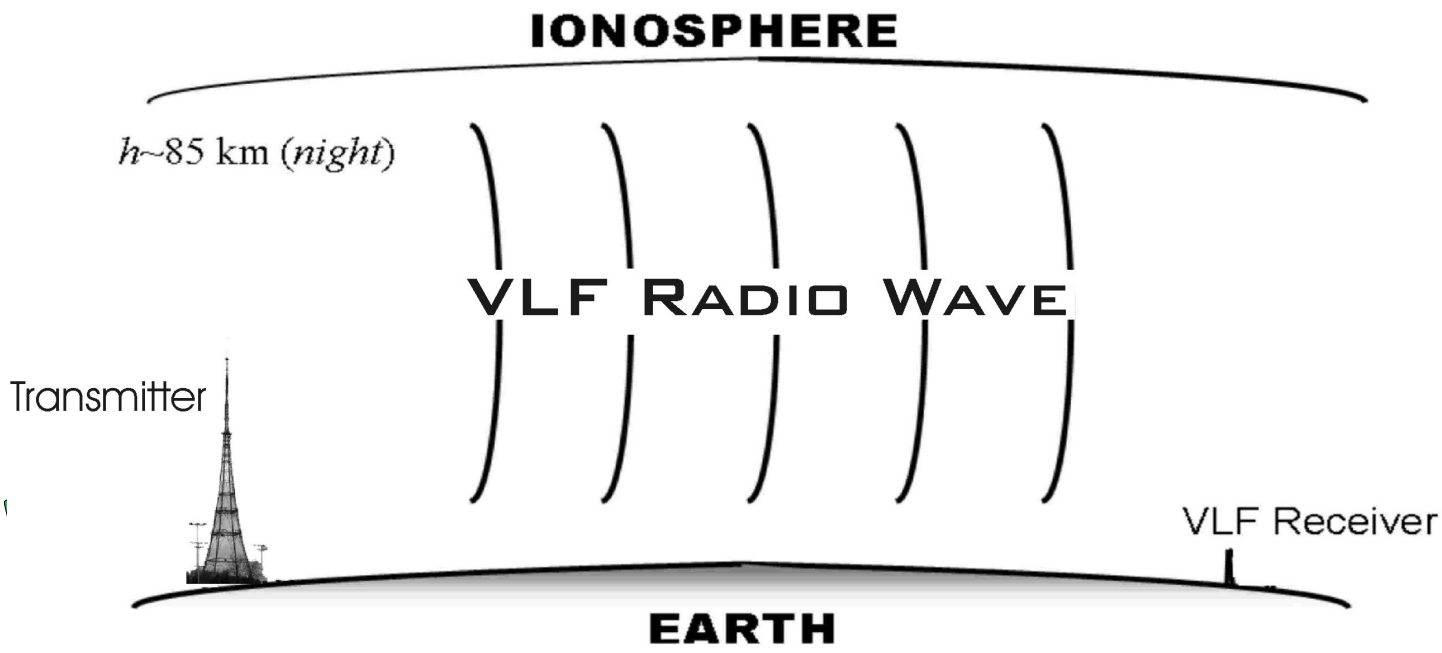


From Dept of Physics, University of Otago (http://bit.ly/2npoLbc) Schematic of subionospheric VLF propagation. VLF transmissions propagate in the waveguide formed by the Earth and the lower edge of the ionosphere (for night time ~85 km).

Xenia Weather Amateur Radio Net
XWARN (W8XRN) August 2018

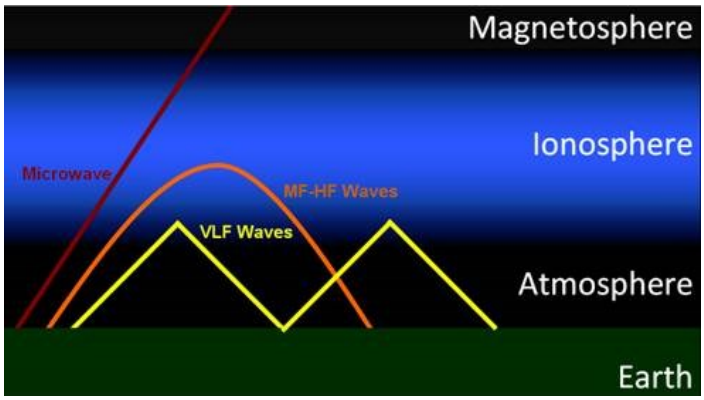
147.1650+ (123.0) (Analog Only)
443.1000+ (123.0) (Analog + System Fusion)

Meetings: 2nd Monday, 7:30PM, Greene Memorial Hospital (1141 N Monroe Dr, Xenia, OH) Herman Menapace Auditorium

President's Message

Editor's Note: I went on vacation just as the newsletter needed to go out, and I didn't have anything from Bob for the President's Message. So I'll take a stab at it in the interest of not delaying this newsletter any further.

XWARN now has an email reflector capability again. Please visit http://xwarn.net/reflector to sign up. I believe our webmaster has been working to add the old list. But you might want to visit the page and sign up just in case. You'll have to verify that you actually own the email address. You'll be sent a link via email to click. Once you're verified, you can send email to reflector@xwarn.net. I have no idea if there are attachment limits. If you need to distribute a large file, say larger than 2MB, please let the Webmaster or Secretary know and we'll either store on the website or the Microsoft OnePoint folder and provide a link where it can be downloaded by the group.



From Stanford (https://stanford.io/2M4Kd41)

The Air Force Marathon is still looking for volunteers. Phil Verrett is running the show this year, but you'll need to sign up on the marathon volunteer page to officially volunteer. Also, we're looking for help for the Abi Kahn Horse Challenge Aug 18-19. Bob is looking for a coordinator on Saturday due to other commitments. Saturday is looking to be the long day. I would expect to see requests for help in September and October in the near future. There is certainly no lack of events going on in those beautiful Fall months.

Club Contacts

- President, Bob Baker , N8ADO
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- Vice President, Brett Boggs, NV8I
  Vicepresident@xwarn.net
- Secretary, Jason Bowman
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- Membership, Phil Verret, KA8ZKR
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- XWARN Trailer / Public Service,
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  trailer@xwarn.net or
  publicservice@xwarn.net
- Newsletter, Jason Bowman, WG8B
  newsletter@xwarn.net

Minutes: July 09, 2018

Bob opened the meeting at 1930 with the Pledge of Allegiance.

17 members present

Cracker Barrel. Nothing report.

June 2018 Minutes approved by unanimous vote

Committee Reports

Treasurer's Report. [Income and expenses not reported in this newsletter but reported by Steve at the meeting]. Fred moves, Jim seconds. Approved unanimously. Received recognition from Columbus Outdoor Pursuits for our support of the Great Ohio Bike Adventure (GOBA).

Public Service. Young's Dairy. Help needed especially Sunday. USAF Marathon. Phil Verret is the new coordinator. Registration online and now open. Pan Ohio Hope Ride. Thursday Aug 26-29. Providing DARA truck for mobile command center. If you want to come out to *observe*, let Bob know. Maker Fair Aug 4-5. Free admission to Maker Fair for volunteers. Abi Kahn Horse Challenge. Aug 18-19. Looking for someone to act as coordinator on Saturday. Saturday might be 12 hours long? MS Bike in September. Labor Day "Holiday at Home" parade.

Trailer. Compressor gave up the ghost on Field Day. Bob gave Mike the only requirement – to be quiet. Bought new coax at Hamvention. Can't find new stuff. Sitting on counter on trailer. Maybe got put back in box.

Repeater. 440 repeater having power supply problems. Hum going on. Finally getting antenna mounted at Clifton Rd tower. Will have 3-site repeater capability.

Website. Need to get mail list server going.

Facebook. Discussed how to see more of Facebook posts. Possibly going to do adverts for classes.

Mesh. Waiting for Mesh guys (Bill Curtis) to tell us what to buy for Jim's tower. Adding camera to node. Let media and NWS look at it.

Newsletter. Send me ideas.

New Business

Old Business

Nice Field Day. A few hundred contacts. 270 QSOs. Kept radios on air a larger percentage of time compared to past years. Compressor finally failed on XWARN trailer. 20m good all day long this year. A number of contacts on 15m. Couple of contacts on 6m. Booming then gone.

Meeting ended 2025.

Jason Bowman, WG8B

Secretary

How to Save a Trapped Soccer (Football) Team

Last month, a soccer (football for Nigel) team was rescued from a cave in Thailand. 10 days earlier, they went exploring in spite of signs warning them of possible flooding. The logistics and expertise to pull it off are mind boggling. But did you know part of the rescue involved Very Low Frequency (VLF) radios designed to penetrate the ground and built specifically for cave rescues?

From HackaDay:

The British Cave Rescue Council (BCRC) was asked for their expert help. [Rick Stanton], [John Volanthen] and [Rob Harper] answered the call. They were equipped with HeyPhones (http://bit.ly/2KGpFZR). The HeyPhone is a 17-year-old design from John Hey, G3TDZ. Sadly, G3TDZ is now a silent key (ham radio parlance for deceased) so he didn't get to see his design play a role in this high-profile rescue, although it has apparently been a part of many others in the past.

The HeyPhone is actually considered obsolete but is still in service with some teams. The radio uses USB (upper sideband, not universal serial bus) at 87 kHz. The low frequency can penetrate deep into the ground using either induction loop antennas like the older Molephone, or — more commonly — with electrodes injecting RF energy directly into the ground.

You can find a very detailed article (http://bit.ly/2M3wvhv) about the radio from 2001 if you want more details. The system is somewhat dated, but apparently works well and that's what counts.

What we find interesting is that in today's world, people take wireless communications for granted and don't realize that cell phones don't work underground or in the face of widespread disasters. We would imagine most Hackaday readers know how cell phone towers use "cellular reuse" to support more than a handful of phones. Ask some non-technical friend if they know how a cell phone works and you'll be surprised how few people understand this. Ham radio operators and hackers are vital to building and deploying specialized radio systems in times of disaster or — in this case — where people need rescuing from an odd environment.

This VLF stuff sounded interesting, so I went digging. Did you know there was a mechanical device that could generate radio waves at 17.2KHz instead of using tubes? It's called the Alexanderson Transmitter dating to around 1910 (see picture p. 6)! It still runs, but it's in Sweden. So you'll need to be in Europe of have a *very* good VLF antenna here in the States.

Then there's Larry's VLF website (http://bit.ly/2nmmI7x). He'll teach you all about building

(Continued on page 6)

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.

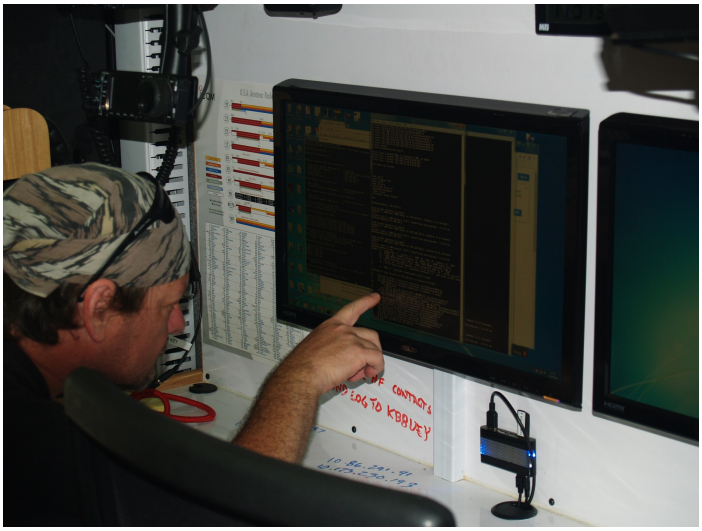
In this capacity, we are set up to provide communication services as required to the Greene County Ohio Public Service Agencies and other local government entities. The communications services provided to the supported agencies may be for emergency purposes or to simply enhance their communications abilities. 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.

More Pictures From Field Day


WARN
xenia, ohio
amateur·radio·net·org



(Continued from page 3)

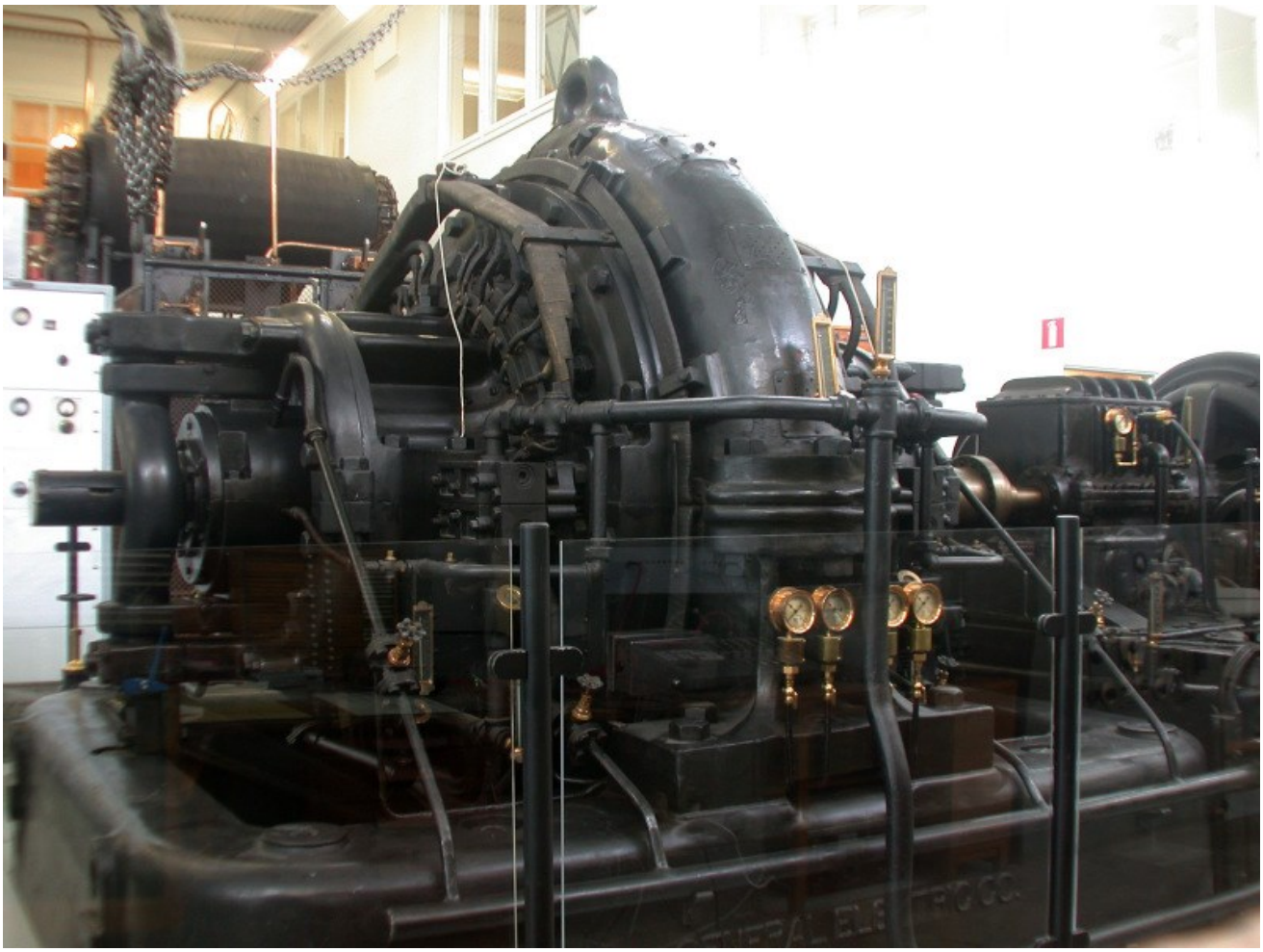
a VLF receiver. And he'll also teach you how to build a 2600W transmitter!!!!!

Finally, get your tinfoil hats out. Also from HackaDay:

NASA spends a lot of time researching the Earth and its surrounding space environment. One particular feature of interest are the Van Allen belts, so much so that NASA built special probes to study them! They've now [discovered](https://go.nasa.gov/2KEDIz1) (https://go.nasa.gov/2KEDIz1) a protective bubble they believe has been generated by human transmissions in the VLF range.

VLF transmissions cover the 3-30 kHz range, and thus bandwidth is highly limited. VLF hardware is primarily used to communicate with submarines, often to remind them that, yes, everything is still fine and there's no need to launch the nukes yet. It's also used for navigation and broadcasting time signals.

It seems that this human transmission has created a barrier of sorts in the atmosphere that protects it against radiation from space. Interestingly, the outward edge of this "VLF Bubble" seems to correspond very closely with the innermost edge of the Van Allen belts caused by Earth's magnetic field. What's more, the inner limit of the Van Allan belts now appears to be much farther away from the Earth's surface than it was in the 1960s, which suggests that man-made VLF transmissions could be responsible for pushing the boundary outwards.



Overall, this seems like an accidental, but potentially positive effect of human activity – the barrier protects the Earth from potentially harmful radiation. NASA's YouTube [video](http://bit.ly/2KEDQhZ) (http://bit.ly/2KEDQhZ) on the topic suggests that understanding this mechanism better could enable us to protect our satellites and space vehicles from some of the harmful effects of the space environment.


Dayton Amateur
Radio Association
www.w8bi.org


Dayton Amateur
Radio Association
www.w8bi.org

Club Call: W8XRN

XWARN
P.O. Box 562
Xenia, Ohio 45385

Email: info@xwarn.net
Website: XWARN.NET

«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.

Xenia Weather
XWARN
147.165/443.100
Amateur Radio Net