

The Communicator

September—October 2021

ARC



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were first intercepted by the antenna.

KB6NU's Column

Dan Romanchik, KB6NU

Predictions call for solar cycle 25 to be big, early



A new solar cycle 25 forecast predicts that the cycle will be big, while a second predicts that it will be early.

Southgate ARC reports:

NASA Heliophysicists have released a revised prediction for Solar Cycle 25. The report generated by Ricky Egeland, a solar physicist working in the NASA Space Radiation Analysis Group now calls for the peak of Solar Cycle 25 to top out at a value of 195 ± 17 based upon the new scale for calculating Smoothed Sun Spot Number. For reference Solar Cycle 21 peaked at an SSN 233 (new scale) while Solarcycle 23 peaked at an SSN of 180 (new scale). If this predictions holds up Ham Radio will see

When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.com, teaches ham radio classes, and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.

Excellent Worldwide F Layer Conditions on 10 Meters for several years around Solar Max. 6 Meters conditions should be good in the Equinox Periods before and after Solar Max with consistent openings on Medium Haul Polar Routes. 6 Meter routes traversing the equator should experience consistent openings ± 9 months from Solar Max.

That sounds pretty good, **doesn't** it?

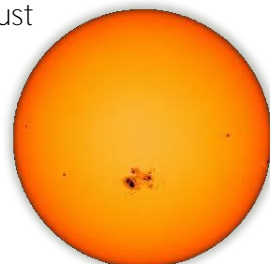
The second report appears on SpaceWeather.Com:

SOLAR MAX MIGHT COME A YEAR EARLY: Solar Cycle 25 is heating up faster than expected. The latest sign may be found in sunspot counts from July 2021. Continuing a trend that started last year, they overperform the official forecast:

Issued by the NOAA/NASA Solar Cycle 25 Prediction Panel in 2019, the official forecast calls for Solar Cycle 25 to peak in July 2025. However, a better fit to current data shows Solar Cycle 25 peaking in October 2024. This is just outside the 8-month error bars of the **Panel's** forecast.

Predictions like these really have little practical use for amateur radio operators. We all know that propagation will get better as we get into **Cycle 25, and there's** nothing that we can do to make it better. I suppose that if you have been thinking of putting up some kind of directial antenna—I've been thinking about putting up a hex beam—this information might spur you to do it sooner, rather than later. For the most part, though, we just have to go with the flow.

~ Dan KB6NU



No-Ham Recipes

Paulette VE7VPE



Butter Tart Squares

The flavours of these squares are perfectly balanced, the filling rich and smooth, punctuated by little chunks of walnuts.

Base

- 1 cup (250 ml) all-purpose flour
- ¼ cup (65 ml) granulated sugar
- ½ cup (125 ml) butter

Topping

- 2 tablespoons (30 ml) butter, melted
- 2 eggs
- 1 cup (250 ml) brown sugar
- 2 tablespoons (30 ml) flour
- ½ tablespoon (7.5 ml) baking powder
- ½ teaspoon (5 ml) vanilla extract
- Pinch of salt
- 1 cup (250 ml) raisins (soaked in just-boiled water to plump them)
- ½ cup (125 ml) walnuts, chopped coarsely

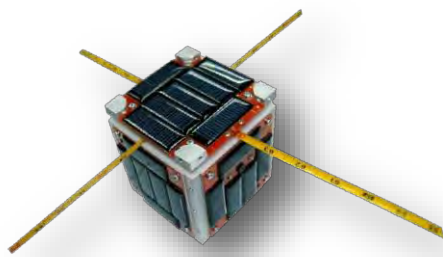


Preheat oven to 350F (180C or a very moderate oven)

BASE - In a bowl, combine flour and sugar; cut in butter until crumbly. Press into 9-inch square cake pan; bake for 15 minutes.

TOPPING - In a bowl, mix together butter and eggs; blend in sugar, flour, baking powder, vanilla and salt. Stir in raisins and walnuts; pour over base. Bake for 20 to 25 minutes or until top springs back when touched lightly. Let cool on wire rack before cutting into small squares.

~



Satellite News

You Can Do This...

SSTV from the International Space Station

As reported in the ARRL Space Bulletin ARLS007, from June 21-26, 2021, the ISS planned to host a SSTV special event. Information provided by ARISS (<https://ARISS.org>) indicated transmissions would be on 145.8 MHz FM using PD120 (2 minutes per image). Twelve different images were to be broadcast more or less continuously during that period. As a relatively new ham (since August 2020), this looked like a fun opportunity to try something new. To get started, I looked up the ISS overpass times for my QTH grid square (DN70JA, at: <https://amsat.org/track/>) on 6/22, and tuned my rig to 145.8 MHz, just to listen for the signals during a predicted overpass.

The first couple minutes after the AOS (acquisition of signal) time given by the tracker yielded only static. Then, faintly, I **could hear the unmistakable “diddle” sound** of an SSTV transmission preamble followed by the melodic chirp of an image being transmitted (an example can be found at: <https://soundcloud.com/spacecomms/pd120-sstv-test-recording>). Disappointment instantly turned to excitement, and I resolved to attempt to capture the entire image series, if I could.

My receiving station consisted of a Yaesu FT-991A set to FM mode, with a 16kHz bandwidth, fed by a Diamond X-50 vertical antenna on the roof of my shack, with the

audio signal fed via USB to a Windows 7 PC running MMSSTV software (<https://hamsoft.ca/pages/mmsstv.php>).

MMSSTV and the PC provided demodulation and image capture (the MMSSTV AFC should be engaged to compensate for Doppler shifts due to the high relative ISS velocity). Between 6/23/21 1624Z and 6/26/21 1856Z, 21 full or partial images were captured with picture quality P0-P5, and 10 of the 12-image-set were captured with ~P4 quality or better. Several images were captured multiple times, but not all images in the set were seen. The first image captured exhibited a herringbone interference pattern (see Fig. 1) due to locally generated RF noise.

In an attempt to understand parameters that most affected image quality, an Excel spread sheet was used to log each image time along with the corresponding ISS maximum line-of-sight (LOS) elevation and maximum elevation azimuth angles. A linear interpolation in time was used to approximate the actual maximum elevation angle from my station to the ISS at the time corresponding to the center of each image. The images were then graded on a quality scale from P0 to P5

(see <https://kh6htv.files.wordpress.com/2021/02/an-55a-atv-handbook-1.pdf> for details),

The latter being a perfect central image and the former being some indication of a transmission but no discernable picture. The quality ratings were plotted against the corresponding elevation and azimuth angles. There was no discernable relationship to the azimuth at maximum elevation, but higher central image ISS LOS path elevation angles largely corresponded to the higher P4 and P5 image quality factors as shown in Figure 3.

It is not clear why there are short duration dropouts in otherwise strong signals with a clear LOS (as can be seen in Figure 2). My antenna is vertically polarized and omnidirectional, so perhaps polarization variations or multipath reflections from the nearby foothills are involved. In either case, antenna improvements should address the issue. On one occasion, there was a strong signal, but the image was torn as though horizontal sync could not be achieved, and no signals were received at all on 6/25, presumably because none were transmitted during overpasses of my QTH. In any event, this was a toughly enjoyable exercise, and I look forward to future ISS SSTV special events.

~ Chris Grund, K0CJG,
Boulder, Colorado

Article reprinted with permission from the Television Club TV Repeater's
REPEATER Newsletter
July 2021, 2ed edition, issue #82

Figure 2: Examples of "P5" SSTV image captures from the ISS.
Left: 6/26/21 1223 Z; Right: 6/24/21 1849 Z.



Figure 1. 6/23/21 1624 Z: Strong S6 SSTV signal, but radiated noise from two HDMI switchers operating in the shack caused copious herringbone interference. Once the sources were located, they were disconnected during all subsequent captures.

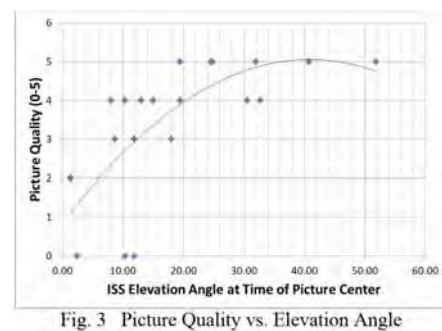
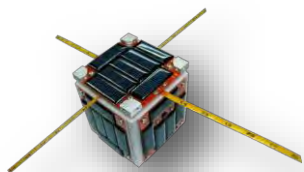


Figure 3 Picture Quality vs. Elevation Angle



AO-109 transponder available for use by efficient modes like FT4

AMSAT has announced the transponder on the amateur satellite AO-109 (Fox-1E) is available for use by efficient modes such as FT4 or CW

A statement on the AMSAT website says:

The AMSAT Engineering and Operations Teams are pleased to announce that AO-109 (RadFxSat-2/AMSAT Fox-1E) is now open for amateur use. Users are advised to use efficient modes such as CW or FT4 for making contacts, since issues with the satellite make SSB voice contacts challenging at best.

Please see the May/June 2021 issue (Vol. 44, No. 3) of The AMSAT Journal for an article by Burns Fisher, WB1FJ, and Mark Hammond, N8MH, detailing the various attempts to characterize AO-109 and its apparent problems.

On behalf of the Engineering and Operations Teams,

~ Jerry NØJY and Drew KØ4MA

AO-109 Frequencies

- Inverting Linear Transponder
- Uplink 145.860 MHz - 145.890 MHz
- Downlink 435.760 MHz - 435.790 MHz
- 1k2 BPSK Telemetry 435.750 MHz (non-operational)

Source: AMSAT

<https://www.amsat.org/ao-109-radfxsat-2-amsat-fox-1e-open-for-amateur-use/>

Breakfast is served, as captured by this recent photo.

Join us at Denny's 6850 King George Blvd, Surrey on Saturday mornings between 07:30-09:30



Ham Leftovers...

Credit card chip crystal radio

Perhaps the simplest radio one can build is the crystal radio. Using a diode as a detector, the design generally uses less than 10 components and no battery, getting its power to run from the radio signal itself. [Billy Cheung] decided to build a crystal radio using a rather unconventional detector - the smart chip in a common credit card: https://youtu.be/_z3KmFqtPXQ and the GitHub page: [GitHub - cheungbx/circular-credit-card-radio](https://github.com/cheungbx/circular-credit-card-radio)

The History of Single Sideband

Single sideband modulation revolutionized electronic communication, but where did the idea come from?

Antique Wireless Association Curator Emeritus Ed Gable, K2MP, tells the surprising story of single sideband, its origins, the developers, companies and the hardware that brought it to the forefront of wireless communication.

This presentation is the first of the AWA's monthly "AWA Shares" series: <https://youtu.be/BBRntPJTr5Y>

Another effect of climate change?

Alex VE7DXW reports, "Scientists from Israel determined that the rise in temperature has a detrimental effect on the ionosphere." This may explain why radio propagation is far lower than it was in the early days of Ham Radio. Read the paper here: <https://phys.org/news/2013-07-radio-news-climate.html>

Amateur radio tower: Judge says Framingham zoning board of appeals 'erred'

A judge overturned a ZBA decision and ruled a magnificent 80-foot high amateur radio tower can be erected in the City of Framingham. Read the full story: <https://framinghamsource.com/index.php/2021/07/13/judge-says-zba-erred-amateur-radio-tower-can-be-erected-in-framingham/>

Morse code used by police

The Indian Express newspaper reports Police in Pune are keeping Morse code as a robust stand-by communications mode: <https://indianexpress.com/article/cities/pune/pune-police-morse-code-satellite-7412482/>

Back to Basics

John Schouten VE7TI

From The Canadian Basic Question Bank

All about tones



Tones... we all know what they are in non-radio terms, but they pose questioning glances from many Basic course students. When we explain tones during the course. Referring to our hobby, tones may be:

- PL, CTCSS or sub-audible tones;
- A report of CW signal quality; or
- A tone used by repeaters to mark the end of a transmission.

PL, CTCSS and sub-audible tones

Let's look at a typical question:

B-2-1-5 What is a CTCSS tone?

- A. A special signal used for radio control of model craft
- B. A sub-audible tone that activates a receiver audio output when present
- C. A tone used by repeaters to mark the end of a transmission
- D. A special signal used for telemetry between amateur space stations and Earth stations



In telecommunications, Continuous Tone-Coded Squelch System or CTCSS is one type of in-band signaling that is used to reduce the annoyance of listening to other users on a shared two-way radio communications channel. It is sometimes referred to as tone squelch. It does this by adding a low frequency audio tone to the voice. Where more than one group of users is on the same radio frequency. CTCSS circuitry mutes those users who are using a different CTCSS tone or no CTCSS.

All users with different CTCSS tones on the same channel are still transmitting on the identical radio frequency, and their transmissions interfere with each other; however; the interference is masked under most (but not all) conditions. The CTCSS feature also does not offer any security.

A receiver with just a carrier or noise squelch does not suppress any sufficiently strong signal; in CTCSS mode it unmutes only when the signal also carries the correct sub-audible audio tone. The tones are not actually below the range of human hearing, but are poorly reproduced by most communications-grade speakers and in any event are usually filtered out before

being sent to the speaker or headphone.

A receiver equipped with a CTCSS decoder will not reproduce a signal unless it carries a given sub-audible tone in the background, for example a continuous 100 Hz tone. To work with such receivers, a transmitter must be equipped with a CTCSS encoder. Standard tones are in the range of 67 to 254 Hz, below the normal speech frequencies of 300 to 3000 Hz.

One example of the purpose for repeater tones is here in the Greater Vancouver area of SW Canada. We operate VE7RSC in Surrey on a repeater frequency of 147.36 MHz. About 65 miles south, on Camano Island in Washington State, W7PIG operates on the same repeater frequency pair. Without tones, under ideal propagation, we hear their repeater and they hear ours, in most instances it is poor copy and distorted, so it is classed as interference. By using a different tone on each repeater, only stations on our frequency *with* our sub-audible tone programmed open up our repeater. The repeater will not respond if no tone, or the incorrect tone is detected. The same situation occurs on Camano Island and that repeater uses a different tone as its 'key'.

Bear in mind that if both repeaters are in use there is still activity on one frequency by both users. Therefore the disadvantage of using CTCSS in shared frequencies is that users cannot hear transmissions from other groups. They may erroneously assume that the frequency is idle and then transmit at the same time as another user, thus interfering with the other group's transmissions. In our example, the distance is sufficient that there is little objectionable co-use and it is much more tolerable than not using tones.

Tones are not only used on repeaters. Many newer transceivers allow the user to program in a sub-audible tone when you wish to only hear simplex transmissions from other users in your group. Such use may be during an event or an outdoors recreational activity.

CTCSS is an analog system. A later Digital-Coded Squelch (DCS) system was developed by Motorola under the trademarked name Digital Private Line (PL).

Many radios also have a feature **typically labelled 'Tone Squelch'**. That is similar to a repeater CTCSS tone but you can program it into your transceiver receive. When enabled, and the transmitting radio sends that sub-audible tone with the audio, your receive is unmuted only when that tone

Refer to your user manual... The tone setting is usually indicated on your transceiver display by the letter 'T', while Tone Squelch may display as 'T-SQL'.



is received with an incoming signal. This feature may be handy if you are with a group of Amateurs and only wish to hear the conversation when one of the group is transmitting.

Therefore, the correct answer to the question in B-2-1-5 What is a CTCSS tone? is

- B. A sub-audible tone that activates a receiver audio output when present

Next...

DTMF Tones

Dual-tone multi-frequency signaling (DTMF) is a telecommunication signaling system using the voice-frequency band over telephone lines between telephone equipment and other communications devices and switching centers. DTMF was first developed in the Bell System in the United States, and became known under the trademark Touch-Tone for use in push-button telephones supplied to telephone customers, starting in 1963. DTMF is standardized as ITU-T Recommendation Q.23.

In Amateur Radio, DTMF is enabled with a keypad on the transceiver or microphone. DTMF uses a mixture of two pure tone (pure sine wave) sounds, a set of eight audio frequencies transmitted in pairs to represent 16 signals, represented by the ten digits, the letters A to D, and the symbols # and *. As the signals are audible tones in the voice frequency range, they can be transmitted and heard through repeaters and amplifiers, and over radio and microwave links.

DTMF is commonly used to turn on a link via radio, such as may be needed to contact a station on IRLP or EchoLink. It was also heavily used before cellular

phones became common, as hams could dial telephone calls via their radio using a 'phone patch' on a repeater. Some repeaters and clubs still offer this service.

Tones and signal reports

B-2-6-2 What does "RST" mean in a signal report?

- A. Readability, signal speed, tempo
B. Readability, signal strength, tone
C. Recovery, signal strength, tempo
D. Recovery, signal speed, tone

"RST", A short way to describe signal reception (Readability: 1 to 5, Signal Strength: 1 to 9, Tone Quality (for Morse): 1 to 9). For example, "11" unreadable, barely perceptible. "33" difficult to read, weak signal. "45" readable, fairly good. "57" perfectly readable, moderately strong.

The 'T' in RST is only used for CW (Morse code) reports and is an indication by the receiver of the quality of the received tone.

Therefore, the correct answer to the question in B-2-6-2 What does "RST" mean in a signal report? is:

- B. Readability, signal strength, tone

And finally...

Repeater courtesy tone

There are no questions in the Canadian Basic Amateur Radio exam question bank about courtesy tones but the term is listed as an incorrect answer. Regardless, you should be aware of its meaning.

Most repeaters have a courtesy tone just before the transmitter stops transmitting. This is typically a 'bee-boop' sound.



The ones that do not will have a squelch tail that will transmit for a second or so after the input carrier or tone drops.

After the courtesy tone or carrier drops, if there is no courtesy tone, you should wait a second or two before keying up the mic. This provides space for others to break in if needed.

The courtesy tone is merely an audible indication that the repeater has finished transmitting and another station may start.

Kerchunking

While **we're** on the subject, **let's** also mention **'kerchunking**.

This is one of the most annoying things for a repeater operator and people that listen to the repeater a lot.

Just in case you do not what Kerchunking is... **Kerchunking is when you press the PTT** and then let off without any speaking.

Some people will kerchunk the repeater but never talk. If you kerchunk the repeater to get it to wake up and ID before starting a new net or QSO that is fine because you follow up the kerchunk with your callsign and start a net or QSO.

Some people think that kerchunking the repeater is a way to test your radio but it really is not a valid test, as you have passed no audio.

In Canada, the rules state that you must ID at the beginning and end of a conversation and at least every 30 minutes (10 minutes in the United States) if your conversation lasts that long. Just a Kerchunk (or many) does not meet the regulations

Bottom line, do not kerchunk the repeater and not ID.

The 'Alligator'

"The alligator bit you" is a term you may hear when on the air.

This is a slang term for the timer function of a repeater controller that limits the length of time the transmitter will remain keyed without a pause. Typically the timer is set between 3 and 5 minutes.

It is a protection device to prevent the repeater from overheating when transmitting. Aside from so-called **"Long-winded operators"**, I have seen instances where repeater users have accidentally sat on their mics and transmitted for some time without realizing it (when you are transmitting you do not hear other users or the repeater because your receiver is muted). If the time-out timer did not exist the repeater power amplifier would overheat causing an expensive repair.

Such times are not unique to repeaters. There is a very good chance that the transceiver you own also has protective circuitry to limit transmitting time.

~ John VE7TI

Calling all New Amateurs: Get your Name in Lights!

Did you get your Amateur Radio certificate within the past year or two and want to introduce yourself through TCA to the Amateur Radio community? If so we would love to hear from you.

Drop a line to tcamag@yahoo.ca and tell us how you were introduced to the magic of Amateur Radio.

Do you credit any particular Amateur ("Elmer") with getting you started? Which aspect of the hobby do you enjoy so far?

Please be sure to include your name, call sign, date and level of certificate – and don't forget to include a photo or two. We hope to hear from you soon!



Do you need more information about our courses?

<https://bit.ly/SARCCourses> or scan the QR-code with your smart-device camera

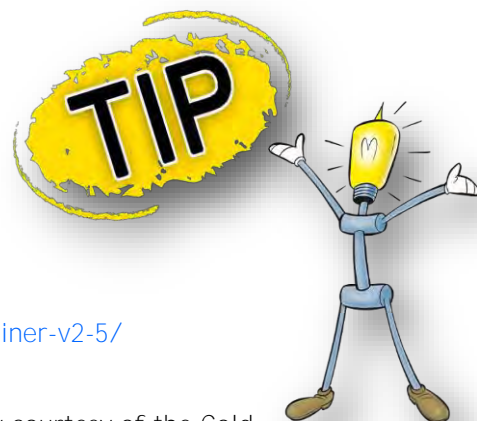
Study Links for more information

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank.
<http://tinyurl.com/CanadaBasicQB>
2. Industry Canada (ISED) on-line practice page:
https://apc-cap.ic.gc.ca/pls/apc_anon/apeg_practice.practice_form
3. The Amateur Radio Exam Generator is at:
https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at: <https://wp.rac.ca/examiner-v2-5/>
5. VE3YT has an excellent question-based guide available at ve3yt.com
6. There are plenty of good resources for both basic and advanced exam study courtesy of the Cold Lake Amateur Radio Society at: <http://www.clares.ca/va6hal%20training.html>

Contact SARC if you wish to write the Basic or Advanced Exam. If you pass **we'll** even give you a year free as a SARC prospective member!

Newly Licensed? When you receive your paper license in the mail, it will come with a form that can be filled out and mailed to the Radio Amateurs of Canada office, at which point an introductory RAC one-year membership will be set up. Introductory memberships are identical to our existing basic memberships and you will receive The Canadian Amateur magazine for one year.



HAMpuzzle V1.2

Our new students are often confused by the block diagrams for receivers and transmitters. A freeware program to practice assembling block diagrams for the Canadian Amateur Radio Basic certification exam runs under Microsoft Windows (but also works flawlessly on Ubuntu 10.04 + Wine 1.2.2)

HAMpuzzle V1.2 (2014 04) <https://www.rac.ca/wp-content/uploads/2014/04/HAMpuzzle/HAMpuzzle12.zip>

Be sure to download at least one set of Diagrams from the web page and deposit the bank(s) in the same folder as the program. For Basic:

https://www.rac.ca/wp-content/uploads/2014/04/HAMpuzzle/HAMpuzzle_Diag_Basic.zip

Radio Amateurs of Canada is pleased to make the HAMpuzzle© program available and extends sincere thanks and congratulations to François Daigneault, VE2AAY, for writing and providing it as freeware to anyone wishing to download it.

~ RAC

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- Practice an exciting hobby or start a career opportunity



More information needed? Click: <https://bit.ly/SARCCourses> or use the QR code above

The Ham Crossword On

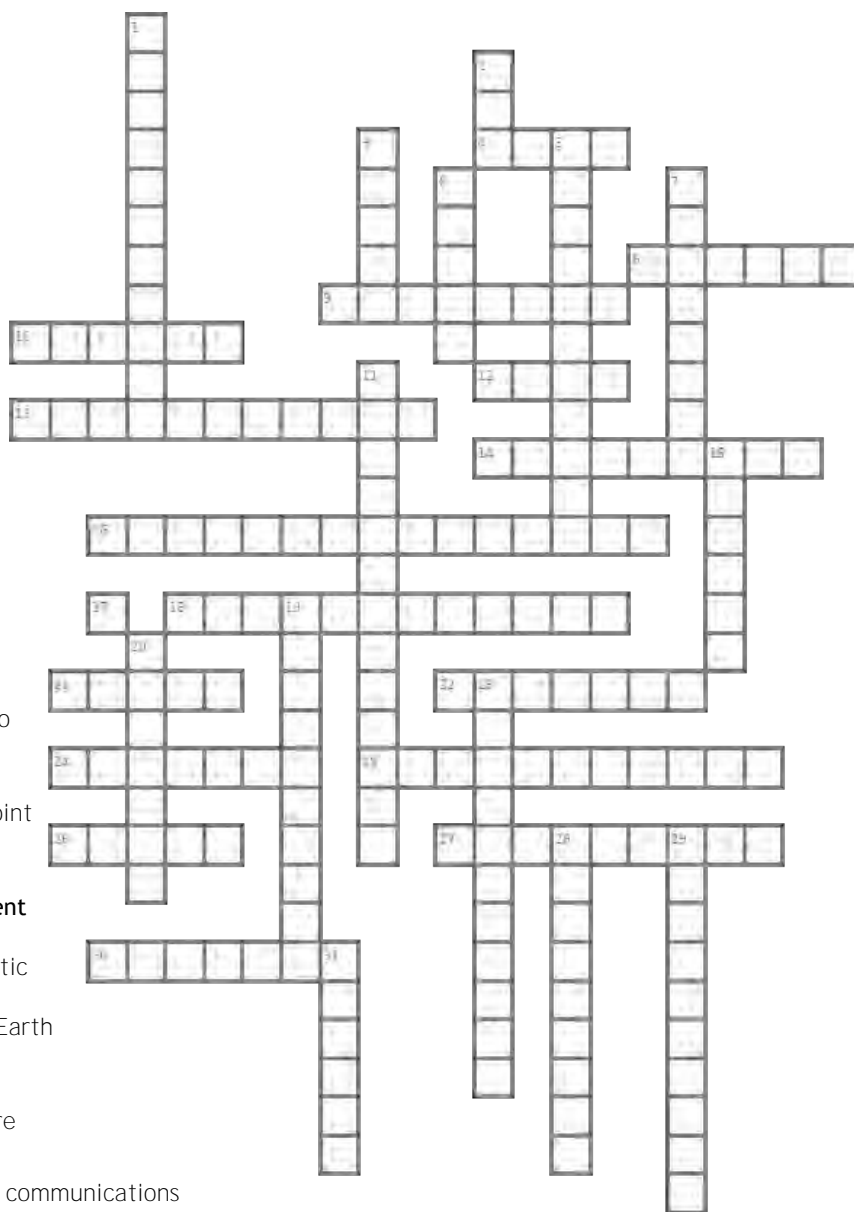
Propagation

Down

1. loss of signal strength
2. maximum usable frequency
3. related to the Sun
5. solar radiation most responsible for ionization in the outer atmosphere
6. magnetic solar disturbances visible on the sun
7. a signal that skips several times
11. after the sun sets this happens to the D and E layers
15. colorful and visible solar light phenomenon
19. causes the radio wave to lose energy in the ionosphere
20. discoverer of electromagnetic fields
23. movement through a medium
28. a sharp atmospheric temperature transition between cold and warm air
29. the formation of ions
31. radio waves that travel a path near the Earth

Across

4. solar generated radio energy
8. years between new solar cycles
9. the limiting frequency at or below which a radio wave is reflected
10. variations in signal strength
12. distance from the transmitter to the nearest point where the sky wave returns to Earth
13. approximate rotation period of the sun in days
14. the same radio wave arrives at a slightly different time
16. a combined wave with both electric and magnetic fields
17. region between about 75 and 95 km above the Earth
18. changes in the radio wave due to reflection, refraction, or passage through a magnetic field
21. the ionosphere is _____ ionized just before dawn
22. the frequency that provides the best long range communications
24. a weak or wavering distorted signal usually at night
25. to do with the region between the stratosphere and exosphere
26. _____ waves travel in a straight line
27. energy emitted as particles or waves
30. a radio wave guided between two inversions



The answer key is on page 103



Radio Amateurs of Canada

RAC scholarship awarded

It is with great pleasure that RAC British Columbia / Yukon Director Keith Witney, VE7KW and Scholarship Chair Al Eros, VE4ZB, announce the awarding of a \$1,000 scholarship to Levente Buzás, VA7QF, on behalf of all Radio Amateurs of Canada members. Levente is a graduate research student at the Department of Electrical and Computer Engineering at the University of Victoria in British Columbia.

Every year, through the RAC Foundation, Radio Amateurs of Canada provides grants and scholarships to worthy community programs and to young Canadian Amateurs who are studying at the post-secondary level. RAC operates the RAC Foundation in cooperation with the Community Foundation of Ottawa (CFO) which administers and invests the donated funds and disburses the earnings from those invested funds to grant applicants, based upon the advice of the RAC Board. All grant applications should be submitted to the RAC Foundation for processing and recommendation.

Note: This year, the deadline has been extended to November 30 to compensate for the delays caused by the global pandemic.

Upon hearing the good news, Levente, VA7QF, wrote:

“I would like to thank all those Canadian Amateurs who have generously donated to the scholarship fund, and the RAC Board for awarding me the privilege of receiving this award.

My graduate research is on the design, development and licensing of an open source radio communications subsystem (ground and space stations) for the ORCASat nanosatellite, which has been endorsed by Radio Amateurs of Canada to operate in the 435-438 MHz Amateur satellite allocation after its launch next year.



The system (design files, code, etc.) which I am developing is released to the public domain to be used by Amateurs around the world as they wish. The details can be found at: <https://gitlab.com/ORCASat/ttc>

If you wish to donate or require further information about the RAC Scholarships and

Grants Program, please visit our Scholarships page on the RAC website at the link provided below or contact Al Eros, VE4ZB at VE4ZB@rac.ca.

<https://wp.rac.ca/grant-information/>

~ AL Eros, VE4ZB

Canadian Amateur Radio Hall of Fame

—Welcome aboard Helen and Neil!

As reported in the July-August 2021 issue of The Canadian Amateur magazine, the Canadian Amateur Radio Hall of Fame's Board of Trustees is pleased to announce that Helen Archibald, VA1YL, of Port Williams, Nova Scotia and Neil King, VA7DX of Vancouver, British Columbia have joined the Board of Trustees for three-year appointments.



Helen Archibald, VA1YL, achieved her Amateur Radio certification and call sign VE2YAK in Quebec in 1992 because she **“wanted** to be able talk to her husband Fred, VE2SEI and her daughter Anne, VE2WHO, who started going on expeditions to activated rare IOTA islands in 1991. In 1992 she communicated with them again at Charlton Island (VE8CWI) in James Bay. She also

wanted to operate the Guides on the Air event.”

In 1994 Helen, a member of the West Island ARC, went with her family on the club expedition to St Paul Island as CY9CWI. She **“became hooked on IOTA expeditions and she has been on about 15 annual IOTA contest expeditions to many Maritime, islands, making thousands of contacts.”**

When she operated in the Guides on the Air Contest in 1992, a YL told her about the Canadian Ladies Amateur Radio Association (CLARA) net. **Helen didn't know that there were nets!** When the CLARA net controller moved away Helen became Net Controller and is still serving in this position on 40m and 20m.

In 1993 Helen got her Advanced and her daughter Margaret became VE2ZOO at age 11. In 2003, Helen and Fred moved to Nova Scotia and she became VA1YL and Fred became VE1FA, and they joined both the Kings County ARC and the Halifax ARC. Helen still enjoys being the CLARA Net Controller on 40m and 20m. Helen and Fred look forward to the end of the pandemic so they can resume Field Days and IOTA expeditions!

Born and raised on the West Coast of Canada, Neil King, VA7DX, was first licensed in 1979 as VE7CVM, attained his Advanced certification in 1980 and acquired **the call VA7DX in late 1999.** **“An avid HF, VHF and UHF contester, preferring DX to sleep and CW to SSB, Neil has also dabbled in meteor scatter, EME, tropo and satellite operation from VE7 as well as DX locations such as 7P8 and 3DA0.**

Current DXCC count is 327 and looking forward to adding to the list in the coming **cycle.**”

Neil has worked in the Information Technology sector for over 50 years, the last 21 as an IT consultant specializing in interim management, leadership skills and coaching, strategic planning and outsourcing. Since 2010, Neil has primarily worked overseas in fascinating places such as Beijing, Ulaanbaatar, Singapore, London, Johannesburg and DR Congo.

Neil is a member of Radio Amateurs of Canada (Maple Leaf Operator), the Coquitlam Amateur Radio and Emergency Services Society, Orca DX and Contest Club, BCFMCA, INDEXA and the Northern California DX Foundation. He is also actively involved in the British Columbia Wireless Amateur Radio Network (BCWARN).

For more information about the Canadian Amateur Radio Hall of Fame please visit:

<https://www.rac.ca/carhof/>



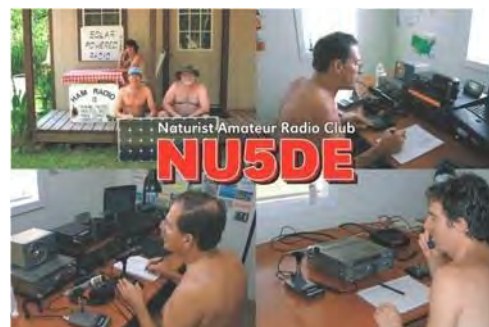
The Naturist Amateur Radio Club

The Naturist Amateur Radio Club of Mc Dade, Texas using call sign NU5DE celebrated the 90th anniversary of the American Association for Nude Recreation National Convention, and introduced their newly designed QSL Card.

A little history about the Naturist Amateur Radio Club... Ham Radio operations started during Nude Recreation Weekend in the early 90's. One of the first efforts happened from Hippie Hollow, a clothing optional county run park in Austin, TX. A long wire was run along the cliffs, just a short distance from the shoreline.

The rig was run using a couple of heavy duty batteries, but contacts were few and far between, mainly due to the poor location. A vertical was also use at one point, but still limited contacts. The call sign used belonged to Bob, KF5KF. After little luck from Hippie Hollow, the decision was made to operate from Star Ranch Nudist Resort, about 40 miles from Austin in a little town called McDade. Bob operated from his house during the week and on the weekend he moved his equipment from home to Star Ranch. This caused a dramatic increase in the number of contacts. Bob changed his call sign to N5KF in the fall of 1996. This call was used in July, 1997 from Star Ranch. In the fall of 1997 the Naturist Amateur Radio Club obtained the vanity callsign of NU5DE.

More information about the club can be found at www.nu5de.org



September 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
<div>For details on all SARC events, go to ve7sar.net</div>			1	2	3	4 Coffee: 730-930 AM @ Denny's 6850 King George Blvd., Surrey CONTEST: CO QSO Party (all mode) OTC Open—10-Noon Trunk Sale
5 CONTEST: CO QSO Party (all mode); TN QSO Party (all mode)	6 Labour Day CONTEST: TN QSO Party (all mode)	7 1930 SEPAR Net 2000 SARC Net	8 SARC Annual General Meeting 1900-2100	9	10	11 Coffee: 0730-0930 @ Denny's OTC Open—10-Noon CONTEST: WAE DX (SSB); AL QSO Party
12 CONTEST: WAE DX contest (SSB); AL QSO Party (all mode)	13 On-line Basic Course 19:00 hrs	14 1930 SEPAR Net 2000 SARC Net	15	16	17	18 Coffee: 0730-0930 @ Denny's OTC Open—10-Noon CONTEST: IA, TX, NJ, NH QSO Party (all mode); WA State Salmon Run (all mode)
19 CONTEST: IA, TX, NJ, NH QSO Party (all mode); WA State Salmon Run (all mode)	20 On-line Basic Course 19:00 hrs	21 1930 SEPAR Net 2000 SARC Net	22 1900 SARC Exec Meeting	23	24	25 Coffee: 0730-0930 @ Denny's OTC Open—10-Noon CONTEST: ME QSO party (all mode) CQ WW DX (RTTY)
26 CONTEST: ME QSO party (all mode) CQ WW DX (RTTY)	27 On-line Basic Course 19:00 hrs	28 1930 SEPAR Net 2000 SARC Net	29	30		

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>

October 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	For details on all SARC events, go to ve7sar.net				1	2 Coffee: 730-930 AM @ Denny's 6850 King George Blvd., Surrey OTC Open & Basic Course Exam—10-Noon CONTEST: CA QSO Party (all mode)
3 CONTEST: CA QSO Party (all mode)	4 On-line Basic Course 19:00 hrs	5 1930 SEPAR Net 2000 SARC Net	6	7	8	9 Coffee: 0730-0930 OTC Open—10-Noon CONTEST: NV, AZ, PA, SD QSO Party (all mode)
10 CONTEST: NV, AZ, PA, SD QSO Party (all mode)	11 Thanksgiving (Canada) No Class	12 1930 SEPAR Net 2000 SARC Net	13 SARC General Meeting 1900-2100	14	15	16 Coffee: 0730-0930 @ Denny's OTC Open—10-Noon CONTEST: NY QSO party (all mode)
17 CONTEST: NY & IL QSO party (all mode)	18 On-line Basic Course 19:00 hrs CONTEST: IL QSO party (all mode)	19 1930 SEPAR Net 2000 SARC Net	20	21	22	23 Coffee: 730-930 AM @ Denny's 6850 King George Blvd., Surrey OTC Open & Basic Course Exam—10-Noon
24/31 CONTEST: CQ WW DX (SSB)	25 On-line Basic Course 19:00 hrs	26 1930 SEPAR Net 2000 SARC Net	27 1900 SARC Exec Meeting	28	29	30 Coffee: 730-930 AM @ Denny's 6850 King George Blvd., Surrey OTC Open CONTEST: CQ WW DX (SSB)

Contest Details: <http://hornucopia.com/contestcal/contestcal.html>



ARDF: Foxes & Bunnies

The Annual SARC Fox Hunt—August 28, 2021

Saturday, August was the date for this year's annual SARC 'Fox' Hunt. As usual the venue was in South Surrey's Crescent Park, a large venue with both forested trails and fields suitable for a picnic. The weather cooperated wonderfully providing mild temperatures and blue skies after a couple of days of much needed rain.

The briefing started at 9am, once five 80m foxes had been hidden throughout the park. A beacon had been activated allowing the competitors, many of them first timers, to practice their ARDF skills.

At 10am the foxes automatically activated as programmed and the hunt was on.

This year there were approximately 25 hunters with a welcome complement of 'Junior' hunters joining the Novice and Advanced groups, and yes, the receivers are easy enough to use even for a 5-year old.

The first finisher returned after an amazing 22 minutes, impressive given the amount of territory that had to be covered.

What followed was a barbecue expertly prepared by Brenda James with assistance of Heather Brodie and Anitha and Anil Cherian... Thank you.

We also thank fox placers Jeremy VE7TMY, Jan VA7VJ and Thomas VE7TXL. Special thanks to Chief planner Anton VE7SSD, who once again provided a smooth running and fun family event.

~ John VE7TI







A brief history of direction finding

We think of radio navigation and direction finding as something fairly modern. However, it might surprise you that direction finding is nearly as old as radio itself. In 1888, Heinrich Hertz noted that signals were strongest when in one orientation of a loop antenna and weakest 90 degrees rotated. By 1900, experimenters noted dipoles exhibit similar behavior and it wasn't long before antennas were made to rotate to either maximize signal or locate the transmitter.

Of course, there is one problem. You can't actually tell which side of the antenna is pointing to the signal with a loop or a dipole. So if the antenna is pointing north, the signal might be to the north but it could also be to the south. Still, in some cases that's enough information.



John Stone patented a system like this in 1901. Well-known radio experimenter Lee De Forest also had a novel system in 1904. These systems all suffered from a variety of issues. At shortwave frequencies, multipath propagation can confuse the receiver and while longwave signals need very large antennas. Most of the antennas moved, but some — like one by Marconi — used multiple elements and a switch.

However, there are special cases where these limitations are acceptable. For example, when Pan Am needed to navigate airplanes over the ocean in the 1930s, Hugo Leuteritz who had worked at RCA before Pan Am, used a loop antenna at the airport to locate a transmitter on the plane. Since you knew which side of the antenna the airplane must be on, the bidirectional detection wasn't a problem.

Read the full article:
<https://hackaday.com/2021/08/19/wheres-that-radio-a-brief-history-of-direction-finding/>

~ Hackaday

The popularity of 80 m foxhunts is increasing because of the better directional characteristics (with less reflections) of HF versus 2m

The RX80M is the second generation of the popular directional foxhunt receiver designed by Les Tocko VA7OM and produced by Dave Miller VE7HR.

The RX80M receiver tunes 3.51 MHz to 3.60 MHz and is ready to use, complete with 9v battery, antenna, earbuds and internal 100 dB attenuator. Sensitivity is 0.4 uV for 10 dB signal to noise ratio.

Determine the general direction of the fox with the RX turned broadside and the button depressed, then home in precisely on the null with RX turned sideways. An instructional video describing this technique at <https://youtu.be/YK3gETNc2jU>.



Now also available – low power 80 m transmitter...

TX-3 transmits a continuous 8 mW on 3.579 MHz in Morse Code - MOE (2 dashes, 3 dashes, 1 dot). Hang it from a branch and let the counterpoise dangle down or trail along the ground. The TX-3 comes with batteries, a 6 ft antenna and 6 ft counterpoise for a receive range of ~ 300 m

To order the RX or TX, contact JohnVA7XB@gmail.com.

Coming soon – higher power, programmable TX80M foxhunt transmitters

This is a non-profit volunteer project of SARC in support of amateur radio



80 m ARDF foxhunt receiver
\$125 + shipping



Low Power 80 m transmitter for
FoxOring or foxhunt training
\$15 + shipping

Local Ham Gear For Sale

More listings at hamshack.ca

For sale are **Four 8' long tower sections** = 32' free standing. The bottom anchors are missing as they were left in the concrete after it was taken down. **\$75.00 or best offer.**

Kjeld also has a rather large Marine Radio (HF boat anchor?) sitting at his home and he'd like to find a new home for it. If you're interested contact him.

Contact: Kjeld VE7GP 604-531-6396 or VE7GP@telus.net

70 cm Fast Scan TV Transmitter

For sale is an analog fast scan (NTSC standard) ATV transmitter in a hardened and waterproof metal case. Suitable for mounting outdoors. Last used by hams at Simon Fraser University on an emergency communications project in the early 1990s. Runs on 12 VDC. Approximately 100 feet of power/antenna/control cables included. As is, but if it doesn't work to your satisfaction you can return it. **\$100 OBO.**

Contact: Kevin McQuiggin VE7ZD/KN7Q mcquiggi@sfu.ca



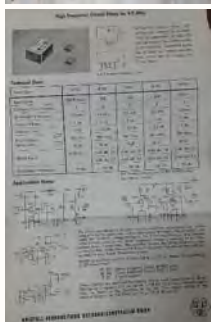
Crystal Filters

\$60 each or both for \$100, plus shipping.



I have both the XF-9A for SSB TX and the XF-9B for SSB RX plus matching crystals, sockets and spec sheet. These are high quality crystal filters made in Germany. The TX is unused and the RX is like new.

I can also supply crystals to heterodyne 10-15-20-40-80 m to a 9 MHz IF using a 5 -5.5 MHz VFO. And, if you are building a receiver, I can provide 9 MHz IF transformers to match.



WANTED: Old National Geographic and Reader's Digest Magazines.

Contact: John VA7XB va7xb@rac.ca or 604-591-1825

A REAL SDR Transceiver! Flex-3000 fully SDR 100W Transceiver C\$750 with FireWire card and headset adapter (laptop not included)

Great condition but rarely used now. Details at <https://www.flexradio.com/documentation/flex-3000-owners-manual/>

8-foot stainless steel whip \$25

Free Oscilloscope

Early 80s solid state Tektronix scope. Has a trace, may need some work but you can't beat the price... Free

Contact: John VE7TI ve7ti@rac.ca



SURREY AMATEUR RADIO COMMUNICATIONS



Radio-Active

Profiles Of SARC Members

Fred was born in Vancouver, one of two children, the other one being his sister. He tells me he has reached the ripe old age of 85. He attended UBC for one year but the war years brought financial hardship for many, forcing Fred to go back to work therefore he was not able to complete his studies. Fred worked in the pressroom of The Province Newspaper and after the merger in 1957 he worked for Pacific Press as a printer. He married his childhood sweetheart, Marion, in 1957. They had 2 sons, one who lives in Langley and one in South Surrey, and now has 8 grandchildren. After marriage Fred and his family lived in Richmond for a while before moving to Pasadena, California where they lived for 2 years. It was there through a fellow worker Fred developed an interest in ham radio. In 1963 the family moved to their present home in South Surrey which originally was on 7 acres. On this property they had horses and chickens. Later they sold 5½ acres of the property.

Fred got his Ham License in 1975 with the call sign of VE7CJG. He chuckles on remembering a fellow ham and Elmer friend called John McPherson who, around the same time, got the call sign of VE7BOO on Halloween. Fred began building his radio shack in his basement with a Viking Ranger

CW transmitter and a Hallicrafters SX115 receiver, which was borrowed from VE7BOO. After one year he assembled an HW-101 Heathkit transceiver. For those who have visited **Fred's** shack you have seen that he has added several times to have his present set up. He also has 2 towers one with a SteppIR Antenna and one with a TH-6 ^tri-band beam.

From 1980 to 1994 Fred became inactive in ham radio because of his increasing responsibility as Director of Production for Pacific Press and his management role. His wife Marion returned to university and became a teacher and then received her **Master's** in learning disabilities. In 1994 Fred retired and his wife followed suit in 1995. The couple travelled to such places as Australia and England as well as travelling around USA and becoming Arizona 'snow birds'. They travelled for 12 years. Fred states that he had a ham radio in his RV, surprise, surprise! Fred became the emergency Coordinator for BC under RAC and then the Section Manager for BC/Yukon for 5 years. He stepped

Fred Orsetti
VE7IO



SURREY AMATEUR RADIO COMMUNICATIONS

Right: The VE7IO
Contest Team

Below: Fred
operating CW at
Field Day



out of all this for a while. Then he was approached by SEPAR and asked to take over the **Coordinator's** position. This was a position he held for many years as he brought SEPAR from relative obscurity to a core of community volunteers ready to help with additional communications capability for the City of Surrey, should the need arise. During **Fred's tenure as SEPAR coordinator**, school visits were arranged, presentations and workshops were held at City libraries and at the Surrey Museum. An active fund-raising program allowed the purchase of the SEPAR trailer, and the SEPAR promotional video was produced as well [\[https://youtu.be/6B-qFOTtqoQ\]](https://youtu.be/6B-qFOTtqoQ).

This brought Amateur Radio's capability and the many facets of the hobby to the attention of many kids, teens and their parents. Fred states that he has a lot of people to thank who have assisted him in building up SEPAR, including Gord Kirk, who is presently the Coordinator.

Fred loves working DX and contesting and has lots of certificates for this on the wall of his shack. He went to London, England in 1982 with a group of fellow hams and operated from the old BC House near Piccadilly. Fred began traveling to the Hamvention in Dayton Ohio in 1995 and went every year until around 2017. At the Hamvention he attended he attended Contest University. This was the **"source" for Dx and contest information.** In 1995 there were approximately 30,000 other

Right: At Field Day
with John VE7TI

Below: Fred and
Marion



Right: SEPAR school
hands-on workshop
introducing students
to radio
communications.

Far right: Fred briefs
for a SEPAR exercise



SURREY AMATEUR RADIO COMMUNICATIONS

operators from around the world, this was/is ham radio Mecca.

Along with other experienced contesting Elmers, Fred was eager to introduce more SARC members to contesting. He offered his vast knowledge and multi-position station for training. Led by Fred, several SARC members formed a contest team and performed very well in various events from a base at VE7IO. And, when COVID struck, and team contesting was no longer possible there, Fred researched and implemented Distributed Multi-Operator contesting where we could operate from individual stations and **coordinate our efforts through Fred's** base station [see *The Canadian Amateur magazine* September - October 2020].

Increasingly, Fred finds that these days he has to **"step back"** due to family commitments and the fact that he freely admits, **"I am getting older"**. One of the things that Fred likes most about being a ham is the opportunity to meet people of various backgrounds and describes this as the highlight of his radio life. He enjoys seeing people succeed in developing their radio skills.

Fred is a patient man always ready with kind and encouraging words for new hams. One of the things that can be difficult for some hams is balancing their ham radio involvement with their family life. To this Fred stated he has never put radio in front of his family which helps him keep his priorities straight. Fred is always willing to open up his radio shack to others in developing their contesting skills. Thank you Fred for all you have done, and all you are doing for amateur radio.

I know many of our newer members **don't** know you personally nor the tremendous contributions you have made to the hobby, and both SARC and SEPAR over the years, not to mention the Elmering you have **done...** including yours truly.

~ John VE7TI

*With contributions of
text from Jinty Reid
VA7JMR*



*Top: On the roof of Firehall One
installing antennas*



*Bottom: Fred at the controls of one
of the radios at VE7IO*

Dear John

For the last year I have been watching with great interest the publication you publish under the title "Communicator" and please accept my sincere congratulations for the interesting and original material and for the quality of the articles addressed to both beginners and more experienced radio amateurs. I hope you continue this good work, always finding the required and necessary courage.

Almost for 20 years I was also involved in the publication of our National bi-monthly magazine called "SV-News" and I can recognize when something is really good to read. With this opportunity I would like to ask your permission in order to

translate and publish some of your articles in our magazine from time to time. Full credit of course from the source will be given in the translation.

Regards and keep it up....

73

Manos G. Darkadakis SV1IW

Former RAAG President (2004-2015)

IARU Liaison (2015-2019)

Radio Amateur Association of Greece

National Society - Member of International
Amateur Radio Union (IARU) since 1959.

SURREY AMATEUR RADIO COMMUNICATIONS

The OTC Report

Back on the air!

John Brodie VA7XB



It's been quite a busy summer at the OTC, following the partial lifting of COVID restrictions in early July. Improvements to the radio room have continued, with the willing assistance of a few volunteers who have come out regularly following our now-recommended Saturday breakfast meets at **Denny's Restaurant**. So the radio room is getting to have a more polished look to it as the incidental chores get completed one by one and we get better organized.

The biggest job of the summer was to install a proper RF ground system, now completed. In doing so, we took as guidance grounding strategy from commercial installations. The ground is comprised of buried copper strap in a series of 3 interconnected 4 ft deep holes outside the radio room. This turned out to be a multi-day project, the major challenge being the augering of 6 inch diameter holes in dense, stony, clay soil. To ensure a good electrical connection to surrounding soil we placed bentonite clay chips around the copper. Since that time, the holes and interconnecting trenches have

been flooded with water to encourage the clay to hydrate and swell. Bentonite was purchased from a local well drilling supply company [see the article *describing bentonite's properties following this OTC Report*].

The grounding improvement was partially necessitated by our experiencing mutual RF interference between two radios operating simultaneously at different frequencies, as well as high ambient RF noise levels. Time will tell how effective this measure has been, just one more step in the long road to having 2 HF stations fully operational and functioning efficiently. The tower was grounded in a similar fashion, but for lightning protection.

Over the years, SARC and SEPAR have accumulated a lot of surplus equipment from donations. Unneeded items will be on sale at our Sept. 4th parking lot sale. Inventorying of these items and determining target sale prices has taken some considerable effort. Although one purpose of this sale is make space and raise cash, it has a more important objective, namely



ing Centre

SURREY AMATEUR RADIO COMMUNICATIONS

to allow members to enjoy the benefits of acquiring used equipment at reasonable prices and to encourage them to get on the air. Members may also bring personal items for sale on Sept. 4th.

Our revitalized Saturday morning breakfast and get-togethers at the OTC offer members not only a chance to socialize and to help with chores, but to bring their problems and questions to the group for help by the more experienced members. We hope that the crowd will continue to grow.

~ John VA7XB



SURREY AMATEUR RADIO COMMUNICATIONS



Just what is bentonite?

The 'OTC Report' mentions bentonite as an aid to achieve better RF **grounding...** but what exactly is this stuff?

In geology, the term bentonite is applied to a type of claystone composed mostly of montmorillonite. It forms by devitrification of volcanic ash or tuff, typically in a marine environment. This results in a very soft, porous rock that may contain residual crystals of more resistant minerals, and which feels soapy or greasy to the touch. However, in commerce, the term bentonite is used more generally to refer to any swelling clay composed mostly of smectite clay minerals.

Sodium bentonite expands when wet, absorbing as much as several times its dry mass in water. Because of its excellent colloidal properties, it is often used in drilling mud for oil and gas wells and boreholes for geotechnical and environmental investigations. The property of swelling also makes sodium bentonite useful as a sealant, since it provides a self-sealing, low permeability barrier. It is used to line the base of landfills, for example. bentonite is part of the backfill material used for waste isolation. Various surface

modifications to sodium bentonite improve sealing performance in geo-environmental applications, for example, the addition of polymers.

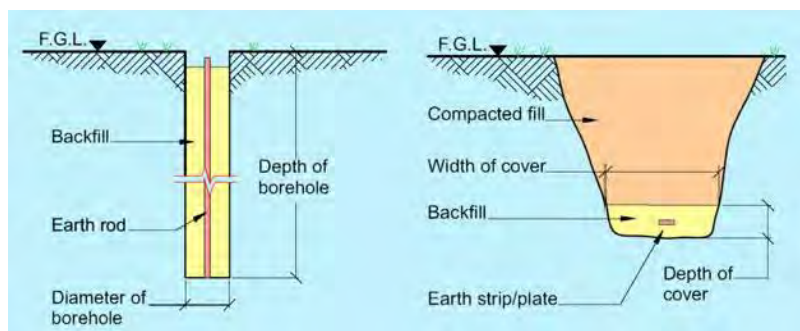
Here in BC, bentonite was installed in slurry walls in North Vancouver, Quesnel and Williams Lake to stop the migration of railway diesel contamination to adjoining properties. It was also used it to seal up abandoned environmental monitoring wells, and is used as pond liner to stop the water from seeping away.

Sodium bentonite can be combined with sulfur as fertilizer prills. These permit slow oxidation of the sulfur to sulfate, an important plant nutrient, and maintain sulfate levels in rainfall-leached soil longer than either pure powdered sulfur or gypsum. Sulfur/bentonite pads with added organic fertilizers have been used for organic farming.

The main uses of bentonite are in drilling mud and as a binder, purifier, absorbent, and carrier for fertilizers or pesticides. As of around 1990, almost half of the US production of bentonite was used as drilling mud. Minor uses include filler, sealant, and catalyst in petroleum refining. Calcium bentonite is sometimes marketed as fuller's earth, whose uses overlap with those of other forms of bentonite.

Bentonite is used in a variety of pet care items such as cat litter to absorb pet waste. It is also used to absorb oils and grease.

The bentonite is the yellow material



SURREY AMATEUR RADIO COMMUNICATIONS

What you should know when using ground enhancement material

Under almost all soil conditions, the use of a ground enhancement material will improve grounding effectiveness. Some are permanent and require no maintenance. You can use them in areas of poor conductivity, such as rocky ground, mountaintops and sandy soil, where you can't drive ground rods or where limited space makes adequate grounding difficult with conventional methods.

Bentonite is used to lower the resistance to earth by providing ground enhancement effectively reducing the resistance between the soil and earth electrode (such as copper earth rod or earth mats) by retaining moisture. This inherent ability to absorb and retain rainwater increases the electrical conductivity of the earthing compound in positive correlation to local climatic conditions, specifically average rainfall levels. Typically, the compound has a 3 ohms.m resistivity level - Bentonite compound is a cost-efficient material for backfill of earth electrodes and improving performance when it is physically impossible to drive the earth rods deeper and where challenging ground conditions exist such as rock, granite, etc.

Chemical treatment or backfilling of the soil in close proximity to the location of an underground earthing electrode is an established and traditional method of lowering ground resistance for substation earthing on high resistivity ground - such soil backfilling for electrical grounding improvements is commonly used.

There are several kinds of ground enhancement material available. But use care when choosing the material. It should be compatible with the ground rod, conductor, and connection material. Some options include bentonite clay, coke powder, and specially engineered substances.

Conduction in bentonite clay only takes place via the movement of ions. Ionic conduction can

only occur in a solution, which means the bentonite clay must be moist to provide the required resistance levels. When bentonite clay loses moisture, its resistivity increases and volume decreases. This shrinkage results in a discontinuity in the contact between the bentonite clay and surrounding soil, which further increases system resistance.

A noncorrosive low-resistance enhancement substance is a conductive cement that you can install wet or dry. Depending on the substance, it will not leach into the soil and meets EPA requirements for landfill. The railroad and utility industries have successfully used this material. When installed dry, it absorbs moisture from surrounding soil and hardens, retaining moisture within its structure. When used dry, no mixing is required, and you achieve maximum efficiency in a matter of days. This is because it absorbs enough water from the surrounding soil. You can also premix it with water to a heavy slurry. You can add this to the trench containing the grounding conductor or use it around a ground rod in an augered hole. The material binds the water into a cement making a permanent, highly conductive mass.

Some products offer a test-proven resistivity of 0.12 ohm-m or lower, compared with 2.5 ohm-m for bentonite clay. Unlike bentonite clay, the cement-like material does not depend on the continuous presence of water; nor does it require periodic charging treatments or replacement.

An ideal ground enhancement material should not require maintenance. When designing or installing a buried grounding system, look for materials that do not dissolve or decompose over time, require periodic charging treatments or replacements, or depend on the continuous presence of water to maintain conductivity.

~ Internet sources including:

<https://www.powerandcables.com/product/earth-tapes-rods-bars-copper/bentonite/> and <https://youtu.be/hHtIYboE8NE>

The Contest Contender

Inaugural SKCC All-Canada Celebration

The Straight Key Century Club's new on-air event promotes the club's many Canadian members. At this time the SKCC board wanted to extend the fun of hand key CW throughout the year. VE9SKCC is the special call sign that has been granted for this "KEY" event. We refer to the event simply as the "Canadian Operating Event."

VE9SKCC runs from September 1st through the 30th. It's a perfect time to introduce or re-acquaint hams to the fun of hand-keyed Morse code sent with straight keys, bugs, and side-swipers. Members and non-members alike are welcome to hunt the Canadian based VE9SKCC. Non-members are encouraged but not required to use straight keys for their VE9SKCC contacts. This year we hope to field VE9SKCC operators in all Canadian Provinces.

You can track your progress working the event stations by referring to the Stats section on the Canadian Operating Events page. Check for regular updates in your standings for Number of Areas, Bands and VE9SKCC operators to document your success.

Earn a QSL card by making at least one contact with any VE9SKCC event station. Work all Provinces for a basic sweep; check the Op Schedule and Operator Map links to find where and when the VE9SKCC stations are operating.

For SKCC members VE9SKCC is a great opportunity to make lots of progress toward various club awards. Contacts with VE9SKCC stations are valid for SKCC awards purposes. Also, by signing up as a VE9SKCC Operator you can readily log dozens or hundreds of award-eligible QSOs with other SKCC members.



SURREY AMATEUR RADIO COMMUNICATIONS

Would you like to sign on as one of our VE9SKCC Operators? You can try it for just an hour or two. Or reserve a series of time slots throughout the month. Code speed and station sophistication are not important. The on-air exchanges tend to be fairly relaxed. Please contact the Regional Coordinator in your area for more info. He or she will be eager to sign you up. Our VE9SKCC Operators are key to a successful event!

Be sure to listen for our VE9SKCC operators during September and work 'em when you hear 'em!

73,

~ The Canadian Operating Event Committee

Periodic Table of Radio Contests

2021

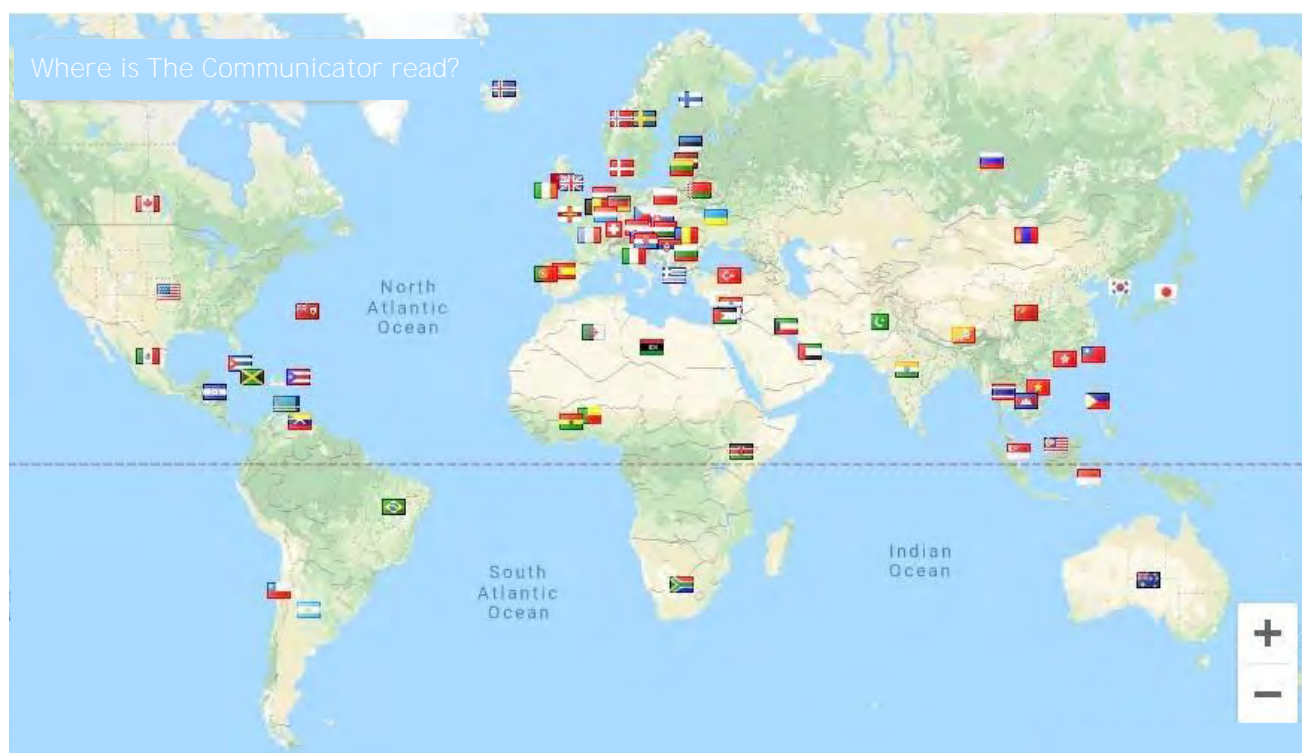
	Sept	Oct	Nov	Dec
Multimode	4 0000Z CWOps CW Open	4 2300Z California QSO Party	3 2100Z ARRL SS CW	6 0000Z ARRL 160
off-the-air	11 0000Z WAE SSB	12 2300Z Oceania CW	10 0800Z WAE RTTY	13 0000Z ARRL 10
CW	18 0000Z WA/NJ/NH QSO Parties	19 varies Worked All Germany	20 2100Z ARRL SS SSB	22 0000Z RAC Winter
SSB	25 0000Z CQWW RTTY	26 2400Z	27 0000Z CQWW CW	28 2400Z HAPPY HOLIDAYS
Digital				
VHF/UHF				

30
0000Z
CQWW
SSB

31
2400Z

Start Day (UTC) — 1 — End Day (UTC)
Start Time (UTC) — 1900Z — End Time (UTC)

Contest Name — Major Contest of weekend



SURREY AMATEUR RADIO COMMUNICATIONS

Your SARC Membership

If you have not already renewed, your membership in SARC expired as of last June 1st.

You are requested to renew your membership prior to the next AGM, which is tentatively scheduled for September 9th.

Note that only those whose membership is in good standing may vote or be eligible to run for a **Director's** position.

Payment may be made in one of several ways:

1. Use PayPal on the SARC website: www.ve7sar.net
2. If we meet, bring a cheque or cash to the AGM on September 9th.
3. Mail a cheque to our Treasurer Scott Hawrelak
13935 80A Avenue, Surrey V3W 6P5



Dues are as follows:

- Individual \$31
- Individual (if RAC member) \$26
- Family \$41
- Family (if RAC member) \$36

Thankyou for taking care of this as soon as possible.

~ *John Brodie VA7XB*
Membership



Hamshack.ca

- Receives 12,000 or so visits per week
- Has over 500 registered users
- Usually sits at about 250 active listings as items seem to move very quickly

Most importantly, I have continued with the amateur radio club listing initiative and recently added a self-enrolment form for clubs to add their own listings on the site. In addition, living through a pandemic made me realize the importance of emergency planning, and the importance that amateur radio plays in the emergency management field, by providing emergency communications services to public agencies and other organizations. Group representatives adding their organization to the site now have the ability to list the emergency communications services provided by their group.

It is anticipated that this emergency communications inventory will be accessed by public and other organizations to augment existing communications capacity for inclusion in emergency management planning.

~ *Don Rosberg, VE7DXE*

SURREY AMATEUR RADIO COMMUNICATIONS



General Meeting Schedule

September and October 2021

SARC Annual General Meeting

A reminder that our SARC AGM happens on September 8th at 7pm at the Surrey Fire Services Training Centre, located at 14923 64 Avenue Surrey.

[map link <https://what3words.com>]

The AGM notification and agenda is available as an appendix to the July-August 2021 Communicator:

bit.ly/JulAug21Communicator

Mid-Island AREDN data net

The Nanaimo Amateur Radio Association is bringing High Speed Amateur Radio Data Networking To Mid Vancouver Island.

They have started a project to establish an amateur radio high speed data mesh network using RF for the Ladysmith, Nanaimo, Gabriola Island, Parksville, Qualicum Beach and Sunshine Coast areas.

Why do they want to do this. **Here's just a** partial list of what we can use this for:

- Multiple Voice Channels (Digital)
- Texting and Email Applications
- Winlink Packet Radio
- Remote Station Control and Monitoring
- Repeater Site Control and Monitoring
- Video
- Radio Hotspots

And **that's** just a partial list, all using RF links.

There is an opportunity to take this project to the next level by setting up a series of data relay stations at some of the very best communication sites in mid-Vancouver Island.

See: <http://www.ve7na.ca/aredn-local-mid-island/>

At our October 13th SARC monthly meeting, Chris Anton VE7TOP will be presenting on this project.



SURREY AMATEUR RADIO COMMUNICATIONS



SARC Summer Meetings

July and August 2021



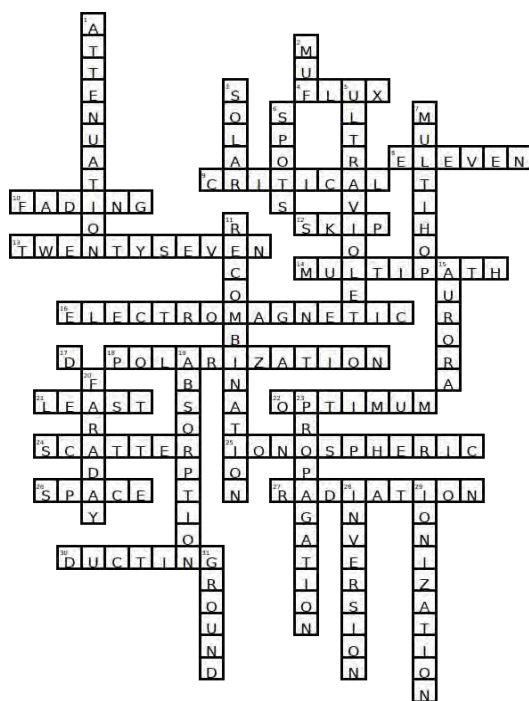
SURREY AMATEUR RADIO COMMUNICATIONS

News from Russia...

Many of our newer members may not be aware that SARC member Mike Zavarukhin holds dual Russian and Canadian callsigns and for many years was our 'secret weapon' on CW at Field Day.

Mike recently wrote: "Things are more or less good in Russia. My farm manager decided to find a new job, it will be a while to find and train a new one. So will stay in Russia the next year or two with some short visits to Canada. Garden Centres are the main portion of the business, managed fairly well by the partners. We have 8 shops now in or town with 600,000 people, and we are the key player on the local market.

~ 73, Mike RW0CN - VE7ACN

*Crossword answer key*

From page 80

SURREY AMATEUR RADIO COMMUNICATIONS



Another 'win' for our SARC contest team. This one for First place for the most contacts, high power, mixed modes.

Congratulations to John VA7XB, Steve VE7SXM and Jan VA7VJ

Team VE7IO including SARC members Fred VE7IO, John VE7TI, Jim VE7FO and Stan VA7NF captured the top BC score (multi-op) plaque.

Vancouver area frequency list

Name	Frequency	Offset	CTCSS	
VE7RSC (Primary Repeater)	147.360	+0.600	110.9	Primary: Kent-Mission; Sec. Richmond 146.475
VE7RSC (Secondary Repeater)	443.775	+5.0	110.9	Primary: Inter-Municipal Group 2 146.490
VE7RPT (Primary Regional Repeater)	146.940	-0.600		Primary: New West; Sec. Richmond 146.505
	Optional 136.5 Rcvr			National Calling / FM Simplex Group I 146.520
Simplex 1 (VHF)	146.550			Primary: North Shore; Port Coquitlam 146.535
Simplex 2 (VHF)	147.420			Primary: Bowen Island; Surrey 146.550
Simplex 3 (UHF)	446.550			Intermunicipal Group 1 Coordination 146.565
Simplex 4 (UHF)	447.425			Primary: Lions Bay/Vancouver/Delta/Langley 146.580
Other frequencies in the Greater Vancouver area:				Primary: Port Moody; Sec: Burnaby 146.595
Primary: Coquitlam/Abbotsford	146.430			Secondary: Vancouver/Surrey 147.420
Primary: Inter-Municipal Group 3	146.445			Secondary: Vancouver (UBC) / Maple Ridge 147.450
Primary: Vancouver; Mission; Sec. Coquitlam	146.460			Primary: White Rock/Chilliwack; Sec. No. Shore 147.480
				Secondary: Burnaby/Pitt Meadows 147.510
				Primary: Delta; Sec: Abbotsford 147.540
				Primary: Hope; Sec: Delta; ALSO EMBC 147.570



This really is QRT... again!

John Brodie VA7XB

I had stated in the last Communicator that my message was to be a true QRT, as I am stepping down as President. Although my tenure officially ended as of last June 1 (the first day of our new fiscal year) I am in fact still on the job until such time as a new Executive is formed and a President elected after the AGM on Sept. 8th. So now I will say “Adios” for the second time.

I have been a member of SARC since about 2000. I first got licensed in 1960 so had been away from ham radio for nearly 40 years while I completed my education, got married and raised a family of two boys. My long absence from the hobby meant that nearly everything was new to me. Around year 2000, SARC had only about a dozen members who attended meetings in a classroom at Tamanawis Secondary School. Field Day was supported by even fewer members, and it was not an auspicious introduction for my re-entry to ham radio.

In those days, other than Field Day, we had few activities to inspire participation. Several years later a few members collaborated with the Langley Club to organize a digital workshop, as these new modes were coming into prominence. This really marked the beginning of **SARC's** growth, spurred by interest in the workshop, which was well attended. As the membership began to climb,

over the next 10 years the club eventually **achieved what I would call “critical mass” i.e.** our growing resources and talents of members led to a synergy of sorts. A contest group was **formed which was instrumental in the club's** successes in Field Day scores for many years thereafter and even to the present day.

Starting around 2015 we were successful for several years in qualifying for Gaming Grants, which have provided the funds to renew our equipment and establish a state-of-the-art HF station as well as revitalize our repeater sites at a better location. Ham classes were begun during this period and have continued to enlarge and bring new recruits into the hobby and our organization. The Communicator, the official organ of SARC, has also grown over the last decade and is recognized around the world as one of the premier ham radio publications.

The foregoing just touches on the many **factors that have led to SARC's success over** the years. The challenge for the new Board will be to maintain the momentum, keep up the interest of members, and expand our horizons so that SARC **doesn't** become complacent and stale.

~ John VA7XB

SARC SOCIETY DIRECTORS 2020-2021

PRESIDENT

John Brodie VA7XB
[president at ve7sar.net](mailto:president@ve7sar.net)

VICE PRESIDENT

Steve McLean VE7SXM
vice [president at ve7sar.net](mailto:president@ve7sar.net)

SECRETARY / WEBMASTER

Jeremy Morse VE7TMY
[secretary at ve7sar.net](mailto:secretary@ve7sar.net)

TREASURER

Scott Hawrelak VE7HA
[treasurer at ve7sar.net](mailto:treasurer@ve7sar.net)

DIRECTORS

Gord Kirk VE7GK
(SEPAR Liaison)

Kevin McQuiggin VE7ZD / KN7Q

John Schouten VE7TI
(SARC Publications/Blog/Social
Media & Courses)
[communicator at ve7sar.net](mailto:communicator@ve7sar.net)
[course at ve7sar.net](mailto:course@ve7sar.net)

Stan Williams VA7NF

SARC MEMBERSHIP, NET & CONTEST MANAGER

John Brodie VA7XB
[membership at ve7sar.net](mailto:membership@ve7sar.net)

SARC QSL MANAGER

(pro tem) John Brodie VA7XB

SARC REPEATER MANAGER VACANT

[repeater at ve7sar.net](mailto:repeater@ve7sar.net)

A look back...

From The Communicator—October 2011

SARC Communicator

SARC Snapshot Operator Skills Training

SARC's "Operator Skills Training" program was launched on Saturday and Sunday, Sept. 24-25 at John VA7XB's QTH under the watchful guidance of Jim Smith VE7FO. The initial group consists of those members who have had some HF experience, expressed an interest in contesting and may become the trainers of the future.



Enthusiastic participants at the initial stages were John VE7AXU, John VE7TI, Kelvin VA7KPH, Alan VA7BIT and Susan VE7IIE. The coaching was focused around the CQ WW RTTY contest and trainees were divided into two shifts so that each person could get some operating time. Jim started by going over concepts involved in contesting in general, RTTY fundamentals, tuning and logging using N1MM and MMTTY software. Each trainee then was given the opportunity to make and log some contacts, first using

"search and pounce" mode, then moving on to "run" mode which involved sending CQ and waiting for stations to come to us. Between quiet periods, once the rhythm of the exchanges was established, the contacts came fast and furious. Considering that radio black-outs from solar activity were experienced throughout the weekend, and only a few hours were actually spent on making contacts, it was a productive exercise. The group made 250 contacts in 38 CQ zones in 41 countries including a few in Europe, the South Pacific and South America. Claimed score was 91,368.

Next challenge: an SSB or CW contest! Many thanks to Jim for his diligent coaching and giving up of most of a weekend for the benefit of SARC.

~ John VA7XB



September—October

heading into fall and a new ham year

Remember our Annual General Meeting on September 8th at the Fire Training Centre. Proxy votes are accepted with written acknowledgement from the absent member and will count towards the quorum. Please bring a mask to comply with COVID rules in city buildings.

Chris Anton VE7TOP will present on the Amateur Radio Emergency Data Network (AREDN) via Zoom for our October 13th meeting.

We hope to see you there.

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 or IRLP Node 1737.

We are looking for a SARC Net Manager. Its not a difficult job and, if you have some time to spare, we'd like to hear from you. Basically it involves scheduling someone to do the Tuesday evening weekly net.

	SARC Net 20:00 Hrs
1 st Tuesday Standby	Jean-Luc VA7JLU Reg VA7ZEB
2 nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3 rd Tuesday Standby	Rob VE7CZV REG VA7ZEB
4 th Tuesday Standby	Kapila VE7KGK John VA7XB
5 th Tuesday Standby	Jinty VA7JMR John VE7TI
Want a turn at Net Control? Contact the SARC Net Manager	

Down The Log...

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hrs at the [Surrey Fire Service Training Centre](#),
14923 - 64 Avenue,
Surrey, BC. Here is a
what3words link and map:
<https://what3words.com/markers.addiction.ozone>

Weekly SARC Social

Saturday between 0730
and 0930 hrs at the
Denny's Restaurant, 6850
King George Blvd., Surrey
BC

Workshops

Saturday between 1000
and Noon at the OTC
5752 142 Street, Surrey
BC

SEPAR Net

Tuesday at 1930 hrs local
on 147.360 MHz (+)
Tone=110.9

SARC Net

Tuesday at 2000 hrs local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m North: 147.360MHz+
Tone=110.9Hz
IRLP node 1736
Echolink node 496228

2m South: 147.360MHz+
Tone=103.5Hz Fusion
capable; No IRLP/EchoLink

1.2m: 223.960 Mhz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737



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We thank our sponsors for their support of SARC

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Successful Guide to the
Basic Exam
for the
Canadian Amateur Radio
Operator Certificate

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