

NARA Newsletter



President’s Message – Randy VE7FAA

April is shaping up to be an interesting radio month. On April 8 there is a solar eclipse and while it will not be a total eclipse for us in Nanaimo, we will see a partial eclipse assuming that the sky is clear. You can take part in some of the propagation research, details of which are given in this newsletter. Then on April 18 we celebrate World Amateur Radio Day. To celebrate this event just simply get on the air and make some contacts. On Sunday, April 21, the first 2024 flea market on Vancouver Island, put on by the Comox Valley Amateur Radio Club, takes place at Merville, just north of Courtney-Comox.

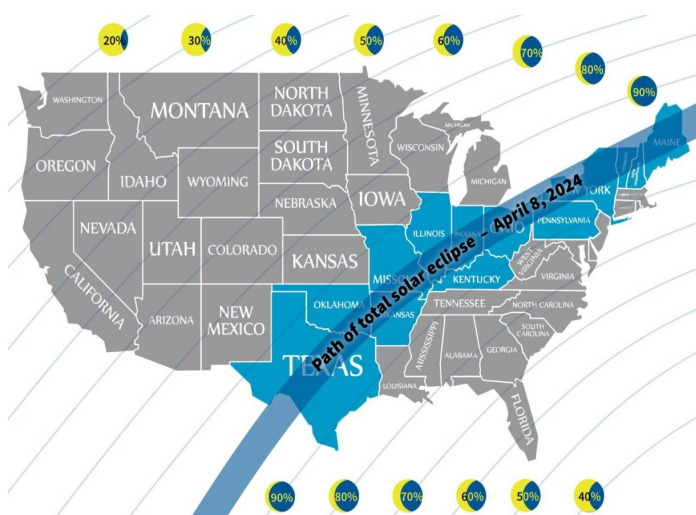
Work has continued through March to complete work on the new VE7NA club station at the Air Cadets building in Nanaimo. At the end of March the Flex radio equipment was operational. As most members do not operate Flex equipment, we will need to provide some form of documentation as guidance. While the station is up and running, there remains some additional work to be done. A big thank you to those who have worked on and supported the new VE7NA station.

Finally, some further interesting results from the recent NARA survey are worth looking at and which we reproduce in this newsletter. There are signs of the weather getting warmer so time to reconsider some in-person events.

Island Events	Date	Sponsor
<i>Partial solar Eclipse</i>	<i>Apr. 8</i>	<i>The Moon</i>
<i>World Amateur Radio Day</i>	<i>Apr. 18</i>	<i>IARU</i>
<i>Merville Flea Market</i>	<i>Apr. 21</i>	<i>Comox ARS</i>
Field Day - ARRL	Jun. 22-23	NARA
Canada Day Contest	Jun. 30-Jul 1	NARA
NARA Picnic	Jul. TBA	NARA
Nanaimo Bathtub Race	Jul. TBA	NARA
<i>NIARS Campout</i>	<i>Aug. 15-19</i>	<i>NIARS</i>
Velo Unpaved Bike Race	Aug. TBA	NARA
Canada Winter Contest	Dec. TBA	NARA

Total Solar Eclipse - April 8

As shown in the picture below there will be a total solar eclipse on April 8 crossing Mexico, the central US, and eastern Canada. Note also that in Nanaimo, if we have a clear sky, we may see a partial eclipse at about 15% coverage as the Moon passes in front of the Sun. You must use special glasses to look at the eclipse so as not to damage your eyes.



The HamSci (Ham Radio Science Citizen Investigation) organization is seeking to measure and record the ionospheric radio propagation that is influenced by this solar event. While there are some quite sophisticated ionospheric measurements being used by amateur observers, anyone with a 20m HF radio can take part or just listen in.

Station KA4RXP/MM will operate as a special event station and seek signal reports from all locations, especially in the 70-mile-wide path of the eclipse. KA4RXP/MM will operate on 14.265 MHz. Just a simple and accurate signal report and your Maidenhead Grid Square location is all that is required. If you need more information, you can email ka4rxp@aol.com.

The HamSci Solar Eclipse Party on April 8 takes place from 1400-2400 GMT/UTC. The objective is to generate observations of propagation by the Reverse Beacon Network and PSKReporter event logs before, during, and after the eclipse on the amateur bands for the purpose of

ionospheric sounding. Bands to be used are the 160, 80, 40, 20, 15, 10, and 6m using modes: CW, SSB, digital (all varieties). Those interested in participating should read the full rules at <https://hamsci.org/seqp-rules>.

Another way in which individual amateurs can contribute to the propagation research during the eclipse is to run their WSPR transmitters at least from 1400 to 2400 GMT/UTC on April 8.

In other HamSci news their annual conference took place in late March in Cleveland, Ohio. It focused largely on topics related to ionospheric propagation. There were over 50 sessions to attend with most of the presentations being made by radio amateurs. Worthy of special note was the keynote speaker at the conference, Dr Scott McIntosh from the UK, who is Deputy Director of the National Center for Atmospheric Research (NCAR). Dr McIntosh has looked closely at the magnetic fields on the Sun and notes a 22-year magnetic cycle.

World Amateur Radio Day Thursday April 18 RAC on The Air



As we celebrate World Amateur Radio Day on April 18 we also acknowledge the founding of the IARU (International Amateur Radio Union) by 25 countries, in Paris, on that day in 1925. Amateur radio experimenters were the first to discover that the short wavelengths could provide worldwide propagation. As such, everyone else wanted to use these frequencies and amateur radio was in danger. In 1927, at the International Radiotelegraph Conference, amateur radio gained HF band allocations at 160, 80, 40, 20 and 10 metres. In 1979 three new HF bands, at 30, 17 and 12m, were gained thanks to the work of the International Amateur Radio Union and its member societies, which includes Radio Amateurs of Canada (RAC). The IARU has been the bedrock of amateur radio throughout the decades and has represented amateur radio worldwide at ITU conferences.

RAC is once again holding a “Get on the Air on World Amateur Radio Day” special event in which every amateur is encouraged to get on the air and make some contacts. RAC official stations will operate across Canada from 0000Z to 2359Z on April 18. The RAC official station call signs are VA2RAC, VA3RAC, VE1RAC, VE4RAC, VE5RAC, VE6RAC, VE7RAC, VE8RAC, VE9RAC, VO1RAC,

VO2RAC, VY0RAC, VY1RAC and VY2RAC. If you work anyone of these stations you can go to the RAC website and claim your certificate for taking part in World Amateur Radio Day.



Radio Amateurs on the International Space Station



Four more radio amateurs are presently orbiting the Earth as part of the crew of the International Space Station, one Russian and three Americans. They are Aleksandr Grebyonkin RZ3DSE, Michael Barratt KD5MIJ, Matthew Dominick KC0TOR, and Jeanette Epps KF5QNU. They reached the ISS on March 5 and will be there for six months.



Four radio amateurs recently joined the International Space Station crew

NARA's New VE7NA Station

At the end of March the new VE7NA station at the Nanaimo Air Cadets building was ready for operations. Everything is now in place for the station to be operated by members attending the station.

Malaysian Airlines MH370 and WSPR

On March 8, 2014 Malaysian Airlines Flight 370, a scheduled flight from Kuala Lumpur to Beijing, disappeared from radar screens. Ships and aircraft from nine nations were involved in the search of the southern Indian Ocean for the wreckage, but to no avail. Ten years later the final location of the aircraft wreckage has not yet been established. There has been, of course, much speculation and many theories as to what actually happened. Like the location of Amelia Earhart's Lockheed Model 10-E Electra aircraft, the MH370 flight's, Boeing 777-200ER has never been located.

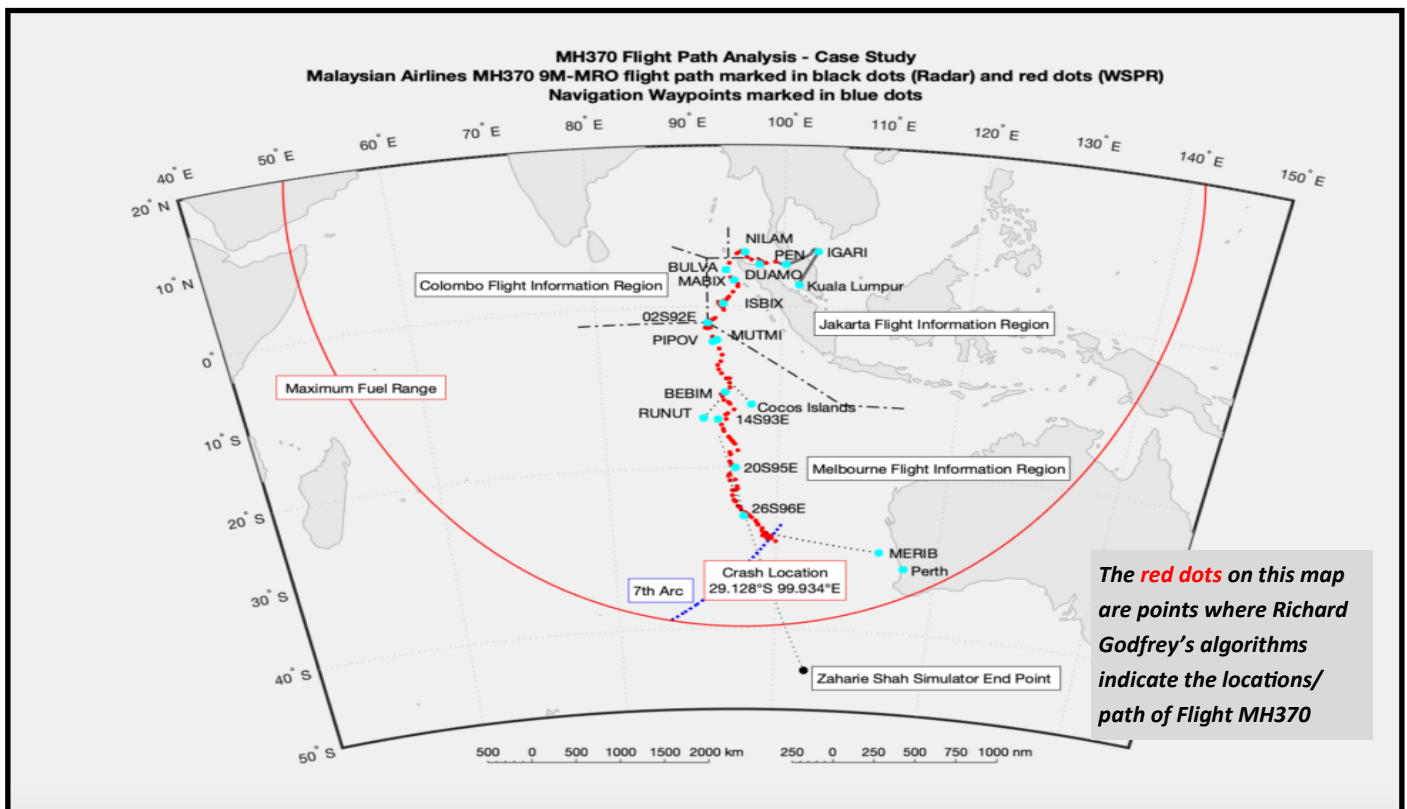
This is where amateur radio may well have come to the rescue! In last month's NARA Newsletter there was a brief description of the WSPR system. Low power transmitters around the world transmit for some 110 seconds on the HF bands within a time synchronized 2-minute window. WSPR receiving stations, again located all over the world, receive these signals and automatically report the signal strengths to an online database.

Richard Godfrey, a retired British aerospace engineer, has a theory about the location of the MH370 wreckage. Godfrey's method involves analyzing the WSPR (Weak Signal Propagation Reporter) database. The theory goes that when HF WSPR signals hit an aircraft the signal

between two known fixed points – the WSPR transmitter and receiver – is either attenuated or enhanced by reflection. There are a large number of WSPR transmitters and receivers and Godfrey has developed an algorithm to work out where there are disruptions to WSPR signals caused by the Boeing 777 aircraft. Godfrey says that he has worked out the location of many WSPR disturbances as shown on the map (the red dots). His evidence appears to have merit.

Godfrey has stated that the MH370 crash location, defined by the WSPR technology, is within a circle with a radius of 30 kilometres, centered at 29.128°S 99.934°E. This area is 1,560km west of Perth, Australia. Godfrey suggests that it will only take one more search of this area to find the wreckage of the MH370 Boeing 777 aircraft.

That an amateur radio signal database could possibly help to solve the mystery of the location of flight MH370 is of course of great interest to the amateur radio community. Recently the Malaysian Transport Minister Anthony Loke gave his word that the search for the missing Flight MH370 will resume at the earliest possible time. Meanwhile, Malaysian Prime Minister Datuk Seri Anwar Ibrahim also said he would be "happy to reopen" the search for Flight MH370 if "compelling" evidence emerges.



How is DX – David VA7DXX



In an initial news release, the Dateline DX Association has announced that it has received permission from the United States Fish & Wildlife Service to activate uninhabited Jarvis Island in the Pacific Ocean in August. Jarvis Island is southwest of Hawaii and about half way between Australia and North America. It is No. 18 on the Global most-wanted list and from the west coast of North America ranks at No. 94. It was last activated in 1990. Jarvis Island is some 1,500 miles south-southwest of Hawaii and southwest of Kiribati. Because of the sensitivity of this wildlife refuge the operation will be using the remote RIB (Radio in a Box) system. Apparently, this concept helped the group get permission to operate. The planned call sign is N5J. More information later when it is known.



During April there will be DXpeditions to: Pitcairn Island (VP6G), Mayotte (TO4VV), Liberia (A8OK), Maldives (8Q7HZ), South Cook Islands (E51TLM), Reunion (TO7PX), Canada (VY), South Africa (ZS6), Austral Islands (TX7W), Svalbard (JWE8EKA), Bhutan (A52) and Mariana Island (KH0).

Although there are active amateurs on Pitcairn Island it is always helpful when there is a DXpedition. This DXpedition is a solo one by experienced operator Gerben PG5M from the Netherlands. He intends to operate as VP6G April 4-14 using CW and FT8 on 40-10m. An American, Dave WJ20, is also planning a trip to Pitcairn from May 30 to June 30, probably a CW-only operation with low power.



The story of how the tiny Pacific island of Pitcairn became inhabited is indeed a fascinating one and is well documented in many history books. Such is the fascination of the mutiny on the *Bounty* story that there have been three movies made of the events from the 18th century. The first, in 1935, starred Clark Gable and Charles Laughton. The 1962 version starred Marlon Brando and Trevor Howard, and in 1984 Mel Gibson and Anthony Hopkins starred.

The short version is that in 1787 a transport ship called the *Bounty*, commanded by Captain William Bligh, left England for Tahiti. Having reached Tahiti, the plan was to transport breadfruit seedlings to the West Indies. But after a five-month stay in Tahiti the crew was reluctant to leave their garden of Eden. Not long after departing Tahiti the crew mutinied. The mutineers, led by navigator Christian Fletcher, put Capt. Bligh and 17 of his supporters into an open boat in the Pacific. They survived, reaching Timor after a 6,700-kilometre voyage. The *Bounty* returned to Tahiti and a year later Fletcher and his mutineers, with 18 Tahitians, set sail for the recently discovered but uninhabited island of Pitcairn in 1790. The 1935 movie is considered to be the best of the three movies about the mutiny, although the two other versions are kinder to Capt. Bligh.

For the more ambitious DXer, Bhutan remains at No. 23 in the most-wanted list from the west coast of North America. Two Polish operators will be there from April 17 to May 4. Two callsigns will be used, A52P and A52PI. They will be using the 40-6m bands on SSB, CW and digital modes. From Nanaimo the short path beam heading is 330 Degrees True.

Speaking of the actor Marlon Brando, did you know that he was a radio amateur? He was licensed as FO5GJ, a callsign from French Polynesia. Brando had a residence on the tiny private island of Tetiaroa. A picture of his 1979 shack is reproduced on the next page.



Actor Marlon Brando's radio shack, FO5GJ, circa 1979

Nanaimo's Radio History

Issues of the 1948 magazine of the Canadian Amateur Radio Operators' Association, *Xtal* (Crystal), reveal that while the Nanaimo Amateur Radio Association was launched that year, it was not initiated in response to the Fraser River flood disaster as previously thought.

In the May 1948 issue of *Xtal* a brief report states that the idea of forming a Nanaimo radio club was already being discussed. Allowing for the magazine's deadlines, such discussions would have likely commenced no later than mid-April 1948. The Fraser River flood began at the end of May 1948.

Regardless, reaction to the disaster firmed up NARA's presence and purpose, and gave impetus to amateur radio clubs all over the province.

In its July 1948 issue, *Xtal* reports that the Nanaimo Amateur Radio Association had been established but gives no date, saying only that the club "has recently been formed." The magazine said that the new club had 21 members and a regular attendance of about 35.

"The club is open to both sexes and several yf's and xyl's are among the members," stated *Xtal*.

Little more is known about the history of NARA or amateur radio in Nanaimo in general. An inquiry to the Nanaimo Archives last year about amateur radio in the city turned up no results.

Much more is known about the city's first radio station, CFDC, which broadcast from downtown Nanaimo between 1923 and 1925. Started by Arthur "Sparks" Holstead, CFDC would later move to Vancouver and

change its callsign to CKWX. It is now CityNews 1130.

CFDC, one of about several dozen radio stations in Canada in the early 1920s, broadcast from above an auto electrical repair shop transmitting on 10-watts. The shop was Sparks Co., at the northwest corner of Wallace and Fitzwilliam Streets, run by Holstead and a partner, William Hanlon, who was not involved on the radio side.



Sparks Co., the site of station CFDC, at 299 Wallace Street in downtown Nanaimo. The station transmitter would have been located in the upper level of the building at right. Willard was simply a popular US-made automobile battery brand, and the Sparks Co. sign is over the entrance door facing the corner of Fitzwilliam Street and Wallace Streets. (From the City of Nanaimo website)

Archive photos show the site, 299 Wallace Street, as the Willard Service Station. But Willard was simply the brand name of a widely distributed US-made automobile battery. The corner building remains and in recent years was a pizza and pasta restaurant.

A provincially published booklet from 1983 about early broadcasting in BC, *Imagine Please* written by Dennis Duffy, reveals that CFDC's origins owe as much to two young Nanaimo men with a passion for radio as to Holstead.

Duffy quotes Stanley Goard, who worked at Sparks Co. as a teenager, as saying that it was he who introduced the idea of "wireless" radio to Holstead.

"It wasn't hard for Sparks [Holstead] to kind of appreciate what I knew about wireless," said Goard.

But Goard quickly realized that though he may have known much about radio, there was a lot more to learn.

Around the time that he was telling Holstead about “wireless” Goard met another local radio enthusiast, (John) King Cavalsky. Goard said that Cavalsky, older than him by 10 years, had "got a little further along" investigating radio technology.

Cavalsky, who lived with his parents and sister at a house on Esplanade near Nicol Street, invited Goard over to see — and hear — a receiver he had assembled. Cavalsky tuned in a station from Seattle for his visitor and through the headphones Goard for the first time in his life heard radio.

"It startled me," said Goard.

Holstead too must have been similarly startled not long after. In a CityNews 1130 article for the 100th anniversary of CFDC/CKWX last year, Holstead describes in an archived interview purchasing a Westinghouse Model TF transmitter for \$350, equivalent to about \$6,000 today.

"One day I went down to Seattle to a radio show, the first radio show I would say in the northwest, and I saw a transmitter there, a 10-watt transmitter, and I bought it," Holstead said. "It started just as a plaything, actually as a toy."

On Goard's recommendation Holstead hired Cavalsky, and after getting help to set up the transmitter, and presumably an antenna, from a British expat and former radio instructor who had recently left Sprott Shaw Business School in Vancouver, Jack Allen, they were on the air. Allen returned to the UK with his homesick wife soon after.

Goard recalled that after their workday at Sparks Co. he and Cavalsky would broadcast for several hours in the evening, playing only music from records. The records, said Holstead, were borrowed from Fletcher's Music, just across the Bastion Street bridge and down a few blocks on the east side of Commercial Street. Cavalsky's mother, Ella, may have facilitated getting them records as she worked at Fletcher's Music as a bookkeeper.

Even though what they were doing was more broadcast and less amateur radio, the trio remained amateurs by definition; they were experimenting with and advancing their technical radio knowledge for personal interest and with no expectation of financial gain.

Holstead and Goard both said the idea of making money from radio never occurred to them. Getting a broadcast

license did not occur to them either, but it did to others.

"Oh, we were operating for quite a while, and up comes the license inspector from Victoria and says, 'Hey buddy! You're not supposed to be broadcasting. Where's your license?'" Holstead is quoted as saying in the 2023 CityNews 1130 article.

"License? I never heard of such a thing!' I said, 'How much does it cost?' He said, '50 dollars.' So, I said, 'Okay. Here's 50 bucks.' And we got a license."

Radio listings of the time place CFDC on wavelength 370 (metres) or frequency 810 (kHz).



The same Westinghouse Model TF transmitter which Arthur Holstead bought in Seattle. Though advertised as a 20-watt transmitter, 20 watts was available for CW operation only. Four 5-watt oscillating tubes were used when transmitting via continuous wave. Transmitting via telephony, was limited to 10 watts because two of the same four oscillating tubes act as modulators. (From radiomuseum.com)

Neither Holstead nor Goard mention what type of antenna they used or CFDC's coverage spread. But a 10-watt transmission from downtown Nanaimo on a compromise antenna can go well around BC's south coast by ground wave. Skip and bounce at night may also push a 10-watt signal much further than the south coast region. As well, the east-facing location of the Sparks Co. shop, just above the city's waterfront, provided a direct path over water to the mainland.

An advertisement in a 1922-23 radio catalogue for the same Westinghouse transmitter that Holstead bought “strongly recommends” using a counterpoise; placing it “where it can be conveniently erected as the output and resultant range of the transmitter is considerably

increased.... Under reasonably good conditions a range of 15 miles with telephony and one hundred miles continuous wave telegraphy may be expected." (See more technical data on this Westinghouse transmitter on the next page)*

By early 1925 Goard, 18 years old, was running the station on his own — when he wasn't out carousing. He admitted that neither he nor Cavalsky had been "very dependable." In the early months of 1925 the 28-year-old Cavalsky had little choice but to leave the station and to become dependable; he was married at the end of February and became a father just over four months later. Goard then married in October, incorrectly giving his age as 21 on the marriage certificate.

But the end of Holstead's station on Wallace Street was not the end of CFDC. Holstead, still holding the broadcast license, moved to Vancouver later in 1925 to open a second Sparks Co. outlet, leaving Bill Hanlon to run the Nanaimo operation. When Goard followed not long after CFDC soon resumed broadcasting from Vancouver.

By 1927 CFDC had survived two serious problems. It was embroiled in political controversy for broadcasting Liberal Party meetings exclusively in the leadup to a federal election; and then — because Holstead had not updated the location for the broadcast license from Nanaimo to Vancouver — they were forced off the air. But after a storm of listener complaints federal officials reissued an amended license for CFDC to operate in Vancouver.

According to Holstead, listeners from as far as New York and New Zealand wrote in DX fashion to say they had heard the 10-watt Vancouver station. But because they often got the CFDC callsign wrong, said Holstead, he switched to the more distinctive CKWX callsign.

When Holstead died in January 1971, age 81, he retained the title President of CKWX, although it was by then owned by Selkirk Holdings. CityNews 1130 is now owned by Rogers Radio.

Goard and Cavalsky both had long radio-related careers, Goard as a radio executive and Cavalsky as a telecommunications engineer. Cavalsky died in 1982 age 85 in Vancouver. Goard died in 1992 age 86 in Sidney.

While Nanaimo's early broadcast history is well documented, it is unfortunate that more detail about early amateur radio activity in the city — names, dates, technical data — is lacking.

For example, who were the YL's and XYL's who joined the newly created NARA in 1948? Some may have been women who had learned radio technology and became proficient in Morse code while either doing military work themselves or working in civilian positions made vacant by men who went off to the war.



Arthur "Sparks" Holstead in 1944, when he was president of CKWX radio in Vancouver. In front of Holstead is the Westinghouse Model TF transmitter he bought in Seattle and used for broadcasting at his Nanaimo station, CFDC, on Wallace Street between 1923 and 1925. (Photo taken from Dennis Duffy's 1983 history of BC broadcasting, *Imagine Please*. It was attributed there to Dominion Photo Co., with the tag VPL no. 26363.)

But the presence of those unnamed women and men, and of men like Holstead, Goard, Cavalsky, and Allen is evidence that radio, both amateur and broadcast, has been an important part of Nanaimo's history.

We may not know the names of pioneering amateur operators in the city or where or how they operated, but their commitment and activities clearly laid the groundwork to establish NARA as the vital organization it is today.

(If you have information about the early days of NARA or the history of amateur radio in Nanaimo, please contact us at the NARA Newsletter at news@ve7na.ca.)

*Technical data from Westinghouse on the Model TF transmitter is detailed on the next page.

“Vacuum tube transmitter set, Model TF, is designed for radio telephony and continuous wave telegraphy, a switch on the front of the panel permitting use of either at will. When used for continuous wave telegraphy, four 5-watt oscillating tubes supplying approximately 20 watts of oscillating energy are used, whereas when used for telephony, two of the tubes are connected as oscillators and two as modulators.

“There is only one inductance to which the connected antenna, counterpoise, ground, and the plates, grids and filaments of the con-modulator and oscillating tubes are connected. Using an antenna 60 to 80 feet long and 25 to 50 feet high, the transmitter can be tuned to any wave length between 180 and 230 metres. When the installation is made the entire tuning operation is accomplished by adjusting clips on the inductance.”

Learning Morse Code

As a result of the recent NARA survey, it appears that more members than expected are interested in learning CW. While this was news to the NARA Training Group it was also a pleasant surprise.

The NARA Training Group has now made available its Morse Code Training Document, called Some Ideas for learning Morse Code and is now working with other NARA members to discuss the practicality of providing some slow Morse to members who are interested. Watch this space if you are keen on learning Morse Code.

More on the NARA Survey

Last month we looked at some of the basic answers to the recent NARA survey of members. This month we look at three more of the answers.

On which bands do you operate? The percentages are of the total number of replies for each part of the spectrum.

HF	74%
VHF	58%
UHF	64%
Above 3 GHz	7%

Comment: *More NARA members are active on HF than on VHF or UHF.*

Which Modes do you use? The percentages are of the total number of members reporting for each mode.

FM	73%
AM	9%
SSB	72%
Digital Voice	22%
RTTY	10%
CW	17%
WSPR	4%
FT8/FT4	25%
Winlink	44%
Packet	25%
APRS	34%

Comment: *As expected, the most popular modes are FM and SSB.*

Do you participate in the following? The percentages are of the total number of replies for each activity.

Rag chewing	37%
DXing	44%
POTA	31%
SOTA	17%
IOTA	10%
DXCC	13%
Contests VHF/UHF	13%
Contests HF	27%
Satellites	14%
AREDN	24%
Emergency Comms	34%

Comment: *DXing is the most popular activity in the club, followed by rag chewing, emergency comms, and POTA.*

Next month we will look at further aspects of the recent NARA survey.

NARA's website is:

<http://www.ve7na.ca>

[Nanaimo Amateur Radio Association](http://www.ve7na.ca)

Comox Valley ARC 2024 Ham Swap & Flea Market — Sunday, April 21

The Comox Valley Amateur Radio Club hosts its annual Ham Swap & Flea Market this month on Sunday, April 21. The venue is the Merville Hall, 1245 Fenwick Road just off Highway 19A, which is about 15 minutes north of Courtney. Doors open to the public at 10 am.

NARA Training Group Success

The NARA Online Training system went online in early February. On Feb. 29 the first student to use the NARA online training system took and passed the Basic exam. Matthew now has his own call sign, VE7RTF. Congratulations Matthew. About 10 other students are now studying for the Basic exam using the NARA online training courses. Information on the NARA online courses can be obtained via the training@ve7na.ca email address.

The Satellite Downlink: Portable Operation Antenna System Project – Part 1 - Bruce VE7PTN

As I have covered in earlier articles, I enjoy portable satellite operation, often combining it with travelling or camping. When operating portable, the limiting factor is definitely my antenna setup. I use an Arrow II Portable Antenna from Arrow Antennas (<http://www.arrowantennas.com>), arguably the best performing handheld satellite antenna. Arrow Antenna's claim to fame is that they repurpose aluminum arrow shafts for the Yagi antenna elements, which allow their antennas to be relatively rugged and easy to assemble/disassemble. Being handheld antennas, the use of power above 10W is not recommended. Also, they have a single plane of polarization that must be adjusted frequently during a satellite pass by twisting about the central axis to maintain adequate reception. (Also known as "twist-and-shout" operation.) This adjustment requirement adds to the operator workload during a pass.

In contrast to the Arrow II, my LEO Pack antenna system from M2 Antenna Systems (<https://www.m2inc.com>) that I use at my home station is "circularly polarized" and does not need to be twisted. This is accomplished by having two antennas whose elements are positioned perpendicular to the other and phased together to function as a single antenna. I have it installed on an

azimuth/elevation rotator that is computer controlled to follow the satellite that I am working. So, the operator workload is much reduced and I can focus on finding and working stations. It took me a couple days of effort to assemble the antenna systems with lots of precise measurement to get each of the elements appropriately aligned. It is not practical to disassemble for transport and reassemble to operate. Some operators do travel with this antenna system fully assembled (see photo). This requires a dedicated storage space such as the open box of a pickup and some mechanism to secure the antenna while traveling. That is not a good fit for me, especially when camping and my truck is filled with camping gear.



A portable version of the M2 LEO Pack antenna system in use by NARA member Ward VE7CYA

What would be great is an antenna system that combines the features of these two: easy to assemble/disassemble and circularly polarized such that axial adjustment is not necessary. Unfortunately, there is no such antenna system commercially available. However, I have seen some examples online of homebuilt systems. So, I have decided to build one of these myself and I will cover the details in this and subsequent articles. My objectives for this antenna system are:

- Does not require polarization adjustment (i.e., no twisting)
- May be easily disassembled for transport, and quickly reassembled for operation
- Can support automated azimuth and elevation control
- Can safely handle the full power of my ICOM IC-9700 (100W)

- Is weather resistant so I can operate on a typical “wet-coast” day.

I have seen examples online of operators taking two Arrow antennas and mounting them at opposite ends of a boom such that the VHF and UHF elements of one are perpendicular to the VHF and UHF elements of the other, respectively. The two VHF antenna feeds are phased together and similarly for the UHF feeds. The boom is mounted on an elevation/azimuth rotator for automated satellite tracking. A system like this should meet all my objectives so I decided to build one.

I was somewhat skeptical that the phasing of the two antenna will work. So I decided to start with a basic setup that I could test before investing in another azimuth/elevation rotator, for portable use. Because the antennas will be mounted, I am not concerned about the handheld weight. I ordered the Arrow II's bigger brother, The Alaskan Arrow, 146/437-14BP, with split boom (<http://www.arrowantennas.com/arrowii/alaskanarrow.html>). It has 10 UHF elements and 4 VHF elements with a bit more gain than the Arrow II. To phase the antennas, I acquired two Diamond SS770R antenna phasing harnesses (<https://www.diamondantenna.net/ss770r.html>) from DX Engineering ---- the last two they had in stock! Another operator has reported using these units for their build of a similar antenna system so I figured they would be good for my application.



The Diamond SS770R antenna phasing harness I use to phase two Alaskan Arrow antennas. It is designed for stacking matched antennas on 2m (VHF) or 70cm (UHF) bands and can handle up to 100W

For my initial test of the phasing performance I mounted my antennas to a boom of three-quarter inch PVC pipe. I

connected the cables and tested the SWR using my Rig Expert Stick Pro. Sadly, the SWR was literally off the chart. After some head scratching, I discovered that what I had thought was an N-connector on the phasing harness was actually an SO-239. When I corrected the cabling, mating the SO-239 with a PL-259 cable, the SWR was magically perfect! The two phased antennas were similar to the SWR of a single antenna. Of course, this is not a true performance test but helpful nonetheless.

My next step was to find a break in the rain and set up the test contraption outside to see if I could work a satellite (see photo). I quickly discovered that my “quick-and-dirty” test rig was a little too dirty and I had a hard time keeping the antenna alignment correct. The antennas were twisting out of alignment and the too-long cabling from the phasing harnesses was getting hung up on the elements. In addition, the satellite passes at the time were very low and far from ideal for testing a new setup. That said, I was able to hear an FM satellite and the RS-44 linear satellite. But by the time I got my antenna alignment OK the passes were over and I did not make any QSOs.



The quick-and-dirty setup of the dual Alaskan Arrow antenna system during initial test by Bruce VE7PTN

I am encouraged enough with my initial test to proceed further with my project. I ordered a couple of antenna clamps from Arrow Antennas that are specifically for mounting an Arrow antenna to a boom. This should help to stop the twisting issue. I also ordered some shorter BNC patching cables now that I know the length I need. This should cut down on the snagging and weight balance issue that made the antennas difficult to aim. I am waiting for these parts to arrive, which they should soon and so should some better weather. I plan to make

another test and report the results in next month's article.

Well, that's all for another month. 73.

Royal Canadian Air Force Centennial

RCAF 2024 is a once-in-a-generation opportunity to honour, celebrate, and inspire Canadians to take ownership of their Air Force. April 1, 2024 marks 100 years of service for the RCAF as an independent military element. The Centennial is a unique opportunity to celebrate this milestone with all Canadians. In 2024, our nation's Air Force will be showcased in a past, present and future context, highlighting contributions to national safety and security, international peace and global stability.



The RCAF 2024 website is the central and accessible hub for information about the RCAF 2024 Centennial. See what events and activities are happening in 2024, find out more about the RCAF, and check out their 100-year timeline! (Thanks RCAF Website).



NARA Events for April

April 4 - NARA Executive Meeting (Zoom)

April 11 - NARA General Meeting (Zoom)

NARA Coffee Klatches



Day	Frequency	Time	Location
Tuesday	Weekly	10:30 am	South end Smitty's: #50 10 th Street
Thursday	3 rd Thursday of the month	7:00 pm	Tim Hortons: 2320 Northfield Road
Saturday	Weekly	9:00 am	North end Smitty's: 2980 North Island Hwy, in Rock City Centre

April Fun



You have heard of 'key-clicks', well this is a 'key-chick'. Thanks to Katherine VA7HN for submitting this fun April picture

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

The deadline for the May 2024 issue of the NARA Newsletter will be noon on Saturday April 27 with an intended publication date of April 30.

News items and comments should be sent to:

news@ve7na.ca