

ARES/RACES Group

Amateur Radio Serving Monroe County Indiana

March 2005

Volume2, Number 3



Dits & Dahs

So here we are at the beginning of another severe convective storm season in Indiana. As you prepare, here are a couple things to consider.

First: your personal safety. If you go mobile to observe a storm, be very aware of your surroundings and escape routes. *Never drive through flood waters* and be extremely cautious when lightning is in your area. Remember the cardinal rule of emergency responders:

“Don’t become a victim!”

Second: make Skywarn net reports as efficiently as possible. Stick to the definitions of reportable conditions that Dave Tucek will be giving us at the spotter’s training March 4th. Don’t elaborate unless asked to do so. Choose your words carefully so elaboration isn’t necessary. Know your location so you can give it instead of having to give directions on how you got there.

We’re anticipating a busy storm season this year. Lets make Monroe County Skywarn nets the best - *bar none!*

73’s

KB9WVI

Severe Weather Preparedness Week

Wednesday, March 9th Indiana amateurs will participate once again in the statewide tornado drill associated with the National Weather Service’s annual **Severe Weather Preparedness Week** which begins March 6th this year.

This large scale drill tests all the elements that go into producing public warnings such as emergency communications overrides, amateur radio participation, the outdoor siren networks and much that goes on unnoticed by the population.

There will be two net sessions; one around 10:00 A.M. and the other in the evening around 7:00 p.m. Net Control for the daytime net will be Kevin Pauley KB9WVI

and Bobby Bristoe KB9UVW will run the evening net.

There’s a bit of rivalry between the two nets to see who gets the most check-ins. In 2003 the noon hour net beat the evening net claiming 28. However the next year the evening net came through with 36 to the day net’s 25 check-ins.

Unfortunately, scheduling the first net so early this year will probably limit participation. Obviously, we won’t have the lunch hour to use to call in from work. If you have the flexibility to do so, please make a little extra effort to check in.

Now, by all means try to check into both nets if you can. As much fun as it is to compete between the nets, this is about participation and much more than just a local count contest.

The frequencies for the drill are:
Monroe County 146.640(-) PL 136.5
Indy repeater 146.790 (-) PL 77.
Freetown link 147.435 simplex PL 77

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Monroe County ARES/RACES News & Notes



Standard First Aid
Saturday, March 19 (9 AM to 3 PM) or over 2 sessions
Tuesday (6 pm to 10 pm)
and Thursday (6 pm to 8 PM) March 22 & 24.

Adult, Infant and Child CPR will be offered
Saturday March 12 (9 AM to 4 PM).

Disaster Services Volunteer Training:

Intro to Disaster Services
Tuesday March 8 (6 PM to 9:30 PM)

Mass Care Overview
Saturday March 5 (9 Am to 1 PM)

Volunteer Orientation for new volunteers
Monday Feb 21 (4 PM to 5 PM)

Call 332-7292 to enroll or for fee information



<http://www.mcwar.org/>
Multi-community Environmental Storm Observatory
Bookmark this excellent web site!
*Great articles
*Galleries
*Chat rooms
*Shopping Center
*Much more!

Southern Indiana Simplex Net
146.580

Every Monday at 8:00 p.m. or after
K9OK net NCS Maynard Raggio N9PTG
Net Procedure: Make a list of stations you hear from your location. Check in your call sign alphabetically. NCS will come back to you and ask for your location, radio output, antenna type, and the list of stations you heard. This gives us valuable information regarding our ability to cover the region with simplex communications. Please join us!

Severe Weather Awareness Week State Skywarn Nets

Wednesday, March 9th
K9OK Repeater 146.640 (-)
10:00 a.m. and 7:00 p.m.
Monitor NWS Indianapolis on the Indy repeater 146.790 (-) PL 77 or the Freetown link 147.435 simplex PL77

BLOOMINGTON AMATEUR RADIO CLUB

Friday March 4th topic:
It's time again!

Storm Spotter Training



SKYWARN Join the Dean of Doppler, the Captain of Convection, the Meso-meister himself, meteorologist Dave Tucek at the Wegmiller Auditorium in Bloomington Hospital at 7p.m for the annual Storm Spotter's Training Session!

K9OK

NCS Schedule

Monday evenings 7:30 p.m.
146.640 (- offset)

MARCH

7 WB9VPG NEIL
AND KC9GKX BARB
14 WD9BKA JOHN
21 K9MRV MARVIN
28 K9SQL BOB
Back-up for Bob will be KB9HJW DENNIS

Your back-up NCS is the next week's scheduled NCS

K9IU

Sunday Night Net Featuring Amateur Radio NewsLine

7 P.M. 146.940 pl136.5
Every Sunday, with the exception of the 3rd Sunday of each month.

Meteorology



Definition
CAPE - Convective Available Potential Energy. The amount of energy that is used by thunderstorms to create the updraft; similarly Positive Buoyant Energy (PBE).

Hail Formation and Effects

Our thanks to Brian McNoldy of *MESO* for permission to reprint. Please visit their website and sign the guest book.

If you've not seen this site before, let them know you first saw it here in the *ARES/RACES Group Newsletter!*

Hail is one of the many weather phenomena that a storm chaser faces. When we're in pursuit of a storm, and catch some hail, there are a multitude of thoughts; most of which begin with the phrase, "Uh oh."

"Uh oh. How big is it going to get?
Uh oh. How long is it going to last?
Uh oh. We screwed our angle of approach.
Uh oh. We're closer than we thought to the danger zone.
Uh oh. We're in the danger zone.
Uh oh. Do I have glass coverage?"

Mid-latitude thunderstorms can grow to be 16-18 km (10-11 miles) tall. Although the surface may be fairly warm, the freezing level (0°C or 32°F) typically occurs at about 4 km (2.5 miles) up... meaning that the upper 75% of the storm is maintained at or below freezing temperatures. The strong updrafts in a developing thunderstorm or supercell can reach 160kph (100mph), bringing large amounts of moisture and debris into the storm. The debris (aerosols, dust, dirt, insects) act as nuclei for the water to collect on, creating a tiny raindrop. As the new raindrop travels upward in the updraft, it collects more water droplets... a process called coalescence. The larger the drop becomes, the more efficiently it collects other drops.

So far, only raindrops have been produced. To produce ice, the droplets must continue traveling upward beyond the freezing level. At this level, it is possible to have solid particles (snowflakes or ice crystals), spongy ice-water particles (graupel), or supercooled water droplets (below freezing, but still liquid). With one of these particles as a nucleus, other frozen particles can collect on it and form larger frozen particles. For example, snowflakes, ice crystals, or other graupel might adhere to the walls of a graupel particle, making it bigger. As the new particle continues traveling upward, the environment becomes even colder, forcing all remaining water to freeze.

At some point, the mass of the ice particle and the gravitational pull on it are balanced and the ice particle reaches the top of its journey... it falls back toward the ground, still collecting more mass on its way. The return trip downward is a good point to introduce the two types of hail growth: dry growth and wet growth. If the hailstone (an ice particle larger than about 1mm or 0.04") is still in the very cold portion of the cloud (colder than -40°C or -40°F), it will undergo dry growth. This means that the hail stone itself has a hard, dry, icy coating and grows by collecting other "dry" particles... this process is not very efficient.

However, in the region of the thunderstorm where temperatures are between -40°C (-40°F) and 0°C (32°F), the hailstone can undergo wet growth. Wet growth involves the latent heat of fusion. To explain this, start with ice. To melt the ice, heat must be extracted from the environment and added to the ice. This added energy turns the ice into water. On the other hand, when water freezes and becomes ice, energy is released to the environment. The amount of energy required to make this transformation is called the latent heat of fusion. So, back to the hailstone. If it collects a supercooled water droplet and the droplet freezes on contact, and this layer comes clear if the freezing is very fast and somewhat opaque if the freezing is slow (as oxygen bubbles incorporated into the layer). It releases energy to the environment... in this case, to the hailstone. Every supercooled droplet the stone collects releases energy, and eventually, the effect is large enough that the hailstone's surface begins to melt! Now that the hailstone has a wet coating, it collects other particles (water, supercooled water, snowflakes, ice crystals, graupel) very efficiently.

If the percentage of liquid in the hailstone becomes too great, some of the water will shed off of the stone (because of a balance of air drag and surface tension) leaving a smaller, lighter stone in its place. At this point, the hailstone (whether it shed water or not) could still be light enough to be caught by the updraft again and start the growth process all over. This repeats until the hailstone is too heavy for the updraft to support and it falls out of the cloud. As it falls, it travels into warmer air, allowing it to melt slightly. Even so, the largest hailstones can reach 15cm (6") in diameter, weigh 3.5 pounds, and hit the ground at 180kph (110mph). All of this from an updraft and a piece of dust. If you slice a hailstone in half, you can see the layers that chart its lifespan...many times clear layers altering with frostier, more opaque ones. I believe the record count of layers was recorded by NSSL as 24. There are other records much more dramatic.

Hail accounts for the destruction of 1% of the world's crops. Damage can be severe enough to kill livestock and create millions of dollars worth of damage to homes. Hail can also kill humans as well as damage cars and other vehicles in the path. The appearance of hail in a storm can be of a greenish tint to the gray cloud mass of the storm. In the US, there are about 4,800 hailstorms every year, which, combined with property damage, equates to 1 billion dollars a year in this country alone.

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(Continued "Hail")

The largest hailstone recorded in this country was in Coffeyville, Kansas, and was 17.5 inches in circumference. When you consider that quarter sized hail require an updraft of nearly 40 MPH to sustain it, this is a rather impressive size. However, the heaviest recorded hailstone was in northern India. It was born from the March 10, 1939 storm and weighed a full 7.5 pounds.

Just as there is a tornado alley, there is a hail alley. This covers a portion of our country including east Colorado, Nebraska, and Wyoming. Other areas of high hail instances are northern India. The common thread seems to be mid-latitude areas on the downwind side of a mountain chain. The lowest instances of hail in this country are on the Pacific coast, and in Florida.

Knowing the dynamics of a storm can help you to estimate where a hail shaft may exist in a particular storm. It is usually between the sections of the storm known as the downdraft and the updraft.

When using computer programs to track storms, dBz, a logarithmic expression for reflectivity factor, is often used to determine the probability of hail within a storm. Z is the amount of radar beam energy that is back scattered by a target and detected as a signal (or echo). The higher the z, the more energy is being scattered back by the target, or the greater the intensity of the precipitation. So many other factors can affect reflectivity, such as distance, angle of beam, width of beam, the size and type of the precipitation; that dBz cannot verify conclusively the presence of size of hail in a storm. Values of 50 or above usually do occur when hail is present, though.

Despite the fact that hail is extremely dangerous and damaging, it has been used by chasers as a known precursor of an even more danger severe weather event... the tornado. The hail shaft, as mentioned, most often exists in the portion of the storm very near to where a tornado would form. Amazing how one severe weather event can be the warning bell for yet another. However, penetration of a hail shaft has been enough to send many seasoned chasers into either an about face, or searching for immediate shelter.

If you have the capability of tracking the storm, and understand the dynamics of thunderstorm development, a seasoned chaser can almost always avoid the hail shaft. A NOAA weather radio can be a helpful tool also to prevent yourself from getting caught. Should all else fail, all you can do is seek shelter under a sturdy shelter until the storm passes.

MESO

<http://www.mcwar.org>

(Continued "SWX Week")

With all the testing of procedures and equipment that will be going on, we are mindful that Severe Weather Preparedness Week *is* a public awareness program. Along with the tornado drill, Monroe County amateur radio operators will be participating locally in outreach programs helping the National Weather Service spread the message of severe weather safety.

Bloomington Amateur Radio Club Treasurer Neil Rapp WB9VPG has recorded a Public Service Announcement that will be sent to area commercial radio stations inviting the public to attend the March 4th storm spotter's training session. The goal is to convey that one does not need to be an amateur radio operator or a uniformed first responder to make good use of this training (however those groups will also be challenged to attend). With this effort and other public announcements planned, we hope for a record turnout for the class.

Speaking of commercial radio; for the second year now, Storm Spotter and WHCC Radio on-air personality Rick Evans has invited local storm spotters to appear on the morning show as part of *Indiana Severe Weather Awareness Week*.

Last year, five amateur radio operators took turns being interviewed through the week by Rick and Jeremy Gray. Highlights include Jeremy asking Rob Hamros KB9RNB to explain the difference between a funnel cloud and a tornado. Rob explained a funnel stayed aloft and then deadpanned that "when you see trees... cars... people and houses spinning around down there on the ground; now that's a tornado!"

This is a terrific public outreach and we are thrilled with Rick and Jeremy and WHCC Radio for the opportunity. Be sure to tune in to WHCC 105.1 F.M. at about 7:00 a.m. during the week of March 6th and listen for your fellow storm spotters. You never know what they're going to say!



Callsign “Tags”

Imagine you're net control during a raging storm that is pounding Monroe County with large hail, winds in excess of 50 mph, rain falling at over an inch per hour and a rotating wall cloud baring down on Ellettsville! Now imagine 4 or 5 stations I.D. nearly simultaneously requesting your attention. Which station is going to report a life-threatening situation? Which station is merely telling you they've arrived at their favorite spotting site? Don't you wish you knew which station had the highest priority traffic?

Here's a viable solution; a one-word “tag” on your callsign. This only increases the time it takes to I.D. by a second or less, and the results are remarkable.

Suppose you get stations calling “N9ABC-hail” followed immediately by “K9DEF-funnel!” Choosing which to take first suddenly goes from your best guess to a “no-brainer!” Even lower priority messages can be instantly prioritized enhancing the fluid exchange of information.

The following are the preferred tags in order of precedence. As always, when you call, wait to be recognized by net control so you *know* you are being heard (a report is useless if it's not received). Simply give your callsign followed immediately by one of these words:

“Injury”
 “Tornado”
 “Funnel”
 “Wall-cloud”
 “Flood”
 “Hail”
 “Wind”
 “Damage”
 “Information”

Low priority traffic could also be tagged as “Radar”, “Advisory”, “Relay”, “Location”; any single word that succinctly describes the information you have for Net Control.

If all our storm spotters adopted this procedure, an otherwise overwhelming amount of information could be handled simply and efficiently.

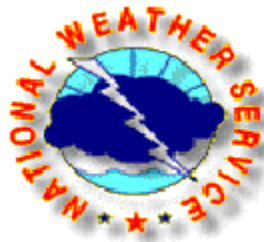
Poetic Reporting



Train yourself for reporting severe weather this year by reading...
...*poetry*? No, really. And I don't mean “*There once was a county repeater / with QRM over the meter / a devious man / devised a mean plan / the silence now couldn't be sweeter!*”

No, true poetry gives the reader the *most* possible information in the *fewest* words possible. The greatest poets could express a lifetime of experience in a single sonnet. Ok, so that's a bit extreme! The idea here is *brevity*. Get your report to net control as simply and concisely as possible. Ironically, the best nets are the quietest nets! A quiet storm net means the information that *is* being passed is only that which fits reportable criteria or that is requested by net control.

So don't be afraid to wax poetic on the air; it's the most efficient method of communicating. *Just don't try making it rhyme!*



Late Breaking
News from
NWS

Experimental radar products are being posted on the National Weather Service Indianapolis web site www.crh.noaa.gov/ind/ for evaluation. They encourage your comments or suggestions for improvements using the survey link on the page. *Your feedback will help determine if modifications are needed!*

Also: the spring issue of “Skywatch”, the storm spotter's newsletter is now available at <http://www.crh.noaa.gov/ind/spotter/index.htm>

ARRL Professional Educator of the Year Award

The deadline to submit nominations for ARRL's two Amateur Radio instructor awards for 2004 is March 1, 2005. *There is still time if you hurry to make submissions on the ARRL website. The following address will take you directly to the form. Copy and paste it into your browser's address window.*

http://www.arrl.org/FandES/ead/edunom.html?aw_id=9

The ARRL *Herb S. Brier Instructor of The Year Award* is presented to a volunteer Amateur Radio instructor. The ARRL sponsors this award, in conjunction with the Lake County (Indiana) Amateur Radio Club to recognize the very best in volunteer Amateur Radio instruction and recruitment.

The ARRL *Professional Educator of the Year Award* is presented to a teacher who uses Amateur Radio as part of the curriculum or after-school program, or teaches it in an educational institution, such as a community college.

All nominees will be invited to confirm their interest in competing for the award and to submit material documenting their activities. Winners receive engraved plaques and up to \$100 worth of ARRL publications.

Thank You!

We'd like to thank John Hooker, Monroe County Emergency Management and Maria Carrasquillo, Monroe County Red Cross for participating in discussions on emergency communications at the February Bloomington Amateur Radio Club meeting. We are quite proud of the relationship that has developed between Amateur Radio, Red Cross and Emergency Management and enjoy the times when either agency can come speak to us. Thank you both!

The ARES/RACES Group

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Monroe County ARES/RACES Group Officers

Carl Zager KB9RVB Chairman

Bobby Bristoe KB9UVW Rob Hamros KB9RNB

Kevin Pauley KB9WVI Maynard Raggio N9PTG

NOAA Weather Radio

How do you get your weather alerts - especially when you're sleeping? When the power goes out do you still have a reliable source for weather and community warnings?

A basic NOAA Weather Radio is available at pretty much any store that sells electronics for around \$30. The NOAA Weather Radio sits quietly monitoring the National Weather Service for warnings. At the alert tone they come to life. You can't sleep through it either - the alarm is very loud. The only shortcoming I've encountered is that flood warnings etc, from adjacent counties also trigger the alarm on the basic model leading some people to turn them off at times - not a good thing!

Now, a digital encoding system incorporating newer technology known as **Specific Area Message Encoding (SAME)** allows receivers equipped with the SAME feature to sound an alert for *only* certain weather conditions or within a limited geographic area such as a single county. This eliminates warnings that may not apply directly to your specific area.

The SAME NOAA Weather Radio receiver is programmed to the proper **frequency**, **SAME geographic codes(s)**, and **SAME event codes(s)**, in order to function as intended. These SAME radios will be more costly than the standard receivers, however the discriminating ability it offers should have the effect of greatly increase the probability that you'll use the NOAA radio as it was intended.

Figure on loosing power, phone service and the cell phone when things get crazy. Pick up a battery backup NOAA Radio before the spring storm season and invest in the SAME functions so you'll actually be using it when you need it!



Indiana Amber Alerts are now part of your NOAA Weather Radio broadcast alerts