



Metro Skywarn



Editor: Dave Johnson, NØKBD

Spring 2002

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**Practice Net on
Tornado Awareness Day
April 18, 2002, 6:45pm**

Skywarn Advanced Skywarn Class Scheduled March 30th!

FROM THE EDITOR

Dave Johnson, NØKBD

Its that time of year again! 2002 Training starts in early March with classes running into June this year. The complete schedule is in this newsletter, and also on the Skywarn Central web page (<http://www.skywarn.ampr.org>). Any changes, if necessary, will be posted to the web page. Please remember that if you did not train in 2001, you MUST retrain this year to remain active.

There are some significant changes this year especially as it relates to non-ham spotters (SkyWatcher Program). Currently, the National Weather Service (NWS) has too many non-HAM volunteers in the core of the metro area (Minneapolis, St. Paul, and inner-ring suburbs). The major concern is if there is a major event, those volunteers could overwhelm the phones at the NWS at a time when staff are at their busiest and quick communication is necessary to save lives.

Amateur Radio Spotters are organized into "nets" on Amateur Radio frequencies run by other Radio Amateurs who then filter and pass along the information to another Amateur Radio operator stationed at the NWS. This decreases the work load of NWS Meteorologists who are already at their busiest during a severe weather event.

So at the request of the NWS, we will no longer be collecting names other than those in outlying suburbs." The NWS is always looking for help in the outlying less populated areas so we will collect names of those folks.

Every few years we find some volunteers interested in doing a Skywarn Advanced Class. This class does NOT replace the basic spotter class. If you need to retrain, as is required every two years, you will need to attend the Spotter Class also.

This years presenters are Melanie Moeller, John Wetter, and Peggy Willenberg, all from St. Cloud State University meteorology department self described as three crazy storm chasers from SCSU, who drive 1700 miles in a day to shoot video under the worse possible conditions and think it's fun!

Time for the class will be 10 AM to 12:30 PM, 3/30/02 at the Caterpillar facility in Osseo 9401 85th Ave N, Brooklyn Park, MN 55445

The Advanced Class will review basics of severe storm structure, and then explore a case study of the last year's Benson tornado and subsequent severe hail storms in the Twin Cities Metro area. Topics include a review of basic forecasting techniques, synoptic parameters, and radar images and video of the storm.

If you have questions, email sw-advanced@wxchaser.com. See you there!

METRO SKYWARN 2002 CLASS SCHEDULE

Remember, if you didn't train last year, you must renew your training this year. Spotters wishing to retrain after being inactive for awhile are always welcome.

March 2 Sat. 9am - 1pm
Twin Cities Repeater Club
Burnsville City Hall
Civic Center Dr. and Nicollet Ave.
Shannon Haralson, TCRC President.
sharalson@mn.rr.com 612-685-5991
Tyler Williams, Skywarn Liaison
tyler@visi.com 952-250-2970

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POSITIONS AVAILABLE:

Net Operators Metro Skywarn is looking for weather wise Amateur Radio Operators in the Mpls/St.Paul area to take a major role in Skywarn Nets. The Emergency Operation Center at the National Weather Service Field Office in Chanhassen is looking for Amateur Radio Operators with flexible hours to work during severe weather events in Central East Central Minnesota and Western Wisconsin. Contact John Kelly at 952-944-3572 or n0tgy@aol.com.

The Emergency Operations Center at the Golden Valley Public Safety Building, sponsored by the Twin Cities FM Club is looking for Amateur Radio Operators with flexible hours to work during severe weather events in the Metro Area. Contact Larry Schenck KBØPYK at 612-287-9952 or kb0pyk@arrl.net.

Training Assistants (Certified Instructor Designees) - responsible for assisting Certified Instructors with setting up for scheduled classes, with administrative paper work, with making announcements and introductions at classes, with some minimal instructing, with grading tests, and with packing up after classes. Persons selected in this category for 2002 will be given priority consideration to fill vacancies as Certified Instructors and will receive advanced training in February 2003. Time commitment estimated at 5 hours per class March to June. We ask each instructor to teach three classes each of the next three years. If interested, contact Dave Johnson 612-782-8950 or email: n0kbd@arrl.net.

Assistant Webmaster(s) - Under supervision of the Webmaster, monitor, maintain and update "Skywarn Central" (www.skywarn.ampr.org). Preference given to experience with Website operations, design and setup. Direction and training available, if needed. If interested, contact Dave Johnson NØKBD, 612-782-8950 or email at n0kbd@arrl.net.

Also Wanted:

Funding/Development Director

Newsletter Reporters

Newsletter Printing/Publishing Coordinators

To apply, please contact Dave Johnson NØKBD, 612-782-8950 or email at n0kbd@arrl.net.

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Instead, we will more actively encourage spotters to get licensed as an Amateur Radio operator. There your participation will always be welcome and being a spotter can be much more fun. And then there is all the adventure of Amateur Radio where you can talk to people all over the world, join a local Emergency Communications organization, or even participate as an official for Sports Car Club of America Rally events in northern Minnesota.

How to Reach Us

- * By snail mail: Metro Skywarn, Inc. 2014 Radatz Ave. St. Paul, MN 55109
- * By phone: Donn at 612-781-1359
- * By email: skywarn@skywarn.ampr.org, or the spotter email list swnews@vyger.net.
- * On the World Wide Web: The Metro Skywarn Homepage, URL= <http://www.skywarn.ampr.org>
- * The Board always needs more help. Anyone wishing to participate in Board activities is invited to attend the meetings held the first Monday of each month.

SKYWARN UPDATE STARTS A NEW SEASON WITH A NEW MODERATOR FEB 16 9PM

Skywarn and Emergency Communications Update is a radio show airing most Saturday nights at around 2100 central time. Skywarn and Emergency Communications Update is a live interactive and educational program for severe weather spotters and emergency communicators in and around the twin cities metro area . The program includes news, commentary, questions (sometimes answers) and announcements. Spotter training opportunities in Minnesota and western Wisconsin are announced. Discussions about weather and disaster occurrences with guests from responding agencies (NWS, Salvation Army, Red Cross, Dept of Emergency Management radio group and others are featured. You are all invited to participate.

This show is part of Saturday Ham Talk which starts at 1900 hours local central time (7:00 p.m.). Saturday Ham Talk program is aired on the 145.21,444.000,145.450 repeaters in the twin cities metro area.

Joe Chesney KCØGYJ
kc0gyj@arrl.net

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March 9 Sat Noon - 4PM
Anoka Cty Amateur & ESC
Blaine City Hall Community Room
9150 Central Avenue, N.E. Blaine
Cordell, Bob W 651-784-7090
kb0gjp@juno.com

March 16, Sat. 8am to 12 pm
Twin Cities FM Club
Golden Valley Safety Center
7800 Golden Valley Road
Allen, Gale R.
952-941-5264
grallen@voyager.net

March 18, Mon. 6pm to 10 pm
Radio City
2663 County Road I
At Jct US 10 & Co Rd I (Behind BK)
Mounds View
Fish, Dan 952-786-4475
Call to reserve space.
radiocty@skypoint.com

March 27, Wed. 6 pm to 10 pm
SMARTS
Carver Cty Govmt Center
Cologne
Anderson, Dean
952-466-3808

March 28, Thur, 6 pm to 10 pm
Ramsey Cty Emerg. Services
3383 North Rice Street Shoreview
SW Corner Rice & I694
Hughes, Bill 651-482-5238
n0qhp@amsat.org

April 1, Monday 6 to 10 PM
ARES Chicago County
St. Bridigets Church
Hwy 8 in Lindstrom, 55045, MN.
Mr. Ed LaPlante (651-257-1313)
KC0ASX@aol.com

April 2, Tues 6 pm to 10 pm
SEMARC
Fire Station 2,
8641 80th Ave
Cottage Grove
Denny Erickson, 651-459-3983,
N0XWPMN@aol.com

April 6, Sat. 8am-12noon
Bloomington Em. Com.-
Blmgtn City Hall

Metro Skywarn

2215 W. Old Shakopee Road
Bloomington
Gene Clemens, 952-831-3089
scoutgc@earthlink.net

April 10, Wed 2-Mtgs @ 1-5 & 6-10 pm
Forest Lake Public Safety Dept
210 North Lake Street Forest Lake
Forest Lk City Hall; Council Chambers
Schwartz, David
651-464-5877
401@flpd.com

April 13, Sat. 8 am - 12 noon
St Paul Radio Club & Red Cross
St Paul Red Cross
176 So. Robert Street
St. Paul, MN
Dale Maroushek
651-777-5309

April 13, Sat. 8:30 am to 12:30
North Hennepin Community College
Center for Training and Development
CCE Bldg 7411 85th Av N Brkn Pk
Intended for the general public
\$10 fee/ Pre-registration Required
Mel Xiong
763-424-0880

April 15, Mon. 6 pm to 10 pm
Radio City
2663 County Road I
At Jct US 10 & Co Rd I (Behind BK)
Mounds View
Fish, Dan 952-786-4475
Call to reserve space.
radiocty@skypoint.com

April 20, Sat.
8 am to 12 pm
Stillwater Amat. Radio Assoc.
Washinton Cty Govt Center,
West Entrance
14949 62nd Street No.
Glas, David A. 651-436-3334
w00xb@arrl.net

April 24, Wed
6 - 10 pm
Robbinsdale Radio Club
Robbinsdale Public Safety Center
4101 Hubbard Avenue Crystal
Powers, Frank
763-535-3559

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April 25, Thur 6 pm to 10 pm
Ramsey Cty Emerg. Services
3383 North Rice Street Shoreview
SW Corner Rice & I694
Hughes, Bill 651-482-5238
n0qhp@amsat.org

May 4, Sat. 8 am to 12 pm
SEMARC
Fire Station 2
8641 80th Ave
Cottage Grove
Denny Erickson, 651-459-3983,
NOXWPMN@aol.com

May 22, Wed 6 pm to 10 pm
Ramsey Cty Emerg. Services
3383 North Rice Street Shoreview
SW Corner Rice & I694
Hughes, Bill 651-482-5238
n0qhp@amsat.org

June 1, Sat. 8:30 am to 12:30 pm
North Hennepin Community College
Center for Training and Development
CCE Bldg 7411 85th Av N Brkn Pk
Intended for the general public
\$10 fee/ Pre-registration Required
Mel Xiong 763-424-0880

PROCESSING

By Scott Woelm, WXØV

It's a Friday evening in early July, and an episode of severe weather is on tap. A few hours ago the SPC issued a Tornado Watch for central MN. Shortly after the Watch was issued, a supercell developed west of the Twin Cities. You called and canceled your date for the evening and placed yourself in your favorite spotting locale. You've been a spotter for 5 years and haven't seen much, despite not missing one Skywarn call-up in that time period.

However, today is YOUR day! The storm is going crazy with several reports of wall clouds and large hail. A brief tornado took place about 15 miles west of you, and the parent supercell is heading straight east!

Finally, out of the hazy sky emerges the storm. This is what you've been waiting for! Ok, here it comes...hmm...something doesn't seem right...the updraft doesn't have the circular/barrel shape you expect from a supercell...it's more linear....and it appears to be across

most of the horizon. Wait! Is that a wall cloud? Better watch it for a few minutes. Naw, it's just some scud, and it's being blown out and away from the updraft base. The storm gets closer until it's right on top of you. Whoa! Some strong outflow hits you solidly, perhaps up to 50 m.p.h. Then the storm blasts by you and you're immersed in rain; you didn't even get to report anything! Hey! That's not fair! What happened to the supercell?!

Well here's the lesson, one that is by far the most important one I have learned over the past 5-7 years. It took me a long time to finally open my mind enough to realize this:

What was...is not always...what is.

*Ok, Captain Zen, what does that mean? Simple! A storm is NOT, repeat **NOT** a physical item that maintains a steady state! It is a fluid **PROCESS**, one that is always changing over a function of time.*

Storms can change very quickly, or very slowly. I have seen storms that have maintained a similar state for hours, then suddenly change. The storm in my story was a supercell, but in its life cycle, it evolved from a discrete rotating tornadic storm, into a linear multicell outflow dominant event. This is very common.

*Watching a storm's evolution over time is fun. In 2000, a group of us (including veteran Skywarn member Shaun Kelly, NØJDT) tracked a MN supercell for over 2 hours. It began with the HP (**H**igh **P**recipitation) stage (the updraft base filled with rain), went to the CL (**C**lassic) stage (little or no rain in the updraft base), back to HP, then CL, then HP again! Wow, talk about **PROCESS**! We saw it produce 5 wall clouds, but no tornadoes. However, it had produced a damaging tornado at Granite Falls before we reached it.*

*Keeping an open mind, and a healthy understanding that storms are a **PROCESS** has helped me considerably in properly identifying them. Just because a storm was a tornadic supercell an hour ago doesn't mean it can't be a linear multicell complex when it reaches you, or vice versa! Also keep in mind new development, as the atmosphere itself is a fluid **PROCESS**!*

*If there is a word I can plant permanently into you in regards to storm morphology, it's without a doubt, **PROCESS**! Live by it! With an open mind, you will be even better prepared for spotting storms, whatever presents itself. Also, don't forget about your date! You stood them up for a shelf cloud; a trip to your local florist is in order!*

Scott Woelm WXØV
Metro Skywarn ID# 777

Coming Soon: APRS Technology for Skywarn Applications

The purpose of this article is to explain how APRS (Automated Position Reporting System) technology can be used to supplement and enhance Skywarn spotting activity in the Twin Cities' metropolitan area.

In one of its most basic applications, an APRS station is located in one or more vehicles that will be used during Skywarn net activation (typically, this is referred to as a "tracker" station). In addition, a receiving station is located at the NWS facility for receiving data from the mobile APRS stations. Once the equipment is installed, each mobile APRS station periodically and automatically transmits its exact location to the receiving station at the NWS. In addition to the location information, the mobile stations can add text messages to their broadcasts to the NWS. Through the use of this technology, when a spotter alerts the NWS of a reportable condition, the APRS station at the NWS facility will display the exact location of the mobile reporting station. Furthermore, when the NWS desires information from a particular geographic area, the APRS display at the NWS facility can be viewed to determine which mobile APRS stations are closest to the area of interest.

In another application of APRS technology, a number of APRS home-based stations have connected their own weather stations to the APRS base station. Many of these base stations are operational on a continuous basis. Thus, periodically, these base stations broadcast not only their location but also such weather parameters as temperature, wind speed, wind direction, dew point, barometric pressure, etc. This weather information is available for viewing by personnel at the NWS simply by positioning the computer cursor on their APRS display over a station in an area of interest. Two clicks of the mouse results in a display of the monitored weather conditions at that station.

While it may sound as if implementation of APRS technology for use in Skywarn spotting, and providing continuous weather information to the NWS, would require a substantial investment, the exact opposite is true. Day in and day out, mobile trackers and home-based APRS weather stations are fully operational; in other words, they are already regularly transmitting their positions and measured weather data. All that needs to be accomplished is to have a functional APRS station located at the NWS. Of course, the current APRS network can always be expanded to cover a greater geographic area, and more spotters can install tracker systems in their vehicles. How-

ever, the point is, APRS technology is available and functioning today. Our only impediment to its implementation is inertia – we simply need to take the final step.

To take that step, several of us have formed a loosely defined group called MnAPRS. Our goals are: (1) provide a fully functional APRS station at the NWS; (2) encourage greater participation in APRS by increasing the number of trackers and weather stations with APRS connections; and (3) enlarge the area of coverage of the current APRS network. While we are in the early stages of this activity, we have already established a website at <http://www.mnaprs.com>. This website is also focused on severe weather; my wife Peggy KC0KZB is coordinating that portion of the site. We will have a booth at the upcoming HamfestMN, and we are working with TwinsLAN to find suitable locations for additional APRS digipeaters.

Please visit our website and our booth at HamfestMN. We think you will be as excited about this cutting-edge aspect of Ham radio as we are!

Wayne Willenberg, KK6BT

Try Your Hand at Forecasting

by Peggy Willenberg

Why listen to all that boring TV news just to hear the weather forecast? With a few simple tools easily accessible on the internet, you can create your own severe weather forecast in about 15 minutes.

A good place to start is the Storm Prediction Center (SPC) <http://www.spc.noaa.gov/>. SPC issues many different forecast products: check out the Day1 and 2 convective outlooks, updated throughout the day, and the Day 3 (found under experimental products). Since the meteorologists at SPC work on fine-tuning their forecasts all day, this allows you to focus on specific areas rather than the whole US. Also review the mesoscale discussions, areas of special concern for imminent severe weather, where weather watches and warnings are most likely to be issued.

Every forecaster has a slightly different catalog of favorite computer models. In my opinion, the most useful model for quick forecasting is the RUC (Rapid Update Cycle). This can be found several places, but I usually go to <http://www.rap.ucar.edu/weather/upper/> since there is other useful information here. Look at the bottom of the page and click on "model". You can also select "surface" here. Indicate how far out you want the model to forecast. For severe weather, check on times from afternoon on, remembering "prime time" is usually

2000Z or later. Some parameters to view are temperature, dewpoint, pressure drops, Theta E, CAPE, helicity. Look for areas where these parameters converge in bullseyes or ridges. Usually this is the most likely target for severe weather. Also check out the winds at various levels of the atmosphere to look for directional changes (for example, surface winds from the south and 500mb winds from the west). This indicates directional shear is present that could lead to rotation if storms ultimately form. Take a quick peek at the jetstream (300mb). If there is a strong jet in your target area, developing storms will be well ventilated and maintain strong, long-lasting updrafts.

After you develop a target, it's fun to keep an eye on what develops. Radar and satellite can be found many places including the page described above, but the best and fastest radar on the web is found at weatherTap <http://weathertap.com>. This is a pay service, and costs about six dollars a month, but is entirely worth the price. Radar is only one component available here; under "Severe Weather" you can find satellite images and frontal boundaries among other things. The frontal boundaries are really quite important to your forecast, as the lift provided by a passing front is one of the best initiators of convection.

***Metro Skywarn, Inc.
2014 Radatz Ave.
St. Paul, MN 55109***

Address Correction Requested

Of course this is a very simplified forecast process, but it is a good way to start. As you work with the forecasting tools you will probably develop your own preferences and begin to rely on some parameters more heavily than others. My guess is that even with this basic process you will beat the TV weather folks quite frequently!

A warning: forecasting can be habit forming! I admit to spending quite a bit more than 15 minutes on my forecasts, looking at way too many models, soundings, and text products. But it's fun, and sometimes I even get one right. Give it a try, but don't say I didn't warn you!

Terms:

CAPE—Convective Available Potential Energy—a relative measure of the amount of energy available for convection

Dewpoint (Td)—temperature the air must be cooled to reach saturation

Helicity—potential for flow that can induce rotation in a storm updraft

Theta E—equivalent potential temperature—a way to compare the temperature of two parcels of air