

Wavelengths

February 2017

Xenia Weather Amateur Radio Net XWARN (W8XRN)

147.1650+ (123.0) (Analog Only)

443.1000+ (123.0) (Analog + System Fusion)

Meetings: 2nd Monday, 7:30PM,
Greene Memorial Hospital ([1141 N Monroe Dr, Xenia, OH](http://www.greenehospital.com))
Herman Menapace Auditorium



Editor's Note: In mid-January 2017, we had a storm move through the Midwest with freezing rain. While

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President's Message

Even though we are not knee-deep in events to support this time of year, it is a good time to think about equipment maintenance. It is also a good time to invest in a bit of skills maintenance. On Monday evening, Feb 6, we have an opportunity to freshen our skills as weather spotters by attending the NWS Spotters Training here in Greene County (more later).

A few years back, we looked into registering as a 401.3(C) corporation. We never completed the task, but I think it is time to take another look. If you would consider getting involved in this project, please let me know as I feel that a champion is needed to advance the project. At the last meeting, Jason WG8B showed us his weather resistant package for a self-contained mobile transceiver. It was based on a Kenwood TM-D710 dual band transceiver with built-in APRS capability. I enjoyed seeing how he solved some of the problems of dealing with a lot of capability crammed into a relatively tight space. I'd like to encourage others to bring their projects to the meetings and share your creations.

There is a rumor out on the internet that Calvin's Challenge may return. As many of you are aware, the organizers announced that the 2016 running was to be the last. The talk is of a scaled down version. I'm not sure if or how this might involve us, but I'll be sure to pass along new details, if I hear anything. If it happens, expect it to take place on the first or second Saturday of May.

Our own Mike Crawford KC8GLE is chairman of the communications committee for Hamvention again this year and I am the assistant. Many

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Random Musings

Excerpts from [Ohio Section newsletter](#) and [ARES e-Letter](#)

Interested in a safe room for your house? Did you know that Ohio has a rebate program to help defray the cost? Residents selected for the program are eligible for a rebate up to 75% of the cost to install or construct a safe room – up to a maximum of \$4,875. To apply for the Ohio Safe Room Rebate Program, homeowners have until 5 p.m. March 10, to register on the [Ohio EMAwebsite](#) beginning January 9.

Are you a member of ARES? Make sure that your training records are being updated by your EC. If you want to participate in a real operation, for example work in an EOC, you will need the four (4) core [NIMS courses](#): IS-100, 200, 700 and 800. To check status, you can go to the [ARRL-Ohio website's ARES page](#) and find the list of who's included by name and by county.

Club Contacts

- President, Bob Baker , N8ADO
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- Vice President, Brett Boggs, NV8I
Vicepresident@xwarn.net
- Secretary, Open
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- Membership, Phil Verret, KA8ZKR
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- XWARN Trailer / Public Service,
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- Newsletter, Jason Bowman, WG8B
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XWARN members serve as volunteers on our committee and you will soon be receiving an appeal to help out again this year. If you are not already a part of this, we need more helpers. Contact Mike or myself to get in on the fun. A six hour commitment gets you an admission ticket, a Hamvention cap, a parking pass, and an invitation to the volunteers' banquet. I know, it sounds too good to be true.

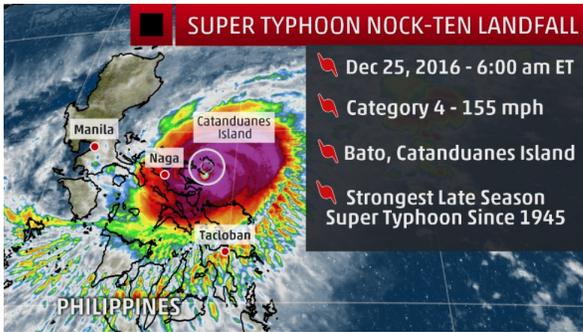
Speaking of Hamvention ... XWARN will sell official Hamvention t-shirts again this year. We need all able-bodied members to come out to sell shirts. XWARN obtains most of its operating funds from this sale. Janice Crawford will not be able to be at the show this year and we could use a volunteer to act as on-site coordinator. See me for details.

73, N8ADO

Calendar of Events

- January 28-29. Winter Field Day.
- February 6, Monday, 6:30 PM, NWS Spotter Training, Greene County Media Room, [541 Ledbetter Rd, Xenia 45385](#)
- February 13, Monday, 7:30 PM, XWARN Monthly Meeting, [Greene Memorial Hospital Auditorium](#)
- February 27, Monday, 7:30 PM, Greene County ARES Service Meeting, [BTFD Station 61 Community Room, Beavercreek](#)
- March 13, Monday, 7:30 PM, XWARN Monthly Meeting, [Greene Memorial Hospital Auditorium](#)
- Maker Fest is mid March, and XWARN will be providing the trailer and asking for volunteers. More to come on this event.
- April 1, Saturday, Spring Has Sprung 5k race, Xenia (details to come)
- April 1 is the date set for the 2017 Ohio ARES Conference! The conference will be held again at the Marion Technical campus (OSU Marion) as it was last year.
- April 9, Sunday, ORRRC Marathon, Xenia (details to come)
- April 10, Monday, 7:30 PM, XWARN Monthly Meeting, [Greene Memorial Hospital Auditorium](#)
- April 22. NVIS antenna day
- May19-21. Hamvention

Amateur Radio in Action



[Super Typhoon Nock-Ten](#) (Category 4) interrupted Christmas for radio amateurs in the Philippines, who responded to provide communication for the disaster. The Philippines Amateur Radio Association's ([PARA](#)) Ham Emergency

Radio Operations (HERO) Network activated in advance of the storm, which cut power to five provinces, downed trees, and caused widespread damage. Net participants were able to compile damage reports and relay them to authorities, some of which had tuned to the HERO net. "It has now become a reality that our emergency calling frequency is the most listened to during disaster," Vicencio said. "Government operators listened in ... armed forces station Peacemaker in Catarman, for example, broke into the frequency looking for a counterpart station also in Northern Samar."

Amateur Radio Emergency Service volunteers and emergency operations centers (EOCs) in Nevada are now [standing down](#) as the threat of additional widespread flooding damage diminishes. Over the weekend, ARES members in Nevada stood ready to support the disaster response effort. Recent heavy rainfall, sparked by a weather system called the Pineapple Express, caused flooding along rivers and forced evacuations in some areas of Nevada and neighboring California.

FEMA Region 10 (Alaska, Idaho, Oregon, and Washington) will conduct [interoperability communications exercises](#) (COMMEX) during 2017 on the third Wednesday of each month, 1500-2100 UTC. The initial exercise will take place on January 18.

Back To Basics

One of the primary considerations is energy density vs power density. Energy and power density are energy and current per weight or volume, respectively. These are mutually exclusive - you can't have both an energy and power dense battery! Non-rechargeable batteries are relatively energy dense, and rechargeables are relatively power dense. The current state-of-the-art rechargeable chemistry is lithium.

Battery safety is important for storing, handling, or charging. The basic lead acid battery needs to be handled and stored upright. We now have

XWARN Mission

The mission of the Xenia Weather Amateur Radio Net (XWARN) amateur radio club is to conduct weather spotting nets during severe weather and other communication services for the City Of Xenia and all other Greene County communities.

In this capacity, we are set up to provide communication services as required to the Greene County Ohio Public Service Agencies and other local government entities. The communications services provided to the supported agencies may be for emergency purposes or to simply enhance their communications abilities. On an as needed basis XWARN provides similar services to various government entities of our surrounding counties.

Additionally, XWARN provides communications support to various community organizations in support of marathons, 5K runs, 10K runs, bicycle events, etc. to provide health and safety assistance to the participants and sponsors of said events.

In support of these goals, XWARN operates and maintains amateur radio repeaters and other equipment in Greene County.

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Minutes from January 2017

At 7:30 PM President Bob Baker(N8ADO) called the meeting to order. We recited the Pledge of Allegiance. There were 18 members present.

Cracker Barrel: none

Secretary Report: Dick Bray moved to accept the November 2016 minutes and the motioned was seconded by Jason Bowman.

Committee Report

- *Public Service:* Mike Crawford reported the Res Run was a success
- *Trailer:* Mike Crawford reports the trailer now has its new license sticker and new chairs.
- *Membership:* Phil Verret is taking over for Ken Cornett
- *Newsletter:* Jason Bowman received compliments on his last newsletter and asks member to contribute

Old Business: none

New Business

- Field Day is June 24 and 25 and President Baker wanted to discuss several items
- Do we invite DARA to join in? Yes
- Do we use same site? Yes, and Jim Beller will contact BC Heister
- Will Mike Crawford do the food? Yes
- Do we trust Bob Baker to set up the logging? Yes, with caveat
- SkyWarn Spotters training is Monday February 6,2017 630PM at [541 Ledbetter Rd, Xenia, OH](#)
- Maker Fest is mid March. XWARN will be providing the trailer and asking for volunteers.

Presentation

Jason Bowman stepped up to share his 'Go Box' and explained the components and his best hint was to use rubber isolation mounts to minimize jiggling.

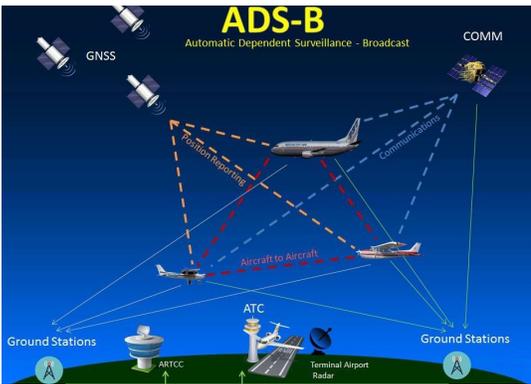
Dick Bray moved to adjourn and seconded by Ed Collins.

Submitted,

Karen Baker

Acting Secretary

January and February Programs



Due to unforeseen circumstances, Bret Boggs (NV8I) was unable to make it to the meeting to present the January program. But I (Jason WG8B) brought some items for show and tell. I presented my ruggedized radio concept that was in the [December Wavelengths newsletter](#). I keep a [briefing](#) on my ruggedized radio and update it as improvements are made.

For February, the plan is for me to present a small project on Automated Dependent Surveillance - Broadcast or ADS-B. ADS-B is very similar in nature to APRS but for aircraft to provide position, speed, and other information to Air Traffic Control and other aircraft. There is a [briefing](#) and [ADS-B "In" client](#) you can view ahead of time.



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absorbed glass mat (AGM), which can be stored, handled, and used in any orientation. Lithium batteries should be stored at 50% charge and in a fire proof bag, ceramic dish, or on concrete and definitely away from combustibles.

Every battery type has a certain charging profile required for performance, longevity, and especially safety. Before buying a charger that can charge multiple battery types,

make sure you understand how to identify different battery types and select the appropriate one in the charger menu before starting the charge cycle. Your homeowner's insurance agent will thank you for it.

Most small rechargeables have what's called a "C" rating that's very important to understand. 1C is the current in amps found by dividing the capacity of the battery by 1hr. So 1C for a 4500mAh battery is 4500mA or 4.5A and 2C is 9A. For best performance, you want to keep the load on the battery at 1/10C. The reality is that most batteries will give close to the full rated capacity at 1/3C or higher. Some lithium batteries are rated for 15C, 30C, and even 45C. But for the same capacity, these batteries are physically larger to provide that level of current. For charging, it is generally safe to keep the charge current at 1C or less. But please refer to the instructions for that battery to determine the maximum safe charge current. Some batteries can be safely charged above a 1C rate.

Finally, if you can afford it, get a lithium battery. Your back will thank you for it. Make sure the voltage is compatible with your equipment. No combination of lithium batteries in series comes close to the standard 13.8V of a 12V system. You'll either under or over volt your equipment without some sort of buck-boost converter. But the lithium iron phosphate batteries put out close to 13.8V in a 4S (4 batteries in series) configuration. They are so close, in fact, that these batteries are now being used as drop-in replacements for lead acids!

This Month With Larry



Editor's Note: This Month with Larry is, at least for February, only inspired by Larry. Larry sent me some quick info on 60m for the newsletter, and I decided to add some add'l material to ensure that everyone understands all of the obligations that amateurs have while operating in the 60m band.

At least for amateur operations in the US, 60m is channelized. The FCC only authorizes five (5) frequencies or channels (Voice or Phone | CW, PSK31, PACTOR)

Channel 1: 5330.5 kHz | 5332.0 kHz

Channel 2: 5346.5 kHz | 5348.0 kHz

Channel 3: 5357.0 kHz | 5358.5 kHz

Channel 4: 5371.5 kHz | 5373.0 kHz

Channel 5: 5403.5 kHz | 5405.0 kHz

You do at least hold a General or Advanced license? Good. Those are the minimum license requirements in the US. Allowable modes include voice/phone, CW, and PSK31 and PACTOR. For voice/phone, operations are on upper sideband (USB). So the center frequency (what you dial into your radio) needs to be about 1.5kHz lower than for CW and digital modes. Why 1.5kHz? That's half (for sideband modes) the normal 3kHz deviation/bandwidth for voice modes below 50Mhz (6m).

In the US, amateur radio operators are secondary users on 60m. The government is the primary user and has first dibs on these frequencies. Before transmitting, listen carefully! Only make short transmissions so that you can check if a primary user needs the frequency. If intending on operating in CW mode, turn off your narrowband filter briefly if using one. If you don't, you may not be able to hear a primary user, and you will interfere. May the FCC have mercy on your soul.

There are also special antenna requirements on 60m. The safest bet is to use a dipole. This lets you use 100W of power, and no antenna records have to be kept. If you use a directional antenna, you not only need to keep a record of the antenna gain but you also have to limit the power so that the effective radiated power is 100W or less. So if you are using a 3dBd antenna (3dB relative to a dipole), you need to cut your power back to 50W (6dB would limit power to 25W).

That's about it for now. For further information, please see the [ARRL](#) and [Wikipedia](#) pages on 60m amateur radio operations.

Larry (KB8EMD)

A Response to Larry



In the January newsletter, Larry (KB8EMD) talked about the elephant in the room - the age of the average ham - and what can be done to get younger people involved. Although I'm not young myself (I'm 45), I've only been a ham for a little over two years. So I'd like to think I have a fresh perspective.

The main problem with ham radio started with the internet and continued with smart phones. The internet allowed people to easily do what only amateur and CB radio could really do before.

And then smart phones and social media made it even easier. Except for voice on VHF/UHF, amateur radio doesn't just work. It takes effort and is ultimately less capable than our everyday consumer technology except maybe in an emergency. But even that is changing given emerging products such as goTenna described above.

So here are some brief thoughts on attracting more and younger people to amateur radio:

- Make amateur radio products easier to use and more bullet proof, especially APRS and digital modes.
- Focus on simple human-machine interfaces. Use smartphones not only as a model for how to interact with radios but as front end to amateur radio technology.
- Developers, especially those working on digital modes, need to focus on developing cross platform APIs so that any front end can be brought to bear. What happens if FLDigi can no longer be maintained?
- Embrace comm technologies outside of amateur radio like goTenna seen in the picture above. They are now outpacing amateur radio technologies and have been for a while.
- Get involved with drones/UAVs. Amateur radio technologies can be brought to bear, and the amateur radio community might learn a thing or two as well. There are also emcomm applications of drones and UAVs.
- More and better outreach. Stop advertising classes and Field Day in the classified section of the newspaper. If you want to attract the younger generation, you have to advertise on social media like Facebook. Better yet, get into local high schools. Understand that many of the younger generation aren't going to care about being able to talk with someone half way around the world using radios. They can do that already with their smart devices, and they are easier to use, too. Instead of trying to convince people how great amateur radio is, focus instead on how it will help them achieve their goals.

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the Dayton metro area didn't receive much ice, it is important to be prepared ahead of time. The weight of ice accumulation can easily bring down powerlines. Expect antenna performance to be affected to some extent as ice has dielectric properties and will bend or refract radio waves just as it bends light. Freezing rain occurs when snow falls higher up, passes through a layer of air warm enough to melt the snow into rain, then passes through a layer of air at ground level that is below freezing. As the rain hits a solid surface, which is below freezing, it freezes into a glaze layer of ice.

Club Call: W8XRN

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«FNAME» «LNAME» - «CALL»
«ADDRESS»
«CITY» , «STATE» «ZIP»

Wavelengths

Wavelengths is published monthly by the Xenia Weather Amateur Radio Net. Our meetings are currently held on the 2nd Monday of each month at **7:30 pm** at the Greene Memorial Hospital Auditorium. You can find additional information about our organization at www.xwarn.net. We welcome new and experienced Amateur operators and those interest in becoming an Amateur operator to attend our meetings.