

From the NCARC President *Joe Hawley KDØTYU*

I really hope everyone had a great Thanksgiving and are looking forward to the Holidays coming up. With vaccines on the way I do believe 2021 will be great for all of us. As you know most of the restaurants will not allow big groups so unfortunately this year's NCARC Christmas party will need to be cancelled. I guess it just means that next year's is going to be twice as big, and I think we can make that happen.

While things may be shut down around the state the radio that you have in the corner is always on. NCARC has two major nets that we run each week. Our Monday night TechNet is quite popular with lots of good tech discussion. Our NCARC club net which is on Wednesday nights provides an opportunity to share all kinds of club news. Come join us on either or both of those nets each week.

We are also continuing to have our zoom classes on various subjects, such as the technician licensing class, DMR, and possibly Win Link in the future. These are all free and we would love to have you there.

So again, enjoy the holidays, stay safe and thanks.

Public Affairs Office *Dave Winnett WØDDZ*

Numbers as of December 8, 2020 **YouTube**

Views (last 28 days): 5,572
Watch time (last 28 days): 1,303 hours
Subscribers: 1,470
New Subscribers (last 28 days): 50

Facebook

Members: 367
New Members: 4

From the Editor *Ann Donoghue KOARD*

What are your ham radio plans for the holidays? Do you have any soldering projects? Thinking about a new antenna? Looking at selling old equipment and asking Santa for something new? Please feel free to share! I'd love to include your ideas, projects and plans in the newsletter. Newbies like me can always learn from hearing about projects!



Club Meeting and Speaker

Next meeting

Saturday, December 19, via Zoom.

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

High Altitude Scientific Balloons and Ham Radio

Darren Kalmbach, KCØZIE

Darren will talk about EOSS - Edge of Space Sciences, his involvement with the group, and show pictures from various chases with the group.

2021 Membership

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).



Treasurer's Report

Darren Kalmbach KCØZIE

November 2020 Account Balances

Account	Checking	Raffle	Savings	PayPal	WWV	Total
Beginning Balance	\$430	\$2,081	\$2,099	\$7,432	\$0	\$12,042
Deposits	\$0	\$0	\$0	\$240	\$0	\$240
Transfers	\$0	\$0	\$0	\$0	\$0	\$0
Withdrawals	\$132	\$0	\$0	\$9	\$0	\$140
Ending Balance	\$298	\$2,081	\$2,099	\$7,663	\$0	\$12,142
Outstanding Items	\$0	\$0	\$0	\$0	\$0	\$0
Net Balance	\$298	\$2,081	\$2,099	\$7,663	\$0	\$12,142
Net Change	-\$132	\$0	\$0	\$232	\$0	\$100

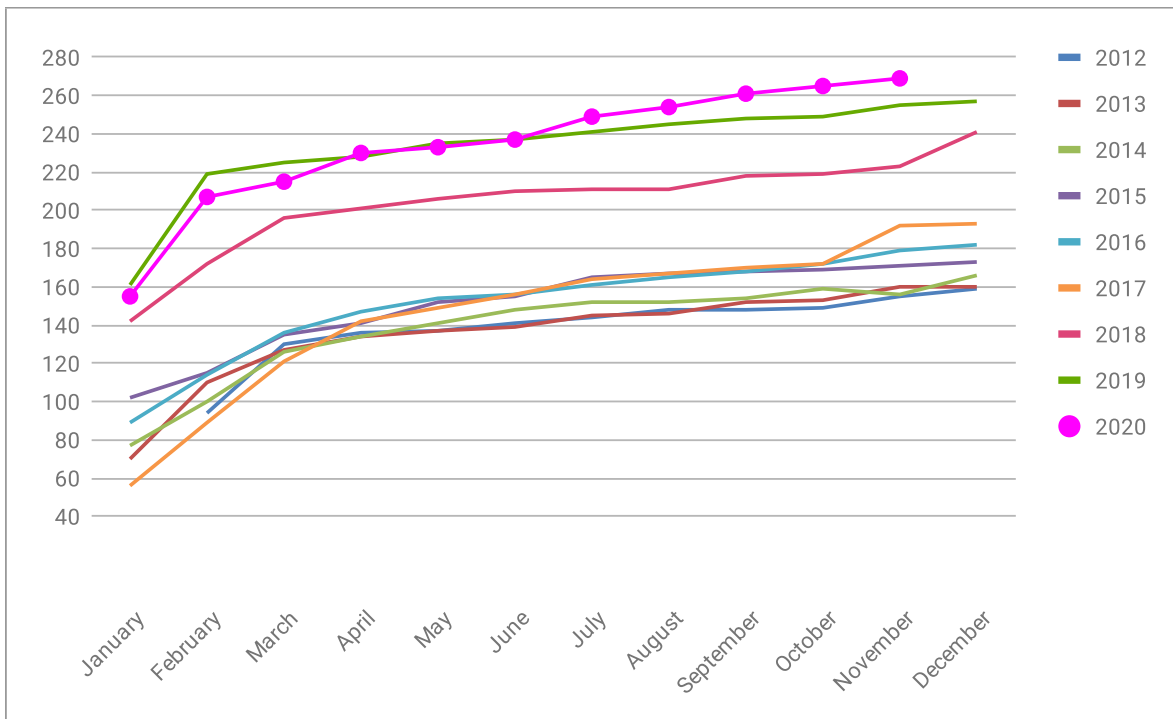
Expenses: Storage

Revenue: Memberships

Membership Activity

November 2020: 269 (4 new)

November 2019: 255



Technical Report

James Cizek KIØKN

Due to a minor injury, my progress on some of our projects shifted from on-site work to more lab and bench work temporarily. Instead of going through each site, I will summarize some of the projects in progress right now.

Thanks to a donation from our Treasurer, Darren KC0ZIE, we now have a full set of VOIP phones for all of our repeater sites. I've built a phone PBX system to interconnect these phones, tie them to an outside phone line, and tie them to the other VOIP systems already in place with our partner clubs. For example, we will now have the ability to make and receive phone calls not only from our sites, but anywhere that we place a temporary network backbone access point and have those calls routed between our own sites, or the RMHAM trailer, or the QRV vans, or some of our ARES-served agency EOCs, and many other options. Just another additional communication method to backup our already robust repeater and linking system! This will also allow us to make calls to each other while installing/troubleshooting/adjusting sites where cell phone coverage tends to be very spotty to non-existent (usually too much RF on the hill to allow the phone to operate properly).

Further, this phone PBX system was a critical step in rolling out a Phone Patch for our repeaters. This has been requested multiple times by some of our members that are members of some of the local 4x4 clubs to provide an additional way to contact help in the vast amounts of "no cell phone" zones we have, especially to our west. I am imminently close to turning this feature on our repeaters so that phone calls can be made FROM the repeater to the public telephone system. This feature was very popular in the 80's and 90's, but with the advent of cell phones, it's use declined greatly. There is still a need for this in the areas that do not have cell coverage, such as many of the popular back-country camping, hiking, and 4 wheeling areas that are within the coverage areas of our repeaters, but not with cell phone range. This service will be offered without any cost to the club due to personal donations from some of your board members!

We are still working towards installing a backup microwave link from Rattlesnake Ranch to Buckhorn to provide an extra path around Horsetooth in case of trouble there. This was slowed, but still in progress. I am working actively on the 220 MHz repeater as well, and hope to make some positive progress on this over my winter break from work.

I discovered that we are having some pretty severe problems with the high RF fields from commercial FM broadcasters at Buckhorn that are interfering with our ethernet lines and causing massive amounts of loss and disconnects. I've purchased some fiber optic cable and router optics to change our runs from the router in the building to the microwave radios on the tower from copper Ethernet cables, to fiber optic cable to fix this. All parts are in hand and will be deployed soon!

Repeater Spotlight

I'm adding a new 'column' to our newsletter. (I've been curious about our repeaters and wanted to know more.) We'll feature a particular repeater each month. If you have specific questions about a repeater, please email me at newsletter@ncarc.net Here's our first installment. Ann KØARD

Horsetooth North

James Cizek KIØKN

Where it's located: Approximately 3/4 of a mile north of the actual rock "Tooth" of Horsetooth 40.5491, -105.1975

When it was established: Exact date not known, but believed to be early 80's

How did we get access: The land owner, George Kinnison (now SK), was an avid ham and member of our club. His wish was to continue providing free access to hams for public safety communications purposes and that has lived on, even with the current tower company that manages the site.

What it does: Provides analog VHF and UHF repeater coverage, as well as VHF APRS digipeating services, and VHF Winlink services. This site also is a major hub for our microwave network interconnecting all of our sites.

What kind of equipment is located there and what does each piece do: (2) Motorola MTR2000 repeaters, (2) Kenwood mobile VHF transceivers (for APRS/Winlink), (2) Byonics TinyTrak4 TNCs for Winlink/APRS, a fanless industrial grade PC running Linux that serves as a repeater controller, a network router, and all necessary duplexers/filters/preamplifiers/etc to support the repeaters here.

How it's powered: All gear is powered via power supplies that convert 120 V AC to 13.8 V DC. There is also a large battery bank (300 A/hour) providing backup battery power to all equipment.

What's its range: The coverage of everything on this site is approximately equal, with the UHF having a bit further range simply because the receiver noise floor is lower than VHF (they transmit same distance, but don't hear equally well). Range is approximately just North of Cheyenne, East to the Cheyenne ridge, south to about Parker CO, and to the West is variable due to terrain. The NCARC website has coverage maps for more details.

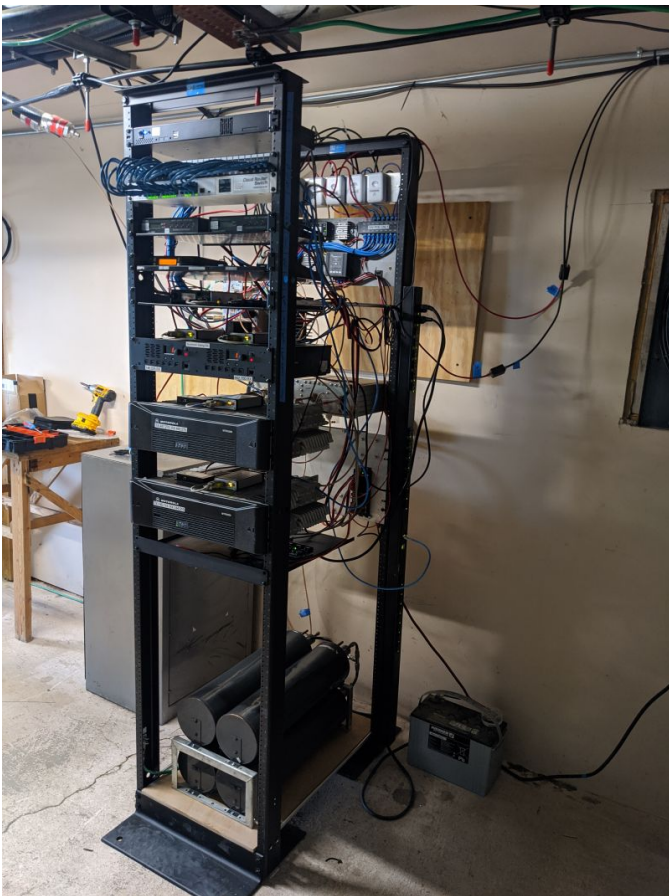
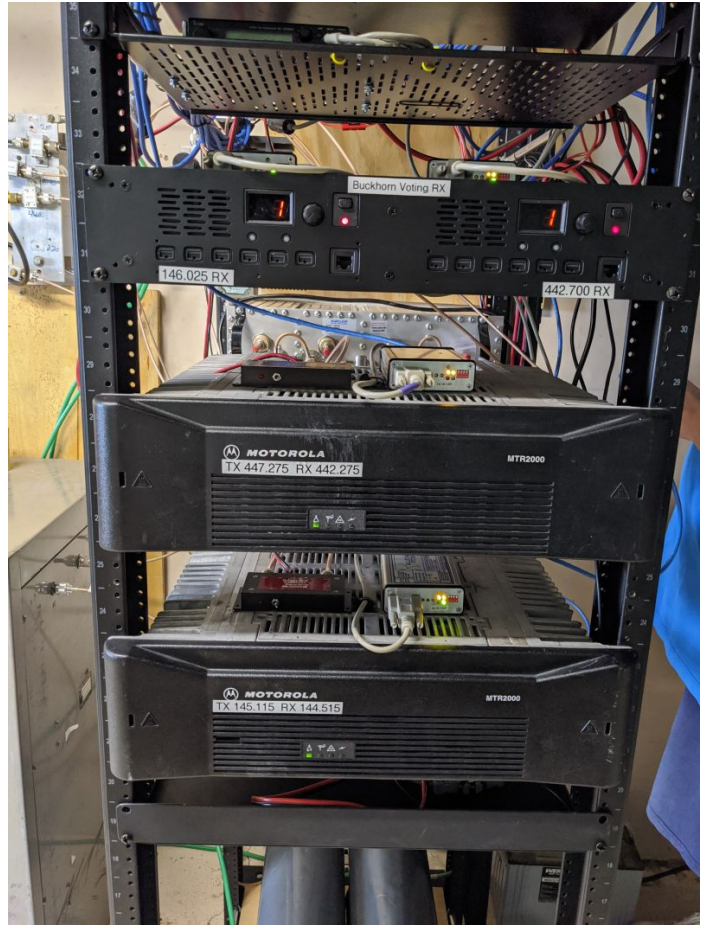
How often does it need maintenance and who does it: Rarely, luckily we've invested in high quality commercial gear so usually only a trip or 2 a year to replace anything small that may have failed or (more often) we visit to add more functionality!

What and when's the next maintenance: Weather dependent, but Horsetooth North is likely all set for the Winter now and won't be visited until Spring unless something fails!

How to volunteer to help: Join the volunteers distribution list! See ncarc.net for details.

Anything unique or interesting about this site? At the base of our tower is a LARGE rock outcropping. Embedded in the rock are headstones memorializing many of the Kinnison family!

Horsetooth North (inside)



Horsetooth North (outside)



NCARC Tech Fest **January 16, 2020, via Zoom**

Get ready for **Tech Fest!!** Ham radio experts in all areas from all over the US will participate. This includes:

Bob Heil, K9EID, Ham Nation

Joe Eisenberg, K0NEB, kit building

Gene Spinelli, K5GS, DXpeditions

We are also hoping to get speakers from SpaceWeather/NOAA, experts in grounding, DXengineering, and others.

More information on how to register and the full program with topics and speaker information coming soon!

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.