

CCARC News

Capital City Amateur Radio Club

April 2026

Including
news from
HARCMT



The March Mixer

Friends from near and far enjoyed a good visit!



Bill N7MSI and Jeanine



Bridgit and Allen KH7AL



Lloyd KK7HA, Steve KF7HJS, and Lynn K7WGR



Paulette N7PLG and John KS7R

Coming Events 2026

CCARC monthly meeting – April 6, 7pm at the Salvation Army, 1330 Hudson St. or on Google Meet, <https://meet.google.com/zfs-ctwp-bax>

NEW! FOUR-CLUB MEET. All invited! April 11, 2026, 9 – noon. Capital City Club, Headwaters Club, Butte Amateur Radio Club, and Anaconda Amateur Radio Club.

Public Safety Open House – April 11 at 911 Center. See article below.

Field Day – June 27-28. Campground on MacDonald Pass

Glacier-Waterton Hamfest – July 17-19. Contact Keat W7KJA for reservations. stay@gmrvpark.me

Coffee Net – Every Saturday at 9 am on 147.22, Belmont Repeater. Eyeball @ Red Atlas at 9:30.

Yaesu Atas 120-A Modification

By Dennis Grisamore KK7YFZ

This is a unique mobile antenna that provides HF, VHF, and UHF coverage with automatic motorized tuning. However, the whip on the ATAS 120-A has limited options because of its very small diameter and the method with which it is attached to the main body.

The idea was raised, how could it be modified to accept the 3/8x32 thread that's used on many optional antennas? Bob Morris N7AGP approached me with this idea, and on our second try we nailed it. I first made an adapter, then Anthony W7DGM expanded on that with the idea of modifying the antenna body itself. Bob was on that idea like a dog with a bone! And I was willing to go for it. It works extremely well – a good idea brought forward! Here are a few pictures to show the end results.

If anyone is interested in doing this to their antenna, I'd be pleased to help them.



Kathe N1NYT and Stacy KK7CJV



Keith KM7AEM and Dennis KK7YFZ



Wayne KM7COR and Rob AE7AP

Watch for this event next March!



Meshing Around with MeshCore

By Dan Hawkins N7SHM

Over the past month, I've been experimenting with MeshCore – similar to Meshtastic, which may be more familiar. MeshCore likewise operates in the U.S. in the unlicensed 915 MHz ISM (industrial-scientific-medical) band using LoRa spread spectrum technology. Small, sub-watt transceivers are readily available that can be programmed (flashed) with firmware supporting either type of mesh network. I'm actually using the same devices with MeshCore previously used with Meshtastic – RAKwireless and Heltec ESP32 units each costing around \$35.

Where Meshtastic basically allows every node in the network to pass traffic to others, MeshCore more fundamentally relies on repeaters much as we hams do voice radio. MeshCore is designed to provide for more solid network infrastructure, while also allowing off-network meshing around between end-user nodes. Both use Bluetooth between the end-user node and a cell phone or tablet app.

I've put up a repeater ("N7RB Westside Repeater") and a room server ("N7RB Room Server") if you're interested in experimenting. The repeater is solar powered with a Yagi antenna at 30' covering much of the valley north of U.S. 12. The room server is much like a chat room where messages are retained – a feature unavailable with Meshtastic where messages disappear if your node isn't up to receive them. My end-user device ("companion" in MeshCore-speak) is a RAKwireless radio.

More details are shared on Slack. Hope to see you on the mesh!

~ Dan N7SHM



Headwaters Club Promo

Submitted by Carol Flaherty KA7ROL

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New Ham Radio Club Brings Together Tech Enthusiasts in Gallatin Valley

The Gallatin Valley is now home to an exciting new community for tech enthusiasts, emergency responders, and radio hobbyists alike.

The Headwaters Amateur Radio Club of Montana has officially launched, bringing together amateur radio operators of all experience levels for a wide range of activities, from casual conversations to official disaster communication training.

"Whether you're looking to get your first license, or you've been a licensed operator for years, our club is a place for all levels to learn, grow, and connect with others," says Stacy Wolf, Club President. "We're excited to create a space where people can explore this fascinating technology, share their knowledge, and work together to help our community stay connected, especially in times of emergency."

Key features of the Headwaters Amateur Radio Club include:

- **Monthly Meetings & Workshops:** Learn about the latest in radio technology, emergency communications, and ham radio operations.
- **License Training:** The club offers support for those looking to obtain their FCC Amateur Radio License.
- **Community Events:** Regular radio events and local community outreach, focusing on public service and disaster preparedness.

- **Field Days & Outcasts:** Participate in exciting on-air events, including Field Day, where operators from across the country take part in a nationwide emergency communication exercise.

The club also aims to increase awareness about this rich, multi-faceted radio plays in disaster communication. In situations where traditional communication networks fail, ham radio operators often step in to provide essential communication services. The Gallatin Valley Ham Radio Club will be working closely with local



emergency response agencies to ensure preparedness in case of an emergency.

Anyone interested in learning more about amateur radio or joining the Headwaters Amateur Radio Club of Montana is invited to attend the club's regular assembly

meetings at the Helena Chamber of Commerce. The next table place on the third Monday of each month at 7:00 p.m. Sessions are held one-to-one for questions, and scattered operators are encouraged to share their experiences.

For more information to get involved, visit HABNET.com or follow the Headwaters Amateur Radio Club on social media at [Facebook.com/Headwaters-Amateur-Radio-Club-MT](https://www.facebook.com/Headwaters-Amateur-Radio-Club-MT).

Sally Dial, secretary, is pictured.

From the *Lewis and Clark Journal*, March 2026

Like Classic Cars?

See Darrell K7IUI for information about the local club and go here:

<https://www.mtautoclub.org/>

KH7AL Becomes a Mountain Goat

By Allen Le Vie KH7AL

Yesterday I reached a milestone.

In 2013, I helped start the KH6 SOTA association with the help of Elliot K6EL and Guy N7UN. That started my love for Summits On The Air. Over the years, SOTA has allowed me to enjoy countless places I would not have otherwise visited.

From military assignments in Hawaii to Korea, Colorado, and Utah, SOTA gave me the opportunity to see a wonderful side of each of those places. I also brought SOTA with me while traveling and have activated in Arkansas, Alabama, Tennessee, and North Carolina before finally landing in Montana when I retired from the Air Force in 2020.

Some people are able to knock out the 1,000 points needed to reach the coveted “Mountain Goat” status for SOTA activators in just a few years. I, on the other hand, had to balance work, family, and other life obligations—so you could say I took my time earning points. Along that journey, I met too many wonderful people to count. The bond between ham operators is one thing, but the connection within the SOTA community is even stronger. I am proud to be part of this niche of ham radio for the community and relationships it fosters.

Coming back to yesterday afternoon, I got off work around 3:30 and headed to the Head Lane Trailhead to hike up South Scratchgravel Hills (W7M/CL-182) to meet a goal I set 12 and a half

years ago. The weather was about as perfect as you could hope for on the last day of March in Montana—mostly sunny, very little wind, and just the slightest occasional snow falling through the sunshine.

The trail system in the Scratchgravel Hills area has improved over the past few years. There has been a concerted effort to repair existing trails and install new ones. On the summit, there is even a nice picnic bench to operate a ham radio from—how nice of them to be so considerate to us hams ;)

Hiking up this hill, I was sitting at 999 activator points. That was the result of 172 activations (including a few unsuccessful attempts). Scratchgravel is typically a 2-point summit, but since this was the last day of March, it still qualified for a 3-point winter bonus. All I needed was to make at least four contacts from my friendly local chasers.

And did the chasers ever show up!

I am so grateful for such an active local ham community. First in the log on 2 meters (as usual) was Bill N7MSI, followed shortly by Rob AE7AP. Then several others checked in, including our friends all the way down in the Belgrade area. From there, I moved on to 40M and 20M HF on CW and was able to work coast to coast.

The cherries on top were a couple of DX contacts on 15 meters just before I called it. One was a station in Japan, and the other in New Zealand—not bad for 8 watts, a wire, and good propagation.

I just want to thank everyone who has helped me reach this milestone. I appreciate you all, and I will continue to rely on you as I chase after Goat x2.

Happy activating and chasing!

73 & Baaaaaa,

Allen ~ KH7AL



Editor's note: Follow this link for a complete explanation of SOTA Awards

<https://www.sota.org.uk/Joining-In/Awards>

Public Safety Open House

Opportunity to Serve – Community Emergency Response Team (CERT)

Rob Hooper, KI4NCT, is a new member to CCARC and a recent transplant from Northern ID. He was very active with CERT (Community Emergency Response Team) in Bonner County and is currently a volunteer firefighter with Eastgate VFD in East Helena.

Bonner County Emergency Management Agency has recently integrated ARES and CERT into a "CAN," Community Action Network, with cross training by both groups. Rob is hoping to generate enough interest from people in Helena and surrounding tri-county area to officially be able to start and train CERT teams, who would be able to respond to the community when disasters and other calamities strike. CERT would start in L&C County and expand to Jefferson and Broadwater counties as interest and need grows.

To help kick off this effort, Rob will be manning a table, courtesy of Lewis and Clark County

Emergency Management, at the Public Safety Open House on April 11 at the 911 Center. He'll be there to help explain and get interested people signed up for a class in the fall. An important part of any emergency response is communications; and ham (2m-70cm) and GMRS radios are a vital part of helping CERT team communicate with Incident Command. So, if you have interest or time in your schedule, come by and thank first responders and stop by the CERT table and chat with Rob about CERT opportunities.

Number 7 Pegs the Meter



Bob Morrow has had his call sign since 1994.



Loving it!

By Devin Felix AJ7JO

Wow, what a couple of months it has been! I want to start by saying congrats to Keith KM7AEM for coming out to Spring Meadow US-2598 with me and getting over that hurdle of his first POTA activation. It was an awesome time, and I think we both ended up with around 35 contacts.

After that AL KH7AL hosted a CW learning session, and Zhaun AI7BM offered to take me out to get my first Morse code activation. I jumped right on that opportunity. I don't know if I would've started putting my callsign out there with a paddle if it weren't for that day. Since then, I've managed to log around 100 QSOs on CW.

Shortly after that I went in and tested for my Extra and earned that coveted 2x2 call sign. Although it ended up being just as heavy for CW as my old one, I actually do like AJ7JO, so I think I'm just going to stick with it. Huge thanks to John KS7R and the VEs. Congrats to Matt K7MNL and Gage KM7DTB on their general!

While doing POTA, I managed to get Kathe N1NYT while I was at the same park and didn't realize it. As many times as I heard Kathe on the radio, we hadn't actually met until she knocked on my window as I sat in that parking lot trying to muddle through some more CW contacts.

That was last month.

This month has been full of all sorts of adventures and POTA. Most notable was my hike up to the Sheep Creek Wilderness to claim one of our last ATNO (All-time New One) parks in this area.

It began with convincing my non-ham friend Dave to come on "a little" hike with me. Oh, how wrong I was! What I originally thought would be about an 8-mile hike turned into almost 12 with just over 3000-foot elevation gain. To say I was wiped out by the end of the day would be an understatement, but I regret nothing and wouldn't change it for the world. We live in one of the most beautiful places on earth and I feel incredibly grateful that I can just go out and enjoy it whenever I want.

I was surprised to discover that we had a clear view of the Belmont repeater pretty much the whole way up the mountain, which came in extremely handy when it was time for the morning coffee net. I don't think it has ever sounded clearer for me. When we made it to the edge of the Sheep Creek Wilderness area where I could be inside the boundary for activation Dave decided that was as far as he wanted to go, but I wasn't ready to settle. He hung back and read his book, and I continued up the mountain. Looking at my maps, I realized that w7m/cl-140 (elevation 6771 feet) was extremely close. I decided I wasn't going to stop until I got to the top, so I could claim the summit activation as well. The views up there are absolutely breathtaking, and it's such an amazing spot to set up a radio.

I started with putting up the roll-up J-pole I built with 23' mast to see how far out I could get on 2m. After a quick QST on Belmont I switched over to Simplex, and of course, Bill N7MSI was the first to claim a spot in the log, loud and clear. Then Eric and Stacy KE7NLU and KK7CJV were booming 5-9 all the way from Belgrade.

After that I set up HF and fought the insanely crowded bands due to the huge contest that was happening. I finished out the day with 68 contacts total, and with one final call on Simplex. Keith KM7AEM snagged that last spot before I packed up and started what seemed like a never-ending trek down the mountain. What a blast!

I want to close this out by extending the biggest thanks to the entire CapitalCity Amateur Radio Club. I'm still super new to ham radio, and I

wouldn't be doing all of this if not for all the help from so many wonderful people. I could not be more grateful for the abundance of knowledge and friendly hams willing to share it here.

But wait! As I was sitting here writing the rest of this up, Brett N7SKI got on Slack. It came to light that KH7AL was hiking to a summit to go for his SOTA Mountain Goat award. I've really been wanting to get Al in the log since he was the one that really kickstarted my journey into CW. I managed 3 different QSOs, on 2m voice, on 40m CW, finally on 15m FT-8.

This is all too much fun!

~ 73, Devin Felix AJ7JO

VE News

No April Fool's joke here!

At the Volunteer Examiner (VE) exams on Wednesday April 1, five people upgraded or earned their tickets!

Sue Little KK7PSY – Extra Class
Matt Cornyn KK7YWU – General
Joe Reel, Boulder – Technician and General
Mike Brady – Technician
Steve Phipps, Lincoln – Technician.

Congratulations to all on their dedicated studies and outstanding accomplishments! We welcome the new amateurs to the Helena Ham Community and the CCARC.

Thanks also to Matt AA7VG and Al WA1TYB for assisting with the exams.

The next VE exams are scheduled for May 14 and June 17. Register to take an exam on hamstudy.org.

If you have any questions, contact John KS7R at jcgeach@gmail.com

Build an AllStar/EchoLink Node

By Eric KE7NLU

We are in the process of building a repeater for the Headwaters club here in Belgrade, but in the meantime I wanted to give our remote users a way to join our 7:00 PM simplex net on 147.57 MHz Wednesday evenings.

The best solution I could think of was to set up an AllStar/EchoLink node. As it turns out, the TYT TH-9000D radio has all the built-in control signals and audio available on an expansion connector on the board. This radio also has a convenient cutout in the back where a DB9 connector can be installed. I added a DB9 connector along with a mating board connector to bring all the signals in and out of the radio.

The next requirement was a USB sound card for the AllStar/EchoLink node. The AllStar/EchoLink codebase and driver support is based on the C-Media USB audio ICs. I found a very inexpensive C-Media-based USB sound card on eBay for under \$10 and made some modifications to allow it to handle the PTT and COR signals.

I registered online for both EchoLink and AllStar node accounts. Once I received my node numbers, I was ready to proceed with the installation. There is a simple, ready-to-go Raspberry Pi image for ASL3 (the newest version of the AllStar Link system). I installed that on the Pi, performed all the necessary configuration settings, dialed in the audio levels, and got the system up and running.

The hardest part of the project was configuring my OpenSense router's firewall to properly forward the UDP ports required by both EchoLink and AllStar.

If anyone wants to join the Belgrade/Bozeman area 2-meter simplex net on 147.570 MHz, simply look for KE7NLU-L in EchoLink or connect to node 68360 on AllStar.

The AllStar software is quite impressive, and I believe it can even be used as an integrated repeater controller. I plan to try that out once we get our repeater up and running.

Here are some handy links for further reading on building this exact setup.

73,
Eric KE7NLU

https://www.hamvoip.org/howto/TYT_mod.pdf

<https://allstarsetup.com/how-to-modify-a-cm108-sound-fob-for-allstar/>

<https://allstarlink.github.io/install/pi-appliance/pi-detailed/>



Satellite Escapades

By Bret Penner N7SKI

One of the more exciting frontiers I've been exploring lately is operating through amateur radio satellites using a handheld radio and an Arrow II Yagi antenna. It's a surprisingly accessible way to make contacts far beyond line-of-sight, but it comes with its own unique challenges and a steep (but rewarding) learning curve.

Operating technique is also quite different. Exchanges are minimal, just callsign and grid square, to keep things efficient. To help with this, I'm using a recording device during the passes. This allows me to focus on making contacts in real time and review the details afterward,

minimizing airtime and helping more operators share the satellite. One technical skill I've been developing is adjusting for Doppler shift. As the satellite moves rapidly relative to your position, the frequency shifts enough that you need to compensate during the pass to stay on frequency. Getting comfortable with this has made a noticeable difference in my success rate.

There's definitely a juggling act involved. Managing the handheld radio, aiming the directional antenna, tracking the satellite's movement, and running a recorder all at once can be a challenge. It's a bit like patting your head and rubbing your stomach while also chasing something moving across the sky at 17,000 mph.

So far, I've successfully made a number of contacts through the repeater aboard the International Space Station (ISS) one being across town to Matt-K7MNL, along with one contact via SO-50. Each contact feels like a small victory. Unlike traditional HF operation, satellite QSOs are brief, intense, and require a lot of preparation packed into a very short window of time. Satellite passes typically last anywhere from 5 to 12 minutes, and that's your entire opportunity to make contacts. Timing and positioning are everything. I've found that the best chance of completing a QSO is when the satellite is nearly overhead, where signal strength and geometry are most favorable. During that peak window, things move fast—operators are trying to get in and out quickly so others can have a chance.

To improve my planning efficiency, I've started working on some Python scripts to generate daily satellite pass summaries. The goal is to highlight the best opportunities, particularly high-elevation passes where making contacts is more likely. Automating this piece should help me spend less time planning.

Satellite operation has added a whole new dimension to the hobby for me. It combines technical skill, timing, and just a bit of chaos, but that's part of the fun. With each pass, I'm learning something new, and I'm looking forward to

building both my station and my skillset as I continue chasing contacts overhead.

~Brett Penner N7SKI



And it just so happened that Zak KJ7ZTE (student in Butte, Masters in EE) was returning some fox hunting antennas and fox transmitter that he had borrowed from Eric for an event with some scouts in the Butte area. He was able to take the last bit of radio gear for some poor college students for projects. So all items found a new home!

~Stacy KK7CJV

Capital City Amateur
Radio Club
Helena, Montana





Headwaters Club Auction Results

We had a great 2 months of auctions. At our March 16th Club meeting we wrapped up the silent bid auction items and opened the sealed bids. From the silent bid auction items, with multiple people bidding, the Club received \$257. Jim WB7ABS from Boulder won the Heathkit Amplifier along with a couple of other items. Ryan KG7PWS from Belgrade won the ICOM 706 MIIG. The Sealed bid items sold for \$1950, bringing the grand total for all auction items to \$2207. HARCMT is off to a great start for building our Club repeater system! Thank you to all bidders for helping support HARCMT and a BIG Thank you to Vivian KD4CEY for her gracious donation to our Club!

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