



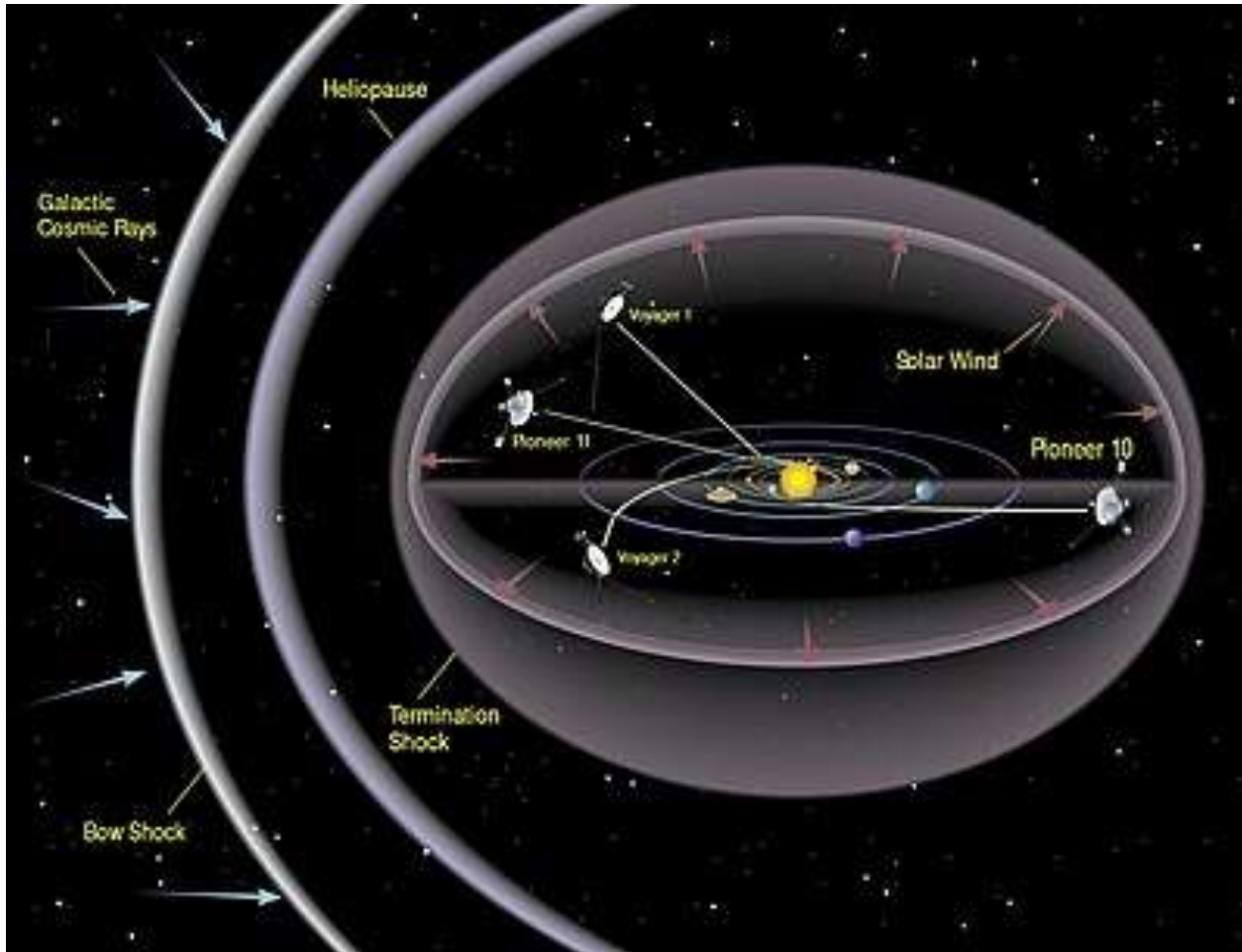
The Framingham Circuit

Newsletter of the Framingham Amateur Radio Association, August 22, 2024 Vol. 91, No. 3

President's Message: Another year has gone by and our radio waves have traveled one light-year or over 5.879 trillion miles from Earth since last August! What is out there? Well, to put that distance in perspective, one light-year is about $\frac{1}{4}$ of the way to our nearest neighbor star Alpha Centauri, a fact I have known since childhood after watching the 1960s TV show *Lost in Space*. What TV shows got you interested in science? So what is out there at one light-year? That depends on the direction we are talking about. Those radio waves are travelling in all directions from Earth if averaged out over the year. In the plane of our solar system, out beyond the planets, lies the the Oort cloud (named after the Dutch astronomer Jan Oort), sometimes called the Öpik–Oort cloud. It is a theoretical cloud of predominantly icy planetesimals believed to surround the Sun between 50,000 and 200,000 AU (astronomical units), or between 0.8 and 3.2 light-years. It is divided into two regions: a disc-shaped inner Oort cloud (or Hills cloud) and a spherical outer Oort cloud. Both regions lie beyond the heliosphere and in interstellar space. See figure next page.

The heliosphere is a bubble-like region of space that surrounds the Sun and its planets. It's created by the Sun's constant stream of electrically charged gas, called the solar wind, which sweeps out into space and creates a magnetic field and radiation-filled environment. The heliosphere is shaped like a long wind sock and moves with the Sun through interstellar space. The heliosphere has a significant impact on the evolution, formation, and destiny of planetary systems. It acts as a shield, protecting the planets from galactic cosmic radiation. It also helps reduce the exposure of astronauts and spacecraft to radiation. Scientists study the heliosphere to learn more about how it works, and how stars can influence nearby planets. The word "heliosphere" comes from the Greek word helios, which means "Sun", and "sphere", which means "broad region of influence". Scientists discovered the heliosphere in the late 1950s, but there are still many questions about it. The Kuiper belt and the scattered disc, the other two reservoirs of trans-Neptunian objects, are less than one thousandth as far from the Sun as the Oort cloud.

Now back to Earth and the present moment of August 2024! Many thanks to the officers and other position holders for staying on for without them we would not have a club. We have a new repeater. We hear that antenna changes for the repeater are in our future. We had a number of member presentations this year, thanks to Bruce -W1HNZ, Peter-AC1KY, Andy-KC1DMM, and Harlan-NE1HD. I hope we can have more presentations by members this coming year. We lost Gordy Bello-K1GB, SK, and Adrian Zeffert-AB2IX, SK, in the last few months. Their many levels of support and participation in the club will be missed. We had some hot dog gatherings at Zippity-Do-Dog already. We had a successful "gentlemen's Field day thanks to the use of the facilities at AV Presentations in Northborough, thanks Morris, N1AVP).



Heliosphere.

Recent Activities:

- April 4, 2024 Club Meeting:
 - As had been noted at the March meeting, on Tuesday February 27 the Marathon Ham Radio team replaced the W1FY repeater with a newer Motorola Quantar repeater. Thanks to Marty Sullaway and Eric Montague! Access to the repeater now requires a 100Hz PL tone. The repeater was tested and used for the Boston Marathon.
 - KC1DMM. • Speaker: April 4, 2024: My Antenna History. Andy presented on the various antennas that he has tried in his small yard and how each have worked. 16 Zoom check-in and 5 in person for total of 21.
- May 2, 2024 Club Meeting: 12 by Zoom, 6 in person.
 - Club Officer Nominations.
 - Speaker: Fred Kemmerer, AB1OC, ARRL New England Director, presented on Satellite Communications
- May 4 and 5, 2024: New England QSO Party. See thank you letter from winner at end.
- May 4, 2024: Zippity-Do-Dog Hot dog gathering – see photo at end.
- June 6, 2024 Club Meeting: 8 by Zoom, 8 in person.
 - Club Officer Elections: Slate consisting of current officers was put up for approval vote for another year and was approved unanimously!
 - President – John Iwuc-KB1VXY
 - Vice President – Ron Rothman-WO1E
 - Treasurer/Web master – Steve Moro-N1MH
 - Secretary/Clerk – Richard Whalen-KC1NXT
 - Director – Sumner Weisman-W1VIV, continuing for rest of term.
 - The secretary will update the records with the Commonwealth of Massachusetts.
 - Net Participation Contest winner: The club held a contest to see who could check into the most nets over

the next month. The participants talked about their experience and estimated their level of participation in nets over the past month. Winner of most check-ins to nets was Jonathon Slawsby, W5GI! Also winner of the most aspects of the hobby learned in first year of being a ham!

- June 8, 2024: Zippity-Do-Dog Hot Dog gathering
- June 22-23, 2024: ARRL Field Day: We operated at the site of Morris Beverly's (N1AVP) AV Presentations in Northborough. Many thanks to Morris. We made the following QSOs:
 - CW: 25 contacts on 40 meters
 - SSB: 29 contacts on 20 meters and 10 on 15 meters
 - Digital FT8: 5 on 20 meters and 10 on 6 meters.
 - See some photos at <https://w1fy.org/field-day-2024>

Upcoming Activities:

- August 22-25, 2024: NE HamXposition.
 - Thursday, August 22, 2024 8 PM, Comedy Kickoff - Comedian Juston McKinney.
 - Friday night a well-known DXer. Featuring well-known international DXer/Contester Yuri Onipko, VE3DZ
 - Saturday night, Tamitha Skov, WX6SWW. The Space Weather Woman.
 - Ends Sunday August 25, 2024. It will be at the Best Western Hotel and Conference Center in Marlborough MA. <https://hamxposition.org>.
- September 5, 2024: Experiences of a New Ham, the First Nine Months, by Jonathan Slawsby, W5GI, with John Iwuc, KB1VXY
- October 3, 2024: Kay Savetz, K6KJN will talk about Twenty Things I've Learned While Curating the Digital Library of Amateur Radio & Communications
- November 7, 2024: Robert "Bob" Evans, AB2NE / G3ZFJ, will talk on APRS, Automatic Packet Reporting System -APRS: What Is It and What Can It Do?
- Chinese Buffet lunch or dinner? Marlborough, Route 20 Super Buffet? All you can eat. Lunch: Mon, Tues, Thurs, Fri 11:30 am to 3:30 pm \$12.95. Dinner: Mon, Tues, Thurs, Fri 3:30 pm to 9:00 pm \$17.95. Saturday & Sunday All Day Dinner \$21.95

Experimenting with Current Choke Balun Line Isolators

By Sumner Weisman, W1VIV

Depending upon the ham band and the time of day, my old Yaesu FT-990 transceiver often gives me S-9 or higher noise levels. I've been wondering how much of that is atmospheric RF noise, how much is receiver-generated, and how much, if any, is common mode interference on my antenna and transmission line. I decided to build a current choke line isolator, which should attenuate any common mode interference coming down my transmission line. I found that I could purchase such a device for about \$50. These are made to be used at the antenna end of the feedline as a current choke to keep RF from travelling down the shield of the coax and to reduce transmitted RFI in the shack, but they can also be used at the transceiver for common mode noise attenuation, which was my application. I was able to buy a ferrite toroid ideal for this application for about \$13, which was fine since I have plenty of RG-58/U coaxial cable and connectors.



Figure 1 to the left shows the ferrite toroid I purchased, type FT240-31. The "31" in the name indicates that it is Mix 31, which has a frequency range of 1 to at least 250 MHz. Some people use Mix 43 for similar applications. The difference is that Mix 31 is ideal for 1 – 10 MHz common mode suppression, and then it is about the same as Mix 43 up to 250 MHz. From data on the Internet, the "mix" is the chemical formula of the iron oxide. Ferrite is a ceramic consisting of iron oxide and generally either of two types: Manganese-zinc (MnZn) for Mix 31 – works well for common mode chokes, or Nickel-Zinc (NiZn) for Mix 43 – generally preferred for baluns/ununs. I ordered the Mix 31 because it is the best for my specific application.



My first attempt was to wind 10 turns of coax cable around the toroid. A good tip I learned on the Internet is to use plastic tie-wraps to hold down both ends to the toroid. You tie one end down, then insert the other end through the hole, wrapping counter-clockwise, and then tie the other end down with a second tie-wrap.

See Figure 2 to the left. I had about an S-9 noise level on 40 meters. Inserting it at the transceiver in series with my transmission line, I *still* had an S-9 noise level – no improvement. My next thought was to rewind the coil with the maximum number of turns I could wind, which turned out to be 15. Adding more turns allows the device to be used at lower frequencies. Coincidentally or not, I now had one which looks exactly the same as a similar device shown on a major vendor's literature.



Figure 3 to the left shows my second attempt, using smaller BNC connectors which fit easier through the hole in the toroid. I added BNC-to-PL-259 adapters. Inserting the filter once again in series with my transmission line at the transceiver, I still had no improvement in my S-9 noise level.

Conclusion: After some thought, I have concluded that my S-9 noise level is mainly atmospheric RF noise being picked up by my antenna. I will leave my current choke balun in series with the transmission line, so that any future common mode interference will be attenuated. Meanwhile, I have learned a few things and had some fun. Isn't that what ham radio is all about?

Why You Need To Be a Net-izen Ham Operator.

Reprinted by permission from a CMARA club email by Christine Shustak, N1AUP

I routinely check into George's Old Timers Net on the 146.97, Paxton Mass repeater, at 7:30 every evening. The net attracts a varied crew of regulars, as well as some visitors who happened upon our gathering. In my case, the 7:30 time frame corresponds with the time that I do my evening barn chores, so I usually check in with a handheld and speaker mic, while mucking stalls, milking a cow, and flaking hay bales into the feeder.

For a long time, I rarely missed a check in, but as time went on, I started to lose interest. I began to leave the HT in the house, and instead started listening to podcasts on an old smartphone. I realized that I was getting a bit bored with the net routine. People would give a quick synopsis of their day's activities, and then answer a trivia question. Occasionally, a more in-depth conversation showed itself, but most often, the net followed a tried-and-true format. In my mind, I wasn't sure that anyone really cared that I spent the day repairing fences, or was working on setting up a virtual server at my job. I started asking whether it was a smart decision to check in every night with the crew from George's. My attendance started to lag. I have to thank a disaster preparedness podcast for opening my eyes, and rekindling my commitment to the local net.

One of the things that is missing in modern society is a sense of community - a feeling that you are a part of a group that cares about you. Despite having access to a variety of technologies that keep us connected, loneliness is endemic. Setting aside the effects on mental health, this poses a problem for emergency preparedness, a concept that is one of the cornerstones of our ham radio hobby. All hams give at least passing thought to what they will do in case of an emergency. Once the fundamentals of operating a ham radio station under adverse conditions are addressed, we think about setting aside food, water, ways to keep warm, and medical supplies.

This podcast went on to drill home that there is no way that any lone individual can survive, never mind prosper, in an emergency. The only way to stay alive and safe is to connect with like-minded individuals to form a team, and it behooves all of us to lay the foundations for that team well before any of us need it.

That's what is so helpful about nets. They lay a solid foundation for building that team by connecting people. We get to know the other members, and gain familiarity and understanding of people we have no other ties to. In my own life, I have people that I have never met in real life, who have offered to help me when I needed to bury a horse that passed, plant a telephone pole for a 220 antenna, and build my HF antenna. I have in turn been helped with getting a DMR hot spot on the air, shoot antenna supports over trees, or picked someone up after their car broke down. In short, checking into a net on a regular basis might save you a lot of aggravation when you run into trouble. It also might just save your life. How do you get started?

Look up various net listings on the web, and find a few that fit with your interests or your location. Make a pledge to check in on a regular basis, and get to know the crew who participates. If that crew isn't to your liking, there are a whole host of other nets you can try instead. Start making connections today, so that your disaster preparedness foundation is in place, solid, and ready for service in case things fall apart.

Christine Shustak, N1AUP. (Christine has been a ham since taking her general exam at the Custom's House FCC office in Boston in 1979. She enjoys home brewing, using computers in ham radio operation, and of course, net check ins.)

KB1VXY Comments: I wholeheartedly agree with Christine's sentiments above. Checking into nets is a great way to get familiar with other Hams and for them to get to know you. Check out our April 1, 2021 talk by Alan Thompson, W6WN, who spoke about Neighborhood Radio Watch program, and their role in disaster preparedness in CA.

Here is a list of local nets you might consider:

- Daily at 7:30 pm: **George's Old Timer's Net**, on the W1BIM Paxton Repeater, 146.970 (PL 114.8)
- Sundays at 9:30 am: **Yankee 6 Meter SSB Net**, 9:30 am, 50.272 MHz, NCS is KB1VXY
- Sundays at 7:00 pm: **Algonquin Amateur Radio Club**, on the N1EM repeater, 446.675 (PL 88.5)
- Sundays and Wednesdays at 7:30 pm: **FARA Nets**, W1FY repeater, 147.150, PL 100.
- Tuesdays at 8:00 pm: **MMRA Technical Information and Other Stuff Net**, on the MMRA linked repeaters.
- Wednesdays at 8:00 pm: **Middlesex 6 Meter AM Net**, 8:00 pm, 50.430 MHz, NCS is Gene K1NR, off for the summer.
- Wednesdays at 8:00 pm: **Wellesley Amateur Radio Society Net**, on W1TKZ repeater 147.030 (PL123), Newton, also 444.600 (PL 88.5)
- Wednesdays at 9:00 pm, **Waltham Wrangler's Swap Net**, on the W1HML 146.64 repeater, PL 136.5
- Thursdays at 8:00 pm: **10 Meter USB**: 28.33333 MHz, NCS is AF1R
- Saturdays at 8:00 pm: **Saturday Night Special 6 Meter USB Net**, 50.190 MHz, NCS is W1HAI.

Regular Meetings: Club meetings are held on Zoom on the 1st Thursday of each month at 7:00 PM, and some meetings will also be hybrid, usually at the McAuliffe branch of the Framingham Library. Always check the webpage first. Members will get an email invitation before the meeting. **Members should be sure that they opted in for email notifications and that their email on record is accurate!** Non-members may request an invitation from president@w1fy.org.

Club Nets:

- FARA Net: Sunday, 7:30PM, output frequency 147.15 / input frequency 147.75, - PL tone 100. Social/chat, emergency preparedness, amateur radio questions, Echolink enabled. W1FY-R
- FARA Net: Wednesday 7:30 pm, Informal Health and Wellness Check-in Net: Echolink enabled, W1FY-R.
- Scanner listeners are invited to let us know you follow the nets by sending an email to contact@W1FY.org

Club Web Site: W1FY.org

Social Media:

- <https://www.facebook.com/FARAW1FY/>

Dues: Flat rate of \$20 per year per person or family, and no separate repeater fee. Paid members will be posted on the web page. You can join/renew/pay online at <http://w1fy.org/membership-form>

Testing: Exams on hold while city offices are unavailable.

Mail Address: Framingham Amateur Radio Association, P.O Box 5123, Framingham, MA 01701

Following pictures:

- Thank you letter from winner of NEQP,
- Zippity-Do-Dog gathering photo from 5/4/24,
- POTA activation at Elm Bank with the Wellesley group.

P.O. Box 29
Middleboro, MA 02346
May 18, 2024

Framingham Amateur Radio Association
P.O. Box 5123
Framingham, MA 01701

Dear Framingham ARA members,

I would like to thank you very much for sponsoring the plaque I received for being 1st place Single Operator in the 2023 New England QSO Party. The plaque is very attractive, and I appreciate it very much.

I was briefly looking at your web page, and will look at it some more in the near future. *The web page is very attractive and well made.*

73,



Dave Clemons K1VUT



Left table, far side, Bruce-W1HNZ and his wife, Tom-NE1NH, president of CMARA, front side – Dom-N1DM and John-KB1VXY.

Right table, far side, Sumner-W1VIV and Ron-WO1E, front side Allision-KB1GMX



Jonathan-W5GI, with new power box at Elm Bank POTA activation with the Wellesley Club