

NARA Newsletter



President's Message – Randy VE7FAA

With spring here and the days lengthening and warming, a few words about new beginnings.

In the last year NARA and other clubs in the amateur radio community have noted an increase in people with interest in the hobby and seeking their amateur certificate.

Three cadets recently passed their ISED radio exams after a course put on by NARA (many thanks go to David VA7DXX and Mike VA7WPM for their hard work on this). To the cadets and various others who have recently obtained their call signs, welcome!

Yes, amateur radio can be called a hobby, and it is. But the amateur radio service offers much more. Federal regulations define the purpose of amateur radio as "self-training, intercommunication and technical investigation."

A multiplicity of interests lie within that simple sounding framework. Even for hams with decades of experience, mastery comes in perhaps just a few areas. To mention some: DXing, morse code, building and modifying electronics, antennas, satellite contacts, repeater technology, digital messaging, and emergency/event communications. To those new to the hobby, as you will soon see, the personal satisfaction can be immense.

And then there's the all-important human side to amateur radio. Meeting up to work, organize, learn, or just socialize is as essential to the amateur as having a radio (or a few). New hams are more than welcome to participate in the various upcoming NARA events. See the NARA event listings in this newsletter for details. We hope to see you there!

For those considering getting licensed, new hams, or veterans who want to refresh their knowledge, here are a few courses that NARA is offering. Watch for details.

Discover Amateur Radio – intended for someone who wants to learn about amateur radio

Getting Going on VHF/UHF – post Basic exam operating tips to get new hams started

Backyard antennas for HF – again, post Basic exam to help you get started on HF

From Marconi to contacts with the International Space Station, the amateur radio service has continued to thrive. That's because it's built not only on curious and industrious minds, but camaraderie, respect, and community.

73 to all

| Island Events | Date | NARA Coordinator |
|-----------------------------------|----------------|------------------|
| Field Day at Sunnus Farm in Cedar | June 24/25 | NARA Team |
| Canada Day | June 30/July 1 | NARA |
| NARA Picnic | July 15 | VE7PMD |
| Bathtub Race | July 23 | VE7TOP |
| NIARS Campout | August 17-22 | NIARS |
| VIEX | August 25 | ? |
| Velo Unpaved Bike Race | August 26 | VA7DXX |
| Ham Happenings | September 17 | NARA Team |
| Sweepstakes Contest | November 18 | NARA |
| Canada Winter Contest | December | NARA |

ARRL Field Day 2023

The ARRL describes Field Day as the 'granddaddy of all emergency communications exercises.' This year's NARA Field Day event is being held on June 24-25 at the Sunnus Farm in Cedar, the same location as last year. Those interested in helping to organize the NARA Field Day this year met by Zoom on April 26 to start the planning. Watch for emails from NARA for documentation on all of the arrangements.



NARA Navigation Workshop

The NARA Navigation Workshop, held at the 808 Thunderbird Wing, on April 15 was attended by some 30 people and was judged to be a great success.



The main speaker at the NARA Navigation Workshop was Ken Welte VA7WEL

Comox Valley ARS – Swap Meet

Despite the poor weather, the Comox Valley Swap meet on April 16 had an increased turn out compared to last year.



Happy buyers and sellers at the Comox swap meet

POTA Activation

NARA member Mason VE7PMD is organizing a Parks On The Air activation at Rath Trevor Park, Parksville, May 13. If you are interested to join the group, contact Mason at ve7pmd@gmail.com.



Artemis II Moon Mission

In early April, the National Aeronautics and Space Administration (NASA) announced the crew for its Artemis II moon shot mission. Three of the crew are radio amateurs. The commander, Reid Wiseman, is licensed as KF5LKT and the pilot, Victor Glover, is licensed as KI5BKC. Jeremy Hanson, who will be the first Canadian to travel to the moon, has the American call sign of KF5LKU.

If all goes to plan the Artemis II crew will launch in November 2024. The Artemis II Orion spacecraft will make a single loop around the moon to further test the spacecraft prior to later moon landing missions. The mission is expected to last about 10 days. It has been close to 50 years since the last crewed mission to the moon.

In other related NASA news, Chris Cassidy KF5KDR has been appointed chief of NASA's astronaut office.



Artemis II crewmembers: Mission specialists Christina Koch (left) and Canadian Jeremy Hanson KF5LKU (US call, right). Commander Reid Wiseman KF5LKT (front) and pilot Victor Glover KI5BKC (back)

VELOS Bike Race – August 26

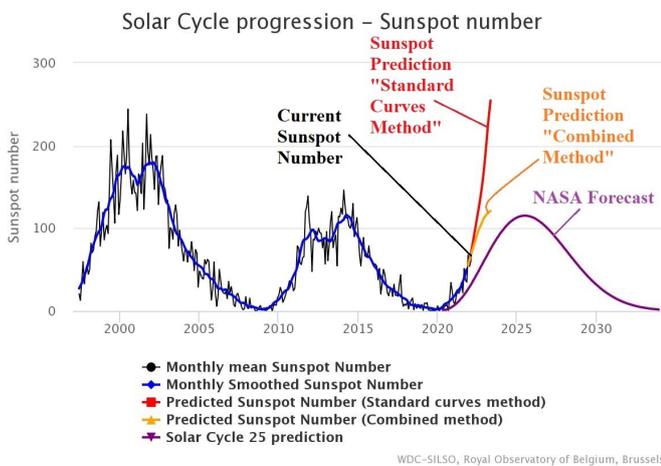
David VA7DXX reports that the Velos Bike group intends to use the same course and checkpoints as last year for their unpaved 2023 bike race on Aug. 26. Calls for volunteer participants will be made in early July. This is a great fun outdoor event where radio communication is a great advantage. Please mark the date in your diary.

How is DX – David VA7DXX

Solar physicist Dr Keith Strong made a review of Solar Cycle 25, the present cycle, at the end of March this year. Here are some of his main conclusions so far:

- Cycle 25 is an average to slightly below average cycle so far
- Cycle 25 is presently tied for the 15th biggest solar cycle
- There are no signs of Cycle 25 levelling off
- The sunspot area of Cycle 25 is outperforming Cycle 24 by 30 per cent
- C type flares are outperforming Cycle 24 by 2 to 1.
- X type flares have increased by 30 per cent over Cycle 24
- CMEs are up by 30 per cent over Cycle 24

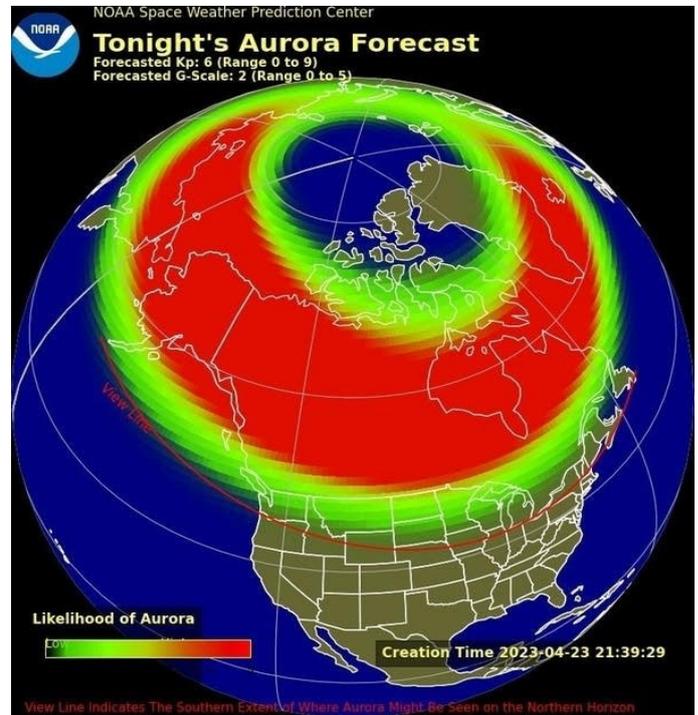
Solar Cycle 25 is still expected to peak in July 2025 so you still have some time to get your HF antennas up and work lots of DX! The higher bands continue to produce some excellent result



As if to demonstrate its continued activity, on the evening of Sunday April 25 there was a massive aurora caused by an earlier CME (Coronal Mass Ejection) from the sun.

When I realised what was happening, I popped onto 50 MHz and had a few CW contacts by auroral backscatter. You direct your beam towards the aurora (essentially northeast), and your 50 MHz (or 144/430 MHz) signal bounces off the auroral curtain to the south. My best contact was with a station in Idaho in grid square DN14.

The phase distortion caused by the motion of the auroral curtain is such that signals reflected off the aurora will not work for FT8. SSB is possible if you speak fairly slowly which for Harry Potter fans sounds somewhat like Parseltongue. CW seems the best mode because it can cope with the phase distortion. Even so, the returning CW signal sounds like a hiss with, depending on the band, some doppler shift.



The visual aurora on the evening of Sunday Apr. 25 was seen in the Southern US states

Yuris (YL2GM) from Latvia operated as VU7W for 14 days in April from the Lakshadweep Islands in the Laccadive Sea off the West coast of India. It was essentially a solo operation and North America accounted for 11.3 per cent of VU7W's contacts, of which some 96 per cent were on FT8. Yuris used a spider beam antenna he erected on the building where he was staying. Also on the roof were some solar panels, which badly detuned the antenna on the higher bands.

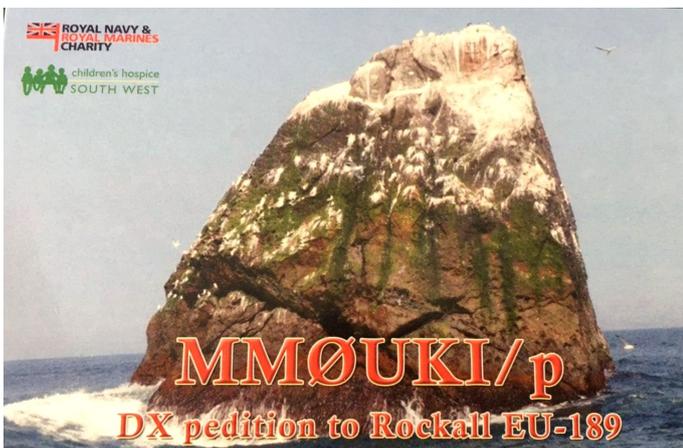


Yuris YL2GM operating as VU7W from the Lakshadweep Islands in the Indian Ocean

On the fourth day of VU7W's operation I had only seen FT8 activity, so I decided to monitor his 15m FT8 frequency. At 3 pm I popped into the shack and again saw nothing on the screen, so I started to do some reading. Two minutes later I glanced at the screen and suddenly VU7W's signal was there, weak but several dB above my noise floor. I started calling him, he responded on my third call, and we completed a QSO. Ten minutes later VU7W's signal had completely disappeared. I was very lucky to have caught this 10-minute opening; a great contact on World Amateur Radio Day. At the time VU7W's signal was well below the threshold for a CW contact by about 2 S-points. This demonstrates the power of the FT8 mode to dig deeply into the noise.

May continues to sport some sought-after DXpedition locations, including: San Andres & Providencia (HK0), Market Reef (OJ0), Maldives (8Q7VJ), St Kitts & Nevis (V47JA), Rwanda (9X2AW), Iceland (TF) and Scotland. Scotland is hardly a rare DXCC country but Nobby GOVJG and Emil DJ8JJ will be attempting to activate the Isle of Rockall, which in 2005 and 2011 had been briefly activated on the amateur bands.

EU-189 is the Islands on the Air (IOTA) designator for the Isle of Rockall, which is a 17-metre high rock, uninhabited except by sea birds, located some 370 kilometres west of the Scottish Outer Hebrides Islands. Although the British landed on Rockall in 1955 and claimed it for the UK, its affiliation is disputed. This IOTA DXpedition is slated to start on May 28 for six days using the call sign MM0UKI. Stations will use 100 watts to vertical antennas on all bands from 40 – 10m on CW, SSB & FT8.



The Spratly Islands are presently on the air until May 9, call sign DX0ONE. Gil 4F2KWT will operate two 100-watt radios from Kalayaan Island (IOTA AS-051) on all bands

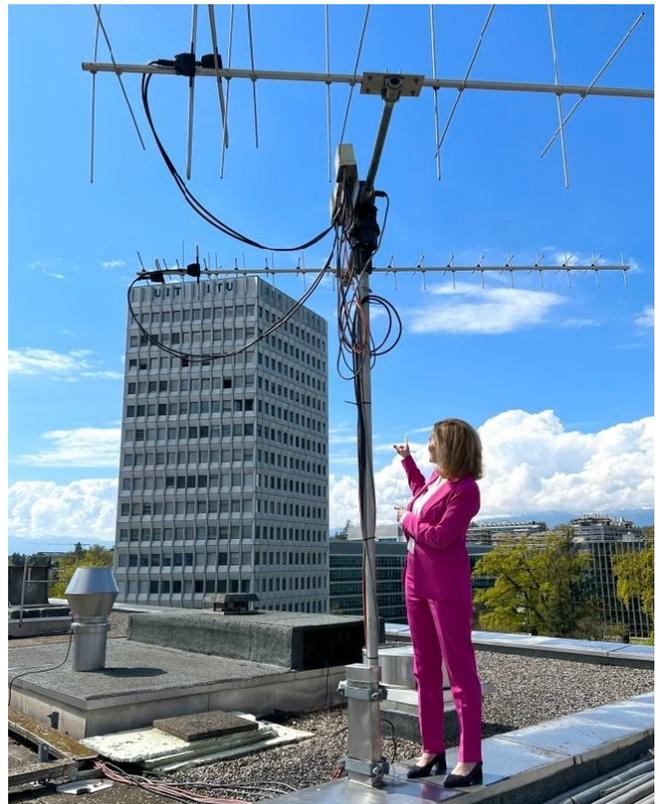
from 160-6m. The Spratly islands are composed of islands, islets, cays and over 100 reefs in the South China sea off the Philippines, Malaysia and Vietnam. They are named after the British whaling captain Richard Spratly who sighted the islands in 1843. In 1958 China issued a declaration defining its territorial waters by its 9-dash line, which included the Spratly Islands. Like Rockall, this claim is also disputed. The dispute between China, the Philippines, Taiwan, Malaysia, Vietnam and Brunei remains a diplomatic stalemate.



The Spratly Islands (inside the green circle) are well inside China's 9-dash line (in blue) which it claims are its territorial waters

ITU News

The new Secretary of the ITU (International Telecommunications Union), Doreen Bogdan-Martin KD2JTX, visited ITU headquarters (4U1ITU) in Geneva on World Amateur Radio Day.



KD2JTX checking out the 4U1ITU satellite antennas

As a follow up to World Amateur Radio Day, Tim VE6SH, IARU President, has provided the following:
The International Amateur Radio Union (IARU) is a proud and active member of the International Telecommunication Union (ITU). IARU was admitted to the work of the CCIR, the forerunner to today's ITU Radiocommunication Sector (ITU-R) in 1932 and has been contributing to the work of ITU ever since. Our involvement now extends to being an active participant in the work of the Development Bureau (BDT) as well as ITU-R.

Amateur radio pioneers met in Paris on April 18, 1925, and created the IARU to support amateur radio worldwide. Since its founding, the IARU has worked tirelessly to defend and expand the frequency allocations for amateur radio. Thanks to the support of enlightened administrations in every part of the globe, radio amateurs are now able to experiment and communicate in frequency bands strategically located throughout the radio spectrum.

From the 25 countries that formed the IARU in 1925, the IARU has grown to include over 160 member-societies. ITU has recognized the IARU as representing the interests of amateur radio. Today, amateur radio is more popular than ever, with more than 3 million licensed operators.

For those interested in reading the ITU report on its preparatory studies for the 2023 World Radiocommunication Conference see: <https://www.itu.int/en/mediacentre/Pages/PR-2023-04-06-cpm23-2-report-on-preparatory-studies-for-wrc23.aspx>

Special Prefixes King Charles III Coronation

A reminder that from May 5 to July 2 amateurs in Canada will be able to use special prefixes. In place of their normal VE7 prefix amateurs can use CK7 and in place of the normal VA7 prefix amateurs can use the CJ7 prefix.

The coronation of King Charles III will take place at Westminster Abbey in London. Listen out for the many special coronation stations including the flagship station GB23C.

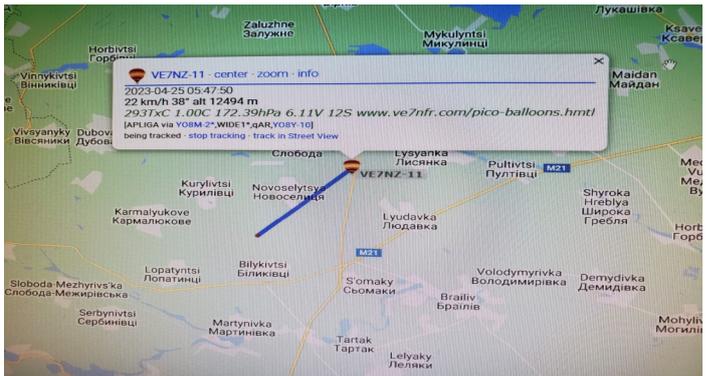


Nanaimo Air Cadets

Three teenage Nanaimo air cadets recently passed the Basic amateur radio certificate exam from the course provided by NARA, and all three now have their call signs. Two of the cadets (and their parents) have given permission for their names and new call signs to be shared with NARA members. Congratulations to Iain VE7AXJ and Daxton VA7DFW on obtaining their new call signs.

More on Pico-Balloons

The VE7NZ-11 pico-balloon was over Ukraine a few days ago.



VE7NZ-11 over Ukraine on April 25 at some 41,000 ft altitude

Thanks to VE7NZ and the author VA7SL for permission to print the following: North Fraser Amateur Radio Club successfully launched pico-balloons VE7NZ-11 and VE7NZ-11 on Apr. 13, from the Albion Sports Complex in Maple Ridge, BC. After a lengthy weather delay, resulting in a sleepless night waiting for enough sun on the solar panels to wake up the trackers the following morning, the trackers sprung to life over Montana, USA and then went up north eventually across Hudson Bay and then down off the coast of Labrador & Newfoundland into the Atlantic Ocean.

Both pico-balloons are using a SBS-13 Super Pressure Balloons from Scientific Balloon Solutions filled with hydrogen to approximately 8.5 grams of free lift. The payloads are Light APRS+ trackers from QRP Labs with VE7SL operating on 20m WSPR and VE7NZ operating on 10m WSPR. Both beacon APRS on the appropriate frequency for where they are in the world. The support line is eight-stranded 12-pound fishing type with a swivel at the top to allow for spin. A third pico-balloon launched that day suffered a catastrophic failure and is now resting in peace (pieces).

Getting Started with Satellite Operations (Part 6): Operating Linear Satellites Part A - Bruce VE7PTN

Welcome to the sixth article in my series on operating amateur radio satellites. Last month's article was an introduction to linear satellites. Once you have figured out the listening bit, you are ready to operate. So this month we will build on your listening skills and start operating. I will start with the procedure for getting into the satellite and calling CQ so other operators come to you. This is easier than you going hunting for other operators.

First, a note about your transmit power setting.

Remember I said that the transponder will retransmit all signals in the passband? It will also retransmit with the relative power of the received signal. So stronger signals will be retransmitted more loudly than weaker signals. Of course, the satellite's output power is finite, and the stronger signals effectively steal power from weaker signals. Therefore, it is considered bad form to hit the bird with an overly strong signal and hog all the power for yourself. Make sure to keep your power setting low enough to be heard at about the same relative volume of the other stations and you will be fine. If you plan to operate CW, you will need to pay particular attention to this as it is more difficult to judge your relative volume. Several times I have experienced what seems to be a dead satellite because one CW operator is using close to 100% of the satellite's retransmit power. Now, cautions aside, you will need more power to get into the satellite when it is farther away and when there are many operators. This changes throughout the pass so be ready to adjust your power accordingly. Or you can leave your power setting low until you get the hang of things, say about 5 to 10 watts.



The waterfall display of the IC-9700 during an RS-44 pass. With a bit of imagination, you can see four QSOs in progress at -7, 0, +3 and +14.

As an experienced operator and with a good station, I will often start at full power on my IC-9700 (75W UHF / 100W VHF) when the satellite is a few degrees above the horizon but then quickly reduce to 15W as the satellite gets closer and my downlink volume climbs. But I do not recommend that you start out with this procedure.

By far the most challenging part of getting started with linear satellites is to get the power and tuning correct so that you hear your own downlink, called "finding yourself". It is essentially impossible to do without a full duplex setup. You would never be able to tell where your downlink was showing up if you were operating simplex. To find yourself you will need to get all of these things right at the same time for at least a few seconds:

- Enough power into the satellite to result in a retransmitted signal of sufficient strength — get this right by pointing your antenna at the right place, with matching polarization, and with sufficient transmit power; it is much easier at mid-pass than at AOS or LOS.
- Correct "channel" tuning — your uplink is tuned to the appropriate frequency so that it is retransmitted at your downlink frequency; use Paul Overn's spreadsheet as a guide and consider programming the channels into your radio memories or tuning software for easy recall.
- Correct adjustment in uplink and/or downlink to account for the Doppler Shift at that point in the pass, tuning software is perfect for this, but it can be done manually with some practice; if doing manually, consider using your radio's RIT feature.
- Correct receive offset frequency for the satellite (to adjust for its "health" at that pass) — the RIT feature on your radio is handy for this, especially if you are using tuning software.

Hopefully I have not scared you off. It is possible to get all this right after a few tries. Here are steps to make it as easy as possible, and assuming that you have a handheld Yagi antenna, full duplex radio setup but do not have tuning software:

1. Pick a "loud" and "slow" satellite such as RS-44 or FO-29 (make sure to check the AMSAT satellite status page to confirm that it is currently working: <https://www.amsat.org/status/index.php>).
2. Pick a pass that will be at least 40° elevation at Time of Closest Approach (TCA).
3. Put your antenna on some sort of mount and initially point it where you expect the satellite to be just before TCA.

3. Tune your radio to the middle of the passband; for RS-44 this is 145.965 MHz LSB up and 435.640 MHz USB down; for FO-29 this is 145.950 MHz LSB up and 435.850 MHz USB down.
4. Set your radio power to 10W; this is loud enough to be heard and low enough to not be considered selfish.
5. Activate the waterfall display on your receiver and increase its sensitivity to the maximum that is useable.
6. Adjust your RIT to about +4.0 kHz (or your receive frequency if your radio does not have RIT)
7. When the satellite is about 1/3 of the way through the pass and when there are no other signals heard, start your recorder and with one hand on the RIT, key your transmitter then say your call sign and the word "tuning" (this lets others know that you may not be hearing yourself so won't hear them if they call you); do not say "CQ" at this point.
8. If you hear yourself at perfect volume and pitch, stop operating and go buy a lottery ticket as you may be the luckiest person in amateur radio.
9. If you hear yourself but your audio is higher or lower pitched than normal, adjust the RIT (or RX frequency) up or down to get it sounding normal.
10. If you hear yourself but your audio volume is very low, check your antenna orientation, assuming that it is pointed to where you expect the satellite to be right then, and while transmitting, try tipping it about its axis to align polarization with the satellite. If no improvement bump up your TX power by 5W and try again. Do not exceed 15W if handheld and 25W if mounted.
11. If you do not hear yourself at all, watch your waterfall display as you transmit and notice whether you see a signal appear close to your tuned frequency; if you see one, tune to that frequency as it is probably you. If no luck, give up transmitting for now and practice searching for other QSOs (there will be another pass).
12. When you are hearing yourself OK after making these adjustments, immediately call CQ by saying "CQ satellite, CQ satellite, [your call sign], [your grid square]". You will need to keep adjusting the RIT to keep your downlink aligned with your uplink and keep tracking the satellite with your antenna.
13. If no response to your QSO after a couple seconds, repeat your CQ. This is necessary so that others have time to find your signal and adjust their equipment to meet you. It is also necessary so that you can keep adjusting your equipment to keep hearing yourself; if you pause too long you need to go back to step 10.
14. If you do get a response, reply with "[their call sign] QSL [your call sign], [your grid square]". (It is important to repeat their call sign back to them so that they may correct you if misheard.) If they have not provided,

15. request their grid square.
15. When your QSO is done, immediately call CQ again as other stations may have now found you and want to call. If you think there is another station waiting, you may say "[your call sign] QRZ" instead of CQ if you prefer.
16. After the pass, review your recording and make you log entries as is your practice.



The smartphone app "Theodolite" is another useful app. for amateur radio portable operation. As demonstrated in this picture, it allows you to capture the current grid location, date/time and a view of your operating location in a single photo, which can be handy for record keeping during portable operation

Most linear satellite operators are chasing grids so will appreciate you confirming your QSO via Logbook of the World (LOTW). There is a great step-by-step on how to do this for satellites on the AMSAT website: <https://www.amsat.org/logging-satellite-qsos-with-logbook-of-the-world/>. The next article in the series will continue with linear satellite operation and will cover how you would go hunting for other operators.

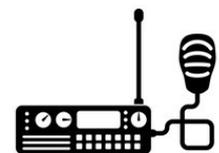
Ham Happenings

By NARA

September 17, 2023

Cedar Hall, Cedar

Note the date!



The volunteer group of NARA members producing this newsletter would like to thank all those who provided material for this month's issue.

The NARA newsletter is normally published on the last Friday of the month preceding the month of issue.

News items and comments should be mailed to:

news@ve7na.ca