

OVER 42 YEARS OF PUBLIC SERVICE TO THE BRANDON AREA  
BRANDON, FLORIDA, USA

VOL XLVI, NUMBER 4

April 2019

## Welcome New Members of the Brandon Amateur Radio Society!

At our March meeting, we welcomed two new members to the Society. Scott Irwin, our President, presented both with a New Membership Certificate and a Welcome Letter.



**Karen Jacobi K4KZF**

and

**Cecil "Wayne" Thorn KM4VRZ**

In addition, with no photo available, we also welcomed Jerry Sorrentino KD2RIP. A New Membership Certificate and Welcome Letter will be waiting for Jerry at our next meeting on April 18th.

**Thank you Karen, Wayne, and Jerry for your interest in our Society!**

The Brandon Amateur Radio Society is proud to offer mentoring to all new members. Be sure to let us know how we can best help you to enjoy the hobby and learn the technology of Amateur Radio. Informal mentoring sessions are available at our weekly breakfasts (see our website for specifics) and individual one-on-one mentoring is also available. Please contact Scott Irwin W8UFO at [scott.irwin@w8ufo.net](mailto:scott.irwin@w8ufo.net) for more information.

**We also congratulate Karen Jacobi and Angie Vazquez for passing the General level amateur radio licensing examination on Saturday, April 6th.**

**GREAT JOB!**

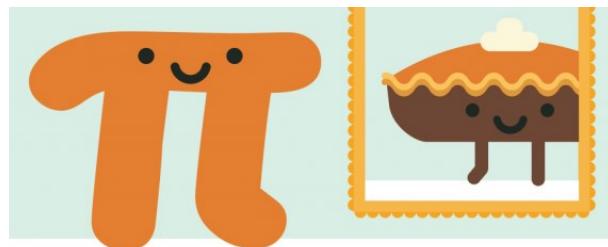


## Wednesday Night is Pie Night!

BARS sponsors several get togethers each week. The original list shown on our web site includes breakfasts (which are also mentoring sessions) on Tuesdays, Thursdays, and Saturdays. We found that the list has informally grown to include:



**Wednesday Pie Night @ 7:30 pm at the Village Inn on Lumsden at Providence.**



**All are welcome to join in!**

## Multiple Sclerosis Walk

On Saturday, April 6th, Hillsborough ARES RACES members volunteered to provide Emergency Communications for the Multiple Sclerosis Walk at Al Lopez Park in Tampa. From BARS, Nancy Lessard and Ken Watts participated. **Thank you Nancy and Ken for your service to the community!**



## Florida State Parks on the Air

Also on Saturday, April 6th, BARS activated Alafia River State Park to participate in Florida State Parks On The Air. We had a good many members participate. We operated a 40 meter phone station and a 20 meter PSK-31 digital station. Delicious Hot Dogs and Hamburgers abounded! Blackberries and a Strawberry Cake magically appeared for desert! Thankfully, the gators stayed in the water!



As an aside, we congratulated Angie Vazquez KI4RUC for passing the GENERAL exam earlier that day! **CONTINUED**

## Florida State Parks On The Air - Continued



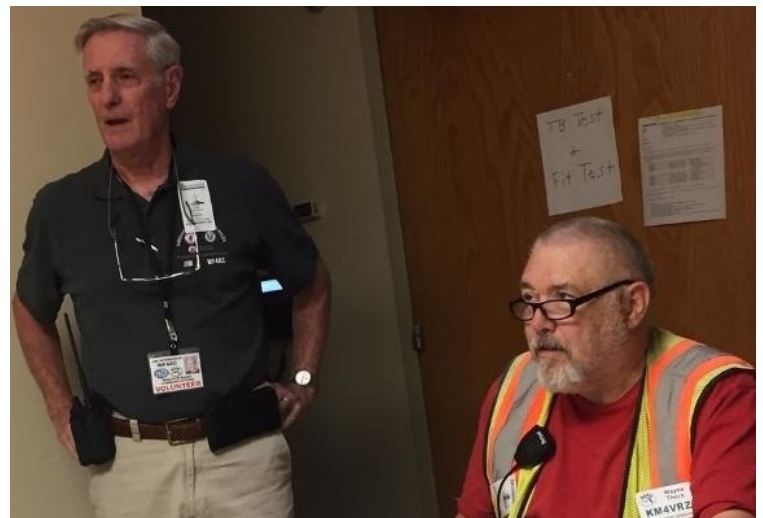
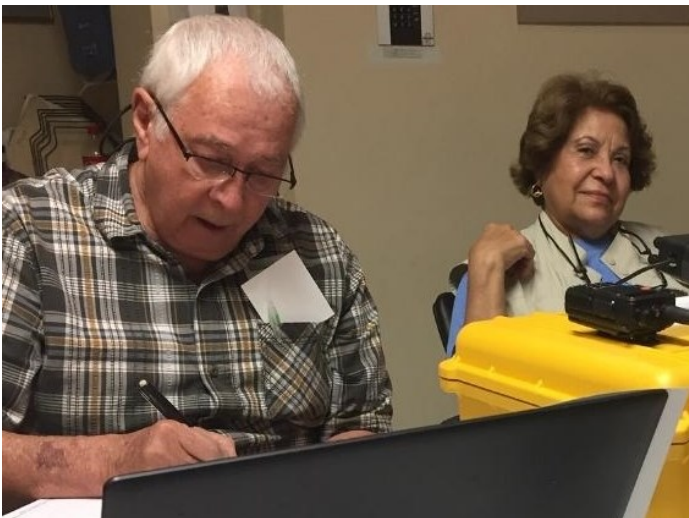
This was the second year that we activated Alafia River State Park. We recently received notice from the FSPOTA organizers that BARS won the award for **FIRST PLACE** in the category of Low Power SSB Mode in 2018!



**We thank the Society Officers for organizing this event and we thank everyone for their participation!**

## Mass Casualty Drill

On April 11, several BARS members participated in the annual Hillsborough County Mass Casualty Drill. The scenario was a train derailment and resulting toxic chemical spill of dimethyl disulfide fumigant in Riverview. BARS activated Brandon Regional Hospital. We operated VHF Digital Win-link for bed reports and UHF phone on the K4TN repeater to communicate with Ken Watts and Lisa Graves (Net Control Operators) at the EOC. We also coordinated with the hospital incident command organization to track hospital initiatives to manage this simulated catastrophe.



This was a great opportunity to test our equipment and refine our skills providing emergency communications for the hospital in the setting of a critical event. We were warmly welcomed by the hospital staff. The list of participants at Brandon Regional Hospital included: Jim Moorehead, Ron Perrett, Angie Vazquez, Nancy Lessard, Mike Torres, Wayne Thorn, Art Powers, and Dana Perrin. **Thanks go to all for representing BARS in this community service activity** sponsored by Hillsborough ARES RACES.



## Letters From Our Members:

We recently received a note from Budd Johnson WB4J, who now lives in Texas. He is still an active Amateur Operator who serves as: the Coryell County ARES EC, the Coryell County OEM Liaison/Amateur Radio, a Copperas Cove Emergency Management Volunteer, a Fort Hood EOC Liaison/Amateur Radio, and VE Team Coordinator. He also is a member of the Patriot Guard Riders: "I stand with those that stood for us."



The original Duncan Donut Crew circa 2013!



Patriot Guard Rider



Budd has a new Grandson!

Bud writes:

*Thank you, great job with the newsletter. I miss Florida and all the friends in BARS. I am in Copperas Cove Texas and we have very few hams in the area, very few that get involved with ham radio besides the once a month Saturday morning breakfast. With that said, that is why I so much enjoy the newsletter and emails from the BARS reflector. My latest post to my "other" Facebook page (Coryell County Emergency Management) is about rookies and might be a "rework" for you to use in the newsletter. Adlibbing from the original article, that I really like is:*

"Rookies aren't servants. It's our responsibility to mold and train new first responders in every aspect of their job because failure to perform has dire consequences. This is where they develop their skill set and show how seriously they take the job. Go train them."

73

*Budd Johnson WB4J*

Oh and yes, he is also Santa Budd!  
THANK YOU BUDD FOR YOUR  
VERY KIND NOTE! IT WAS  
GREAT TO HEAR FROM YOU!  
THANKS FOR STAYING IN  
TOUCH!  
BEST WISHES ALWAYS!

-73- your BARS Buddies



## More News from our Members:

Kathy Allen KF4FRC writes:

*I took some pictures of Rod Clark, Richard Jones, my Richard Allen putting up an antenna and running coax cable to connect it to my ICOM HF/VHF radio. I just want to thank those who were instrumental in getting this accomplished. A special thanks to Jack and Mary Ann Kramer who got things started and to Rod for the antennae and coax and his expertise. Hopefully, I will be able to check in to the nets on Tues. nights.*

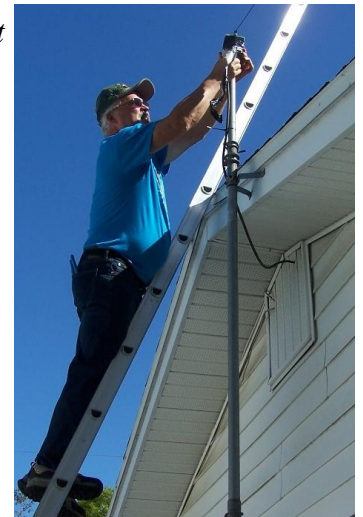


*Anyway, I am sending you this in case you would like to put it in the next Antenna. I had trouble sending these pictures so I hope that you can open them.*

*You are doing a great job with the Antenna.*

*Thanks again.*

*Kathy Allen KF4SRC*

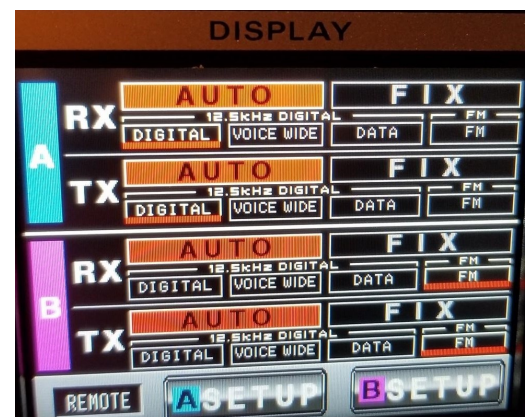


KATHY, THANKS FOR YOUR WONDERFUL NOTE! WE HOPE TO HEAR YOU ON THE BARS NETS! TAKE CARE AND -73- Your BARS Friends.

**THANKS TO EVERYONE WHO HELPED KATHY! GREAT JOB!**

## New 440 (70 cm) Repeater is ON LINE!

At our February meeting, the membership voted to acquire a new Yaesu DR-2X Digital Fusion Repeater in trade for another repeater which was not giving optimal performance. During March, the new repeater was installed by Dave Welty and Ray Negron. We urge you to check it out! Go to 443.500 MHz (+ offset), PL 127.3 Hz. It has the capability to send and receive both Digital Fusion and FM analog signals. It's located on a tower at Fire Station #2, Lithia Pinecrest and Browning Road, Lithia. The new transmit power is 50 watts as this repeater has a 100 % duty cycle.



**Be sure to thank Dave and Ray for their strong work!**

## ARES RACES News

Hillsborough ARES RACES sponsors a **weekly UHF Net** on the W4BCI repeater (444.225 (+) PL 146.2) every Thursday Night at 7:30 pm. All amateur operators are welcome to check in to this net.

If you are interested in **serving on the Planning and/or Training committees**, please contact Dawn Drury at [ddrury@hcaresraces.org](mailto:ddrury@hcaresraces.org) for further information.

Hillsborough ARES RACES is looking for a **volunteer to post information to Social Media**. If you have experience with Facebook and Twitter, and if you have good communication skills, please contact Dawn Drury. Please note, you **DO NOT** have to be a licensed amateur radio operator to volunteer for this position.

**On May 18 and June 1st:** Hillsborough ARES RACES will offer the **Technician and General Radio Licensing Classes** at the PSOC. This will be the last class which will use the current General Manual. The General class question pool changes in July.

**On May 21st we host an ARES Simplex Net at 7 pm on 146.490 MHz**, no PL tone needed. The purpose of this net is to allow operators to practice relay techniques and to test their equipment should repeaters go down during a critical event. All amateur operators are welcome to check in. This net is held the third Tuesday of each month.

There will be a **full activation and functional EOC Drill on May 30th**. More details to come.

### New Members in the Organization:

Hillsborough County Director of Emergency Management: **Timothy Dudley**, see press release: <https://www.hillsboroughcounty.org/en/media-center/press-releases/2019/04/08/hillsborough-county-hires-new-emergency-management-director>

AEC Training: **Martin Jordan KB1MJ**

AEC HF: **Keating Floyd KC4HSI**

If you are **interested in joining Hillsborough ARES RACES**, or if you are already a member, it's important to know that **you must register on two different websites to be included in all communications:**

<https://members.hillsboroughares.org/>

and

[aresdb.com](https://aresdb.com)

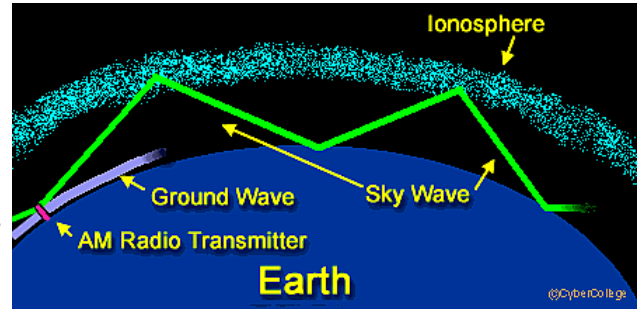
The website for **information about Hillsborough ARES RACES** is: <https://hillsboroughares.org>



# Radio Frequency Sky Wave Propagation and the Solar Cycle

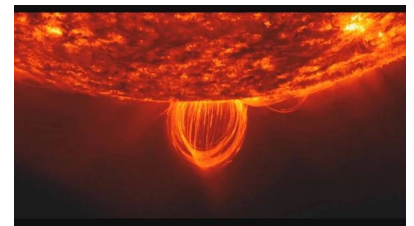
By Dana Perrin

For good skywave HF propagation over long distances, it is necessary that the ionosphere contain high levels of ionized chemical species (called ions) which can reflect radio waves. If there are high levels of ions in the ionosphere, then radio waves will bounce off of the layer of ions to be received at a distant destination. So what causes high levels of ionized species in the ionosphere? There are two major causes.

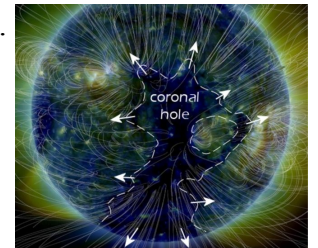


First, the sun's relatively constant amount of UV radiation causes ions to form, and this is what allows baseline HF propagation during the day and night time hours. Secondly, disturbances on the surface of the sun can also affect ion formation. There are three general types of solar disturbances:

1. Solar (Sun Spot) Flares: Sun spots produce solar flares which are comprised of highly energized particle radiation including x-rays that travel at the speed of light. It takes 8 minutes for solar flare radiation to travel from the surface of the sun to the surface of the earth. In general, this high energy radiation produces an increase in the level of ions in the ionosphere which in turn improves skywave radio frequency propagation (easier to make long distance contacts).



2. Coronal Holes: The surface of the sun can exhibit a valley or a crevasse (coronal hole). These holes produce a plasma, which is an ionized gas of less energy and which moves at a slower speed than a solar flare. Sometimes it takes 20 to 40 hours for this lower energy plasma to reach the earth. Plasma destabilizes the earth's geomagnetic field which reduces skywave propagation. Plasma is often referred to as the solar wind, or a solar storm. Plasma is what causes the aurora borealis.

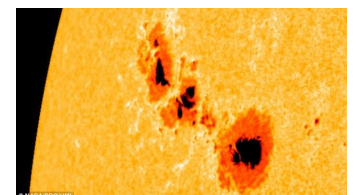


3. Coronal Mass Ejections: These occur when a large amount of the surface material from the sun is ejected into space. It can happen as a narrow stream of material or as a wide spray. When this reaches earth, effects can completely disrupt radio communications. A coronal mass ejection is a very rare event.



Because solar events can greatly impact communications on Earth, there are four main indexes which are monitored on a regular basis (current values are in parentheses):

1. Sunspot Number (0-9, low): The greater the number of sun spots, the greater the intensity of solar flare radiation, the better skywave radio propagation will be.



2. Solar Flux Index (69, very low): This index describes the intensity of radio energy at 2800 MHz coming from the sun. This corresponds with total UV energy from the sun that is hard to measure at ground level because UV is absorbed at low altitudes by the Ozone layer. The higher the value of this index, the more ions in the ionosphere, and the better the skywave radio propagation will be.

3. Planetary K Index (2-4, low): This index ranges from 0 to 9 and represents the **short term stability** of the earth's geomagnetic field. Higher values mean more disruption, and poorer radio propagation.

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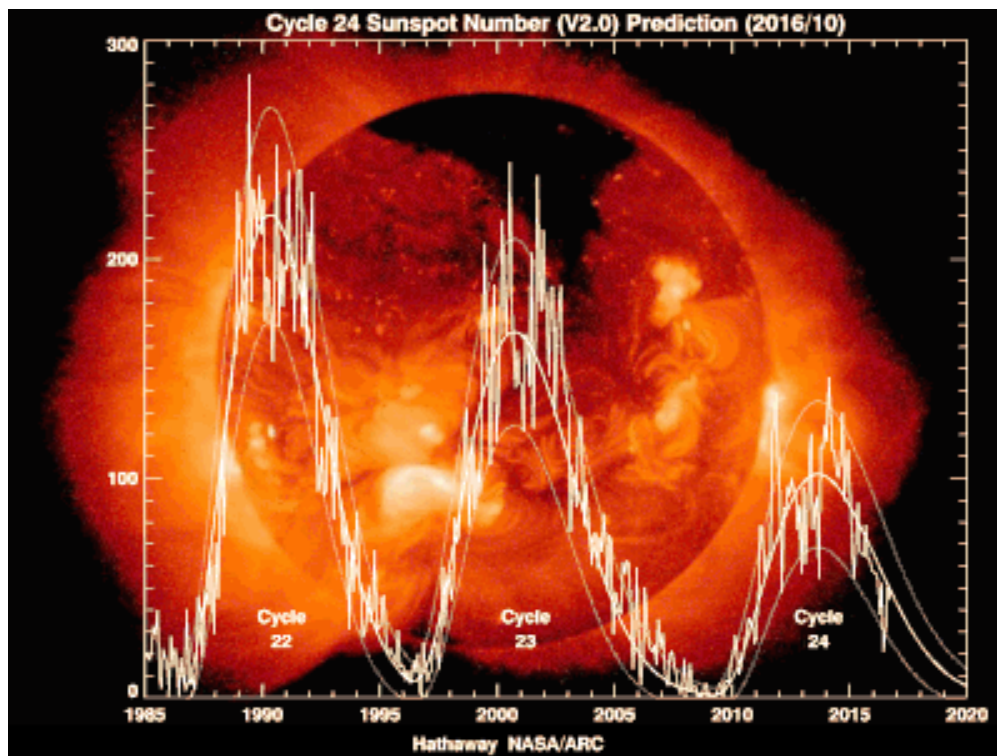
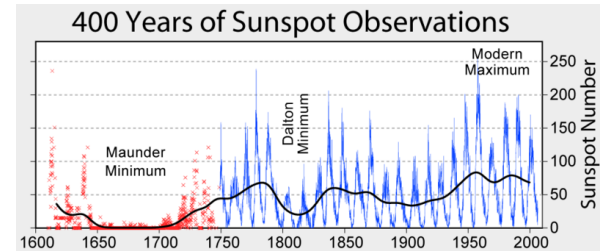


## Radio Frequency Sky Wave Propagation and the Solar Cycle - Continued

4. Planetary A Index (50 with occasional spikes to 400 for few hours): This index is a measure of the long term geomagnetic field stability. This is obtained mathematically from the last eight K indexes from around the world. Values range from 0 (which means stable field and good propagation) to 400 (greatly disturbed field or solar storm, with poor propagation).

All of these indexes are monitored by NASA ([spaceweather.com](http://spaceweather.com)) and at NOAA: ([https://www.ngdc.noaa.gov/stp/geomag/kp\\_ap.html](https://www.ngdc.noaa.gov/stp/geomag/kp_ap.html)).

From the above, we have several things working against good sky-wave radio propagation. The sun spot counts are low and all the solar indexes are low or disruptive to the geomagnetic field stability which contributes to poor skywave propagation. In the grand scheme of things, sun spots are an important contributor to good radio propagation. So what controls the number of sun spots? The Sun has a characteristic sun spot cycle. In this cycle, the numbers of sunspots vary in a cyclical fashion over time with a usual period of about 11 years. The most recent data show that the sun is currently in a time period with low sun spot numbers. We call this a “solar minimum”.



Further, if the cycle continues in the usual predicted pattern, this low sunspot activity will likely persist for several more years. What does this mean? It means that skywave radio wave propagation is now poor and it will continue to be poor until the solar cycle (sun spot count) starts to rise in about 5 more years when cycle 25 begins (see above graph). In the meantime, we can still communicate on the HF bands but it will require higher power settings and more patience to test when the bands are “open.” At the current “solar minimum,” digital modes, can overcome poor propagation by algorithms which selectively enhance signal quality above a high noise floor. Digital modes can thus be rather robust and this is evidenced by the recent popularity of FT-8. CW is also robust under solar minimum conditions.

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## Radio Frequency Sky Wave Propagation and the Solar Cycle - Continued

For more information, check out these websites: [hamqsl.solar.html](http://hamqsl.solar.html) and [k19.us](http://k19.us) and [arrl.org/files/file/Technology/tis/info/pdf/0209038.pdf](http://arrl.org/files/file/Technology/tis/info/pdf/0209038.pdf)

There is a very popular YouTube Channel with videos produced about every two weeks:  
[youtube.com/user/SpWxfx](http://youtube.com/user/SpWxfx)

The February 14 episode of the ARRL Podcast *The Doctor Is In* features a monolog about sunspots and the “Maunder Minimum.” Check it out!



### Mark Your Calendars!

**IMMEDIATELY: BARS Annual Membership Dues** are due now. Individual membership is \$25, Family membership is \$30. Please see our Treasurer, Jim Moorehead. Jim’s email is [WF4AC@arrl.net](mailto:WF4AC@arrl.net)

**April 20th Saturday:** West Central Florida Section of the ARRL Section Meeting will be held from 1 to 3 pm at the Pasco County EOC located at 7530 Little Road, New Port Richey, FL 34654.

See: <http://arrlwcf.org/event/wcf-section-ares-meeting-spring-2019/>

**April 24th Wednesday:** A SKYWARN Spotter Training Class will be held from 6 to 7:30 pm in Pinellas County at the Gulfport Senior Center Dining Hall, located at 5501—27th Avenue South in Gulfport, FL. Contact [daniel.noah@noaa.gov](mailto:daniel.noah@noaa.gov) if interested. See <https://www.weather.gov/tbw/skywarn>

**April 27th Saturday and 28th Sunday:** Florida QSO Party. See <https://floridaqsoparty.org/>

**May 4th Saturday:** A SKYWARN Spotter Training Class will be held from 10 to 11:30 am at the Hernando County Hurricane Expo, Hernando County Fairgrounds, 6436 Broad St, Brooksville, FL 34601

The Expo runs from 9 am to 2 pm with a Hurricane Panel Discussion at Noon with TV/NWS Meteorologists. Contact [daniel.noah@noaa.gov](mailto:daniel.noah@noaa.gov) if interested. See <https://www.weather.gov/tbw/skywarn>

**May 4th Saturday and May 5th Sunday:** Bike MS Citrus Tour. Amateur operators are needed for emergency communications. See: <http://citrustour.org>

**May 7th Tuesday:** The Amateur Radio electronics Union (AREU) will meet at 7:30 pm at the Bell Shoals Baptist, Church building "C." See: <https://mailman.qth.net/mailman/listinfo/areu>

**May 11 Saturday:** East Pasco ARS Tailgate 2019 – Church Street Park – Dade City, FL.

See: [http://eparsonline.org/public\\_html/eparsonline.org/](http://eparsonline.org/public_html/eparsonline.org/)

**May 16 Thursday:** Next BARS Monthly Meeting at 7:30 pm at ARISE.

See: <http://www.brandonhamradio.org/>

**May 18 and June 1st Saturdays:** Hillsborough ARES RACES will offer the Technician and General Radio Licensing Classes at PSOC. This will be the last class which will use the current General Manual. The General class question pool changes in July. See: <https://hillsboroughares.org/events/>

**May 25th Saturday:** WORMFEST 2019 – Freedom Lake Park – Pinellas Park, FL.

See: <http://w4orm.org/wormfest-2019-at-freedom-lake-park/>

**May 30th Thursday:** Functional EOC Drill with full activation of the EOC.

**June 1st Saturday: The 2019 Hurricane Season Begins.** Now is the time to prepare!

See: <https://radar.weather.gov/radar.php?rid=TBW>      <https://www.weather.gov/wrn/hurricane-preparedness>



## Our Next BARS Monthly Membership Meeting

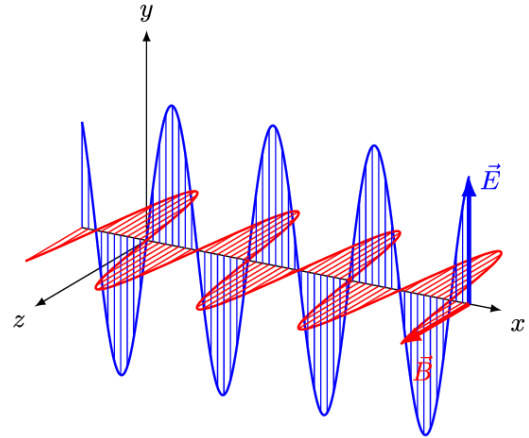
The next meeting on Thursday, April 18th will be at our regular meeting location: Arise Assembly of God Church, 401 Pauls Drive, Brandon, FL 33511.

**We thank the members and staff of Arise for their kindness in allowing BARS to use their facility.**

Our President, Scott Irwin, will bang the gavel to start the meeting at 7:30 pm. After our business meeting, we will have a presentation by Ron Perrett regarding:

**“Magnetic and Electrical fields. i.e.) What the radio affects/effects and limiting factors are for Amateur Radio operators. This important subject is largely ignored by most, but is, in fact, an accountable requirement for operator compliance. We’ll explore the question. “...is my HT cooking my brain when I transmit?...” .AND. “...will working 20M CW give my neighbor cancer?...” Be informed and consider your options and liabilities.”**

**JOIN US!**



## BARS General Information

**BARS Officers:** President: Scott Irwin, VP: Ron Perrett, Treasurer: Jim Moorehead, Secretary: Jeff Dick, Repeater Trustee: Tony Stone

**Mondays:** 2 meter Net on K4TN Repeater (147.165 (+) 136.5) and Echolink node N4DLW-R at 8 pm

**Tuesdays:** 6 meter Roundtable on 50.200 USB at 7 pm and 10 meter Roundtable on 28.365 USB at 8 pm

**Fridays:** 80 meter Roundtable on 3.830 LSB at 7 pm



**Webpage:** [brandonhamradio.org](http://brandonhamradio.org)



**Twitter:** <http://www.twitter.com/brandonhamradio>



**Facebook:** <http://fb.me/brandonhamradio>



Be sure to like us on Facebook!

## Acknowledgements:

We thank Scott Irwin, Nancy Lessard, Budd Johnson, Kathy Allen, Jim Moorehead, Dave Welty, and Ron Perrett for providing some of the photos used in this edition. We WELCOME articles and photos for inclusion in this newsletter. We also welcome any constructive feedback (positive and negative) from our readers. Please submit them to: [danaperrin@aol.com](mailto:danaperrin@aol.com)

Thanks and -73-