



Chicagoland Skywarn

Issue 4, Volume 2

August 2010

Special Interest Articles:

- Skywarn Severe Weather Net in the south suburbs
- A Call for Unity, A Call for Action
- More about CoCoRaHS

Individual Highlights:

June Severe Weather	2
Lightning Facts	4
Massive July Rainfall	6
YTD Climate Summary for ORD	7
Regional Skywarn Instant Messaging	8

What's All That Racket on .805 During Severe Weather?

By Tom Gunderson, W9SRV

Reprinted From the July 2010 Tri-Town Club Newsletter "The Oscillator"

At the last Club meeting it was discussed that the South Suburban Skywarn Group was going to start linking the Waldofar Repeater system to the Tri-Town Repeater during severe weather events to enhance spotting coverage of the south suburbs. We have had the ability to link the two systems for several years, and it seems very advantageous to the ham community in general to use this combination to provide unparalleled VHF/UHF coverage of the south suburban area for SKYWARN weather spotting.

You will notice that the spotter's use paging tones to announce nets and severe weather messages from the NWS. There is a strong core of dedicated advanced trained spotters on the air for severe weather events. Your input is wanted as well! Please call in your weather reports when the time arises. Look for articles on the net operations in this edition of the oscillator and likely more to come.

There is also a weekly net held at 8PM local time. Going forward, 805 will be included on these nets. Please take some time to come check into this net; this is the chance to become familiar with the people and the system operation.

There are a couple of things to remember about operating the systems when linked together. First- when you key up your radio- wait 2-3 seconds to speak to allow all the link transmitters and receivers to come up. You are going thru 2-3 transmitters and receivers at any one time when the systems are linked! Also- if you are operating on 146.805 please let the system drop before you key up and transmit. 805 essentially becomes a "Slave" to the Waldofar system during linked nets, and for right now it's a half-duplex link, so the link radio has to stop transmitting before it can receive signals back from 805. The repeater drops pretty quickly, 1-2 seconds after the courtesy beep.

And just for a reminder- here are all the frequencies involved:

Tri-Town WD9HSY VHF Repeater: 146.805-, 107.2 PL
Waldofar North- Homewood: 442.375+, 114.8 PL
Waldofar South- Grant Park: 441.300+, 114.8 PL

June Severe Weather

By Al Fisher, NEMA Weather Officer

On June 18th and June 23rd we had major severe weather events hit the Chicago metro area; mainly high winds of anywhere from 70-80 mph, and probably very localized 90 mph winds. How does this happen?

It all begins with the amount of shear in the atmosphere. The shear allows the storms to organize, produce tremendous updraft speeds, and if the shear is in a certain pattern, rotation in the storms.

However, to produce the very strong straight line winds we saw, you need one other ingredient in the mix; a dry layer of air aloft. This dry air allows the descending wind to evaporate the moisture, which now produces a very dense heavy downdraft in the storm. This downdraft now accelerates down to the ground, hence winds at the ground way stronger than those in the ambient flow aloft.

Below is a picture of the Davenport (KDVN) special balloon run done on June 23rd at 1PM. This is the air mass the storms fed off of. The green line on the right is temperature in Celsius, the left the dew point. The farther apart the lines, the drier the air. From the ground to roughly 5000 ft (850mb) it is very moist. From about 5000 ft to about 10,000 ft (700mb) it is very dry. This is a classic severe weather sounding with warm moist (less dense) air below with dry (more dense) air above; plenty of dry air to evaporate a rain drop and help form severe downdrafts in the storms. Notice how the winds change direction in about the lowest 7000 feet. This turning allows increasing "storm relative helicity" which helps the formation of rotation in the storms. The turning is the reason we had a Tornado Watch for the area.

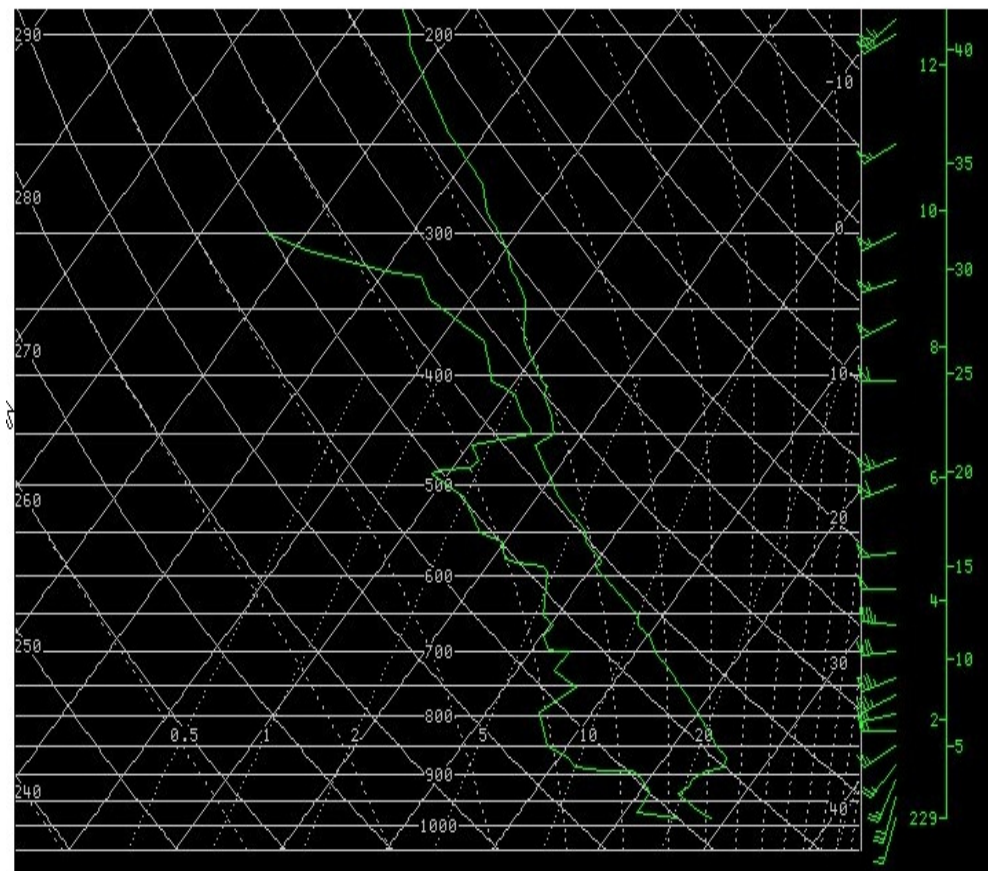


Figure 8: 18Z Sounding from KDVN



Northern Cook County
Skywarn

---WX9NC---

442.725+ (PL 114.8)

A Call for Unity, A Call for Action

By Tom Gunderson, W9SRV

Over the past months we have had group discussions on the Chicagoland Skywarn Yahoo group, and also some directly in person, and one thing is clear: We all want to see the Liaison Skywarn Reporting System improved.

For the most part the group seems to have the same ideas and goals for the most part. We also seem to recognize the same issues and obstacles that are preventing the process from evolving.

I have no intension of getting on a big soapbox here. My intension is to propose a timetable.

The biggest hurdle I see is the fact that events in the past have harmed relations with the NWS, and at this point they are cautious at best in listening and implementing suggestions and additions to the Ham Radio part of their operation.

We cannot fix the past, but I believe if we as a group can put together a complete plan, agreed upon and ratified by all participating groups, and present it as a group to the NWS, perhaps we can gain the trust and confidence back from the NWS.

I think it is too late to expect any real action for this season. Let's get right on this project so we can hope to have the system refined and reason for next season! We have a great vehicle to foster these ideas and move them forward in the Yahoo group.

Can we agree to this timetable?

-Contact all active systems in Chicagoland Skywarn and create a point of contact/representative with that group by August 1st.

-Have all ideas submitted by August 15th on how the system can be improved.

-Present the ideas to the group for discussion by September 1st.

-Have all discussion points submitted by September 15th and create a first draft of a proposal from these for the NWS.

-Present the 1st draft to the group by October 1st for review and comment.

-Have all comments and reviews submitted by October 15th.

-Present the second and final draft to the group for Review and Agreement by November 1st.

-If we're on track try to set up a meeting with the NWS to present this plan sometime in December. This would give the NWS 3-4 months to accept, deny, or revise the plan and get in place on their website before the 2011 Skywarn Season starts.

I would be happy to spearhead this effort and coordinate this effort. I can take the comments in and type up the drafts. I can coordinate with your help all of the contacts needed to make this a reality. It does not have to be me either, step up and run with it if you are so motivated! I just think it is time we as a group get together and really formalize the Skywarn effort in the greater Chicagoland area.

Respectfully submitted

Some “Striking” Facts

By George Geosalitis, NB9R

Lightning is responsible for the deaths of some 50 people, killed nationwide each year, as well as the life-long debilitating injuries to another 800-1000 people. The National Interagency Fire Center suggests that lightning spawns some 12,000 wildfires every summer and estimates of the total social cost amounts to \$5 billion annually.

Some “Striking” Facts

- Worldwide (at any moment), some 2000 thunderstorms are occurring
- During these storms, science suggests that lightning strikes the planet 100+ times each second (more the 8 million times a day)
- Lightning not striking twice in the same place is an “urban myth.” In a typical strike, several strokes often hit the same spot in rapid succession. Tall structures are hit many times per year and are used to gather on information for lightning research
- Within a storm, “feeler-currents” called “step-leaders” extend downward at some 450,000 mph
- Return strokes travel skyward at more than one third the speed of light (62,000 mph)
- The average discharge is 20-30KA (although some can be considerably higher)
- Lightning strikes, heat nearby air to 50,000+ degrees F (5 times higher than the Sun’s surface). As the air expands it cause a pressure wave that is heard as thunder
- Heat lightning is an “urban myth,” it’s simply lightning that has occurred too far away to be heard (>15 miles) but can be seen
- Lightning strikes convert inert nitrogen (in the atmosphere) into nitrogen oxides that plants can use. 320 billion pounds of nutrients are created in this way.

Types of Lightning Strikes

- Cloud to ground
- Ground to cloud
- Intra cloud
- Cloud to cloud
- Bolt from the blue (a Supercell phenomena that can occur as much 25 miles from the parent storm). This why the National Weather Service urges that we not resume outdoor activities for at least 30 minutes after the last audible thunder is heard.

How far away is the storm?

- 1) Watch for the lightning
- 2) Note the number of seconds (or do the one-Mississippi thing) between the lightning and the arrival of the thunder and divide by 5. This will be (roughly) the number of miles between you and the storm.
- 3) If they happen simultaneously.....duck (oops too late)!

THE LIGHTNING 30-30 RULE: If it’s less than 30 seconds from flash-to-thunder seek safe shelter and wait 30 minutes after the last flash or thunder to establish the all clear.



147.18+ MHz (PL 127.3)
Lakecountyskywarn.org

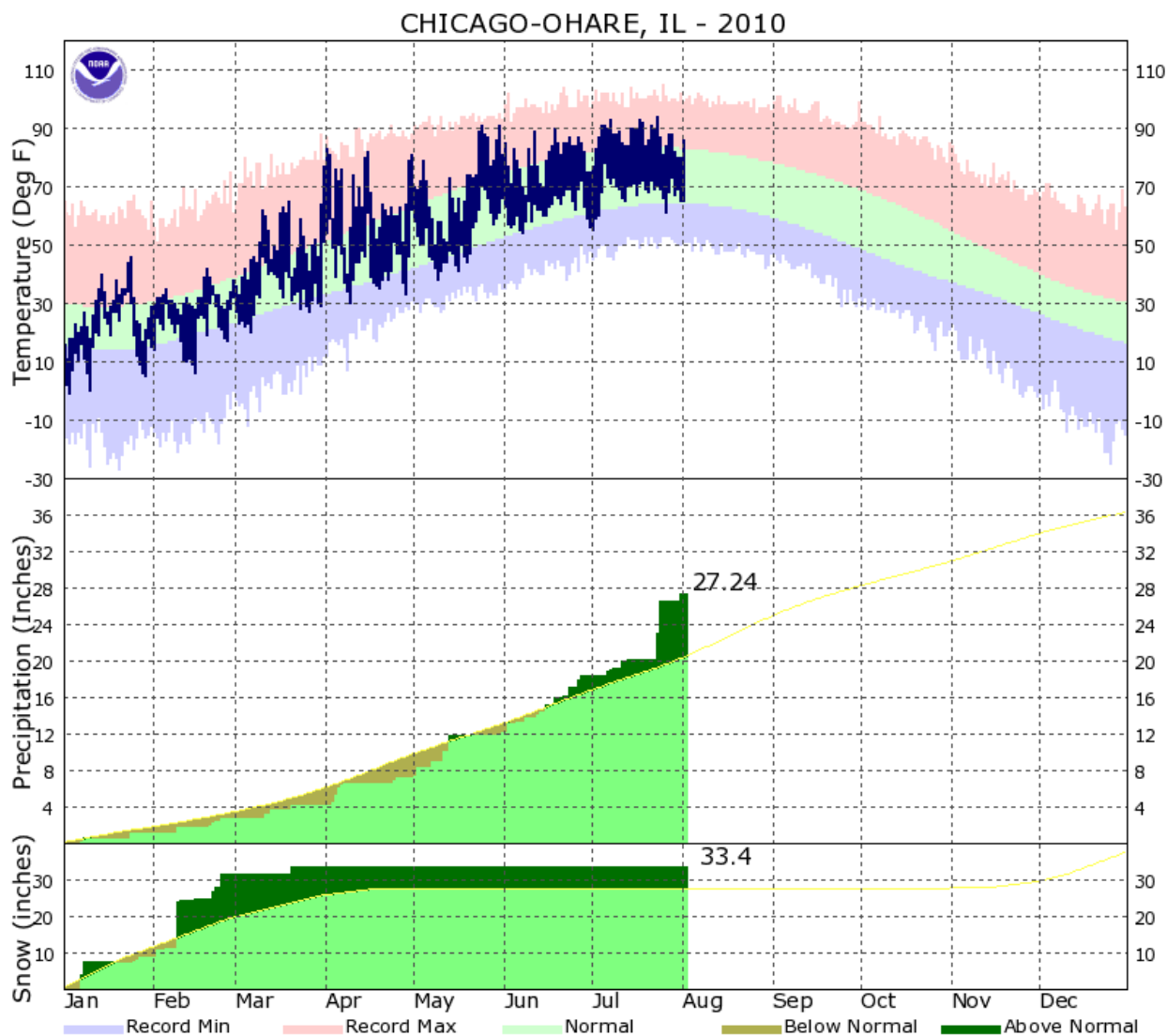
145.43- MHz (PL 107.2)
skywarn.w9dup.org



DuPage Amateur Radio Club **SKYWARN**

Year to Date Climate Summary for Chicago

From NWS Chicago website WEATHER.GOV/CHICAGO



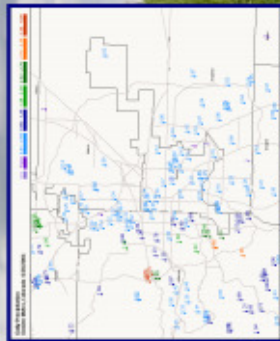
Regional Skywarn Instant Messaging ... We're still looking for a team!

By Mike Swiatkowski, AA9VI

Are you part of a local Skywarn leadership team? Chicagoland Skywarn's core mission is to act as a communications bridge between existing Skywarn agencies in the area. So, we have established a Regional Instant Messaging service for local Skywarn agencies. Over the last few months we have beta tested this with Northern Cook, Lake, and DuPage Counties and FISHFAR leadership. **Now it's time for the other collar counties to jump on board! We can all communicate incoming weather and discuss activation of nets.**

Email me at aa9vi@arrl.net with your name, callsign, and a description of your Skywarn duties. We are asking that only those who act as net controllers or forecasters for local Skywarn nets sign up for this service since we can't give out a hundred accounts. We hope to reestablish the Multi-county Skywarn initiative with this new IM service.

www.cocorahs.org



DATA ON THE WEB

Volunteers post their daily observations on the CoCoRaHS Web site. Observations are immediately available in map and table form for scientists and the public to view. By providing high quality, accurate measurements, the observers are able to supplement existing networks and provide many useful results to scientists, resource managers, decision makers and other users.

CoCoRaHS IS EDUCATIONAL

CoCoRaHS offers a variety of learning opportunities for volunteers. In addition to training, periodic email and newsletters inform participants about how CoCoRaHS data are used by researchers, natural resource managers, and others. CoCoRaHS is also involved in developing classroom resources for teachers and in conducting teacher workshops on weather and climate. By participating in a science project with a local feel, citizens develop a sense of community with fellow observers and raise awareness about their surrounding environment.

WHY JOIN CoCoRaHS?

CoCoRaHS is a fun activity for our volunteers. If you have an interest in weather and would like to help your local community, as well as scientists and others interested in precipitation, then CoCoRaHS is for you. It only takes a few minutes a day and gives you the chance to participate in real "hands-on" science. You may be amazed at what you will learn as you become more aware of the weather that impacts you and your neighbors.

HOW CAN I PARTICIPATE?



You may become a volunteer by signing up via our Web site: www.cocorahs.org.

On-line training materials are available. Please inquire about upcoming local training sessions in your area.

FOR MORE INFORMATION:

Please contact:
CoCoRaHS Headquarters
Colorado State University
1371 Campus Delivery
Fort Collins, CO 80523-1371

Or visit us on the Web: www.cocorahs.org

CoCoRaHS is supported by the various sponsors across the country. To see a full list visit our home page and click on "sponsors". Additional collaborators are welcome to help contribute to improve and expand the network.



"Measuring precipitation in your backyard . . . Helping your community . . . Impacting the nation"

www.cocorahs.org

Because every drop counts!

WHAT IS CoCoRAHS ?

CoCoRAHS, the Community Collaborative Rain, Hail and Snow Network, is a unique, non-profit, community-based, high density network of individual and family volunteers of all ages and backgrounds, who take daily measurements of rain, hail and snow in their backyards.

WHY IS THERE SO MUCH INTEREST IN RAIN, HAIL AND SNOW ?

Precipitation is essential for life. It varies greatly with topography, storm type and season. It really is true that it may pour on one side of the street and be dry on the other. A portion of a field may be pounded by hail while others nearby receive no damage. Snowfall may pile up in one neighborhood and only dust another. Rain, hail and snow are easy to measure, and the data collected are very important. Meteorologists are very interested in precipitation, but so are many others. Engineers, hydrologists, entomologists, insurance operators, building contractors and even baseball players and coaches . . . you name it, everyone seems to care about rain, hail and snow. And for some, like farmers, it is their very livelihood.

A BRIEF HISTORY

CoCoRAHS came about because of a devastating flash flood that hit Fort Collins, Colorado in July 1997. A very localized storm dumped over a foot of rain in several hours while other portions of the city had only modest rainfall. The ensuing flood killed five people and caused \$200 million in damages. With this in mind, CoCoRAHS was born in 1998 with a few dozen volunteers. As more volunteers participated, rainfall maps could be produced for every storm showing fascinating local patterns that were valuable both for scientists and for local residents. As a result, CoCoRAHS continues to grow with thousands of volunteers now in numerous states.



VOLUNTEERS OF ALL AGES WELCOME!

The foundation of the network are volunteers willing to spend a few minutes each day measuring and reporting precipitation. This is a project we can all help with: adults, children, senior citizens and entire families.

SIMPLE MEASURING TOOLS

Volunteers use high quality rain gauges. In some states, "hail pads" are used to study hail storms.



TRAINING "THE KEY TO OUR SUCCESS"

It is important that all CoCoRAHS precipitation reports be as accurate and consistent as possible. Local training sessions are held to teach new observers how to install their instruments and properly measure the precipitation. Training materials are also available on the CoCoRAHS Web site.



Photo by Carl Whitehouse

Chicagoland Skywarn

INQUIRIES/SUGGESTIONS
aa9vi@arrl.net

Join our Private Yahoo list
(requires free membership)

Sign up at:

<http://ChicagolandSkywarn.org>

Skywarn Reporting Repeaters

- Chicago: 442.725+ PL 114.8
- Downers Grove: 145.43- PL 107.2
- Frankfort: 444.55+ PL 114.8
- Gilberts: 146.925- PL 100.0
- Glenview: 147.09+ (PL 107.2)*
- Grant Park: 441.3+ PL 114.8
- Hazelcrest: 146.805- PL 107.2*
- Homewood: 442.375+ PL 114.8
- Kankakee: 146.94- PL 107.2
- Libertyville: 147.18+ PL 127.3
- Woodstock: 146.835- PL 91.5
- Malta: 146.73- PL 100.0
- Marseilles: 146.745- PL 114.8
- Merillville: 146.7- PL 82.5
- Morris: 147.27+ PL 107.2
- Rockford: 147.255 PL 114.8
- St. Charles: 145.47 PL 103.5
- Valparaiso: 147.105+ PL 131.8
- Yorkville: 147.375+ PL 103.5

S.E. Wisconsin Skywarn
145.13- MHz PL 127.3 Hz

APRS Packet WX: 144.39 MHz
Winlink Packet: 145.61 MHz

NWS Chicago Website:
weather.gov/chicago

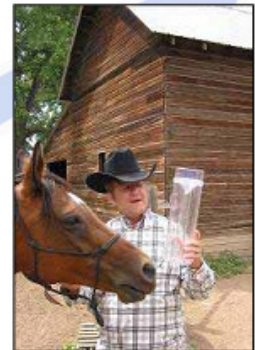


WANTED!

**VOLUNTEERS OF ALL AGES
TO HELP SCIENTISTS STUDY STORMS**

The exploration begins in your back yard with CoCoRaHS!

The **Community Collaborative Rain, Hail and Snow Network (CoCoRaHS)** needs you! Everyone can participate, both young, old, and in-between. The only requirements are an enthusiasm for watching and reporting weather conditions and a desire to learn more about how weather can affect and impact our lives.



CoCoRaHS needs your help !



CHICAGOLAND SKYWARN

**A BRIDGE BETWEEN METRO
CHICAGO SKYWARN
AGENCIES**

**78 MEMBERS STRONG AS
OF AUGUST 1ST! THANKS
FOR YOUR SUPPORT!**

We're always looking for contributions to our newsletter which is published every other month. Please email aa9vi@arrl.net with your article, announcement, or weather story.

This month we would like to specially recognize Tom Gunderson, W9SRV, for his contributions!

