



*Merry Christmas!  
Happy New Year!*

## ***The Aero Aerial***

The Newsletter of the Aero Amateur Radio Club  
Middle River, MD  
Volume 19, Issue 11/12  
November/December 2023

Editor Georgeann Vleck KB3PGN

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Website: <http://w3pga.org>

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# 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

<b>W3PGA</b>	<b>2 M:</b>	INPUT : 147.84 MHz, OUTPUT : 147.24 MHz, PL 123.0
<b>W3PGA</b>	<b>70 Cm:</b>	INPUT : 444.575 MHz, OUTPUT : 449.575 MHz, PL123.0
<b>W3JEH</b>	<b>1.25 M:</b>	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.

### 2023 Examination Schedule

Time:	11 am-2 pm	11 am-2 pm	11 am-2 pm
Dates:			Sat.,
Where:	American Legion, Rosedale	Essex SkyPark	

American Legion Post 180, 1331 Seling Ave., Rosedale, MD 21237

Contact: Patricia Stone AC3F, email: [ac3f@juno.com](mailto:ac3f@juno.com), landline: 410-687-7209

## LOCAL AREA NETS

Day	Time	Freq. (MHz)	Net Name
Daily	9 – 10 am	146.67 0	Oriole Net
Daily	6 pm	3.820	Maryland Emergency Phone Net
Daily	6:30 – 7 pm	146.670 PL 107.2	Balto. Traffic Net
Daily	7 pm & 10 pm	3.643	MD/DC/DE Traffic Net
2 <sup>nd</sup> Tue	7:30 pm	146.670	Baltimore County RACES Net
2 <sup>nd</sup> Wed	8 pm	449.575	Aero ARC Net
4 <sup>th</sup> Wed	8 pm	147.240	Aero ARC Net
5 <sup>th</sup> Wed	8 pm	28.445	Aero ARC Net
When activated by NOAA		147.030	SkyWarn (primary)

# Ham News

## Florida Hams Make Contact 100 Miles Apart via 10m Repeater... in Switzerland.

Lu Romero, W4LT, knows well that when 10 meters is open, amazing things can happen. "When 10 is open, I often venture up into the top of the band to see if there is any FM activity. I've always liked to use 10 FM, especially when conditions are marginal to observe the Faraday phase distortion on signals. Before FT8, 10 FM was always a good way to discover where the band was propagating to in addition to the beacons. If you hear FM (especially repeaters) operating, then the propagation is really good!"

At around 1500z on October 23, 2023, the band was open. Romero went to the top of the band and "found multiple signals in both simplex and via repeaters."

"Usually, I receive a repeater in New York City, KQ2H, one of the strongest signals I can get down here in Florida when 10 is open, but today there was another strong signal [of] 10 kHz above it," he said.

Using a FLEX-6400 at 75 W and the C32XR beam at 108 feet that he maintains for the [Tampa Amateur Radio Club](#), he heard an ID through the splatter from the KQ2H repeater. "It was [HB9HD in Switzerland](#)! I set up for split and reduced power to 75 W on the Flex and gave the repeater a kerchunk." Romero was able to contact a Swiss ham, Rene, HB3XVR, on the repeater's 70-centimeter link. Then, on October 31, again around 1500z, Romero tried the repeater once more. "I found the repeater full quieting, even stronger than it was on October 23, and with no QRM from KQ2H, so it was clean and easy to copy!"

"For the heck of it, I called CQ several times on the repeater. ...and I was able to work David, WA3LXD, over the HB9HD repeater. After a little while, his signal settled down, and David asked me what my QTH was, and I told him I was in Tampa. He laughed and said we worked each other 'the hard way,' because he was in Ocala, about 100 miles to my north," said Romero.

As Solar Cycle 25 continues to rise toward its peak, amateurs can expect to encounter more exciting propagation, especially on the 10- and 6-meter bands. In this case, the signals traveled roughly 9,800 miles round trip. Your mileage may vary.



Tower 1 of the Tampa Amateur Radio Club, with the Force 12 C31XR antenna, second from the top. [Lu Romero, W4LT, photo.]



A Google Maps display of the nearly 5,000-mile distance each leg of the QSO traveled.

## Using Amateur Radio to Play Chess

Playing chess using amateur radio? The concept may have begun in 1912 when a group of college students from Case Western Reserve University (CWRU) wanted to challenge chess players at The Ohio State University (OSU). Though the official origin is still debated, clippings from a 1912 issue of *The Case Tech*, one of CWRU's former student newspapers, reveal that the challenge was made when the CWRU Wireless Club procured a Morse code transceiver.

Faculty Advisor to the Case Amateur Radio Club, W8EDU, David Kazdan, AD8Y, said there are no official records of the match, so the challenge was re-proposed this year by the [Case Amateur Radio Club](#). With the help of [OSU's Amateur Radio and RF Club](#), W8LT, the game was on. It started on September 26 as a round-robin tournament with other schools and is now moving into an elimination phase. The setup is the same as any chess game except the players are in different locations. Chess moves are relayed over the air either by voice or Morse code.

CWRU started the tournament strong with a win against Rensselaer Polytechnic Institute (RPI), but they lost the long-anticipated game against OSU.

W8LT President Arvcuken Noquisi, KE8MXF, said the tournament is a series of test games to determine the best way to incorporate amateur radio into what is now referred to as HAMCHESS. "Now we are using EchoLink through a Cleveland, Ohio, repeater with algebraic chess notation relayed by voice," said Noquisi. "In the future, each chess team will determine what method works best for them based on skill level and participation." Noquisi added that blending the school's chess and amateur radio clubs makes for a great campus experience and opportunity for community involvement.

In 1945, the United States and the USSR squared off in a radio chess tournament using CW. In the 1980s, Chess and Amateur Radio International, a club with more than 200 members, used 20-meter SSB in a match between five US players and five players in Oceania, a geographical region spanning the Eastern and Western hemispheres. Today, more than a dozen college amateur radio and chess clubs are participating in HAMCHESS events. College and university radio clubs, including those participating in the chess tournament, regularly network with each other through the [ARRL Collegiate Amateur Radio Program](#).



Case Amateur Radio Club, W8EDU members and Case Western Reserve University Chess Club members (left to right) Jonah Barnett, KO6BGI; Duncan Lu; Andrew Stappenbeck; Zach Baldwin, KE8ZDJ and Tobias Heller KE2BWU playing HAMCHESS. [Adam Goodman, W7OKE, photo.]

# ***In Case You Missed It***

## **ARRL RF Safety Committee Develops New Guidelines to Communicate RF Safety**

The [ARRL RF Safety Committee](#), with their international counterparts at the Radio Society of Great Britain (RSGB), the Irish Radio Transmitters Society (IRTS), and the Swedish Society of Radio Amateurs (SSA), has developed a new set of guidelines to help amateurs interact with and talk to their neighbors about RF exposure.

Chairman of the ARRL RF Safety Committee Greg Lapin, N9GL, said the new informational PDF found on the ARRL RF Exposure page, [Helping Amateurs Interact with Neighbors Asking About Radio Transmissions](#), was developed after a year of discussions about RF safety.



"Neighbors may be alarmed by some of the misinformation about RF safety that is available from a variety of sources. By following the exposure regulations from the Federal Communications Commission, we can be confident that our families and neighbors are safe," Lapin said. He added that RF exposure regulations are based on decades of trustworthy research. He also encouraged all amateur radio operators to perform exposure assessments for their stations to make sure they meet those regulations.

*The ARRL Letter for November 30, 2023*

## **ARRL Atlantic Division Election Results**

In the Atlantic Division, Vice Director Martin Pittenger (Photo at right), KB3MXM (2,801 votes), of Owings Mills, Maryland, defeated candidate Robert Weinstock, W3RQ (1,044 votes) for the seat.

In August, the following incumbents, running unopposed in this election cycle, were declared winners: Atlantic Division Director Robert Famiglio, K3RF; Dakota Division Director Bill Lippert, AC0W; Delta Division Director David Norris, K5UZ, and Vice Director Ed Hudgens, WB4RHQ.

Christopher D Van Winkle, AB3WG [ab3wg@arrl.org](mailto:ab3wg@arrl.org)  
ARRL Maryland-DC Section Manager



*Source: email ARRL Election Results, dated Nov. 22, 2023*

## ARRL Launches *The NTS Letter*

The first issue of [\*The NTS Letter\*](#) was published on October 3, 2023. *The NTS Letter* is a monthly digest of all things related to the ARRL National Traffic System®. It is edited by Marcia Forde, KW1U, who is a veteran traffic handler and serves as the Section Traffic Manager for the ARRL Eastern and Western Massachusetts and Rhode Island Sections.

The NTS is network that allows for rapid movement of messages, referred to as "traffic," from origin to destination, and for training amateur operators to handle written traffic and to participate in directed nets. The network consists of the layering and sequencing of both voice and CW traffic nets, as well as a digital system that operates 24/7. This nationwide system operates 365 days a year, generally relaying routine message traffic for training purposes and for maintaining readiness if called upon in an emergency. If called upon, these operators stand ready to assist emergency communications personnel and served-agency partners in relaying welfare and other messages. It is the modern continuation of the historic "radio relay" from ARRL's founding in 1914.



Director of the ARRL New England Division, Fred Kemmerer, AB1OC, said the NTS is a great way to get involved in emergency communications. "Newly licensed and experienced amateurs alike who participate in NTS find satisfaction and enjoyment in learning the skills of sending and receiving concise written voice and CW traffic in an organized, on-air network. It's a natural complement to the skills and training one needs to become an effective emergency communicator and Amateur Radio Emergency Service® volunteer. Plus, it's an opportunity to meet new friends, and it's fun!" said Kemmerer.

[\*The NTS Letter\*](#) is published monthly and is free of charge to ARRL members. Members can subscribe at [arrl.org/opt-in-out](https://arrl.org/opt-in-out) by selecting "edit" to view all of their subscription preferences (members need to be logged in to their ARRL website account to do this).

*The ARRL Letter for October 5, 2023. Slightly edited for length.*

## MDC SECTION MANAGERS NOTES

New developments in NTS 2.0 project.

You can now send a radiogram via APRS - info at <https://nts2.arrl.org/ntsgte-an-aprs-nts-gateway/>

I would like have a meeting with Section Staff in early December. Details will be sent in the coming weeks. Also I will try to coordinate a meeting with Jim Montgomery's group around the same time.

Tu es 73,  
Chris Van Winkle AB3WG  
Maryland / DC Section Manager, ARRL  
240-755-4257, [AB3WG@ARRL.ORG](mailto:AB3WG@ARRL.ORG)

Source: *MDC Section News, November 2023*

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## Net Reports

### **10-11-23: 440 net, 20:00 to 20:32 local.**

W3PGA NCS Joe Essex, K3DON Don Joppatowne, KB3QWC Larry Middle River,  
W3VRD Phil Essex, AC3F Pat Middle River, WA3QYL Tom Middle River, K3POJ Gregg Rosedale

7 participants on the net

### **10-25-23: 2 meter net, 20:00 to 20:19 local.**

W3PGA NCS Joe Essex, AC3F Pat Middle River, WA3QYL Tom Middle River,  
K3DON Don Joppatowne

4 participants on the net

### **11-8-23: 440 net, 20:00 to 20:22 local.**

W3PGA NCS Joe Essex, W3JEH Ron Perry Hall, K3DON Don Joppatowne. KB3QWC Larry Middle River

4 participants on the net

### **11-29-23: The only net held in Nov was a ten meter net run by Pat AC3F.**

Thanks to Pat for picking up the mic for the 10 meter net. We didn't have a club net strictly speaking. Tom and I heard W3JEH Ron calling so we answered him. Eric WA3TAD also checked in. We just had a group roundtable on 28.445. Everyone hopes you get well soon. 73 Pat

W3PGA/AC3F NCS Pat Middle River, W3QYL Tom Middle River, W3JEH Ron Perry Hall,  
W3TAD Eric Rosedale

Hacking and sniffles,  
Joe M

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## VE CORNER

by Pat Stone, AC3F

No report.



## Hamfests

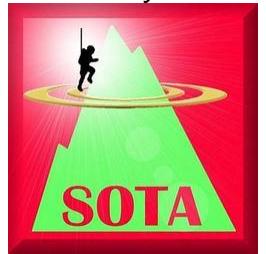
None listed on arrl.org

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## CALLING ALL AMATEURS

### Summits on the Air (SOTA) is offering a 10-meter Challenge in 2024.

The challenge will run from 0000 UTC on January 1, 2024, to 2359 UTC on December 31, 2024. Solar Cycle 25 is beginning to create regular favorable DX conditions on the higher bands, and early predictions indicate the cycle peak may occur during the summer of 2024. SOTA held a 12-meter Challenge in 2013, and since then, more than 90 associations have been added to the SOTA program, including many in South America, the Caribbean, and Asia. There is excellent potential for DX SOTA activity, and activators are encouraged to consider 28 MHz for their summit operations in 2024. Scoring will be done automatically by the database software. Activations and chases should be entered as normal. The software will note 10-meter QSOs and score them according to the rules. Usual SOTA rules will apply. Multi-band activations can also be entered as normal, and all results will be updated. Qualifying 10-meter QSOs will be scored separately from other SOTA activity. There will be a special 10-meter Challenge results page, and electronic certificates will be issued for all participants with their name, call sign, association, and score. For more information, including the rules for the challenge, visit the [Summits on the Air](#) website.



*The ARRL Letter for November 30, 2023*

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## SKYWARN

Hi, all. This has been a slow month, fortunately, in the severe weather arena. No complaints here!

Chris, AK3B, Baltimore Area Subnet Coordinator and I were invited to set up a table at the CARA Fest at the Howard County Fairgrounds last month. We enjoyed meeting a number of hams there and introducing them to SKYWARN. I also attended the Frederick County Breakfast meeting and had good food and conversations with other hams. Both were quite enjoyable experiences and hopefully we were successful in explaining SKYWARN to people not familiar with it and even get some new Net Control stations.

The NWS's travel moratorium is over for now - as of this writing. Congress still hasn't passed a

budget or even a continuing resolution funding the NWS. However, the NWS is scheduling classes with the hope there won't be a government shutdown. The current schedule is:

*December 6, 6PM - 8PM: SKYWARN Basics class: Franklin, WV*

This class introduces SKYWARN and severe weather reporting and is a prerequisite for all other classes.

*December 11, 6:30 - 8:30 PM: Winter Weather: Front Royal VA.*

*December 14th, 6PM - 8PM: Frederick, MD*

This class covers winter weather events, storm development and when and how to measure snow and ice.

Registration for all courses is required but there is no charge. You can register for any of these classes (and see the current schedule) at <https://www.weather.gov/washington/skywarn>.

I am planning to attend all of these classes to meet other hams and answer questions about SKYWARN amateur operations (although I only have a presentation at the Basics class). Franklin, WV, however, could be iffy due to the distance and weather conditions.

We now officially have a strong El Nino event in the Pacific. In the Mid-Atlantic this generally results in a slightly warmer winter with more precipitation. As a result, the NWS is expecting more snow in our area (it's hard to get less than the 0.4" we had last year). This could include one or more large snowfalls, so now is the time to prepare.

SKYWARN nets will be operating a bit differently during the winter. Snow and ice reports are typically not as critical time-wise as thunderstorm reports, but the NWS does need them. SKYWARN Net Control Stations should be monitoring the SKYWARN repeaters but will generally not be running a formal net and will leave the repeater open for normal operations. If you have a report, just get on the repeater frequency and ask for the SKYWARN Net Control. If you don't get an answer, wait a few minutes and try again. If you still don't get an answer, call your report in to the NWS office at the number you were provided in the Basics class.

That's all for this month. I hope everyone has a safe and happy Thanksgiving.

Jerry, AI0K  
SKYWARN Amateur Radio Coordinator

*Source: MDC Section News, November 2023*

## From the Skies over Mt. Essex

November edition article included for information content

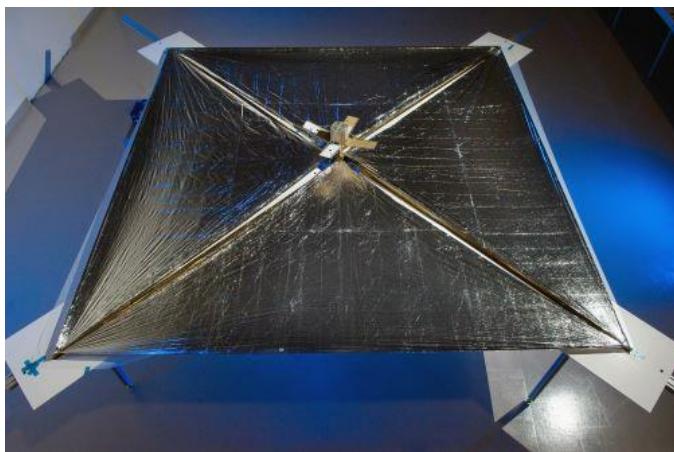
### How do photons propel solar sails?

**Q: If photons have no mass, how can they propel solar sails like the Planetary Society's LightSails? Doug Kaupa Council Bluffs, Iowa**

**A:** Photons don't have mass, but they do have momentum, which is energy associated with motion. If a photon strikes something, it can give some of its momentum to the object it hits. In the case of a solar sail, when light hits the sail's reflective surface, it bounces off, transferring some of the energy associated with its initial motion to the sail. This force is called radiation pressure, and it pushes the sail slightly in the direction the photon was traveling before it bounced off.

Although the energy transferred by a single photon is tiny, there is no friction in the vacuum of space. Each time a photon strikes the solar sail, it gains slightly more energy. The LightSail design is about 344 square feet (32 square meters) in size, compared to its width of only 0.0002 inch (0.00051 centimeter). These dimensions ensure the sail is both lightweight and has a large area to allow many photons to hit it at once. The Planetary Society calculated that its current LightSail mission, LightSail 2, can capture enough momentum from sunlight to accelerate about 0.0023 inch (0.0058 cm) per second, each second. After a month, this acceleration would boost the sail's speed to nearly 341 mph (550 km/h).

Radiation pressure can affect interplanetary dust and even small objects, such as asteroids, over time. But radiation pressure also diminishes with distance from the Sun, so the farther an object is from our star, the smaller the radiation pressure it feels, until this force becomes negligible. Allison Klesman. Astronomy Mag. 4/1/2020



# From the Skies over Mt. Essex

Meteor Terminology by the American Meteor Society

## SKY Events for December 2023

### EST

Dec 03	19:38	Regulus 4.0°S of Moon
04	09	Mercury at Greatest Elong: 21.3°E
04	13:42	Moon at Apogee: 404348 km
05	00:49	LAST QUARTER MOON
07	15:45	Earliest sunset of the year.
08	09:05	Spica 2.3°S of Moon
08	10:24	Moon at Descending Node
09	11:53	Venus 3.6°N of Moon
12	18:32	NEW MOON
14	00:18	Mercury 4.4°N of Moon
14	14	Geminid Meteor Shower
16	13:53	Moon at Perigee: 367900 km
17	16:58	Saturn 2.5°N of Moon
19	13:39	FIRST QUARTER MOON
20	12	Mercury at Perihelion
21	08:54	Moon at Ascending Node
21	22:27	Winter Solstice <b>Shortest day 9hr 20min at 40°N</b>
22	09:20	Jupiter 2.6°S of Moon
22	14	Mercury at Inferior Conjunction
22	22	Ursid Meteor Shower
24	02:37	Pleiades 1.1°N of Moon
26	19:33	<b>FULL Cold MOON</b>
28	06:51	Pollux 1.7°N of Moon
31	03:52	Regulus 3.8°S of Moon

### Planet Lookout at mid-Month EST

**Sunrise 07:08 EST and Sunset 16:46 EST**

**Mercury Evening** Rise 8:14, Set 17:46 Mag +1.1 Size 8.8 arc seconds.

**Venus Morning** Rise 03:49, Sets 14:31 Mag -4.1 and 15.6 arc seconds.

**Mars Evening** Rises 06:33, Sets 16:10, Mag +1.4 and 3.8 arc seconds wide.

**Jupiter** Evening Rise 14:01, Set 03:24. Mag -2.7 Size 46.2 arc seconds.

**Saturn** Evening rises 11:19. Sets 22:07; Mag +0.9, size 16.6 arc seconds.

**Uranus** Evening **Rises** 14:37 Sets 04:35, Mag +5.8 size 3.7arc seconds.

**Neptune** Evening Rises 12:15 Sets 00:04; Mag +8.0 size 2.4 arc seconds.

**Comet** – A solid body made of ice, rock dust and frozen gasses. As they fracture and disintegrate, some comets leave a trail of solid debris. *Nucleus (solid part): tens of kilometers, Tail: millions of kilometers.*

**Asteroid** – Small rocky, iron or icy debris flying in space. *From 1 meter to hundreds of kilometers.*

**Meteoroid** – A small asteroid. *From microns to 1 meter.*

**Meteor** – The light emitted from a meteoroid or an asteroid as it enters the atmosphere.

**Meteor Shower** – An annual event, when the Earth passes through a region having a great concentration of debris, such as particles left by a comet. From Earth, it looks meteors radiate from the same point in the sky. *(This is called the Meteor Radiant Point)*

**Fireball** – A meteor brighter than the planet Venus. *(Venus's magnitude ranges from -4.9 to -3.8)*

**Bolide** – The light emitted by a large meteoroid or an asteroid as it explodes in the atmosphere.

**Meteorite** – A fragment of a meteoroid or an asteroid that survives passage through the atmosphere and hits the ground. *From a few grams to several dozens of tons.*

There are 11 meteor showers producing noticeable displays throughout the year. Meteor showers are names for the constellations from which they appear to radiate from. All but 1 of the 11 meteor radiant point constellations have a familiar name! The unique shower name is Quadrantid, taken from a Mural Quadrant created by French Astronomer Jerome Lalande in 1795. This now-obsolete constellation was located between Boötes, the Herdsman and Draco the Dragon.

The largest meteor shower in December 4 thru 17 is Geminids. The moon is just past the new phase and won't be a problem. The 14<sup>th</sup> is the peak. At best you can see up to 150 meteors per hour. Go out side after 9 pm and look towards the Eastern horizon. Look to the bright star Caster (yellow star) to the right of the other twin Pollux. The radiant point is just below and to the right of Castor.