



On August 21, 2017, a full solar eclipse will sweep across the US. There are some simple experiments you can do with just an AM receiver and trying to listen into the "Clear Channel" stations marked on the map above. If you have HF capabilities such as WSPR, then there are some more complicated experiments you can participate in. More later.

President's Message

This month looks to be an important time for the future of the club. We have announced that work is progressing toward receiving recognition as a tax exempt organization. Expect that a motion and vote on that matter will take place at the next meeting. Together with this, the plan is to present revised bylaws to align the club's rules with those that apply to non-profit corporations. Again, expect that we will vote on changes. Note that none of this is intended to change the character of the club, but it makes sense to adjust our rules and procedures to align with the law and to make sure that our stated goals and our corporate charter agree. I encourage all to attend. I think that all of us accept the value of the process that we are following, so do not expect to hear any soapbox speeches at the meeting.

For as long as I have been associated with XWARN, we have been meeting in the Greene Memorial Hospital Auditorium. We are most appreciative of the continued support from the hospital. However, every group should occasionally reassess its circumstances and I am asking the members to consider whether we should continue meeting at the hospital or should we investigate other opportunities. If you have a suggestion, please jot down your thoughts and pass them along to one of the executive committee.

Soon, it will be time for the election of officers. Please consider if you would consider acting as a club officer. Also, I would very much like to have someone step forward and volunteer to chair and assemble a nominating committee.

I have been happy to serve as president and would not mind continuing, but I think it would be in the club's best interest if someone else were to take on the office. This could bring fresh ideas and a renewed sense of purpose.

Wavelengths

Xenia Weather Amateur Radio Net August 2017
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](#))
Herman Menapace Auditorium

Online Newsletter: <https://sway.com/wLZqTpWqUcNc3Sjb>

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Club Contacts

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As always, I encourage everyone to volunteer for one or more of the upcoming events that we support. This is how we drill for disaster support in order to keep our skills and equipment in top condition. Keep an eye on the event announcements.

Bob Baker N8ADO

Calendar of Events

- 7/27–30/2017 ThFrSaSu. Pan Ohio Hope Ride. Big bike event Cinci to Cleveland. They mostly provide the SAGs and spotters, we provide DARA Truck and support [N8ADO]
- 8/5,6/2017 Sat,Sun Maker Faire Carillon Park Display DARA Truck, demos
- 8/13/2017 Sun 11–3. DARA Picnic. Thomas Cloud Park Huber Heights
- 8/26,27/2017 Sat 7--7, Sun 7–N. Abi Khan Horse Challenge Caesar Creek Lake area. Keep log of horses on course, exercise in comms across uneven terrain [N8ADO]
- 9/4/2017 Mon very early. Holiday at Home 5K & Parade. Kettering. Safety and logistics, DARA is final unit in the parade, come ride along... [N2TUJ]
- 9/9/2017 Sat (assignment time varies with location) Market to Market Relay. Relay footrace from Cinci to Dayton, big event, safety and logistics, track runners [N8ADO]
- 9/17/2017 Sun 7–5. Bike MS:Dayton. Eastwood Metro Park (+Xenia + Corwin & routes between & SAGS). Big bike event [N8ADO]
- 9/16/2017 Sat All day. Air Force Marathon WPAFB. Full and half marathon, HUGE event, need everyone able to sign up via AFM website more info: [KF4KWW]
- 9/??/2017 Sat 8–11. Zero Prostate Cancer Run/Walk. Kettering (Dixie/Dorothy area). 5k run/walk [N8ADO]

Tax-Exempt Status & Update the Bylaws

Over the past several months, I've made various [pitches](https://youtu.be/EUMSZClhfWY) (<https://youtu.be/EUMSZClhfWY>) and given status reports to the club about seeking non-profit status. We are already incorporated as a domestic non-profit in the State of Ohio. The next step is to vote on filing with the IRS to seek tax-exempt status. The key points to consider for a vote include:

- \$850 application fee, but we will save about \$1000 per year in sales tax thereafter
- Ohio allows tax-free merchandise sales up to 6 days per year. T-shirts sales at Hamvention will fall under this. We will likely pay tax on any online sales
- Application and tax returns can be requested by the public
- "EZ" tax form due 5 months after end of our fiscal year
- Any changes to Articles or any significant change to Code of Regulations reported on that year's tax return and sooner if it would impact tax-exempt status
- May not be able to sell donated equipment right away and count as donation
- Responsibilities of Treasurer and Secretary increase

As part of the process of moving to a non-profit corporation, we also need to update our Bylaws. The following is a summary of the changes recommended by the Constitution Committee:

- Split the Bylaws into a Code of Regulations and Operations Manual to avoid burdening XWARN with unnecessary reporting to the IRS. Stuff least likely to change is in the Code of Regulations, and stuff more likely to change is in the Operations Manual.
- Conflicts-of-Interest policy. This is required by the IRS for non-profits.
- Proposals and disbursements for donations, grants, and scholarship codified in case XWARN is ever audited. Need to ensure money is being used in nonprofit way and for our stated purposes in the Articles.
- All-volunteer organization to emphasize our non-profit nature.

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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.

Minutes from June 12, 2017

President Bob Baker opened the meeting with the Pledge of Allegiance.

Cracker Barrel

Janese Brooks' stepfather died -our sympathies are extended. Winn Roland needs a rotor replaced and Phil asked for a helper for the climb on Sat 14th . Volunteered. Jim Simpson ended up with some serving utensils after Field Day one plus Pam is missing a pan. If anyone knows details contact Jim S.

The Minutes from last month were approved as published in newsletter.(Jim Simpson/Dick Bray). The Treasure report was approved.(Dick Bray/Jim Simpson).

Committee Reports

Mike Crawford reports he still needs help for the Young Dairy Bike Ride both days

Maker Faire is Aug 6 at Carillon Park. We have been invited to demo our trailer . It would include free admission for volunteers. DARA truck will be there too so could combine volunteers.

Bob B and Mike C installed a new vent on the trailer

Phil V reports 49 paid members and 8 lifetime so total 57 members

Bob B complimented Jason on the outstanding newsletter last month.

Old Business

Since there seems to be a demand for the 2017 t-shirt Jim Simpson/Terry moved to buy 50 more t-shirts in assorted sizes to sell thru Paypal. Jim also volunteered to do the ordering and posting.

New Business

Next month we intend to have a vote on revising the Bylaws and whether to seek 502(c) statues.

Bob B brings up the fact that our scholarship to the JVS has fallen by the way side. Members feel they want to reinstate it but there are many worthy recipients so further discussion will be necessary.

Jason Bowman has offered to become Secretary and assume the expanded roles necessary the new Bylaws etc. but would like for Karen Baker to remain as Recorder.

Program was a YouTube presentation by Jason that gave a wonderful explanation of the demands of filing for 501(c)3 status.

General Notes

Next meeting will be August 14, 2017 at 7:30PM

Motion to adjourn(Jim B)

Submitted by Karen Baker

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- Fiscal year (not annual meeting) starts Dec 1 to have a fixed tax year with the IRS
- Removed ability to vote by absentee ballot. Being able to join so easily through the website could cause future problems with absentee ballots, and only one person ever used an absentee ballot.
- Lifetime members must maintain amateur license to keep voting privileges
- For legal purposes, the Officers constitute the Directors
- Explicitly defined some legal authorities of Directors
- Added Indemnification and Insurance clause
- Removed limitation on officers, number of members serving on Constitution Committee
- Deleted statements where ORC 1702 was sufficient
- Various small cats and dogs - minimum and excluded content of the newsletter, what happens and what you agree to when you join XWARN, etc.

The current Bylaws require that the language of the changes be included in the newsletter. However, because the proposed changes are significant and will not reasonably fit in the newsletter, we are distributing the entire documents separately. For those who can receive the newsletter by electronic means, we will distribute the documents by email. There will be no print version available to you except at the August meeting before the vote. For those who only receive the newsletter in print format, we will distribute the documents along with or shortly after mailing the newsletter.

Here are the relevant documents to consider for the update to the Bylaws:

Articles of Incorporation (for reference, we aren't voting on these): <https://goo.gl/6DioG2> //

Code of Regulations: <https://goo.gl/QiX4Bs> // Operations Manual: <https://goo.gl/DC1vE9> //

Conflicts-of-Interest Policy: <https://goo.gl/quujUZ>

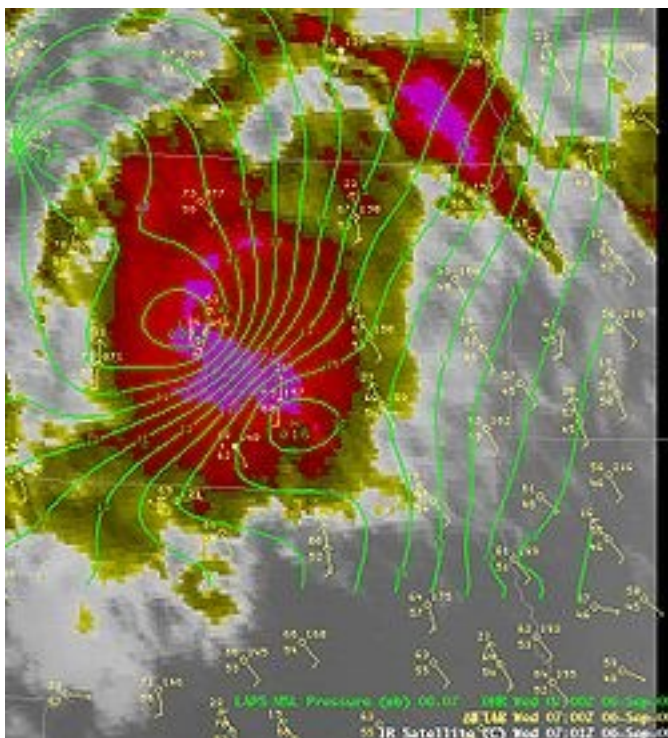
The IRS application and attachments are included below for reference. They may not be complete before the vote, but they are not required for the vote since they just organize and summarize information about the club for the IRS. That is, there is no new information to consider in these documents for a vote.

IRS 1023 (nonprofit application): <https://goo.gl/JemXzP>

IRS 1023 Attachments: <https://goo.gl/4FFBrn>

Jason (WG8B)

Wake Low



On Tuesday, July 11, 2017, storms came tearing out of Indiana into southwest Ohio, especially the area immediately west of Dayton. Montgomery County ARES actually put out a request for volunteers for debris cleanup, especially in Jefferson Twp. Surprisingly, it was NOT the thunderstorms that directly caused the wind damage rather something called a "Wake Low".

A wake low is a mesoscale (not too small, not too big - think regional) area of low pressure that sometimes (5-10%) forms immediately behind a thunderstorm. The cause is upper level winds being forced to lower levels behind the thunderstorm under certain conditions, which causes the air mass to heat up (adiabatic compression for you science and engineering types) and lower its

pressure relative to the surrounding air mass. If a mesoscale high pressure area has also formed below or slightly ahead of the thunderstorm as is typically the case, a strong wind gradient will develop opposite to the direction of travel of the thunderstorm. This means that trees end up being blown over to the west instead of to the east as is the case in the northern hemisphere with typical storm winds.

WDTN has a short [story](https://goo.gl/VzQAC2) (https://goo.gl/VzQAC2) on the event with a video, and you can search for "wake low" on the internet to find more information. One such additional source is a [video](https://goo.gl/iR6AZH) (https://goo.gl/iR6AZH) from Weather Underground.

Full Solar Eclipse August 21, 2017



On August 21, 2017, a total solar eclipse will sweep across the US with totality occurring just south of Ohio in northern Tennessee. Aside from typical astronomical studies that scientists and even the average person can do, did you know there are some simple radio experiments that can be done? Did you know there is some serious data to be collected if you have HF capability?

It's all based on the well known phenomenon that lower frequency radio propagation increases at night and decreases during the day. The simplest experiment you can conduct is to simply grab an AM radio and try to dial in stations as far away as possible such as the high power "clear channel" stations shown on the map above. But there are people interested in serious experimenting during the solar eclipse - "How much of the ionosphere is affected by the solar eclipse, and for how long? Why is this the case?" Keeping track of how far yours and other's signals are propagating with technology such as WSPR will help fill in some information gaps about the physics of the ionizing layers.

For more information, you can read Sky and Telescope Magazine on the [basics](https://goo.gl/xEzbv3) (<https://goo.gl/xEzbv3>), and, if you are interested in experimenting, you can go to the main Hamsci [page](https://goo.gl/9gm1cp) (<https://goo.gl/9gm1cp>) about the event, go directly to the [experiment](https://goo.gl/bP88Zw) (<https://goo.gl/bP88Zw>) page, or [Nuts and Volts](https://goo.gl/dAnWcZ) (<https://goo.gl/dAnWcZ>) for more information.

Whistler-Mode Plasma Waves



Those who work HF may already be familiar with a phenomenon known as a whistler wave. First detected in WWI by radio operators, one type of whistler wave is produced by emissions from lightning. The burst of electromagnetic energy from lightning contains a range of frequencies, and, as that energy travels through the dispersive media that is our atmosphere and magnetosphere, the higher frequency waves arrive first and the lower frequencies last, which sounds somewhat like those fireworks that whistle.

However, whistler mode waves also exist further out and have different characteristics than their near-Earth counterparts. These types of whistler waves go by the name of Chorus waves, which sound somewhat like the cacophony of noise you'd hear outside on a summer night. These waves are only detectable by instruments in orbit such as NASA's EMFISIS (Electric and Magnetic Field Instrument Suite and Integrated Science), and the frequencies have to be shifted to an audible range to listen in.

Example sounds of the different kinds of whistler waves and more technical information can be found over at phys.org (<https://goo.gl/zqzJER>) and [Wikipedia](https://en.wikipedia.org) (<https://goo.gl/bQ8Gke>). You should really listen to the examples. They are simply amazing.



Young's Ice Cream Charity Bike Tour



Editor's Note: Pictures are provided courtesy of the Kenton Amateur Radio Club.

On July 15-16, 2017, XWARN, DARA, and Kenton Amateur Radio Club, through the generosity of the Clark County Amateur Radio Association and Bellefontaine Amateur Radio Club in providing their repeaters, provided radio support to the 15th Annual Young's Ice Cream Charity Bike Tour. The tour starts on Saturday at Young's Dairy in Yellow Springs, ends up at Ada, OH, on the first day, and then proceeds back to Young's Dairy on the second day. The event supports a wide variety of charities.

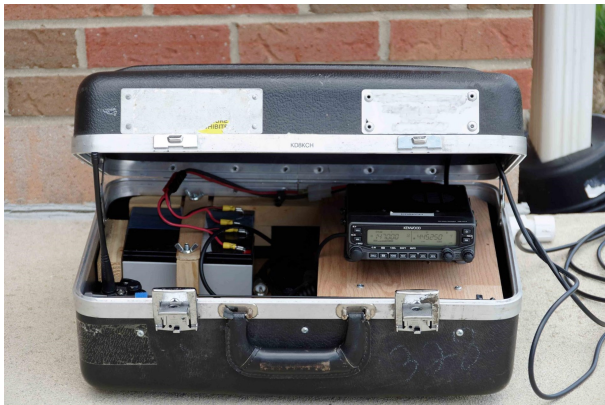
Amateur radio provides observers at key intersections as well as a bike-mobile tail. The course is long enough that we have to use two geographically separated repeaters, the Bellefontaine and Springfield repeaters, to reliably cover the entire course. The Dayton Amateur Radio Association truck was out serving as net control, and the Kenton Amateur Radio Club was providing support in the northernmost part of the route.

Although I was only out on Sunday, I wanted provide a quick debrief on some issues I noted.

First, it is good practice to key the mic and then wait at least half of a second before talking. Whether it's you thinking you've key the mic before you started talking (but you actually started talking first then keyed the mic) or the brief amount of time it takes for the repeater to fully open, sometimes the first part of the first spoken word of a transmission was being chopped off. Same thing with the end of a transmission.

Second, and way more important, it's ok if amateur radio is a backup when all else fails. The community prides itself on this. But when amateur radio is the primary means of communications, you need another method of communication as a backup. Case in point was Sunday morning when one of the stations could be heard by everyone but they themselves couldn't hear replies. In my opinion, we spent too much time taking up net resources trying to establish two-way communications. I have two recommendations:

1. If you think you've lost comms with the net, don't keep calling. You may be tying up the repeater and not realize it. Try a few times and then try another radio. When I support events, not only do I usually have my mobile radio with me (on its own battery not the vehicle's battery - I learned that



lesson the hard way at my first Market-to-Market relay. It's connected to the car via a battery isolator in case the car battery has issues) but I also typically have two HTs with spare batteries and a roll-up J pole as a backup antenna. There have been at least two occasions - Kettering Holiday at Home and ORRRC Marathon - where I've loaned out an HT to another station because their radio wasn't working for some reason.

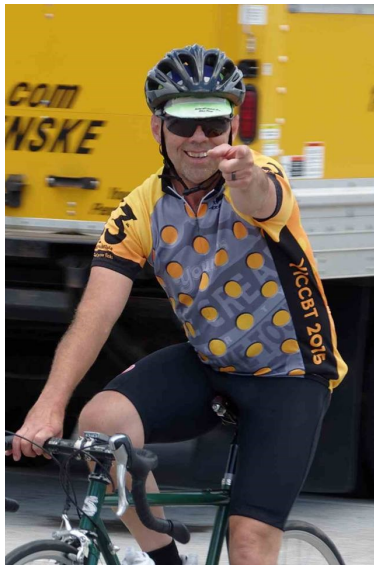
2. Second, every station including net control should have everyone's cell phone number printed with the event maps and assignments. Listening to the futility of that station trying to communicate and net control trying back, I finally whipped out my cell phone and just called that station over the T-mobile LTE "net" instead. You do realize that cell phones ARE radios, right? How did I have their phone number? They are a fellow XWARN member, and I have the membership directory saved on my phone for this very reason. And, if you have everyone's cell phone number, then maybe you can consider setting up another net using any number of collaboration apps for smart phones as I have suggested in the past.

Other than that one relatively minor snafu, I think everything worked out well technically. This is just one data point, but on Sunday morning on my way up to Bellefontaine, I was hearing stations check in on the Bellefontaine repeater when I was still down south of US 35 on I-675. Was it atmospheric that morning, the 5/8-wave antenna on my car, the better sensitivity of a mobile radio compared to an HT, or just a really strong repeater? I really don't know. But I was impressed.

Finally, the Kenton Amateur Radio Club has graciously allowed us to use their pictures, and I've included a few of my own (The ones on the lonely road. I felt like Tom Hanks at the end of Cast Away when he's out in the middle of Texas standing at an intersection and there's nothing around for miles).

Jason (WG8B)





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«FNAME» «LNAME» - «CALL»
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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.