest side of the basement is the safest place & I'm 100% safe in any basement (are you safe if a car or other large object is deposited into a basement by a tornado?)

Some pictures from previous spotter training events

MidWest Tracker is a monthly publication of the MidWest Severe Tracking & Response Center, Inc. Your comments are always welcome. Please send any comments and suggestions to Dale Bernstein at dale.bernstein@midwestsstrc.org or Steve Fitzsimmons at midwestnewslettereditor@midwestsstrc.org. Thank you!