

# **B-PLUS**

## **Albany Amateur Radio Association – AARA**

### December 2023

John Fritze K2QY  
*PRESIDENT*  
[k2qy@arrl.org](mailto:k2qy@arrl.org)

Gerald Murray WA2IWW  
*VICE PRESIDENT*  
518 482-8700  
[wa2iww@arrl.net](mailto:wa2iww@arrl.net)

Saul Abrams K2XA  
*TREASURER*  
518 439-5700  
[k2xa@arrl.net](mailto:k2xa@arrl.net)

Bruce Goldstein WA3AFS  
*SECRETARY/WEBMASTER*  
518 765-2893  
[wa3afs@arrl.net](mailto:wa3afs@arrl.net)

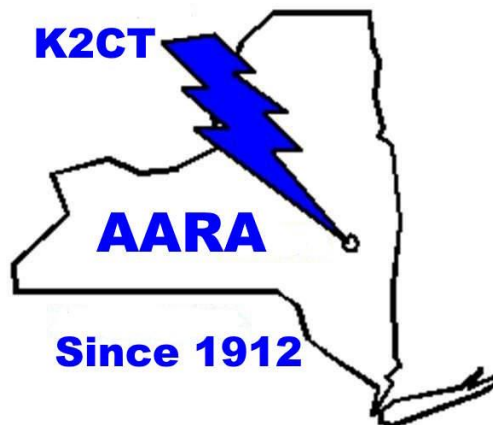
Don Herring KB2SCO  
*DIRECTOR*  
518 281-9986  
[dgherring@hotmail.com](mailto:dgherring@hotmail.com)

Fred Lass K2TR  
*DIRECTOR*  
[k2tr@arrl.net](mailto:k2tr@arrl.net)

Nathaniel Greenman KB2HPX  
*DIRECTOR*  
518 439-5008  
[ngreenman@verizon.net](mailto:ngreenman@verizon.net)

Ernie Popp K2EP  
*TRUSTEE of K2CT*  
*PAST PRESIDENT*  
[k2ep@arrl.net](mailto:k2ep@arrl.net)

Don Herring KB2SCO  
B-PLUS Editor



**AARA November Meeting**  
**December 13, 2023 @ 7:30 PM**  
**Slingerlands Fire Dept.**  
*(The second Wednesday due to a conflict with the Fire Dept.)*

**Topic:**

**Celebration of Jock, KB2GOM's 27 years of running the morning commuter net.**  
**There will be PIZZA and CAKE!**

PLEASE Pay Your Dues  
Dues are \$20  
Checks can be sent to:

Saul Abrams, K2XA  
307 Maple Rd.  
Slingerlands, NY 12159

# November Meeting



Our November 8<sup>th</sup> meeting was a SKYWARN training session given by Lee Picard of the National Weather Service (NWS), Albany. Training focused on winter weather situations. NWS website for Albany is: [weather.gov/aly](http://weather.gov/aly)

**NATIONAL WEATHER SERVICE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code  
Enter location:    
[Location Help](#)

**News Headlines**

- [The NWS is asking the public and partners to provide feedback on the new NWPS \(through a preview site beginning today \(Nov 15, 2023\) and continuing for the next 30 days.](#)
- [Fall SKYWARN™ Training Sessions Announced. Register here!](#)
- [August, September & October 2023 Precipitation Maps Available](#)

**MY FORECAST**  
Albany International Airport NY

**NWS Forecast Office Albany, NY**  
[Weather.gov](#) > Albany, NY

Albany, NY  
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Click a location below for detailed forecast.

Watches, Warnings & Advisories  
Small Craft Advisory  
Hazardous Weather Outlook

Last Map Update: Sun, Nov. 19, 2023 at 8:37:11 pm EST

## December meeting is the AARA's Election.

The following have been nominated:

President: Gerry, WA2IWW

Vice-President: open

Secretary: Bruce, WA3AFS

Treasurer: Saul, K2XA

Director: Peter, N2KAD

Further nominations can be made from the floor. If you like to be the Vice President, please contact Ernie, K2EP.

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## Fred's Sandbox: The EFHW Antenna



This is a picture of the ARRL End Fed Half Wave Antenna Kit. It includes everything needed to build an EFHW that covers 40-10 meters. The design is a 49:1 UNUN would with 2 turns on the primary plus 12 more turns connected as an autotransformer. The wire gauge, core, and tuning capacitor are capable of 250 watts. It is available from the ARRL for \$79.95

I have always been a fan of a half half dipole because of it's simplicity and radiation pattern predictability. The shortcoming of a dipole is that it covers a limited portion of the band it is designed for. This year our winter Field Day site will be shared by the Albany County winter festival, which will be having events in the open playground area where we normally erect our antennas. The road to the top of the hill will host sledding and toboggan events. We still have areas near our cabin for some of our antennas, but interstation interference would be an issue if we tried to operate CW and SSB simultaneously with antennas so close together. Fortunately, there is an area on the hill above our operating location where we can put antennas, but access in the middle of the winter is likely to be a challenge. All of this suggests antennas higher up the hill, but more than one antenna would take extra time to put up. An excellent solution to this problem is the use of one EFHW antenna that operates well on multiple bands.

The next step in the process is figuring out the best layout of a single EFHW to get useful radiation patterns that will work well for Winter Field Day, so it's time for me to learn everything I can about an EFHW. First let me clear up a few things, a true EFHW is actually a half wavelength on the lowest frequency that the antenna is capable of and fed with an extremely high impedance 49:1 UNUN style transformer. A well-configured EFHW can operate on multiple bands without an antenna tuner, which is a huge advantage for a temporary Field Day style operation.

There is a second end fed antenna, that unlike an EFHW, is designed with a random length of wire, or a length that is neither quarter wave or half wave on any of the bands it would be used for. It is fed with a 9:1 UNUN. An antenna tuner is always required. To me this configuration is too unpredictable. The rest of this column will ignore this style end-fed antenna.

Let's take a closer look at the EFHW. On the lowest band it is really a half wave dipole that is not really fed at the end, but very close to it. The remaining small section of the EFHW can be the coax feed, a short wire dangling from the UNUN, a short wire connected to the cold end of the UNUN, a current choke on the coax, or a combination of these options. Personally, I am not in favor of trying to use the entire coax down to the ground, as that changes the design to more like an Inverted-L, and moves the resonant frequency of the antenna on the higher bands such that the SWR minimums don't fall in the right frequencies. This is also the configuration that is most likely to cause RF hot-spots in the ham shack.

A look at the modern day literature about EFHW antennas includes watching YouTube videos. Unfortunately, many of these posts are as boring as 75 meter ragchewers. Yet, there is one video that shines! It was done by Mike Mladejovsky, WA7ARK, as a presentation to the Utah Amateur Club dated 13 January, 2022. In his presentation he offers two important findings. 1. If you add a 200 PF capacitor somewhere along the antenna wire the resonant frequency for the higher bands fall on the optimum frequencies. 2. If you insert a common mode choke on the feedline about 14' down from the end fed wire, making that length of coax the actual counterpoise, the antenna pattern becomes predictable, any RF in the shack goes away, and the feed impedance falls on the right frequencies in the ham bands. To catch the important part of the video go to:

49:09 Graph of harmonic relationships falling outside the upper bands

53:52 SWR curve with compensating capacitor

With these important findings, I will build an EFHW antenna for 160-10 for the top of the hill. We will use it primarily on 160, 80, and 40. That antenna will be a second-mode option on 20, and perhaps even 15 and 10.

## Important Links:

Find a license class in your area: [www.arrl.org/class](http://www.arrl.org/class)

Find a license exam in your area: [www.arrl.org/exam](http://www.arrl.org/exam)

### **The Eastern Iowa DX Bulletin:**

<http://www.eidxa.org/EIDXBulletin.html>