Smoke Signals

CALENDAR

March

04 Net 2030

06 meeting

11 Net 2030

18 Net 2030

25 Net 2030 & News articles due

April

01 Net 2030

03 VE session &

Club meeting

8 Net 2030

15 Net 2030

22 Net 2030 &

News articles due

29 Net 2030

THE PRESIDENT'S WORKBENCH

Ah, March, the month of lost sleep. As it roars in like a lion we often worry that the wind will damage our antennas. Buckle up for the early March weather rollercoaster, unless Mother Nature gives us a spring reprieve as she did for the cold, snowy winter weather this year. Regardless of what Mother Nature has in store for us, we still lose an hour of sleep thanks to Daylight Savings Time. Yes, it's that time of year again. Time to move our clocks forward one hour. The date for that change this year is March 8, two days after our monthly meeting. Mark your calendars now.

We recently moved our weekly net to a repeater and it has been quite successful. The repeater is located near Mechanicsville and has really great coverage over St. Mary's and Charles counties. While I did have to find the perfect sweet spot to stand with my HT at home while testing to see if the repeater would work for our nets, I had a QSO with Jeff, KB3SPH, using my HT in Waldorf. Jeff was at his home in western Charles County and it was armchair copy. So fire up that 2-meter rig on Wednesday nights at 8:30 PM and join us on the 147.195 repeater. It has a + offset and the PL tone is 156.7 Hz.

On February 19, Charles ran a highly successful Arduino class. I ran out of fingers to count attendees and didn't want to spoil the atmosphere by taking off my shoes, but I counted 13 in spite of the counting handicap. The group learned how to wire up various sensors and load programs for them from a CD which they uploaded into their Arduino microcontrollers. They also learned to

modify the programs to change various functional parameters for the sensors and re-loaded the modified program code into the Arduinos to confirm the results of the changes. The group was treated to a luncheon of "Accokeek Steak" sandwiches, chips, cookies and coffee. Stay tuned for future Arduino special interest group coffee meetups.

Club officer elections are happening in March. We will be accepting last minute nominations from the floor prior to the election, but don't fear coming out to the meeting since we already have a full slate of nominees. Nominated for President is Bob, NW3M; for Vice President is Bob, KB3KOW; for Secretary is Bob, err, Charles, AA3WS; for Treasurer is Pam, KB3SWS, and Bob, KB3KOW; and for Activities Manager is Jeff, KB3SPH.

There are some interesting operating opportunities for you in March. Kicking things off for those with an interest in contesting there is the ARRL International DX contest March 7-8. This is a phone contest which is usually quite active. Aside from just being a fun contest, it is a great way to rack up a bunch of foreign DX contacts to add to your logbook.

For those like me that enjoy the chase for those elusive special event stations, there are some interesting ones in March. The annual Pi Day Special Event is, as always, on Pi Day, 3.14. (Get it?) To make life easier, the sponsoring club has an operating schedule online listing approximate times and frequencies of where they will be operating. As always, be a little flexible as they may be experiencing QRM at their location that you can't hear which might force them to shift up or down in frequency. Listen for the Pi Day Special Event on March 14. https://www.qsl.net/kd8dku/BandOpsPLan-PiDay.htm

Next up is the Maine Bicentennial Event March 16-22. This one will have 12 different stations with 12 distinct 1X1 call signs, much like the 13 Colonies Event. For those who manage to work all 12 stations for a clean sweep there is a special certificate available. They will be operating on HF as well as 6 & 2 meters.

For aviation fans, the Sun 'n Fun International Fly-In will be on the air March 31 – April 5. I've stopped by that station a few times in recent years and they go all out. They are good ambassadors of amateur radio and encourage members of the public to sit down and make contacts under the helpful guidance of the station operators. They also have at least four hams that engage the public to explain what is happening and answer any questions.

Finally, the Vienna Wireless Society will be holding their annual Winterfest hamfest on March 29, at the Northern Virginia Community College. There is a large room full of vendors and, depending upon the weather, there may be a large number of tailgaters outside.

I hope to see most of you at the upcoming meeting on March 6. Remember, club officer elections will be held at the meeting. Be sure to come out and exercise your right to vote.

by Bob, NW3M

CCARC weekly net

Charles County Amateur Radio Club will start a 147.195 MHz, + 600 offset, PL 156.7 Hz. each Wednesday 2030 local time

Nets will be roundtable type with a question of the week for discussion. All amateur radio operators are welcome; please join in the fun!

Thank you to our officers

Thank you Bob NW3M: for a very fine job as president...the meetings run well and are fun. Also for leading the VE team. It's great to see folks getting the tests and earning licenses and upgrades.

But most of all thanks for getting the wire set up in RV for N3YRZ .

Charles AA3WS thanks for the Arduino class. It gives us a start and the class was easy enough and nonjudgmental for those of us who aren't greatly savvy. And keeping notes for our meetings.

Bob KB3KOW for helping several of us set up the APRS, Winlink and other data modes. For coordinating with the Scouts for various events. And for keeping up the treasury.

Jeff KB3SPH for loads of varied, fun activities for the club. Field days at a really cool site, connector workshops and fox hunt teaching.

Tom W3TOM for years of keeping us in touch with ARRL and updates on policies. Great to have a resource to give advice on the rules and laws too.

Thank you all for your time and work to keep our club running!

Wireless on the Web

Hello again, CCARC, and welcome to March!

The arrival of the new month brings a lot of changes - longer days, warmer weather, Saint Patrick's Day and a return to the outdoors. We start the month with 11 hours and 21 minutes of daylight on the 1st (Based on the longitude and latitude of La Plata) and 30 days later, on the 31st, we will have gained 1 hour and 15 minutes of daylight with 12 hours and 36 minutes of daylight on the 31st. I've shared this link previously however if you'd like to generate a sunrise / sunset calendar for your own location (Or perhaps for a vacation destination later this year) simply log in to: http://www.sunrisesunset.com/ You'll find many options available including moon phases, astronomical, civil or nautical twilight, moon phases and moon rise and set times in addition to sunrise and sunset times.

Capitol Hill Monitor

It never fails. Shortly after I sent my February submission to newsletter editor Michelle I received the Capitol Hill Monitor newsletter in my inbox, too late for inclusion in last month's column. The Capitol Hill Monitor is a group of like minded scanner enthusiasts (Many of whom are amateur radio operators as well) with news of updates on radio frequencies and activity in the Baltimore - Washington - Richmond area The Capitol Hill Monitor used to be a monthly newsletter, however with the widespread use of the Internet the CHM has been reduced to a once yearly update. Here's the 2020 edition:

http://henney.com/chm/0220/chm0220.pdf

Operation Moon Bounce

Last year, Activities Director Jeff, KB3SPH, provided me with some suggestions for topics. I hadn't forgotten Jeff's suggestions and surprisingly recently found a couple of articles on "Operation Moon Bounce". Of course, some amateur radio operators are also involved in EME (Earth Moon Earth) activity. Some of you long time members of the club will remember Willie, W1ZX, (SK) who was an avid participant in this activity.

Here are a few links on Operation Moon Bounce. Should you care to read the articles you'll find that there is a Charles County connection.

https://en.wikipedia.org/wiki/Communication_Moon_Relay

https://airandspace.si.edu/stories/editorial/operation-moon-bounce?fbclid=IwAR3AhK-irel5s364aRNb-p4QcxTqOvIlcTO2bqLKQ7d1ySLmDi6Sbb7HukQ

https://www.petervis.com/Radios/making-a-transistor-radio-ladybird-book/making-a-transistor-radio-ladybird-book.html
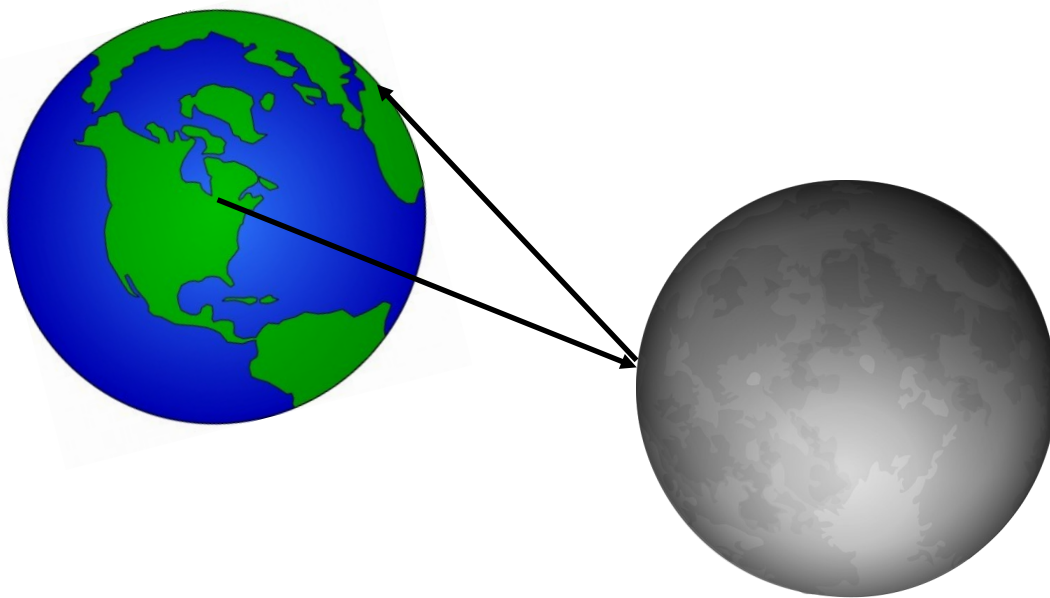
Radio Australia

Advancements in technology have brought about many changes in the radio hobby making some nostalgic for "the good old days". For instance, with the proliferation of cell phones giving one the ability to call to / from almost anywhere in the world when was the last time you heard of an amateur radio operator taking part in a radio relay for servicemen or women stationed overseas? Since my reintroduction to Shortwave Listening almost 40 years ago, numerous shortwave broadcasters have either shut down completely or redirected their efforts to the Internet. One of the most missed stations on shortwave is Radio Australia that shutdown broadcast operations in 2017. A couple of former coworkers, both ex-Air Force, who used to fly on RC-135's in the Pacific operations area told how they used to always tune in Radio Australia on long flights to more, uh, sensitive areas.

For one weekend in March, the 14th and 15th there will be a brief Radio Australia revival. Here's your chance to log a special event station from "Down Under".

https://www.tecsunradios.com.au/store/radio-australia-special-event-station-announced/?fbclid=IwAR3iucVabV_Uj4EXo08YqchNTCSpaQlcpNdaZDIbINaBDc0SGcNdOHFnQNM

I'm always open to suggestions for this column and welcome your input(s) at: aa3rt2@verizon.net

Until April, 73 and good DX. Art, AA3RT / WQZD805

http://clipart-library.com/

Advanced Technical Information Online

By Bob, NW3M

As you design and build various projects you will undoubtedly find yourself in need of a good quality sine wave oscillator. A sine wave is a single frequency signal, ideally with no harmonics. Whether it is intended as an audio signal or an RF signal, the pure signal quality of a sine wave is important for a clean, harmonic free signal.

When used in test equipment, not only does the sine wave need to be as pure as possible, it must also be quite stable in amplitude and frequency. This is true no matter if the oscillator is used as an RF signal source or an audio test signal. Any change in amplitude will make measurements of circuit performance difficult and suspect. Any change in frequency, particularly for RF, again makes accurate measurements quite difficult.

When used for audio signal generation, such as for a Morse code practice oscillator, the clean tone of the sine wave is pleasing to the ear and creates less fatigue to the listener. With the lack of harmonics, as a Morse code oscillator it is ideal for sending Morse code via an AM, SSB or FM transmitter. In fact, used on an SSB transmitter, it will sound no different than a signal generated from a CW transmitter.

Creating a good quality sine wave oscillator is not as simple as other types of oscillators that might generate square, triangle or sawtooth waveforms. Luckily, you don't need to design one from scratch. There are multiple types of oscillator designs that produce accurate sine wave signals. Each, of course, has its particular set of pros and cons making each better suited for specific specialized needs.

Sorting through which design is best for your particular need might seem like a daunting task. In reality, for most general needs any one of the designs will perform just fine. To help you learn and understand the differences in each type design our friends at Texas Instruments have produced an application note about many different designs that all utilize Op-amp ICs. While they would very much like you to use their ICs to make your oscillator, you can use most popular Op-amp ICs on the market today to build any of the designs.

To get started on your journey of learning about the various ways to generate clean, pure sine wave signals, download the application note at the link below. Keep it handy as you may find yourself turning to it many times in the future.

http://www.ti.com/lit/an/sloa060/sloa060.pdf

Odd & ends

My coworker sent me this link to a Forbes article about a gentleman who is running weather prediction modelling software on a Raspberry Pi. Aside from the cool factor of having your own personal storm modelling workstation I thought of you folks because of all the STEM demos that you do. The article has a link to a site that has a step-by-step guide to setting up a Pi with the software as well as links to download the software. According to the step-by-step guide it only takes about 20 minutes to build the weather prediction workstation.

While this isn't really an amateur radio item it could be worked into a presentation as a way of keeping radio operators informed about potentially bad weather conditions forming. It also offers just another "cool factor" thing about careers in electronics, IT and meteorology.

It appears that the NOAA was at least partly involved in porting the weather prediction software to run on a Raspberry Pi and helped to develop the project as a STEM activity targeting kids in grades 6-9. If that's the case, even us grown-ups should be able to figure it out.

Naturally the Astronomy club will want one to help predict anticipated cloudy sky conditions. ☺

https://www.forbes.com/sites/marshallshepherd/2020/02/24/a-professor-ran-a-weather-prediction-model-on-a-50-computer/#78f75f595f65

73, Bob, NW3M

Earth has a second for a short term:

https://earthsky.org/space/new-natural-temporary-moon-for-earth-2020-cd3?utm_source=EarthSky+News&utm_campaign=a831d46b90-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-a831d46b90-395348717

The next exam session is
April 3

Volunteer VE's Note:

Now that the political season is here, I'd like to remind everyone that LARC VEC is not a partisan political organization. We as an organization are neither Republican nor Democrat. We serve all comers, despite any political differences between us. We strive to make everyone welcome at our Volunteer Examiner sessions. In the spirit of making everyone welcome, we do not wear or otherwise display at our VE Sessions any partisan political slogans or other memes, whether in the form of tee shirts, hats, buttons, posters or any other format. We do not display at our sessions any signs or stickers supporting or denigrating any candidate for public office.

We are free, of course, to display insignia relating to amateur radio organizations, such as our sponsoring radio clubs, QCWA, ARRL, FISTS, AMSAT or other radio clubs. TheJ-38 code key logo of LARC VEC may be freely displayed by our VE Teams.

If your car or other vehicle has political bumper stickers, that is not an issue, because a car parked in a parking lot near the session is not identifiable with the session. The exception would be if your vehicle is connected with the VE Session, such as a VE Session held in your motor home. In those cases, please cover the political stickers until after the session is complete.

This email applies to our volunteers, and is not intended to limit our applicants.

If you have any questions, please contact your Regional Coordinator or Diane Zimmerman AA3OF Chairman, Laurel Amateur Radio Club Volunteer Examiner Coordinator

The new Amateur Extra-class license examination question pool, effective from July 1, 2020, through June 30, 2024, has been released and is available at the National Conference of Volunteer Coordinators (NCVEC) website at, http://www.ncvec.org/ .

The number of questions in the pool was reduced from 712 to 622. The result was 239 modified questions, 49 new questions, and 139 questions removed due to changes in what was felt to be an abundance of outdated questions, while areas of new technology and subjects were added. In addition, an effort was made to balance the difficulty level, removing or replacing some questions deemed too easy or too difficult compared to the rest of the pool. The 2020 pool has 10 diagrams, which have been renumbered because the new question pool has two fewer than the 2016 question pool.

Special Event Calls March

Call	Start Date		Event
1 st		Nebraska Statehood Day	N0N
1 to 15		XIII Juntamento	N4S
1 to 20		NC QSO PARTY	N4E, N4L, N4R, W4E, N4T, N4A, N4F, W4C
1 to 30		USS Connecticutï¿½s North Pole Deployment	N1S
5 to 12		C-47 Skytrain Anniversary	W5S
6 to 8		BikeMS Citrus Tour	N4C
7 TO 21		OK QSO Party	K5O, N5O, N5C
12 to 15		MARATHON SEAFOOD FESTIVAL	K4S
13 to 15		Bataan Memorial Death March	K5B
14th		WHOA Weekend/SCOTA	W1M
14 to 15		Westernmost Battle of the Civil War	K7T
14 to 15		Wisconsin QSO Party	W9W
16 to 18		K5Z Satellite Activation of DL88 Big Bend National Park	K5Z
16 to 22		Maine Bicentennial Special Event	W1C, W1H, W1K, W1L,W1O,W1P,W1S, W1W,W1Y, K1J,K1P,K1B
18 to 22		Burning Ham IX	K0K
20 to 22		Jonquil Festival special event	W5W
20 to 23		Virginia QSO Party	N4V, K4G ,K4H
20 to 31		Alcatraz Prison Closure Anniversary	N6A
21 to 29		BATTLE OF HORSESHOE BEND 206TH ANNIVERSARY	N4H
21 to 31		St. Patrick's Festival	K4P
22 nd		Oakland Running Festival	N6O
22 to 26		William Becknell Heritage Days	W3B
27 to 28		Sevier County 2020 Hamfest	N4S
27 to 28		Washington State Science and Engineering Fair	W1S
28 to 30		Winterfest GOTA Station	W4V

Practice questions

1 If the averaging time for exposure is 6 minutes, how much power density is permitted if the signal is present for 3 minutes and absent for 3 minutes rather than being present for the entire 6 minutes?

A. 3 times as much

B. 1/2 as much

C. 2 times as much

D. There is no adjustment allowed for shorter exposure times

2 With which of the following conditions must beacon stations comply?

A. A beacon station may not use automatic control

B. The frequency must be coordinated with the National Beacon Organization

C. The frequency must be posted on the Internet or published in a national periodical

D. There must be no more than one beacon signal transmitting in the same band from the same station location

3 Which of the following components should be added to an existing resistor to increase the resistance?

A. A resistor in parallel

B. A resistor in series

C. A capacitor in series

D. A capacitor in parallel

4 Which UHF amateur bands have frequencies authorized for space stations?

A. 70 cm only

B. 70 cm and 13 cm

C. 70 cm and 33 cm

D. 33 cm and 13 cm

CCARC Activities

6 March 2020 – Monthly CCARC meeting at 7:00 PM. Election of Officers: President, Vice President, Secretary, Treasurer, Activities Manager. Presentation:
D-Rats Overview by Jeff – KB3SPH and Bob – KB3KOW (from Norfolk, VA)

3 April 2020 - Test Session at 5:30 PM followed by Monthly CCARC Meeting at 7:00 PM.

26 April 2020 – 5th Annual Connector Workshop with linked dipole antenna build.
1:00 PM to 5:00 PM, QTH of Jeff – KB3SPH and Pam – KB3SWS.

1 May 2020 – Monthly CCARC Meeting at 7:00 PM. Activity: 4 element, 2M Yagi building.

*3 May 2020 – *Estimated Date - March for Babies Communications Support – 7:30 AM – 11:30 AM, area of Regency Furniture Stadium in Waldorf. Hmmm, will the weather cooperate for a bicycle mobile operator this year?

5 June 2020 - Test Session at 5:30 PM followed by Monthly CCARC Meeting at 7:00 PM.

26 - 28 June 2019 - ARRL Field Day 2020 – (Fourth full weekend in June). Nanjemoy Creek Environmental Education Center (NCEEC), 5300 Turkey Tayac Place, Nanjemoy, MD 20662. Details pending.

3 July 2020 – Monthly CCARC Meeting at 7:00 PM.

And from some of the local youth groups

4H
April 4, 2020 as the 4-H Robotics & REC In-Service. Denise and I attended this a few years back and it was an interactive presentation of both challenges that will be used at State Fair. More details to come. Time and location TBD
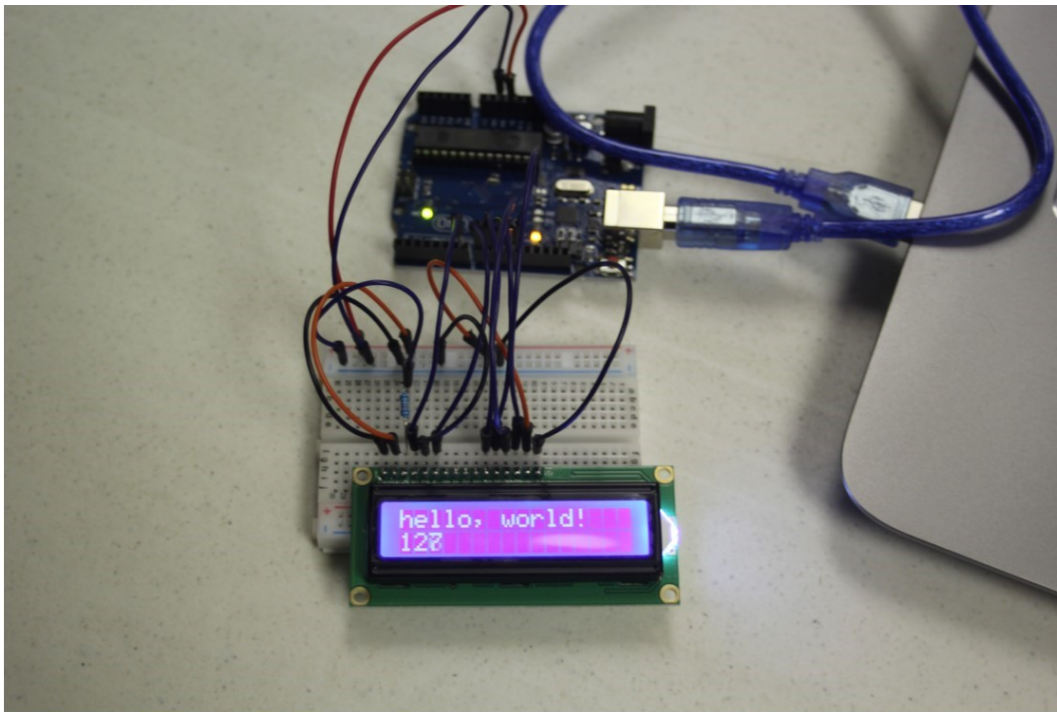
Boy Scouts
March 27-29, 2020, Western Shore District Spring Camporee at the Dr. Mudd home in Charles County. Plans are a simple HF radio and antenna and trying to make some contacts with groups visits. Focus will be on CW and Wig-Wag since the theme is Civil War related.   If you are interested in helping out, please mark your calendars as the more the merrier, Contact Bob KB3KOW
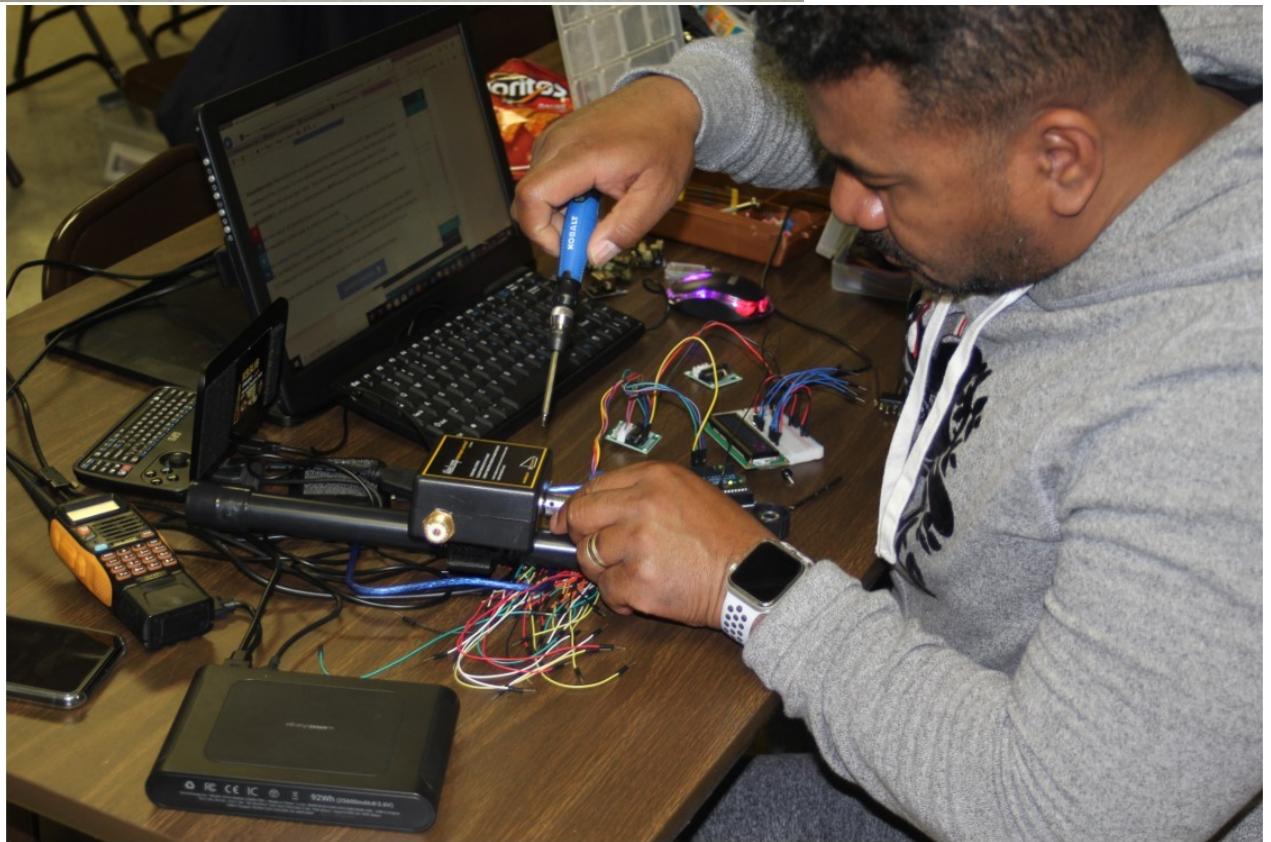
Arduino Class

Setting up computer

A few of us got together at Marbury Baptist Church to learn Arduino. With the collective group we got most of our kits up and running. We learned to blink (light and sound), use a keypad, and show a message on the display.

Then we played with the other sensor...Bob NW3M had a flame sensor running. While others worked on temperature, sensors.
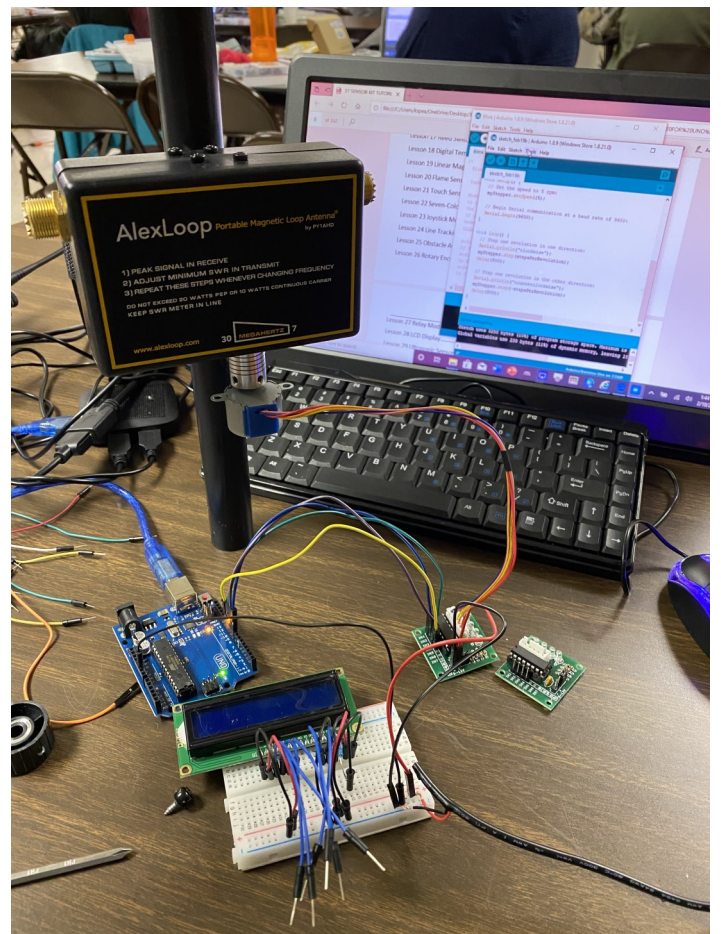
Here are a few more of my project:

Kato Spears KB3LIB

It was an interesting and fun day...we are hoping to get a group together monthly to play with different projects.

Thanks Charles AA3WS for this beginning class.

Hamfests

Mar 21 **Fredfest**

Independent Hose Company 300 Baughmans Lane Frederick, MD 21701
http://frederickarc.org Frederick Amateur Radio Club **Public Contact:** Jeff
Fishman , KB3FIO
905 Twin Oak Court Frederick, MD 21701 Phone: 240-285-6596
ljfish1@comcast.net

44th Annual WINTERFEST! ™

The National Capital Area Ham Radio Fair and AUXCOMM Conf

Inaugural AUXCOMM Conference
ARRL Leadership Presentations
ARES/VA; AREDN; SKYWARN; WINLINK
Over 60 Vendors, indoor and outside
Ham Radio, Electronics, Computer Parts,
  Pieces, and Paraphernalia
Licensing Exams -- get licensed or upgrade at Winterfest
Large Indoor Exhibit Area
QSL checking for WAS, DXCC, VUCC
150 Paved tailgate spaces
Improved and expanded loading dock
FREE On-site parking

FEATURING
~ Tailgating ~ Tailgate area opens at 6:00 AM
~ Indoor Exhibit Area ~ 8:00 AM-1:00 PM
~ AUXCOMM Conference ~ 9:00 AM – 1:00 PM
~ License Exams ~ 11:00 AM – 12:30 PM
Walk-ins encouraged!

Sunday, March 29, 2020
Outdoor 6AM-1PM, Indoor 8AM-1PM

Northern Virginia Community College, Annandale Campus
Enter off Wakefield Chapel Road – Parking Lot B
8333 Little River Turnpike Annandale, VA
38.8333/-77.2362 or 18 S JU 0580/0056

Admission: $10.00 per person
Tailgate spaces: $20 for one space (includes one admission)
+$10/each additional space
Talk-in 146.91 MHz -- Courtesy of Fairfax ARES and the NVFMA
More Information at http://www.viennawireless.net/wp/events/winterfest

Table Sales -Mike, WA8AHZ
tablesales2020@viennawireless.net
(703) 870-1730

Vienna Wireless Society
PO Box 418
Vienna, VA 22183

*NVCC does not sponsor or endorse this event; Attendees shall follow all written policies
of the College, as published at https://www.nvcc.edu/policies/Default.aspx?cat=General%20Policies*

Charles County Amateur Radio Club Meeting Minutes
February 1, 2020

Officers Present:

President – Bob Curran NW3M
Vice President – Unable to Attend
Secretary – Charles Hallock AA3WS
Treasurer – Bob Davison KB3KOW
Activities – Jeff Humbert KB3SPH

Members Present:

Pamela Humbert KB3SWS
Patrick Hinman KB3UYZ
Joe Boswell KB3HNP
Bill Koustenis WB3CII
Michelle Sack N3YRZ
Art Audley AA3RT
Roy Simpson WI3A
Terry Venincasa KC3EIY
Thomas Gaffigan KD3XB

Visitors:

Jay Howard KC3MUV

Meeting opened 1900 Hours.

Following a VE Session, President Bob Curran NW3M welcomed the members and recognized the guests. Subsequently, The President had the members introduce themselves. A nomination for Club Officers was conducted by the President. The following members were nominated:

President – Bob Curran NW3M, Vice President – Tom Abernethy W3TOM*, Secretary – Charles Hallock AA3WS, Treasurer – Pamela Humbert KB3SWS and Bob Davison KB3KOW, and Activities – Jeff Humbert KB3SPH. Bob advised additional nominations will be conducted prior to next month's election of Officer.

Bob Davison KB3KOW gave a lecture on his radio and tracker configurations.

New Business

President Bob noted to the Club members of future APRS equipment testing to determine equipment needs to support the Indian Head 100 Bike Ride on September 7, 2020.

Pam KB3SWS reported on the successful of the Winter Field Day at Nanjemoy Creek Environmental Education Center. The event will started at 1400 Hours on January 24, and end at 1200 Hours on January 26. Participants had fun with their radios and ate very well.

Charles AA3WS gave an overview of the Arduino class February 19, at 0900 Hours. The class will be held at the Marbury Baptist Church Chow Hall.

Bob Advised the next Amateur Radio Exam Session will be 1730 Hours on April 3, prior to our Club Meeting.

Treasurers Report:

Treasurer – Bob Davison KB3KOW reviewed the Treasurers Report and provided a copy to the Secretary to archive with the Minutes.

Activities Manager:

Jeff KB3SPH reported on the following upcoming activities:

6 March 2020 – Monthly CCARC meeting at 7:00 PM. Election of Officers: President, Vice President, Secretary, Treasurer, Activities Manager.

3 April 2020 - Test Session at 5:30 PM followed by Monthly CCARC Meeting at 7:00 PM.

26 April 2020 – 5th Annual Connector Workshop with linked dipole antenna build.
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26 - 28 June 2019 - ARRL Field Day 2020 – (Fourth full weekend in June). Nanjemoy Creek Environmental Education Center (NCEEC), 5300 Turkey Tayac Place, Nanjemoy, MD 20662. Details pending.

3 July 2020 – Monthly CCARC Meeting at 7:00 PM.

We're always looking for presentations, demonstrations, guest speakers, etc., on various topics to be presented in conjunction with our club meetings. If you have a request for a specific topic, a point of contact for a presentation, and/or you would like to make a presentation yourself, please let Jeff – KB3SPH know at humbert1js@gmail.com.
Secretary:

Minutes for the Meeting are published in the Monthly New Letter.

Old Business
Pam KB3SWS reminded the Club of the Winter Field Day at Nanjemoy Creek Environmental Education Center. The event will start at 1400 Hours on January 24, and end at 1200 Hours on January 26. Cabins are available for those who which to stay overnight. Food will be pot luck. Radio operations will be laissez faire'.
Charles AA3WS gave a overview of the basic Arduino class February 19, at 0900 Hours. The class will be held at the Marbury Baptist Church Chow Hall.
Members Comments:
Jay Howard KC3MUV thanked the Club for the nice card.

Bob Davison KB3KOW advised the Club of his Packet Station on 145.750 MHz: KB3KOW-10 Winlink, KB3KOW-7 Bulletin Board, and KB3KOW-13 Chat.

Art Audley AA3RT advised "LaPlata Days" will be April 25.

Closing:
A motion was made and seconded to close the meeting. The motion passed at 2050 Hours.

Charles Hallock AA3WS
Secretary

*Since Tom wasn't there to either accept or decline, we couldn't accept the nomination so Bob, KB3KOW, has volunteered to run for VP.

Follow up to the February meeting:

The **CHIRP** software can be downloaded from:

https://chirp.danplanet.com/projects/chirp/wiki/Home

The home page also lists all the radios that the software supports. The software also works on Windows, Linux and Mac, so you should be covered if you use any of those three OS's.

APRS:

We had mentioned the Argent series of trackers. Their main page is www.argentdata.com/catalog/index.php?cPath=22

If you go there, you can see prices that range from about $36 up to $139. For those looking to do the Arduino class, the $36 is for a module that gives your Arduino Packet Radio capability.

We had also mentioned the TNC-Pi which works with the Raspberry Pi, however the company has ceased business all within the past 4-6 weeks, so currently that is no longer a venue for those TNCs.

The next company is Byonics and their 'TinyTrak' series. The kit starts at $65 and can be found here:

http://www.tinytrak.com/tinytrak4

Packet:

For those that want to use a regular TNC, in addition to the Kantronics KPC-3+, I've also had good luck with the

Timewave PK-96:

https://timewave.com/product/timewave-pk-96-packet-tnc/

It runs for about $20-$40 more than the KPC-3+ but includes 9600bd.

Winlink:

For anyone interested in WInlink, the software can be downloaded from:

https://downloads.winlink.org/

On that page you'll want to pick the 'User Programs" and then look for the Winlin_Express_install_##-##-##.zip

The other program from the site is 'Simple Term' and as the names suggests, it is a very simple terminal program. From the above link you would select the "Sysop Programs" and look for the "RMS_Simple_Terminal_Install...." link to download that program

73 Bob KB3KOW

Radiogrammer

Across

1. Rock band Los ___
6. Polite XYL title
10. Cooper maker
14. Amplifier connector label, say
15. Light beige
16. Coax elbows
17. Loop type
18. Apple competitor
19. Phony DX
20. Sign in a radio station
22. Packet ckt.
24. NTS rock band?
27. Clues
31. Bamboozle
32. SV letter
34. B4, of yore
35. CW shorthand item
37. Single- or multi-, in propagation
38. Gator's cousin
39. Knight's need
40. NTS unit
41. Type of feed
42. Globe ____ transmitter
43. ARRL volunteer official
44. Prefix with -single
45. Good report, using 35-acrosses
46. W7 city
49. 76, 77 and 78 maker
50. Expressionless
52. Illicit rendezvous station?
54. Area net for 55-across
55. Region net for 12-down
56. Staff
59. Brain wave
61. Soldering tools
65. OOTC members
66. Jamaica
67. Bigger than picos
68. Bosses on 40-acrosses
69. Small dwellings
70. Isle of Man prefix

Down

1. Needer of too many fills
2. New year's nr
3. Traffic handling award
4. Words before band, on an FCC citation?
5. W6YX
6. Noble I-land family name
7. Tennis whiz
8. Characters before seventy three
9. Entry class
10. Early radio parts maker
11. 9RN place
12. A 30-down, in W2-land
13. An end to perfection?
21. Ready follower?
23. Transistor type
24. Long haul 52-across
25. Common preamble item
26. Where a radiogram enters the ether
27. Fox or turkey follower
28. Guy wire hardware items
29. ____ back
30. ARRL unit
33. Word count
36. Batt. term. label
38. 7 MHz timer
40. Pre-LED amber light
41. Spreading, as with cream cheese
43. EA talk
46. Health resort
47. Forever
48. Humor newspaper nameplate middle
51. Places to find antenna restrictions
53. Filter maker
55. RTTY conveyance
56. Area net for 11-down
57. RX ckt.
58. Old video game inits.
60. Was CR8, once
62. Band breaker
63. Dahdit, in F-land
64. Dir. from W2 to LU

Fifth Annual Connector Workshop

(Red-Righting, Tongue-Upping the World since 2016) to be held at the home of Pam - KB3SWS and Jeff – KB3SPH on **Sunday, 4/26/2020**.

This year's festivities will also include a Linked Dipole (40M-75M-80M) Antenna Build. For planning purposes (group buy of components in advance), please let me know if you're interested in building an antenna at the workshop.

Sales Pitch: A few years ago, Ken – KA3POX and Jeff – KB3SPH each built the linked dipole and have deployed it numerous times at Field Days, ARES drills, and other events. We've used it successfully in the NVIS configuration and as a flat top. One changes bands by opening/closing the venerable Anderson PowerPole connectors. We've decided to build another copy to leave at the Fort Washington Medical Center (FWMC) for deployment during hospital drills/communications emergencies. Ken – KA3POX will lead the antenna build and show you how to construct the antenna and weatherproof the connections. **The cost for each antenna is roughly estimated at $40.00** to include center dipole connection (Budwig), ~130' of wire, insulators, PowerPole connectors, and other miscellaneous parts. More information on ideas to customize your linked dipole on your own will be demonstrated at the antenna build to include paracord/bungee extensions, staking out the ends, hoisting, coax feedline examples, etc.

So far, the following list will take a crack at building their antenna. **Who else is in?** If your name is on the list and you no longer want it to be there, let me know.

Charles – AA3WS	Dan – KC3NKF
Jayne – W4VJU	Jim – KA3LXM
Joe – W0JRJ	JT – KC3OOZ
Kato – KB3LIB	Larry – W3RL
Rebecca – KM4RDS	Steven – KC3DSO

Ken – KA3POX (to build the FWMC antenna)

If you are interested in attending the workshop, please let me know via return email (humbert1js@gmail.com) & include the number of people you're bringing with you.

Details:

Who: Any interested person. This email is being sent to local area Hams. **Please feel free to forward this email to any individual/group that may have an interest.**

What: Free Connector Workshop (except for the Antenna Build portion 😊) focusing on learning about and constructing power cable assemblies using Anderson PowerPole connectors and other crimp-on connectors, PL-259 connector installation, fellow Ham interaction, etc. **No experience or bringing of equipment is necessary**, come and learn from others!

When: Sunday, 26 April 2020 from 1300 – 1700 (1:00 PM – 5:00 PM). We will also provide snacks during the afternoon, and supper beginning at 1700 for those who want to stay.

Where: Pam - KB3SWS and Jeff - KB3SPH location in Indian Head, MD (South of Smallwood State Park). Specific directions to be provided to attendees later. For planning purposes, driving times to the workshop location are: 35 minutes from the routes 210/495 intersection, 25 minutes from the routes 6/301 intersection, and 40 minutes from North Waldorf. The workshop will be held indoors, so we don't have to worry about the weather. The antenna build will be outside. If it's raining, we'll still find a way to make the antenna build work.

How (To): Briefs on how to use Anderson PowerPole connectors (the ARES/RACES standard) and demonstrations on various configurations to assemble

Hands on use of PowerPole crimpers and insulated connector crimpers to assemble cables

Briefs and demonstrations on preparation of cables and soldering various connectors and Crimp-the-Shield/Solder-the-Pin connectors

Hands on use of soldering equipment

Note: If you have a situation where you need assistance in getting a connector/advice on equipment, please bring that equipment to the workshop and let the "Brain Trust" have a crack at solving the issue.

Why: Get the creative juices flowing!

Again, if you are interested in attending, please let me know via return email (humbert1js@gmail.com) as soon as possible and include the number of people. Family members, friends, etc. are also welcome to attend.

Available at the workshop:

Work table space

Various tools such as a set of PowerPole crimpers (with 15, 30 and 45 amp dies) and insulated connector crimpers for others to use. If you have crimpers, too, please bring them to share.

15 amp, 30 amp, and 45 amp PowerPole connector sets.

14 gauge, 12 gauge, and 10 gauge cable.

Soldering station equipment. If you want to bring your own, please do.

We envision those who have experience with the various connectors helping those who do not, for a fun time for everyone.

Here are some ideas on what materials to bring to and gadgets you may want to construct at the Connector Workshop.

Materials:

12 Gauge wire (works well with 30 amp PowerPoles)

Heat shrink tubing

Cable ties

Electrical tape

PowerPole Connectors

Insulated ring connectors

****

Gadgets to make:

PowerPole extension cords

12V socket/plug

12V power supply "wall wart"

Radio pigtails (cut the power cord for a radio about 8 inches from the radio-specific plug and put PowerPoles on the other end)

Ring end pigtails (to connect to power supplies)

Bare wire pigtails (to connect to power supplies/batteries)

Alligator clips

"Y" extension adapters

Fuse holders

Battery box connections

Solar panel system interfaces

Basically anything that uses DC in my shack or deployable gear gets PowerPole connectors installed. The sky's the limit!

Testimonials from past workshops:

*Before the workshop, I couldn't even spell PoowurPull; still can't, but I had fun!

*My XYL wonders why I keep mumbling in my sleep, "Red Right, Tongue Up!"

*Nice location, are you sure I'm still in Maryland?

*I didn't think an old dog could learn new tricks; I was wrong.

*Now I want yellow PowerPole connector housings for my solar panel.

*I only came for the food, but ended up being a connector fanatic.

Again, if you are interested in attending, please let me know via return email (humbert1js@gmail.com). Cell: 301-848-8043 (leave message, if no answer

73 Jeff / KB3SPH

Contests in March

SARL Hamnet 40m Simulated Emerg Contest	1 st 1200-1400
+ RSGB 80m Club Championship, Data	2nd 2000-2130
+ QCX Challenge	30-31 1300-1400 & 1900-2000 &0300-0400
+ ARS Spartan Sprint	3rd 0200-0400
+ AGCW YL-CW Party	3rd 1900-2100
+ CWops Mini-CWT Test	4-5 1300-1400 & 1900-2000 &0300-0400
+ QRP Fox Hunt	4th 0200-0330
+ Phone Fray	4th 0230-0300
+ UKEICC 80m Contest	4th 2000-2100
	5th 1800-1900(CW);1900-2000(SSB);2000-2100(FM); 2100-2200 (Dig)
+ NRAU 10m Activity Contest	5th 2000-2200
+ SKCC Sprint Europe	6th 0145-0215
+ NCCC RTTY Sprint	6th 0200-0330
+ QRP Fox Hunt	6th 0230-0300
+ NCCC Sprint	7-15 0000 to 2359Z
+ Novice Rig Roundup	7-8 0000- 2400
+ ARRL Inter. DX Contest, SSB	7-8 1200 to 2400
+ SKCC Weekend Sprintathon	7th 0630-0800 in 30 min sessions
+ Wake-Up! QRP Sprint	7th 18-21, 21-2359 low band 8th 08-11, 11-1359 high band
+ Open Ukraine RTTY Championship	8th 0700-1100
+ UBA Spring Contest, CW	8th 1800-2200
+ WAB 3.5 MHz Phone/CW	9th 0000-0200
+ 4 States QRP Group Second Sunday Sprint	11-12 1300-1400 & 1900-2000 & 0300-0400
+ CWops Mini-CWT Test	11th 0100-0230
+ QRP Fox Hunt	11th 0230-0300
+ Phone Fray	11th 2000-2130
+ RSGB 80m Club Championship, CW	
+ AWA John Rollins Memorial DX Contest	11to12 & 13-14, 2300-2300
+ North Carolina QSO Party	1-2 1500 to 0059
+ NCCC RTTY Sprint	13th 0145-0215
+ QRP Fox Hunt	13th 0200-0330
+ NCCC Sprint	13th 0230-0300
+ Oklahoma QSO Party	14 -15 1500 to 0200/ 14-21
+ RSGB Commonwealth Contest	14-15 10 to 10
+ F9AA Cup, SSB	14-15 12 to 12
+ SARL VHF/UHF Analogue Contest	14-15 12 to 12
+ South America 10 Meter Contest	14-15 12 to 12
+ Stew Perry Topband Challenge	14-15 1500
+ EA PSK63 Contest	14-15 1600
+ QCWA QSO Party	14-15 1800
+ TESLA Memorial HF CW Contest	14-15 1800

Continued from page 23

+ Idaho QSO Party	14-15 1900
+ YB DX RTTY Contest	14th 0000-2359
+ AGCW QRP Contest	14th 1400-2000
+ QRP ARCI Spring Thaw SSB Shootout	14th 2200-2300
+ Wisconsin QSO Party	15-16 1800 to 0100
+ North American Sprint, RTTY	15th 0000-0400
+ UBA Spring Contest, 2m	15th 0700-1100
+ Run for the Bacon QRP Contest	15th 1900-0000
+ Bucharest Digital Contest	16th 1800-2059
+ RSGB FT4 Contest Series	16th 2000-2130
+ CLARA Chatter Party	17-18 1700
+ QRP Fox Hunt	18th 0100-0230
+ Phone Fray	18th 0230-0300
+ CWops Mini-CWT Test	18th 1300-1400
+ NAQCC CW Sprint	19th 0030-0230
+ BCC QSO Party	19th 1930-1959 (CW) 2000-2029 (SSB),2030-2059(RTTY)
+ NCCC RTTY Sprint	20th 0145-0215
+ QRP Fox Hunt	20th 0200-0330
+ NCCC Sprint	20th 0230-0300
+ CLARA Chatter Party	21 -22 1700
+ Russian DX Contest	21-22 1200
+ Virginia QSO Party	21-22 0400
+ BARTG HF RTTY Contest	21-23 0200 to 0200
+ AGCW VHF/UHF Contest	21st 1400-1700 (144), 1700-1800 (432)
+ Feld Hell Sprint	21st 2000-2159
+ UBA Spring Contest, SSB	22nd 0700-1100
+ NSARA Contest	22nd 1200-1600, & 1800-2200
+ CWops Mini-CWT Test	25-26 1300-1400 & 1900-2000 &0300-0400
+ SKCC Sprint	25th 0000-0200
+ QRP Fox Hunt	25th 0100-0230
+ Phone Fray	25th 0230-0300
+ UKEICC 80m Contest	25th 2000-2100
+ RSGB 80m Club Championship, SSB	26th 2000-2130
+ NCCC RTTY Sprint	27th 0145-0215
+ QRP Fox Hunt	27th 0200-0330
+ NCCC Sprint	27th 0230-0300
+ CQ WW WPX Contest, SSB	28-29 0000
+ FOC QSO Party	28th 0000-2359

https://www.contestcalendar.com/

H🍗ms in Action

Adjutant General's Distinguished Patriot Medal awarded to Winlink developers Steve Waterman, K4CJX & Phil Sherrod, W4PHS.

Winlink is helping disaster readiness and communications interoperability of the emergency responders across the United States and the world."

http://www.arrl.org/news/winlink-development-team-members-awarded-tennessee-military-department-patriot-medals

It's that time of year that we start to face hurricane and tornado season:
Let's start talking about our preparations to be ready for action.

Registration for EC-001 and EC-001-S is now open: http://www.arrl.org/online-course-registration

Member Column

**Pam Humbert
KB3SWS**

Pamela Humbert, earned her license in 2009, inspired by her husband, Jeff, KB3SPH, who had earned his license one month prior. Not surprisingly, her first contact was Jeff, made over their first radios, the ubiquitous Baofeng handhelds.

Pam's most important job (held for nearly four decades), is Navy wife. She and Jeff have been stationed in multiple east coast locations, as well as Adak, Alaska. Jeff's deployments have taken him around the world, and it was during two of his deployments that Pam experienced the Military Auxiliary Radio System (MARS). One call was with Jeff. The other call was in Pam's capacity as a Navy Ombudsman, for USS Harlan County. Together, Pam and Jeff have also traveled to Canada, the Caribbean, Europe, and nearly every state in the union. One memorable trip occurred between transferring from Adak, and returning to the "Lower 48." After two years of high winds and copious amounts of snow in the Aleutian Islands, they decided to treat themselves to fun in the sun, surf and sand. Unbeknownst to them, "Murphy" tagged along, and it was during their week in Hawaii that a snowstorm hit the higher elevations of the islands for the first time in five years.

Since early elementary school, Pam has held membership and office in countless clubs and organizations, and as such, describes herself as a "professional volunteer." She has also spent most of her life fund raising for various military & civilian charities/organizations. In addition to being a member of CCARC, Pam is also the Treasurer of the Fort Washington Amateur Radio Club (FWARC), and a member of the Southern Maryland Amateur Radio Club (SMARC). She is a member of the Prince George's County Emergency Radio Association (PGCERA), and volunteers during drills, breakfast deployments and Simulated Emergency Tests (SET) for the Prince George's County Amateur Radio Emergency Service (PGARES). PGARES work has included locations as close as Fort Washington Medical Center (FWMC), and as far as Ocean City, MD. Pam also works as part of a Winlink/Winmor training team from PGARES that has traveled to various Maryland locations. She has also attended multiple meetings of the St. Mary's County Amateur Radio Association (SMCARA) and the Anne Arundel Radio Club (AARC), having provided display materials for presentations by Jeff, and logistics support for presentations by Charles (AA3WS).

On the "fun side" of radio, Pam and Jeff are a winning combination in multiple Fox Hunts, in which they have been both the hunters and the "hunted," i.e. the vixen and the reynard. During a recent International Lighthouse and Lightship Weekend (ILLW) event, she made her most memorable contact to date, when she worked the Nantucket Lightship. She has worked with CCARC at the Indian Head 100 Bike Ride and multiple Special Event stations. It is during these events that Pam is bemused to hear the same question over and over again from passersby, "Do 'they' still have Ham radio?"

Pam and Jeff host an annual Connector Workshop at their QTH in the spring. She attends numerous hamfests throughout the region, and volunteers at SantaFest in December. Pam and Jeff also make the grand trek to the granddaddy of hamfests each May. While Jeff volunteers as a VE, Pam volunteers her time alongside Charles at Information Booth #2, during Hamvention in Xenia, Ohio.

Pam also stays active with the Southern Maryland Astronomical Society (SMAS), for which she has been the Program Coordinator and Secretary since 1997. During her tenure, SMAS has provided free astronomy programs and star parties for thousands of children and adults throughout Southern Maryland. Pam and Jeff were also part of the four person crew that spent nearly three years of volunteer time building the Nanjemoy Creek Observatory, located at the Nanjemoy Creek Environmental Education Center (NCEEC). NCEEC has also been the location of Winter and Summer Field Days since 2015.

Other "non-radio" activities include volunteering with the Citizens for the Charles County Public Library, Inc. (C4CCPL), attending programs at the James E. Richmond Science Center in Waldorf, and watching silent movies at the Weinberg Center in Frederick with Ken (KA3POX).

Pam has owned and operated two different small businesses, has a background in performing and creative arts, and is a self-described "jack of all trades, master of none." In their "spare time," (hi-hi), Pam and Jeff do a variety of residential remodeling projects, and continually acquire up-to-date skill sets in multiple disciplines. While excavating for a patio, one of the "biggest" new skills that Pam learned was how to operate their backhoe. They also enjoy different types of woodworking, including "intarsia," which is three dimensional wood mosaic, based on a 15th century Italian art form.

Pam is currently a Technician, by choice, because her busy schedule will not allow the time and dedication it takes to study for the next exams. Although her band options are limited, she is still extremely busy with all of the aforementioned activities. If she does feel the urge to talk less locally, she is blessed to have a "built in" control operator, in the form of KB3SPH. She checks in to three or four nets per week, via a Yaesu FTDx3000, a Kenwood TM-D710G, and EchoLink. She also regularly volunteers as Net Control for PGARES. This "appointment radio" schedule has helped her overcome "mic fright." She also uses a skill learned during ARES training. By reading notes that she writes ahead of time, she is less likely to get flustered while transmitting.

Those who know Pam may not be surprised that her radio "go kit" revolves around food, and often includes "everything but the kitchen sink." Activities always involve an element of food, which she happily provides to friends, as it allows her to practice her skills of cooking and baking from scratch. She learned a long time ago from her mother to always carry a

snack, "just in case." This philosophy has carried forward to radio. Again, from her ARES training, radio operators have to take care of themselves first, in the form of sustenance, in order to carry out their work on the air. Although she has been cooking for more than half a century, she still has not quite mastered a homemade mayonnaise that does not eventually break.

As the reader has probably noted by now, this biography does not include an extensive list of radio, antenna and equipment specifications. While she is always willing to learn something new in the world of radio, Pam sometimes considers herself a "Luddite" in such matters. She believes that amateur radio is more about the "amateur," and less about the "radio." She knows that technology can be a wonderful thing, but she hopes she never loses site of the talented operators who make it all possible.

Pam and Jeff were once asked what their philosophy of life is, and, although their answers were completely unrehearsed, they replied, almost in unison, "Helping others."

ANSWERS

L	O	B	O	S		M	A	A	M		M	I	N	I
I	N	P	U	T		E	C	R	U		E	L	L	S
D	E	L	T	A		D	E	L	L		S	L	I	M
		O	N	A	I	R		T	N	C				
T	R	A	F	F	I	C		T	I	P	O	F	F	S
C	O	N		O	M	I	C	R	O	N		E	R	E
C	U	T	N	R		H	O	P		C	R	O	C	
S	T	E	E	D		N	E	T		S	H	U	N	T
K	I	N	G		S	E	C		M	U	L	T	I	
E	N	N		S	P	O	K	A	N	E		E	T	O
D	E	A	D	P	A	N		L	I	A	I	S	O	N
		E	A	N		T	W	O	R	N				
C	A	N	E		I	D	E	A		I	R	O	N	S
A	G	E	D		S	I	X	Y		N	A	N	O	S
N	C	S	S		H	U	T	S		G	D	O	N	E

WANT ADS, FOR SALE, & PUBLIC SERVICE ANNOUNCEMENTS:

Yard (estate) sale
Bill Palmer KE3RE SK

Saturday 07 March 0700 EST to noon

8533 Roundhill Road, Charlotte Hall (off route 6 in Charles County about a 1.5 miles before St Mary's county line)

Ham radio gear, tubes, wiring, microphones, schematics,

N3CHS - ESTATE SALE – CONTACT Jim @ 301.943.1012				
CDE/HY-GAIN	QUANITY	MODEL/DESC		ASKING
DENTRON GLA1000B	1	80-10 METER 1.5 KW AMPLIFIER (NO WARC BANDS		$425.00
KENWOOD TS-520S	1	160-10 METER HF TRANSCIEVER (NO WARC BANDS)		$400.00
MFJ-941	1	ANTENNA TUNER		$75.00
MFJ VERSA TUNER	1	ANTENNA TUNER		$65.00
CDE/HY-GAIN	1	ANTENNA ROTOR W/CONTROL HEAD		$250.00
HEATHKIT HD-15	1	PHONE PATCH		$30.00
AZDEN PCS5000	1	2 METER FM TRANSCEIVER		$50.00
UNKNOWN	1	1-TO-1 BALUN, NEVER USED		$15.00
UNKNOWN	2	5-POSITION ROTARY ANTENNA SWITCH		$5.00 EACH
UNKNOWN	1	2-METER AMPLIFIER		$35.00

brother at your side

LC203BK XL

MFC-**J460DW** / **J480DW**
MFC-**J485DW** / **J680DW**
MFC-**J880DW** / **J885DW**
MFC-**J4320DW**
MFC-**J4420DW**
MFC-**J4620DW**
MFC-**J5520DW**
MFC-**J5620DW**
MFC-**J5720DW**

HIGH YIELD / À HAUT RENDEMENT / ALTO RENDIMIENTO / ALTO RENDIMIENTO

BLACK NOIR
       PRETO

Can anyone use ink cartridges Brother LC 203?

I have 1 Brother LC203 BK XL 2pack

1 generic (Kingway) LC 203XL black

2 generic LC 203XL cyan (1 kingway, 1 lkong)

1 brother LC203C XL

1 brother LC 203M XL

All unopened & free to good home. (My printer that used them died.)

Contact Michelle N3YRZ

msack@verizon.net

The MFJ-1669 40-10 Meter Mobile Antenna with built-in Auto Tuner

A brand-new product from MFJ to marvel over. This exciting new addition to the MFJ product line will be officially announced at Dayton 2020 **The** bottom section encases our *MFJ IntelliTuner*™ technology, you hit tune on your radio and the antenna finds the nearest, quickest match. **Learn** more about this exciting new product in the coming months from MFJ
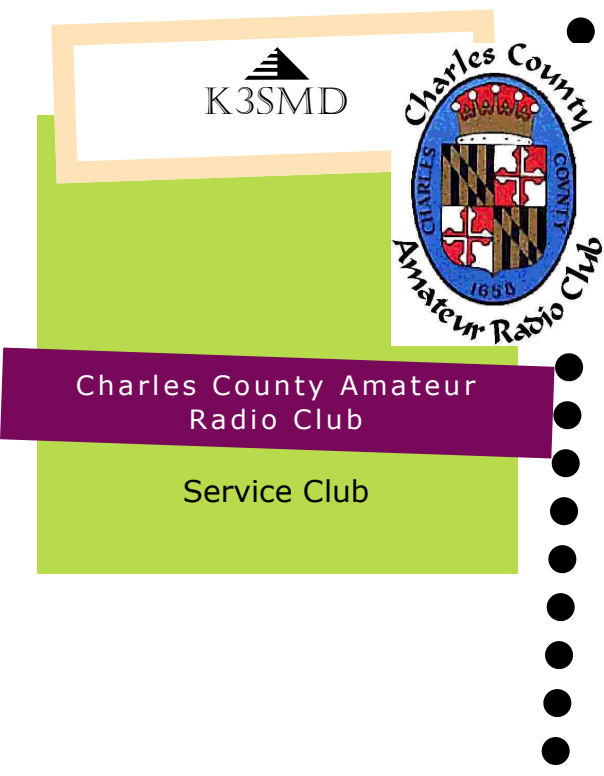
Meetings, nets, & contacts

K3SMD

Charles County Amateur Radio Club

Service Club

First Friday- Monthly meeting @ 7 PM/1900 Charles County Rescue Squad 2 Calvert Street, LaPlata, MD

Net-Wednesdays 8:30 PM local: 146.490 Simplex

PO BOX 169, La Plata, MD 20646

President: Bob Curran NW3M flyingham@verizon.net

Vice-president: Tom Abernethy W3TOM w3tom@arrl.org

Secretary: Charles Hallock AA3WS selbynet@hotmail.com

Treasure/member Bob Davidson rdavidson@aceweb.com

Activities Jeff Humbert KB3SPH humbert1js@gmail.com

Newsletter Michelle Sack N3YRZ msack@verizon.net

VE Coordinator Bob Curran NW3M

We're on the web

http:// k3smd.net

Leave laughing

S.W.R. -- A term, applied to any part of the antenna system, which means: "Savings-to-Watt Ratio". Based on the inverse relationship of dollars in the bank and effective radiated power. Characteristic Impedance The usual reaction of your spouse when told about the proposed antenna system.