# Chicagoland Skywarn

Issue 5, Volume 2 November 2010

***Special Interest Articles:***

- The Legacy of the Galloping Gertie
- Weather for the i-Phone
- Skywarn Recognition Day Reminder

***Individual Highlights:***



## Nearly a Wrap on Severe Weather Season

By Mike Swiatkowski, AA9VI

The time of year when we think about severe weather seems to be coming to an end. However, we still do get severe thunderstorms and even tornadoes in November. So, don't let down your guard. We will likely have nasty weather this winter and we will take reports during Winter Storm and Blizzard Warnings. Look for us to play a bigger part than we had in the past of keeping you informed of severe winter weather.

This year we established a new severe weather reporting net in Northern Cook County on 442.725+ and I would like to thank the following people for activating nets, reading the immediate severe bulletins, taking reports from spotters, relaying those reports to FISHFAR and the National Weather Service, and making this first year more successful than many of us could have thought possible: Bill, AB9SV; Dave, N3BXY; Marv, N9SXS; Scott, W8UFO; Craig, KC9HWK; Paul, AB9PS; Matt, NM1S (ex. WB9YLP)

We'd like to know what you thought of the service. Were our reporting criteria too rigid? Did you find the weather bulletins directly from the NWS useful? What else did you like? What would you like to be changed or added to the severe weather nets? What do you think of our website: ChicagolandSkywarn.org? Would you like to join our group of net controllers for Northern Cook Co. Skywarn? We are looking for a couple more. Please send me an email if you are interested.

Unfortunately, the echolink on the NORA system had some issues that were not resolved so we could not simulcast the 442.725+ Northern Cook Co. net on 2m as we intended in the spring. I hope we can get this issue resolved in a timely manner.

This year Chicagoland Skywarn also built on great partnerships with Northern Cook Co. Skywarn, Lake Co. Skywarn, DuPage Co. Skywarn, and South Suburban Skywarn. I hope we will hear more from Will, McHenry, Kane, Kendall, and Grundy, Lake (IN), and Porter (IN) next year. It was a real treat to see leaders from Chicagoland step up and offer solutions to our communications issues. I hope you will continue to use Chicagoland Skywarn as a means to advance your ideas. I invite all of you to use the Yahoo group to keep the conversation going. I really appreciate the opportunity to learn from the experts subscribed to our email reflector.

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. We already have people from the following organizations talking to one another during severe weather on this PC/Linux/Mac based software client: Northern Cook, Lake, DuPage Counties and the FISHFAR leadership.

Email me at aa9vi@arrl.net with your name, call sign, and a description of your Skywarn duties. Right now, we are asking that only those who act as net controllers or forecasters for local Skywarn nets to 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.

# Record October Wind Storm

By Mike Swiatkowski, AA9VI with material from National Weather Service

Two low pressure systems combined across the upper Midwest to produce the second lowest contiguous 48 pressure of 955.2 mb (28.21 in.) The record low contiguous 48 low pressure record set in 1932 was a more 0.2 mb lower at 955.0 mb. Illinois recorded 4 tornadoes from this storm ranging from EF0 to EF2. The worst of which recorded just east of Peotone had maximum winds of about 115 MPH and lasted 3 minutes. The peak wind gusts at O'Hare and Midway were 55 MPH.

An EF1 tornado touched down just south and west of Racine and moved towards the town.

**How Does This Rank Amongst Storms Away From The US Coasts?**

- If you only consider extratropical lows that tracked between the mountain ranges (*Rocky Mountains on the west, Appalachian Mountains on the east*) - the Central US - the lowest sea level pressure on record appears to be at Mount Clemens, Michigan at 13Z on January 26, 1978. A 956.0 millibar value was recorded there and is supported by NCDC data. This was related to the same storm that produced a 957.7 millibar sea level pressure at Cleveland, Ohio. The lowest value for the central US is sometimes reported as the reading in Cleveland, however, that was superseded by the value in Mount Clemens.

- The January 26, 1978 storm later went on to produce lower sea level pressure readings in Ontario, Canada, including a 955.5 millibar reading at Sarnia. However, these are not in consideration as we are only discussing the United States.

- Therefore, the 955.2 millibar value that was recorded in Bigfork, Minnesota on October 26, 2010 appears to be the

# What is Wind Engineering (The Legacy of the "Galloping Gertie")

By George Geosalitis, NB9R

On November 7th 1940, winds moving 30 to 35 MPH caused the structural components of the Narrows Bridge in Tacoma Washington to "shake, rattle and roll" so excessively, that the bridge, quite literally, self-destructed and collapsed into the water below. If there had been something called the "Engineering Hall of Shame," Gertie would have been inducted that day but on the credit side, it gave momentum to a field called "wind engineering."

Meteorologists work with civil and structural engineers when bridges, stadiums, high-rise buildings or other large structures are being designed and built. Obviously, the failure of not properly accounting for wind characteristics for a given geographical area can be a costly mistake. The "wind-proofing" of family dwellings can potentially save billions when the next hurricane slams into coastal towns,

http://www.youtube.com/watch?v=HxTZ446tbzE

http://www.ketchum.org/bridgecollapse.html


***Northern Cook County Skywarn***

***WX9NC***

***442.725+ (PL 114.8)***

# What is Forensic Meteorology?

By George Geosalitis, NB9R

A forensic meteorologist may act as either a consultant or a testifying expert who may be appointed by the court or, more likely, employed directly by an insurance firm or the attorneys of the defendant or plaintiff in a case. In the process, this person will assemble, interpret and analyze atmospheric data in support of insurance fraud claims, criminal and civil trials and environmental regulatory actions.

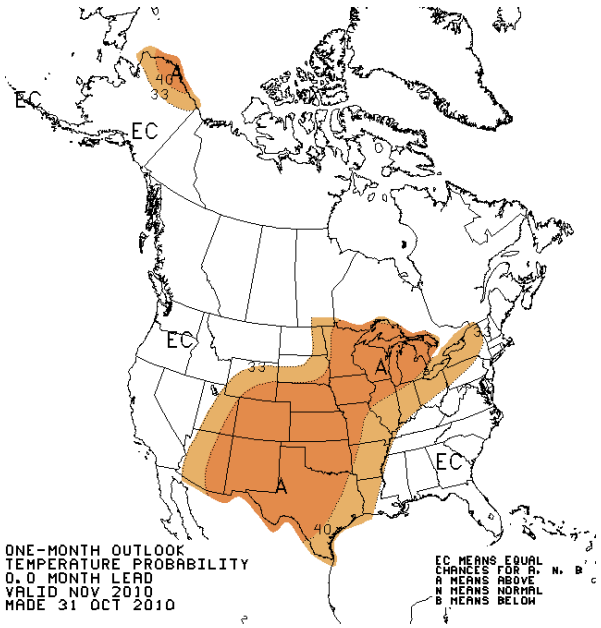
All the standard atmospheric information (e.g., weather observations, satellite and radar imagery, lightning strikes, air pollution monitoring, etc.) collected by the forensic meteorologist can be used in a comprehensive analysis of any meteorological facts applicable to the case.

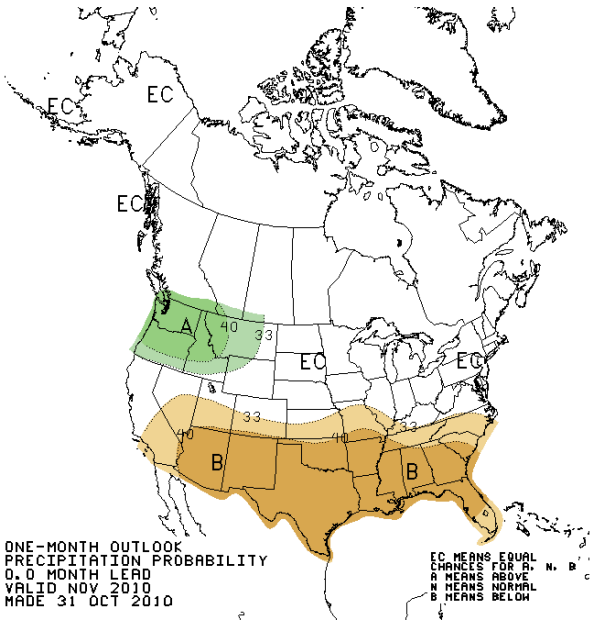
Forensic meteorologists have “paid-their-dues” in the atmospheric sciences and have met the qualifications to become a Certified Consulting Meteorologist (CCM).

# November 2010 Outlook

From NWS Climate Prediction Center website

LA NINA CONDITIONS STRENGTHENED DURING LATE SEPTEMBER AND EARLY OCTOBER. FOR THIS TIME OF YEAR THE OBSERVED ENSO INDICES ARE CLOSE TO A RECORD. EVENTS TYPICALLY PEAK IN ABOUT DECEMBER, OR THE NDJ SEASONAL MEAN. INDEED FORECASTS BY MOST MODELS INDICATE THAT LA NINA CONDITIONS CURRENTLY IN PLACE WILL STRENGTHEN FURTHER AND LAST AT LEAST THROUGH THE NORTHERN HEMISPHERE WINTER 2010-11, AND VERY LIKELY INTO THE SPRING.



# Dual-Polarization Upgrade to WFO Chicago Doppler Radar in March 2011

From NWS Chicago website

The National Weather Service Chicago Office is pleased to announce that the much-anticipated installation process of the Dual-Polarization Radar upgrade to the KLOT WSR-88D will occur between March 8th and March 19th 2011 (dates subject to change). WFO Chicago, as one of the four Beta Test sites, will be one of the first NWS offices in the country to receive this important technology, which will greatly expand the amount of data types and radar products available to users. It is important to note that during the entire time of installation, the radar will be offline.

Conventional Doppler radars transmit bursts of radio waves, called pulses, in a single, horizontal orientation, or polarization. The pulses bounce off meteorological (i.e. clouds, snow, ice pellets, hail and rain drops) and non-meteorological (i.e. birds, insects, ground clutter, including wind farms etc.) particles in the atmosphere, and are reflected back to and received by the radar dish. After computer processing, the returned signals are converted into usable data regarding the horizontal properties of the particles encountered, including their dimensions and direction and speed of movement. For instance, the distance from the radar to the target is calculated from the amount of time that lapses from the initiation of the pulse, to the detection of the return signal. The radar reflectivity you see on a radar image is actually the “reflected” pulse energy that is received by the radar.

Dual-polarization, or Polarimetric, radars transmit and receive both horizontally and vertically oriented radio wave pulses, typically done by alternating between horizontal and vertical polarization with each pulse. This therefore allows the radar to collect data with information on the horizontal and vertical properties of the targets. Being able to analyze targets in this manner is expected to result in significant improvements in the estimation of precipitation rates, the ability to discriminate different precipitation types (i.e. rain . hail, mixed precipitation types in winter storms), and the identification of non-meteorological returns. As an added example, for aviation concerns, with polarimetric radar, forecasters will be able to better discern areas of icing and other hazards such as birds. All these improvements will aid forecasters in the warning decision process, helping the public make better decisions about their safety and protecting their property.

The basic radar products that have been available to users are Z, reflectivity (base and composite), V, mean radial velocity (base and storm relative), and SW, spectrum width. Three new products that will become available after the upgrade are ZDR, differential Reflectivity, CC, correlation coefficient, and KDP, specific differential phase. Below is an example of Differential Reflectivity on the left, versus reflectivity on the right. The area circled on both images is a hail core in a thunderstorm, demonstrating how Differential Reflectivity can allow for better discrimination of hail from just heavy rainfall. Along with the three base products above, included among three new derived products will be Quantitative Precipitation Estimation (QPE), which will allow for the estimation of instantaneous rainfall rate. Currently, only 1-hour radar-based rainfall rate estimations are available.

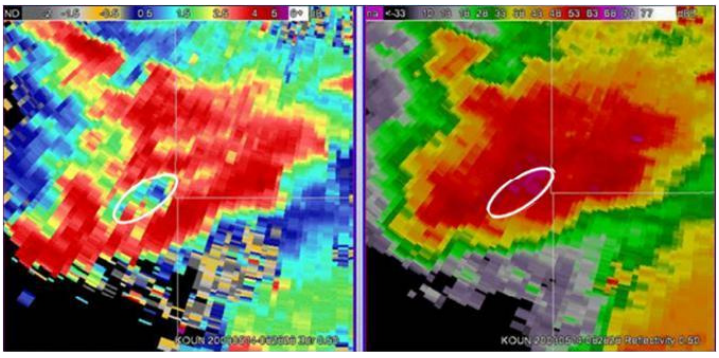
In the coming weeks, Dual-Polarization Radar Outreach Training will be made available by the NWS Warning Decision Training Branch (WDTB). This training, with separate tracks for meteorologists and non-meteorologists, will be targeted at first responders, broadcast meteorologists, other private sector meteorologists, emergency managers and other public stakeholders. Stay tuned for announcements regarding the distribution of this outreach training.

For more in-depth information regarding the radar upgrade, we encourage you refer to the following links:

http://www.crh.noaa.gov/images/lot/dual%20pol.ppsx

http://www.crh.noaa.gov/images/lot/dualpol.pdf

http://www.nssl.noaa.gov/research/radar/dualpol.php



# Keep Tabs on the Weather with Your iPad/iPhone

By Scott Irwin, W8UFO

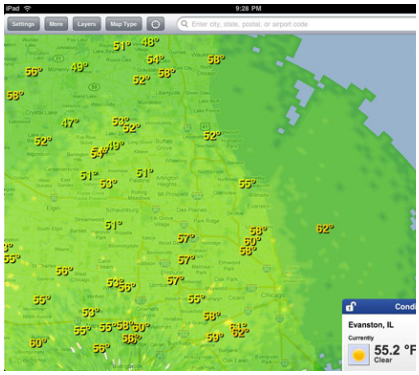
As Skywarn participants we have a keen interest in the weather and use a lot of technology in our shack to learn about it, keep track of it, and stay abreast of warnings and watches. How do we do this while mobile or out and about? Well, for those of you with iPhones and iPads, you are in luck! As of this writing there are over 240 applications that come up when you search for “weather” in the App Store. This article will introduce you to three that I found most useful.

WunderMap by Weather Underground uses the iPad or iPhone's location to display an interactive map containing weather stations within their network, which contains over 16,000 stations! You can pinch to zoom out, and do the reverse to zoom in. To see current conditions and forecasts at that station, all you have to do is tap on it. The map can be changed to Satellite or hybrid, can show webcam locations, temperature/wind, and be layered with radar and satellite cloud data. This is a great application for general weather, especially if you live in an area like Chicago where temperature variations can be as much as 10 degrees depending on how far you are from the lake.

Wundermap’s RADAR

RadarScope displays images derived from the Level 3 NEXRAD data. Besides a wonderful display you can view watches and warnings, view radar loops, and use standard gestures to zoom in (stretch), zoom out (pinch), and scroll (drag) to get the view you want. Besides being able to view warning polygons on the map and select various radar products, you can also see storm spotters in the vicinity.

StormSpotter also displays weather data from NEXRAD radar sites, allows you to view warning polygons and warnings, use standard gestures to customize your view, and select various radar products. While it does not offer storm spotter location access or reporting, it does use Google maps as its maps, so you have access to the three map types. The application pulls updates every three minutes and allows you to pull data for multiple radars plus the warnings.



Local Temperatures using the app

While RadarScope and StormSpotter stack up quite comparatively in terms of features, they provide slightly different views of the weather picture. There are some storm elements that I find easier to view on the RadarScope map since it has a black background, while the StormSpotter map is nice to have to see how the storm relates to a specific intersection on a map. I also find that, depending on the storm and how busy their data feeds are, one application may update prior to the other one, which can be beneficial if you are looking for up to the minute data.

If you are on the go, these applications will help you keep tabs on the weather while staying abreast of warnings and watches. Check them out before the next storm rolls in.

Training Note: While these applications are great, net control stations should only read official National Weather Service products during nets and, unless they are a trained and qualified meteorologist, refrain from forecasting or making assumptions about the weather.

## 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+ PL114.8
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
146.91- MHz PL 127.3 Hz

APRS Packet WX: 144.39 MHz
Winlink Packet: 145.61 MHz

**NWS Chicago Website:**
**weather.gov/chicago**

# REMINDER!!!

Skywarn Recognition Day
is 0000-2359 on December 4, 2010
More news on activating NWS Romeoville's HF station will be announced in on our Yahoo email reflector.

Who else is active during this event?
www.wrh.noaa.gov/mtr/hamradio/

skywarn.w9dup.org
145.43- MHz
PL 107.2 Hz

Waldofar Repeater
442.375 North
441.300 South

Spotters net every Monday at 8pm. All amateurs are welcome!

**CHICAGOLAND SKYWARN**

**A BRIDGE BETWEEN METRO CHICAGO SKYWARN AGENCIES**

**79 MEMBERS STRONG AS OF OCTOBER 1ST! THANKS FOR YOUR SUPPORT!**

**SPREAD THE WORD!**
**WE'RE HERE FOR YOU.**

**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 Scott Irwin, W8UFO, for his contribution!**