



NVARC

# Signal



VOL. XXXIII...No.3

WWW.N1NC.ORG

March 2024

## Note from the Editor

Well, it turns out HamCation was in February, and I have pictures. Lots of pictures. This will be a large issue, so I'm pleased I don't have to print out too many of them. Copies are left each month at Electronics Plus in Littleton MA as well as Ham Radio Outlet in Salem NH.

### In This Issue

Next Meeting	1
NAQCC	2
Field Day 2024	2
HamCation 2024	3
Tiny GS	5
HamCation Photos	7
Ham Archaeology	8
Working POTA	10
Officer Nominations	10
HamSCI Workshop	11
Club QSL Service	11
Treasurer's Report	12
Board Meeting Notes	12

Your editor was relaxing watching a YouTube video of Tim G5TM, live-streaming from his car in Sussex, England. I

dashed up to the shack, found him at 28.408MHz and got him in the log. If you visit Tim's live stream from 8 March 2024, at about 52:30 you'll hear me chime in...



### Monthly Meetings

NVARC General Meetings are scheduled for the third Thursday of the month at 7:30pm local time at the Pepperell Community center.

Meetings are not held in July or August.

### Next Meeting: 21 March 2024

#### Phil Temples, K9HI on "Project ASCEND"

Project ASCEND ("Amateurs Supporting a Collaborative Environment for New ham Development") is a comprehensive program designed to advance the Amateur Radio experience for the Technician class amateur and provide the needed mentoring and connection with the active ham community. It is a multi-faceted, high-touch program that leverages the time-honored tradition of mentoring – but with the goal to support and nurture hundreds to thousands of new and inactive hams.

### Weekly 2-meter Net

The NVARC Information Net is held Monday nights at 7:30pm local time on the 2m N1MNX repeater, 147.345 MHz, +100PL.

## North American QRP CW Club

John KK1X

Those of you that know me will find this laughable, but I am the Awards Manager for the North American QRP CW Club (naqcc.info), an international club despite its name. The Club's goal is simply to promote Amateur Radio, specifically CW, using low power Morse Code and simple wire antennas. Co-founder John K3WWP has made a string of daily QRP CW contacts starting August 5, 1994. Yeah, that's over 10,000 days. QRP CW.

The Club is clearly geared toward the QRP mindset. Monthly sprints take up a few hours in the middle of the week. There's a monthly challenge - basically a find-a-word puzzle using the call signs of people you worked that month. Other awards parallel ARRL's assortment of WAS and WAC, plus other fun goals to achieve. Awards for QSOs exceeding 1000 miles per watt are quite popular. There are even annual milliWatt and 160m sprints in addition to the normal monthly activity. Club membership has surpassed 11,000 members from all over the world.

Membership is free, a price point suitable even for our most frugal members! Several NVARC members are also members of NAQCC.



### Breakfast at Tiny's

A number of club members gather at Tiny's in Ayer for breakfast on Saturdays. We order at 08:00 sharp.

### HamSCI Eclipse Study

In an effort to better understand how the sun influences radio propagation, HamSCI has a study in place to examine the upcoming solar eclipse on April 8, 2024. Details at <https://hamsci.org/eclipse> (or use the handy QR code).



## Field Day 2024 June 22-23

Volunteers are needed for Field Day, which in 2024 occurs on 22 and 23 June.

Lots of help is needed for setup and teardown. Especially teardown. It's hot. We're tired. We're grumpy.

We also need operators for SSB and CW. Does anybody want to set up a station for FT4/FT8?

Who wants to work a satellite contact? 6M?

There are very few limits on what we can do.

Please contact your editor.



**HamCation 2024 Review**  
**Dennis Marandos K1LGQ**

Flying to Orlando, Florida was on Southwest Airlines out of Manchester, NH and was a direct flight without any turbulence at all on our way. No problem getting to the hotel whereas



the hotel shuttle easily picked us up and brought us to the front door. Jean - K1AVM and I were hoping for warmer weather leaving New England behind us for a few days and soaking up the sun and diving into the pools. When the plane landed and we were able to "enter" Orlando via the plane's gang plank, to our very quick surprise, the weather there was as cold as it was when leaving Manchester. The temp was in the high 40s, but we were prepared because we didn't take our jackets off all the way to the hotel.

We didn't need a rental car right away because the hotel provided shuttle service from the airport to hotel. I decided to get the car the following morning, saving a day's use and money. When we got to the hotel check in lounge, I looked around to see signs of other Hams in the lobby as well, but nothing there except lemon water and tea against the wall. Our room was on the second floor and the accommodations were clean, airy, and quiet. No KIDS running up the hallway, nor singing families swaying side to side singing in a foreign language. We had a very good room, but not anything for QRP operations. I did bring my PFR-3A with me, but...no go.

The following day I picked up my rental Toyota Corolla Hybrid, and that alone was a gas saver in Florida. The gas prices weren't too far apart from NH ranging from \$2.98 to \$3.33. For the entire time we stayed in Orlando with only one visit to Ft. Pierce visiting Jean's brother, we saved on buying gas. Ft. Pierce was a nice visit, after sobering up. We only gassed up once and that was \$15.00 for about 300 hundred miles use.

The gates to the HamCation compound county fairgrounds opened at 9am, and we arrived about 30 minutes earlier to get a good parking spot. Of course there would be some traffic on Friday, but I figured it was a "working" day for most of the Hams and it would be a breeze to get in and find a parking spot and be on our way. NO WAY! The line entering the compound was on the main street and was backed up -- and we still hadn't reach the Hamfest area. The line stretched 40 car lengths before I was shuffled onto a side lot where a mad man with a bright red stick signaled us where to park, turn off ignition and get out of our car! Okay, now we needed to head to the gate and spend some money.

The ticket line was pretty lengthy for those who wanted to buy at the gate, however, if tickets were ordered through the mail, you saved 5 bucks. Between Jean and me, the ten bucks went for pizza and drinks. Not too bad. The entrance was easy, simply show your ticket and you're in. The security was very deep, inasmuch, no one got into the Hamfest without physically showing your ticket. No matter how you held that precious section of paper, you had to show it completely. You're talking approximately 20,000 Hams who would be there the entire weekend and what a rush it could be at the gate. Fortunately, there were two gates and the stream of fellows Hams looking for new ham gear going in was fast.

Once inside the gates, you had the choice of heading straight to the flea market, or going to the food courts. Unlike the food court in the Xenia, Ohio, Hamfest prices for burgers, dogs, pizza, salads, etc. were well below gouging zone. Prices were very low, considering today's restaurant prices. The brick fired pizza was truly good for ten bucks. (Remember the ticket money I saved?) In addition to the two land areas, a third land area was devoted wholly for RVs, on wheels. I shook my head at the number of bus-like 'monsters' I saw, and the RVs ranged from 150 to 175 count! They were parked, ready for business and welcoming anybody who came by their mobile home. I spoke to the RV chairman and he verified that he had reservations for over 200 RVs on site. I suppose in Florida that's where you spend your money.

The number of different license plate call letters on the cars in the three parking lots was extensive. Many fellows traveled hundreds of miles to be there, and guessing from where they came from...it was a get

away from the weather. I tried to get a few pixs of what was in the parking lots, however, the cars numbered in the hundreds. Just too many to see in a short time.

But there is a distinction of who has a call letter on their car plates. It's like signing your name for the world to see that YOU are a registered, fully FCC certified radio operator in all emergencies encompassed to take care all communications, if needed. Well, you get the idea.

There were several people we met from the Nashua/Pepperell area. Charlie –AB1ZN, Howard – NU1G, Anita (Kemmerer) AB1QB, Ed – N2TE, John & Joyce – W1MGB, and of course Jean – K1AVM and I Dennis – K1LGQ.



We gabbed and told stories that weren't true, but they all sounded pretty good. Everybody has the best rig on earth because it's theirs. You know what the best rig is? The one you're using. Wish I had recorded who I met, but the conversations were fast, while the topics flowed like water through a sieve, and so much to say, and no time for pictures.



Walking through the vendor's building there was an event station set up by the ICOM dealer. I asked if I could operate, but was told the operating slots were filled for Friday, but I could sign up for Saturday, which I did at 9am. On Saturday I was surprised to see that I was the ONLY operator who was using CW.

EVERYONE else signed on for phone at the event station. By the way, the call sign was W1AW/4 which got the attention of a few CW ops, but many more on A3.



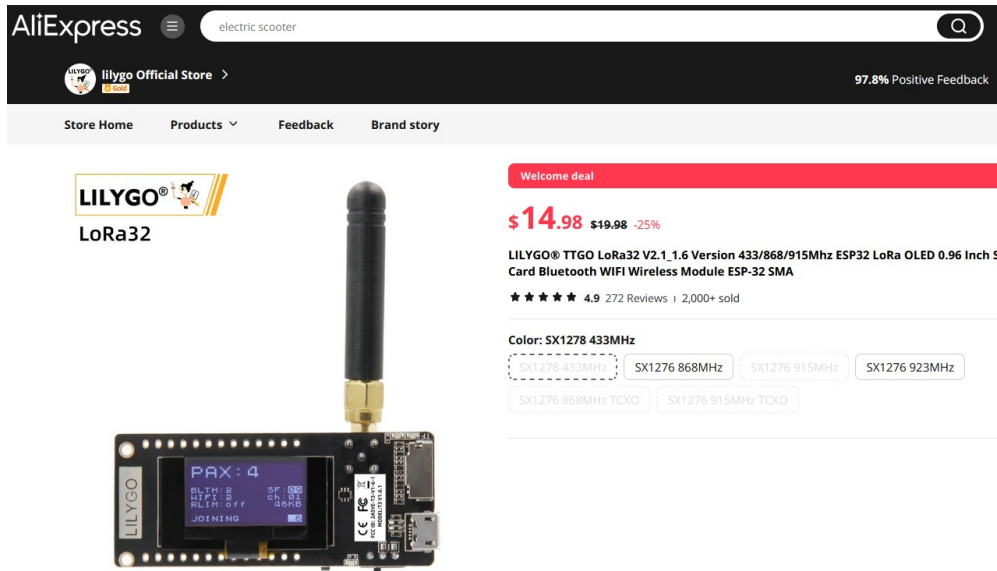
Icom donated the station for the event which was an IC-7610. The chairman for the event station wasn't familiar with the IC-7610, but I assured him I knew how to operate it, inasmuch, I have one also. The IC-7610 is truly a wonderful XCVR and for Icom to lend it for HamCation was a treat! The antenna was a vertical strung near the ground with perhaps 30 feet of coax under the side door, making it a bit difficult for stations to hear me. The SWR was a bit high, but not enough to close down operations. I made 6 QSOs and then let the 10am op take over his allotted time slot. It was fun using the event station, their paddle, and speaking with other CW ops while there. I'd do it again!

Overall, the getaway to Florida was worth it, the money was spent well, and the food was good. The people were friendly, of course, and the age level of those attending were in their 70s and up. The hobby is graying, but still has its hair. HamCation is catching up to the hamfest in Xenia, Ohio and between the two, about 45,000 Hams are represented throughout America. I've been to both all through the years and certainly Florida has its advantages in February. Who wouldn't want to spend a week in Florida when it 30 degrees Brookline, NH...? See you next year at HamCation!

K1LGQ has been on the air wholly for 64 good years since June 1959. He operated 11 meters when it was a Ham band. His present station is an IC-7610, SPE Expert linear 1.5k-FA, Mosley CL-36, up 60 feet on Rohn tower, 40 and 80 meter dipoles between pine trees. He's an avid low power QRP enthusiast with numerous QRP rigs, and enjoys parks, picnic tables and his back porch with a beer and paddle.

## TinyGS Les Peters, N1SV

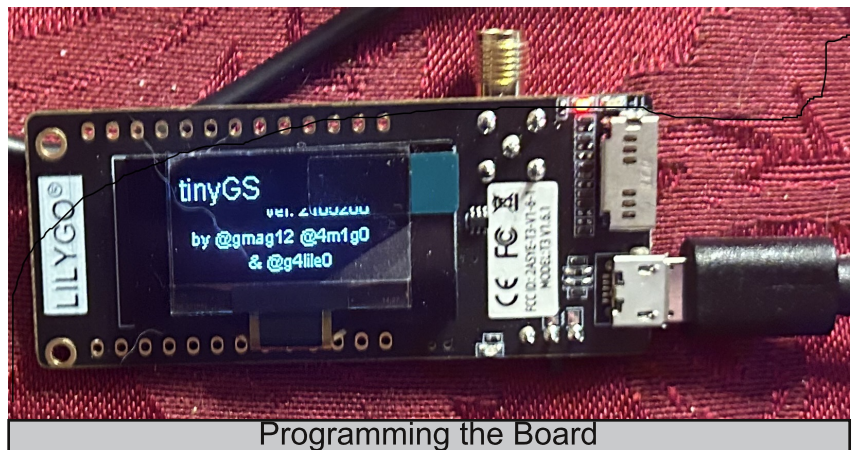
At the January meeting, “Short Subjects Night”, Mark, WA1QHQ, gave an interesting presentation about TinyGS. I was so impressed with it that I decided to try it myself. After reviewing all the information on the website's WIKI page, I located a compatible LoRa32 board at AliExpress.com and ordered it (\$18 including shipping from China).



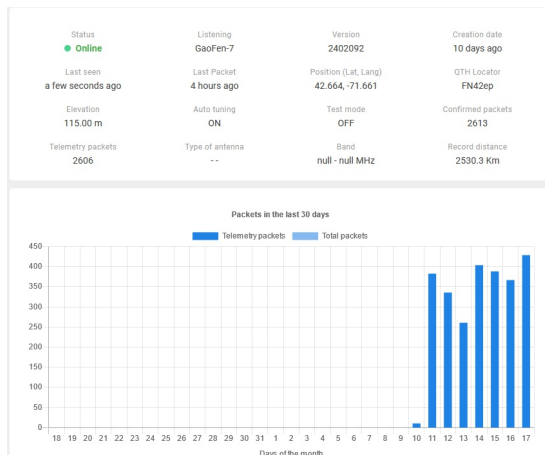
LILYGO LoRa32 board on AliExpress

While I was waiting for the board to arrive, I setup my Telegram account that the TinyGPS community uses. I was really floored when immediately after registering that an old colleague of mine that I hadn't spoken to in 10 years contacted me and we had a nice video call.

When the Lora32 board arrived I quickly realized that I didn't have a Micro USB interface cable, so I ordered one from Amazon, small delay. Programming the board was pretty straightforward although I made couple of mistakes along the way. I powered the board from the USB interface and connected the antenna to my 2m / 440 vertical on the tower. There is about 100 feet of RG8 between the antenna



Programming the Board



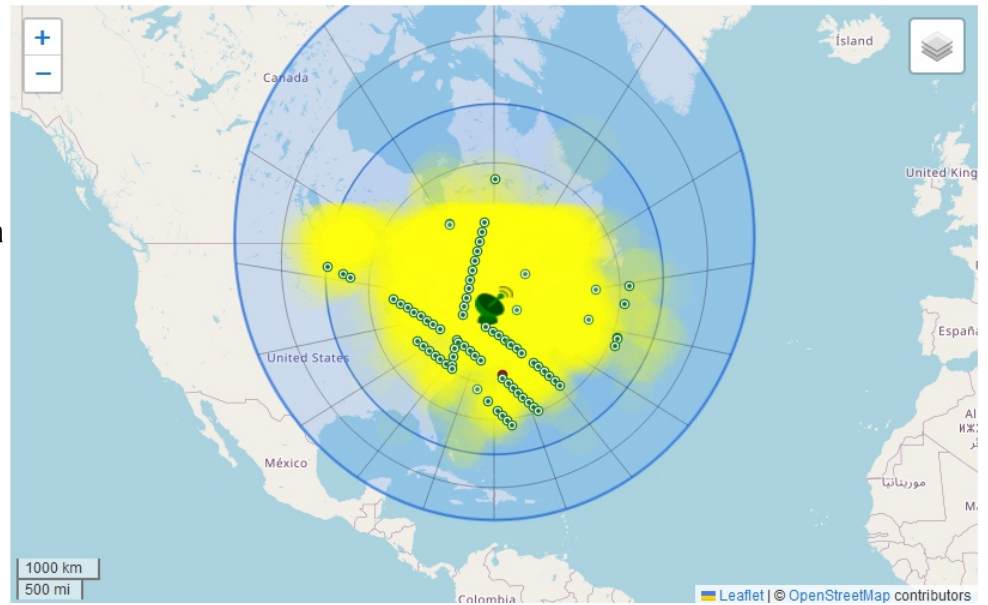
Summary of N1SV receptions

and the shack which at 433 MHz adds about 5 dB of loss to the system.

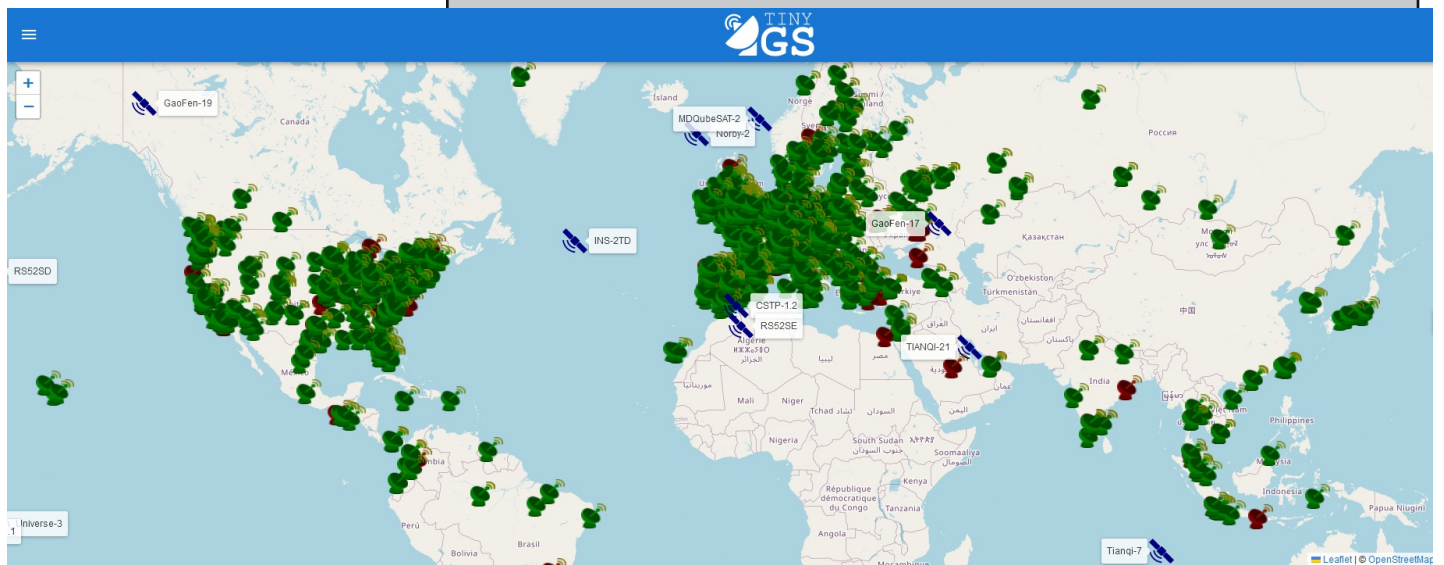
Right away I started receiving packets and could see my activity on the TinyGS website. Over the subsequent days and weeks there seems to be a steady number of daily receptions. Its amazing at how weak the signals are that you can pick up and how far away the satellite are that you can hear.



I think the farthest reception I've made so far is a little over 2,500 Km or more than 1,500 miles. I would imagine in the spring when the foliage on the trees comes back that I'll lose a lot of the low angle receptions (farthest receptions). Not bad for a \$15 board! In the future I'm considering creating an independent solar powered setup in a NEMA box that I can put on a post in the backyard and forget about it.



Map of recent N1SV receptions



Welcome to TinyGS, the Open Source Global Satellite Network  
TinyGS home page

**NEAR-Fest Spring 2024**

**NEAR-Fest XXXV - April 25 & 26, 2024  
Deerfield Fairgrounds NH**

**It's Thursday and Friday this year due to scheduling conflicts.**





## Pictures from HamCation 2024 Jean K1AVM

Dennis K1LGQ with Gordo, WB6NOA

Vibroplex keys on display



Dennis K1LGQ with Charlie AB1ZN

OK, so who doesn't need some more toys?



So, what kind of mileage do you think this guy gets?

The League came in full force...



*Ham Radio Archaeology*  
*Adam KC1RVK*  
*(with Bruce K1BG)*

Sometimes life throws an opportunity in our direction that we wouldn't have expected in a million years. Such a situation presented itself in October 2023. After some routine service I went to pick up my car at the local shop and noticed

something I hadn't before. On the roof of the building appeared to be a vertical antenna. Of course, the curious guy I am, I asked my mechanic if it was his. He said it was there when he acquired the business and suspected the prior owner was a ham. We continued to talk ham radio a bit as he had people in his family who were in the hobby. Another mechanic overheard and asked if I was ham. I said "roger" and he proceeded to tell me about a truck that he bought a couple of years ago with the condition he also take its contents, which he determined was radio equipment.

Now here is the opportunity. Clearly eager to empty the truck, he asked me if I wanted to have a look and take as much or as little of it as I wanted. After a few seconds of stunned silence and processing I said, "sure, I would love to have a look". We arranged for me to come back that afternoon to have a peek and sure enough, there was a small box truck full of radio equipment. It was of course a mess and mice had clearly at some point inhabited it, but I could see microphones, antennas, various transceivers, many boxes, and numerous other random pieces of equipment. My immediate reaction was WOW! My second reaction was, well I am clearly in over my head here and need to phone a friend. After snapping a few photos, I went home, sent them over to Bruce, K1BG and asked if he wanted to join me in a treasure hunt. Within a few minutes he responded with an emphatic yes and we soon arranged to meet that Friday afternoon at the shop. Oh boy was this going to be fun!

You know that feeling you got as a kid on Christmas Eve, the night before your birthday or before a trip to Disney? Yes, that feeling that keeps you awake and imagining what it will be like. I guess you can still get that as a grown boy, and I had all kinds of things floating through my noggin the night before Bruce and I would tear through the truck to see what we could find. I called it a treasure hunt, but Bruce, more aptly, called this ham radio archeology. The finds we were soon to excavate would indeed prove to be from ham radio past.

Friday afternoon came and at 1:30 our adventure was underway. We set up a camera (video coming soon) and took our positions. Bruce was in the truck going through the mess and handing items to me. I was on the receiving end and had the job of sharing interesting items with the camera and building piles of similar items. There was a point where I said to myself, what the heck are we gonna do with all this (ahem) "stuff"? At the same time, I was glad that both Bruce and I had SUVs.

What did we do with all the stuff? Bruce and I kept some items.

Here is the stuff we're going to keep:

Heathkit HW-101 Transceiver  
Heathkit Power Supply  
A Variac  
Motorola Watt Meter  
AN/PRM-33 Test Set, RF Power  
Box full of resistors

The rest we are offering up at no cost to anyone in the club who might want them. We found a Heathkit HW-101 transceiver in need of refurbishing. Bruce said he also has one so it looks like we will compare notes and learn from each other along the way. We also found an SB-401



transmitter, but it was missing a lot of parts. Another interesting find was a Variac that Bruce says may come in handy when we restore the Heathkits. There were so many interesting items including an EICO Transceiver and power supply, watt meter, tube tester, cases of tubes, a modulation meter, EPROM equipment, signal generators, and much more. It was overwhelming! After two hours and two full SUVs we had enough fun to last a while.

The following items (condition unknown) are up for grabs. Reach out to Adam, KC1RVK, if you are interested in anything.

- Heathkit SB-401 Transmitter (lots of missing parts, including crystals)
- Precision Instruments Tube Tester Model 640
- EICO Tri-Band Model 753 with Power supply (already found a new home)
- Heathkit HW-202 (2 units with parts) – Mobile style, appears to be 6 Meters
- Wavetek .01 – 1100 <Hz Synthesized Signal Generator model 2410
- HP 1630D Logic Analyzer
- Marconi Instruments Modulation Meter 2305
- 3 Cases of Tubes, some NOS, some used
- Sencore Automatic Transistor Analyzer
- GW Instek GRG-450B RF Signal Generator
- Various boxes full of cables, speakers, wires, old HTs, "miscellany"
- Various UHF/UFV Antennas, mostly 11 meter and HT whips.
- EPROM tester and programmer

Just like true archeologists, Bruce and I had a desire to understand the origins of the truck and its contents. We did find a damp cardboard box in the truck marked "Tracy's Paperwork". Upon inspection, it was a box full of random paper items.

Among "Tracy's Paperwork":

- FEMA training manuals
- Several copies of NH Section ARES "Emergency Communications Plan".
- Several hundred QSL cards, all addressed to N1RKT. Many were printed eQSL cards.
- Many blank "Auto Repair Order" form used when repairing a car.
- Several years of "Electric Radio" magazine, the latest being in 2018.
- Blank QSL cards, all belonging to Tracy Walters, N1RKT, of Derry NH.
- Eyeball QSL cards

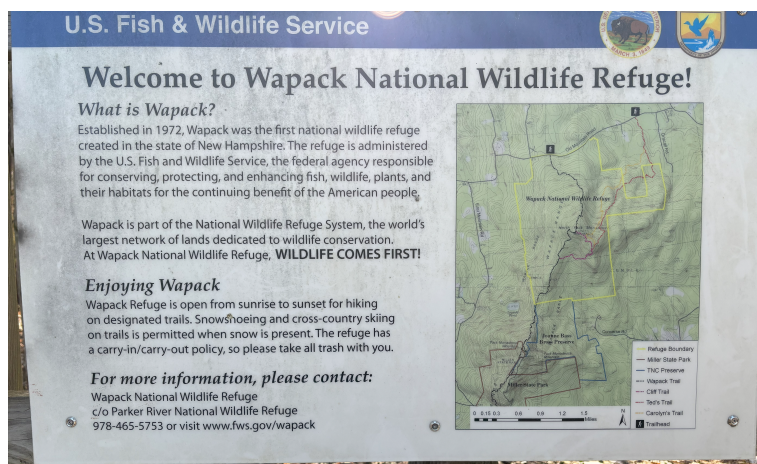
So perhaps we know whose box this is, but who exactly is Tracy Walters, and was this his truck?

Interestingly, an internet search turned up little. Tracy regularly uploaded his operating logs to several sites, but this all ended in 2018. Did he become a silent key? Bruce could find no record of an obituary. Did the truck actually belong to him, or did someone have a box belonging to him? Again, no info. Bruce tried calling the number on the eyeball QSL card. No answer. The best we could surmise is that the truck belonged to someone who ran a mobile repair service, focused mostly on radio equipment.

Did we find valuable items? No, not really. Did we have fun? Without a doubt! Did I learn a lot from Bruce? Absolutely! Would I do it again? Maybe, but not until I clear out the garage from the first ham radio archeology adventure. Bruce (and his back), on the other hand, will surely think twice before saying yes to me in the future.

Readers of this illustrious tome will no doubt remember my February article about operating Parks On the Air, and how I have set out to make 500 contacts a month from POTA-approved venues. I continued on in that vein for February. I was in 17 parks for 21 activations. 13 of the parks were new to me, adding to the list for a parallel goal - 75 different parks activated. I'm currently at 68 unique parks. In a final burst of activity at Rhododendron State Park in Fitzwilliam, I logged 74 contacts (all 20m FT4) to bring my February total to 727 contacts from the field.

**Working POTA  
John, KK1X**



I've been using a mix of the Rybakov 28' Random vertical and a 66' End Fed Half Wave used mostly vertically. The Rybakov uses a 4:1 unun and three 33 foot radials, and is usually hung on a telescoping fiberglass pole. I use a slingshot to get a monofilament line at least 70 feet high to hang the 66 foot EFHW. Sometimes it's not quite vertical, but that's OK. The EFHW is linked - I can also break it into a 20/10 antenna only ~33' long. I use a 17' counterpoise and a choke to kill CMC.

### **Nomination Committee Bruce K1BG**

One of the duties of the Club President is to appoint a Nomination Committee at the January meeting to propose a slate of officers for the April elections.

As you are aware, NVARC has been without a president since elections last May. In my opinion, this situation cannot (and should not) continue indefinitely. If that is the case, there are two possible outcomes: find a president or dissolve the Club.

The Club Constitution has three possible conditions for dissolving the Club:

- A. The membership is unable or unwilling to fill the position of President and Vice President for a period of sixty days after both offices become vacant.
- B. NVARC does not hold a regular meeting for more than four consecutive normal meeting months as defined in Section 2 of the Bylaws.
- C. The membership votes to dissolve the Club with a majority vote at a special meeting.

Because elections are held at the April meeting, it constitutes a "special meeting". While I hate to consider this a possibility, the facts remain. A volunteer organization can only last if volunteers are willing to step forward and support the organization. It's your club and it's your call.

I'll reach out to several members who have served on the Nomination Committee in years past, and we'll try to come up with a slate of candidates. But if we have difficulty, it may be time to face reality.



## **HamSCI 2024 Workshop Phil W1PJE**

HamSCI, the Ham Radio Science Citizen Investigation, is a platform for the publicity and promotion of projects that are consistent with the following objectives:

Advance scientific research and understanding through amateur radio activities.

Encourage the development of new technologies to support this research.

Provide educational opportunities for the amateur community and the general public.

HamSCI serves as a means for fostering collaborations between professional researchers and amateur radio operators. It assists in developing and maintaining standards and agreements between all people and organizations involved. HamSCI's lead is Prof. Nathaniel Frissell W2NAF of the University of Scranton.

NVARC's vice president Phil W1PJE has been on the science advisory board since the inception of HamSCI almost a decade ago, and has injected NVARC into many of its workshops. You may recall that HamSCI participated in the 2017 solar eclipse QSO party with several observations of WWV Doppler shifts and orbiting signals transmitted by the Canadian Cassiope / ePOP signal as it flew over New England. The "New England Grape" group, involving several NVARC members who use low cost software to observe WWV frequency shifts due to ionospheric dynamics, also grew out of HamSCI efforts.

This year's 2024 workshop will be held at Case Western University in Cleveland, Ohio. Virtual registration for the workshop is free and gives you a Zoom link to the two day oral talks, on Friday and Saturday. A number of interesting

topics are available as can be seen by browsing the agenda.

Full details on the program is available on the HamSCI website at

<https://hamsci.org/node/774>

Of particular note this year are two tutorials:

Dr. Kate Zawdie, "High Frequency Raytracing for Studying the Ionosphere and Radio Propagation"

Phil Karn, KA9Q, "The ka9q-radio SDR package"

FYI, some of you may know Phil KA9Q as instrumental in many technical advances of amateur radio. "[KA9Q] is well known in the amateur radio community for his work on the KA9Q Network Operating System (NOS), named after his amateur callsign. He also created early 9600 bit/s FSK radio modems. In the early 2000's, Karn worked to introduce forward error correction into Amateur radio satellites, applying it to the 400 bit/s PSK telemetry from the AO-40 satellite. He won the 1989 Specific Achievement Award at the Dayton Hamvention."

Join us for an interesting marriage of science and amateur radio!

## **NVARC DX QSL Service Rod WA1TAC**

One of the benefits of being a member of NVARC is that the club will forward DX QSL cards to the ARRL Outgoing Buro at club expense. Cards should be sorted by DSCC entity and proof of ARRL membership (i.e. QSL mailing label) is required. Bring your cards to a club meeting and give them to Rod.



Your editor was driving to the south end of Plum Island in Newburyport, headed for a new POTA activation site. I thought I saw antennas in the distance, but didn't know if they were small or just far away... Anyway a Field Biologist was out collecting data from his monitoring station. Of course I had to pull over and ask. Four antennas were pointed in the cardinal directions - North, South, East, West (hey, he explained it to me...) and they listen for transmitters attached to various wildlife. The biologist claimed they have transmitters small enough to place on butterflies. The transmitters also spread across their spectrum (160MHz-ish) and transmit on schedule to handle a large number of data sources.

All of the electronics was housed in what looked like a Husky brand storage container.

Thanks to our sponsors



**Treasurer's Report  
Ralph KD1SM**

Income for February was \$50 in membership fees. Expenses were \$1.50 for PayPal fees, leaving a net income of \$48.50 for the period.

Current balances:

General fund    \$3,150.70  
Community fund    \$6,878.25

As of 7 March we have 46 members who are current with their dues  
and 39 renewals outstanding.

**March 2024 Board Meeting Minutes  
7 March 2024  
Phil W1PJE**

Attendees:

Bruce K1BG  
John K1JEB  
Phil W1PJE  
Les N1SV  
Charles AB1ZN  
Ralph KD1SM

Meeting convened 1930 ET / 0030 UTC

Topics:

Science fair @ Bromfield: Wed March 20  
Judging 1:30 pm - 3:30 pm  
NVARC team will select winners and coordinate with the other sponsors who are reviewing posters as well  
Winners get a guided tour of Haystack Observatory by the director (and NVARC VP)  
Phil W1PJE  
Awards occur in evening [7:30 pm?]  
K1BG will present  
Other judges welcome  
K1BG will have certificates for award along with NVARC description  
List of volunteers as of today  
K1NS  
KK1X  
K1JEB

KC1RYK  
W1PJE  
AB1WQ  
K1BG

Ralph could not find a web page for the Bromfield Science Fair.

K1BG will ask Ellen at Bromfield for the page, if one exists.

COVID may have caused the page to disappear (or not to get created at all)

Ralph: NVARC will gladly link to the page if it exists

NVARC needs to approve funding for the fair expenses

March NVARC meeting is day after the science fair, so accurate expenses will be available

Historically has never gone > \$200 maximum for award purchases [e.g. RTL dongle kits]

List of projects has been emailed; feedback was received.

May add the Robotics project.

Could prioritize and send priority list to Ellen (the organizer).

No speaker yet for March NVARC meeting

Bruce K1BG will solicit one

Nomination committee forming: K1BG will assemble one

John K1JEB

Bill K1NS (if health permits)

Updated roster needed from Ralph

Ralph KD1SM will send

HamSCI 2024 workshop: Phil W1PJE will attend and present

See workshop page:

<https://hamsci.org/node/774>

Virtual registration is free for Zoom feed

W1PJE will send information to our newsletter editor John KK1X with a few words of explanation

Meeting adjourned 2002 ET / 0102 UTC

Nashoba Valley Amateur Radio Club  
PO Box 900  
Pepperell MA 01463-0900  
<https://n1nc.org>

President: vacant  
Vice President: Phil Erickson W1PJE  
Secretary: John Bielefeld K1JEB  
Treasurer: Ralph Swick KD1SM

Board Members:  
Bruce Blain K1BG 2022-2025  
Robert J. McArthur K1QT 2023-2026  
James Hein N8VIM 2021-2024

N1NC Trustee Bruce Blain K1BG

Join NVARC! Annual dues are  
\$15 individual, \$20 family

Contact us on the N1MNX repeater:  
442.900(+), PL100  
147.345(+) PL100  
53.890(-) PL100

This newsletter is published monthly. Submissions, corrections, and inquiries should be sent to editor (at) n1nc (decimal) org to reach the newsletter editor.

Editor: John Griswold KK1X  
(C)2024 NVARC