

2025-01-07 Hamlet Net - Weather Information

Announcements:

- Test Session Info
 - Next VE session is January 25 in the Clover Building at the Boulder County Fairgrounds, and starts at 9 am. It is a PVET session, so there is no fee to test. For more info, and to pre-register, see the Licensing/Testing page on the club web site, <https://w0eno.org/>, under the Education menu.
- The club is planning to put together and sell 2m Yagi antenna kits. We'll be looking for volunteers to help put the kits together this Saturday, January 11th from 9am to 1pm. If you're available and can help out, there is a sign up link on the Club's web page at: https://w0eno.org/other-clubs-and-radio-organizations/?sheet_id=17
- NCARC's Winter Hamfest is coming up Saturday, January 18th at the Larimer County Fairgrounds and Special Events Center from 8am to 1pm. Admission is \$7. They've got some really good raffle prizes this year - an ICOM IC-2730A and a Yaesu FTM-300DR dual-band mobile radios, as well as a Yaesu FT-891 HF plus 6m 100 watt mobile radio and two Yaesu HTs. There is a free licensing exam starting at 9:30 as well as three tracks of technical forums covering topics such as Callum McCormick presenting "Three Easy Wire Antennas Everyone Should Build," and Ron Sherwood discussing "Portable VHF/UHF Setups for Camping and Events."

For more information, see the NCARC web site at: <https://ncarc.co/hamfest-2025/>

- Chuck has made some changes to the web site, so please check it out and provide him any feedback. Web site is at: <https://w0eno.org/>
- Upcoming Club Volunteer Opportunities:
 - Winter Field Day (Jan 25-26, 2025):
https://w0eno.org/other-clubs-and-radio-organizations/?sheet_id=16

Not running 24 hrs at fairgrounds. Will start at 9am to 5pm at the Clover BUilding at the Boulder County Fairgrounds. The goal is to get people on the air. There will be one station for digital/CW and another for SSB. Will have chili dogs around 4:30 - everyone is welcome.

Joining with RMHAM at Doug Sharp's house in Mead on Sunday. They will be working from the RMHAM vans and trailer.

- LARCFest (April 5, 2025):
https://w0eno.org/other-clubs-and-radio-organizations/?sheet_id=15 or contact Chuck at: k0itp@w0eno.org
- HAMCON Colorado 2025 for Rocky Mountain Division. For more information, see their web site at: hamconcolorado.com
- The next RMHAM-U presentation is titled "Designing Objects for 3D Printing." This is a class following on the 3D Printing class and will concentrate on the software used to design 3D objects for 3D printing. It will be held Saturday, January 25th, from 8:30 am to noon-ish.

You can attend live in Greenwood Village at the Cherry Creek Schools ESC. It's also being held on Zoom if you can't make it, and they usually record the sessions for later viewing as well.

To sign up, go to the RMHAM web site at: <https://www.rmham.org/> and click on the "Sign Up for RMHAM University" link under the "RMHAM UNIVERSITY" menu item.

- The ARRL is running a year-long "Dream Station Sweepstakes" drawing during 2025. The winner will receive a "dream station" consisting of an ICOM IC-7760 HF/50 MHz 200 watt transceiver, and IC-PW2 1 kW linear amplifier, and an SM-50 advanced desktop microphone. The radio and amp look very interesting - they each have separate faceplate or head, and radio deck, which are connected either directly with a LAN cable, or via a network.

Looks like the 7760 hasn't been released yet, but GigaParts is showing a price of \$6300 for the radio. The IC-PW2 is also not yet out, but has a price of \$5500, while the SM-50 cost is just a rounding error at \$290.

Looks like participants can earn up to 6 chances in the drawing. You get one for joining the ARRL or renewing your membership, 2 for setting up auto-renewal, and 1 point for each \$50 donation to the ARRL Diamond Club.

- If you are an ARRL member, remember that you have digital access to four magazines - QST, On the Air, QEX, and National Contest Journal.

This month, QEX has an article on using a raspberry pi to decode CW, On the Air has an article on building a half-size dipole for 10 meters which requires just 8 feet of space. On the Air also features a spotlight on new hams, and QST has an article about connecting youth with ham radio in the classroom.

- We have a new net on the LARC repeaters. It's run by Timothy Moss, KFØLAR, on the 22nd of every month at 6pm - that's this Sunday. The 22nd was chosen to highlight the

average of 22 vets who commit suicide each day. While the purpose of the net is to connect veterans, non-vets are welcome to participate as most all of us have friends or family who are or have served.

- The ARRL Colorado Section Net occurs on the second Monday of the month from 7 to 8pm. The net is run by Amanda Alden, K1DDN, our Colorado ARRL section manager, and is open to hams and non-hams alike. This net is a place where Colorado hams can ask questions of ARRL leadership and request help, guidance, club support, and technical support. This net meets on the second Monday of each month at 7:00 pm Mountain time. The net is on the Colorado Connection, Rocky Mountain Ham Radio DMR Talk Group 700, The Fun Machine, WE0FUN, and the NCARC Buckhorn Repeater 447.700 – with 100 Hz tone.
- We have some volunteer opportunities available where you can help out LARC:
 - Photographer / videographer - record team activities and upload to web site / YouTube
 - Newsletter Editor - put together the monthly Splatter newsletter
 - Event Coordinator
- Time's up for this year, but you can earn your 2026 membership or future renewal by acting as NCS for at least 5 nets next year. You can run either this Tuesday night net or the Thursday night net (or both). We have scripts available for both, so all you need is a good connection into the repeater, and somewhere to keep track of names and call signs as people check in. If you're going to be on the net anyway, why not save some dough at the same time!
- Chuck has set a goal for the Club of running at least one activity a month. This can be a hands-on construction activity, an operating activity like Field Day, a fox hunt, or a special event station. The goal is to get people together to have fun with amateur radio! We have multiple locations at our disposal, as well as lots of Club equipment, so if you have an idea for something you think others hams would like to do, please let us know, and if you're willing to run it, even better!
- The Club is also looking for presentation topics for 2025. If you have any ideas, or better yet, would like to present, please let Chuck know and we'll get you on the schedule! We would like to get some presentations from club members on stuff they've been doing, projects they're working on, or just things that interest them.
- All club activities are open to anyone - members and non-members. If you have questions, ask them on a net or **send email to elmer@w0eno.org**

Presenter: Bryan, AF0W

Topic: Weather Information

- With the approaching temperature drops, I thought weather information would make a good topic for this week's net
- This can range from a simple conversation starter in a QSO up to vital information in the case of operations during adverse weather events like hurricanes or tornadoes
- There are many ways to gather (and provide) weather information via radio, ranging from simple to complex

Voice

- The simplest, most straightforward method is to simply use voice
- There are a set of seven "Voice of NOAA's National Weather Service" frequencies that include more than 1000 FM transmitters and which covers all 50 states
 - a. The frequencies are in the VHF public service band and range from 162.400 to 162.550 MHz
 - b. Many amateur radios come with these frequencies pre-programmed
 - c. Many radios (amateur and consumer weather radios) have the ability to receive weather alerts for their local area using SAME, or Specific Area Message Encoding, which restricts notifications to a zip code or county.
 - d. If you want to practice your foxhunting skills, and have a radio capable of receiving these transmissions, there are transmitters located near Longmont, Fort Collins, Greely and Fort Morgan
 - The Mead / Longmont transmitter is on 162.475 MHz
- You can also use voice on simplex or repeater communications - even those via satellite!
- During hurricane season, the Hurricane Watch Net activates for major storms that are approaching populated land masses
 - a. Its purpose is to provide information to island communities in the Caribbean, Central America, and the US Atlantic seaboard
 - b. This net is on HF on 40 and 20 meters
- There may also be local repeater-based SKYWARN nets
 - a. The purpose of SKYWARN is to provide critical weather observations to the National Weather Service or NWS

- b. SKYWARN spotters are trained to accurately identify and describe severe local storms
 - c. This information is used along with weather predictions and Doppler weather radar to help the NWS issue timely and accurate warnings for tornadoes, severe thunderstorms, and flash floods
 - d. Radio nets in our area are run by Colorado ARES groups
- While not voice mode, you can also query other hams for weather information using a "keyboard-to-keyboard" digital mode such as RTTY, PSK31, or JS8Call
 - If you really want to go old-school, of course there's always CW!

APRS

- Another way to view accurate local weather information is via APRS
- Most of this information is provided by weather stations owned and operated by radio amateurs
- This information is transmitted via RF in APRS packets or via the Internet, and eventually finds its way to the APRS-IS servers
- The information can be viewed on the aprs.fi web site (that's alpha-papa-romeo-sierra-dot-foxtrot-india)
 - a. Weather stations are indicated by blue circles with the letters Whiskey Xray inside.
 - b. Click on one to bring up current weather details, and click on the "show weather charts" link for more detailed and historical information.
- There is also a NWS organization called the Citizen Weather Observer Program, or CWOP, which allows members to share information from their personal weather stations with the world
 - a. In addition to simply sharing weather information, the site also maintains a set of quality checks that members can use to check and improve their weather stations
 - b. More information can be found on their web site at wxqa.com - that's whiskey-xray-quebec-alpha-dot-com
- If you have an APRS-capable radio, you can use it to directly receive local APRS transmissions

- You can also use a non-APRS radio with a soundcard interface to decode APRS packets on a computer
- There is also a bot that will reply to APRS messages with weather information called WxBot
 - a. It can respond with weather forecasts or with the latest CWOP information
 - b. Locations can be specified by your APRS position, city names, zip codes, call signs, grid squares, latitude/longitude, and airport designators (such as "DEN" for Denver International)
 - c. You can specify a "when," such as "tonight," "tomorrow night," or "Saturday night"
 - d. You can also request brief or full information - full information will be split into multiple APRS messages
 - e. Any active weather hazards, such as winter weather warnings, will be included in the reports

Winlink

- APRS is not the only digital mode where you can request automated weather reports
- In Winlink Express, there are two entries under the Settings menu where you can request weather information
 - a. Winlink Catalog Requests includes requests for METAR airport weather, satellite imaging, propagation and solar forecasts and numerous sets of weather locations in the categories starting with "WX_" (whiskey-xray-underscore)
 - b. Note that you will need to initiate at least two sessions to retrieve the information - the first to send the request, and then at least one more to receive the results
 - c. I tried a query for Colorado weather, and it took two minutes for a reply to appear in my inbox
- One thing to keep in mind if you are using RF to make your connections to Winlink is that it can take a lot of time to send large files (such as weather maps)
 - a. The Colorado weather query resulted in a text reply of 1300 bytes, while the GRIB weather map request returned an 8300 byte message - over 8 times the size
 - b. Also, don't do as I did the first time I saw this functionality and request a whole bunch of stuff, or you will tie up the RF channel and prevent others from using it

- c. Remember that you can use the telnet Internet connection mode to check out all the Winlink functionality without clogging up the airwaves

Weather Satellites

- Yet another way to receive current weather information is directly from weather satellites
- These satellites generally fall into two categories based on their orbits
- The first is geostationary - these satellites orbit above the equator and move at the same speed as the rotation of the Earth, so they appear to be suspended over the same location at all times
 - a. This allows them to monitor weather in a given area over time
- The second category is low Earth orbit or LEO - these satellites behave similar to the amateur radio satellites in that they orbit around the Earth, so they cannot monitor a specific area continuously
 - a. They orbit closer to the Earth's surface, so they can obtain sharper images than the geostationary satellites
- The NOAA polar satellites pass within view of all areas of the Earth at least twice a day
 - a. Their cameras repeatedly scan side-to-side, essentially generating a uninterrupted picture as the satellite orbits
 - b. This image is not stored on the satellite but is transmitted to the ground immediately using both an analog format called "APT or Automatic Picture Transmission," and a digital format called "HRPT or High-Resolution Picture Transmission"
 - c. The APT FM transmissions occur on frequencies just above 137 MHz in the VHF air band, while the HRPT transmissions are in the L Band around 1.7 GHz using phase-shift keying
- Many users use software-defined radios that connect via USB
- Receiving the weather satellite transmissions is only part of the puzzle - to see the maps, you will have to use a computer program
- I'm including links to a web pages that described a DIY satellite ground station for receiving weather, one on using an RTL-SDR to receive satellite images (it may be a bit out of date), and the NOAA's web page on their currently-operating satellites
- I believe Chuck has some experience with weather satellites, so hopefully he can provide current info and answer any questions that you have

Summary

- Weather conditions can be much more than just a conversation filler - they can potentially become a matter of life or death to those involved in severe weather events
- Radio provides a number of methods for monitoring current weather conditions and hazards, but as with many things, there are different levels of equipment and procedures needed, depending on what methods you use
- Much like LARC's weekly radio nets provide you with an opportunity to test and use your radio equipment, you should be sure to explore the various methods of retrieving weather information and test them out before you need them in a crisis

Questions:

- **The question for the week is:** Where do you get your weather information, and have you ever used amateur radio for weather-related activities?
- **In my case,** I get most of my weather info from my wife, who uses her cell phone to access weather sites.

I've used the APRS WxBot and Winlink services as well as NOAA weather radio. One thing I noticed when using weather radio alert monitoring on my ham radios is that there is sometimes a short "glitch" as the radio quickly switches to the NOAA weather frequency to check for alerts. Depending on the radio, it may or may not be noticeable, but is something you should be aware of.

I found a couple of dedicated weather radios that I'm now using instead of the NOAA functions on a ham radio.

More Info:

- Using WXBOT and WXYO: <https://www.youtube.com/watch?v=F02kUxAEct4>
- National Weather Service NOAA Radio: <https://www.weather.gov/nwr/>
- National Weather Radio receivers: https://www.weather.gov/nwr/nwr_receivers
- Colorado NWR Transmitters: https://www.weather.gov/nwr/states_dyn?state=CO (click on pin to see frequency)
- Hurricane Watch Net: <https://www.hwn.org/>
- SKYWARN Colorado: <https://www.weather.gov/skywarn/co-skywarn>
- SKYWARN Boulder County: <https://www.weather.gov/bou/Spotternews>
- Citizen Weather Observer Program (CWOP): <http://wxqa.com/index.html>

- WxBot: <https://sites.google.com/site/ki6wjp/wxbot?pli=1>
- APT - Automatic Picture Transmission:
https://en.wikipedia.org/wiki/Automatic_picture_transmission
- HRPT - High Resolution Picture Transmission:
https://en.wikipedia.org/wiki/High-resolution_picture_transmission
- DIY Satellite Ground Station:
<https://publiclab.org/notes/sashae/06-26-2020/diy-satellite-ground-station>
- Group for Earth Observation: Griddownpowerup.com
- NOAA Currently-Flying Satellites:
<https://www.nesdis.noaa.gov/current-satellite-missions/currently-flying>
- RTL-SDR Tutorial: Receiving NOAA Weather Satellite Images:
<https://www.rtl-sdr.com/rtl-sdr-tutorial-receiving-noaa-weather-satellite-images/>
- NOAA Satellite Imagery: <https://www.nhc.noaa.gov/satellite.php>

Notes:

- If you have ideas for net topics or general meeting topics / presenters, please let us know! Tell us on a net, or send email to k0itp@w0eno.org

Email to elmer@w0eno.org

1. KØITP - Chuck - Firestone
2. AEØDO - John - North of Longmont
3. WAØJJC - Bob - Boulder - UHF - (no response)
4. AFØW - Bryan - Longmont - UHF
5. KEØRWV - John - Johnstown

End: 7:55pm