

From the NCARC President *Joe Hawley KDØTYU*

I hope everyone enjoyed our TechFest on January 16th (it replaced the 2021 NCARC HamFest). We had a lot of positive comments and great speakers. I would like to thank the team who worked tirelessly to put this on. I do believe that we probably will have one again either this fall or fall and hopefully return to our HamFest in January 2022.

For the near future we will continue with our zoom meetings until everyone feels comfortable going back to the Golden Corral. We continued to hold test sessions randomly and will post any opportunities for these sessions on our website. If you are ready to be tested and there is not a session available please contact me directly and I will see what I can do to set you up with one.

When we get back to normal (I hope very soon) we are planning to do an HF seminar where we will have radios set up with operators there to assist you. If you never talked to someone in another country it's quite a kick.

Well, that is all for now - stay safe and will see you very soon.

Public Affairs Office *Dave Winnett WØDDZ*

Numbers as of February 9, 2021

YouTube

Views (last 28 days): 10,558

Watch time (last 28 days): 2,222 hours

Subscribers: 1,704

New Subscribers (last 28 days): 154

Facebook

Members: 423

New Members: 31

From the Editor

Ann Donoghue KOARD

I apologize for the missing January 2021 newsletter. Life and work got the best of me! In this edition you'll find a neat article on a portable 20 m/40 m build-it-yourself antennae, info on the very successful TechFest, along with the regular announcements and Treasurer's report. What else would you like to read about in this newsletter? Let me know!



Club Meeting and Speaker

Next meeting

Saturday, February 20, via Zoom.

8:30 am socialize, 9 am club meeting, followed by our speaker:

All You Ever Wanted to Know About

Hot Spots

Jim Dixon, KA6ETE

2021 Membership Dues

It's still time to pay dues! Head to the website ncarc.net and click Our Club > Club Membership. Dues for an individual or family are \$26. All forms of payment accepted (except maybe bitcoin).

QSO Today Virtual Ham Expo

March 13-14, 2021

After last year's very successful virtual expo, QSO Today is holding another! Early bird tickets are \$10 and get you "into" the show in real time, as well as 30-day on demand. More than 60 speakers, and even live virtual kit building workshops.



Treasurer's Report

Darren Kalmbach KCØZIE

December 2020 Account Balances

Account	Checking	Raffle	Savings	PayPal	WWV	Total
Beginning Balance	\$298	\$2,081	\$2,099	\$7,663	\$0	\$12,142
Deposits	\$1,375	\$0	\$0	\$2,460	\$0	\$3,835
Transfers	\$0	\$0	\$0	\$0	\$0	\$0
Withdrawals	\$132	\$0	\$0	\$283	\$0	\$415
Ending Balance	\$1,541	\$2,081	\$2,099	\$9,840	\$0	\$15,561
Outstanding Items	\$0	\$0	\$0	\$0	\$0	\$0
Net Balance	\$1,541	\$2,081	\$2,099	\$9,840	\$0	\$15,561
Net Change	\$1,243	\$0	\$0	\$2,177	\$0	\$3,420

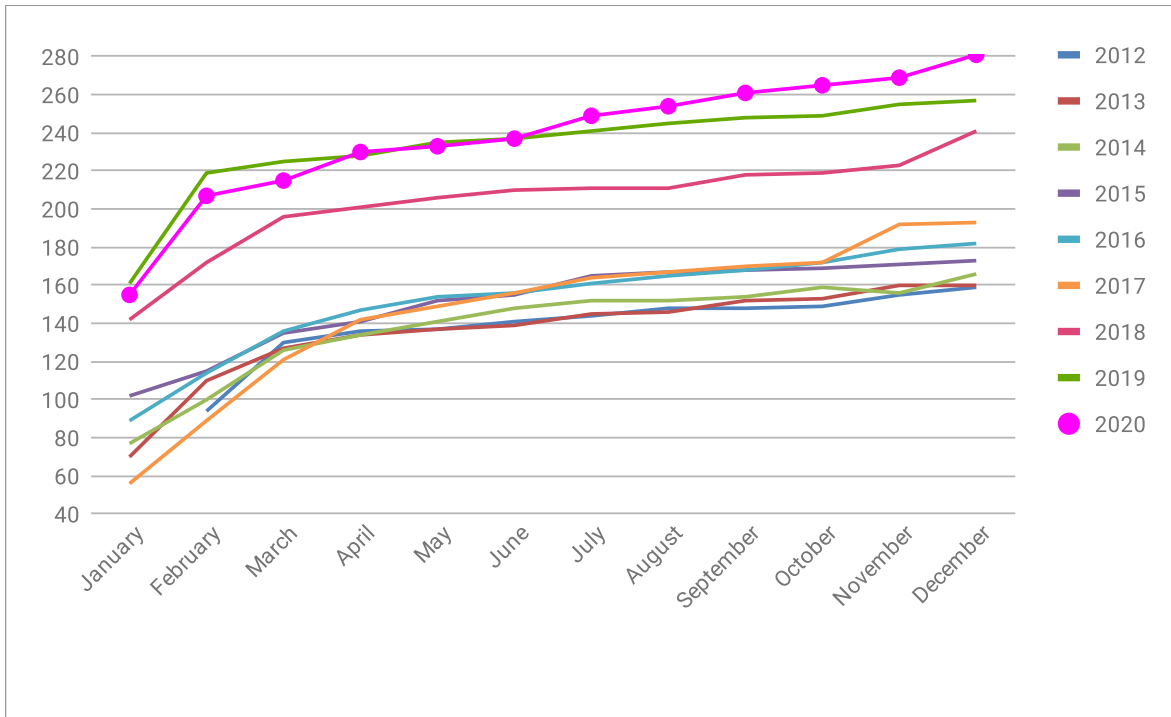
Expenses: Storage, Zoom

Revenue: Memberships, Donations, Tech Sponsors

Membership Activity

December 2020: 281 (12 new)

December 2019: 257



NCARC Tech Fest Review

The first-ever NCARC TechFest, held by zoom on January 16, 2021, was a resounding success. We had great speakers and lots was learned by all. We also recorded each session and you can watch / listen to those on our YouTube channel. Talks that are currently available include: Bob Heil (understanding speech articulation), Ward Silver (grounding and bonding), Kristina Collins (WWV 100 Results), Rob Steenburgh (space weather and propagation), Joe Eisenberg (kit building techniques).

General Announcements

Radio Loan Program

If you are an NCARC member, and have an amateur radio license, you may borrow a radio from the club! The club has three Baofeng UV5 radios that are programmed and ready for use. The club will also supply someone to coach you on how to use it! You may sign out a radio for up to 6 months and will be required to sign the NCARC Equipment Loan Agreement. To receive a radio, contact Joe at president@ncarc.net. What are you waiting for?

Newsletter Articles Requested

If you have an idea for an article, or an announcement or other items for the Newsletter, please contact Ann Donoghue KØARD at newsletter@ncarc.net. We welcome any topic related to amateur radio!

NCARC Logo Items

Hats, polo shirts and jackets embroidered with the club logo, your name/call sign are available. You can place an order at any time. Details on colors, sizes and how to order are available on the website under the "Our Club" drop-down menu.



A simple, modest, portable antenna for 20 m/40 m

By Dave Johnston, W8XAL

In January 2019, I was planning a trip to the Never Summer Nordic yurts in State Forest State park with my father, KB8UVF. I wanted to do a Parks On The Air (POTA) activation since my father was studying for his General and had expressed interest in activating parks. I realized that my fan dipole set up wouldn't work very well in deep snow and required at least 3 to 5 people to set up safely. So, I decided to make a new portable antenna. My objectives were pretty straightforward:

- Antenna must be simple to set up by one person
- Antenna must work relatively well
- Antenna should allow operations on at least two bands
 - 20 m plus one other would be ideal
- Antenna and all associated hardware must be easy to pack into remote locations
 - Must be relatively lightweight,
- Antenna should not require any additional support structure
 - Sometimes I operate in places with very few trees

So, given my objectives, I started talking with a few Elmer friends of mine (most notably Dan, W7RF) who suggested a simple 20 m vertical antenna. He pointed out that a resonant vertical antenna requires no tuner and usually has a decently low angle of radiation. He reminded me that a quarter wave on 20 m is only 16 ft, and that I could add another 16 ft wire to the end and make a resonant inverted L for 40 m. He further reminded me (as he does often) that 40 m resonant antennas are close enough to the 3rd harmonic of 15 m so I get that band for free.

Dan was working on another antenna project and was placing an order with DX engineering for some aluminum tubing. We agreed to split shipping costs and he added my tubing to his existing order. DX Engineering sells 3 ft and 6 ft lengths of aluminum tubing which are slit on one end and nest perfectly together. These things are made for this! I elected to buy the 3 ft sections to make transportation easier. I use the 6 ft sections at my QTH and they're a bit difficult to handle.

I did a little poking around on the web and it all started to come together. I picked up a 2 ft tripod on Amazon, picked up some ¼" nails at the local Murdoch's (they sell them at JAX, Walmart, Cabela's, sportsman's warehouse) which are my anchors for the tripod.



The SO-239 attached to feedline, sealed with electrical tape, two green wires go to antenna



The first iteration of the feedpoint and ground plane. This 4-wire ground plane is always attached and can be used for quick setup



Updated feedpoint for easy deployment and quick disconnection due to weather concerns



45 degree elbow helps protect chassis mount from shorting to poor weather

A simple, modest, portable antenna for 20 m/40 m (cont.)

Once the parts arrived, I started the assembly process. I bought a 2 ft section of PVC pipe and cut out a small section length wise. This serves to insulate the antenna from the tripod (and ground). I also picked up a pack of hose clamps from Harbor Freight which are used to hold the sections together. Dan gave me a SO-239 chassis mount to use to attach the feedline to the antenna. I soldered a wire jumper into the center pin of the connector, and another to the shield. Another hose clamp allowed me to attach the feedline to the antenna. I attached a ring terminal to the other jumper.

The last piece of the puzzle was the ground plane and 40 m leg. I happened to stop by Ham Radio Outlet and stumbled upon what they call “wire rope” which is braided copper wire in the shape of a 1/8” rope. It is very strong, doesn’t tangle easy and was fairly inexpensive. I figured I’d need at least 80 ft, so I purchased a 100 ft piece. I cut the wire rope in to 5, 16 ft sections, figuring 4 would be the basic ground plane and the 5th would be the 40 m leg. I soldered ring terminals onto the ground plane pieces, and connected everything together using a 1/4” stainless steel bolt with wing nut.

I set the antenna up at a local park in Greeley with 4 radials and quickly made a contact with a station in Chile on 20 m. He gave a good signal report and reported that he was in the Andes mountains in Chile. I made a few other stateside contacts and reported my first test of the new antenna as a success. In late March 2019 my father came out and we took the antenna up to the North Fork Canadian yurt in State Forest State park.

This iteration of the antenna worked well, though I learned that setting it up on 3+ ft of snow made the antenna tune differently than on bare ground. I ended up having to lengthen almost everything to make the antenna resonant. Most notable was the length of the leg on 40 m. It turns out that the length I’ve found to work well is actually closer to 19 ft (plus the existing 16 ft of the vertical).

After returning from the trip, I was able to score a couple of spools of thin wire (20 ga). I cut this wire into 16 ft sections to add more radials to the antenna. I ended up making four groups of four wires, each 16 ft long. These groups were terminated in another ring terminal. When needed/desired, I could now deploy up to 20 radials on my portable station.

I can say that I have noticed notably better performance with the added radials, though I do not have any empirical evidence to back this up. We all know that ground loss is a big issue with vertical antennas, so it seems to only make sense that it would work better with more wire on the ground. However, I was still able to make contact to ZL4WW in New Zealand using only 4 radials.

Somewhere along the line I added a 45-degree piece of PVC pipe to keep snow off of the connector, it is attached to the tripod with some Velcro. The connector, jumper to antenna, and 4 ground radials remain more or less attached to the feed line and are on the coil with the 100 ft of feedline. I also keep the 40 m leg rolled up with the feedline to keep clutter to a minimum.



Antenna at Medicine Bow Yurt with 40 m leg attached



After a few inches of snow the feed point was buried! Two pieces of firewood help to prevent blow over

A simple, modest, portable antenna for 20 m/40 m (cont.)

After getting caught in a nasty thunderstorm one May evening, I realized that I wanted a quick way to disconnect the feedline from the antenna once I am done operating for the evening. I installed a banana plug on the antenna and on the center pin of the feedline. This also saved me from having to tighten another hose clamp during setup. This is the current iteration of the antenna, and has proven to be very simple to set up and to take down.

Below is a parts list of the parts and my source for them. This source is probably not the only one, but it is what I used.

- Aluminum tubing: (DX Engineering)
 - DXE-AT1246 x1 (1.125" OD)
 - DXE-AT1245 x1 (1.000" OD)
 - DXE-AT1244 x1 (0.875" OD)
 - DXE-AT1243 x1 (0.750" OD)
 - DXE-AT1242 x1 (0.625" OD)
 - DXE-AT1241 x1 (0.500" OD)
- Tripod – Skywalker Signature Series 2 ft Tripod (ordered from Amazon)
- Hose Clamps – Storehouse Hose Clamp Assortment (Harbor Freight)
- Feedline – Wireman CQ118 RG8X coax, 100' (TheWireman.com)
- Radials/40m leg – Wireman 542-Antenna Wire 14 AWG (TheWireman.com)
- PVC Insulator – 1.5" x 24" Sch 40 PVC (Home Depot SKU 221646)
- Stakes – 10" Steel Tent Stakes, 6 pk (Harbor Freight SKU 96534)

A few closing notes:

- I tuned the antenna using my MFJ antenna tuner, and marked the proper tuning on the tubes using electrical tape. I left the second lowest tube tapeless so that I could make final adjustments in the field
- The antenna collapses down into two stacks, you should NOT telescope these tubes into each other, it could cause scoring and damage the tubing. Instead, use the two largest tubes to hold tubes together.
- The antenna will also work on 17 m, but a tuner is required and you should shorten it
- The antenna with three stakes withstood a direct hit by a severe thunderstorm without blowing over, winds were estimated at least 40 mph.



The antenna set up at the North Fork Canadian Yurt in Colorado State Forest State Park.