The January 2026

NARA Newsletter

President's Message - Mason VE7PMD

Welcome to 2026 and a very happy new year to all members of NARA.

We have a lot of amateur radio activities on the list for 2026, starting of course with Winter Field Day at the 808 (Thunderbird) Wing site on Saturday Jan. 24. I hope that many NARA members will visit and operate the NARA stations. I look forward to seeing you there.

The key summer events this year will include the bike race, ARRL Field Day, the Canada Day contest get together and the Bathtub race. Also, this year it is NARA's turn to host Ham Happenings which will be in September. This year Ham Happenings could well be something a little different. There is lots of organizing to do and I'll return to NARA's plans for Ham Happenings later in the year.

During December, NARA saw six new radio amateurs certified, having taken the NARA Basic Exam course, and passed the Basic exam. Many thanks to NARA's training group. Also the recent NARA NVIS tests on Dec. 21 were a great success with over 100 contacts during the test period on the shortest day of the year.

A reminder that NARA's general meetings for January through March will be on-line only. After this we expect to resume the in-person meetings at the 808 Wing, which proved popular last year. As a comment, just how much did covid affect our society? Also, a reminder of the regular NARA coffee klatches which provide another opportunity to get together with like-minded members.

NARA has a keen membership, a lot is happening and thank you to all members who organize and support NARA activities.

Island Events for 2026	Date	By
NARA General Meeting	Jan. 8 (On-line)	NARA
808 Wing Breakfast	Jan. 18 @ 9 am	808
Winter Field Day	Jan 24	NARA
Nanaimo Science Fair	February	NARA
NARA NVIS Tests	Mar. 22	NARA
Comox Flea Market	April	CVARC
Bike Race (MIVA)	June	*MIVA*
Field Day (ARRL)	June	NARA
Canada Day Event/Contest	July 1	NARA
Nanaimo Bathtub Race	July	*RNBS*
NIARS Campout	August 16-23	*NIARS*
Ham Happenings (Nanaimo)	Sep. 12	*NARA*
Canada Winter Contest	December	NARA

Winter Field Day

Please join NARA for Winter Field Day on Jan. 24. The essential information is as follows:

When: Saturday, Jan. 24, 2026. From 11 am-5 pm
Where: 808 (Thunderbird) Wing site at 719 Nanaimo Lakes Road, Nanaimo
Who: All NARA members and cadets are invited

Any questions and further information from Greg VE7GGH at wfd@ve7na.ca

60m Band Operation and NVIS tests

NARA has been promoting NVIS (Near Vertical Incident Skywave) operation on the low frequency amateur bands through its series of tests for over a year.

NARA started its NVIS tests in 2024 with tests on the 80m band. Subsequently, a special three band NVIS operation took place and VE7NA operated simultaneously from the same location, on the 80, 60 and 40m bands. Those present for these three band NVIS tests were especially impressed with the performance of the 60m band. Compared to 80m, antennas for 60m are shorter and can be lower in height.

As a result of these three band tests, NARA has continued its NVIS tests on the 60m band and recently two tests have been conducted. The first was conducted on Oct. 18, 2025 quickly followed by further tests on Dec. 21, 2025.

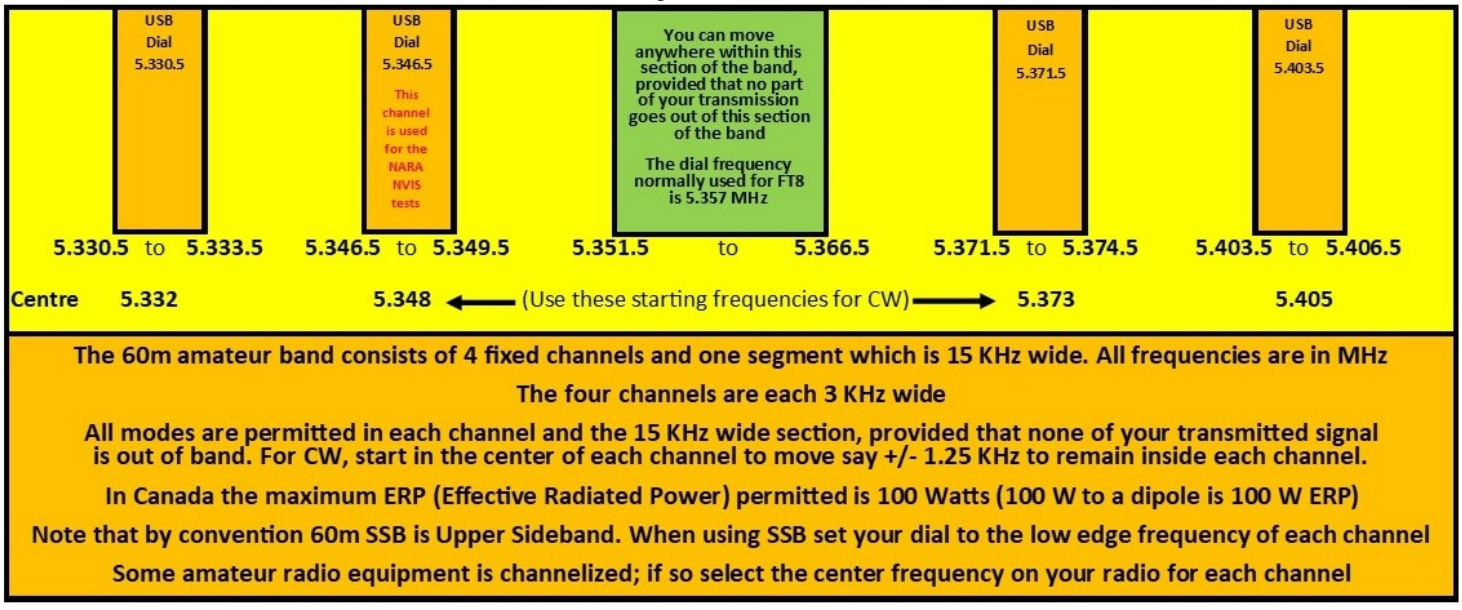
Both of these October and December 2025 NVIS sessions were well attended. In October NARA achieved 72 contacts with 42 unique callsigns. In December the numbers were even better with 105 contacts and 88 unique callsigns. A detailed report on NARA's October NVIS tests was published in the November *NARA Newsletter* and the plan is to publish a detailed report on the December tests in the February 2026 *NARA Newsletter*.

The scenario for all of NARA's NVIS tests is about wanting to observe what daytime ranges can be achieved using 100 watts of SSB using typical 60m antennas. As we know, the daytime ranges on the lower frequency HF bands is limited because the D-layer attenuates low frequencies as they pass up through the D-layer to be refracted by a higher ionospheric layer. There is also attenuation of the signal passing down through the D-layer. During daylight the attenuation limits the range of signals, while at night, when the D-layer is not present, the ranges on 60m can be worldwide.

One of the issues associated with the 60m allocation is that this is not a band as such. The 60m allocation in Canada, and now in the USA, consists of four channel allocations, each 3 KHz wide, and one small band which is 15 KHz wide. So some care needs to be taken especially when using SSB. The diagram below attempts to help explain how to use the 60m allocation. On the four channels it is most important that your signal only occupies the channel allocated. By convention, the 60m band uses upper sideband (USB). So on the four channels use USB with a dial frequency set at the lower frequency of each channel. Also, please read the notes below.

Finally, it should be noted that in mid-December 2025 the FCC announced that amateurs in the USA could now use the 15 KHz wide band (shown in green below). So the USA allocations now match Canada.

Channels and frequencies for the 60m band



The 60m amateur band consists of 4 fixed channels and one segment which is 15 KHz wide. All frequencies are in MHz

The four channels are each 3 KHz wide

All modes are permitted in each channel and the 15 KHz wide section, provided that none of your transmitted signal is out of band. For CW, start in the center of each channel to move say +/- 1.25 KHz to remain inside each channel.

In Canada the maximum ERP (Effective Radiated Power) permitted is 100 Watts (100 W to a dipole is 100 W ERP)

Note that by convention 60m SSB is Upper Sideband. When using SSB set your dial to the low edge frequency of each channel

Some amateur radio equipment is channelized; if so select the center frequency on your radio for each channel

NARA's Christmas Gathering

NARA held its fun December Christmas Gathering on Friday Dec. 5.

The gathering was a potluck meal with a wide range of food from pizza to various casseroles and a selection of sweets. Attendance was about 30 which included a number of guests.

NARA typically holds a Christmas event during December in place of its normal general meeting.

NARA's Christmas Gathering.

Appreciation for Randy and Chris

Certificates of NARA's appreciation were presented to Randy VE7FAA and Chris VE7TOP for their previous voluntary efforts on behalf of NARA over many years.

Randy VE7FAA for his work as President and Chris VE7TOP for his work as Treasurer. NARA's congratulations to both recipients.

Both certificates were presented by NARA's new President, Mason VE7PMD during December.

Chris VE7TOP receiving his Certificate of Appreciation at the NARA Christmas Gathering.

Membership Cards for 2024-2025

By now all paid up members of NARA should have received their membership card/certificate for the 2024-2025 NARA financial year. If you have not yet received your card/certificate please contact NARA's secretary at secretary@ve7na.ca.

Congratulations - Passed Basic Exam

NARA's training Group (VA7WPM, VA7DXX, VE7LSE & VA7HN) are pleased to announce a number of recent Basic exam successes. All six have now received their new amateur radio callsigns. These are: Chris VE7XCP, Robin VA7ZAX, Robert VA7RZK, James VE7JZR, Rowan VA7RVB and Nick VE7NYX. If you hear these new callsigns on the air, please make contact and send your own congratulations.

NARA Coffee Klatches

Day	Frequency	Time	Locations in Nanaimo
Tuesday	Weekly	10:30 am	South End Smitty's - 50, 10 Street
Thursday	3rd Thursday of each month	7:00 pm	Tim Horton's - 2320 Northfield Road
Saturday	Weekly	9:00 am	North End Smitty's - 2980 North Island Highway, Rock City Centre

How is DX – David VA7DXX

It is just 4 weeks until the 3Y0K Bouvet Island DXpedition departs from Cape Town, South Africa, for the remote and hostile uninhabited island of Bouvet. This presents a rare opportunity to work Bouvet Island. 3Y0K's container with all of their supplies and equipment is now in Cape Town, South Africa, awaiting the group's planned departure on Feb. 1. It could be a decade or more before the next DXpedition to this rare island so I am encouraging NARA members who are interested in HF to try to work this DXpedition.

During December, I worked some good DX which included LZ0A (Antarctica), VK9DX (Norfolk Island), 5W1SA (Samoa), SO1SW (Western Sahara), V51WH (Namibia), ZD7BG (St Helena) and TT1GD (Chad). I completely missed the ARRL 10m contest because we had weekend visitors, but I did grab about 4.5 hours in the Canada Winter Contest making 250 contacts on CW. Jack VE7GDE and Gerry VE7BGP, running as VE7NA (the Club's call) at Jack's location, made a total of 287 contacts on SSB and CW. Their score was 69,888 points.

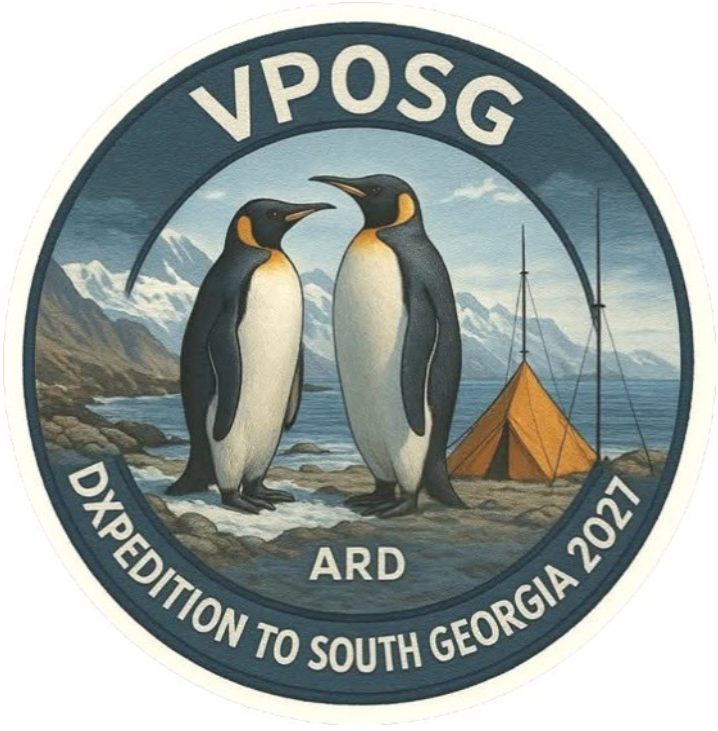
In January, look out for the following Dxpeditions: Grenada (J28WG), French Polynesia (FO), Benin (TY5GG), Palau (T8), Lakshadweep Islands (VU7RS, see below), Aruba (P40AA), San Felix & Ambrosia (3G0XQ), Sint Martin (PJ7), Desecheo Island (KP5), Kenya 5Z4), Maldives (8Q7JI), Barbados (8P9CB), Guadeloupe (FK4KH), Micronesia (V6), Curacao (PJ2) and St Kitts & Nevis (V47JA).

Also a mention of the special event stations in the UK signing GB8KW and GB2KW. These special event stations celebrate the well-known KW Electronics Company, it's owner Roly Sheers and the KW2000 line of equipment. I had a KW2000A transceiver in the 70's and remember it well. It was likely the UK's first commercial amateur radio SSB transceiver. I actually saw a KW series ATU at a recent Island flea market so the KW line clearly made it to Canada. Roly Sheers G8KW was quite a character. I remember meeting him at RSGB events in the 1970s.

The DX India Foundation is thrilled to announce that the VU7 DXpedition team has confirmed its schedule to operate from Agatti Island, Lakshadweep Islands, from Jan. 10-22, 2026. This rare DX opportunity promises to bring excitement to the amateur radio community worldwide. The AU2S team consists of five operators from India and two from Germany plus operators from Tajikistan and Serbia. Last, but by no

means least, our very own BC operator Keith, VE7KW from Port Coquitlam. He will be there representing Canada, so please beam towards VE7 Keith!

Finally, Amateur Radio DXpeditions (ARD) is pleased to announce a major milestone in the preparation of their VP0SG South Georgia 2027 DXpedition. ARD has signed a contract for the vessel and the first deposit has been paid. I have not personally worked South Georgia for at least ten years, so this will likely be a popular DXpedition. We are awaiting further details.



Meshtastic News

NARA Members are putting together a box which will include both Meshtastic and Meshcore equipment for Mt. Benson. There is currently an issue with the Mt. Benson node, which is low on battery and which is not charging fully during the day. By Winter Field Day NARA also hopes to have the MeshCore and Meshtastic node installed at the 808 Wing and also a MeshCore BBS system installed at the 808 Wing.

Radiation Levels

As reported in the December issue of the *NARA Newsletter*, the Aurora on Nov. 11 was significant in more ways than one! From Space.com: *Radiation levels in Earth's atmosphere rose to the highest level in nearly two decades in November after a rare solar super-flare pummeled the planet with high-speed particles from the sun. The solar flare, an extremely bright flash of light, erupted from the AR4274 sunspot on Nov. 11. Classified as a powerful X5.1, the flare followed a series of milder flares and coronal mass ejections (CMEs) that treated skywatchers to mesmerizing aurora displays as far south as Florida.*

Geminids Meteor Scatter Weekend

Over the weekend of Dec. 13-14, the HamSci Group conducted special tests on the 10m and 6m bands during the peak of the Geminids meteor shower. David VA7DXX used the opportunity to try out the data mode MSK144 on 10m to see if he could receive any meteor scatter signals over night from Friday Dec. 12 to Saturday Dec. 13. The map below shows the stations heard over this night time period. While it is difficult to distinguish exactly which stations are being received only via meteor scatter, it is likely that stations in the 800-2000 Km range were meteor scatter only.

Malaysia Flight MH370

On Mar. 8, 2014, Malaysia Airlines Flight MH370, a flight from Kuala Lumpur to Beijing, disappeared from radar and was never seen again. Extensive sea and air searches for the aircraft were unsuccessful.

The search for the missing MH370 resumed on Dec. 30, 2025 more than a decade after the plane disappeared in one of aviation's greatest mysteries. The marine robotics company Ocean Infinity, based in the UK and US, have just resumed the search of the seabed for a period of 55 days. The Texas based marine robotics company will operate on a 'no-find, no-fee' arrangement, but if it does locate the wreckage of the aircraft, a Boeing 777, it will receive a $70 million payment.

Why is this of interest to amateur radio operators? Well, there are several ways in which the final location of MH370 could been determined. One of the possible methods for locating the aircraft is based on an amateur radio database. Amateur Radio's WSPR (Weak Signal Propagation Reporter) technology is one possible way in which the final location of the aircraft could be determined. The theory is that a large object like an airplane flying through the path of these low-power amateur radio signals creates a disturbance. By analyzing the WSPR data from the day of the disappearance, some believe they can reconstruct a possible flight path to help narrow down the search area. The continued search will determine if the WSPR database theory has any validity.

NARA's Website:

https://ve7na.ca

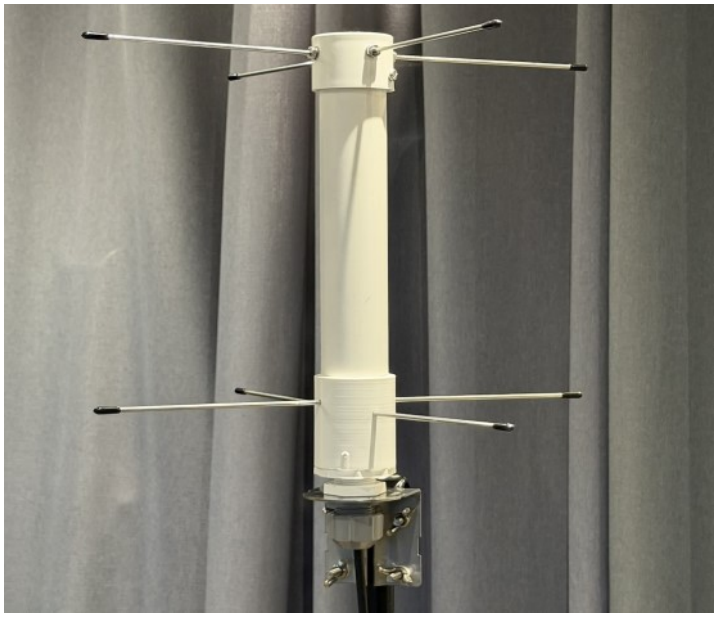
The Satellite Downlink: Hosting a SatNOGS Ground Station Part 3 - Bruce VE7PTN

Welcome to part three of a series about my experience with hosting a receive-only SatNOGS (Satellite Networked Open Ground Station) satellite telemetry ground station. As explained on the SatNOGS website (https://satnogs.org), "it's a network of satellite ground stations focused on observing and receiving the signal of satellites, particularly low earth orbit (LEO) cubesats." My plan for December was to improve the bench test configuration I had started in November. Things are coming along nicely, and I am feeling more positive about the project than I did last month.

I had first experimented with a dicone antenna that I had on hand, but the results were poor. With that antenna I could not receive any satellite downlink. This is likely because the antenna is optimized for vertical polarized signals around the horizontal plane. When satellites are close to the horizon, they are the farthest away from my station and therefore the signals are the weakest. The signal would be stronger when the satellite is overhead, but the antenna has a null in this region, by design, so reception is compromised. After ruling out the discone, I had moved on to testing my station with my main crossed-Yagi satellite antenna. Sadly, I could not get the rotator control to work with the SatNOGS software running on the Raspberry Pi. I did try a few more things after my last writing to get the rotator working, but decided to abandon that approach for now.

To improve my station, I decided to acquire a "turnstile" antenna, one of the recommended options for an omnidirectional satellite antenna on the SatNOGS website. My internet searching didn't find any commercial one that met my needs. So, I decided to go the build-your-own route. I did have some misgivings with this approach as I often find that home-built antennas look a little cheesy. But, I found a design by Alicja Musiał, a Polish engineer and satellite fan, that looked good and is intended for SatNOGS use: https://alicja.space/blog/how-to-build-turnstile-antenna. I adjusted the design a little,

substituting drilled PVC plumbing fittings for the 3D-printed element mounts (I don't have a 3D printer… yet). I also decided to get a Low-Noise Amplifier (LNA) to boost the signal. The resulting antenna looks and works OK. I still have it mounted at a testing location on our deck. It is working well if I select satellite passes that are almost directly overhead. It still does not have enough gain to pick up signals from satellites when they are closer to the horizon. I might be able to improve the performance with some antenna adjustments, but I don't have the necessary SMA adapter to connect the antenna to my antenna analyzer. However, the order is in transit so I should have more to share on this next month.



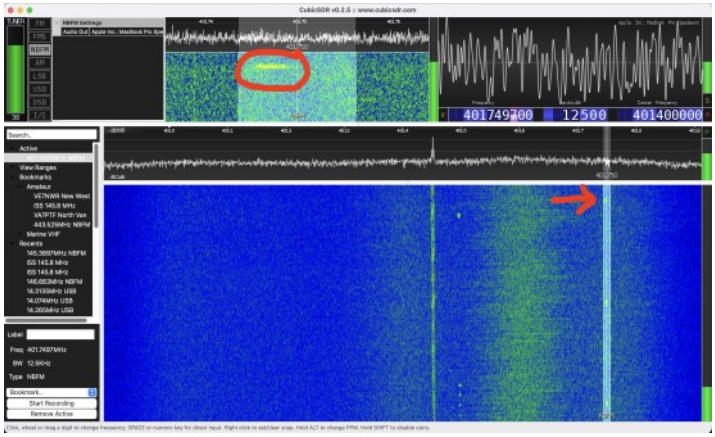
The UHF turnstile antenna built by Bruce VE7PTN using the design by Alicja Musiał posted at: https://alicja.space/blog/how-to-build-turnstile-antenna.

The Low-Noise Amplifier (LNA) by Nooelec (https://www.nooelec.com/store/sdr/sdr-addons/rf-blocks/lana.html) and enclosure that Bruce VE7PTN is using close to the UHF turnstile antenna to boost the RF for the longer run to the Raspberry Pi enclosure.

The UHF turnstile antenna and LNA in a temporary location on the deck at Bruce VE7PTN's QTH for testing. The roof gable in the background, just to the right of the antenna, is the planned location for permanent mounting.

Another bit of success from my December work that had alluded me during November was being able to monitor the waterfall from the Software Defined Radio (SDR) attached to the Raspberry Pi in real time. There is a procedure for this in the omnidirectional station build instructions on the SatNOGS website: https://wiki.satnogs.org/Omnidirectional_Station_How_To#Setting_the_gain. During November, I was overwhelmed by all the new information for me in this procedure and I did not fully understand what I needed to do. But in re-reading this section during December, it made more sense. The basic approach is to get the software "SoapySDR Server" running on the Raspberry Pi to broadcast the SDR output and then monitoring it using another computer on the same network running the waterfall software "CubicSDR". After a bit of trial and error, I discovered that my old CubicSDR

installation was missing the driver or setting needed to access the remote SDR over the network. A simple uninstall/reinstall of CubicSDR fixed the issue. It was very helpful to see and hear the SDR operation with the turnstile antenna and LNA in real time. I followed the "Setting the Gain" procedure on the SatNOGS website using CubicSDR and determined that my SDR gain should be set to 29. I adjusted my SatNOGS client setup on the Raspberry Pi from 32.5 down to the gain value of 29 and then tried a few satellite passes. In practice, I found that this lower gain resulted in less success with signal detection and decoding. With a bit more experimenting, a gain value of 39 was the best for good signal detection without too much noise. So, I decided to go with 39 for now.



A screenshot from CubicSDR while monitoring a satellite pass. A telemetry transmission from the satellite is circled in the waterfall magnification at the top of the display. The same transmission is indicated in the zoomed-out waterfall below with an arrow. Satellite signals are easy to distinguish from terrestrial signals; their frequency drifts from high to low due to the Doppler Effect as the pass progresses while terrestrial signals are fixed.

Now that the UHF antenna is working out. I am planning to build a VHF turnstile antenna using the same design. I will add a diplexer to the setup to have both the UHF and VHF antenna connected to the same SDR unit on my station. I have been keeping Amazon happy with several orders for various bits such as waterproof boxes, LNA and SMA-type connectors/adapters. I have kept my station in the "testing" mode on the SatNOGS network meaning that I am the only one that can schedule passes. Since I am still working on the build and occasionally disconnect the station when making changes, I think I will keep it in this mode until I get it permanently mounted with both antennas. Already I have quite a collection of observations just with the UHF antenna.

If you want to see my results, go to the website: https://network.satnogs.org/observations/?station=4461. This will list the satellite observations for my station. I have several good observations for the Turkish Connecta satellites (e.g., ConnectaIoT-4). Periodically their downlinks include the message "ISTIKBAL GOKLERDEDIR! MUSTAFA KEMAL ATATURK". This is a famous quote from the Turkish leader Mustafa Kemal Atatürk, and it means "The future is in the skies!", a fitting message from a satellite.

ID	Satellite	Frequency	Mode	Timeframe	Results	Observer	Station
13068126	ION-MK02-SCV013	401.4150 MHz	FSK AX.100 Mode 5 1200	2025-12-27 17:53:17 2025-12-27 18:05:13		ve7ptn	4461 - VE7PTN1-UHF
13068125	ArcticSat-1	435.8900 MHz	GMSK USP 9600	2025-12-27 16:43:13 2025-12-27 16:53:30		ve7ptn	4461 - VE7PTN1-UHF
13068124	Tyvak 0130	400.7650 MHz	FM	2025-12-27 16:25:53 2025-12-27 16:37:54		ve7ptn	4461 - VE7PTN1-UHF
13068123	GOMX 1	437.2500 MHz	GMSK 4800	2025-12-27 14:56:51 2025-12-27 15:11:19		ve7ptn	4461 - VE7PTN1-UHF
13068122	ISS	437.8000 MHz	FM	2025-12-27 13:57:20 2025-12-27 14:08:16		ve7ptn	4461 - VE7PTN1-UHF
13068121	BOTAN	437.3750 MHz	GMSK 4800	2025-12-27 13:15:47 2025-12-27 13:26:01		ve7ptn	4461 - VE7PTN1-UHF
13068119	GRBBeta	436.7850 MHz	GFSK 9600	2025-12-27 10:37:31 2025-12-27 10:49:47		ve7ptn	4461 - VE7PTN1-UHF
13068117	SITRO-AIS-55	401.1080 MHz	FSK 2400	2025-12-27 09:32:31 2025-12-27 09:43:39		ve7ptn	4461 - VE7PTN1-UHF
13068116	ConnectaIoT-12	401.5400 MHz	GMSK 4800	2025-12-27 08:35:30 2025-12-27 08:47:03		ve7ptn	4461 - VE7PTN1-UHF
13068115	CUTE	437.2500 MHz	GFSK 9600	2025-12-27 06:52:04 2025-12-27 07:02:08		ve7ptn	4461 - VE7PTN1-UHF
13068114	ConnectaIoT-5	401.5100 MHz	GMSK 4800	2025-12-27 06:28:31 2025-12-27 06:41:09		ve7ptn	4461 - VE7PTN1-UHF
13068113	ConnectaIoT-2	401.5200 MHz	GMSK 4800	2025-12-27 06:11:58 2025-12-27 06:23:29		ve7ptn	4461 - VE7PTN1-UHF
13068112	SITRO-AIS-9	401.2600 MHz	GMSK USP 2400	2025-12-27 05:24:06 2025-12-27 05:35:15		ve7ptn	4461 - VE7PTN1-UHF

A screenshot from the SatNOGS website (https://network.satnogs.org/observations/?station=4461) showing some observations by Bruce VE7PTN's station. Observations with an ID number on a green background are ones considered as "Good" because the satellite's signal is visible in the waterfall and heard in the audio recording made by the station. In some cases, the Results include data that are demodulated by the station from the audio and uploaded to SatNOGS (e.g., Observation # 13068114/ConnectaIoT-5). Not all satellites are supported with on-station data demodulation. The audio may be downloaded and processed by satellite owners offline to extract the data.

For January I plan to get the VHF turnstile finished and get working on the permanent mounting configuration. So please stay tuned for next month's article to see how I am progressing. That's all for this month. 73.

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

The deadline for the February 2026 issue of the NARA Newsletter is noon on Wednesday Jan. 28, with an intended publication date of Saturday Jan. 31

News items, comments or articles for publication should be emailed to:

news@ve7na.ca