



The Halifax Amateur Radio Club

REFLECTOR



2050 Hammonds Plains Road
Hammonds Plains, NS
B4B 1P3

January 2021, Volume 82 Number 1
club web site is www.halifax-arc.org

Due to Covid-19 the HARC Monthly Meetings Continue to be Virtual

HARC Club Station phone number - 902-490-6421

Executive

President - Brian Allen, VA1CC	489-4656	basailor@eastlink.ca
First V.P. - Jason Ingraham, VE1PYE	292-9924	VE1PYE@bellaliant.net
2nd V.P. - VACANT		
Secretary - Roger Stein, VA1RST	403-3738	burch.craft@gmail.com
Treasurer - Bill Simm, VA1ALW		williamrham@live.ca
Member-at-Large: -John Bignell, VE1JMB		johnmbignell@gmail.com
Station Manager: - Don Trotter, VE1DTR		don_trotter@hotmail.com
Past President - Bill Elliott, VE1MR	865-8567	bowser.elliott@ns.sympatico.ca
Director Emeritus - Bill Elliott, VE1MR	865-8567	bowser.elliott@ns.sympatico.ca

Committees/Offices/Prime Contacts

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Membership - Vacant

Reflector electronic Dist

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2021 Flea Market Chair - Vacant

2021 Field Day Coordinator - Vacant

Safety Officer - VACANT

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NSARA Director - Bill Elliott, VE1MR 865-8567
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Honorary Legal Counsel - Paul Radford, VE1ARH

Non Club Contacts

RAC Atlantic Director - Dave Goodwin, VE9CB
ve9cb@rac.ca

RAC Section Manager - Dave Hull, VE1HUL
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All phone numbers must be preceded by area code 902 when dialling, unless otherwise indicated

The **January 2021 General Meeting** of the Halifax Amateur Radio Club will take place Wednesday, January 20. The method (**virtual**) and time will be sent in an e-mail. Check your e-mail for details as the date approaches. Also check the web site for any other updates. **Currently there is no access to Station 50.**

Guests are welcome but need to send an e-mail to the club to be able to be on the invitee list

Notice of Motion

There will be a motion for a Special Resolution to consider Tom Caithness, VE1GTC for Life Membership in the Halifax Amateur Radio Club.

Notice of Motion

There will be the second vote on the 2020 - 2021 budget.

GENERAL INFORMATION



Sunday evenings:
TAKE-15 NET at 8:30 PM

CLUB REPEATERS:
VE1PSR - 147.270 MHz + TX=82.5
VE1PSR/UHF - 444.350 MHz +
VE1PSR/6M - 53.550 MHz -
access and TX tone 151.4 Hz
VE1HNS - 146.940 MHz - TX=82.5
PACKET: VE1NSD 145.050 MHz
LAN NODE

Take-15 Net Controllers

This will be the rotation. We need more net controllers. If you want to join, let Bill Elliott, VE1MR, know.



Jan. 17	Bill	VA1ALW
Jan. 24	Cam	VE1BIT
Jan. 31	Gary	VA1GGM
Feb. 7	Bill	VA1ALW
Feb. 14	Cam	VE1BIT

Notice of Motion

There will be a motion for a Special Resolution to consider Murray MacDonald, VE1BB for Life Membership in the Halifax Amateur Radio Club.

Deadline for submissions to the February 2021 Reflector is Saturday February 6, 2021

2m H.A.R.C. Crossword Puzzle Challenge

John Bignell, HARC Events Committee

With the success of the 2metre "get on the air" challenge in January. The HARC Events Committee would like to invite amateur radio operators to join us on February 6, 2021, at noon. For the 2-metre Crossword puzzle challenge.

At noon, the committee will set up a local 2-metre net in Halifax for participants to check-in. A series of questions are then broadcasted over the air, with details that will help hams solve the crossword puzzle. The words will be made up of questions found in the basic ham course question bank.

The first part of the challenge will be to get the crossword puzzle sheet. On the morning of February 6, we will start broadcasting an SSTV image and a WinLink Telnet to access the crossword puzzle sheet. The winlink details and frequencies will be posted on the HARC website. Plus if participants are not successful in accessing the crossword puzzle sheet, they can request us to email a copy.

This is a fun challenge to get HARC members comfortable with receiving SSTV or Winlink files. While working with 2-metre bands to complete the challenge. These are all good skills that will help amateur radio operators build confidence in radio communications if they are needed for a volunteer event or community disaster.

On February 6, the HARC Events Committee will be announcing the results of the "Get on the Air" Challenge and would like to thank everyone that was involved. The committee hopes to have an event on the first Saturday of each month. We are currently working on a Fox Hunt, SSTV challenge and other amateur radio events. If you have any suggestions or ideas for future events, please let us know.

the 2021 H.A.R.C. Executive

The following is the list of the HARC Executive for 2021.

President: Brian Allen, VA1CC
 1st VP: Jason Ingram, VE1PYE
 Secretary: Roger Stein, VA1RST
 Treasurer: Bill Simm, VA1ALW
 Station Mangr: Don Trotter, VE1DTR
 Member at Large: John Bignell, VE1JMB

Non-elected position
 Bill Elliott, VE1MR will continue to serve as Director Emeritus and Past President

Needed

The H.A.R.C. needs a new Safety Officer - Because Pat Kavanaugh, VE1PK must step down due to health issues.

Please contact President Brian if you are interested in taking on this position. Pat will help you with the transition.

QSO Today Virtual Ham Expo

from Brad Grob Tel: +1-213-577-0092

brad@qsoTodayhamexpo.com

QSO Today host Eric Guth, 4Z1UG, announced that the next QSO Today Virtual Ham Expo will commence on March 13-14, 2021, over a period of 48 hours. The first QSO Today Expo was a great success with over 16,000 attendees and the March 2021 event is anticipated to be even larger. The QSO Today team has been working hard to make this upcoming Expo even better with new speakers, panel discussions, kit building workshops, and much more. Anyone can attend from their home or office. Early Bird Tickets are just \$10 (to help cover the cost of this event, \$12.50 at the "door") and include entry for the Live 2 day period as well as the 30-day on-demand period). Registration can be found at www.qsoTodayhamexpo.com.

Eric and his team have put together a world-class lineup of 60+ speakers to address this conference from the virtual Expo's auditorium. ARRL, the national association for Amateur Radio® in the U.S., is a QSO Today Expo Partner. Flexradio is the Expo's Platinum Sponsor; Gold sponsors as of this time include Elecraft, RFinder, & CSI.

At the Expo, amateur radio operators will be able to:

Learn from a packed line-up of renowned ham radio speakers such as Bob Allphin, K4UEE, on "My Favorite DXpeditions to DXCC Top 10 Most Wanted"; Michael Foerster, W0IH, on "Using the Arduino In Your Shack"; & Ron Jones, K7RJ, on "3D Printer Basics".

Take part in Live virtual kit building workshops. Kits will be available for purchase and delivered to you in time for the Expo so you can participate and build from the convenience of your home.

Walk through the virtual exhibit hall filled with popular amateur radio suppliers. Watch live product demos of the latest equipment. New video technology will be used to provide a better experience for attendees to engage with exhibitors.

Prior to the Expo, take advantage of our new speaker calendar technology to download speaker times in your local time zones to your Google or Outlook calendar. You'll then have a complete schedule of the sessions you want to join.

Return over the next 30 days to listen to speakers you missed during the Live period, explore, & re-engage exhibitor offerings.

"While attendance is expected from traditional in-person convention "goers" not travelling due to Covid, the virtual Expo is a great opportunity for those that don't typically attend in-person events - the vast major-

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PRESIDENT'S MESSAGE for January, 2021

Welcome to a new year-2021. This will be a year of hope for the club: hope we can have a flea market in May: hoping we can have a field day as we once knew it in June: hope we can be at the Museum of the Atlantic and so on. Sometimes we loose hope, and that's okay. It is a normal response to distress. We cannot find hope if we do not acknowledge it has been lost. Considering what we are all going through, hope would be completely understandable. Yes, it is important to stay well informed about the virus pandemic and be proactive, but it is equally important that we continue too find hope to support us through this difficult time and make our fears more manageable.

The fear is that we will not be able to do the things our club and its members want to do this year, how ever there is hope we may have a Christmas gathering this December. This pandemic is going to be around I believe into next year but we can hope for better days ahead.

Our club is moving forward with a number of new projects, one of which is John Bignell's 2 meter simplex challenge held last weekend. John is planning a new event for club members each month. John will announce these events in time for all who would like to participate.

We have renewed our Web hosting: our Joint Stock Companies registration and looked at our budget which will receive its second presentation to the membership for final acceptance.

We are working on a submission for a grant from HRM for a number of pieces of equipment for the club. The executive is in planning stages for a new tower install at Station 50 for our satellite antennas. We are also in discussion with an outside provider for our swap shop and I believe this is the way to go.

More details on this important project will follow shortly so stay tuned.

DX conditions have been improving over the past couple of weeks. I use the wa7bnm calendar for seeing what contests are being run each weekend, in fact each day as there is generally qso parties for the day or cw tests at various speeds. Generally there is something for everyone even ft4 / ft8 country hunters

Once again we had a successful test of our communications gear at the club when Fraser and John and George did the Exercise Hand Shake. This exercise is conducted on the last Tuesday of each month and everyone is encouraged to get involved both at the club or from your home.

I hope to see many of you on our next virtual meeting on January 20 at 19:00 hours. Details for access to this meeting will be made available later this month.

This is all the news for now: please remember that the take 15 net is every Sunday night at 20:30 hrs. and everyone is welcome to join in.

73 - Respectfully, Brian Allen- VA1CC, President of the HARC

Membership Registration Process

Membership may be initiated or renewed using any of the following methods:

(1) Download and save our new Fillable PDF membership form to your computer. Then open it using Adobe Reader (which you can download for free from their website), or other PDF Reader then fill in the form and print a copy and mail it along with appropriate cheque payment to our postal address. Halifax Amateur Radio Club
2050 Hammonds Plains Road
Canada B4B 1P3
Attention: Membership chair

(2) **Interac e-Transfer** The process to do an Interac e-Transfer is as follows:

- Download and save our fillable membership application form to your computer. Then open it in your PDF reader - we recommend Adobe Reader; fill it in and save it to your computer. Then, e-mail a copy of your completed mem-

bership application form to membership@halifax-arc.org
Please be sure to indicate on the form that you are paying by Interac e-money transfer.

- Then, go to your on-line banking site and **send an Interac e-money transfer to treasurer@halifax-arc.org . e-Transfers are automatically deposited in the HARC bank account**
- The Treasurer will confirm receipt of the funds with you and will notify the Membership Chair.
- The Membership Chair will then issue a 2021 e-Membership Card by email confirming that your annual membership has been paid.
- (3) Alternatively, you can come to one of our monthly club meetings and Membership Chair will be happy to renew your membership.

Do you have any inquiries or comments? Send us an email.

QSO Today Virtual Ham Expo*(Continued from page 2)*

ity of amateur radio operators. At our last Expo, we found that 60% of attendees don't go to in-person national conferences.. 40% don't attend state or local events - mostly because of distance or because of the thousands of dollars typically spent on travel & lodging." said Eric, 4Z1UG.

"The QSO Today Virtual Ham Expo has all of the familiar hallmarks of an in-person hamfest, including opportunities to connect and learn. Expect to bump into friends and well known experts & personalities from throughout our worldwide ham radio community!" said Bob Inderbitzen, NQ1R, ARRL Product Development Manager

For more information, go to

www.qsotodayhamexpo.com

Press contact: Brad Grob

brad@qsotodayhamexpo.com

QSO Today Virtual Ham Radio Expo, KEG Media, Inc., 4470 W Sunset Blvd #92485, Los Angeles, CA 90027, USA, +1-213-577-0091

Registration is now underway for the
**RAC Advanced Course
Winter/Spring 2021**

<https://www.rac.ca/rac-online-advanced-course-winter-2021/>

Note: You need to be a RAC Maple Leaf Operator Member (present or future) to register for this course. See below for information.

In response to the global pandemic, Radio Amateurs of Canada is once again offering an online Advanced Qualification Amateur Radio Course so that individuals can upgrade their qualifications while continuing to practise social/physical distancing.

With your Advanced Certificate, you can run higher power, operate a remotely-controlled station, obtain operating privileges when travelling overseas, set up repeaters, be the trustee for club stations and even become an Accredited Examiner (AE).

Course information:

The course will be 10 sessions in length and each session will be two hours long.

In order to offer maximum flexibility, we will be running 2 Advanced courses so students will be able to choose 1 of the following 2 options:

Sunday afternoons from 3 pm to 5 pm EDT (12 pm PDT) starting on Sunday, February 7 and ending on Sunday, May 2

Or

Monday evenings from 8:30 pm to 10:30 pm EDT (5:30 PDF) starting on Monday, February 8 and ending on Monday, May 3

Note: There will be no sessions on February 14-15, March 28-29 and April 4-5.

Course Instruction:

The course instructor is Dave Goodwin, VE9CB. Dave has been an Amateur since 1975, is an active HF Contester & DXer and his DXpedition to Point Amour Lighthouse was featured on the front cover of the Nov.-Dec. 2020 issue of The Canadian Amateur. Dave has also been a long-time volunteer at the national level and has served as the RAC President & as the RAC Director for the Atlantic Region. Since 2015, he has also has been teaching Basic & Advanced certification courses with the Fredericton (NB) Amateur Radio Club.

Course material pertaining to all topics covered in the course syllabus will be provided to all registered students and is available online at:

<https://www.rac.ca/rac-online-advanced-course-winter-2021/>

Course Requirements:

The RAC Advanced Qualification Amateur Radio course is being offered at no charge to RAC Maple Leaf Operator Members – both current and future as described below. Participants in the course will need to meet all of the following require-

ments:

Participants must already have the Canadian Basic Amateur Radio Qualification & a Canadian call sign.

Participants must already be a RAC Maple Leaf Operator Member or become one by joining RAC at the Maple Leaf Operator level or upgrading to that level.

Participants must have a copy of the Canadian Amateur Radio Advanced Qualification Study Guide provided by Coax Publications. For more information please visit the RAC Study Guides webpage.

Participants must have a computer & Internet connection capable of using the GoToMeeting (GTM) conference platform. You do not need your own account on GTM to take part in this course, but you will have to download an applet from the GTM site to participate.

Participants must have a working email address to receive course materials & links to the sessions.

There is room on the conference server for 200 participants in each session. Auditors are welcome to attend on a space-available basis, provided they are RAC Maple Leaf Operator members. You can sign up by following the instructions on the Winter 2021 Advanced Course Registration Page.

Other Amateur Radio Courses:

Amateur Radio Basic and Advanced Qualification courses are also now being provided both online and in person by Canadian Amateur Radio Clubs and organizations. Please visit the Amateur Radio Courses webpage for more information at

<https://www.rac.ca/amateur-radio-courses/>

Glenn MacDonell, VE3XRA
RAC President and Chair



It takes considerable pressure to make a penalty stroke adhere to a scorecard.

November 19, 2020

Following a review of engineering assessments that **found damage to the Arecibo Observatory cannot be stabilized without risk** to construction workers and staff at the facility, the U.S. National Science Foundation will begin plans to decommission the 305-meter telescope, which for 57 years has served as a world-class resource for radio astronomy, planetary, solar system and geospace research.

The decision comes after NSF evaluated multiple assessments by independent engineering companies that found the telescope structure is in danger of a catastrophic failure and its cables may no longer be capable of carrying the loads they were designed to support. Furthermore, several assessments stated that any attempts at repairs could put workers in potentially life-threatening danger. Even in the event of repairs going forward, engineers found that the structure would likely present long-term stability issues.

"NSF prioritizes the safety of workers, Arecibo Observatory's staff and visitors, which makes this decision necessary, although unfortunate," said NSF Director Sethuraman Panchanathan. "For nearly six decades, the Arecibo Observatory has served as a beacon for breakthrough science and what a partnership with a community can look like. While this is a profound change, we will be looking for ways to assist the scientific community and maintain that strong relationship with the people of Puerto Rico."

Engineers have been examining the Arecibo Observatory 305-meter telescope since August, when one of its support cables detached. NSF authorized the University of Central Florida, which manages Arecibo, to take all reasonable steps and use available funds to address the situation while ensuring safety remained the highest

priority. UCF acted quickly, and the evaluation process was following its expected timeline, considering the age of the facility, the complexity of the design and the potential risk to workers.

The engineering teams had designed and were ready to implement emergency structural stabilization of the auxiliary cable system. While the observatory was arranging for delivery of two replacement auxiliary cables, as well as two temporary cables, a main cable broke on the same tower Nov. 6. Based on the stresses on the second broken cable -- which should have been well within its ability to function without breaking -- engineers concluded that the remaining cables are likely weaker than originally projected.

"Leadership at Arecibo Observatory and UCF did a commendable job addressing this situation, acting quickly and pursuing every possible option to save this incredible instrument," said Ralph Gaume, director of NSF's Division of Astronomical Sciences. "Until these assessments came in, our question was not if the observatory should be repaired but how. But in the end, a preponderance of data showed that we simply could not do this safely. And that is a line we cannot cross."

The scope of NSF's decommissioning plan would focus only on the 305-meter telescope and is intended to safely preserve other parts of the observatory that could be damaged or destroyed in the event of an unplanned, catastrophic collapse. The plan aims to retain as much as possible of the remaining infrastructure of Arecibo Observatory, so that it remains available for future research and educational missions.

The decommissioning process involves developing a technical execution plan and ensuring compliance with a series of legal, environmental, safety and cultural requirements over the coming weeks. NSF has author-

ized a high-resolution photographic survey using drones, and is considering options for forensic evaluation of the broken cable -- if such action could be done safely -- to see if any new evidence could inform the ongoing plans. This work has already begun and will continue throughout the decommissioning planning. Equipment and other materials will be temporarily moved to buildings outside the danger zone. When all necessary preparations have been made, the telescope would be subject to a controlled disassembly.

After the telescope decommissioning, NSF would intend to restore operations at assets such as the Arecibo Observatory LIDAR facility -- a valuable geospace research tool -- as well as at the visitor center and offsite Culebra facility, which analyzes cloud cover and precipitation data. NSF would also seek to explore possibilities for expanding the educational capacities of the learning center. Safety precautions due to the COVID-19 pandemic will remain in place as appropriate.

Some Arecibo operations involving the analysis and cataloging of archived data collected by the telescope would continue. UCF secured enhanced cloud storage and analytics capabilities in 2019 through an agreement with Microsoft, and the observatory is working to migrate on-site data to servers outside of the affected area.

Areas of the observatory that could be affected by an uncontrolled collapse have been evacuated since the November cable break and will remain closed to unauthorized personnel during the decommissioning. NSF and UCF will work to minimize risk in the area in the event of an unexpected collapse. NSF has prioritized a swift, thorough process with the intent of avoiding such an event.

NSF recognizes the cultural and eco-

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Arecibo Observatory (Continued from page 5)

conomic significance of Arecibo Observatory to Puerto Rico, and how the telescope serves as an inspiration for Puerto Ricans considering education and employment in STEM. NSF's goal is to work with the Puerto Rican government and other stakeholders and partners to explore the possibility of applying resources from Arecibo Observatory for educational purposes.

"Over its lifetime, Arecibo Observatory has helped transform our understanding of the ionosphere, showing us how density, composition and other factors interact to shape this critical region where Earth's atmosphere meets space," said Michael Wiltberger, head of NSF's Geospace Section. "While I am disappointed by the loss of investigative capabilities, I believe this process is a necessary step to preserve the research community's ability to use Arecibo Observatory's other assets and hopefully ensure that important work can continue at the facility."

Engineering summary

Arecibo Observatory's telescope consists of a radio dish 1,000 feet (305 meters) wide in diameter with a 900-ton instrument platform hanging 450 feet above. The platform is suspended by cables connected to three towers.

On Aug. 10, 2020, an auxiliary cable failed, slipping from its socket in one of the towers leaving a 100-foot gash in the dish below. NSF authorized Arecibo Observatory to take all reasonable steps using available funds, which amounted to millions of dollars, to secure the analysis and equipment needed to address the situation. Engineers were working to determine how to repair the damage & determine the integrity of the structure when a main cable connected to the same tower broke Nov.6.

The second broken cable was unex-

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Halifax Amateur Radio Club Minutes of the Virtual General Meeting of 18 November 2020

1. Welcome to the HARC virtual monthly meeting for November 18, 2020: The virtual meeting was called to order by President VA1CC, Brian at approximately 1930.

2. Report of any Silent Keys: The following amateurs in the Maritimes have passed since the last club meeting:

Donald M. Rhyno, VE1BAH, October 10th, 2020, Liverpool NS

Robert "Bob" Anderson, VE9BMA, October 13, 2020, Moncton NB

James "Buddy" Boone, VE1VRM, October 19th 2020, Trenton NS

Robert "Bob" Davidson, VE1RP, November 9 2020, Mt. Uniacke NS

Phillip G. Cyr, VE1PGC November 11 2020, Saint John, NB

Additional can be viewed at <https://www.westcumb.ca/maritime-silent-keys-2020>

3. Acceptance of the Agenda: A request was made to accept the agenda as presented by VA1CC Brian. A motion was made by VE1DTR, Don, to accept the agenda, seconded by VE1AI, Dick. The motion was approved by a Zoom vote of 20 of 21, 1 abstention.

4. Approval of Minutes for September, 2020 as printed in the October Reflector: A motion was made by Bill VE1MR to approve the minutes, seconded by Fraser VE1WO. The motion was approved by a Zoom vote of 19 of 19.

Approval of the Minutes for October 2020 as printed in the November Reflector

A motion was made by Jason VE1PYE, to approve the minutes; seconded by Lynn, VE1ENT. The motion was approved by a Zoom vote of 21 of 21.

5. Treasurer's Reports: Bill VA1ALW reported the income from the period of September 1 to September 30 was in the amount of

\$165.00. Expenses for the same period came to \$77.64. The opening balance was \$11,969.60 with a closing balance of \$12,086.96. A motion was made by Bill VA1AWL to accept the September report, seconded by Don VE1DTR. The motion was approved by a Zoom vote of 20 out of 23, 3 abstentions. (Note: there was not a quorum at the October meeting)

Bill VA1ALW reported the income from the period of October 1 to October 31 was in the amount of \$125.00. Expenses for the same period came to \$138.38. The opening balance was \$12,086.96 with a closing balance of \$11,956.58. A motion was made by Bill VA1ALW, to accept the October report, seconded by Tim VA1TIM. The motion was approved by a Zoom vote of 23 aye to 1 nay. Bill also reported that e-transfers for paying dues be sent to

treasurer@halifax-arc.org

This information is also on the HARC website.

6. President's Report: VA1CC Brian noted this year was heavily impacted by Covid but that credit goes to the Technical Group headed by Don VE1DTR and the folks that spent time getting the remote station going namely Fraser VE1WO, Greg VE1GFX along with other members of the technical team. Brian commented on the young girl Arthur demonstrated morse code to at the museum back in 2016. She went on to write 3 US licenses along with her radiotelephone license. There was an article in the Reflector on Arthur's dedication and goodwill. Congrats Arthur, Halifax Amateur Radio Club

Brian commented on the large impact Covid had on the HARC normal yearly activities. The Field Day participation by HARC members has been reported in the December issue of QST. The Satellite tower is

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October General Meeting Minutes
(Continued from page 6)

planned to be installed next year, funding dependent. Don Mosher of HRM will be conducting an EOC familiarization training for the HATS team. The Annual General Meeting will directly follow this business meeting segment.

7. Station Managers Report: Don VE1DTR reported the Technical Committee has been doing Website updates, namely the membership function. A lot of corrections of outdated information have been corrected. The Swap n Shop section has been disabled and removed from the RAC site as well due to a 'hack' into the system. A new method is being investigated to handle gear for sale or wanted. Stay tuned! A Webmaster is needed to manage the HARC site. Any volunteers out there?

8. Search and Rescue: Dave VE1AJP reported a S&R member was out walking in the Prospect area and aided in the rescue of a woman, who sought safety in a tree, as she was surrounded by a pack of coyotes!

9. Other: Alastair VA1PAB reported that he met with Don Mosher and Erica Fleck both of HRM EMO though the Joint Emergency Management, JEM, meeting if there are any radio operators out in Musquodoboit Valley or Eastern Shore that would be willing to join the JEM team to assist with the Operation Handshake operation. Suggestions were given to Alastair by various club members, including making a request to the HATS group for additional exposure to operating procedures.

10. Motion for Adjournment: VE1LDL Doug motioning to adjourn, Jason VE1PYE seconded, the meeting was adjourned at approx 2035 hours.

Respectfully submitted by Roger Stein, VA1RST, HARC Secretary.

pected. Engineering assessments following the auxiliary cable failure indicated the structure was stable and the planning process to restore the telescope to operation was underway. Engineers subsequently found this 3-inch main cable snapped at about 60% of what should have been its minimum breaking strength during a period of calm weather, raising the possibility of other cables being weaker than expected.

Inspections of the other cables revealed new wire breaks on some of the main cables, which were original to the structure, and evidence of significant slippage at several sockets holding the remaining auxiliary cables, which were added during a refit in the 1990s that added weight to the instrument platform.

Thornton Tomasetti, the engineering firm of record hired by UCF to assess the structure, found that given the likelihood of another cable failing, repair work on the telescope -- including mitigation measures to stabilize it for additional work -- would be unsafe. Stress tests to capture a more accurate measure of the remaining cables' strength could collapse the structure, Thornton Tomasetti found. The firm recommended a controlled demolition to eliminate the danger of an unexpected collapse.

"It saddens us to make this recommendation but we believe the structure should be demolished in a controlled way as soon as pragmatically possible," said the recommendation for action letter submitted by Thornton Tomasetti. "It is therefore our recommendation to expeditiously plan for decommissioning of the observatory and execute a controlled demolition of the telescope."

UCF also hired two other engineering firms to provide assessments of the situation. One recommended immediate stabilization action. The other, after reviewing Thornton Tomasetti's model, concurred that there is no course of action that could

safely verify the structure's stability and advised against allowing personnel on the telescope's platforms or towers.

"Critical work remains to be done in the area of atmospheric sciences, planetary sciences, radio astronomy and radar astronomy," UCF President Alexander N. Cartwright said. "UCF stands ready to utilize its experience with the observatory to join other stakeholders in pursuing the kind of commitment and funding needed to continue and build on Arecibo's contributions to science."

After receiving the contracted assessments, NSF brought in an independent engineering firm and the Army Corps of Engineers to review the findings. The firm NSF hired concurred with the recommendations of Thornton Tomasetti and expressed concern about significant danger from uncontrolled collapse. The Army Corps of Engineers recommended gathering additional photographic evidence of the facility and a complete forensic evaluation of the broken cable.

Since any stabilization or repair scenario would require workers to be on or near the telescope structure, the degree of uncertainty about the cables' strength and the extreme forces at work, NSF accepted the recommendation to prepare for controlled decommissioning of the 305-meter telescope.

Engineering assessments from the companies contracted by UCF are available online:

Thornton Tomasetti recommendation for course of action at Arecibo Observatory

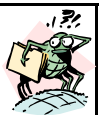
WSP recommendation for future efforts at Arecibo Observatory

WJE memorandum on Arecibo Observatory stabilization efforts

Puzzler - Do you know?

What is Identity Theft?

Answer to puzzler see pg 10



From the Mail Bag

ARISS Team,

It is now November 13, 2020 UTC. Therefore, I would like to congratulate each of you on the 20th Anniversary of ARISS Continuous Operations!!

We have a special anniversary message and a video celebrating our 20th Anniversary on the ARISS Web Page www.ariss.org.

Enjoy!

73, Frank H. Bauer, KA3HDO
ARISS-USA Executive Director
ARISS International Chair
ISS Ham Radio Program Mngr. & PI
e-mail: ka3hdo@gmail.com
NASA email: Frank.Bauer@nasa.gov

I had a moment to search through the Space Weather Prediction Center's (SWPC) website. As I recall there was a page that provided predictions of various products that have an impact on amateur radio albeit not labeled as such. Well I found it

<https://www.swpc.noaa.gov/products/predicted-sunspot-number-and-radio-flux>.

I think you'll find the information interesting as it show the predicted upward trends. The SWPC site has lots of additional information including a page dedicated to HF communication.

Enjoy,
Wayne, VE1WPH

Check out info on Coaxial Transmitting Chokes

By Jim Brown K9YC
Santa Cruz, CA

<http://audiosystemsgroup.com>

Slides (and a lot more) are at
<http://k9yc.com/publish.htm>

Thanks to John Brady, VE1WZ

Do not argue with an idiot. He will drag you down to his level and beat you with experience.

This session is all about Radio Frequency Interference (RFI) discussing techniques to greatly reduce or eliminate it. I'll go over grounding, filtering, antennas, noise cancelers and radio features to make your radio time enjoyable again.

KA6WKE

https://www.youtube.com/watch?v=K_1hBFMzbAs

Thanks to John Brady, VE1WZ for sending me this item. -ed.

NOTICE

We are in desperate need of net controllers for the Take-15 Net on Sunday evenings. This task does not take a lot of time and is good practice for doing net control that might be needed during an emergency.

The Atlantic Amateur

Ham Radio for the
Atlantic Provinces
www.atlanticamateur.ca

Silent Key

It is with heavy hearts that the family of Phillip Gerard Cyr announces his passing which occurred on Remembrance Day November 11th, 2020 peacefully in his home Warrant Officer Phil Cyr, CD, proudly served with the Reserve Force from September 1969 to January 1995 with a deployment to Egypt in 76/77. Phil spent the majority of his career with the 722 Communications Squadron.

Phil spent over 29 years working as a Lineman with Saint John Energy. He was a member of the Loyalist Amateur Radio Club, Fundy Shooting Sports and the Saint John Astronomy Club.

Cronacoaster noun: the ups and downs of a pandemic. One day you're loving your bubble, doing work outs, baking banana bread and going for long walks and the next you're crying, drinking gin for breakfast and missing people you don't even like.?

Greetings everyone,
First of all HAPPY NEW YEAR!
For those who may be interested in Yaesu Fusion and Wires-X.

We have one year now under our belts with the Maritime Fusion Net. It was a huge success and everyone is looking forward to growing even more in the new year.

I have an email list that I send out information about Fusion and reminders about the Wednesday net and the recap after the net. There are 93 registered now. There is also a webpage set up by the Moncton & Area ARC to learn more about Fusion and Wires-X <https://www.maarc.ca/maritimefusionnet.html>

If you are interested in Fusion, send me a note that you would like to be added to the Fusion email list.

Here is the link to the recap of our first year of the Maritime Fusion Net. Scroll to the second story for the info.

<https://maritimeamateur.ca/news-information>

Thanks for reading,

Everyone stay safe,
Jim Langille VE1JBL

Puzzler - Do you know?

What is Financial Identity Theft?



Answer to puzzler is on pg.10

Silent Key

Hi, had a call from Frank this PM. He said Bob Davidson, VE1RP, became a SK on Nov. 9, 2020 .

Bob and his wife Winnie used to come in to BK on Sunday , he had been ill for a while.

<https://necrocanada.com/obituaries-2020/robertgeorge-arthurbobdavidson-1938-2020/>

Fraser, VE1WO

The RAC Board of Directors is pleased to announce that Brent Taylor, VY2HF, has been appointed as a Trustee for the Canadian Amateur Radio Hall of Fame (CARHOF).

Brent lives in Stratford, P.E.I. with his wife Janice. He will be representing the province of P. E.I. for a 3-year term from Sept.2020 until Sept.2023. Brent replaces Ella McCormick, VE1PEI, who served on the Board from 2015 to July 2020.

The RAC Board & the CARHOF Board of Trustees extends sincere appreciation to Ella for her dedication & contributions to the CARHOF Board evaluation process over the years. We wish her all the best of success in her future endeavours.

Brent Taylor, VY2HF, was first licensed in 1984 as VE1APG and received his partial HF privileges 6 months later after demonstrating successful CW operation. One year later he passed his Advanced examination. He obtained the call VE1JH, and was known by that call for over 20 years. He moved from N.B. to PEI in 2007 and acquired the call VY2HF.

Brent believes strongly in supporting Amateur Radio organizations. He is a Past-President of the Fredericton ARC and the New Brunswick Amateur Radio Association. He was involved with the Canadian Amateur Radio Federation (CARF) and the Canadian Radio Relay League (CRRL) before the merger into Radio Amateurs of Canada.

He is a member of RAC, the Charlottetown A.R. C, the International Repeater Group (NB), the A. R.R.L., the Radio Society of Great Britain, AM-SAT, the National Radio Club, & the Canadian International DX Club.

Brent works for the Federal Department of Veterans Affairs as Acting Manager of the Department's Business Systems unit with responsibility over the database that holds the Department's Veteran/client information. He previously worked as an educator, radio broadcaster, newspaper columnist, and served one term (1991-1995) as a member of the N.B. Legislative Assembly.

"I am very pleased to be invited to join the CARHOF Board of Trustees as the representative from PEI.

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

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

Frank Davis, VO1HP, Chair, Board of Trustees, Canadian Amateur Radio Hall of Fame.

Scientists use an extended, 22-year solar cycle to forecast
New Sunspot Cycle Could Be One of the Strongest On Record
 Dec. 7, 2020 – By Laura Snider

In direct contradiction to the official forecast, a team of scientists led by the National Center for Atmospheric Research (NCAR) is predicting that the Sunspot Cycle that started this fall could be one of the strongest since record-keeping began.

In a new article published in Solar Physics, the research team predicts that Sunspot Cycle 25 will peak with a maximum sunspot number somewhere between approximately 210 and 260, which would put the new cycle in the company of the top few ever observed.

The cycle that just ended, Sunspot Cycle 24, peaked with a sunspot number of 116, and the consensus forecast from a panel of experts convened by the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA) is predicting that Sunspot Cycle 25 will be similarly weak. The panel predicts a peak sunspot number of 115.

If the new NCAR-led forecast is borne out, it would lend support to the research team's unorthodox theory – detailed in a series of papers published over the last decade – that the Sun has overlapping 22-year magnetic cycles that interact to produce the well-known, approximately 11-year sunspot cycle as a byproduct. The 22-year cycles repeat like clockwork and could be a key to finally making accurate predictions of the timing and nature of sunspot cycles, as well as many of the effects they produce, according to the study's authors.

"Scientists have struggled to predict both the length and the strength of sunspot cycles because we lack a fundamental understanding of the mechanism that drives the cycle," said NCAR Deputy Director Scott McIntosh, a solar physicist who led the study. "If our forecast proves correct, we will have evidence that our framework for understanding the Sun's internal magnetic machine is on the right path."

The new research was supported by the National Science Foundation, which is NCAR's sponsor, and NASA's Living With a Star Program.

SUNSPOT CYCLE 25 STARTS WITH A BANG; what will follow?

In McIntosh's previous work, he and his colleagues sketched the outline of a 22-year extended solar cycle using observations of coronal bright points, ephemeral flickers of extreme ultraviolet light in the solar atmosphere. These bright points can be seen marching from the Sun's high latitudes to the equator over about 20 years. As they cross the mid-latitudes, the bright points coincide with the emergence of sunspot activity.

McIntosh believes the bright points mark the travel of magnetic field bands, which wrap around the Sun. When the bands from the northern and southern hemispheres – which have oppositely

(Continued on page 10)

(Continued from page 9)

charged magnetic fields – meet at the equator, they mutually annihilate one another leading to a “terminator” event. These terminators are crucial markers on the Sun’s 22-year clock, McIntosh says, because they flag the end of a magnetic cycle, along with its corresponding sunspot cycle, — and act as a trigger for the following magnetic cycle to begin.

While one set of oppositely charged bands is about halfway through its migration toward the equatorial meet-up, a second set appears at high latitudes and begins its own migration. While these bands appear at high latitudes at a relatively consistent rate — every 11 years — they sometimes slow as they cross the mid-latitudes, which appears to weaken the strength of the upcoming solar cycle.

This happens because the slow-down acts to increase the amount of time that the oppositely charged sets of bands overlap and interfere with one another inside the Sun. The slow-down extends the current solar cycle by pushing the terminator event out in time. Shifting the terminator out in time has the effect of eating away at the spot productivity of the next cycle.

“Looking back over the 270-year long observational record of terminator events, we see that the longer the time between terminators, the weaker the next cycle,” said study co-author Bob Leamon, a researcher at the University of Maryland Baltimore County. “And, conversely, the shorter the time between terminators, the stronger the next solar cycle is.”

This correlation has been difficult for scientists to see in the past because they have traditionally measured the length of a sunspot cycle from solar minimum to solar minimum, which is defined using an average rather than a precise event. In the new study, the researchers measured from terminator to terminator, which allows for much greater precision.

While terminator events occur approximately every 11 years and mark the beginning and end of the sunspot cycle, the time between terminators can vary by years. For example, Sunspot Cycle 4 began with a terminator in 1786 and ended with a terminator in 1801, an unprecedented 15 years later. The following cycle, 5, was incredibly weak with a peak amplitude of just 82 sunspots. That cycle would become known as the beginning of the “Dalton” Grand Minimum.

Similarly, Sunspot Cycle 23 began in 1998 and did not end until 2011, 13 years later. Sunspot Cycle 24, which is just ending, was quite weak as well, but it was also quite short — just shy of 10 years long – and that’s the basis for the new study’s bullish prediction that Sunspot Cycle 25 will be strong.

“Once you identify the terminators in the historical records, the pattern becomes obvious,” said McIntosh. “A weak Sunspot Cycle 25, as the community is predicting, would be a complete departure from everything that the data has shown us up to this point.”

Article submitted by Wayne Harasimovitch, VE1WPH
Source credit - the National Center for Atmospheric Research, Boulder Colorado, USA

At a movie theatre, which arm rest is yours?

If they put the vaccine in beer and opened up the pubs the whole country would be vaccinated by next Thursday. Just trying to help

Answer to Puzzler on page 7



Identity theft is a crime in which someone steals your personal information, usually with the intent to commit fraud. The definition of identity theft includes many types of personal information and resulting fraud, ranging from financial theft to the use of a victim’s data to receive medical treatment or apply for credit.

Answer to puzzler on page 8



Financial identity theft is the most common and straightforward type of identity theft, because it happens anytime someone uses a victim’s information to fraudulently obtain money. It’s also one of the most damaging types of identity theft, as it represents a direct loss to the victim.

The following examples are just a few ways that financial identity theft can happen. Depending on the information they steal and what they want to do with it, a financial identity thief could:

- Log into your bank account and transfer money elsewhere.
- Add their name to your bank account in an “account takeover.”
- File fraudulent tax paperwork and receive your tax return.
- Obtain loans or other credit in your name.
- Make purchases with your credit card or other financial information.

Do you have pictures, an interesting or funny radio-related story, an article or a question or news you would like to share via the HARC Reflector? Please send it/them to Lynn at bowser.elliott@ns.sympatico.ca

Please show “For Reflector” on the “Subject” line so I don’t miss it. Thanks!.-ed