

ISSUE

05

January
2019



A Journal of the
Montgomery Amateur
Radio Club (MARC)
Rockville MD

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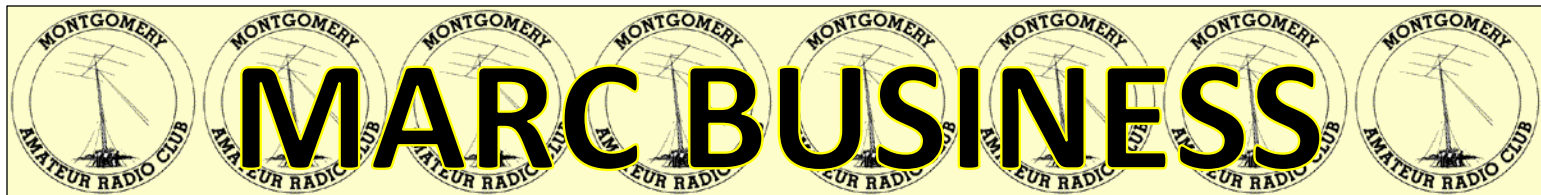
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COVER PAGE

"Snow Bridge"

Asbury Methodist Village

Photo by Philip Sze



From the Desk of the President

Aleks W3JAG



The New Year is barely three weeks old but MARC has hit the ground running. We are looking ahead at a very busy year: planning for Field Day 2019, adding more features and equipment to our club trailer, keeping our

repeater system in top working order, strengthening our ties with our local community through our support of public service events, the county emergency operations center, continuing education initiatives, makerspace workshops, and much, much more. Our members are our greatest resource, sharing their time, knowledge and elbow grease to support our many activities and responsibilities. If we had to pay our members for what they freely give, we could never afford to carry on all our work.

Because we are taking on more responsibilities this year, we need to make sure our budget keeps up with our wish list. To this end, Bill KB3WKK, an accountant in his real life, is working closely with Terry W3EDS, our treasurer, to make sure we continue to operate in a sensible, yet proactive manner, to meet today's responsibilities while preparing for the challenges that tomorrow may bring. We will be posting Bill's budget slides and eye-opening analysis on our webpage, so stay tuned. Especially interesting is his analysis of who gives donations and by how much. Hopefully, it might make you decide to give a little more yourself.

Despite the old adage that "it is not how much you earn, but how much you spend," earning some income for the club can always help, especially as we look to improve equipment for our trailer and for Field Day. Eugene NNOM has agreed to lead a Sales Committee to

sell old club and donated equipment on EBay, transferring the profit to the Club PayPal account. Please consider donating equipment you no longer need for this worthy cause.

As previously stated, we are about to begin planning for Field Day 2019. To this end, David N3ADE will begin hosting Thursday night nets, beginning at 8:00 on our 955 repeater. Field Day is our annual hallmark event. It is an opportunity for us to hone our skills, while also hosting the wider community curious about Amateur Radio. You can make this the best event ever, so please volunteer your time and effort.

Finally, we could never begin to honor all the members who have been crucial to our club's success. Everyone would get a trophy because everyone truly deserves one. Our club does honor individuals outside our club who have supported us in extraordinary ways through our MARC Service Awards. To give these special individuals the recognition they deserve, we will begin to post the award recipients by year on our webpage.

Best New Year's wishes to you and yours. Now on to another terrific year!! Aleks Rohde W3JAG MARC President

February Events

Feb 2 - Frostfest Hamfest, Richmond VA. Go to <http://frostfest.com/wp/> for more info.

Feb 6 - Meeting Presentation: "PL/CTCSS Tones, Prep for new Fusion Repeater" by Al NW2M

Feb 18 - Presidents Day Holiday and WETA Tower Tour, POC: John KJ4KPW

Feb 20 - Dinner Meeting at Silver Diner. Begins at 7:00 p.m.

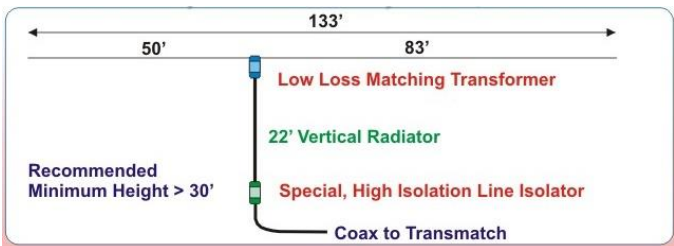
Shack of the Month

Many hams take great pride in their radio shacks. Some are very neat. Some are not so neat. But each captures a particular ambience for the hobby. Some hams are even proud that their shack is chaotic. Perhaps they consider the ostensible disarray as “not-so-still-life” artistry giving an aura of élan vital to the shack.

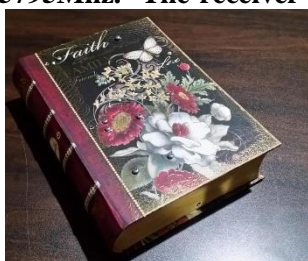


This month’s featured shack belongs to “Glenn” N3COB. Clearly Glenn’s shack is far from chaotic. Judging from the photographs, N3COB has had, and is having, a 5-stellar avocation

as a Ham. His shack holds quite an array of modern and not-so-modern gear including home-brews and kits. N3COB’s current



station equipment consists of an ICOM IC7600, Heathkit SB220 Amp and a Pulstar ATK2 Tuner. Glenn uses a Audio Technical Studio Microphone AT2020 to a Personus V2 Preamp. The main antenna here is a 80 Meter Carolina Windom at just over 95 feet (30 meters). In addition to modern rigs, N3COB is willing to operate some very modest equipment as well. He is an avid QRP operator and has a number of alternatives to turn to in his shack. These rigs are for the most part kits that Glenn has built or radios he has refurbished. Some of his refurbished rigs have found new homes. For example a novel homebrew item he has on display is a PARASET80;- An 80 meter QRP Transceiver. The transmitter is crystal controlled and has two switchable crystals. One on 3.560Mhz the other is 3.5795Mhz. The receiver is a Regenerative Receiver with a digital display for the receive only frequency. This little gem has an RF output of about 3+ watts to a 50 ohm load. Glenn finds it fun to play with but discovered the receiver a bit challenging when keeping the other station on frequency. The two photos to the left shows Glenn’s clever approach to packaging up the ParaSet80 in the spirit of the times it was used; namely as a clandestine station.



“RADIO SHACK” continues on page ____

"IT ALL STARTED IN 4TH GRADE"

By Pat N3YOZ

It all started in the 4th grade. The CB craze was in full swing and I wanted one badly. The year was 1976 and I was 9 years old. I finally convinced my dad to buy a 23 channel Sharp mobile CB to have installed in our 1973 Chrysler Newport. The only problem was my dad wasn't very handy so we had to drive up to Philadelphia where my Uncle Bill lived to have him install it. Uncle Bill was also a ham.

Upon having that radio installed in the car, I was in seventh heaven. I spent all the way back home on that radio and after our trip was over I would frequently go out onto the carport where the car was parked just to talk on the radio (under the supervision of my mom, of course).

Oh yeah, Uncle Bill also happened to have given me an ARRL ham radio book (something with construction projects involving tubes). I think this was what planted the seed of curiosity about ham radio at that early age.



Fast forward to high school and I had lost all interest in talking on the CB but when I got a used red 1988 Mazda B210 pickup in 1995 I decided to install one in it. I had begun listening to shortwave radio after meeting a Cuban deli owner at the pool in 1993 who said that the only news he listened to came from shortwave. So I bought a small pocket shortwave receiver from Radio Shack and began listening to it. I also got into listening to scanners

I decided to order a Uniden Grant XL CB (with SSB) out of a radio magazine (I can't remember whether it was *Popular Communications* or *Monitoring Times*) and installed it in my pickup. The most significant conversation I remember having was reporting a fender bender on I-495 on

channel 9 (the emergency channel) to a member of REACT. (This was in 1995 before cell phones had become ubiquitous).

I continued reading these radio magazines and I realized that almost everybody writing for them had a ham call sign after their name. So I decided to get my ham license. I requested a copy of "Now You're Talking", the Technician test study guide for Christmas 1996. I studied it diligently and passed my Technician exam in January 1997 at the Laurel Amateur Radio Club. Back then the internet was still kind of new but I was thrilled to find out that my call sign would be available on the FCC website within a few days. I kept checking and, sure enough, within a few days there it was - N3YOZ. I was very excited to finally have my own call!



**did not sour
N3YOZ's enthusiasm for
Ham Radio hobby**

My first hamfest was at Odenton that January. I saw another guy examining an HT that turned out to be an Icom IC-2AT. He didn't buy it so I checked it out. It seemed like a good deal so I bought it. That was it, my first ham radio! Unfortunately it turned out to be a lemon that kept blowing its final transistor.

My first reliable radio was a brand new Yaesu FT-50R dual band HT that I still have.



There I was, a new ham. I had heard the QSOs on the HF bands and decided I wanted to join in. It turned out that MARC was offering a General license class that Spring at Gaithersburg High School. So I enrolled in it. Back then we also had to pass a 13 word per minute Morse code test to get to General so I got some cassette tapes of the Code Quick study system and set to work learning it. I passed my General that Spring and got on the air with an old used Ten-Tec Model 540 Triton IV rig that I bought through the mail from an ad in *Ham Radio Trader* magazine.



That is my story. I have been trying to get my Extra off and on since about 2010 and I sat for it once in the Fall of 2014 with the MARC club at Montgomery College but I flunked it. It really is just a matter of having extra HF band privileges as well as it being a status symbol on QRZ. I would like to pass it this Winter if I can buckle down and study for it. From what I understand, if you're consistently getting in the 90s on the practice exams you're ready to take it.

I really enjoy this hobby and I have spent countless enjoyable hours talking on the radio and meeting new friends. 73, -Pat Kilcoyne N3YOZ

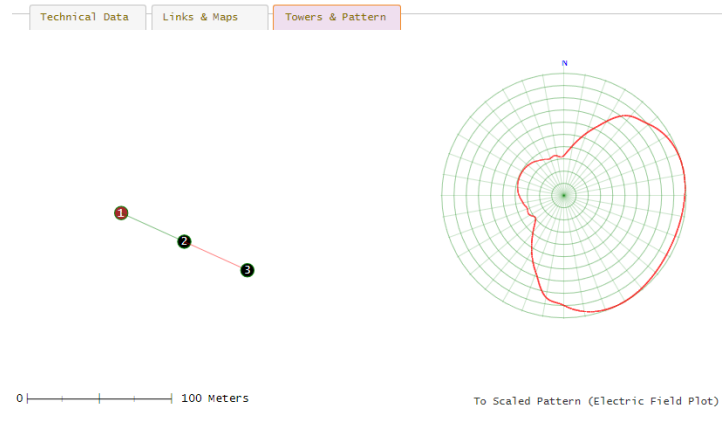
TECHNICAL CORNER

Combatting 1500AM 50,000 Watts 24/7

by "Kit" W3KIT



Well, no more HOA for me but there is one more enemy for me to fight. It was an uphill battle (so I thought). I was struggling to "hear" anything besides 1500AM on 160-meter band and occasionally on 80-meter band. Reason being? Well, I am 2,200 feet away from a "VERY" directional tower(s) of the WFED 1500 kHz that is transmitting 50,000 watts continuously. The towers are SW from my QTH and I am basically getting hit by the groundwave and blanketed by their big fat lobe as you can see on their antenna pattern. As I am being 2,200 feet away.



According to the FCC data, no matter how you slice it, I will be in the "lobe" for being just 2,200 feet from it.

DA2 - Directional Antenna: Different constants day and night

Number of Augmentations to standard directional pattern: 7
Augmentations:

Aug. No.	Center Azimuth	Span [Beginning & ending azimuth ±(0.5 * span)]	Augmented Field Strength (mV/m at 1 km)
1	0.00°	51.00°	1287.48
2	37.50°	25.00°	3250.87
3	190.00°	20.00°	3339.39
4	242.00°	24.00°	1287.48
5	254.50°	20.00°	1287.48
6	334.50°	20.00°	1287.48
7	347.00°	26.00°	1287.48

Q Factor: 70.710000

RMS Augmented: 2809.40 mV/m at 1 kilometer
RMS Theoretical: 2655.40 mV/m at 1 kilometer

WFED's first license was granted 9-25-1926.

3 towers in the directional array

CDBS Ant. System ID: 113995

Tower information:

Tower No.	Field Ratio	Phase (deg)	Spacing (deg)	Orientation (degrees)	Electrical Height (deg)	TWR Ref.	-No Top Loaded or Sectionalized Tower(s)- (FO)	A	B	C	D	Antenna Structure Registration Number
1	1.000	0.00	0.00	0.00	185.00	0	0	0.00	0.00	0.00	0.00	1053549
2	0.565	-67.00	87.30	114.50	185.00	0	0	0.00	0.00	0.00	0.00	1053550
3	0.419	-139.00	87.30	114.50	185.00	1	0	0.00	0.00	0.00	0.00	1053551

At any rate, after days of talking to people online, reading articles and finally I came across a AM Broadcast Band (BCB) Reject Brick-Wall High Pass Filter from <http://dlwc.com>. I looked at the

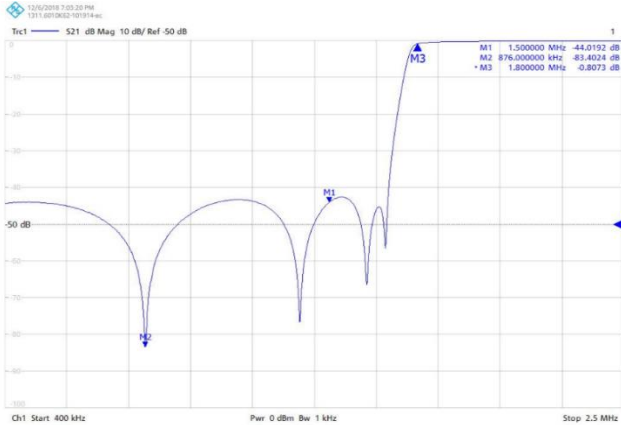
frequency response posted on their website. I thought I have got nothing to lose besides the restocking fees if it does not work out. I got the filter in the mail, tried it out and it was amazing. Knocked

the 1500AM out of my 160-meter band, now I can hear all of the normal local city noise. YAY – I now can hear power-lines, electric fences and their chargers noises

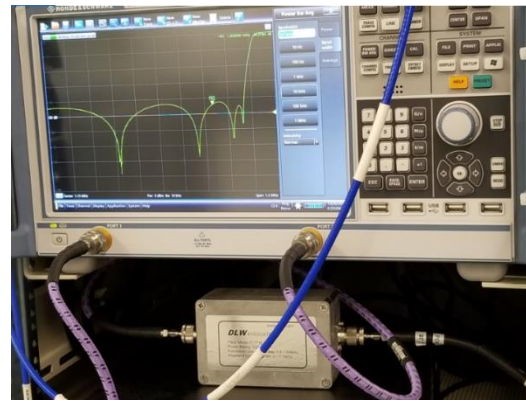
again. The filter also helped me identify an EFI that came out of my cheaply made 12VDC wall-wart, producing some nasty noises, I never did hear them because of the 1500AM was over-loaded my front end. I was so happy that the filter is

working out for me and I plan to order another one but this time I will be ordering directly from the maker. He can custom made the filter to the frequency that is giving me the fist. The standard off the shelf on 1500 kHz is -44dB but the custom made will be -70dB. I was not sure

are happened to be near by 875 kHz AM station, you are in luck. The standard off the shelf filter will knocks it off by 83dB.



if the filter really knocks 40dB down on 1500 kHz per their web site. So, I took it to my lab and swept it with brand new Rohde & Schwarz ZNB20 Vector Network Analyzer, just to see. (Photo to the right) Here is what the filter looks like. It's a silver brick under the analyzer:



And here is the result – working as intended. If you

For me, 44dB down was enough to get rid of the interference on 80-160 band with a minor loss at low end of 160 by .8dB, not worth crying about.

Re-Frigerator Interference (R-FI) puts a chill on W3NN operations

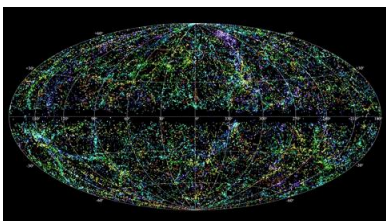
W3NN “Nancy” reported being plagued recently by an unknown RFI source in her house. Taking a brute-force approach to locating it, Nancy turned off the power to the house and Lo! the RFI disappeared. In an attempt to locate the source she came to discover that her refrigerator was putting a chill on her 6-meters FM operations.



Nancy W3NN subsequently wrote: *Vic asked me to write this up for the technical section of the newsletter. I am not sure if it should be in the technical section or a laughs section! Thanks to help from Bob WM1E, I found out that the intermittent severe background hum that was interfering with my transmissions on the 6 meter repeater was coming from to my refrigerator. I decided to purchase a simple timer so that I could turn off the refrigerator at will and not worry about forgetting to turn it back on when I was using 6 meters. To further test that it was, in fact, the refrigerator, Bob and I had a rag chew on the 6 m. repeater while the refrigerator was turned off using the timer. Our rag chew ended up going on much longer than I had planned, so the refrigerator turned back on. Much to my surprise, the interference did not return. This timer so seems to have eliminated the problem just by having the refrigerator plugged into it, so I don't need to turn off the refrigerator! If you want to try for your interference problem, a two pack is for sale on Amazon for \$11.99.*

Mysterious fast radio bursts detected from deep space

“Dick” WN3R draws one’s attention to a kind of RFI, but not really interference in the usual sense but one that holds a mystery to tantalize our imagination. Others have mentioned this on the MARC



reflector. https://www.nbcnews.com/mach/science/mysterious-fast-radio-bursts-detected-deep-space-second-time-ncna957311?utm_source=Sailthru&utm_medium=email&utm_campaign=Morning%20Runtdown%20Jan%202011&utm_term=Morning%20Runtdown

RIDE-ON QRM on 146.955 Repeater

Ride-On interference seems to have been coaxed out by the very frigid temperatures Monday the 21st. QRM was actually tripping the repeater and the audio was clear and solid. The problem disappeared the next day.

Powerpole Connectors- A Common DC Wiring Approach

By AI, NW2M

Correct Orientation



If the holiday season brought you a new radio, chances are that it will require a 12V DC power source. Whether you will be operating from home, car, or public service event- I strongly suggest that you opt for a common (almost de facto) DC

power connector. The Anderson Powerpole™ connectors fit this bill nicely. It is "the-way" the MARC Trailer is wired for all DC power.

RED RIGHT TONGUE TOP

As with any power connector, there are polarity and orientation issues to resolve. Always remember: RRTT, which stands for: "Red Right Tongue Top". The ARRL, ARES, and other public-service minded groups have adopted the RRTT configuration. Additionally, crimp-only (not soldering) is the preferred method of attachment. Connections remain solid, yet flexible- a desirable

situation for any installation. In the same 0.31-inch square form factor. There are 15A, 30A, and 45A pins available.

- * 15 Amp Pins for 16, 18, 20 AWG wire.
- * 30 Amp Pins for 14 and 12 AWG wire. (most popular)
- * 45 Amp Pins or 10 AWG wire.

Please consider Powerpole connectors for all of your DC powered equipment.



The above image shows the 45-Amp pins.

GADGETS

"AI" NW2M recently showed a handy-dandy test device: a Multi-Function Tester – TC1. It is useful for checking on NPN and PNP transistor, capacitor, resistor, diode, triode, N-channel and P-channel MOSFET, IGBT, JFET, triac and battery etc. It can



also be used to detect infrared wave forms and can detect zener diode. It has the function of self-calibration. After detection, one can align the infrared remote control with the "IR" light, then

press the button in the remote control, if the detector successfully decode it, it will display the data code and infrared wave form. One button operation, automatically detect and shutdown, and you can press the multi-functional button to close the detector too. Put the pins of component in

corresponding area, then dial the little handle and the detector will test it automatically, finally the results will display on the back light TFT screen clearly.

Another little gadget that K3BAB "Bruce" recommended for evaluating coil inductances as well as capacitors is the LC100-A



Digital LCD High Precision Inductance Capacitance L/C Meter Capacitor Test with a Mini USB Interface. WB2U finds it useful for his Vintage 29-er transmitter project.

On-Air

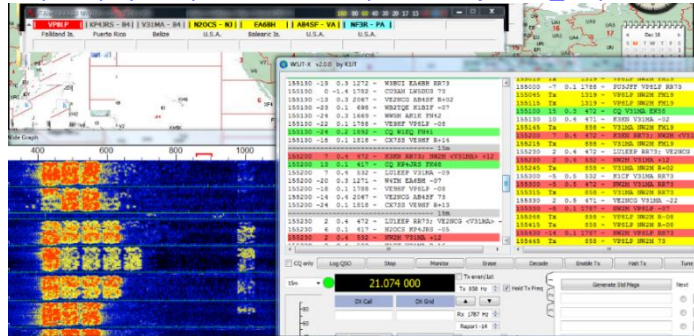
A New FT8 Pattern to Recognize! A new FT8 Response Required!

“AI” NW2M reported on December 31st of his encounter with the new mode in the latest version (v2.0) of WSJT-X FT8 software called "DXpedition Mode". He goes on to say, *“This is a one-to-many DX mode. It allows a rare DX station to be the "fox" and receiving stations to be the "hounds". The purpose is to allow five simultaneous stations to*

work a rare DX station at one time. QSO rates can approach 150+ per

hour! I have only read about it in the release notes, but today (Dec. 31st) I was part of the action. The mental focus by the DX station to do this is extraordinary! You can see up to five simultaneous transmission between 400Hz and 650Hz. I am transmitting on 858Hz (red bracket). I gave V31MA a +02 signal report and he gave me a +12 report! This is on the 15M band running 80 watts. The bands are NOT dead... If you see this "clump" of frequencies- DO NOT match their frequency as we normally do on FT8! Please read the instructions for FT8 DXpedition mode:

https://physics.princeton.edu/pulsar/k1jt/FT8_DXpedition_Mode.pdf



To the left is a screen shot giving a flavor of operating Dxpediton/Fox and Hound.

N3COB “Glenn” reports that he joined the pile-up on 3.567 and snagged the Vatican FT8 Hound and Fox station.

DAWN PATROL



Weekdays
5:00 – 11:00 AM
MARC Repeater 146.955 -

The Dawn Patrol participation returned to normalcy after slight irregularities due to the holidays. The participants showed up but at slightly different times; typically later. By the 4th of January the commuters were back on schedule and those operating fixed got their sleep schedule back in sync. Some new call signs are showing up. Nancy W3NN has is a regular as well for short chats as early as 6:00 AM. Sunday the 6th “Ray” K4HSI tested out his mobile antenna from Woodbridge, VA having added a grounding strap. His signal was quite impressive; almost full quieting. Since he drives to DC for work he said he would try checking into the Dawn Patrol. Todd W3EME can be heard for about one cycle before dropping out. “Marc” W3MGZ has joined in between 5:45 and 6:00 AM. Marc has a lengthy commute back and forth from Clarksburg and Baltimore. Tony, KV4FA checked in. Wednesday, the 9th Chon K3DHS checked in on the

road from Frederick. Not bad for a stub antenna. Also relatively new is Jerry KA3INZ who often listens but does check in occasionally. Glenn W1GHR also joined in recently. KB3WUM “Jack” checks in as well. Brad KE7U was heard at around 8AM as well as Jim K3MRI. Kevin KB3PBZ was heard. WM1E worked Gil K7OR recently. Here is a representative list of those who are active in the morning on 146.955: W3KIT, WM1E, N3BAB, N4DR, N3COB, W3NN, K4HSI, W3MGZ, W2LNX, KP4N, KN4LJF, K3ICI, W3ALH, W3EME, KE7U, N3YHF, WB2QOK, N3YOZ, KV4FA, K3DHS, KA3INZ, WB2U, W1GHR, KB3WUM, K3MRI, KB3PBZ, K7OR. A few of our 3D Printer owners are kicking around the idea of designing “wing” pins to issue to those checking into the Dawn Patrol.

PUBLIC SERVICE

The MARC Proceedings was remiss by not reporting on the 43rd Marine Corp Marathon (MCM). Each year the MARC club is well represented by volunteers who plan, prepare and equip themselves to take up one of the many positions and stations for this annual event. David W2LNX recommended *if you have never volunteered for the Marine Corps Marathon and are curious what it's like, then consider being a spectator* for next years event. Better yet, sign up to take a position in the event. This year, October 28th David W2LNX took up his position at Mile Marker 15 (MM15) anticipating runners around 9:00AM Click on <https://goo.gl/maps/ZF6D9r3A4eB2t>.



W2LNX had a couple of assistants; "Andrew" KC3KFU and "Kevin" KC3ARU. They were all setup for the beginning of the race that started at 8:00 AM in anticipation of the first runners to pass by at around 9:00AM. Another participant was Maeir K3CPR who sent in the following report along with the photograph on the lower left:

Greetings! I volunteer for the public service events to make myself feel good, selfish in a good way! It is my hope that I am helping others in a manner that does not seek any reward other than if I feel good about my efforts, then I have (in my mind) benefited in my goals... I worked at the Net Control for the Marine Corps Marathon...I took a picture (without any permissions)...you may recognize the K3CSX at work as NCS... don't know who the other gentleman is). 73, Maeir K3CPR



The photo on the left shows Fred K3CSX and to his left Michael Kiron W3DCA. Fred has served as Net Control Station (NCS) at the Armed Forces Retirement Home (AFRH) for many years. Fred has participated in the MCM for over 10 years. Fred said, "He (W3DCA) was helping me at the NCS Lead position and is also our liaison to the (AFRH) where net control is located." Others from the MARC club also participated.

Damascus Emergency Communication Team D.E.C.T. NEWS

by Ray Gustin KB3NSS



Our local ham radio club in Damascus, MD was pleased to participate in the 48th Damascus Help Crop Walk held this past October at the Damascus Regional Park.

This activity engages approximately a dozen church affiliated groups and some 50 walkers who donate their "walk" money toward the Church World Service and directly through the Damascus Help organization. The proceeds, usually about \$10,000., is gifted to the World Service organization with 25% going to the local Damascus Help charity for purposes of food supply and humanitarian efforts. Ham Club members assist the "walk" by monitoring walker safety via radio communications between club patrols. This effort continues to serve the Damascus community to those in need as it approaches its 50th anniversary.

Public Service Events schedule for 2019

April 27	Rockville MS Walk	April 28	Pike's Peek 10K	April 28	Rockville Science Day
May 5	BCC Rescue 1 Run	July 4	Takoma Park July 4th Celebration		
July 12	Damascus Days Parade	July 20	Rockville Rotary Runfest	July 28	Riley's Rumble
Sep 8	Parks Half Marathon	Oct 27	Marine Corps Marathon	Nov. 3	Rockville 5K/10K

For more information on public service events, contact: Paul N3RQV



Radio Shack Challenge

The *MARC Proceedings* is asking readers to submit photos of their radio shack along with descriptions, stories or anecdotes. This month edition features the confines of N3COB "Glenn". Glenn just recently conducted a major overhaul of his radio shack. See Page 3 for N3COB's shack.

In addition take a look at the following pair of photographs and see if you can identify differences between the two. These photos were submitted by AI, NW2M. Look for the solutions in the February edition of the *MARC Proceedings*.



Events, Hamfests, Reports

WINTER FIELD DAY (WFD)

Winter Field Day (WFD) was held Saturday January 26th and ran for 24-hours at the Roberson Field. The February issue of the *MARC Proceedings* will feature this event.

NOVICE RIG ROUNDUP (NRR)

March 2 to March 10

<http://novicerigroundup.com>

March 2-10 Antique Wireless Association (AWA)

John Rollins DX Contest March 13-17

AWA John Rollins (pre 1960, 40/20 CW) Mar 13-17

<http://www.antiquewireless.org/event-details-for-john-rollins-dx-contest.htm>

HAMFESTS

Sat. 02/02/2019 | [Roanoke Division Convention](#)
([Frostfest](#)) Richmond, VA, Convention, Richmond Amateur Telecommunications Society (RATS), <http://frostfest.com/wp/>

Sun. 03/24/2019 | [WINTERFEST](#) Annandale, VA, ARRL Hamfest, Vienna Wireless Society.
<http://viennawireless.net/wp/events/winterfest>,

Hamvention

May 17, 18, 19

Hamvention will be held at the Greene County Fairgrounds and Expo Center. For information <https://hamvention.org>

NETS

The following tabular data is provided by K3TJC “Bill”:

Net	Mode	Day	Time (local)	Freq.	PL	Purpose
MARC Sunday Net	FM	Sunday	7:30pm	146.955- MHz	—	Information
Public Service Net	FM	Tuesday	8:00pm	146.955- MHz	—	Public service & emerg
MARC 6-M Net	FM	Tuesday	9:15pm	53.270- MHz	156.7	Information
MARC Rapid Deployment Net	FM	Thursday	8:00pm	146.955- MHz	—	Rapid deployment
Maryland Emerg. Phone Net (MEPN)	SSB	Daily	6:00pm*	3.820 MHz	n/a	Formal traffic
Empire Slow Speed (ESS)	CW	Daily	6:00pm	3.569 MHz	n/a	Training & traffic
Baltimore Traffic Net (BTN)	FM	Daily	6:30pm	145.330- MHz	—	Traffic
Maryland Delaware DC Net (MDD)	CW	Daily	7:00pm, 10:00 pm	3.557 MHz	n/a	MDC section traffic
Maryland Slow Net (MSN)	CW	Daily	7:30pm	3.563 MHz	n/a	Training & traffic
Radio Relay International East (RRIE)	CW	Daily	8:00pm	3.552 MHz	n/a	Formal traffic – long haul

*When band conditions degrade in late fall or winter, the MEPN may start an hour earlier.

D-STAR Nets

The MARC D-STAR repeater (444.200+) gateway is programmed to link to other reflectors to access nets hosted on elsewhere. At the end of the programmed time the gateway links back to REF062C.

Net	Day	Time (local)	Reflector
International D-STAR Net	Sunday	8:00 to 8:59pm	REF001C
Philadelphia Digital Radio Net	Monday	8:00 to 8:59pm	REF020A
Raspberry Pi Net (1st and 3rd Mondays)	Monday	10:00 to 10:59pm	REF038C
PAPA System D-STAR Net	Tuesday	11:00pm to 12:59am	REF012A
Mid-Atlantic Auxiliary Communications Service	Wednesday	8:00 to 8:59pm	REF062A
National Capital Region Net (Washington DC)	Wednesday	9:00 to 9:59pm	REF062A
Ham Nation After Show Net	Wednesday	10:00 to 10:59pm	REF014C
PAPA Technical Round Table	Thursday	11:00 to 12:59am	REF012A