

NARA Newsletter



President's Message – Randy VE7FAA

We have arrived at that time of year where feasting, celebrating with family and friends, and relaxing are coming to a close, so we'll keep this short.

Happy New Year to all from the NARA executive. If the last 12 months is any indication, 2023 is going to be a good year for the club. So join us for upcoming contests, Field Days, tech talks, public service events, club meetings, build projects, and coffee klatches this coming year.

Your continued support for NARA is greatly appreciated. And if this year the club can support you as a NARA member in your amateur radio endeavours, let us know. It works both ways!

Winter Field Day

Winter Field Day takes place on Jan. 28-29. NARA will operate a station from a tent at the Royal Canadian Air Cadets 205 Collishaw Squadron location on Nanaimo Lakes Road. This 24-hour contest starts at 11 am Pacific time on Saturday Jan. 28. Expect further details from NARA by way of an email.



Winter Field Day in 2021

How is DX – David VA7DXX

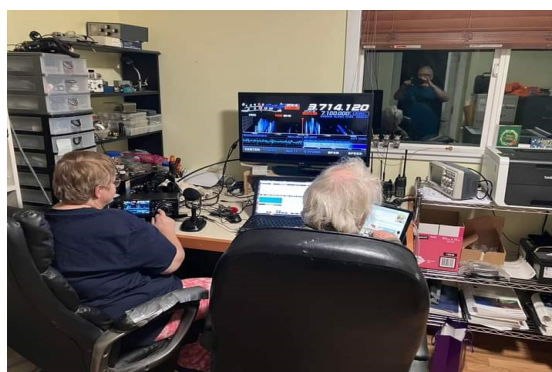
The winter months are a main HF contest season. I have operated in several contests recently, including the CQ WW CW contest in late November, the ARRL 10m contest, and the RAC Winter Contest in December. I dabble in contests on CW but don't enter them as such. I typically set myself a target of so many contacts and then stop. In 2021 I set myself a goal of making 400 contacts in the CQ WW CQ contest and in 2022 I upped this to 500 contacts, mainly on the 20/15/10m bands.

My best DX in CQ WW CW was 5R8WP in Madagascar on 20m, but I could not break the USA pileup for 4U1UN, the station at the United Nations HQ in New York. One contact in this contest was with 8N2YOTA, the Youth on the Air station in Japan. The Multi-multi contest station in Comox, signing VC7O managed over 5,000 contacts in CQ WW CW which is good going by any standard for this 48-hour contest. Speaking of youth on the air, Mike VA7WPM worked the YOTA station S50YOTA in Slovenia on 20m SSB using his new ZS6BKW antenna.



A busy 20m band during the November CQ WW CW Contest

The Canada Winter contest was busy for NARA's VE7NA, operating from VE7GDE's location, making just over 300 contacts using SSB and CW.



The Canada Winter contest, Linda and Gerry operating

For the ARRL 10m contest and the RAC Winter contest I added another 500 contacts combined to my log, though I had a somewhat limited time for the Canada Winter contest. In the ARRL 10m contest I did work into the Azores (EA8) but never heard Europe. It's not a good time of the year for Europe on 10m with no daylight on the path.

January returns to a rather busy DXpedition month, which includes Montserrat (VP2MDX), Cape Verde Islands (D44TWO), Bonaire (PJ4), Congo (TN8K), Banaba Island (T33), Palau (T8), Barbados (8P9CB), Martinique (FM), Aruba (P4) and St Kitts & Nevis (V47JA). Of course, not forgetting the continuation of the much-anticipated Crozet Island operation by F6CUK with his FT8WW call and the Bouvet Island operation signing 3Y0J starting in late January.

The long-awaited FT8WW Crozet Island one-man DXpedition started at around 3:30 pm (Pacific time) on Christmas Eve. I was out at the time but got a text from a fellow DXer. I got home at around 6 pm and luckily had an early Christmas present from Santa in the form of a contact on 30m FT8 for a new country. On Boxing Day, I also made contact on 20m. Crozet Island is close to the antipode with Vancouver Island, which means it's about as far as we can get long distance wise.



The supply ship, Marion Dufresne, arriving at Crozet island to resupply the French research station with F6CUK/FT8WW on board, complete with the welcoming committee

Turning to the Bouvet Island Dxpediton, which starts late in January, it should be noted that Bouvet Island, located in the Southern Atlantic Ocean, is one of the most inhospitable places on the planet.

The last DXpedition to Bouvet Island a few winters ago (summer on Bouvet), got the Dxpediton team in sight of

the island but they initially could not fly their helicopter because of high winds together with their ship listing well over 30 degrees. While they stood off from Bouvet waiting for better weather one of the couplings on one of the ship's twin propellers failed. This forced the captain to declare an emergency and they had no option but to abandon the DXpedition.

The weather on Bouvet is dominated by heavy clouds and fog with an average temperature in January of -1C. That temperature does not sound too bad but coupled with ice and the Westerly winds it's not a comfortable place for anyone, let alone a serious DXpedition. I use the word serious in the context of the cost and the quality of the operators. The budget for this upcoming DXpedition is \$715,000 US.



Lonely and uninhabited Bouvet Island in the South Atlantic, pictured on one of its better days

NARA projects

Two NARA projects proposed for this year include an attenuator and a 220 MHz beam project. The attenuator project is primarily intended to assist with direction finding competitions but it also makes a handy piece of test equipment. The 220 MHz beam will help get more NARA members on the air for the 220 MHz band. Those interested in these proposed group builds should contact Jack VE7GDE (ve7gde@gmail.com).

North Island ARS Camp Out

The dates for this year's camp out are Aug. 17-22. The location for the camp-out will again be at Cluxewe Resort near Port McNeil. Maintenance work on the Island Trunk system's north island repeaters will also take place during this time with trips from the campsite. Further information can be obtained from Devan VE7LSE (ve7lse@gmail.com).

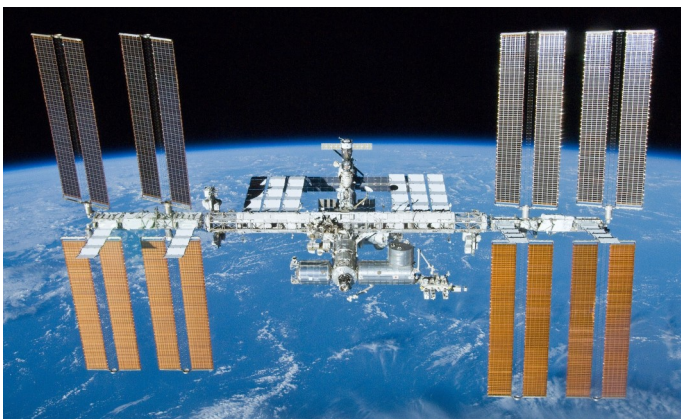
Getting Started with Satellite Operations (Part 2): Receiving and Listening Ward VE7CYA & Bruce VE7PTN

Last time we ended by emphasizing the importance of receiving and listening as a first step before transmitting. So grab your FM VHF and/or UHF gear, your highest gain antenna, and start tuning in.

If you have a Yagi antenna, that is best. If not, a high-gain vertical will do. It is also a good idea to make an audio recording of the satellite pass so that you can review it. The first time you listen to a pass it will seem impossibly fast and you might think that you will never be able to do it. But with experience it gets easier, we promise.

The first step in receiving is to know when the satellite will be above the horizon at your location and time. A cheap and easy way to do this is to use the Heavens-Above website (www.heavens-above.com). Set your location on the website and then look for the "amateur radio satellites" link, this will show upcoming satellite passes in your area.

There may be a lot of them, so you may want to look for the easier and more popular FM satellites. Here are three we recommend: AO-91 (145.960 MHz downlink), SO-50 (436.795 MHz downlink) and especially the International Space Station (ISS). That's right, the ISS. Though technically not a satellite it carries amateur radio gear. It is easily the most powerful and popular FM satellite for amateur radio operation (437.800 MHz downlink).



The International space station carries amateur radio

The best way to track the ISS is on your smartphone using the app "ISS Detector." It is a free app for tracking

the ISS. And with an inexpensive in-app purchase you can then add a feature to track any of the amateur radio satellites and see their operating frequencies. It is well worth the small cost as you will probably use it wherever you operate satellites.

The second step in receiving is to orient your antenna. There are two things to consider: the location of the satellite in the sky and the polarization of its downlink antenna with respect to yours. For the sky location, it is easiest to use the ISS Detector app. Its radar-like screen has an arrow that points to the azimuth of the satellite from your location. You can also enable a feature that displays the elevation in degrees, or you can use the level feature on the side to see how much to tip your smartphone up to point it at the bird.

If you have a Yagi antenna you should point it directly at the satellite's position and adjust as the pass progresses. If you are using a vertical antenna, for best performance tilt it so that it is perpendicular to the position of the satellite (easy to do if you are using a handheld transceiver).

If your vertical antenna is fixed, you will get best results when the satellite is making a pass that is lower to the horizon rather than one that progresses directly overhead. You may need to be a little picky about which passes you monitor.

For the polarization the only way to tell when you have it right is the signal strength. Just tip your antenna side to side (or twist your Yagi) for the best signal strength then hold it there.

The third and final consideration is the downlink frequency. Because the satellite is moving at a significant speed relative to your position during much of the pass, the Doppler Effect (in which sound waves increase or decrease with proximity as with sirens) causes the downlink frequency to shift lower or higher than the stated frequency. The easiest FM satellites to receive are those with a VHF downlink (e.g., satellite AO-91). VHF is the least impacted by the Doppler Effect and may be disregarded for FM satellites.

For UHF downlink satellites (e.g., ISS and SO-50), the downlink frequency should be adjusted in the following

series of 5 kHz steps:

- Two steps down (-10 kHz) when the satellite is first rising; called "AOS" (Acquisition of Signal).
- One step down (-5 kHz) as the satellite approaches; called "Approaching."
- No adjustment when the satellite is overhead; called "TCA" (Time of Closest Approach).
- One step up (+5 kHz) as the satellite departs; called "Departing."
- Two steps up as the satellite disappears; called "LOS" (Loss of Signal).

Many operators will program their radio with five adjacent memory settings representing the AOS, Approaching, TCA, Departing, and LOS frequencies for that satellite, and then switch through them as the pass progresses.

In addition to information on the satellite position, the quality of the downlink signal will give you a clue when it is time to change frequency to the next step. If your radio is equipped with a scope, that can give you a visual clue as to where the downlink frequency is with respect to your receive frequency so that you can adjust as appropriate to centre the downlink.

As mentioned previously, the satellite operator community is very supportive. There are several good and helpful operators who are happy to help new operators. Listen for Patrick WD9EWK in Phoenix, AZ, he is very active on AO-91 morning passes.

Next month we will cover the basics for FM satellite operation and set you up for success with your first satellite QSO.



VA7PTN's portable satellite equipment



A larger portable satellite antenna system



Author Bruce VE7PTN's home satellite station

The volunteer group of NARA members producing this newsletter wish you a happy new year and 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