

# NARA Newsletter



## President's Message – Randy VE7FAA

Well, we inaugurated another year for NARA with Winter Field Day at the end of January. It was held at the new NARA club location, the 205 Collishaw Air Cadet squadron on Nanaimo Lakes Road. See below for more Winter Field Day details. All members are invited to participate in upcoming NARA events through 2023.

This year marks 75 years for NARA. The club began operating after the Fraser Valley floods in the spring of 1948. If you have any documents or information related to the history of NARA please let NARA know via email ([nara.ve7na@gmail.com](mailto:nara.ve7na@gmail.com)). We are looking at ways to mark this milestone, including a special events call sign.

If you want stay informed about NARA happenings sign up for regular emails on the NARA website at: <http://www.ve7na.ca/contact-us/mailling-lists/>.

In other news NARA is this month giving a radio licensing course for air cadets at the base. Thanks to David VA7DXX and Mike VE7WPM and the other training team members for their hard work in putting on this course. 73 to all.

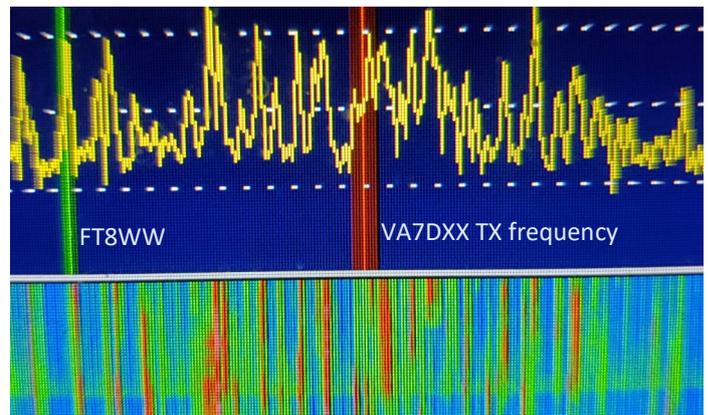
## Winter Field Day

Winter field Day was held on Jan. 28 at the air cadet base on Nanaimo Lakes Road. It was a cool, crisp and sunny day; fun for all involved including a couple of the newly licensed hams who recently took the NARA Basic course and exam. Although the point of Winter Field Day is not contesting, the club did make 120 contacts on CW and SSB.



## How is DX – David VA7DXX

A CW contact for the Crozet Island DXpdition by F6CUK signing FT8WW proved to be challenging. FT8WW was using FT8 mainly on the 30m and 20m bands for up to about 12 hours a day with only about one hour of CW a day. Fortunately for us in British Columbia the CW sessions coincided with the right time of the day for good propagation. The best signal that I heard from FT8WW was on a Monday, Jan. 2, in the morning when the CW signal peaked 589, quite amazing from the other side of the planet. I missed a contact on that day because at the time all the indications were that the signal was from a pirate, which subsequently turned out to be incorrect. However, on the morning of Jan. 6 I did make it through the pileup. To be honest, I have never seen such a huge pileup for any previous DX station. Being that the last Crozet operation was 13 years ago, hardly surprising.



*The massive 20m CW pile up for FT8WW on Crozet Island on Jan. 6. The green line shows FT8WWs frequency and the red line was where I was transmitting during our QSO, 7 KHz up*

The other interesting thing propagation-wise was that, being almost at our antipode, it seemed possible that FT8WWs signal could arrive here from any angle. In practice his 20m signal was always best beaming west, which is some 50 degrees off the (just) long-path heading. I know of at least three other Vancouver Island stations (VE7CT, VE7TK and VE7XF) that got through on CW, so the good propagation really helped us all on this occasion. It's also worth noting that FT8WW was using a simple G5RV antenna at about 35 feet. Louis Varney, the British ham who held the eponymous G5RV call sign and who

invented the antenna in the late 1940s, would be delighted!

The initial transmitting permit for FT8WW ended on Jan. 14. To that date FT8WW made 4,919 CW contacts, of which 1,744 were with North America, plus 15,700 FT8 contacts and 753 on SSB.

February sees a host of new Dxpeditions in the pipeline including Burundi (9U4WX), Honduras (HR9), Vanuatu (YJ0A), Bonaire (PJ4), St Vincent (J8), Solomon Islands (H44MS), Cocos Keeling (VK9CVG), Dominica (J79BH), Curacao (PJ2), Agalega & St Brandon (3B7M), and San Andres & Providencia (HK0). The 3B7M DXpedition to St Brandon Island is one that I will be looking for as I have only worked the island once. The path over the North Pole is a tricky one indeed, so quite a challenge.

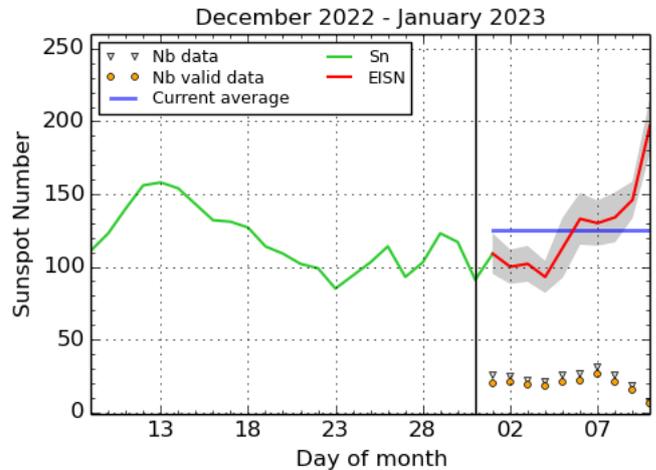
The next big DXpedition is of course the one to Bouvet Island in the south Atlantic. By way of a scoop for *NARA Newsletter*, here is a picture of the Bouvet Team when they met in London on Jan. 10 prior to leaving on an RAF plane for the Falkland Islands where they picked up their boat to travel to Bouvet. In the picture left to right: KO8SCA, KO7SS (behind KO8SCA), AB5EB, LB1QI, LA7GIA, LA7THA, WD5COV, DL6KVA, VE3LYC, LB5GI, N0FW, NP4G & Peter. Cezar VE3LYC is a seasoned IOTA (Islands on the Air) operator who I have worked many times during his island activations, including those to BC. Good to have a Canadian amateur on the Bouvet team.



*Thanks to special NARA Newsletter team member, on the spot photographer, John G4IRN who took this picture*

At the time of writing the Bouvet team just arrived, after a two-week trip, on Jan. 30. They expect to take a couple of days to land their equipment and set up, so hopefully if all goes well radio operations will start in a few days time. However, getting onto the island itself is dangerous! On Jan. 28 I did work the Dxpedition team maritime mobile from the boat en route to the Island on 20 and 30m CW, signals on both bands peaked at 549. The 30m CW contact was with Cezar (VE3LYC). The timing of the Bouvet Dxpedition is good because sunspot numbers continue to increase. In early January

the sunspot numbers hit more than 200 for the first time in Solar Cycle 25, the first time we have seen numbers this high since 2014. If you have not already done so, now is really the time to power up your HF radio, put up that HF antenna and see what you can work. The higher HF bands of 15, 12 and 10 m are already beginning to give some excellent DX results.



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium, 2023 January 10

## NARA Basic Exam and Training

Mike VA7WPM and David VA7DXX (ISED examiner) organized and ran a Basic course with associated exam in January. All six candidates who took the exam passed. They are VA7YGS (Gord), VE7CUK (Joshua), VE7KBD (Matthew), VE7KVK (Peter), VE7VKB (Kurtis), and VA7LLZ (Matthew). The course was taught by VA7DXX, VA7WPM, VE7LSE, VA7HN, and VE7TOM.

A new training course for members of the 205 Collishaw Air Cadet Squadron commenced on Jan. 20. By the time the course finishes in late February it is hoped that the new NARA station at the base will be available for the newly licensed air cadets so that they can gain some hands-on experience.

## Courses for Newly licensed Amateurs

For newly licensed amateurs NARA has two courses available, both dealing with the practical side of getting on the air. The courses are:

*Getting Going on the VHF/UHF bands* – discusses getting on the VHF/UHF bands and includes a section on how distances longer than line of sight are possible.

*Backyard Antennas for HF* – this course discusses a range of various HF antennas you could consider, depending on where you live, any limitations at your location, and what you want to achieve.

Those wishing to take these instructor-led sessions should contact Mike VA7WPM ([keelcove@shaw.ca](mailto:keelcove@shaw.ca)) or David VA7DXX ([va7dxx@gmail.com](mailto:va7dxx@gmail.com)).

## HAARP

HAARP, the acronym for the 'High-frequency Active Auroral Research Program,' is an ionospheric research station located in Alaska. The HAARP station is presently operated by the University of Alaska under an agreement with the US Air Force. Over many years HAARP has been the subject of all sorts of conspiracy theories from controlling the weather to causing earthquakes. In late December 2022 HAARP conducted an HF experiment by bouncing radio signals off an asteroid passing near Earth's orbit. Radio amateurs and astronomy enthusiasts were invited to monitor the test and send their results to HAARP. Apparently more than 300 reports from six continents were received. The analysis of the data has not yet been published.



*"I need a bigger antenna." The massive HAARP HF antenna system in Alaska*

## NARA DMR Repeater

The club's new DMR repeater at Lost Lake, VE7NHR, is now on the air on 440.825 MHz with a +5 MHz shift. It is connected to the BC: TRBO network (which gives access to many Talk Groups, see <https://www.bctrbo.net>.) Even if you don't have DMR equipment listen on FM as the repeater beacons regularly identifying every 10 minutes or so. To program your DMR radio check some code plugs online at [BC DMR – British Columbia Digital Mobile Radio \(wordpress.com\)](http://BC DMR – British Columbia Digital Mobile Radio (wordpress.com)).

## NARA Foxhunts

Club foxhunts are expected to return in the spring. Please address any ideas or questions to Devan, VE7LSE ([ve7lse@gmail.com](mailto:ve7lse@gmail.com)).

## AREDN Plans for 2023

Plans for AREDN development in and around Nanaimo continue to develop. This year the AREDN group hopes to install sector antennas at Cottle Hill (with thanks to Island Comms) and at the air cadet site on Nanaimo Lakes Road. The Parksville group is also looking at installing sector antennas at the VE7KU repeater site at Mt. Cokely. This should enable linking AREDN networks in Port Alberni, Parksville, and Nanaimo.

## North Island ARS Camp out

The dates for this year's NIARS campout are confirmed as Aug. 17-22, at the Cluxewe Resort near Port McNeil. One part of this event is to do maintenance work at north Island Trunk System repeater sites. The other part is to meet up with hams from all around the Island and have fun. A number of camp sites at the Cluxewe Resort have already been booked so don't delay if you want to reserve. Further information from Devan VE7LSE ([ve7lse@gmail.com](mailto:ve7lse@gmail.com)).

## Getting Started with Satellite Operations, Part 3: Your First QSO

Bruce VE7PTN

Last time we covered receiving and listening to amateur radio satellites. Hopefully you have had some fun and success with this activity and you are ready to make your first satellite QSO.

I am assuming here that you do not yet have a specific satellite antenna or transceiver. Your satellite QSOs will be most successful if you can simultaneously receive and transmit crossband VHF/UHF. A full duplex radio such as the Icom IC-9700 base station in satellite mode or the Kenwood TH-D72A handheld is perfect. But using separate radios for each band works well too. Since one radio will receive only you can even use a scanner-type receiver, such as the Icom IC-R6. Most satellites have a CTCSS tone required on the uplink, usually 67 Hz, so your transmit radio must be capable of doing this.

I recommend using headphones to isolate your receive audio from your transmit audio as well as any ambient noise.

Decide which satellite you will attempt first then set up your receive and transmit frequencies with the appropriate CTCSS tone. See the frequency table below for suggested memory settings for AO-91 (daylight operation only) and the International Space Station (ISS). Limit your transmit power to 10 watts or less – 5 watts works OK.

It is easy to get into a satellite with your transmitter but not so easy to receive the satellite downlink. And using more transmit power will NOT improve your QSO success if you are unable to receive the downlink! (Remember to record your receive audio so that you can review it later as things happen fast during the pass.)

Once you have selected a satellite, review the upcoming passes for that satellite (see the how-to details in last month's article). Select one that is at least 30 degrees above horizon at peak and a path not obscured by trees, buildings, or terrain. If for receive you are using a fixed vertical antenna, and not a Yagi, then select a pass that peaks at 60 degrees or less so that the satellite will not be above the antenna's higher gain region. If you are using a handheld with its OEM antenna, pick a pass that will be close to directly overhead and hold the radio horizontal to maximize gain. You will need to provide your Maidenhead grid square. If you don't know it you can look it up at <https://dxcluster.ha8tk5.hu/hamgeocoding/>. Use the first four characters (two letters followed by two numbers, for example much of Nanaimo is CN89) to provide to stations that you call.

As the satellite pass begins start monitoring for the downlink. Remember to adjust the UHF frequency to compensate for the Doppler Effect as the pass progresses (see the previous article for details on doing this). **This is important:** Do not transmit until you can hear other stations on the downlink. Hearing other stations will confirm that you are able to receive and you will avoid doubling with other operators. If you do not hear anyone on the satellite it is most likely that your receive setup is not adequate for the selected pass, so look for another pass and try again.

Once you hear other stations on the satellite downlink, write down a few call signs. A typical QSO goes like this:

Station A: "VE7CYA, VE7PTN, QSL?" [always use phonetics unless calling a station known to you]

Station B: "VE7PTN, VE7CYA, QSL, Charlie-November 89." [Station B's Maidenhead grid square]

Station A: "I copy Charlie-November 89, please copy my Charlie-November 79." [Station A's Maidenhead grid square]

Station B: "QSL, 73, VE7CYA."

Station A: "73, VE7PTN."

Wait for the end of a QSO, key up and call one of the stations heard using their call sign, and give your call sign followed by "QSL". If you are "getting into the satellite"

you will hear yourself on the downlink. It is not always easy to get into the satellite for various reasons: station doubling, polarization mismatch (tip a handheld antenna side to side until you hear yourself well on the downlink) and fading (the satellite's receive antenna is not positioned well at that moment to receive your transmission). It may take a few attempts to get it right. Once you get in and have a QSO providing your grid square reference, finish up by announcing that you are new to working satellites. Expect other stations to call you. New operators are popular, and regulars will want to welcome you.



***An example of a two-radio full duplex satellite setup with an audio interface to a smartphone for recording and headphones for isolation. (OEM antennas may be used if you do not have a dual band Yagi.)***

It is OK for a new satellite operator to make a call for QSOs by just stating your call sign and Maidenhead grid square and then waiting for a station to call you back. Do not call "CQ" on an FM satellite – it is considered superfluous. Once you are an experienced satellite operator you may find yourself to be the first station on pass. This is a common occurrence in our area since we are often the most northern and/or western operator. If the satellite pass is north-to-south or west-to-east, then you may be the first in. When this happens start by announcing your call sign and grid square periodically while you wait for another operator to join the pass. Again, make sure you can hear yourself on the downlink whenever you transmit; if not, stop transmitting and adjust your receive setup until you do hear yourself on the downlink.

Congratulations! After your successful pass listen to your audio recording. Log your QSOs as you prefer. If you are setup on Logbook of The World (LOTW), upload your

QSOs. (I will cover this step in more detail in a later article, so you may want to wait for that if you are not sure how to do it.) If you are not successful try a few more passes before you give up. You may be doing everything right but each of the satellites has its own quirks (see below for examples) and they are not always operating correctly. You may want to check the satellite status on the AMSAT webpage: <https://www.amsat.org/status/index.php>. If you see a line of blue squares next to your satellite of interest on the left side of the page, then it has been recently “heard” so is likely active. If you see mostly red squares, then it is reported as “not heard” and may be temporarily inactive.

If you have been using a vertical antenna, expect that your receive signal will always be poor. Next month I will cover “gearing up” options for a better satellite setup and experience.

#### AO-91 quirks

1. has almost no battery capacity so the only power it has is from its solar cells; do not attempt to operate it when the satellite is in darkness
2. on a busy pass the satellite periodically runs out of juice and the transceiver shuts off for about 10 seconds to recover; it is easy to assume that a QSO has ended when this occurs, but when you call and you do not hear yourself wait a few seconds then try again
3. due to the popularity of this satellite, most passes are very busy and it can be difficult to get in without doubling; expect more success as the satellite passes north and fewer stations have visibility

#### ISS quirks

1. crossband repeater is shut off when the crew is performing space walks, conducting space to ground communication events with schools, and when spacecraft arrive or depart
2. is a popular satellite for inexperienced operators so expect some poor operating procedure such as stations calling blindly and not replying to calls from others because their receive setup is not adequate

#### About the author:

*Bruce Patten (VE7PTN) was licensed in 2021 and satellite operations are his main amateur radio activity. He now has more than 1,300 satellite QSOs and 350 confirmed grid squares. He is over 60 per cent of the way to achieving ConUS Gridmaster status. His home satellite station is an Icom IC-9700 transceiver, M2 LEO Pack antenna system, Alfa-Spid RAS rotator and MacBook laptop running MacDoppler for radio tuning and satellite tracking. Bruce has conducted satellite roving throughout BC, Alberta, Yukon, and the Northwest Territories.*

AO-91 Suggested Memory Settings (all FM in MHz)		
Memory Name	Uplink Frequency (Tone 67Hz)	Downlink Frequency
AO-91 AOS	435.240	145.960
AO-91 Ap-	435.245	145.960
AO-91 TCA	435.250	145.960
AO-91 Depart	435.255	145.960
AO-91 LOS	435.260	145.960

ISS Suggested Memory Settings (all FM in MHz)		
Memory Name	Uplink Frequency	Downlink
ISS AOS	145.990	437.810
ISS Approach	145.990	437.805
ISS TCA	145.990	437.800
ISS Depart	145.990	437.795
ISS LOS	145.990	437.790

## How is DX – (Late News) - VA7DXX



*An early picture of Bouvet Island as the 3Y0J team approached the south Atlantic island on Jan. 30. The group is reporting difficult conditions with rain and high winds, the temperature is around 0 C.*

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**