



Aurora

The Aero Aerial

The Newsletter of the Aero Amateur Radio Club
Middle River, MD
Volume 16, Issue 1
January 2020

Editor Georgeann Vleck KB3PGN

Officers

President	Joe Miko WB3FMT	Repeater	Phil Hock W3VRD Jerry Cimildora N3VBJ Ken Erisman NE3A Dave Brunner AC3EO
Vice-President	Rob Ballou KC3ROB	VE Testing	Pat Stone AC3F
Recording Secretary	Larry Hill KB3QWC	Public Service	Bob Landis WA3SWA
Corresponding Secretary	Pat Stone AC3F	Webmaster, Facebook	Jerry Cimildora N3VBJ
Treasurer	Warren Hartman W3JDF	Trustee:	Dave Fredrick KB3KRV (W3PGA) Jim Marshalek KC3FBL (AE3RO)
Resource Coordinator	Ron Distler W3JEH	Club Nets	Joe Miko WB3FMT
		Contests	Bob Venanzi ND3D

Website: <http://w3pga.org>

Facebook: <https://www.facebook.com/pages/Aero-Amateur-Radio-Club/719248141439348>

About the Aero Amateur Radio Club

Meetings

The Aero Amateur Radio Club meets at 7:30 pm on the first and third Wednesdays of the month at Essex SkyPark, 1401 Diffendall Road, Essex. Meetings begin at 7:30 p.m. local time. Meetings are canceled if Baltimore County Public Schools are closed or dismiss early.

Repeaters

W3PGA **2 M :** INPUT : 147.84 MHz, OUTPUT : 147.24 MHz, PL 123.0
W3PGA **70 Cm:** INPUT : 444.575 MHz, OUTPUT : 449.575 MHz, PL123.0
W3JEH **1.25 M:** INPUT : 222.24 MHz, OUTPUT : 223.84 MHz

Club Nets

Second Wednesday Net – 70 Centimeters (449.575 MHz Repeater) @ 8 p.m. Local Time

Fourth Wednesday Net – 2 Meters (147.24 MHz Repeater) @ 8 p.m. Local Time

Fifth Wednesday Net – 10 Meters (28.445 MHz) @ 8 p.m. Local Time

Radio License Exams

The Aero Amateur Radio Club sponsors Amateur Radio License Exams with the ARRL VEC. Examination sessions are throughout the year. Walk-ins are welcome; arrive no later than 30 minutes after start time. \$15 charge.

2019-2020 Examination Schedule

Time:	1:15 pm	1:15 pm	
Dates:	Sunday, Jan. 26, 2020		
Where:	White Marsh Library	White Marsh Library	

White Marsh Library, 8133 Sandpiper Circle, White Marsh, MD

Contact: Patricia Stone AC3F, email: ac3f@juno.com, landline: 410-687-7209

LOCAL AREA NETS

Day	Time	Freq. (MHz)	Net Name
Daily	9 – 10 am	145.330	Oriole Net
Daily	6 pm	3.820	Maryland Emergency Phone Net
Daily	6:30 – 7 pm	145.330 no PL	Balto. Traffic Net (b/u 146.670 PL 107.2)
Daily	7 pm & 10 pm	3.643	MD/DC/DE Traffic Net
2 nd Tue	7:30 pm	146.670	Baltimore County RACES Net
2 nd Wed	8 pm	449.575	Aero ARC Net
4 th Wed	8 pm	147.240	Aero ARC Net
5 th Wed	8 pm	28.445	Aero ARC Net
Fridays	7:30 pm	145.330	Back in the Day Net
When activated by NOAA		147.030	SkyWarn (primary)

AERO ARC Year in Review 2019

by Joe Miko and Patricia Stone

The Aero Amateur Radio Club had a great year. The membership continued to increase we went from 52 members in 2018 to 55 in 2019. The membership rolls were pruned and fell back to 44. Since then we added two new members, bringing the total to 46. The members were engaged in many operating activities and public service events.



The year kicked off with the club's **25 Days and 25 Nights of Fun Contest**. And this year's winner was, Patricia AC3F by default; she took home the coveted "Christmas Story" Leg Lamp. Good News – the lamp has been retired (not sure of the current condition or location), the new trophy is a Maryland Flag mouse pad and a certificate.

Aero Club Radio Nets - CW, Phone and the Baltimore Traffic Net

Business at the Aero Club monthly Nets was brisk!

A second net joined the series – Pat's **CW net**, held on Sundays at 20:00 on 146.55 simplex, and before each meeting at the of the Aero ARC meeting at the SkyPark. She also run the CW nets on other days as needed. Stats for the CW net: **85** sessions as of December 3, may make 100 by end of year. A big thanks to Coz WA3RQD and Dave AC3EO for their help as net control in my absence and there were 10 stations that checked in throughout the year. Kudos to Ken KB3JVP, Jim KC3FBL, Frank KC3FBM, and Dave AC3EO for their dedication to the net and practicing their CW skills.



As Pat stated, I am grateful for the interest and dedication these folks have shown for Mr. Morse and his code. I am also proud to report that all of those I've had the pleasure of working with during the past year and a quarter are becoming true "Brass Pounders". Several of them are already making CW QSOs. I am sure that the rest will be on the air using code within the next few months.

I hope you will consider checking into one of our "CW Training Nets." We meet on the air every Sunday at 8PM on 146.55 and at 7:00 pm at the airport, before the regular meetings. Hope you will consider joining our "fine fisted folks" one evening during our CW training nets.

There were a few net changes made for **the club's Phone Nets**, the normal 2nd Wednesday 10-meter net was moved to the 5th Wednesday, the 70 centimeters (cm) net was moved to the 2nd Wednesday, while the 2-meter net stayed on the 4th Wednesday.

As for the Phone nets, there were **29** nets held during 2019. The breakdown for the nets were: 10 meters, **6**; 2 meters, **12**, including 1 Snow Net ; 70 cm **11**. All total **192** people checked in and the nets ran a combined **17** hours, **22** minutes. We had local members and hams from Lutherville and Baltimore City check into the nets.



Also, several of our club members participate in the **Baltimore Traffic Net**, the local part of the National Traffic System (NTS) a voice net held every day at 6:30pm on the Shawsville repeater 145.330. This net acts as a starting point to move formal traffic in the form of an ARRL Radiogram (think the old-style Western Union Telegram) within the State and across the U.S. and Foreign countries.

Aero Club Elections

I didn't forget about the club's election held on May 15th it happened so fast, people were elected before the polls closed. I understand the jerrymandering may be an option, all we need is some people from Delaware and West Virginia! As I recall, I never saw or heard the train as it went by the station. The entire election lasted about 47 seconds. All I saw was the Kaboose!



VEC Testing



The VE Testing Program was successful. For the 2019 year Pat AC3F and her VE's held 6 test sessions, 5 at the White Marsh Public Library and 1 at the Fix Base Operator (FBO) building at the Essex Skypark on Field Day Saturday. All told, we tested **35 applicants**, **33** were successful. The breakdown was **22** Techs, **5** Generals **6** Extras. The number of VE's participating in 2019 was **15**.

Public Service Support

The Aero ARC was involved and participated in at least 6 events this year, all of which were open to the public at various locations on the Eastern Shore, Baltimore County, and the Essex Skypark.

On the Public Service front, Aero member Bob WA3SWA continued to assist BRATS for various

Multiple Sclerosis Bike Tours and Walks and participated in other area clubs' activities.

The American Diabetes Association's Tour de Cure 19



Other Public Service Activities the club helped with this year was the American Diabetes Association's "Tour de Cure," which was held on Sunday June 2, 2019. We had at 10 club members assisting in these 16.4-, 28.5- and 61.7-mile bike rides, which took place in Baltimore County, starting and ending at Goucher College and proceeding through the Loch Raven and NE Baltimore County. There were approximately 250 riders all told. Dave, Ray, and Marty were kept busy as SAG vehicles supporting bike repairs, returning tuckered out riders, and finding a lost sheep, er, rider.

Aero members supporting the **Tour de Cure 19** event: Ray N3RES, Rob KC3ROB, Marty KC3AID, David AC3EO, William AC3DX, Ed KB3SGN, Larry KB3QWC, Richard KB3VAE, Joe WB3FMT, Chris AB3WB and Darryl Robinson rode with Dave. The event lasted from 6:30am to 2:00 pm.

Chesapeake Scouts Aviation



On Saturday June 8th the Aero ARC participated in the **Chesapeake Scouts Aviation** event. This was the first time the Essex Skypark was used, it was formerly at the Martin State Airport. The move to Essex was to provide more space for the Scouts. The Aero Club was asked to set up an active HF radio station and to be a merit badge councilor for the "Signs, Signals and Codes" merit badge. We had initially planned for 16 scouts and 15 showed up. The following Aero members did the following training: Patricia AC3F – Morse Code, Lou KC3NMT – Braille, John K3FIL (another club) – American Sign Language, and Joe WB3FMT – Semaphore and Nautical Flags. Rob KC3ROB, Dave AC3EO, Steve KD3TP and Harry AC3EK ran the HF rig. The operators did a script for the Scouts to use while talking to other stations from Florida to Canada and out west to Kansas. Our formal training ran from 10:15 am to 12:00 pm but was expanded to include the "Radio" merit badge and then continued to after 3:00 pm. There were over 400 scouts registered for this event. Patricia AC3F was able to sign off on not 15, but **30 merit badges**. Plans are in the works for next year.

Aero members helping and teaching with this event: Ray N3RES, Rob KC3ROB, Dave AC3EO, Steve KD3TP, Harry AC3EK, Richard KB3VAE, Joe WB3FMT, Patricia AC3F, Lou KC3NMT and John K3FIL. The event ran from 08:00 am to 4:00 pm.

ARRL Field Day 2019



Field Day 2019 results were submitted and approved by the ARRL. We operated as a 5A class station from the Community Hanger at the Essex Skypark (W48).

Our score of 3,024 with QSO of 1,534 and Bonus Points of 1,490 with 522 contacts was much more than that. We had 24 AERO members participate, 3 guests, and 8 visitors join us at the Essex Skypark, as well as five people who took tests at the

VEC session. During the 24 contest hours we made 522 contacts, 145 CW, 100 Digital, and 277 on Phone.

We were able to contact 49 States, Canada, Puerto Rico and DX with Australia. Yes, we got Delaware but could not find Nevada! On Saturday we were visited by Ken Reid KG4USN, ARRL MDC ASM.

The highlight of the FD event was the Pasta Dinner and dessert provide by Sue Landis, Bob's wife. The dinner included Pasta, bread, a build-it-yourself salad, and pineapple upside down cake for dessert. By count there were 27 people that enjoyed the food. There was enough for seconds and a small amount left over, for late night snacking. The three bags of cookies filled in the void before dinner. Again, thanks, Sue, for a job well cooked.

The solar cycle, or lack of one, seemed to be a problem this FD. This FD there were no sunspots, while last year we had 41 during FD, per Spaceweather. Since we are near the bottom of Solar Cycle 24, things can only look up.

Aero members operating and supporting with this event were: Ray, N3RES, Rob KC3ROB, George KB3TBH, Marty KC3AID, Dave AC3EO, Brittany KB3YKN, Steve KD3TP, Jerry N3VBJ, Coz WA3RQD, William AC3DX, Dave KB3KRV, Warren W3JDF, Russell W3WFI, Thomas WA3QLY, Keon, KE3HAY, Larry KB3QWC, Richard KB3VAE, Franklin KC3FBM, Lou AB3QK, Bob WA3SWA, James KC3FBL, Joe Wb3FMT, Harry AC3EK, Patricia AC3F, Bob ND3D, Dave KA3SNY, John K3LPV and Joe N3JDP. And Sue Landis for Dinner and Cookies! Event Times were from 08:00 am on 6/21 thru 4:00 pm on 6/23.

Essex Skypark Wings and Wheels

The Aero Amateur Radio Club made a fine showing at the **Essex Skypark annual Wings and Wheels event**. This event was held on Saturday, September 14th. The Skypark event was open to the public from 9am to 4pm. Aero members started to arrive before 7:00am for setup. The club set up an information booth with Ham Radio and SKYWARN information and answered any questions the visitors had. In addition to information, actual weather instruments were displayed and a digital radio and HF radio were also setup and in operation.



The digital station was on the air using a 6 meter/2 meter/70 cm GP15 Vertical antenna on a 20-foot mast. This 2-meter radio was running digital using Yaesu's Fusion C4FM.

The HF station was a Yaesu 991 running 100 watts connected to a 10-80 meter off center-fed-dipole (OCFD). This antenna was strung between the grass strip next to the parking lot to a mast supported by my van's right front wheel.

The club was able to make a total of 8 contacts made 4 CW (2 in Florida, 1 in California and 1 Texas); 4 SSB (1 in Mississippi, Alabama, North Carolina and Florida.)

As for the airpark, I counted at least 15 aircraft, 2 helicopters and about 20 antique or vintage cars and trucks. The airport had an estimated 400 pilots and visitors the day's event. The weather started out overcast, with some breaks around noon. Local

weather temps' highs in the low 80s to low 60s, overcast and 12 mph winds out of the south. Even with the cloudy weather the airpark had 14 fly-ins.

Along with the full-size aircraft the RC flying club that flies at the Skypark was also present.

The Aero ARC as always put on a good showing, we had 15 members show up along with one XYL (Ron's wife Julie), Pat is also an XYL and a member. My 2 grandkids, daughter, and son-in-law had a great time and look forward to next year's event and maybe an aircraft ride?

Photos of the event were taken by Colin Seibert (Grandson) and Harry Rundall AC3EK a flash drive containing the photos were given to Skypark Association.

Again, thanks to all who supported the event from the Aero ARC, for set-up, operations, support and breakdown, a job well done and very well appreciated!

CQ World-Wide DX Contest

Club members were invited to the annual **"CQ World-Wide DX Contest."** The contest started Friday night October 25 at 20:00 local and ran to Sunday 19:59 local. Our plan was to setup Saturday afternoon and run to about 16:00 on Sunday.

All that was required was to have a date/time, operating place, some antennas, and a rig or two.

Well, it kind of came together thanks to Ron W3JEH, who provided the information about the contest run by QST. The operating place was easy, all it took was an email to the Dean and Mandy of the Skypark Association. Both Dave AC3EO and I brought



antennas, I brought my trusty Off Center Fed Dipole (OCFD) that works 80-10 m and Dave brought his new Alpha Delta Fan Dipole also 80 – 10 meters.

The next thing was the radios, I brought my Yaesu 991, and Dave brought another Yaesu rig. He boasted that you wouldn't hear static on it. Hi Hi

Dave's rig was a YAESU FT_{DX}101MP, a radio with duel SDR's, a 3-Dimensional Spectrum Stream that can view up to the last 25 seconds of band conditions in real time. It has filters for its filters. Oh, it's a 200-watt rig that happens to have a Touch Screen.

I got to the Skypark about 15:00 on Saturday. Ray N3RES was already on site. Other members arrived by 16:00. Antennas were setup and we were operational by 17:00 on Saturday.

Using one of the clubs towers, the Alpha Delta Antenna was set up first, at the side of the Fix Base Operator (FBO) building, my OCFD was connected in line with the Alpha Delta, an MFJ fiber glass pole was used at center points of both antennas. The end connection was held up with 2 10-foot sections fitted to a 3-foot stand supported by my van.

Two 100-foot sections of RG 8 were run and connected to the FT_{DX}101MP. The rig was turned on and no, I mean NO Static at all. The digital noise filters and roofing filters did their job superbly.

We got on the air about 17:00 local, Larry KB3QWC made the first contact a station in Canada, and we were on our way.

The crew consisted of Larry KB3QWC, Ray N3RES, Dave AC3EO, Rob KC3ROB, Bob WA3SWA, and myself WB3FMT. The rig was continuously manned from then to about 03:30 when Rob left the building. I got back on the radio about 07:00, and the rig was manned until we shut down at 17:31 Sunday.

This was a great opportunity to see a new rig and to work some DX. We all had a lot of fun and are looking forwards to doing another contest in the spring. Come on, for any club activity any and of the members are welcome to attend to watch, snack out and participate if you want.

By the way one of the neat features of Dave's rig is that you can monitor two antennas at the same time. This displays the hearing ability of one antenna against another, same types or mixed, dipole vs anything. And did I mention NO Static, sorry I doubted you, Dave!

We ended our DXpedition at 17:30 and everything was wrapped up, car loaded. We left the Airpark at 18:30 Sunday evening.

Below are the stats from the contest.

Total Contacts = 100

Total Points = 18,334

Again, special thanks to Ron W3JEH, Larry KB3QWC, Ray N3RES, Dave AC3EO, Rob KC3ROB, Bob WA3SWA for helping to make this a fun event.

Silent Key



Sad Note KB3EK / SK

The passing of Chuck Whittaker KB3EK. Chuck, a long time AERO member, passed away on September 30th after a brief illness.

2019 Aero Christmas Party

A brief note about the Aero 2019 Christmas Party -- WOW!! We had great food, tasting and quantity along and fantastic friends. We had **36** people: **26** members, **9** guests, and **1** visiting Ham. As promised last year, there was no business meeting.



The club had a double drawing for the 50/50, Bob WA3SWA and Dave KA3SNY won, finally, after several attempts to give away Cash! The club also donated 6 holiday items that were also raffled off. And thanks, everyone, for the great selection of Christmas food, snacks, cookies and cakes. And a big thanks to Good Old St Nick, who brought along 2 Elves (Monica Miko and Colin Seibert) as helper and photographer.)

This year we have live music provided by Cos WA3RQD and Lou KC3NMT, with vocals by Patricia AC3F. Loved the 12 Days of Christmas using ham radio items.

Finally

Before I close, I would like to thank everyone who made and helped with the monthly presentations.

Again, thanks to all of the members of the Aero Amateur Radio club, for all your help and continued support. A club is only as good as its members want it to be!

Remember the only purpose of Hate is to "Destroy the container it's in."

As the MARK VII production of Dragnet always said, "Mutato nomine de te fabula narratur" And to 2019 we say "Драще γДаγι В настуПому ғоці" and look ahead to the challenges and hopes of the New Year.

Joe M

AERO AMATEUR RADIO CLUB 600 Hours

25 DAYS AND 25 NIGHTS OF FUN

When: 00:00 UTC Tuesday 01 January 2020 (19:00 EST Monday 12/31/18)

Thru 04:59 UTC Sunday January 26, 2020 (23:59 EST Saturday 1/25/18)

Eligibility: All current AERO members.

Station: You may operate from any amateur radio station...from your home, a guest's home, terrestrial mobile, maritime mobile, aeronautical mobile, local nets (**all the stations on the net count if you list the call signs**), here or abroad.

A station may even be operated remotely!

Bands & Modes: Work any legal mode and band allowed by your license class.

Echo Link, IRLP and Wires X contacts are permitted.

Repeater contacts are OK.

Scoring:

Two (2) points per AM or SSB contacts
Three (3) points per FM contact
Four (4) points per RTTY contact
Ten (10) points per CW contact.
Six (5) points per DIGITAL contact
Ten (10) points per SSTV contact
Ten (10) points per ATV contact

Bonus Points:

Any contact on 6 meters any mode 25 points per contact.

Any contact via remote operation 50 points per contact.

Any EME (earth-moon-earth) contact 1000 points per contact per team member

Other Info: The same station may be worked any number of times.

The Winner of this contest gets a special certificate and surprise and will run the contest next year.

Results: E-mail log sheets and claimed points to **AC3F** at ac3f@juno.com by **February 21, 2020**.
Or drop them off to me at a meeting. Contest results will be reported at the **March 18, 2020** meeting of the AERO Club!

HAVE FUN - - TRY SOMETHING NEW !

NET REPORTS

12-11-19: 449.575, 20:00 to 20:33 local.

W3PGA NCS Joe Essex, KB3VAE Richard Middle River, KB3QWC Larry Middle River, W3VRD Phil Essex, KB3JVP Ken Middle River

5 operators on the net. Because of Christmas and New Year's falling on Wednesdays, this was the only net of the year.



VE CORNER by Pat Stone, AC3F

Our first test session of 2020 will be held on Sunday, January 26th at 1:15PM in the White Marsh Library. Hope to see you then.

News and Information

Amateur Radio Winter Field Day

Winter Field Day is a 24-hour long event, from Saturday, January 25th, 2019, 2 pm EST (1900 UTC) to Sunday, January 26th, 2019, 2 pm EST (1900 UTC). All bands may be used, except 12, 17, 30 and 60 meters which prohibit contesting. All modes are available.

MDC Section Winter Field Day groups: Prince George's County, Maryland ARES/RACES (<https://www.pgares.org/>) and Anne Arundel County Amateur Radio (<https://www.w3vpr.org/node/362>).

More info about Winter Field Day at <https://www.winterfieldday.com/>

Source: MDC Section News, Vol. 15, No. 12, Thursday, December 19, 2019

The Sun's Magnetic Field Flips for Cycle 25 –

The switch happens around the peak of solar activity or solar maximum and marks the sound-half beginning of the Solar Cycle.

The appearance of Sunspot marks the beginning of the next Solar Cycle but what occurs before the beginning of the Sunspots? The change in the Sun's yearly average total irradiance during an 11-year cycle is on the order of 0.1 percent or 1.4 watts per square meter. But is this measurement good-enough to predict the onset of the next Solar Cycle?

Irradiance (also called insolation) is a measure of the amount of sunlight power that falls upon one square meter of exposed surface, usually measured at the 'top' of Earth's atmosphere. This energy increases and decreases with the season and with your latitude on Earth, being lower in the winter and higher in the summer, and also lower at the poles and higher at the equator. But the sun's energy output also changes during the sunspot cycle!

The first sunspot appearance sun's hemisphere will herald in the beginning of a new 11-year solar cycle, researchers say. Here on Earth, it's not obvious what that means to our everyday life but Solar activate of current Cycle 24 - nearing the lowest point of 11-yr means Solar Cycle-25 is forecasted to peak soon; ending by 2030.

See- <http://www.arrl.org/w1law-bulletins-archive-propagation>
<http://www.arrl.org/propagation-of-rf-signals>

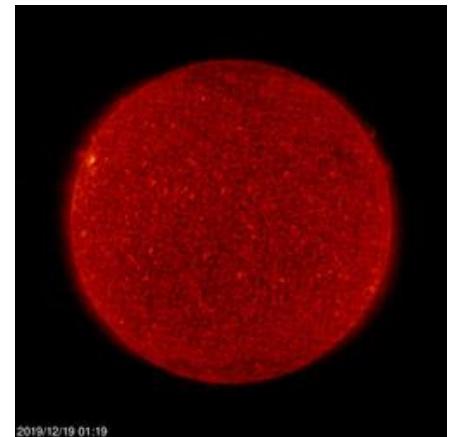
Source: *MDC Section News, Vol. 15, No. 12, Thursday, December 19, 2019*

The K7RA Solar Update

Tad Cook, K7RA, Seattle, reports: It's been 36 consecutive days with no sunspots. Geomagnetic conditions were quiet until a minor solar wind stream hit on December 18, driving the planetary A index to 13 from the low single digits earlier in the week.

The average planetary A index for December 12 - 18 rose to 4.6, from 3.7 over the previous 7 days, while mid-latitude A index increased from 1.9 to 4. Predicted solar flux over the next 45 days is 70. The predicted planetary A index is 10, 8, and 8 on December 19 - 21; 5 on December 22 - January 4; 8 on January 5; 5 on January 6 - 8; 8 on January 9 - 10; 5 on January 11 - 13; 12 on January 14; 10 on January 15 - 17; 5 on January 18 - 31, and 8 on February 1.

Because of weak solar activity, the [ARRL 10 Meter Contest](#) last weekend was rather slow. QST's "The World Above 50 MHz" editor Jon Jones, N0JK, in Kansas said he encountered a strong opening to



Argentina and Chile on Sunday. He said the propagation mechanism appeared to be sporadic E. More details in the weekly bulletin on December 20.

Sunspot numbers for December 12 - 18 were 0, 0, 0, 0, 0, 0, and 0, with a mean of 0. The 10.7-centimeter flux was 70.5, 68.9, 70.3, 71, 70, 70.5, and 70.2, with a mean of 70.2. Estimated planetary A indices were 4, 4, 3, 5, 1, 2, and 13, with a mean of 4.6. Middle latitude A index was 3, 3, 2, 5, 1, 2, and 12, with a mean of 4.

A comprehensive K7RA Solar Update is posted Fridays on the ARRL website. For more information concerning radio propagation, [visit](#) the ARRL Technical Information Service, [read](#) "What the Numbers Mean...", and [check out](#) K9LA's Propagation Page.

A propagation bulletin [archive](#) is available. [Monthly charts](#) offer propagation projections between the US and a dozen DX locations. [Share](#) your reports and observations.

Source: *The ARRL Letter* for December 19, 2019

Hamfests

Sunday, January 26, 2020: Post-Holiday Hamfest, 7:30 AM until Noon

Odenton Volunteer Fire Department, 1425 Annapolis Road (Rt. 175) Odenton MD 21113

Sponsor: Maryland Mobileers Amateur Radio Club

Website: <https://sites.google.com/site/marylandmobileers/hamfests-1/hamfest-2>

Flyer: <https://sites.google.com/site/marylandmobileers/hamfests-1/hamfest-2> , HamfestFlyer2019.pdf

VE Exam: 9AM and pre-registration is preferred & walk-ins are welcome

Card Checking: QSL Card checking will be available on site

Talk-In: 146.805 (-) MHz PL107.2)

Public Contact: Bruce AB3AC, 484 Peach Leaf Ct., Odenton, MD 21113, Phone: 410-456-2500, Email:

bmcpherson73@verizon.net

Saturday, February 1, 2020: FrostFest

Location: Richmond Raceway Complex

Website: www.frostfest.com

Forum schedule includes: AREDN / Amateur Radio Emergency Digital Network

(If you're interested in AREDN, bring 5ghz and 2.4ghz gear to the show. A temporary AREDN node will be active at Frostfest and linked to the Metro-Richmond AREDN network.)

Rich Moseson - Editorial Director at CQ Magazine (Live via Skype)

Dr. Tamitha Skov - "Space Weather Woman" (Live via Skype)

Discounted Group Rate: DoubleTree - Richmond Airport, \$99/night. [Hotel Reservation Link](#)

From the Skies over Mt. Essex

SKY Events for January 2020

January 1st HAPPY NEW YEAR MMXX

Jan 3-4th – Quadrantids Meteor shower approx 60 -120 meteors per hour, look NE toward Bootes after mid-night. 4th latest sunrise of the year.

Jan 5th - Earth at Perihelion (closest to the Sun) 91,441,320 miles at 03:00 EST.

Jan 3rd - First Quarter Moon

Jan 7th – Galileo discovered I0, Europa & Callisto moons of Jupiter, he discovers Ganymede on the 13th.

Jan 8th – Stephen Hawking born 1942.

Jan 10th – Full Moon, “Winter Moon” for Traditional and the “The big cold Moon” for the Mohawk American Indian also Total Lunar Eclipse, visible in the USA.

Jan 17th –Last Quarter

Jan 22nd - Jupiter is 0.4° N of the Moon at 21:42 EST

Jan 24th – New Moon

Planet Lookout at mid-Month

Sunrise 07:14 EST and Sunset 17:08 EST

Mercury Evening Rise 07:36 Set 17:18; Mag -1.2; Size 4.8arc seconds

Venus Evening Rise 09:17, Sets 20:09; Mag -4.0 and 14.1 arc seconds.

Mars Morning Rises 03:56, Sets 13:44, Mag 1.5 and 4.5 arc seconds wide.

Jupiter Morning, rises 06:19, Sets 15:55; Mag-1.8 size 31.9 arc seconds.

Saturn In the Sun's glare

Uranus Evening **Rises** 11:46 Sets 01:08; Mag 5.8 size 3.5 arc seconds.

Neptune Evening Rises 09:52 Sets 21:18; Mag +7.9 size 2.4 arc seconds.

Upcoming Events for 2020

Planets – Mercury and Venus in 2020

Maximum Eastern and Western Elongations

			Date	°		Date	°	
Mercury	EE	2/10/20	18.2	E	WE	03/24/20	27.8	W
		6/04/20	23.6			07/22/10	20.1	
		10/01/20	25.8			10/10/20	19.1	

Venus	EE	03/24/20	46.1	E	WE	08/13/20	45.8	W
--------------	----	----------	------	---	----	----------	------	---

Moon – 2020

Blue Moon – (2nd in a Month) -10/1/20 - 10/31/20

Black Moon – (2 New Moons in a month) – None in 2020

Harvest Moon - 10/1/20

Super Moons - Full 3/9/20 and 4/8/20

Lunar Eclipses in 2020 – **0 Total**- Not Visible in the US & **0 Partial** - Not Visible in the US, **3 Penumbral** 07/05/20 and 11/30/20 two visible in the US.

Sun Ending Sunspot cycle 24 beginning 25 in 2020

Solar Eclipses in 2020 (3) - **0 Partial** , **1 Total** and **1 Annular** - All Not visible in the US.

Meteor Showers for 2020 Predictions - 5 Good, 3 Poor

Quadrantids 1/4	First Quarter	Good	60-120 per hr
Lyrids 4/22	New Moon	Good	10 per hr
Eta Aquarids 5/5	Full Moon	Poor	45 per hr
Delta Aquarids 7/29	First Quarter	Good	16 per hr
Perseids 8/12	Last Quarter	Poor	60-80 per hr
Orionids 10/8	First Quarter	Good	18 per hr
Leonids 11/17	Full Moon	Poor	15 per hr
Geminids 12/14	New Moon	Good	120 per hr

Seasons in 2020

Earth Perihelion	01/05/2020	03:00 EST	8:00 UT
Earth Aphelion	07/04/2020	08:00 EDT	12:00 UT
Vernal Equinox	03/20/2020	23:50 EDT	03:50 UT
Summer Solstice	06/20/2020	17:44 EDT	21:44 UT
Autumnal Equinox	09/22/2020	09:31 EDT	13:31 UT
Winter Solstice	12/21/2020	06:02 EST	10:02 UT

Daylight Saving Time 2020

Begins 03/03/2020 - Ends 11/1/2020

Easter Dates 2020 Full Moon 04/08/2020

Easter Christian (Western) 4/12/2020 .
Eastern Greek (Orthodox) 4/19/2020