MidWest Tracker

newsletter

Spring/Summer 2011

Visit us at http://www.midwestsstrc.org

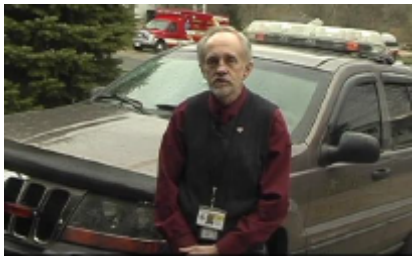
A Newsletter of MidWest Severe Storm Tracking/Response Center, Inc.

Breaking News!

MidWest is excited to announce a new partnership between MidWest SSTRC, Inc and the Civil Air Patrol (CAP). When the National Weather Service (NWS) calls upon our Disaster Assessment Team (DAT) for assistance, members of CAP can if needed, take our team members up in their plane and help us track the path of a tornado, estimate its size and note the distance traveled on the ground. CAP members have the planes, pilots, photographers and training to assist MidWest in this unique and very helpful way.

MidWest would like to thank the Civil Air Patrol and especially Colonel Donald Haffner for making this all possible.

To learn more about the three important missions of the Civil Air Patrol, please refer to page 14 in this newsletter.



Dale Bernstein, President/CEO
MidWest SSTRC, Inc.

Welcome to the *MidWest Tracker Newsletter*!

First and foremost I thank each and every member of MidWest for their unending duty, of which they give back to the many communities of which we serve. Also, without those whom support not only MidWest, yet support the many missions of which we are all endeavored… those missions would be that much more challenging.

I'd also like to thank Cap. Jeri Gonwa and Col. Donald Haffner of the Wisconsin Civil Air Patrol (CAP) for providing insight into who the CAP is and what they do in Wisconsin and across the country. As the MidWest Disaster Assessment Team (MidWest D.A.T) continues to be called upon to assist in severe storm damage assessments, we look forward to working with the WI CAP in those assignments.

In the early months of 2011, these great United States have and continue to experience nature's disasters. With each turn of events, we as Community move forward, as our mission statement presents… "*endeavors to assist in any way it can in the protection of life and property from any threat, be it natural or manmade.*" As of the time of this MidWest Newsletter, NWS preliminary estimates over 1,000 tornadoes for 2011. The previous record number in 2004 was 1,817 and the overall average number of tornadoes for the past decade was 1,274.

IN THIS Issue

On July 19th, the National Weather Service awarded the MidWest Severe Storm Tracking and Response Center a Public Service Award. President Dale Bernstein accepted this award on behalf of all members.

Sadly the number of fatalities will top 500 as this Newsletter goes to print. Of that number, 361 souls were lost during the April 25-28, 2011 outbreak. The highest recorded annual fatality toll from tornadoes (1950 to present) was set in 1953 with 519 souls lost. Why so many tornadoes? Without getting into exacting details, the overall picture is warming Gulf waters, high dew point temperatures, heat, lift and wind shear. Why so many fatalities? This remains a difficult area to discuss as there are so many factors to be examined and in consideration of ongoing assessments and studies of the recent events.

Let's touch on a few known factors. A number of tornadic events are what we refer to as nocturnal events, night time events. More folks are home, night sleep times are involved, and often warnings are ignored or not heard. I'll touch on this in a bit. Concentrated population areas are impacted. The higher the population concentration, the higher the probability of injury or fatality. Again, warnings are the key.

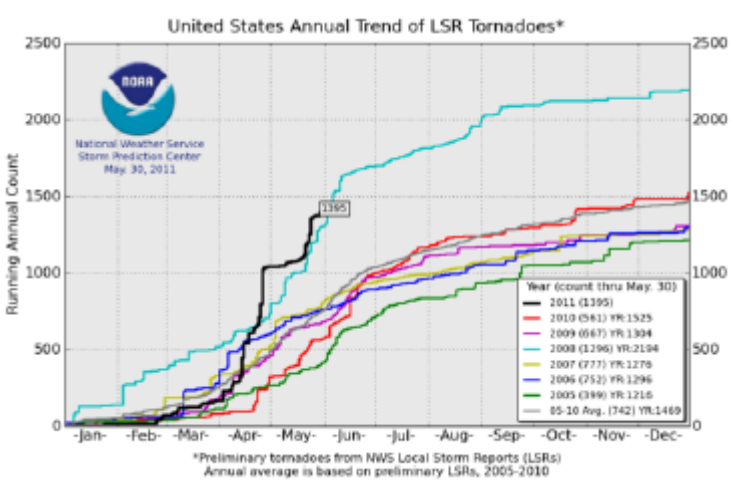
Construction often plays role. Weakly constructed buildings will fail at a quicker and increased rate than those buildings built to higher wind strength standards. Mobile homes that are *tied down* will often survive a weak tornadic event. Mobile homes and strong tornadic events are not a good combination. Homes, buildings, businesses with no basements remain a concern for severe weather.

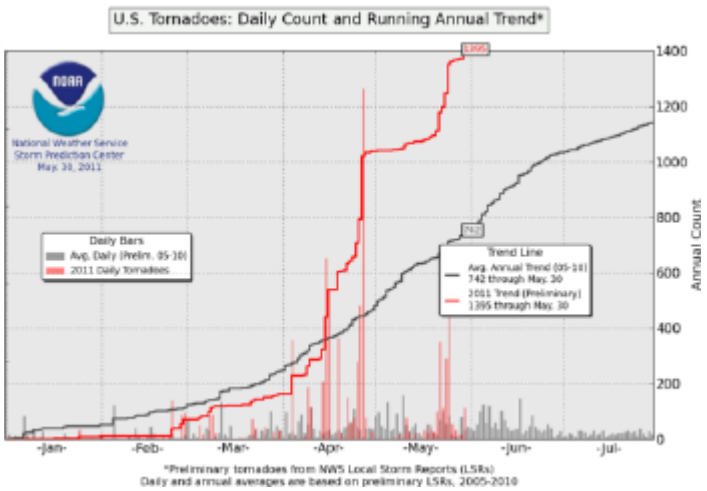
Safe Rooms and Severe Weather Shelters. On the recent tornadic and severe weather events, numerous reports of folks gathering in "coolers", a cellar, or a safe room resulted in no fatalities in those instances.

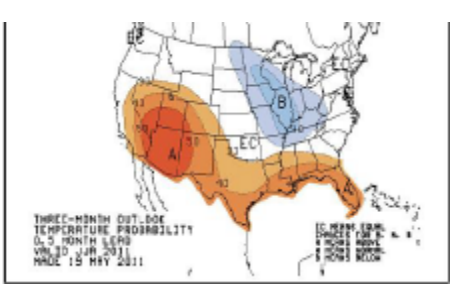
Now let's touch on warnings. So many times over the past few months I have heard time and time again from folks involved in the recent severe weather/tornadic events, that: "I just never paid attention to the warnings before". Or "I was inside and did not hear anything until I looked outside."

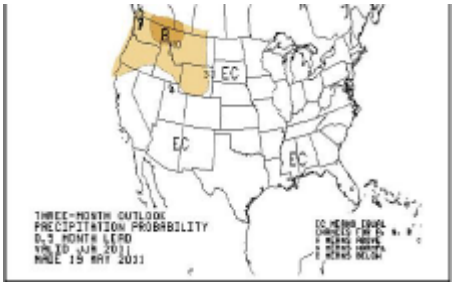
Yes, all those involved in the weather community strive to get those warnings out early and the earlier the better. The goal is to get those warnings to go out in time enough to seek shelter. However, each of us has the responsibility to be aware of our surroundings. Do you have a weather radio and if not why not? **Weather Radios Save Lives.**

Would you rather be woken up at night and be aware or would you rather be part of the statistics? There are so many









MidWest is excited to announce a new partnership between MidWest SSTRC, Inc and the Civil Air Patrol (CAP).

means of available severe weather possibilities, including cell phone, computer aps, local media, and the list goes on, and many are free. You should never be unaware of severe weather possibilities which are much a part of personal and family disaster preparedness. If you have any questions regarding what constitutes severe weather or how you can best protect you and your family from severe weather, please don't hesitate to ask one of us through email or at our next meeting.

Time and time again, MidWest members go the extra mile, providing the necessary *ground truth* to the National Weather Service. This duty assists in the early warnings of severe weather in many forms including tornadoes. The increased accuracy of these reports results in earlier warnings that can save lives.

For those non MidWest folks reading, you too are invited to serve your communities, learning severe storm structure, storm tracking and more. Yes indeed, MidWest *tracks* storms, we do not chase. We *meet and greet* the storm as it approaches our area of responsibility (AOR), often hours before a watch or warning is issued. We *track* the storm as it approaches, again providing the ground truth assisting the many agencies and communities we serve in their decision making process. For example, current radar goes out in a straight line. The radar origin is at point A. If point B is 20 miles or more away, the radar is *looking* up and out through several thousand feet above the earth's surface. It remains critical to obtain *real time ground truth reports* as to what is occurring below the radar beam.

With MidWest Chief Operations Manager Tim Shriver, the Managers and Assistant Manages on Duty, Net Control Operators, Relay Operators, Radar Ops,

EVENTS:

We are planning a MidWest appreciation picnic. Date and time TBA. Those interested in MW, supporters and such are invited to contact Dale.

Next Meeting of MidWest SSTRC Inc.
DANE * IOWA * ROCK
Monday August 15, 2011
1011 Nichols Road, Monona, WI
General Meeting 7:00 PM
DAT/MOD Meeting 6:00 PM
*** * WE NEED YOU! * ***
MidWest is looking for spotters, relay operators and MODs. We will train you.

H E L P F U L *Links*

1. NWS Spotter Page
2. MidWest Training Resources
3. Milwaukee SkyWarn
4. MAST
5. Tornado Summaries (SPC)
6. MidWest SSTRC Store
7. MidWest Cafe Press Store
8. Jetstream - NWS Training

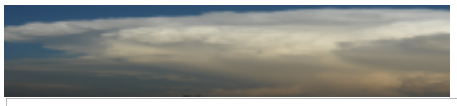
Forecasters, Nowcasters, Mobile Tracking members and Static Spotters -- using the best weather analysis software available, communication systems including Ham and MidWest Business Band radio, we communicate the necessary ground truth to the National Weather Service and related agencies.

MidWest SSTRC, Inc. is a 501c3 non-profit organization. We operate 7/24/365 which in itself creates challenges, but you'll be happy to know MidWest always meets those challenges in the most professional means available.

MidWest members enjoy the comradely, the learning, the teaching and the sharing of their expertise, and of the duty and honor of serving their communities. Each year MidWest supports the NWS in their Basic and Advanced Severe Weather public classes. MidWest also enjoys their outreach programs dedicated to educating the public in severe weather preparedness and knowledge of severe weather.

Interested in joining MidWest for your community? Please contact our Membership Coordinator Heidi Nava speedygonzalesstorm@yahoo.com or myself dale.bernstein@midwestsstrc.org

Be safe, be Knowledgeable.
Sincerely,
D. Bernstein, President/CEO



DISASTER ASSESSMENT TEAM

D.A.T. News
MidWest Disaster Assessment Team, Dale Bernstein, Team Leader

The MidWest Disaster Assessment Team was deployed multiple times during 2010 and remains at the ready to be deployed as necessary in 2011.

We welcome new DAT members and continue our many forms of training. MidWest DAT remains as does MidWest SSTRC, on call at the ready 7/24/365 and will deploy for internal informational use, request from the National Weather Service and other qualified requests. As with the entire MidWest organization, all DAT members are strictly voluntary and we deeply appreciate the amount of time and dedication to the duty at hand.

In 2010 a Remote Controlled UAV was obtained and remains in testing mode for possible use. We look forward to working with the Civil Air Patrol of Wisconsin should the need arise, for possible aerial damage assessment surveys.

D.A.T. surveys are more often than not, a challenge. They are structured on accuracy with professional information gathering based on training, knowledge, experience and more. Assessment Teams in the woods, back country roads, personal interviews, photographic and physical evidence, granting of permissions to cross agricultural and private lands -- there is more than meets the eye to assure the accuracy and professional results that must be presented. Special thanks to all MidWest DAT members!

Wednesday Night Nets

1. Check-ins begin at 7:00 PM on the Ham Radio side on 444.375, 444.750 and 444.575 Mhz. *Practice reporting in TLCS format.*

2. Check-ins begin at 7:30 PM on the Business Band side on 451.275 Mhz. Practice reporting in TLCS format. *Test your radios.*

3. **T**ime: The time of event.
Location: Where you are reporting from.
Condition: What are you reporting.
Source: Your call sign.

Example: At 7:05 PM, two miles south of the Madison Ref point, Dane County, Clear, MidWest 136, KC9IAR.

Can we Build Homes That are More Wind-resistant?

Rusty Kapela, WCM

The simple answer is – yes. This begs the next question – why don't we build more homes that are wind-resistant? The complex answer is – statistically, the chances that any single home in this country will be damaged or even destroyed by a tornado in any given year are extremely small. So, economically, it is not practical to spend extra money on a home to make it more wind-resistant.

June 21st, 2010 – 10 tornadoes in southern Wisconsin with an EF2 twister in the Eagle. Dozens of homes and businesses damaged or destroyed and only 15 injuries. Fast-forward to April 25-28, 2011 - tornado outbreaks in the southern and southeastern states. Severe & widespread damage. Hundreds of deaths and thousands of injuries in spite of the fact that the National Weather Service issued timely watches and warnings. In fact, the Storm Prediction Center started talking about tornado outbreaks 5 days in advance of the tornado outbreaks! That's how much confidence they had!

I'd be willing to bet that a lot of people whose homes were damaged or destroyed by the April, 2011 tornadoes wish their homes had been more wind-resistant.

One can't build a tornado-proof home – it would be too costly. However, one can build a home that is more wind-resistant. All they have to do is have extra structural connectors (anchoring devices) installed in their home while it is in the construction phase, above and beyond what building codes require. They will have to request that these connectors be added – at an extra cost. Using a search engine, type in the phrase "structural connectors" to find many examples.

I have worked for the NWS for over 34 years, and have done about 75 damage surveys over the years. I've seen all kinds of damage and destruction across the country. The common thread? – it was readily apparent to me that most of the damaged homes I saw would have had less damage if they had been built more solidly with extra connectors. Depending on who you talk to, about 74% of all the tornadoes in this country are weak – EF0 and EF1. The impact by an EF0 or EF1 tornado is minimized when a home with extra structural connectors is affected. Sure, it will still sustain damage from flying debris and missiles, but overall it will sustain less damage than a home that had no extra anchoring devices.

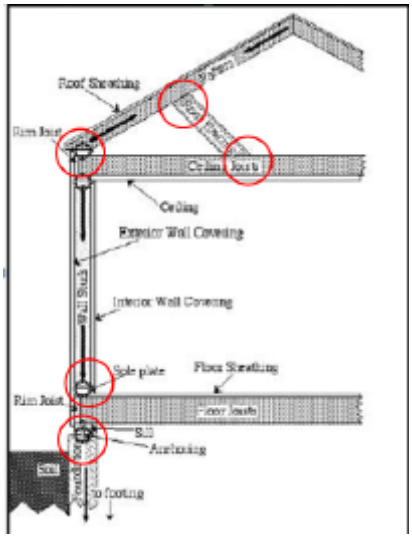
Most residential homes in this country are "stick-built" – with wood. Where ever wood meets wood, you have a weak link since nails typically will not hold two pieces of wood together. When a tornado hits, its winds generate hundreds of pounds of pulling power on each piece of wood. Installing an additional structural connector to a wood joint significantly increases the holding power of that joint. This has been proven by structural engineers at universities using wind tunnel experiments.

Beyond extra structural connectors, the more concrete and steel a structure has, the more wind resistant it becomes (excluding damage due to flying debris and missiles).

Here is an on-line, Top News of the Day story that will give you some ideas:

http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=mkx&storyid=17595&source=2

Below is a simple diagram of a home showing the weak-link locations that need extra structural connectors:



Below is home that was easily pushed off its foundation by a tornado. We call these homes "sliders" since they are weakly anchored or not even anchored to the foundation. In other words the floor joists under the sub-floor were probably not anchored to the sill plate! How about that!

Rusty Kapela, *Warning Coordination Meteorologist (WCM)* WFO Milwaukee

Spring issue of AWARE from NWS

Summer issue of AWARE from NWS

Does anyone know what this"Halo" effect is caused by? MW136 took this photo as one-inch hail was falling over Sun Prairie.

Answer - A Pileus Cloud. It's common with strong updrafts. *Thank you NWS Milwaukee/Sullivan - Facebook!*

Capes by *George E. Hrabovsky, MAST*

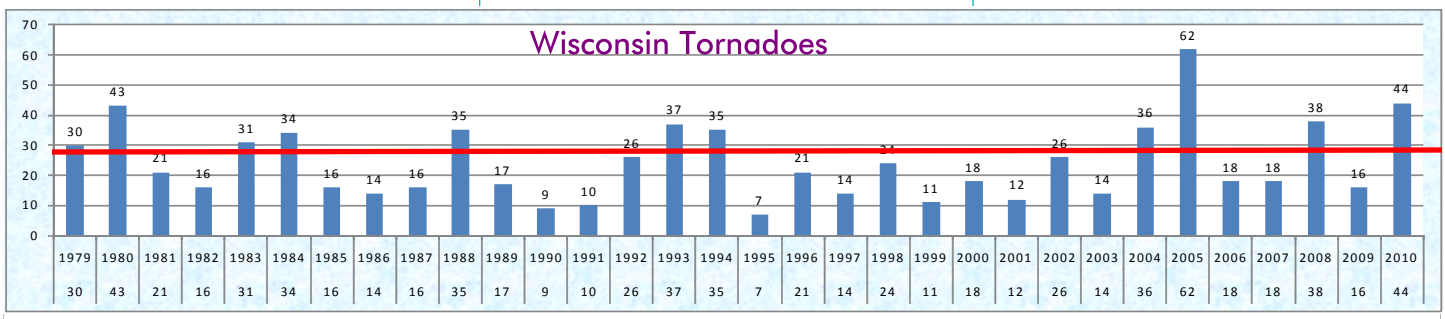
No, I do not mean an article of clothing often employed by super heroes. I mean the **C**onvective **A**vailable **P**otential **E**nergy. It is an almost mystical thing that chasers and spotters talk about with something approaching awe. Ask them what it is and they begin to stir and use occult-sounding phrases like energy and storm potential, juice, and the stuff storms are made of. What is it, though? Really. Do you know?

Let's take it apart. The first word is *convective*. What is convection? Convection is the tendency of warm air to become buoyant. That buoyancy causes the air to rise. This rising air will carry with it anything not massive enough to be held down by its weight. Water vapor is a gas that is within this buoyant air. The water vapor goes up with the air during convection. As the warm bubble of air rises it encounters cooler and dryer air. The water vapor condenses into droplets that can combine to form clouds, this occurs at the *lifted condensation level* (LCL). This releases the energy stored in keeping the water as a gas as more heat. Since the cooler air is dry, the droplets evaporate into the dry air, and it cools the bubble of air. Convection stops. We have just run into the dreaded cap. If this process continues eventually the cool air layer will fill up with evaporated moisture so it no longer causes the droplets to evaporate and clouds can form. Once this happens the cap has broken and all of the pent-up heat in the water vapor is free to build clouds and the released heat rapidly allows for an increase in convection. This occurs above the LCL at the *level of free convection* (LFC).

The second word is *available*. That is the part we just described. Until the cap breaks the energy caused by the motion of the atoms in the gas is not available to feed the convection. After the cap breaks it is available.

The final term is *potential energy*. This is the energy available from being a certain height above the ground. It is important to realize that we have no idea what energy really is. We can calculate it and use it in different ways, but we have no more idea of what it is than to say that it is a number we can calculate. The energy due to the release of heat caused by the condensation of water vapor in droplets increases the convection of the updraft column until it reaches a point where the energy from the temperature is balanced by the energy of gravitation of the Earth. That is called the equilibrium level. That is as high as a storm top will get.

So the CAPE is the energy available for convection assuming the cap breaks. The CAPE itself is in Joules per Kilogram. For every kilogram of air that can release its water vapor there will be a corresponding release of a number of Joules of energy. A joule of energy is one kilogram meter-squared per second squared,



or the ability to accelerate one kilogram one meter at one meter per second squared. 10 Joules can accelerate one kilogram one meter at the acceleration due to gravity (about 10 meters per second squared). The minimal levels that support severe weather are around 500 Joules per kilogram.

Several people have discovered the mesoanalysis pages at the Storm Prediction Center and see many different types of CAPEs:

SBCAPE: Surface-based CAPE, this is what I described above where a bubble of air begins its rise at the surface and lifts to the LFC.

MLCAPE: Mixed-Layer CAPE, similar to SB CAPE but it does not require that the bubble of air be at the surface, it only needs to be in the lowest 100 millibars (about three thousand feet).

MUCAPE: Most Unstable CAPE, this is the CAPE for the most unstable bubbles within the lowest 300 millibars (about 9,500 feet).

NCAPE: Normalized CAPE, CAPE divided by the depth of the buoyancy. A low value indicates that the CAPE is not likely to produce a fast acceleration, a larger value (0.3 or higher) indicates the possibility of rapid accelerations.

DCAPE: Downdraft CAPE, something of a misnomer as it indicates the possible strength of a downdraft instead of an updraft.

While it can be tempting to chase the areas of maximum CAPE, if the CAP is too strong or too thick then the parcels will never reach the LFC, and will not release their CAPEs. Those who are not savvy about such things will flock to an area of 3,500 J/kg only to have a nice sunny, but hot, day while others who went after a more modest 1,500 J/kg area (with a weaker cap) will have success.

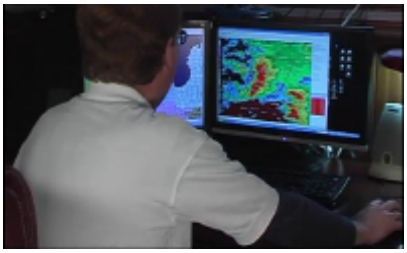
Good Luck!

One aspect I did not mention is that these are storms rooted in the lowest part of the atmosphere; it is possible to get elevated thunderstorms that become severe without any CAPE at all, or they can develop with CAPES without the cap breaking (where they ride the top of the cap as though it were the ground). Such storms are unlikely to produce tornadoes, but hail and downbursts are quite possible. These can occur in winter if warm air suddenly rides over the top of a cold dome of air at the ground.

George E. Hrabovsky is the president of Madison Area Science and Technology (MAST), an organization that offers advanced spotter training among other opportunities to learn and grow.

Media Point

By Tim Shriver, Chief Operating Officer, MidWest 122



As many of you know MidWest has a new program named Media Point.

This program is aimed at working with the local media (TV/Radio) and will do some great things in raising severe weather awareness and promoting spotters/trackers.

The first station to come onboard with this program is WKOW TV.
We are working with Bob Lindmeier and the staff at WKOW.

For MidWest it means we need to put our best foot forward at all times.

When a spotter/tracker puts in a severe weather report, one that we feel needs
to be announced to the public, in the spirit of public safety the spotter/tracker
may be put in touch with WKOW directly.

Either the report is simply phoned in or WKOW may ask for a live report from the spotter/tracker. This would be done by phone/cell phone.

For those with mobile Internet OoVoo (www.oovoo.com) can be used for video feeds as well.
We are working to get Skype included in this.

WKOW is providing us with a phone number and contact points that will allow
us to get right into the people that need to know at the station.

We will have the exact details soon as we do think we could see some severe weather soon.

MidWest is being very careful with this program as it is open to all media points
and we do not and will not allow it to affect our performance or the safety of the spotter/tracker.
We are also making sure this reflects on MidWest in a positive light.

Couple of pointers:

1. Do not use the Ham frequencies to coordinate, promote or indicate in any way the Media Point program.
We need to stay within FCC law/guidelines on this.

2. If asked to do a report, speak slowly, clearly and use professional wording. Think first, talk later.

3. Do not "fluff" the report to make it sound more then it is.

4. State the ground truth facts. Be very sure of what you see and say.

5. If using video, use it for video only, still use a cell

Redoubling efforts...

phone for voice.

6. Talk to the person on the phone as if they were right in front of you.

7. Report to Dale or myself any issues or concerns directly.

8. Do not state that it is an F5. or F anything. We do not know this until a DAT survey is done. Again, state the facts as they are known at that moment.

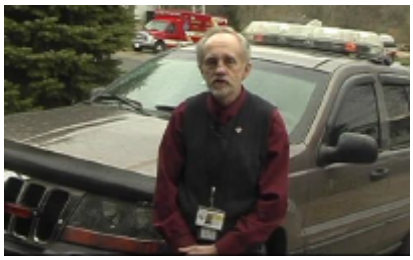
9. You have the option of opting out should you want to. No problem.
This will be handled on a event by event, person by person basis.

I feel this program, if done correctly, will bring the spotter world into the 21st century. Allowing
us to reach many more people in a short period of time. Increasing our ability to get the word out
about what spotters/trackers do and get more eyes on the sky.
It will also help us increase the membership within MidWest.

As always we move forward, trying new ideas out. Leading the way is the MidWest way..

Tim, MidWest 122

Just some reviews folks during this busy year.



Remain calm…. Take a breath before reporting. Remember.. if you're not sure, no report is better than a hurried or bad report.

Check your static locations for supplies and safe areas. Keep your phone list for family, etc. Keep an eye on your neighbors.

Mobile units; exercise extreme care. Your safety is your number one concern.

T.L.C.S.

Fuel is expensive.. pick your vantage point, know your vectors and escape routes.

If you're near county lines, know your direction. We should all be on the same page. Be safe.

Db

MidWest SSTRC Receives Public Service Award

On Tuesday, July 19th, Dale Bernstein, president, (center), accepted a Public Service Award on behalf of all MidWest members from the National Weather Service. The award was co-signed by Rusty Kapela (left) of WFO Milwaukee/Sullivan, and Dave Janda (right) of the Dane County Emergency Management team. Congratulations MidWest!

Some of the members from MidWest SSTRC join Dale, Rusty and Dave.

Photos courtesy of the National Weather Service.
http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=mkx&storyid=70971&source=0

MidWest Member Assignments

Dale Bernstein: President/CEO

I am pleased to announce that Steve Stageman has accepted the position of Rock County WI Assistance Manager on Duty (AMOD). Steve brings unending enthusiasm and knowledge to the post. We look forward to his assignment for the Rock County communities. We are pleased to announce that Steve Fitzsimmons, our fine Newsletter Editor, has accepted the position of MidWest Media Liaison. We look forward to his continued duty for MidWest and community.

Photo courtesy of Brent Cook - June, 2011

We are also pleased to announce that Lisa Price-Roberts has accepted the position of Dane County WI Manager on Duty (MOD).

Our editor caught up with Tim Shriver, MidWest Chief Operating Officer, in between storms and asked him what are some of the measurements he looks for when tracking/reporting storms? You will likely hear him speak of these over the airwaves during storm events.

VIL - (*Vertically Integrated Liquid*) is the amount of reflectivity received back from a column of air.

This can indicate a good updraft which can result in hail to larger hail, the chance for a down burst and also the ability to spawn a tornado. The later not being the case many times in tornado formation.

VILs in the 55 on up need to be watched, but real hail makers will hit the upper end of the scale, getting well into the 70 kgm.

CAPE - (*Convective Available Potential Energy*) is the amount of "fuel" available or potential the atmosphere contains, better described as the positive buoyancy of an air parcel. This is what gives the initial boost to early super cell development, the ability to react and expand. It also fuels the cell as it cycles and moves.

CAPE can be an odd one to work with. When someone mentions CAPE I also then say "shear?". These two combined in a balance will make tornado formation more likely and will also, to some degree, influence the life span of the tornado. It can also cause very severe thunderstorm cells to develop. *CAPEs in the 1500-2500 j/kg range are the most active for our area. When you start seeing 5000's then you have to think the area is capped, thus holding down the upward expansion. SBCAPES of 1500 – 2500, MUCAPE 2000-3500, Dews above 70F, along with good shear, light cap, strong low,*

low well placed, strong front and deep disturbances along the front in the warm sector of a "triple point" is the place to be (or not to be!).

Melon Sized Hail?

(Fact or Fiction?)

News reports across the Internet talked about this "Melon" sized hail that dropped out of a thunderstorm over Norman, Ok in May, 2011. Suspicions about its authenticity soon followed based on the size and smooth shape. According to NWS, the record for the largest hailstone stands at 8 inches diameter, weighing almost two pounds and it fell in Vivian, South Dakota on July 23, 2010.

Some interesting facts about hail:

Causes over one billion dollars in damage every year to crops and property. A hail stone falling from 30,000 feet will hit the ground at 120 MPH!

Since 1988, the US averages 3,000 hail events/year.

From 1986 - 2006 Wisconsin averaged 147 hail events/year (1 inch or more in diameter).

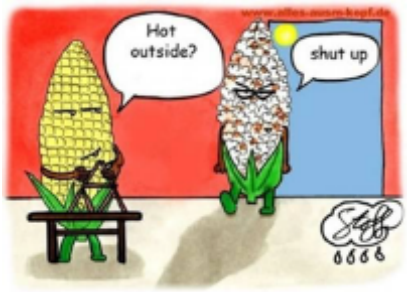
Hail events account for 38.9% of the severe thunderstorm warnings in Wisconsin, with wind 58 mph or higher accounting for the remaining 61.1% (excluding tornadoes and flash floods).

The costliest hail storms in the US happened in Dallas/Fort Worth May 5, 1995 and St. Louis April 10, 2001. Each caused over $2 Billion in damages.

The largest hailstone to fall in Wisconsin fell in Wausau on May 22, 1921 with a diameter of 5.7".

On June 12, 2008, a severe storm produced hail stones up to 5 inches in diameter just west of the city of Waukesha. This would be the 3rd largest hailstone in Wisconsin's recorded history. A couple years later, scattered severe storms with large hail struck parts of southern and central Wisconsin on April 3rd, April 10th, May 22nd, and June 8, 2011. There were many reports of hailstones ranging from 2 inches to 4.25 inches in diameter! On April 3rd alone, at least 575 insurance claims were filed with Madison-based American Family Insurance Company in Dane and Dodge Counties alone. Collectively, reported and unreported damage for the four days of large hail probably totaled several millions of dollars.

Thanks Rusty!

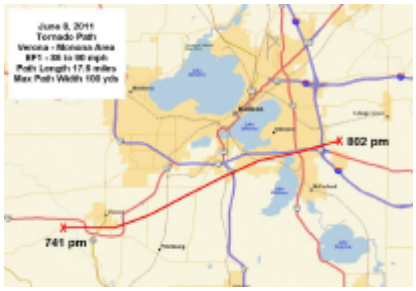


Car Heat

(How hot can it get inside?)

Every year over 40 people, most of which are children and untold numbers of pets die from being locked in cars with the windows rolled up in the sun. Scientific studies show that in just twenty minutes, the inside temperature of the vehicle will reach a deadly 134 degrees under the summer sun.

Madison Area EF1 Tornado



On June 8th, from 7:41 PM to 8:02 PM, an EF1 tornado with winds packing 90 MPH ripped through southern Wisconsin between Verona and Monona. MidWest spotters, along with Lisa in the hot seat as MOD, tracked the storm as it approached our area and followed it until it left.

The next day members of the MidWest Damage Assessment Team worked with the National Weather Service to determine the tornado's strength and path. Thankfully, there were no injuries or loss of life. Great job MidWest!

Car Heat

(continued)

What's most surprising is even if you were to roll your windows down 1.5 inches, the temperature would ***still*** reach 134 degrees in twenty minutes! If you see a child or animal locked in a car in the sun, even if the windows are down an inch and a half, call **911** immediately. Their life is in danger.

MidWest SSTRC Newsletter Editor
Steve Fitzsimmons

Surviving an EF2

It was Sunday afternoon, May 22nd, 2011. The sky was a milky white most of the day. Norma Donovan, a neighbor and co-worker was camping in Nekoosa, near Wisconsin Rapids, when an EF2 tornado ripped through her campground. She said she heard no sirens, no warnings, and stated that her weather alert radio wasn't working.

She said the first sign she was in trouble was the sound of large hail hitting her camper-top. Then the winds came. She dropped to the floor to stay out of harms way from flying debris that might fly through her camper. As the winds increased, she said she noticed a strong pine smell in the air. About the same time, one end of her camper was being picked up, and then dropped. The camper briefly spun on its rear axle. Tall fifty-year ash trees, and towering pine trees ripped out of the ground fell all around her, some landing on her camper, others crushing her truck.

Then, just as suddenly as it hit, it ended. When she stepped outside, many trees were down, some forty trailers were damaged, twelve of which were totaled. Thankfully there were no fatalities or serious injuries because it was a Sunday evening (6:30 PM) and most of the "weekenders" had already left for home.

Norma said she didn't hear the sound of a freight train coming. The only thing that stood out to her was just before the tornado hit, there was a strong smell of pine in the air. Since the tornado, she claims to have increased sensitivity to low frequency sounds.

The EF2 tornado to hit Norma, was one of the longest running tornadoes in state history, twenty minutes on the ground.

http://host.madison.com/news/local/article_da2d18ea-86c3-11e0-bfc6-001cc4c002e0.html

The same day tornadoes were reported in La Crosse, Monroe, Portage, Wood, Green Lake and Juneau Counties.

Average number of tornadoes for Wisconsin rose from 21 to 23 in 2011.

Hail Damage

MidWest, MATC and Antarctica Dr. Matthew Lazzara

Dr. Matthew Lazarettos working on an Automatic Weather Station (AWS) at Windless Bight, Ross Island, Antarctica

For the third year in a row, MidWest visited a Madison Area Technical College Weather and Climate class to speak about the activities and the role of the organization. Dale Bernstein, Chad Woodward, and Brent Cook visited Dr. Matthew Lazzara's Wednesday's class at the Truax campus. The presentation included reviewing aspects of severe weather and the important link MidWest plays along with agencies such as National Weather Service and Emergency Management in warning the public about severe weather events.

A few years back, Dr. Lazzara was a guest lecturer at a MidWest monthly meeting, giving a presentation on his work at the University of Wisconsin-Madison on Antarctic meteorology along with a slide show of his travels to the "ice". Both Dr. Lazzara and MidWest hope to continue the exchange: having MidWest visit his Weather and Climate classes and having Lazzara attend a future MidWest monthly meeting to talk more about his efforts in the Antarctic.

New Addition to SLC Club

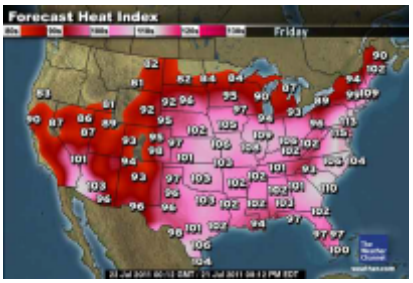
In June, Brent snapped this picture of a truly Scary Looking Cloud. Rusty quickly added it to his ever popular SLC collection.

Noctilucent Clouds

On July 2nd, rippling electric-blue noctilucent clouds dropped down from the Canadian border into the lower United States. In doing so, the clouds made their farthest excursion of the year away from the Arctic, their usual home.

Recent Headlines

The Heat is On



1. *The Washington Post* reported that during July alone, 882 record high temperatures have been tied or set across the U.S. At the same time drought conditions are more extensive than anytime since 2000.

2. The NWS reported the 30 year average number of tornadoes for Wisconsin increased from 21 to 23.

3. *NOAA* reported the average U.S. temperature increased by 0.5 degrees F. Average temperatures are based on 30 year periods.

4. *MSNBC* reported - April's weather extremes ' never before' seen, US experts say
National Climatic Data Center: Mix of disasters ' in a single month' is unprecedented.

http://www.msnbc.msn.com/id/43416244/ns/weather/

5. Record April tornado outbreak in Northeast Wisconsin on April 10, 2011 with 15 confirmed tornadoes.

6. As of July 7th, Wisconsin has had 31 tornadoes.

7. All-Time Record Highs Set in Northeast Friday 7/22

8. All-Time Record 7" Rain Falls in Chicago Overnight 7/22

The Civil Air Patrol - CAP

In December, 1941, one week before the Japanese attack on Pearl Harbor, Civil Air Patrol (CAP) was founded by more than 150,000 citizens who were concerned about the defense of America's coastline. Under the jurisdiction of the Army Air Forces, CAP pilots flew more than 500,000 hours, were credited with sinking two enemy submarines and rescued hundreds of crash survivors during World War II.

On July 1, 1946, President Harry Truman established CAP as a federally chartered benevolent civilian corporation, and Congress passed Public Law 557 on May 26, 1948. CAP was charged with three primary missions – aerospace education, cadet programs and emergency services.

With the passage of Public Law 106-398 in October 2000, Congress provided that "The Civil Air Patrol is a volunteer civilian auxiliary of the Air Force when the services of the Civil Air Patrol are used by any department or agency in any branch of the federal government."

This year, CAP will celebrate its 70th year of serving its country. Since its inception, the organization has grown to 52 wings: one for each state, plus Puerto Rico and the District of Columbia. WW II brought civilians together like no other time to help protect the home front.

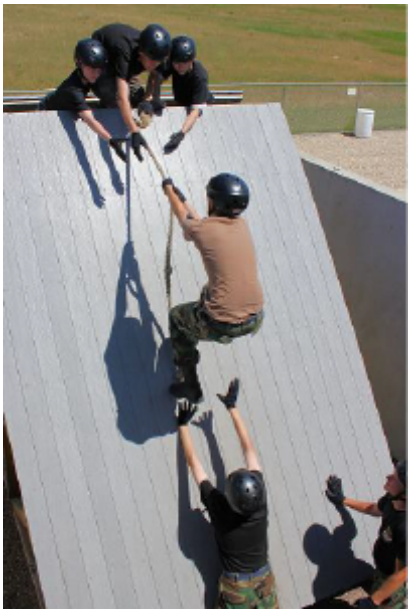
With more than 61,000 members nationwide, Wisconsin Wing CAP currently has over 1,000 volunteers serving their communities, state and nation. Holding fast to the three missions of the organization, they provide aerospace education, train leaders of our young men and women in the cadet program, and serve our local communities and nation in emergency services.

CAP performs 90 percent of continental U.S. inland search and rescue missions as tasked by the Air Force Rescue Coordination Center. In 2010 saw CAP credited with saving 113 lives across the nation — while Wisconsin Wing was credited for saving one life. Meanwhile, CAP provided disaster relief during unprecedented

flooding in the Midwest which brought 22 out-of-state support missions for Wisconsin; assisted law enforcement agencies in seven drug demand reduction missions and aided in the seizing of $1.36 billion in illegal drugs and drug money throughout the nation. Wisconsin Wing also plays a vital role in assisting Air Force fighters in critical homeland security missions by posing as intercept and enemy target.

Members train throughout the year in all kinds of weather, improving upon their skills in a professional manner for when an emergency arises. These dedicated volunteers are well trained in searching for lost/missing persons, missing planes, disaster relief, and assisting the Air Force National Guard with intercept training missions, just to name a few of their capabilities.

Aerospace education opens doors for many of our cadet and senior members alike. While cadets are taught the fundamentals of aerospace education, many go on to earn their private pilot's license or continue with a career in aviation. Senior members are also encouraged to continue their education by taking the Aerospace Education Program for senior members. The aerospace education program includes history, aerospace principles and the relevance of flight in today's world. Even nonmember youth benefit from the program, which is offered in schools nationwide through textbooks, lesson plans, learning aids and hands-on activities.



Taken by Capt. Jeri Gonwa – (Cadet Programs) Encampment is an important activity for all cadets who seek to learn teamwork through the confidence course.

Teachers are provided orientation flights through the *Teachers Orientation Program* (TOP) flights. Educator memberships are provided in order to enhance their students' learning experiences while inspiring interest in careers in science, technology, math and engineering.

The organization inspires youth to be responsible citizens. Cadets serve their communities by helping with CAP's real-world humanitarian efforts in emergency services. In addition, they have the opportunity to gain an appreciation for America's role in the global community by serving as goodwill ambassadors abroad or by hosting aviation-minded youth from around the world.

Whether a cadet is a member of school or community based squadron, cadets, ages 12-20, benefit from a complete curriculum that teaches respect, leadership, community service and aerospace education. The opportunity to fly is a major attraction for cadets and receiving five orientation flights in one of the 13 Cessna planes in Wisconsin, the cadets take to the skies to put their aerospace knowledge to work.

Taken by Capt. Jeri Gonwa – (Cadet Programs) Cadets prepare to present wreaths for each branch of military service during the Wreaths Across America ceremony held in Milwaukee, as well as throughout the country.

Whether it is emergency services, aerospace education, or cadet programs, all members work together in the betterment of their communities. Mentoring the youth of our nation serves to train them to reach out in times of need and to pass their knowledge on to others, just as their mentors have done. Many families join the organization and find satisfaction in working together to help others.

Taken by Capt. Jeri Gonwa – (Aerospace Education) Lt. Col. Thomas Gordon inspects the rocket for cadets who wish to earn the model rocketry badge with this hands on class.

Taken by Capt. Cindi Wacholz – (Emergency Services) Cadets use a topical map in order to participate in a search and rescue mission.

Just a friendly reminder that when we are under "**Condition Red**" the MOD's only want severe weather reports. That would be a tornado, rotating wall cloud, winds in excess of 50 MPH, hail one inch or larger. The reason is to keep the airwaves clear for those critical life saving reports. Click here to learn more about what severe weather criteria is.

Civil Air Patrol, the official auxiliary of the U.S. Air Force, is a non-profit organization with more than 61,000 members nationwide. CAP, in its Air Force auxiliary role, performs 90 percent of continental U.S. inland search and rescue missions as tasked by the Air Force Rescue Coordination Center and was credited by the AFRCC with saving 113 lives in fiscal year 2010.

Its volunteers also perform homeland security, disaster relief and drug interdiction missions at the request of federal, state and local agencies. The members play a leading role in aerospace education and serve as mentors to the more than 26,000 young people currently participating in CAP cadet programs.

CAP has been performing missions for America for 69 years. It is a major partner with Wreaths Across America, an initiative to remember, honor and teach about the sacrifices of U.S. military veterans. For more information on Civil Air Patrol, visit www.gocivilairpatrol.com or www.capvolunteernow.com.

Taken by Capt. Jeri Gonwa – (Emergency Services) Civil Air Patrol utilizes 13 Cessna airplanes used

MidWest Monthly Meetings

At our monthly meetings we go over things like basic and advanced spotter training, radar interpretation, APRS and discuss the latest happenings and events. To take your skills to the next level, or to keep them sharp, it is encouraged we all attend.