



# **FEEDBACK**

The Official Newsletter of the  
Georgian Bay Amateur Radio Club



**May 2018**

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President .....Frank VA3GUF

Vice-President...Tom VA3TVA

Treasurer.....Bernie VE3BQM

Secretary.....Tom VA3TS



## **Message from the President**

Frank VA3GUF

Well the warm weather has finally arrived. If you have not already done so, inspecting our outdoor hardware, cables and antenna, is good to ensure corrosion or wildlife have not diminished our transmission capabilities. Corrective repairs may be necessary and comes with the hobby territory. If you do not have outdoor gear, it maybe is time to take the hobby outdoors again just like we do with Field Day. Testing gear is from the looks of things a constant to keep things up to par. As a group we have a number of things on the go for Field Day with yet to be determined stations identified. The exception of course is the amplifier station that should get us out there and make many contacts. It was suggested to me that we should aim the antenna for the amplifier station towards California. Anyone with a suggestion on where to aim that antenna should let us know. Maybe 2 antennas on the amplifier station to make contacts to other areas of the continent on Field Day is desired. Share with us your thoughts and we will see if we can make it happen. Of course there will be different antenna types on hand ranging from Off Center Dipole, beam on a portable tower that will need to be assembled and raised, and finally a Delta loop will be made that day for use on a station that wants to try it out. We have lots of room this year to raise any number of antennas for use. If you have a radio you would like to bring and set up a station as well as the ability to connect up more than one antenna, go for it and see what you can accomplish with number of contacts. There

is lots to learn and do at a fun filled Field Day. Now Field Day without food and social company would not be Field Day, especially when the weather is on our side with lots of Sun. We will be a bit exposed during the morning hours and start getting shade in the hotter afternoon so bring your chairs and enjoy the day. Get in front of a radio if you like or just chin wag at the social gathering that seems to take place near the food. Either way, come out and enjoy Field Day.

With summer following, we also have our traditional Wiarion Multisport Race weekend. This multi sport race having competitors Kayak, Cross Country Run and Bike over a grueling 100 kilometers is one that challenges us with our communication capabilities. In past years we have been limited with repeater coverage being at the extremities of the course making it challenging and difficult at times with getting communication coverage. This year we will be using for the first time our Portable repeater during this event that will be stationed at the highest point in the race course area with excellent coverage with the exception of the south side of Hope Bay. A cross band repeat station on the north side of Hope Bay will be the solution for that. The other advantage we will have with the mobile repeater stationed at the designated site, we will have excellent line of site and reception into downtown Wiarion Race Command Center that has traditionally been challenged with the Lions Head repeater used in past years. Some of what we learnt this year at our club meetings will be put to the test with this Multi-Sport Race. It is an all-day event for some of use that cover the race to the end with some stragglers coming in Hours after the first have crossed the line. These stragglers are the ones that need our communication to remain effective to ensure their safety and health as they finish such a demanding event. Let's be there for them with the best communication we can offer this year.

So have fun this summer getting out there and making radio contacts and/or support the activities that the club is hosting and supporting. Fun can certainly be had by all. Keep up the challenge.

## **Minutes of Meeting 24th April 2018**

**Presentation** Frank VA3GUF gave a presentation on repeater duplexers(cavities). Frank outlined the theory of operation, the different type of cavities and applications including amateur radio uses on various ham bands. The set of duplexers were on hand for demonstration and viewing by the attendees. The May meeting will feature the use of the power amplifier, connection, tuning and band changing.

**Meeting called to order** by Frank VA3GUF at 19:36hrs

**Attendees** **Executive Frank VA3GUF, Tom VA3TVA, Tom VA3TS**, Doug VE3WRF, Maureen VE3MIO, Philip VE3QVC, Adam VE3IZS, Bart VE3XBO and Guests Beth and (student) Rijk

**Do we have a Quorum-YES**

***A QUORUM SHALL CONSIST OF AT LEAST THREE FULL MEMBERS IN GOOD STANDING WHO ARE NOT MEMBERS OF THE EXECUTIVE COMMITTEE, PLUS AT LEAST THREE MEMBERS OF THE EXECUTIVE COMMITTEE. NO MOTIONS SHALL BE CONSIDERED OR VOTED ON AT A GENERAL MEETING UNLESS A QUORUM IS PRESENT.***

**Minutes of last meeting** - included in the March newsletter. Motion to accept by Tom VA3TVA and seconded by Doug VE3WRF, Carried

**Treasurer's Report** No report as *Bernie VE3BQM was unavailable.*

### **Old Business**

**Power Amp** A discussion on our need for a tuner for the amplifier. We have one (Drake MN2000) we can borrow from Douglas Freeborn VE3WDZ for Field Day. It was decided to pre-approve a budget

of \$200 for a suitable tuner. If you have a lead on a used tuner send the info to Frank. Motion to accept by Tom VA3TVA and seconded by Phillip VE3QVC, Carried

**Courses** The course was delayed by one week due to inclement weather, Doug VE3WRF reports that there are 7 students in attendance.

**Field Day 2018** Owen Sound has confirmed our use of the Victoria park Fair grounds. At the May meeting we will discuss the amplifier as well as assign "Lead Operators" to assist members in the operation of the amp itself. Tom VA3TS will investigate the costs of a porta potty for the field day weekend and report back at the May meeting.

**Mobile Repeater** As Bobby VE3PAV was not in attendance an update was not available. Mark Lindstrom VA3FIN gave the Club a repeater controller. Has phone patch connection which gives mobile repeater interesting local phone use opportunities. Controller programming coming up

**Delta Loop** A 264' 6" delta loop for 80 meters project was suggested for Field Day, wire was donated by Greg VE3RQY, thanks

### **New Business**

**ARES** The next Grey County group presentation to Municipal Emergency committee/management is June 27 @ 2:30-4:00pm. This is a great opportunity to talk with the Management folks. As an update, the Dufferin county ARES have discontinued their communication vehicle that came to last year's Field day, due to insurance obligations imposed upon it. The equipment has been redistributed thru the Dufferin Radio Club.

**Adjourn** at 20:31, Motion by Doug VE3WRF and 2<sup>nd</sup> by Tom VA3TVA Carried

The winner of the 50/50 draw was Rijk who graciously donated his winnings back to the club..thanks

**Next Meeting** May 22nd, 2018 at 19:00hrs at the Owen Sound Professional Building, 3<sup>rd</sup> Ave E, Owen Sound.

*Minutes taken by Tom VA3TS Secretary*

## **Executive Meetings**

Executive meetings are held from time to time at the home of one of the executive to plan club events and discuss options and club policy. Would you like to attend an executive meeting? This will allow anyone who is interested an opportunity to observe and see how these things go. If you are interested mention this to any executive member.



## Field Day 2018

There are lots of trees to run antennas in a variety of directions to cover North America. The pictures here are a closer view of the location. There is a berm of sorts here which will provide a dry location should it rain. There is plenty of room for tents and vehicles and any antenna we would like to use. At the May meeting we will have to decide which antennas we will use and firm up plans such as the number of stations, who is bringing trailers, generators, lighting etc. While at this site we tried



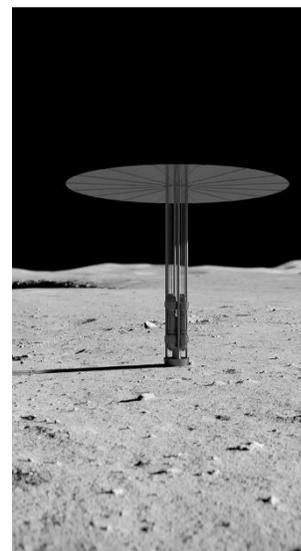
to access the Owen Sound wifi, which Adam could do with his phone. Now if someone can set up a battery operated access point and router we will have easy internet use as well as our usual computer logging programs ([N1MM+ logger](#)).

## Demonstration proves nuclear fission system can provide space exploration power

NASA and the Department of Energy's National Nuclear Security Administration (NNSA) have successfully demonstrated a new nuclear reactor power system that could enable long-duration crewed missions to the Moon, Mars and destinations beyond.

NASA announced the results of the demonstration, called the Kilopower Reactor Using Stirling Technology (KRUSTY) experiment, during a news conference Wednesday at its Glenn Research Center in Cleveland. The Kilopower experiment was conducted at the NNSA's Nevada National Security Site from November 2017 through March.

"Safe, efficient and plentiful energy will be the key to future robotic and human exploration," said Jim Reuter, NASA's acting associate administrator for the Space Technology Mission Directorate (STMD) in Washington. "I expect the Kilopower project to be an essential part of lunar and Mars power architectures as they evolve."



Kilopower is a small, lightweight fission power system capable of providing up to 10 kilowatts of electrical power - enough to run several average households - continuously for at least 10 years. Four Kilopower units would provide enough power to establish an outpost.

According to Marc Gibson, lead Kilopower engineer at Glenn, the pioneering power system is ideal for the Moon, where power generation from sunlight is difficult because lunar nights are equivalent to 14 days on Earth.

“Kilopower gives us the ability to do much higher power missions, and to explore the shadowed craters of the Moon,” said Gibson. “When we start sending astronauts for long stays on the Moon and to other planets, that’s going to require a new class of power that we’ve never needed before.”

The prototype power system uses a solid, cast uranium-235 reactor core, about the size of a paper towel roll. Passive sodium heat pipes transfer reactor heat to high-efficiency Stirling engines, which convert the heat to electricity.

According to David Poston, the chief reactor designer at NNSA’s Los Alamos National Laboratory, the purpose of the recent experiment in Nevada was two-fold: to demonstrate that the system can create electricity with fission power, and to show the system is stable and safe no matter what environment it encounters.

“We threw everything we could at this reactor, in terms of nominal and off-normal operating scenarios and KRUSTY passed with flying colors,” said Poston.

The Kilopower team conducted the experiment in four phases. The first two phases, conducted without power, confirmed that each component of the system behaved as expected. During the third phase, the team increased power to heat the core incrementally before moving on to the final phase. The experiment culminated with a 28-hour, full-power test that simulated a mission, including reactor startup, ramp to full power, steady operation and shutdown.

Throughout the experiment, the team simulated power reduction, failed engines and failed heat pipes, showing that the system could continue to operate and successfully handle multiple failures.

“We put the system through its paces,” said Gibson. “We understand the reactor very well, and this test proved that the system works the way we designed it to work. No matter what environment we expose it to, the reactor performs very well.”

The Kilopower project is developing mission concepts and performing additional risk reduction activities to prepare for a possible future flight demonstration. The project will remain a part of the STMD’s Game Changing Development program with the goal of transitioning to the Technology Demonstration Mission program in Fiscal Year 2020.

Such a demonstration could pave the way for future Kilopower systems that power human outposts on the Moon and Mars, including missions that rely on [In-situ Resource Utilization](#) to produce local propellants and other materials.

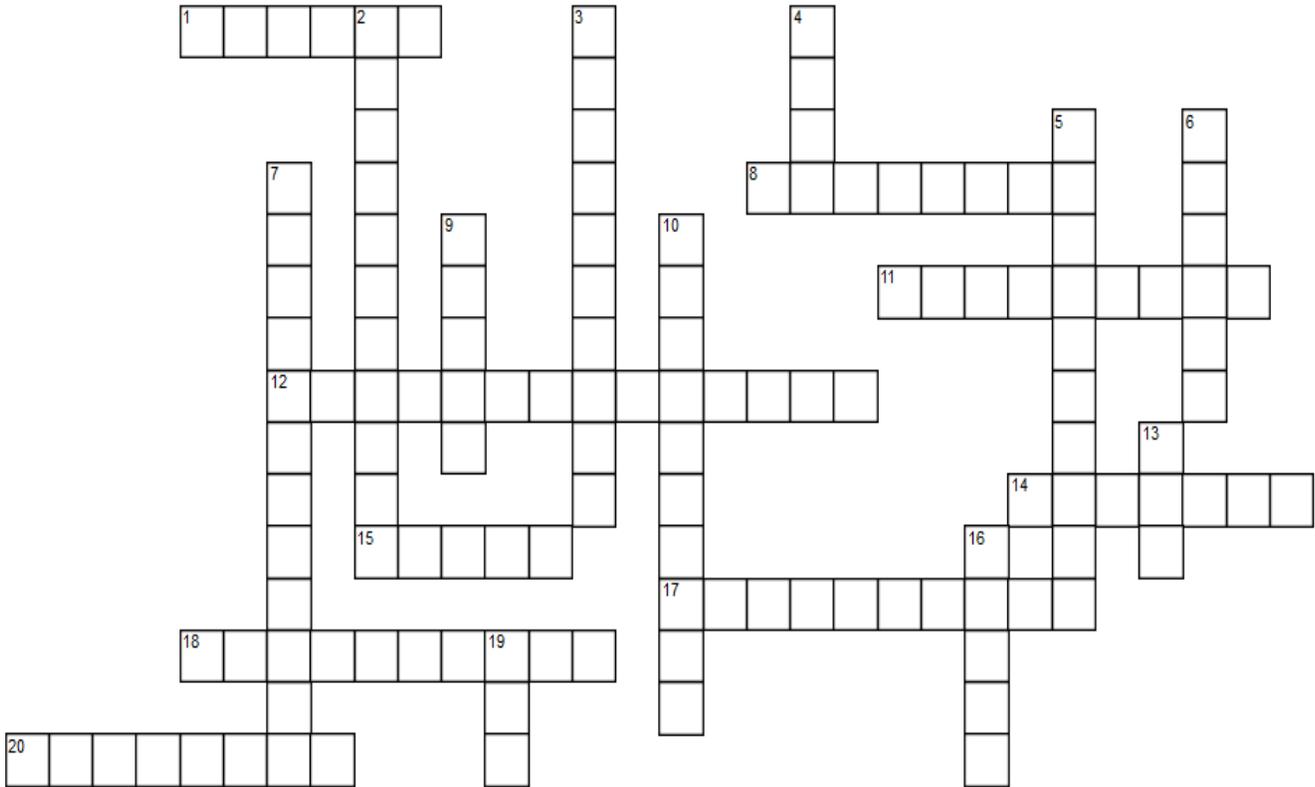
The Kilopower project is led by Glenn, in partnership with NASA’s Marshall Space Flight and NNSA.

For more information about the Kilopower project, including images and video, visit: <https://www.nasa.gov/directorates/spacetech/kilopower>

# Ham Radio Crossword

Answer in the September newsletter

## radio ham



### ACROSS

- 1 inside the envelope of a triode tube
- 8 gets the signal from the rig
- 11 A circuit designed to increase the level of its input signal
- 12 a method of calculating parallel resistances
- 14 for radiating signals
- 15 matches antennas to radios
- 17 the radiation which is directly affected by the surface of the Earth
- 18 converts audio
- 20 extends mobile transmissions

### DOWN

- 2 solar radiation that is most responsible for ionization in the outer atmosphere
- 3 line of sight
- 4 A force of repulsion exists between two \_\_\_\_\_ magnetic poles
- 5 not amplified by an amplifier
- 6 a measure of current
- 7 11 years
- 9 an impedance matching device
- 10 the distance an AC signal travels during one complete cycle
- 13 for sending cw
- 16 first level of qualification
- 19 a measure of resistance

# Inverhuron Ham Radio Club Highlights



I'm happy to announce that we will be participating in the International Lighthouse and Lightship weekend on the third weekend in August, 2018.

We have registered the Kincardine Lighthouse and Museum and the number designation is CA0063. We will be running call sign VE3IHR, Inverhuron Ham Radio that weekend. Not sure if we are doing one day or both days yet but will be set up in the lighthouse which is open for tours during the summer months. Anyone that wishes to join us is more than welcome to do so! The only other lighthouse in Ontario currently registered is the Point Clark Lighthouse and will be attended by the Elmira Amateur Radio Club., Rob Noakes, VE3PCP Inverhuron Ham Radio Club, VE3IHR



<https://illw.net/index.php/entrants-list-2018>

[https://explorethebruce.com/profile/kin ... tore/2127/](https://explorethebruce.com/profile/kin...tore/2127/)

## Basic Amateur Radio License Course

**Apr 21 - May 13**

This year the course was over a time period of 5 weekends, with classes on Saturday and Sunday from 9am to 3pm. In years past the class was held on

Wednesday evenings usually from 6 to 9pm over 8 or 9 weeks.

The weekend class works out to about 54 hours of classroom time while the Wednesday night

route is only about 24 hours. This is likely why the students all did very well this year. More class time means more understanding and time for information to be absorbed. This picture is (L-R) Doug VE3WRF Course co-ordinator, student Markus who achieved basic and honours, then Tom VA3TVA instructor and Rob VE3PCP Instructor. Markus was the first to complete the exam and got to go home early.



This picture is the remainder of the class. (L-R) Rijk, Basic Qual, Justin basic and honours, Justins



Mom Alicia who achieved a basic qual, then Janet basic and honours, and Marvin basic and honours. Marvin and Janet are a husband and wife team from Paisley and Justin and Alicia is the family of Rob VE3PCP who is especially proud as the whole family are licenced. Congratulations to all the students and a job well done to Doug and his team. Not present that day were Dave VE3WI Frank VA3GUF and Carson VA3OSO.

## CANWARN Training Update

As mentioned in previous announcements, if you don't find specific RSVP instructions at the venue you are interested in below then please RSVP to me at [geoff.coulson@canada.ca](mailto:geoff.coulson@canada.ca)

Please find following the list of the remaining training sessions.

May 22 – Essex County/Essex – 7 PM – Shaheen Room at the Essex Centre Sports Complex – 60 Fairview Ave W, Essex

May 23 – Sudbury/Azilda – 6:30 PM – Lionel E. Lalonde Centre, 239 Montee Principale, Azilda

May 24 – Temiskaming Shores/New Liskeard – 6:30 PM – Riverside Place, 55 Riverside Drive, New Liskeard

May 26 – Belleville – 9:30 AM – 3rd floor Conference Room, Belleville Public Library, 254 Pinnacle St., Belleville

May 28 – Brampton – 1 PM – Rose Theatre, 1 Theatre Lane, Brampton RSVP to

[http://www.brampton.ca/sites/Rose-Theatre/en/Events-And-](http://www.brampton.ca/sites/Rose-Theatre/en/Events-And-Tickets/Pages/ShowDetails.aspx?ShowID=1382&ShowDate=05/28/2018)

[Tickets/Pages/ShowDetails.aspx?ShowID=1382&ShowDate=05/28/2018](http://www.brampton.ca/sites/Rose-Theatre/en/Events-And-Tickets/Pages/ShowDetails.aspx?ShowID=1382&ShowDate=05/28/2018)

June 11 – Kingston – 6:30 PM – Calvin Park Public Library, 88 Wright Cr.

# Websites of Interest

## LF and MF Amateur Radio Activity in Canada

<http://gsl.net/ve7sl/136.html>

## Canadian table of Frequency allocations

<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10759.html>

## Elmira Radio Club newsletter

[http://www.ontars.com/erc\\_news/april\\_2018.pdf](http://www.ontars.com/erc_news/april_2018.pdf)

## T-Shirts and Polo shirts

[http://www.ontars.com/Gwen\\_t\\_2018/index.html](http://www.ontars.com/Gwen_t_2018/index.html)

## Ham Radio Projects for beginners

<https://www.electronics-project-design.com/HamRadio.html>

# HF Band Propagation Part 2

by Frank VA3GUF

See [last months newsletter](#)

## 160-Meter (1.8-2.0 MHz) Propagation

Each amateur band propagates signals differently. The 160-meter band is our only MW band and it acts similar to the broadcast band. It is primarily a nighttime and wintertime band as it suffers from high summertime static (QRN). Most hams that use this band for nearby contacts use horizontal dipoles or inverted-V antennas. Some hams use vertical antennas on this band to work distant stations (DX). These DX contacts are made in the fall and wintertime at night via F layer or greyline propagation when the static levels are low. Dipoles and inverted-V antennas do not work well for DX on this band.

## Eighty-Meter (3.5 4.0 MHz) Propagation

The CW part of this band is called the 80-meter band and the voice part of the band is known as 75 meters. Like 160 meters, eighty meters suffers from the same QRN in the summertime. Working DX on this band is a popular avocation during the fall and winter. However, 80 meters is used primarily for working nets and ragchewing. Eighty meters is primarily a nighttime band. This band can vary from being open most of the day in years with low sunspot numbers to being closed during the middle of the day in years with many sunspots. Many DX contacts have been made using dipoles and inverted-V antennas, but a vertical with many ground radials will be better.

## Forty-Meter (7.0-7.3 MHz) Propagation

The forty-meter band has propagation that can act like either 80 meters or 20 meters. It just depends on the stage of the sunspot cycle. During the years with high sunspot numbers, nearby contacts are possible all day. At night, the skip lengthens making contacts possible to those parts of the world where it is still dark. Working DX on 40 meters is a nighttime or greyline event. When the sunspots are low, forty meters may have long skip during the day, and nearby contacts may be impossible or they may be very weak. During the time when we suffer from low sunspot numbers, many DX contacts are made during early morning, late afternoon, and at night.

If your primary interest on forty meters is SSB, our 40-meter voice band is a broadcast band in Regions 1 and 3. Region 1 is Europe, North Asia, and Africa and Region 3 is the Pacific, Southern Asia, and Australia. The top part of 40 meters is a voice band in Region 2, which is North and South

America. To work SSB on forty meters at night, you will have to find a frequency between broadcast stations. Strong broadcast stations heard at night begin to fade out slowly as the morning sun rises and moves higher in the sky. As the sun's angle declines in the afternoon, the broadcast stations begin to break through the noise becoming stronger as the sun begins to set. It is only in the middle of the day when no broadcast stations are heard on forty meters.

Since DX stations in region 1 and most of region 3 can only transmit below 7100 kHz, working DX on 40-meter SSB is still possible. Stations in those regions will have to transmit below 7100 kHz. (Australian and New Zealand amateurs can operate up to 7200 kHz.) They call CQ and announce where they are listening in our voice band above 7150 kHz. This is what is called "working split."

### Thirty-Meter (10.1-10.15) Propagation

This band has such a narrow frequency that the only modes allowed here are CW and digital modes. That means no SSB. Propagation here is much like 40 and 20 meters. Unlike 20 meters, this band stays open longer at night during years with low sunspot numbers. During the daylight hours, it has much shorter skip than 20 meters. In the United States, we are allowed only 250 Watts.

### Twenty-Meter (14.0-14.35 MHz) Propagation

The twenty-meter band is the best DX band because it is open for long-skip for more hours than any other band and it does not suffer from QRN as the lower bands. In years of high sunspot numbers, short-skip and long-distance DX can be worked at the same time during daylight hours. Although DX is there most of the time, most of the DX worked is at sunrise, sunset, and all night during peak sunspot years. During the years of low sunspots, it is common to work into Europe and Africa during the day and into Asia and the South Pacific during the evening hours and early at night. Low sunspot numbers cause 20 meters to go dead for east to west contacts at night an hour or so after sunset, but there is some TE propagation. During periods of moderate sunspot numbers, the propagation on this band is a blend of propagation of low and high sunspot years.

### Seventeen-Meter (18.067-18.167 MHz) Propagation

The 17-meter band propagation acts much like 20 meters except it is affected more by low sunspot numbers than 20 meters. In periods of low sunspot numbers, this band does not stay open as late as 20 meters, fading out as the sun begins to set. Yet, the 17-meter band does stay open all night when the sunspot numbers are high. The propagation on this band is like a blend of 20 meters and 15 meters, but it is closer to 20 meters. Most users of this band use dipoles and other simple antennas since tri-band beam antennas won't work here.

### Fifteen-Meter (21.0-21.45 MHz) Propagation

Fifteen meters is a fantastic DX band during the high sunspot years. This band may be open for 24 hours, and it is common to work more than 100 countries during a contest weekend on this band. Many have worked more than 300 different countries on 15 meters. In years of low sunspot numbers, 15 meters may be completely dead for several days in a row. When it opens during those years, you may hear only the Caribbean, South America, and on rare occasions the extreme southern part of Africa via TE propagation.

### Twelve-Meter (24.89-24.99 MHz) Propagation

The 12-meter band is much like 15 meters, but it is affected more by sunspot numbers. Because this band is little used, many hours can pass without hearing any amateur signals. Occasionally you will

hear South American Citizen Band "pirates" on lower sideband. It is mostly a daytime band but openings to Asia and the South Pacific are common early at night during peak sunspot years. The reason this band is little used is that triband beam antennas dont cover this band.

### Ten-Meter (28.0-29.7 MHz) Propagation

The band that is most affected by the sunspot numbers is 10 meters. You may have noticed in this discussion, the higher the frequency, the more it is affected by sunspots. During peak sunspot years, 10 meters can be open some days for 24 hours. Mostly it is a daytime band. When they are at the peak, the sunspots enable you to work worldwide with power as low as 5 Watts. A 10-meter confirmed country total of over 250 is common. In the low sunspot years, the band can be closed for days. Ten meters can open for very short skip by sporadic E propagation during the summer months. Very short skip means contacts as close as 200 miles out to 1000 miles. Sporadic E propagation can suddenly occur without regard to the sunspot numbers.



*“One day, son, all of these perfectly good A.C. adapters, which have long outlived the products they were originally designed for, will be yours.”*

# The Last Word

A few words of appreciation to those that contribute to this newsletter by submitting news stories or interesting web links or ideas.

If you have something then send it to [contact@gbarc.ca](mailto:contact@gbarc.ca) , any format, any size, anytime.

## Upcoming

Central Ontario Hamfest June 3<sup>rd</sup>

Hamilton hamfest June 16<sup>th</sup>

Field Day June 23<sup>rd</sup>-24<sup>th</sup>

VE3OST Tower Raising July 14<sup>th</sup>

Lighthouse Weekend August 17<sup>th</sup>

For details on these and other events please go <[HERE](#)>

## Welcome to new local area Hams

If you hear these callsigns, they are newly licensed hams. VE3GTV Tyler, VE3XME David, VA3EGC Don, VE3WPG Bill and VA3MFO James.

## Help US Out

Please forward this newsletter to other hams or those interested in the hobby. For this and links to previous newsletters please go <[HERE](#)> or copy/paste this <https://gbarc.ca/archive1.php>

*Would you like to receive email notifications when this newsletter is posted? Sign up for our mailing list. We send out only few mailings a month and you can unsubscribe at any time. No ads and no personal information, your email address is never shared with anyone else. <https://www.gbarc.ca/lists/?p=subscribe>*



**Interested in Club T shirts, Polo shirts or Hoodies.** Check out Gwen's graphics. Go to this Ontars page for a look at examples [http://www.ontars.com/Gwen\\_t\\_2018/index.html](http://www.ontars.com/Gwen_t_2018/index.html) . I have already uploaded our club crest so all you need to do is say you are from GBARC. The crest will include your name and callsign or just the crest and name if your wife would like something. There is a discount for a club order, maybe someone would take on arranging this.



*Thanks and see you at the next meeting.  
The next newsletter will be in September.*

*Editor Tom VA3TS*