



Nature's Fireworks

The Aero Aerial

The Newsletter of the Aero Amateur Radio Club
Middle River, MD
Volume 16, Issue 9
September 2020

Editor Georgeann Vleck KB3PGN

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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.

2020 Examination Schedule DUE TO COVID19 May and June DATES May be **Canceled!**

Time:	1:00 – 3:30 pm	1:15 pm	
Dates:	Sat., Sept. 12		
Where:	SkyPark Hangar		

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)

CLUB NEWS

8/5/20: Aero ARC Meeting Notes via Zoom Video Conference Call

Start Time: 07:25pm End time: 08:10

17 Members Present: Rob AE3B, Don K3DON, Harry AC3EK, Jerry N3VBJ, Pat AC3F, Bob WA3SWA, Joe WB3FMTm Rich KB3VAE, Chris AB3WG, Dave KB3KRV, Don N3FQC, Gus AA3GG, Kurt WA3TOY, Larry KB3QWC, Lou KC3NMT, Shane KC3PPM, Steve KD3TP.

Treasury Report: Bank \$2,834.29 On Hand: \$ 0
Outstanding CKs: Check for \$400 to Yaesu & \$100 to the Essex Skypark.

Repeater Report: 2 mtrs: No Problems 70 cm: No Problems

Correspondence: None

Public Service: We still need for members to continue checking in with and helping neighbors and your fellow hams if possible.

ECOM: Nothing scheduled before the end of hurricane season.

SKYWARN Classes: Classes will resume after Hurricane season ends.

VE Testing : I have tentative approval from Mandy at the Essex Skypark to use the community hanger on Saturday, September 12th, from 1:00 to 3:30 pm.

As done on FD the same COVID-19 protocols will be followed.

1. Meet the 6-foot social spacing and require a face mask.
2. Testing will be done inside the community hanger. With the main hanger door open. Using the Skypark long tables. Mask must be worn if required by the County.
- 3.

Old Business: BSA Aviation Scouting Event Rescheduled to November weekend of the 6,7,8th.

No additional info about a reschedule or cancellation as of 8/6/20. I will keep you posted on any changes.

We will be doing the same as we did last year. We need the following topics support for this event. If anyone can help in the following activities please send me an email.

- Morse Code
- American Sign Language
- Braille
- Semaphore
- Nautical Flags
- Aircraft Signals

- Radio Operations Voice and CW
- The club will setup and operate a station during the event.

Wings and Wheels event has been canceled for this year (per an email from Mandy).

New Business:

- The club voted to spend up to \$800.00 to purchase a six can duplexer. Warren and Phil have been notified.
- I talked to Phil about Yaesu letter dated July 1st- Dec 31, 2020, they are offering the DX2 and DX1 repeaters at a reduced cost. I talked to Jerry N3VBJ and he said the DX1 would work for the club.

UPDATE: An email from Yaesu was received on July 31, 2020 stated that our application for a DR series repeater has been approved. I will get an email once the payment is processed, and the repeater is shipped to me.

- Duplexer for 2 meters – UPDATE—We received a six-can 2-meter duplexer donated by Charles Davis KA4ADL via Rick Hinkle N3HIA, Rick tuned it to our club's frequency and met with Phil W3VRD on July 29th. After discussing tech information Phil brought the duplexer to his house for safe keeping, pending installation.
- The next meeting on August 19th will be at the Skypark.

Please Note: Due to CONVID19, if any one does not feel comfortable, do not feel you must attend. If you are a care giver, reside with older people, or for any reason you are uncomfortable with? Take the safe route for you and yours.

JMM 8-5-20

No report for the August 19 meeting was received.

Net Reports

7-29-20: 10-meter net, 20:00 to 20:24 Local.

W3PGA NCS Joe Essex, AC3F Pat Middle River, N3FQC Don Perry Hall, W3JEH Ron Perry Hall, W3VRD Phil Essex, KB3VAE Richard Middle River, KC3FBL James Parkville

7 people on the net

8-12-20: No net, Pat AC3F tried but T Storms in the area prevented it.

8-26-20: 2-meter net, 20:00 to 20:46 Local.

W3PGA NCS Joe Essex, KB3JVP Ken Middle River, AC3F Pat Middle River, K3DON Don Joppatowne, N3RRH Andy Belair, KC3POJ Gregg Overlea, KB3QWC Larry Middle River, N3VBJ Jerry Rosedale, KC3PPM Shane Middle River, KB3VAE Richard Middle River, N2VUS Gene Middle River

11 people on the net



VE CORNER

by Pat Stone, AC3F

Our next test session will be held on Saturday, Sept. 12th, at 1pm at the Essex Sky Park. Hope to see you then.

HAM NEWS

FCC Proposes to Institute Amateur Radio Application Fees

Amateur radio licensees would pay a \$50 fee for each amateur radio license application if the FCC adopts rules it proposed last week. Included in the FCC's fee proposal are applications for new licenses, renewal and upgrades to existing licenses, and vanity call sign requests. Excluded are applications for administrative updates, such as changes of address, and annual regulatory fees.

The FCC proposal is contained in a *Notice of Proposed Rulemaking* ([NPRM](#)) in MD Docket 20-270, which was adopted to implement portions of the "Repack Airwaves Yielding Better Access for Users of Modern Services Act" of 2018 -- the so-called "[Ray Baum's Act](#)." The Act requires that the FCC switch from a Congressionally-mandated fee structure to a cost-based system of assessment. In its *NPRM*, the FCC proposed application fees for a broad range of services that use the FCC's Universal Licensing System (ULS), including the Amateur Radio Service that had been excluded by an earlier statute. The new statute excludes the Amateur Service from annual regulatory fees, but not from application fees.



"[A]pplications for personal licenses are mostly automated and do not have individualized staff costs for data input or review," the FCC said in its *NPRM*. "For these automated processes -- new/major modifications, renewal, and minor modifications -- we propose a nominal application fee of \$50 due

to automating the processes, routine ULS maintenance, and limited instances where staff input is required."

The same \$50 fee would apply to all Amateur Service applications, including those for vanity call signs. "Although there is currently no fee for vanity call signs in the Amateur Radio Service, we find that such applications impose similar costs in aggregate on Commission resources as new applications and therefore propose a \$50 fee," the FCC said.

The FCC is not proposing to charge for administrative updates such as mailing address changes, and amateur radio will remain exempt from annual regulatory fees. "For administrative updates [and] modifications, which also are highly automated, we find that it is in the public interest to encourage licensees to update their [own] information without a charge," the FCC said.

The FCC also proposes to assess a \$50 fee for individuals who want a printed copy of their license. "The Commission has proposed to eliminate these services -- but to the extent the Commission does not do so, we propose a fee of \$50 to cover the costs of these services," the FCC said.

The FCC dropped assessment of fees for vanity call signs several years ago, but the Ray Baum's Act does not exempt filing fees in the Amateur Radio Service.

ARRL is reviewing the matter and intends to file comments in opposition.

Deadlines for comments and reply comments will be determined once the *NPRM* appears in the *Federal Register*. File comments by using the FCC's Electronic Comment Filing System ([ECFS](#)), posting to MD Docket No. 20-270. This docket is already open for accepting comments, even though deadlines have not yet been set.

Source: The ARRL Letter for September 3, 2020

ARRL Expands Its Roster of Online Discussion Groups

ARRL's Committee on Communication with Members has launched three new online discussion forums as part of its ongoing efforts to enhance and improve communication between ARRL leadership and members or prospective members. The new forums, which focus on antenna law, regulatory issues, and support for new amateur radio licensees, will go live on Thursday, January 30, at 0400 UTC.



The decision to launch the three new discussion groups was based on requests from the amateur radio community to support ARRL's efforts to provide more resources for beginner-to-intermediate operators.

- ARRL New England Division Director and attorney Fred Hopengarten, K1VR, will moderate the [Antenna Law and Policy Forum](#). Hopengarten is the author of *Antenna Zoning for the Radio Amateur*.
- ARRL Regulatory Affairs Manager Dan Henderson, N1ND, will moderate the [Regulatory Affairs](#) forum.

- QST Editor and ARRL Publications Manager Steve Ford, WB8IMY, will moderate the [New Hams](#) forum.

ARRL IT Manager Michael Keane, K1MK, worked with **Groups.io** to set up the new groups. Those wishing to subscribe must use a **Groups.io** username and password, if they have one, or create a **Groups.io** account if they don't.

The new groups join an ARRL discussion forum lineup, initiated last fall, already includes:

- [ARRL-Contesting](#), moderated by ARRL Contest Advisory Committee Chairman Dennis Egan, W1UE.
- [ARRL-Awards](#), moderated by ARRL Radiosport and Field Services Manager Bart Jahnke, W9JJ.
- [ARRL-IARU](#), moderated by IARU Secretary David Sumner, K1ZZ.
- [ARRL-LOTW](#), moderated by ARRL IT Manager Michael Keane, K1MK.

Everyone who subscribes to an ARRL Group is automatically subscribed to "ARRL Groups," an administrative feature that allows ARRL to convey routine announcements to subscribers of all ARRL groups, such as planned system outages.

ARRL expects to create additional online groups that focus on other areas of interest to radio amateurs, including ARRL activities, services, initiatives, and policies.

The Committee believes that providing more opportunities for two-way discussion between the organization's leaders and the entire ham radio community will assist ARRL in truly serving the needs of this community. -- *Thanks to ARRL Communications Manager Dave Isgur, N1RSN*

Source: The ARRL Letter for January 30, 2020, edited for length

Hurricane Watch Net Logs More than 29 Hours of Continuous Operation for Laura

The Hurricane Watch Net ([HWN](#)) logged 29.5 hours of continuous operation in advance of Hurricane Laura, beginning at 1300 UTC on August 26. One primary function of the HWN is to obtain real-time ground-level weather conditions and initial damage assessments from amateur radio operators in the affected area and relay that information to the National Hurricane Center ([NHC](#)) by way of [WX4NHC](#).



"Since Laura had become a Major Hurricane (Category 3) overnight, well ahead of earlier forecasts, we opened our net on both 14.325 MHz and 7.268 MHz," said HWN Manager Bobby Graves, KB5HAV. "We did this for two reasons. HF propagation was horrible on both bands, and we wanted to make sure anyone trying to contact us would be able to do so." Graves said it strained resources, but the net was able to get its job done. The HWN remained in continuous operation until Thursday, August 27, at 1830 UTC, well after Hurricane Laura made landfall in Louisiana, near the Texas border.

Graves noted that on Wednesday afternoon, forecasters at the NHC used a phrase not typically heard, in order to get a point across -- "unsurvivable storm surge." The ominous prediction certainly caught on with the media and was widely repeated. "Given the terrain for the projected impact of Laura, the storm surge was expected to move well inland, as far as 40 miles, with depths as high as 15 to 20 feet in some areas," he said.

Throughout its more than 29 hours of operation, the HWN collected and forwarded numerous surface reports to the NHC. Graves said that Emergency Management in Louisiana checked in with the net on 14.325 MHz to announce its presence on 7.255 MHz.



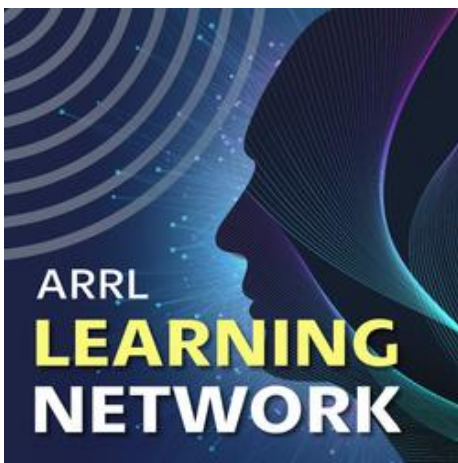
"After Laura was downgraded to a tropical storm, we shifted gears and began asking for post-storm reports from those affected by Laura," Graves recounted. "We also called for emergency or priority traffic."

Graves expressed his appreciation to other stations for moving aside for the net to use 14.325 and 7.268 MHz. Read [more](#).

Source: The ARRL Letter for September 3, 2020, edited for length

Traffic-Handling Webinar Launches Ham Radio Learning Series

A live presentation from ARRL North Texas Section Traffic Manager Aaron Hulett, K8AMH, inaugurated the new ARRL [Learning Network](#) on Tuesday, July 28. The webinar series features 30-minute presentations from experienced members covering a variety of amateur radio topics and



interests. Hulett's webinar, "Relay Stations and the Art of Traffic Handling," introduced techniques and skills practiced by radio amateurs like himself who relay messages during emergencies, disasters, and other incidents that interrupt conventional telecommunications, including the internet. Through an overview of the ARRL National Traffic System, Hulett shared examples of preparing a radiogram and resources for finding traffic nets and other volunteers.

"Aaron hit a home run," said Bob Inderbitzen, NQ1R, ARRL Product Development Manager and moderator for Hulett's webinar. "His presentation was the perfect balance of knowledge-sharing and enthusiasm that will surely motivate other members to try their hand at traffic handling." A [recording](#) of the webinar is available for members to view.

The webinars are hosted using GoToWebinar. Members are invited to ask questions during each webinar, and a 15-minute Q&A period follows each presentation for those who can participate longer. A [running list](#) of upcoming live presentations is available below and on the ARRL Learning Network

web page. Prospective attendees may register on that same page. ARRL members must first log into the ARRL website.

Inderbitzen encourages other members to be considered for future ARRL Learning Network webinars by inviting them to complete a [Call for Speakers](#) form. "It's all about members helping members. What better way to grow greater participation in amateur radio!"

Source: *The ARRL Letter for July 30, 2020*

Hamfests

CANCELLED Sunday, Oct. 4, 2020: CARAFest 2020

Location: Howard County Fairgrounds, 221 Fairgrounds Rd., West Friendship, MD 21794

Website: <http://www.carafest.org>

Sponsor: Columbia Amateur Radio Association

Talk-In: 147.390/R+ (PL 156.7)

Public Contact: David Parkison , KB3VDY, P.O. Box 911 Columbia, MD 21044, Phone: 443-492-9501

Email: vendorsales@carafest.org

NO NOTICE OF CANCELLATION AS OF 7/31/20

Saturday, December 12, 2020: SantaFest

Sponsors: American Legion and Prince George's County Emergency Radio Association

Location: American Legion Youth Camp, 9201 Surratts Road, Cheltenham, MD 20623

Website: <http://www.pgares.org/>

Talk-In: K3ERA Repeater, 145.230- PL 110.9

Public Contact: Charles AA3WS, Phone: 301-535-1666, Email: selbynet@hotmail.com

NO NOTICE OF CANCELLATION AS OF 7/31/20

Sunday, March 14, 2021: Winterfest, ARRL Virginia Section Convention 2021

Location: Richard Ernst Community Center, Northern Virginia Community College, 8333 Little River Turnpike, Annandale, VA 22003

Website: <https://viennawireless.net/wp/events/winterfest/>

Sponsor: Vienna Wireless Society

Talk-In: 146.910 (no tone)

Public Contact: Harry Mamaux , K3NF, 8425 Peace Lily Ct Apt 316 Lorton, VA 22079, Phone: 703-395-6721, Email: k3nf@cox.net

FEATURE ARTICLE

Ham Radio Formulas from (Handbook 2000)

The formulas are listed in the ARRL Handbook 2000. Like all hobbies, some mathematics is required. In the amateur radio field, mathematics range from the "My Dear Aunt Sally" through algebra, trig, and calculus. By my rough count there are 173 formulas listed. The formulas referenced in this book show the practical application of radio theory and performance. Later editions of the ARRL Handbook do not specifically cite an example of all formulas in the glossary. Another reason to keep a copy of an older HB is because of the background information on tubes and tube amplifiers. The information used in this article was used by permission from the ARRL Headquarters. This information came from the ARRL Handbook 2000 Edition, Index page 1177.

If anyone would like to borrow the 2000 HB or the 2018 HB, just let me know.

Joe Miko

Formulas

Acute and obtuse triangle 4.3

Admittance 6.33

Amplification factor 8.9

Angle modulation 15.9

Average reference (voltage or current) 6.6ff

Bandwidth 10.13

Bandwidth of resonant circuit 6.41

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Charge and capacitance 16.8

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Complex reflection coefficient 19.4

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Diode switching time 10.8
Diode I-V curve 10.6
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Dynamic range 17.6
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Power factor 6.35
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End of Formulas

From the Skies over Mt. Essex

SKY Events for September 2020

Sept 2nd – Full Moon, Traditional Full Corn Moon, Shawnee American Indian, Papaw Moon.

Sept 6th – Mars is 0.03° S of Moon 5UT, 01EDT

Sept 7th - Uranus 3° N of Moon 4UT, 00EDT

Sept 10th – Last Quarter Moon

Sept 11th - Moon is 0.3° S of M35 Open Cluster in Gemini, Neptune at opposition 4 light Hours from Earth.

Sept 14th - Venus is 4° S of Moon 5UT, 01 EDT and Double shadow transit on Jupiter 6:57UT, 2:57EDT

Sept 15th – Zodiacal Light vis in N lat in E before morning twilight for the next two weeks.

Sept 17th - New Moon

Sept 22nd – Mercury 0.3° N of Spica 9UT, 05EDT, Equinox 13:31UT, 09:31EDT

Sept 23rd - First Quarter Moon

Sept 25th - Jupiter 1.6°N of Moon 7UT, 03EDT and Saturn 2° N of Moon 21UT, 17:00EDT

Planet Lookout at mid-Month EDT

Sunrise 06:44 EDT and Sunset 19:09 EDT

Mercury -- Evening Rises 08:32 Sets 19:19:57 Mag – 0.2; Size 5.3 arc seconds

Venus -- **Morning** Rises 03:15, Sets 17:08 Mag -4.2 and 17.9 arc seconds.

Mars -- **Evening** Rises 20:46, Sets 09:35, Mag -2.1 and 20.4 arc seconds.

Jupiter -- **Evening** Rises 15:47 Sets 01:29; Mag-2.5 size 43.1 arc seconds.

Saturn -- **Evening**, Rises 16:16 Sets 02:08; Mag 0.4 size 17.8 arc seconds.

Uranus— **Evening** Rises 21:04, Sets 10:43; Mag 5.7 size 3.7 arc seconds.

Neptune -- **Evening** Rises 18:56 Sets 06:33; Mag 7.8 size 2.3 arc seconds.

Mars at Opposition on 10/13/20 get ready!

October 13 - Mars at Opposition: The red planet will be at its closest approach to Earth on October 6 and fully illuminated by the Sun. It will be brighter than any other time of the year. On the 13 it will be at opposition and be visible all night long. This will be the best time to view and photograph Mars. A medium-sized telescope will allow you to see some of the dark details and polar ice caps on Mars' surface. It's visible worldwide.

Mars will be -2.1 magnitude, 22.6 arc seconds in diameter, and 38.6 million miles from Earth. This is the closest Mars will be until September 15, 2035.

Standard astronomical filters placed on eyepieces will enhance your seeing pleasure of the Red Planet. The following five filters will bring out the best features on Mars.

#25 **Red** - Plains and Marias

21 **Orange** – Reducing glare to enhance detail.

15 **Deep Yellow** or # 80A **Medium Blue** – Polar Caps.

#58 **Green** – Examine the melt lines.

Mars is about half the size of the Earth at 4,220 miles in diameter. Earth is 7,926 miles in diameter.
Mars has 2 Moons Earth has 1 Moon



Average temp -81°F Earth Average temp 57°F

Atmospheric Pressure 0.006 bars = 6 millibars, Earth is 1013 millibars at sea level.

Atmosphere 95.3% Carbon Dioxide, 2.7% Nitrogen, and 1.6% Argon. Earth is 20.9% Oxygen, 0.038% Carbon Dioxide, 78% Nitrogen and 0.93% Argon

Estimated trip time to Mars per “Mars One” is six to eight months.