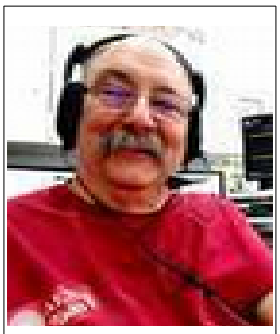
The Ham Arundel News

Providing Fellowship and Community Service through Amateur Radio Since 1951

August 2019 **41st Year of Publication**



Keith Miller, AE3D

The Prez Sez

As most of you know bringing back a Fox Hunt is one of my big desires for 2019. We haven't had one since 2012 as best I can tell, and we are overdue for some just plane frivolous fun with Amateur Radio.

My last Fox Hunt was in the 1980's, when the antenna of choice was a two element antenna made using TV twin lead, and phasing the two elements with a twisted section of the stuff.

We used to meet outside the Double-T diner, and spend the next two hours driving all over Anne Arundel County. It was total fun. One year the Fox was in a tree on a limb over the road. I think we drove under it 3 times without spotting the Fox above. Another year the first triangulation crossed the water, where there was no bridge for several miles. Pick the wrong side of it, and you were instantly behind the eight ball. Sneaky Fox! But there was a lot of laughing during those Fox Hunts.

The entire experience gave the club a whole new sense of camaraderie. We were the Anne Arundel Radio Club, and we were proud of it. It's the kind of feeling about our club that I hope reviving the Fox Hunt will bring back. I hope you will all join me on the morning of September 14th for this year's event, which will end with a trip to the DFRC for the Club Picnic.

It is also time for us to think about the club's budget for 2020. In case you don't know, our organization has a tradition of budgeting based on the amount we expect to receive from membership dues, period. This is not mandated by the Bylaws, but it is tradition. A quick estimate and we receive around $6000 yearly from member dues. But in reality, we also received donation of both cash and radio equipment from many sources during the year. And we now receive enough donations in equipment that we not only have our annual Club Sale and Modified Dutch Auction but we also have a Continuous Sale going on via our web site. The amount from donations and sales can easily exceed $4000. That's 40% of our income. And with the budget set to spend only $6000, unless a number of spending motions are passed by the membership, we end up banking a considerable portion of our yearly income.

We have a sizeable amount in the bank already, enough to easily handle a tower disaster, or a repeater replacement. But, the outgoing Board seldom recommends spending once October starts, and the incoming Board takes a while to get organized and seldom recommends spending motions before late March. Of course by March we are planning Field Day, so things get pushed off even further. And then by the time money is approved the summer is upon us, and by the time the needed supplies arrive, summer is mostly over, and we have trouble completing all the work. So essentially we don't get much done.

If you don't believe me, ask yourself if the North Tower antenna replacement is going to happen in time for the Maryland DC QSO Party, or whether we will really pour concrete at the base of the West Tower this summer. We are still working on the Ham Shack and all will not likely be operational till the end of the year.

We need to start planning ahead. Next year we need to paint the outside of the club house. We need to add equipment to our workshop. We need an antenna system to make our new Ham Shack fully operational, and we need to finish all the projects we don't finish this year. I believe this means we have to set aside money for these projects now, so instead of doing planning in February, we can actually be starting projects in January.

But all this being said, the hardest thing to come by for the Anne Arundel Radio club is not money. It is having enough volunteers to get everything done. If you don't believe that, ask yourself why we don't have a full slate of volunteers to serve as the Ham Shack Antenna Design Committee, or a Fox Hunt Chairman, or a Fox, and why don't we have more Net Controllers for the Holly Net? And well, thank goodness David Rawley N3AT agreed to be Field Day Chairman.

So I'm asking for your help. Please! I want to start Budgeting now for the projects we know we need in 2020, instead of kicking the can down the road. We need to modify our budgeting system so we can do that.

And hey, we could use a few more volunteers too.

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AARC Mesh Networking Group

1:00 to 4:00 PM monthly,

on the 3rd Sunday of the month

AARC Clubhouse, Davidsonville, MD

(Next Meeting will be August 18, 2019.)

AARC Board Calendar for Rest of 2019

This calendar was prepared to assist the Program Chairman in developing his program for the rest of the Club Year. This calendar has been produced using the requirements of the AARC By-Laws to be sure all of the processed are completed by the end of the year.

8-1-2019 - August Business Meeting

8-8-2019 - August Board Meeting
Last chance for Board to review budget before submission to members.

8-10-2019 - Maryland DC QSO Party

8-15-2019 - August Presentation Meeting

9-5-2019 - September Business Meeting
2020 Budget must be presented to members

9-12-2019 - September Board Meeting

9-14-2019 - Club Picnic preceded by Fox Hunt

9-19-2019 - September Presentation Meeting

10-3-2019 - October Business Meeting
2020 Budget must be voted on by General Membership

10-10-2019 - October Board Meeting

10-17-2019 - October Presentation Meeting

10-31-2019 - Last Thursday of October
Nominations for office close.

11-7-2019 - November Business Meeting
Slate of those Nominated Presented to Members
Additional Nominations accepted
Nominations closed

11-14-2019 - November Board Meeting
Board must vote on date for annual meeting (12-5-2019 7:3pm in the clubhouse)

11-15-2019 - Ham Arundel News
Final date available to publish the Slate of Nominations created 11-7-2019

11-21-2019 - November Presentation Meeting

11-27-2019 - Notice Day
Last day to notify members of day, place & time of Annual Meeting, & slate of candidates

11-28-2019 – Thanksgiving
Turkeys are consumed in great numbers

12-5-2019 - Annual Meeting
Officers elected for 2020.

12-31-2019 - Last day of 2019
Treasurer posts receipts, disbursements and balances from 2019

I figured since Tim needed this for planning purposes, I might as well send it to everyone. I looked all this up in the 2010 Bylaws. It seems the Board must present a proposed budget to the membership on September 5, the September Budget Meeting. There is no requirement as to when that budget must be created by, or voted on by the Board.

Will Mooney, the Club Treasurer, tells me he may not even be able to make the August meeting. This means if we are to meet our deadline, we must either reschedule the August Board meeting, or schedule an extra Board meeting just to create a suitable budget and get it voted on.

In looking through the Bylaws I see only one section pertaining to the Budget. Read it, please!

> **SECTION 6. *Budget.* The Board of Directors shall present at the September business meeting, for approval at the October business meeting, a proposed operating budgeted for the following year. The Board of Directors will ensure that the Club is operated within fifteen percent (15%) of the approved budget and not at a deficit during any fiscal year, unless otherwise approved by a vote of the membership.**

Perhaps we have been working under some misconceptions. Then may have been well intentioned but somehow have become 'written in stone'. By following the By-Laws we will save some difficulties in the succeeding years.

Now obviously there are good accounting practices that need to be adhered to, but we need to find out what those are before we move forward. I am beginning to see that a lot of what I have been told as 'written in stone' just isn't.

73s.......

Keith Miller, AE3D
AARC President

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MARYLAND-DC QSO PARTY

August 10th, 2019 !!!

Check W3VPR.org website for Useful Links:

To makes inquiries:

To download the following blank summary sheets

To download important documents

To find out more about these 4 types of contest logging software

To download results files from previous Maryland-DC QSO Parties

The Chairman for the 2019 MDC QSO Party is

Jim Wallace, N3ADF

If you have any comments, questions or recommendations
about the MDC QSO Party please send them to:
mdcqsop@w3vpr.org

ARRL FIELD DAY 2019 is a Hit

ARRL Field Day isn't over until participants take that final step of submitting their entries. By Thursday at 1800 UTC, nearly 1,400 had done so. The preferred method of submitting a Field Day entry is via the 2019 Field Day Entry Form on the ARRL website. This app, developed and supplied by Bruce Horn, WA7BNM, asks for the call sign used (as well as the GOTA station call sign, if applicable), entry class, number of participants, list of operators, power source and multiplier, claimed bonus points, contact totals by band and mode, and GOTA station operators and contact totals. It also allows the attachment of supporting information for bonuses. In addition, all entries require a list of stations contacted by band and mode (a dupe sheet). A Cabrillo file is also acceptable. Log files or summary sheets alone sent to ARRL do *not* constitute a valid Field Day entry. To confirm that your web entry has been received, visit the Field Day logs received page. If the entry indicates "Pending documents," upload the missing items for maximum scoring. Entries must be postmarked or submitted by Tuesday, July 23, 2019. Late entries cannot be accepted.

Field Day is typically a club activity, and by the time the fourth weekend in June had arrived, nearly 1,600 groups had registered their locations.


The NB6GC crew operated from the deck of the USS *Hornet*.

The South Jersey Radio Association's (SJRA) K2AA operated in the 7A category. "This was a great effort by the SJRA members and guest operators, especially at the low point in the sunspot cycle and what seemed like not very good conditions," Bob Beyer, KE2D, reported on 3830scores.com. "Our digital station was the new star this year, contributing 232 QSOs -- a considerable improvement over other years."

W3AO, the well-known call sign of the National Press Radio Club in Maryland, had an unofficial contact count of 10,000 in the 14 A category. "Propagation on 15 and especially 10 meters was somewhat sub par, same for 6 meters," said Frank Donovan, W3LPL. "FT8 has fundamentally changed the digital landscape; there was very limited RTTY and PSK31 activity. There was also very limited CW and SSB activity on 6 meters."

One operator who posted to the ARRL Field Day 2019 Facebook page was among those pointing out that propagation was difficult; while he was able to hear stations on the other side of the country and in the Caribbean, they could not hear him. He also reported high atmospheric noise. Nonetheless, others reported openings on 6, 10, and 15 meters, where good propagation has been sparse in recent months.

Wade Harris, KF5IF, was part of the crew at the USS *Batfish* WW2SUB Field Day in Oklahoma. "Everyone seemed to have a good time, but it was a less-than-wonderful Field Day event, mainly due to storms that caused noisy band conditions and severe lightning and high winds that caused everyone to disconnect and drop the antennas to stay safe," he said on the ARRL Field Day 2019 Facebook page. Less than a month ago, extreme flooding at the museum floated the World War II submarine downriver, after mooring lines broke.


Rob Collins, W8HAP, tweaks the antenna tuning at the Ellsworth (Maine) Amateur Radio Association's W1TU Field Day site. [Rick Lindquist, WW1ME, photo]

Donald Purnhagen, K4ILG, in Florida said his 10-year-old daughter, Donalyn, caught the bug operating the GOTA station at the Platinum Coast Amateur Radio Society Field Day site (W4MLB). "After some quick instructions, she was answering CQs, exchanging information, and logging contacts," he reported on the ARRL Field Day soapbox page. Her dad said Donalyn was eager to return the next day and logged a total of some 40 contacts. "I am pretty sure that she will be ready to take her Technician exam by the time our hamfest rolls around in October," he added.

Michelle Gangi, AC2SQ, who was among the Community Amateur Radio Club (K2SRV) operators in New York, asked in jest if bonus points were available for having a wedding take place in the midst of a Field Day setup. "Apparently, the lighthouse we're set up at double booked," she posted on the ARRL Field Day 2019 Facebook page. "We respectfully shut down our stations for the ceremony."

Brenda Plummer, KD9GDX, narrated a video tour of the Fort Wayne Radio Club's Field Day operation in Indiana.

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Many MDC Section FD 2019 Reported Record High Scores This Year

"Thanks to all the MDC Section Amateur Radio operators and groups for demonstrating to your communities, leadership, served agency representatives and showing the true capabilities of our radio experience and knowledge. "

"Several Section leaders visited many sites covering a major portion of FD2019 sites. The weather was extraordinary awesome, allowing our radio groups to successfully and safely deploy a wide-variety of HF, VHF/ UHF, SHF & Satellite ground stations. Many sites provided food and beverages throughout the 2-day event."

"Let me share the most remarkable part of any ARRL Field Day - it's the opportunity to see the camaraderie of our Amateur Radio members doing what they love so much. The next most enjoyable part is seeing all of Maryland and the District of Columbia, Washington D.C. The first-hand experience of visiting our cities, farmlands, shorelines, urban areas, the historic towns from Western Maryland, the Appalachian Mountains, the Chesapeake Bay, Southern Maryland and our Eastern Shore. So many wonderful things to witness, from Sunrise to Sunset and all through the night."

Used with permission MDC Section News. July 19, 2019

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ARRL Announces "Happy 150!" Hiram Percy Maxim Birthday Celebration

This year marks the 150th anniversary of the birth of ARRL's first president and cofounder Hiram Percy Maxim (HPM), W1AW, born on September 2, 1869. ARRL will hold an operating event to celebrate HPM's legacy, getting under way at 0000 UTC on August 31, and continuing until 2359 UTC on September 8. The event is open to all radio amateurs.

The goal is straightforward: Contact as many participating stations as possible. W1AW and *all* ARRL members will append "/150" to their call signs during this event (DX operators who are ARRL members may identify as <*call sign*>/150, if permitted by their country of license.) Participating stations will exchange signal report and ARRL/RAC Section. DX stations will send signal report and "DX." Those taking part may use all Amateur Radio bands, *excluding* 60, 30, 17, and 12 meters.

Permitted modes: CW, phone (any voice modes), and digital. Submit Cabrillo log or ADI files. ARRL will calculate all final scores based on participants' uploads to the ARRL event web app (link not yet active).

The 84 available multipliers only count once. These include the 83 ARRL/RAC Sections (RAC Sections include the Canadian Northern Territories, encompassing VE8, VY1, and VY0) and DX. The W1AW operating schedule during this period may be adjusted as necessary to accommodate on-air celebration operating activities. Contacts with W1AW/150 will earn 3 points each. Contacts with any ARRL member will earn 2 points each. These stations will also identify as <*call sign*>/150. Contacts with nonmembers will earn 1 point each.

Participants can earn 150 bonus points by:

- Contacting W1AW/150 on each band and mode.
- Uploading entries (ARRL members only).
- Using social media to publicize this event and/or participation before, during, and/or after the event.
- Operating with 5 W PEP output or less throughout the event.
- Making at least 20 contacts while operating portable.
- Completing at least 150 contacts.

Online certificates will be awarded, and are available via download only. Updates and results will be publicized.

There are no power or operator categories. Participating ARRL members who use Logbook of The World (LoTW) are encouraged to create a separate LoTW certificate for uploading <*call sign*>/150 contacts. Members then should upload logs for this event using their /150 certificates. Submissions must be via the online web app. No email or paper submissions will be accepted.

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Section Manager's Moment Hiram Percy Maxim

"This year is the 150th anniversary of Hiram Percy Maxim birth, born on September 2nd, 1869 in Brooklyn, New York. He is buried at the Rose Hill Cemetery, in the Hamilton family plot belonging to his wife's family at the oldest public cemetery in Washington County Maryland. The W1AW, Hiram Percy Maxim Memorial Station represents both the legacy and the future of our wonderful fellowship. "

"ARRL Announces "Happy 150!" Hiram Percy Maxim Birthday Celebration - ARRL will hold an operating event this summer to celebrate HPM's legacy, getting under way at 0000 UTC on August 31 and continuing until 2359 UTC on September 8. It is open to all radio amateurs. "

http://www.arrl.org/news/arrl-announces-happy-150-hiram-percy-maxim-birthday-celebration

"W3CWC - Antietam Radio Association, Hagerstown, Maryland is proposing an HPM 150th Birthday Special Event Station for Aug 31, Sept 1, Sept 2. QSL with SASE. Operations probably in the 20m, 40m, and 75m bands. More details forthcoming. "

73

Marty Pittinger
KB3MXM

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HWN and National Hurricane Center's WX4NHC Activate for Tropical Storm Barry

Responding to then-Tropical Storm Barry, the Hurricane Watch Net (HWN) and WX4NHC -- the Amateur Radio station at the National Hurricane Center (NHC) in Miami -- activated on July 12. The HWN's primary frequency is 14.325 MHz with 7.268 MHz as a secondary channel, depending upon propagation. This time, the HWN fired up on both bands.

Net Manager Bobby Graves, KB5HAV, noted that the HWN would be available to provide back-up communication to official agencies in the affected area and would collect and report "significant damage assessment data" to FEMA officials at the National Hurricane Center.

The HWN works in concert with WX4NHC at the NHC to help forecasters get a better sense of ground-level meteorological data such as wind speed, barometric pressure, and rainfall.

Forecasters predicted that Barry would develop into a Category 1 hurricane before making landfall, and the storm lived up to those expectations. Dangerous storm surge, heavy rainfall, and high wind conditions were expected across the north-central Gulf Coast.

The major fear was that heavy rainfall could generate additional flooding in the region. NHC forecasters said Barry was expected to produce total rain accumulations of 10 to 20 inches over south-central and southeast Louisiana, as well as over southwest Mississippi, with isolated maximum amounts of 25 inches. The actual rainfall was somewhat less but still significant.

The HWN officially secured operations for Hurricane Barry on July 13, after the storm made landfall on the Louisiana coast. Graves said the activation for Barry "proved to be a good training platform for our newest members" and an opportunity to test new systems.

WX4NHC volunteers Susie Blank, WX2L (left), and Alan Wolfe, WB4L (right), with WX4NHC Coordinator John McHugh, K4AG, at the Hurricane Barry activation. [Julio Ripoll, WD4R, photo]

WX4NHC remained active for 2 days, gathering surface reports from stations located in the affected areas for use by forecasters. "We received many reports about the flooding, downed trees, road closures, and power outages," said WX4NHC Assistant Coordinator Julio Ripoll, WD4R. He expressed gratitude for the support of the Hurricane Watch Net and the EchoLink VoIP Hurricane Net (WX_TALK).

"Remember, the season is still young, so please, don't drop your guard," Graves advised

Used with permission The ARRL Letter for July 18, 2019

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MDC Section 2019 HURRICANE & SEVERE STORMS

"Hurricane Barry was the fourth recorded storm to make landfall at hurricane strength on the state of Louisiana in the month of July. A clear reminder that Hurricanes don't always originate at Sea; as Barry's started in the U.S. Mid-West as a mesoscale convective vortex (MCV) on July 4th before moving to the Gulf of Mexico on July 10th. A tropical cyclone developed into a tropical storm on the next day, becoming the 2nd named storm of the 2019 season. By July 13th Hurricane Barry hit CAT-1 by late July 15th, then degenerated and dissipating by July 19th. Louisiana's ARES was activity in supporting their communities - see website **(https://www.laarrl.org/ss/la-ares/)** links to 8 Facebook Pages to keep their ARES members, served agencies and the public informed throughout the storm and other critical events. "

"The MDC Section recently impacted by damaging winds and torrential rain wide-spread causing flash flooding. We had several Severe Thunderstorms moving at +40 mph throughout Central and Eastern Maryland & Chesapeake Bay with Wind Hazard +60 mph. Over the past month swarms of severe storms hit our MDC Section (Jun. 18, 25, 28, 29, 30; Jul. 3, 5, 7, 12 & 18) causes isolated damage and impact to some Hams. SKYWARN was activated during some events and our MDC ARES was placed in 'Monitoring Mode.'"

"Having RF communications allows us the effectively share and support our communities. So, have a ""Go-Bag"" and get your ARES training before the next disaster. "

To help you with a **Disaster Cookbook** you'll need an Online Bookmark List with multiple online resources available to stay informed and manage your situational awareness:

https://www.weather.gov/lwx/ - NWS (LWX) Sterling VA
https://www.wpc.ncep.noaa.gov/#page=ovw - Weather Prediction Center
https://www.nhc.noaa.gov/ - National Hurricane Center
https://waterwatch.usgs.gov/?m=real&r=md – Maryland Stream Gauges
https://www.ndbc.noaa.gov/maps/Chesapeake_Bay.shtml - Chesapeake Bay Recent Marine Data
https://www.hwn.org/ - Hurricane Watch Net (HWN)
https://www.nws.noaa.gov/nwr/Maps/PHP/MD.php - NWR Radio coverage Maryland
https://www.nws.noaa.gov/nwr/Maps/PHP/DC.php -

NWR Radio coverage District of Columbia (DC)
https://geodata.md.gov/ospreypublic/ - **https://mema.maryland.gov/Pages/OSPREYdashboard.aspx** - MEMA Dashboard (Power, Weather, Transportation, Hospitals, Shelters, Flood)"
http://www.mgs.md.gov/seismic/index.html – Maryland Geological Survey, Earthquakes "
https://www.weather.gov/skywarn/md-skywarn - SKYWARN, Maryland & Washington D.C. "
http://www.arrl-mdc.net/ - Maryland / DC Section website
https://twitter.com/MDCARRL - Our Twitter is @MDCARRL
https://www.facebook.com/ARRLMDC/ - Facebook is @ARRLMDC
http://www.arrl.org/sections/view/maryland-dc - ARRL HQ MDC
https://chart.maryland.gov/travinfo/travinfo.asp - Coordinated Highways Action Response Team
http://www.arrl.org/find-a-club - Find MDC Section Amateur Radio Clubs
https://www.lightningmaps.org/#m=oss;y=38.2424;x=-76.42;z=8;t=3;d=2;dl=2;dc=0; - Maryland Lightning Map
http://www.arrl.org/field-day-locator - Field Day Locator
http://www.arrl.org/find-an-amateur-radio-license-exam-session - MDC Section VE Testing
https://lgdc.uml.edu/common/DIDBYearListForStation?ursiCode=WI937 – Wallops Island Digisonde Propagation
Used with permission MDC Section News. July 19, 2019
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FAA Reauthorization Act of 2018 Changes Recreational Drone Flying Requirements

The FAA Reauthorization Act of 2018 includes changes to recreational drone flying in the US. Radio amateurs have used drones to inspect antenna systems and terrain and to carry support lines aloft, as well as for other purposes. The FAA considers those who fly their drones for fun as recreational users. The FAA Reauthorization Act of 2018 describes how, when, and where owners may fly drones for recreational purposes. These broad guidelines should apply to most Amateur Radio users of drones.

- Register as a "modeler." A registrant must be at least 13 years old and a US citizen or legal permanent resident.
- Label your model aircraft with your registration number.
- Fly only for recreational purposes.
- Follow the safety guidelines of a community-based organization (see below).
- Fly your drone at or below 400 feet when in uncontrolled or Class G airspace, and do not fly it in airspace where flight is prohibited.
- Keep your drone within your line of sight or within the line-of-sight of a visual observer who is co-located and in direct communication with the operator.
- Never fly near other aircraft, especially near airports.
- Never fly over groups of people, public events, or stadiums full of people.
- Never fly near emergencies such as any type of accident response, law enforcement activities, firefighting, or hurricane recovery efforts.
- Never fly under the influence of drugs or alcohol.

Recreational flyers who intentionally violate any of these safety requirements and/or operate in a careless and reckless manner could be liable for criminal and/or civil penalties. Read the Authorization for limited recreational operations as described in Section 44809 (PDF). All limited recreational operations should be conducted in accordance with this authorization.

For more information, read Advisory Circular 91-57B.

The FAA is upgrading the online system, known as LAANC (the Low Altitude Authorization and Notification Capability), so that recreational operations can get automated airspace authorizations to fly in controlled airspace.

The new law also will require that drone operators pass an online aeronautical knowledge and safety test and carry proof of test passage. The FAA is developing the test in consultation with stakeholders. Recreational flyers would have to pass the test, which could be administered electronically. The FAA will provide additional guidance and will notify when the test is available. The FAA also will issue guidance for how it will recognize community-based organizations.

More detailed information about the FAA's plan to fully implement the requirements of Section 349 of the FAA Reauthorization Act of 2018 is available in the *Federal Register*.

Used with permission The ARRL Letter for July 11, 2019
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THE HOLLY NET

Net Control Radio Operators
ARE NEEDED

during the work-weekdays -

from 0700 to 0900 am.

Contact: Jim Wallace, N3ADF

AARC STAFF – 2019

Officers

President	Keith Miller / AE3D president@w3vpr.org	240 758 0423
Vice President	Tim Nagel / KB3YQK vice.president@w3vpr.org	
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Treasurer	Bill Mooney / KA3UQQ treasurer@3vpr.org	
Director A	Eric Berman / KC3GDV eric.board19@w3vpr.oprg	
Director B	Larry Booth / AA3AU larry.board19@w3vpr.org	
Director C	Bernie Coletta / NK3PS bernie.board19@w3vpr.org	

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Information Officer	Ed Santilli / KB3YMU info.officer@w3vpr.org	
Safety	John Bowes / KB3YLY safety@w3vpr.org	443 760 1666
Security	Tom Provenza / N3HLD security@w3vpr.org	

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FAR	Ed Brown / AA3EB far.rep@w3vpr.org	301 856 3317
Fox Hunt	Bruce Strackbein / WR3Q fox.hunt@w3vpr.org	
Joint 440 Comm	Gordon Davids / WJ3K joint440@w3vpr.org	410 647 2956
MD Slow Net	Bruce Stewart / W8CPG chickenfarm9@gmail.com	
MDC Section Manager	Marty Pittinger / KB3MXM arrl.sec.mgr@w3vpr.org	
Public Relations	Ed Santilli / KB3YMU pr@w3vpr.org	301 261 7561
Resident Agent	Justin Leishman / KC3BJT ra@w3vpr.org	
Trustee	Dick Mayo / WW3R trustee@w3vpr.org	

Committees

Club Sale & Auction	Ike Lawton / W3IKE club.sale@w3vpr.org	
Digital Networking	Scott Rasmus / KC3BFW networking@w3vpr.org	240 758 0463
Facilities	Eric Berman / KC3GDV facilities@w3vpr.org	
Field Day	(TBD) field.day@w3vpr.org	
Station Manager	Rick Steer / AB3XJ ham.shack.coordinator@w3vpr.org	
Ham Shack Renovation	Jamison Phipps / W3KNH ham.shack.renovation@w3vpr.org	
Holly Net	Jim Wallace / N3ADF holly.net@w3vpr.org	
HSMM-MESH	(TBD) hsmm.mesh@w3vpr.org	
Kit building & Repair	'Raven' Weiland / KB3MUV kit@w3vpr.org	203 948 5369
MDC QSO Party	Jim Wallace / N3ADF mdcqsop@w3vpr.org	301 538 6233
Newsletter	Milford Craig / N3WYG newsletter@w3vpr.org	301 218 8867
Packet Radio	Jonathon Grafe / AE2JG packet@w3vpr.org	240 426 2664
Program	Tim Nagel / KB3YQK vice.president@w3vpr.org	
Public Service	Erick Graves / WA3G public.service@w3vpr.org	410 987 7670
Repeater Ops	John Williams / K8JW repeaters@w3vpr.org	410 647 7406
Rules	Chuch Tanner / K3ACT rules@w3vpr.org	301 464 2667
Service Hours	Jim Wallace / N3ADF service.hours@w3vpr.org	301 538 6233
Tower	(TBD) tower@w3vpr.org	
Training	Keith Miller / AE3D training@w3vpr.org	240 758 0423
VE Team	David Rawley / AE5Z testing@w3vpr.org	
Webmaster	Mark Bova / W2PAW webmaster@w3vpr.org	240 274 6294
Wed. Nite Net	Jamison Phipps / W3KNH wednesday.night.net@w3vpr.org	
Winter Field Day	Rick Steer / AB3XJ winter.field.day@w3vpr.org	

Groups

Board of Directors	board19@w3vpr.org
Kit Building Committee	kitbuilding@w3vpr.org
Rules Committee	rules.com@w3vpr.org

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VE Testing Schedule

Second Saturday of each month – Noon – AARC – Rick Steer / AB3XJ **testing@w3vpr.org**

Third Saturday of each month – 9AM – Laurel ARC **–** John Creel, 301-572-5124

Fourth Tuesday of each month – 6PM – MMARC – Mike Montrose / KA2JAI 443-310-4907 web site is tinyurl.com/marylandmobileers

To all exams bring:

- Picture ID
- Social Security Number or FCC Registration Number (FRN)
- **ORIGINAL** and a **COPY** of current FCC amateur radio license

ORIGINAL and a COPY of all element credits (eg., FCC letters, old licenses or unexpired Certificates of Successful Completion of Examination-CSCE)

"Perfect is the Enemy of Good"

That little gem of a phrase has been attributed to Voltaire, and it gets rediscovered and repackaged from time to time. I bet that most Amateurs would say "of course it is" if you mentioned this phrase to them. There's imperfection all the way down! The Ionosphere is an imperfect medium, subject to the capricious nature of the sun. Our operating location can suddenly be surrounded by plasma TVs and people arc welding on contest weekends.

We don't have enough room for all of the antennas we want. We can't get our antennas high enough. The exact relay we wanted for our coax switch is no longer available. The zip ties we had to use most recently are the wrong color and don't match the others.

All of those things could keep us from the enjoyment of being on the air, if we demand perfection!

Instead, we muddle through, sometimes using compromise antennas, re-purpose equipment that we have, or surplus equipment.

But just having "good" leaves room for the possibility of always finding and using something better, which drives innovation.

I don't know if Robert Watson-Watt was an Amateur Radio Operator, but in my mind this Scotsman certainly had all of the qualities. In the 1920s he figured out how to use oscilloscopes with long-persistence phosphor and directional antennas to detect the direction of potentially damaging thunderstorms for pilots. He also was among the first to determine there was a layer of something in the sky that would reflect radio signals. It was called the Heaviside layer then, ionosphere now.

He was able to use his oscilloscopes to observe the return echoes of signals to determine the height of the reflective layer. This was the precursor to RADAR. During WW2, he was instrumental in developing airborne RADAR to counter nighttime enemy bombers. But he faced challenges in the physical size of the equipment and power consumption.

The gear he came up with weighed less than 200 lbs, and consumed less than 500 watts of power. He realized those constraints meant that he would have to use a frequency greater than 300 MHz to minimize antenna size, but those frequencies were a challenge in those days. It wasn't perfect, but worked well enough by 1940 to help end the Blitz.

His view on perfection –

"Give them the third-best to go on with; the second-best comes too late, the best never comes."

That's all for this time. Remember to send contesting related stories, book reviews, tips, techniques, press releases, errata, schematics, club information, pictures, stories, blog links, and predictions to contest-update@arrl.org

73,
Brian N9ADG

Used with permission The ARRL Contest Update for July 10, 2019
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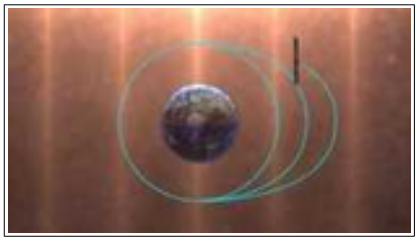
LightSail 2 Launches, Will Transmit CW Beacon

The Planetary Society's LightSail 2 CubeSat, launched on June 25, will transmit Morse code from space on 437.025 MHz, within the Amateur Radio 70-centimeter band. LightSail is a citizen-funded project to send a small spacecraft, propelled solely by sunlight, into Earth's orbit. The innovative satellite is due to be deployed on July 2 from Prox-1, a Georgia Tech student-built spacecraft. Once deployed, LightSail 2 will automatically transmit a beacon packet every few seconds, which can be decoded into 238 lines of text telemetry describing the spacecraft's health and status, including everything from battery status to solar sail deployment motor state.

LightSail 2 lifted off from Kennedy Space Center, Florida, carried by the SpaceX triple-booster Falcon Heavy rocket. The launcher also carried aloft two dozen US Air Force spacecraft.



"During its ride to orbit, LightSail 2 was tucked safely inside its Prox-1 carrier spacecraft," The Planetary Society said post-launch. "The Falcon Heavy upper stage's payload stack released Prox-1 about an hour and 20 minutes after liftoff, at an altitude of roughly 720 kilometers (446 miles). Prox-1 will house LightSail 2 for one week, allowing time for other vehicles released into the same orbit to drift apart so each can be identified individually."

LightSail 2 team members will soon converge at Cal Poly San Luis Obispo in California, where the spacecraft's mission control is located. Once LightSail 2 is released from Prox-1, the team will spend several days checking out its systems before commanding its dual-sided solar panels to deploy. Following that, the spacecraft's solar sails will be deployed in approximately 2 weeks.

Two US Naval Academy student-built satellites carrying Amateur Radio payloads were on the launch. BRICSat-2 (call sign USNAP1) will function as a 1.2/9.6 kB APRS digipeater on 145.825 MHz. Telemetry will be transmitted on 437.975 MHz. PSAT-2 also will operate on 145.825 MHz with APRS to voice and DTMF to voice/APRS, and it will carry a 28.120 MHz up/435.350 MHz down PSK31 transponder. An SSTV camera will transmit on the same downlink. -- *Thanks to The Planetary Society, Bob Bruninga, WB4APR, and* AMSAT News Service

Used with permission The ARRL Letter for June 27, 2019
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W1AW 2019 Spring/Summer Operating Schedule

Morning Schedule:

Time	Mode	Days
1300 UTC (9 AM ET)	CWs	Wed, Fri
1300 UTC (9 AM ET)	CWf	Tue, Thu

Daily Visitor Operating Hours:

1400 UTC to 1600 UTC - (10 AM to 12 PM ET)
1700 UTC to 1945 UTC - (1 PM to 3:45 PM ET)

(Station closed 1600 to 1700 UTC (12 PM to 1 PM ET))

Afternoon/Evening Schedule:

2000 UTC	(4 PM ET)	CWf	Mon, Wed, Fri
2000 "	"	CWs	Tue, Thu
2100 "	(5 PM ET)	CWb	Daily
2200 "	(6 PM ET)	DIGITAL	Daily
2300 "	(7 PM ET)	CWs	Mon, Wed, Fri
2300 "	"	CWf	Tue, Thu
0000 "	(8 PM ET)	CWb	Daily
0100 "	(9 PM ET)	DIGITAL	Daily
0145 "	(9:45 PM ET)	VOICE	Daily
0200 "	(10 PM ET)	CWf	Mon, Wed, Fri
0200 "	"	CWs	Tue, Thu
0300 "	(11 PM ET)	CWb	Daily

Frequencies (MHz)

CW: 1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675 50.350 147.555
DIGITAL: - 3.5975 7.095 14.095 18.1025 21.095 28.095 50.350 147.555
VOICE: 1.855 3.990 7.290 14.290 18.160 21.390 28.590 50.350 147.555

Notes:

CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM
CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and 10 WPM
CWb = Morse Code Bulletins = 18 WPM
CW frequencies include code practices, Qualifying Runs and CW bulletins.

DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2230 UTC (6:30 PM ET), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0000 UTC (8 PM ET) Thursdays and 0000 UTC (8 PM ET) Fridays.

Audio from W1AW's CW code practices, and CW/digital/phone bulletins is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here as well. The CW/digital/phone audio is sent in real-time and runs concurrently with W1AW's regular transmission schedule.

All users who connect to the conference server are muted. Please note that any questions or comments about this server should not be sent via the "Text" window in EchoLink. Please direct any questions or comments to w1aw@arrl.org .

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

FCC licensed amateurs may operate the station from 1400 UTC to 1600 UTC (10 AM to 12 PM ET), and then from 1700 UTC to 1945 UTC (1 PM to 3:45 PM ET) Monday through Friday. Be sure to bring your current FCC amateur license or a photocopy.

The complete W1AW Operating Schedule may be found on page 93 in the March 2019 issue of QST or on the web at, http://www.arrl.org/w1aw-operating-schedule .
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Local Hamfests

You may view upcoming Hamfests which are being held in the MDC Section and nearby in Pennsylvania, Delaware, West Virginia and northern Virginia area by clicking on either: MDC SECTION Hamfests or the ARRL's Hamfest, Field Day and Convention Calendar. Starting in May 2019, the following Web-links will replace the Section New list of MDCs HAMFEST,
: http://www.arrl.org/hamfests-and-conventions-calendar
- - - - - - - - - - - - - - -
"07/21/2019 - **Somerset County, Pennsylvania Hamfest**, Somerset, PA - http://k3smt.org"
"07/27/2019 - **CVARC HAMFEST**, Chambersburg, PA - http://www.w3ach.org/"
"08/03/2019 - **Reading Radio Club's Hamfest**, Sinking Spring, PA - http://readingradioclub.org"
"08/03/2019 - **Roanoke HamFun 2019**, Vinton, VA - http://roanokehamfest.info/"
"08/04/2019 - **69th Annual Berryville Hamfest**, Berryville, VA - http://www.svarc.us/hamfest"
"08/10/2019 - **57th Annual Hamfest,** Huntington, WV - http://www.orgsites.com/wv/taraclub/"
"08/23/2019 - **West Virginia State Convention**, Weston, WV - http://qsl.net/wvsarc/"
"08/25/2019 - **Skyview Radio Society ""Swap N Shop""**, New Kensington, PA - http://www.skyviewradio.net/"
"08/31/2019 - **70th Annual Gabfest**, Uniontown, PA http://www.w3pie.org"
Used with permission MDC Section News. July 19, 2019
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New Device Creates Electricity from Snowfall

UCLA reports that researchers and colleagues there have designed a new device that creates electricity from falling and fallen snow. The first-of-its-kind device is inexpensive, small, thin, and flexible like a sheet of plastic.

"The device can work in remote areas, because it provides its own power and does not need batteries," said senior author Richard Kaner. "It's a very clever device -- a weather station that can tell you how much snow is falling, the direction the snow is falling, and the direction and speed of the wind."

The researchers call it a snow-based triboelectric nanogenerator, which generates charge through static electricity and produces energy from the exchange of electrons.

Findings about the device are published in the journal *Nano Energy*.

"Static electricity occurs from the interaction of one material that captures electrons and another that gives up electrons," said Kaner. "You separate the charges and create electricity out of essentially nothing."

Snow is positively charged and gives up electrons. Silicone -- a synthetic rubber-like material composed of silicon and oxygen atoms, combined with carbon, hydrogen and other elements -- is negatively charged. When falling snow contacts the surface of silicone, that produces a charge that the device captures, creating electricity.

"While snow likes to give up electrons, the performance of the device depends on the efficiency of the other material at extracting these electrons," said co-author Maher El-Kady, a UCLA assistant researcher of chemistry and biochemistry. "After testing a large number of materials including aluminum foils and Teflon, we found that silicone produces more charge than any other material."

Hiking shoe with device attached. [Abdelsalam Ahmed for UCLA, photo]

About 30 percent of the Earth's surface is covered by snow each winter, during which time solar panels often fail to operate, El-Kady noted. The accumulation of snow reduces the amount of sunlight that reaches the solar array, limiting the panels' power output. The new device could be integrated into solar panels to provide a continuous power supply when it snows, he said.

Used with permission The ARRL Letter for June 27, 2019

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Major WSJT-X Upgrade Boosts FT4 into "a Finished Protocol for HF Contesting"

The **WSJT Development Group** has announced the "general availability" release of *WSJT-X* version 2.1.0. This major upgrade formally introduces FT4 as a finished protocol for HF contesting. *WSJT-X* version 2.1.0 supplants any "release candidate" (beta) versions, and users should discontinue using any beta versions of the software. The latest edition of the popular digital software suite also includes improvements and bug fixes in several areas, including FT8. The list includes:

- FT8 waveform generated with GMSK, and fully backward compatible
- User options for waterfall and spectrum display
- Contest logging
- Rig control
- User interface
- UDP messaging for inter-program communication
- Accessibility

The WSJT-X Development Group is providing a separate *WSJT*-X version 2.1.0 installation package for 64-bit Windows that offers significant improvements in decoding speed.

A detailed list of program changes since *WSJT-X* version 2.0.1 is included in the cumulative **Release Notes**. Upgrading from earlier versions of *WSJT-X* should be seamless, with no need to uninstall a previous version or to move any files.

Installation packages for Windows, Linux, and Macintosh are available.

WSJT-X is licensed under the terms of Version 3 of the GNU General Public License (GPL). "Development of this software is a cooperative project to which many Amateur Radio operators have contributed," said Joe Taylor, K1JT, for the WSJT Development Group. "If you use our code, please have the courtesy to let us know about it. If you find bugs or make improvements to the code, please report them to us in a timely fashion."

Some users have reported a low audio level to the transmitter when using the 64-bit Windows version, which required greatly increasing the sound card Playback device used to feed audio to the transmitter.

Visit the **FT8/FT4/JT9: WSJT 2-Way Narrow Modes for Amateur Radio** Facebook page for additional information.

Used with permission The ARRL Letter for July 18, 2019

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World Wide Radio Operators Foundation Announces Global Digital DX Contest

The World Wide Radio Operators Foundation (**WWROF**), in collaboration with the Slovenia Contest Club (**SCC**), has announced the World Wide Digi DX Contest (**WW Digi**), which it hopes will become an annual event. The inaugural running of the 24-hour contest will take place on August 31 – September 1. The new contest aims to tap into the enthusiasm being generated by the new digital modes pioneered by Joe Taylor, K1JT, and the *WSJT-X* Development Group. Participants will use FT4 and FT8 on 160, 80, 40, 20, 15, and 10 meters. The WW Digi will utilize a distance-based scoring system, with participants earning points based on the distance between grid square centers of the two stations in a given contact.

“This will encourage operators to seek out long-distance, weak-signal contacts that highlight the technical advantages of the new digital modes,” WWROF’s announcement said.

To encourage activity across all bands, each new two-character grid field contacted on each band will be a multiplier. The final score will the product of total contact points and grid *field* contacts. Single-operator and multioperator entries are invited to take part.

“The contest has been designed to enable making contacts utilizing standard *WSJT-X* software behavior, making it easy for non-contesters to participate,” the announcement said. “At the same time, the contest supports some new techniques that will encourage operating innovation, such as permitting stations to work up to three ‘QSO streams’ on a band at one time. Robotic operation is specifically prohibited in order to keep the human element as part of the game.”

Plaques will be awarded to top scorers. (**Contact** WW Digi Contest Director Ed Muns, W0YK, to sponsor an award.) Downloadable electronic certificates will be available for anyone who submits a log. WWROF plans to have results available within 90 days of the contest’s conclusion.

WWROF is dedicated to improving the skills and fun of Amateur Radio operators around the world by utilizing education, competition, advancement of technology, and scientific research, promoting international friendship and goodwill. It is a nonprofit, donor-supported organization.

Used with permission The ARRL Letter for July 18, 2019

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HAM RADIO 2019 Reports 14,300 Attended from 50 Countries

While thousands were enjoying ARRL Field Day over the June 21 - 23 weekend, some 14,300 visitors from more than 50 countries arrived on the shores of Lake Constance in Friedrichshafen, Germany, for HAM RADIO 2019. Show officials said this 44th event attracted about 400 more visitors this year. The previously reported 2018 attendance of 15,460 included radio amateurs, invited Scouts, and attendees at the concurrent and co-located Maker Faire, which did not take place at this year's show. This year's show boasted 184 exhibitors and associations from 32 countries.

A young operator at the HAM RADIO youth "Ham Camp" station DA0HC. [Messe Friedrichshafen, photo]

ARRL fielded a contingent of representatives to HAM RADIO 2019, headed by President Rick Roderick, K5UR.

"The ARRL booth was busy," reported ARRL Product Development Manager Bob Inderbitzen, NQ1R. "Many international attendees joined ARRL or renewed their memberships. It was nice to meet so many radio amateurs from around the globe." Inderbitzen said he was struck by the large number of younger attendees.

"Many of these young radio amateurs and prospective hams attended Ham Camp," Inderbitzen said. "A large contingent representing Youngsters on the Air (YOTA), an initiative of IARU Region 1, helped promote the 2019 YOTA summer camp, August 11 - 17 in Bulgaria. During HAM RADIO, young hams carried the YOTA flag to each of the stands organized by International Amateur Radio Union (IARU) member-societies, gathering crowds to cheer on the young hams."

HAM RADIO 2020 will take place June 26 - 28.

Used with permission The ARRL Letter for June 27, 2019

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No Consensus Reached for FCC on “Symbol Rate” Issues

ARRL-initiated efforts for rival parties to reach consensus on some of the issues they raised in the so-called “Symbol Rate” proceeding have ended. In April, the FCC granted ARRL’s request for a 90-day hold in the proceeding, FCC Docket WT 16-239, to provide an opportunity for ARRL to lead an effort to determine whether consensus could be reached on some or all of the issues that commenters have raised in the FCC’s proceeding. The FCC already has issued a ***Notice of Proposed Rulemaking*** in WT 16-239, which stemmed from ARRL’s rulemaking petition RM-11708.

Discussions were since widened to include issues raised in another *Petition for Rule Making*, **RM-11831**, filed by Ron Kolarik, K0IDT, that seeks, in the words of his petition, “to ensure Amateur Radio digital modes remain openly decodable and available for monitoring” by the FCC and by other third parties, including other radio amateurs. His petition also aims to limit Automated Controlled Digital Stations (ACDS) to identified HF sub-bands, to reduce interference. Last month, ARRL filed an **interim report** with the FCC summarizing its efforts to bring all sides to the table, and on June 28, ARRL requested an additional 60-day pause to pursue promising talks.

“In seeking the delay, it was the ARRL’s intent to facilitate discussions between the opposing parties in an effort to explore the possibility of an agreed resolution that would better protect users of the Amateur Radio spectrum from interference and would permit all members of the Amateur Radio service to continue to contribute to the advancement of the radio art,” ARRL Washington Counsel David Siddall, K3ZJ, said, summarizing the situation in a July 15 letter to the FCC. “The end purpose, if a binding agreement between the opposing parties could not be reached, was to provide the strongest possible basis for the ARRL to file its recommendations on a fair and equitable resolution of the issues.”

Siddall said that despite difficulties “partially attributable to the passions of the respective parties,” ARRL was able to schedule meetings with both sides and, eventually, joint discussions among the respective parties.

“When this process began, we expressed our intention to reach a common understanding of issues and to agree on their resolution insofar as possible,” Siddall said in his letter. “At the beginning of our meetings there emerged consensus on the issues to be discussed. By the end, the parties had reached consensus on some of the issues, but not all. Despite our best efforts, some of the parties did not agree to submit to the Commission any of the recommendations on which there had been an apparent consensus, having negotiated with an “all or nothing” approach.”

Despite the disappointing conclusion, Siddall expressed confidence that a better understanding of issues and positions of the various interests exists among all of the parties who participated in the in-person meetings and teleconferences, and that this will have an overall positive effect upon the outcome of the proceeding.

Siddall said ARRL remains committed to providing the FCC with its best recommendations on a fair and equitable resolution of the issues, after it has had an opportunity for discussion and deliberation.

“The ARRL membership is composed of radio amateurs with a broad array of interests in technical and experimental domains that range from creating and using satellite technologies to long-haul emergency message handling,” Siddall concluded. “The ARRL is committed to promoting and protecting the interests of *all* Amateur Radio operators as it continues to address amateur interests and concerns.”

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ARES Emergency Communicator Individual Task Book Available

As part of the new ARES standardized training plan, ARRL has added an *ARES Emergency Communicator Individual Task Book* to its on-line resources. The book is a working document that enables ARES communicators electing to participate in the ARES training plan to track and document their training elements as they are completed towards increasing levels of proficiency. The Task Book should contain all training plan items, completion dates and sign-offs as the ARES communicator transitions through the skill levels.

The ARES communicator is responsible for maintaining their Task Book and having it with them during training and assignments. The Task Book contains sections with definitions of the communicator levels, as well as common responsibilities. Recommendations for minimum proficiencies and skills per level are listed. Emergency Coordinators, at their discretion, can add or substitute skills that they consider important with DEC or SEC approval. Prior known experience may be substituted for some listed tasks. It is suggested that items in the proficiency/skills section be used in training sessions or for meeting/event presentations.

The approving EC must meet/exceed the qualifications for each level they are signing off on. [Skill levels include an entry level into the ARES organization, which assumes certain basic proficiencies. Next level candidates hold a set of validated skills desired by ARES, including completion of basic ARRL and FEMA courses. The top level candidate has increased skill set validation for candidacy to leadership positions and ARESMAT deployments.] Candidates review and understand task book requirements and demonstrate completion of tasks for each level; assure the evaluations are completed; and keep their task book up to date and available during assignments.

See also the new ARES Plan for background.

Used with permission The ARRL ARES Letter, July 17, 2019
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ARRL Simulated Emergency Test More Important Now Than Ever: Start Planning for Fall SET

The main weekend for the 2019 ARRL Simulated Emergency Test (SET) is just a couple of months away. The primary League-sponsored national emergency exercise is designed to assess the skills and preparedness of ARES and other organizations involved with emergency/disaster response. The SET has never been more important than now given the emphasis on training, the Incident Command System (ICS) and emergency management at large.

Local ARES teams and ARRL Sections as a whole will conduct exercises on scenarios and work with served partner entities including local, regional and state emergency management agencies and organizations with which ARRL holds formal memoranda of understanding (MOU) such as the American Red Cross and many others. Although the primary SET weekend is in October, SETs

can be scheduled at the local and Section levels and conducted throughout the fall season to help maximize participation.

ARRL Field Organization Leaders -- Section Managers, Section Emergency Coordinators, Section Traffic Managers, District Emergency Coordinators, Emergency Coordinators, and all of their Assistants and Net Managers -- are among those tasked with developing plans and scenarios for this year's SET.

The object of the annual nationwide exercise is to test training and skills and to try out new technologies and methodologies while working with partners to cement relationships in advance of real world need. The resulting networking helps ARES members and leaders get to know their counterparts that they would be working with during actual incidents.

To get involved, contact your local ARRL Emergency Coordinator or Net Manager. See the **ARRL Sections** web pages or your ARRL Section Manager (see page 16 of *QST* for contact information).

Used with permission The ARRL ARES Letter, July 17, 2019

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Keeping Lines of Communication Open--CERT & Ham Radio

[This article is from the July 2019 issue of the *FEMA Individual and Community Preparedness Newsletter*.]

Community Emergency Response Team (CERT) members know that communication during an emergency is vital. Don Lewis of the Alexandria Radio Club in Virginia wants CERTs around the country to know how Amateur Radio can help.

Amateur Radio is a useful tool. Lewis, who is trained in CERT, explained that ham radios are more powerful than regular radios. They aren't incredibly expensive, and they have a wide range of uses.

Sometimes CERTs may need to work together throughout a large area. They need to be able to report things that they have found. They sometimes even need to request medical support. Using a radio is easier, safer, and more efficient than sending a person back with messages, says Lewis. Ham radios enable a CERT to communicate over much greater distances than standard radios. This can improve the level at which a CERT can coordinate. CERTs already use ham radios in exercises and they have extended their range and effectiveness.

The City of Berkeley, California's CERT has already begun using ham radio in city-wide disaster drills. In the winter of 2018, they held a 24-hour mock disaster where they practiced their ham radio skills to better prepare their city. They were able to maintain communications in the whole city for the entire 24-hour exercise. This allowed them to relay critical information to citizens and disaster crews. They were also able to use hams to aid the city during a blackout in November of 2017. The CERTs used solar powered batteries in their ham radios. This allowed them to function even when power and phones were down.

Amateur Radio protocols are also built into Pasadena, California's emergency management system. The area experiences earthquakes several times a year. The quakes can destroy cell towers and phones lines in an instant. Amateur Radio can be a huge asset during a disaster like this, so Pasadena has a network of radio operators trained to provide communications at any time they need. They can contact hospitals or fire stations to better serve their community. Ham operators can even aide families in contacting one another once a disaster has passed.

Are you interested in learning how to operate a ham radio of your own to serve your community? Then the Amateur Radio Emergency Service (ARES) may be for you. They are a group of radio operators who volunteer for various disasters and public service events. They can provide guidance for training, equipment, and licensing.

Used with permission The ARRL ARES Letter, July 17, 2019

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NEW HF OPERATORS - THINGS TO

Let's say for argument purposes that you're already set up for FT8, and you're sending and receiving just fine. You're just a software install away from also being able to use the same physical set up for RTTY! Some reasons to try RTTY for contests include:

- There are a larger number of RTTY contests per year
- Rates during a RTTY contest can be well over 100 per hour
- RTTY contests typically 'spread out' over a larger portion of the band
- It's fun, and can build new radio skills

Before setting up for RTTY, I suggest writing down all of the settings that you are already using with your FT8 software for radio control, including port names, speeds, and so on. Do the same for your audio devices. You'll need those values to set up the RTTY software.

Close your FT8 application and then install a RTTY program of your choice. There are a number of options for RTTY software, but one of the easiest to get going is MMTTY. You can use Ed, W0YK's "Getting Started on RTTY" to guide you through the dialogs to get the program configured for stand-alone mode, using AFSK. The trickiest part might be getting the PTT control going if you use a radio command in your FT8 program.

Once you've configured the software for stand-alone mode, you'll want to find some RTTY stations to work to verify everything is as it should be. Best bets for that are on Thursday evenings as part of the NCCC NS RTTY Sprint practice, or on weekends when there are RTTY contests.

Once your configuration has been tested, the next step is getting your contest logging program to work with your RTTY engine. For *N1MM Logger+*, you can use this guide as a starting point.

The NAQP RTTY Contest is coming up July 20 - a great opportunity to give RTTY a try.

Used with permission The ARRL Contest Update for July 10, 2019

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The *Ham Arundel News* is the monthly official publication of

The Anne Arundel Radio Club, Inc.
(ARRL Club No. 0484).

Editor: Milford Craig / N3WYG
Send newsletter articles, questions and information to **Milford** at
newsletter@w3vpr.org
Deadline for submissions – The Saturday after the 3rd Thursday of the month

Mailing Address:
Anne Arundel Radio Club
Post Office Box 308
Davidsonville, MD 21035

Meetings:
General Business 1st Thursday at 7:30 PM
Board Meeting 2nd Thursday at 7:30 PM
Program/Activity 3rd Thursday at 7:30 PM

Dues:
$30 per year, payable December 1st
Discounts available for family members and students

World Wide Web: **www.w3vpr.org**

AARC Supports The Maryland Slow Net:
3.563 MHz CW 7:30 P. M. Daily

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Free Money for AARC!

ARRL Membership Reminder

ARRL affiliated clubs receive a commission for every new ARRL membership and renewal they submit to ARRL Headquarters. Clubs retain a portion of the dues for each regular or senior membership submitted to ARRL Headquarters:

Clubs retain $15 for each new membership OR lapsed membership (of two years or more).
Clubs retain $2 for each renewal,
A RENEWING MEMBER can renew at any time, even before their current membership expires.

Send your application and payment (made out to AARC) to the club treasurer.

Mark Your Calendars

REGULAR ACTIVITIES

Club Meetings are held on the first and third Thursdays of the month from 7:30 to 9PM at the clubhouse located at the Davidsonville Family Recreation Center in Davidsonville, MD

Free License Exams every 2nd Saturday of the Month - Check in at Noon, Exams at 1PM - At the clubhouse - Contact David Rawley / AE5Z, testing@w3vpr.org

Weekly AARC 2-Meter Net on 147.105 (Typically linked to 147.075 and 444.400 with CTCSS tone of 107.2 Hz) every Wednesday at 8 PM - All Welcome

2 meter "HOLLY NET" on 147.105 (Typically linked to 147.075 and 444.400 with CTCSS tone of 107.2 Hz) every morning 7:00 am to 9:00 am. All hams are welcome.

EVENT SCHEDULE

Thursday, August 1 7:30pm
AARC - Club meeting, newcomers always welcome.

Thursday, August 8 7:30pm
AARC - board meeting

Saturday, August 10
MD QSO Party
12:00pm
AARC - Free License Exams

Thursday, August 15 7:30pm
AARC - Club meeting, newcomers always welcome.

Sunday, August 18 1:00pm
AARC - Mesh Networking group, Every 3rd Sunday, 1 to 4 PM at the clubhouse

Sunday, August 25 1:00pm
AARC Kit-building, troubleshooting and repair, at 1 to 4 PM at the clubhouse
1:00pm
Open Shack Hours

Dayton Hamvention 2019 Attendance Approaches All-Time Peak

The Hamvention Executive Team announced on July 15 that attendance at **Dayton Hamvention**® 2019 was 32,472. This marks the highest attendance recorded since Hamvention moved in 2017 from Hara Arena to the Greene County Fairgrounds and Exposition Center in Xenia, Ohio. This year's attendance also approached an all-time Hamvention high. Attendance at the show peaked

in 1993 at 33,669, before the 1996 change in date from April to May while Hamvention was still being held at Hara Arena. Last year, Hamvention welcomed 28,417 visitors in its second year in Xenia. Attendance in 2016 for the show's final year at Hara was 25,364. **Hamvention** hosted the ARRL 2019 National Convention, and both embraced the theme of "Mentoring the Next Generation."

"Our early indications were that 2019 would be a big year, and it lived up to our expectations," Hamvention General Chair Jack Gerbs, WB8SCT, said. "Our more than 700 volunteers worked hard to ensure that we presented a great show for our visitors. It wouldn't have been possible without them. I also want to thank all our vendors and visitors and hope they will all be back next year."

Hamvention officials suggested that a small factor behind the increased attendance could have been the free admission on Sunday. Sunday-only tickets accounted for some 800 of the total attendance. The open admission day was an effort to allow local non-hams to experience Hamvention, and free Sunday admission is expected to be continued next year, Hamvention officials said.

Assistant General Chair Rick Allnutt, WS8G, said that amateur operators from all US states and territories and 60 other countries attended Dayton Hamvention 2019. According to Allnutt, comments received about the show were overwhelmingly positive.

Gerbs said the Agricultural Society, Greene County, Xenia Township, and the City of Xenia cooperated in making Hamvention 2019 a success.

The world's largest Amateur Radio exposition, Dayton Hamvention is sponsored by the Dayton Amateur Radio Association (DARA) every third full weekend in May. Hamvention 2020 will take place on May 15, 16, and 17.

Used with permission The ARRL Letter for July 18, 2019
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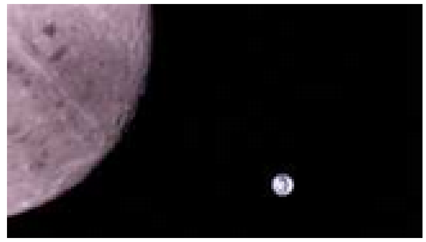
Historic Amateur Radio Contact via Moon-Orbiting Satellite Reported

A contact between radio amateurs in Germany and China took place on July 1 via the moon-orbiting LO-94 satellite, DSLWP-B, launched in May 2018. The two-way exchange between Reinhard Kuehn, DK5LA, in Sorup, Germany, and Harbin Institute of Technology club station BY2HIT (operated by Wei Mingchuan, BG2BHC), in Harbin, China, occurred between 0551 and 0728 UTC, according to reports. The GMSK-to-JT4G repeater onboard DSLWP-B was used to make the contact, the first ever via a lunar-orbiting repeater.



"Using the GMSK-to-JT4G repeater is not easy, in terms of the signal power needed for the uplink," commented radio amateur and engineer Daniel Estévez, EA4GPZ, whose blog includes images of the lunar surface downloaded via DSLWP-B. "There were plans to make a QSO between BY2HIT and Reinhard since many months ago, but previous attempts didn't work out. My congratulations to the people at both sides of the QSO, who have achieved it a month before DSLWP-B crashes against the lunar surface."

As Estévez explained it, the GMSK-to-JT4G repeater works by sending commands to the satellite that embed a 13-character message, using the same frequency and a similar protocol to the one that commands the camera and other satellite functions. He said sending a message in this fashion takes a little longer than 1 minute.

An open telecommand protocol allows radio amateurs to take and download images, and DSLWP-B transmitted images of the moon and Earth during this week's solar eclipse. DSLWP-B was launched as a secondary payload with the *Quequiao* relay satellite as part of the Chang'e 4 mission to the far side of the moon.

DSLWP stands for "Discovering the Sky at Longest Wavelengths Pathfinder," and was designed to test low-frequency radio astronomy and space-based interferometry. The repeater uplink is on 2 meters and the downlink is on 70 centimeters.

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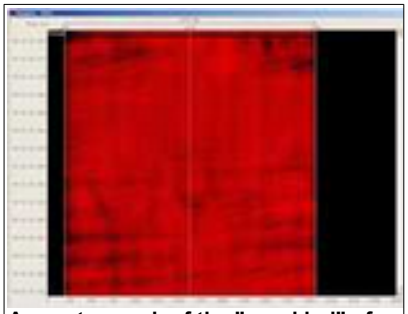
Over-the-Horizon Radars Continue to Plague Amateur Bands

The International Amateur Radio Union Region 1 Monitoring System (IARUMS) reports a "new kind" of over-the-horizon (OTH) radar on 20 meters. The intruding signal, appearing to emanate from the Far East, was monitored during May on 14.140 - 14.150 MHz. Another Chinese wideband OTH radar has been showing up on 15 meters, with a signal 160 kHz wide. An Iranian radar has appeared on 10 meters, centered on 28.860 MHz, and is

audible in Europe during sporadic-E conditions. The signal is about 46 kHz wide. The Russian OTH radar "Konteyner," centered on 14.127 MHz, continues to be observed, with a 12 kHz wide signal.



A spectrograph of the "new kind" of over-the-horizon radar on 20 meters. [Wolf Hadel, DK2OM, image]

The so-called "Foghorn" OTH radar from China, first heard in 2017, and other OTH radars were spotted on several 20-meter frequencies. The Foghorn is a burst radar that has been heard on other bands, with the signal often jumping. The signal is frequency modulation on pulse (FMOP) with 66.66 sweeps-per-second bursts.

From the Commonwealth of Independent States (CIS) that emerged following the breakup of the Soviet Union, taxi traffic continues to appear on 10 meters, using FM. IARUMS said pirates in the Far East have been "abusing" 20 meters, transmitting on 14.000 MHz, using USB. IARUMS monitors also logged several fish net (driftnet) buoys between 28.000 and 28.500 MHz, transmitting a carrier followed by a CW identification. Codan selective callings (selcalls) believed to be in Oceania have been heard between 7.108 and 7.150 MHz.

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"Country File"

A file used by your logging program that maps call sign patterns and individual call signs as necessary to countries and zones so that you can have an accurate display of worked versus needed multipliers during a contest.

A typical pre-contest task is to load the new "country files" into our logging programs. This file helps logging programs keep track of what zones and countries have been worked for multiplier purposes based on the call sign. Jim, AD1C, compiles these files and periodically releases new versions for different logging programs and different contests. If you've never done so before, take a look at a typical change log to appreciate the detail of this information.

Used with permission The ARRL Contest Update for July 10, 2019

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Amateur Radio Towers

Language in the Federal Aviation Administration (FAA) Reauthorization Act of 2018 will exclude all but a small number of Amateur Radio towers from marking requirements.

Thanks to action taken in 2017 and 2018 by ARRL, the bill's original language was amended to the extent that amateur towers, as well as residential towers used for over-the-air TV reception, were effectively exempted from marking requirements. The topic was addressed at the annual "Ham Radio and the Law" forum at the Dayton Hamvention® this past May.

Some key points from that presentation: (1) Towers covered by the rules are structures at least 50 feet tall that support an antenna and are located in a rural area or on farmland or immediately adjacent to such land. (2) According to the Act, the term "covered tower" does *not* include any structure that is adjacent to a house, barn, or other building, and "is within the curtilage of a farmstead or adjacent to another building or visible structure."

ARRL Regulatory Information Manager Dan Henderson, N1ND, explains that, while a few Amateur Radio towers will fall under the Act's marking requirements and will have to be registered, towers in residential yards or within farmland are specifically exempted. More information is on the ARRL website.

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ARES Responds to Early July Earthquakes and Aftershocks in Southern California

On the morning of July 4, a 6.4 magnitude earthquake rocked the California High Desert, with its epicenter near Trona in the Searles Valley, not far from Ridgecrest, population roughly 29,000.

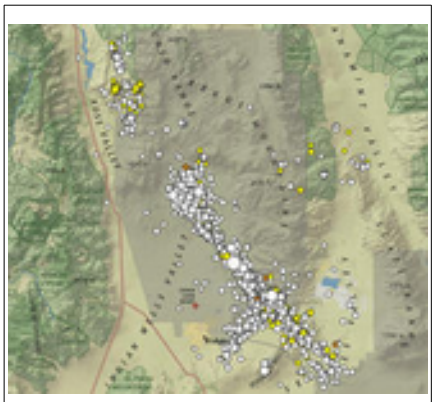
ARES volunteer Jerry Brooks, KK6PA, activated the Eastern Kern County ARES Net, and, as members assessed their own situations and were able to participate, activity grew on the Eastern Kern County ARES Emergency Net. Steve Hendricks, KK6JTB, took over net control duties through most of the first day, and others filled in as the activation progressed.

The Logistics Chief with the Ridgecrest Emergency Operations Center (EOC), Robert Oberfeld, contacted Eastern Kern County ARES to ask that a radio operator be assigned to the Ridgecrest Police Department mobile communications van at the EOC.

Eastern Kern County ARES was able to relay information from mobile operators to the EOC regarding roadway conditions in the area, as several main highways — including Highway 178, the only route between Ridgecrest and Trona — had been rendered impassable. CalTrans was alerted, and repair crews had the route opened for limited traffic within a short time.As the aftershocks lessened and the extent of the damage by the first temblor had been assessed, the EOC requested that ARES stand down but remain on standby.Everyone's worst fears were realized the next day — Friday, July 5 — when a 7.1 magnitude earthquake struck in the early evening. This was followed over the next 2 hours by 19

aftershocks, ranging in magnitude from 4.5 to 5.5. The epicenter of the 7.1 temblor was some 11 miles north of Ridgecrest in Indian Wells Valley, within the boundaries of the China Lake Naval Air Weapons Station (NAWS).

When Eastern Kern County ARES reactivated, significantly more damage had occurred, with the result that fewer operators were immediately available as many residents dealt with serious issues within their own homes. Additional operators eventually become available to provide their observations to the EOC, however. With sufficient depth of resources, the communications van was now being staffed by two operators working in 4-hour shifts, some of them husband-and-wife teams. In all, 57 operators were active at various times on the emergency net, providing status and updates. Eastern Kern County ARES stood down from active status at 9 PM on Sunday.



A US Geological Survey map displays the swath of earthquakes and aftershocks around Independence Day in California.

"The ensuing days have brought thousands of aftershocks of generally small magnitude, but the threat of larger aftershocks remains, so Eastern Kern County ARES remains on stand by for now," said Dennis Kidder, W6DQ. He said few injuries were reported as a result of the two earthquakes. "A number of homes were either destroyed or severely damaged, and a number of businesses sustained damage and some were red tagged. Some 150 residents are in shelter at this time," Kidder added. Water service and electrical power have been restored to most areas.

Kidder said that while most of the thousands of aftershocks were inconsequential, several have been as high as magnitude 5.5, "which gets everyone's attention." Aftershocks are expected to continue for a long time, he said. — *Thanks to Dennis Kidder, W6DQ, Eastern Kern County ARES*

Used with permission The ARRL Letter, July 25, 2019

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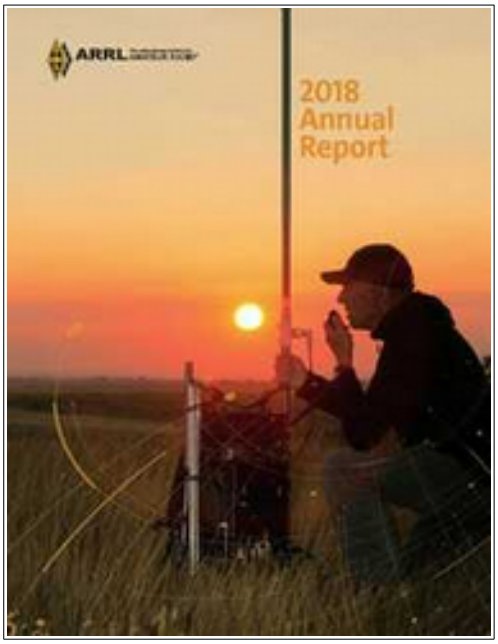
ARRL 2018 Annual Report is Now Available

ARRL has announced the release of its ***2018 Annual Report*** to members. The *2018 Annual Report* was created by the ARRL editorial staff under the direction of *QST* Managing Editor, Becky Schoenfeld, W1BXY. In his message to members, ARRL President Rick Roderick, K5UR, said "new generation" hams engage with Amateur Radio in a very different way than hams of his generation.

"Through extensive research, we've learned that they come to Amateur Radio hoping to learn how to use it in aid of their communities, and for enhancing the fun they're already having while camping, hiking, or doing other outdoor activities," President Roderick said. "We've also learned that they've been discouraged by the difficulty of finding information and help that would allow them to get involved." He said ARRL has turned its attention toward those hams over the past year, and he directed readers to read about ARRL's new Lifelong Learning Department, which, he said, "will create learning materials for Amateur Radio enthusiasts at all levels of knowledge — but especially for the beginners."



"Even as these ARRL initiatives designed for new 'generation hams' are getting off the ground, the Headquarters staff and Board of Directors continue to serve the valued 'classic' ham members that have stayed with ARRL for decades, and you'll hear about that in this year's Annual Report as well," President Roderick said, pointing out that ARRL "continues to fight for our spectrum allocations and against the mounting noise floor," among other activities and initiatives.

"I'm excited about the new ways in which the organization is preparing to fulfill its mission to advance the art, science, and enjoyment of Amateur Radio," President Roderick concluded. "I hope you are, too."

Chief Executive Officer Howard Michel, WB2ITX, said ARRL is at a crossroads, "and we need to look seriously at what we are and what we do. For ARRL to remain relevant to Amateur Radio, it must evolve. That evolution, while swift, can't be haphazard."

"We are about relationships and information. We are about creating, curating, and disseminating information about Amateur Radio," Michel said.

The *Annual Report* also includes a full accounting of ARRL's finances. "ARRL continues to be in good financial condition and has a strong financial foundation," the *Annual Report* says. "This solid financial position will provide the resources to allow ARRL to evolve to meet the needs, desires, and demands of today's and tomorrow's radio amateur."

Members may download and read ARRL's ***2018 Annual Report*** on the ARRL website. Set *Adobe Reader* to its 2-page viewing mode to better view the larger layout.

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"Grand Solar Minimum"

A "Grand Solar Minimum" may be approaching. A juried research paper in *Nature*, "Oscillations of the baseline of solar magnetic field and solar irradiance on a millennial timescale," suggests that a "grand solar minimum" -- similar to the legendary "Maunder Minimum" -- is approaching, starting as early as next year and lasting for three solar cycles. That would be bad news for HF enthusiasts already struggling with marginal conditions. As the paper's abstract explains, "Recently discovered long-term oscillations of the solar background magnetic field associated with double dynamo waves generated in inner and outer layers of the Sun indicate that the solar activity is heading in the next three decades (2019 - 2055) to a modern grand minimum similar to Maunder one." As propagation buff and contester Frank Donovan, W3LPL, observed, "It's very uncertain if this forecast is correct, but, as usual, the forecasts of the next solar cycle are all over the map. Let's hope these scientists are wrong."

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VHF Contest and FT8

The January 2019 VHF Contest results showed FT8 played a major role. The results article has been posted, and article author James Duffey, KK6MC, says the digital modes -- FT8 in particular -- played a major role in the January contest, increasing the logs submitted significantly. "Despite conditions, a surprising 918 logs were submitted, by far the most in this century!" Duffey said in his contest write-up. "While the total number of QSOs reported in 2019 did not differ significantly from 2018 (61,532 in 2019, as opposed to 59,587 in 2018), the number of submitted logs was up. Apparently, the FT8 operators are more inclined to submit logs than the casual operator on SSB and CW." Duffey went on to point out that nearly half of contacts made in the 2019 event occurred on 6 meters, and 60% of those were made on one or more of the digital modes.

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LoTW Embraces FT4

ARRL's Logbook of The World has been updated to embrace FT4 contacts for the Digital Worked All States award. This follows the WSJT-X Development Group's July "general availability" release of *WSJT-X* 2.1.0. No other endorsements are under consideration at this time. LoTW users are currently able to upload all FT4 contacts they have made. While the FT4 Digital WAS Award Endorsement functions are now active, award processing and fulfilment remain pending the availability of the new endorsement sticker. Watch ARRL News for this and other updates.

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W1AW Code Proficiency Certificates

Starting with the August issue, *QST* will list the recipients of W1AW Code Proficiency certificates. Key manufacturer Vibroplex is now sponsoring the certificates, which have been redesigned. The Code Proficiency program has been an ARRL staple for decades. Participants who copy a W1AW qualifying run and submit 1 minute of legible solid copy and the $10 certificate fee can qualify. Send submissions to W1AW Qualifying Run, 225 Main St., Newington, CT USA 06111. These are checked directly against the official W1AW text, and those demonstrating solid copy will receive an initial Code Proficiency certificate. Endorsement stickers, which cost $7.50, are issued for speeds up to 40 WPM. The W1AW Code Proficiency Program is open to hams and non-hams alike. Those seeking to attain a Code Proficiency certificate can listen to W1AW daily code practice sessions, in which the text is taken directly from *QST*, as announced before each practice run.

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Yasme Foundation Board of Directors

The Yasme Foundation Board of Directors has made a supporting grant to Amateur Radio Emergency Data Network (AREDN). AREDN extended the early work of the Broadband Ham Net mesh developers by developing firmware and related user software for more modern and efficient consumer routers. Based in San Diego, California, the AREDN development team has produced code for the Ubiquiti 2, 3, and 5 GHz routers and has recently added firmware to convert lower-priced consumer equipment from other manufacturers for amateur mesh network use. Yasme's grant will go toward the purchase of test equipment to aid AREDN's development efforts.

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AARC Repeaters and Nets

2 Meter Repeaters

Location	Frequency	Tone	Notes
Davidsonville	147.105+	107.2	AARC Repeater with morning traffic net.
Glen Burnie	147.075+	107.2	AARC repeater Located in Northern AA County.
BrandyWine	147.150+	114.8	SMARC Repeater.
Prince Frederick	145.350-	156.7	SPARC/CARC Repeater.
Laurel	147.225+	156.7	Laurel ARC Repeater.
Millersville	146.805-	107.2	Repeater.

1.25 Meter Repeaters

Location	Frequency	Tone	Notes
Davidsonville	223.880-	107.2	AARC 1.25M repeater *check to see if tied into 7.105...
Millersville	224.560-	107.2	AARC repeater Located in Northern AA County.

70cm Repeaters

Location	Frequency	Tone	Notes
Davidsonville	444.400+	107.2	AARC 70 cm Repeater.
Annapolis	442.300+	107.2	AARC 70 cm repeater
Laurel	442.500+	156.7	Laurel ARC 70 cm Repeater.
Millersville	449.125-	107.2	Maryland Mobileers Repeater.
Upper Marlboro	443.600+	103.5	SMARC 70 cm Repeater.

Packet Stations

Location	Frequency	Call	Notes
Davidsonville	145.050	W3VPR	AARC Club packet node running JNOS
Davidsonville	145.010	W3VPR-5	Digipeter Relay to EOC Winlink
Millersville	145.010	W3AAC-5	Digipeter Relay to EOC Winlink
Glen Burnie	145.010	W3AAC-10	EOC Winlink system and digipeter

Amateur Radio NETS

Name	Frequency (in Mhz)	Day	Time
The “Holly Net”	147.105+ PL 107.2	Weekdays	0700
AARC Talk Net	147.105+ PL 107.2	Wednesday	2000
AA County ARES Net	146.805- PL 107.2	Sunday	2000
Baltimore Traffic Net	146.670-	Daily	1830
Boating Net	146.805- PL 107.2	Wednesday	1930
Maryland Emergency Phone Net	3.920	Daily	1800
Maryland-DC-Delaware Traffic Net	3.643	Daily	1900 and 2200
Maryland Slow Net	3.563	Daily	1930
React Net	442.300+ PL 107.2	1st Sunday	1930

*We use **simplex 146.430 Mhz** frequently enough that you should probably program that into your HT or mobile. This is the go-to frequency for many 5K race/walk volunteering efforts, local communication, Field Day setup, and the like when we're not using a repeater.*

REPEATER FREQUENCIES

Davidsonville	Millersville	Glen Burnie	Annapolis
147.105+		147.075+	
223.880-	224.560-		
444.400+			442.300+

PL: 107.2 for all repeaters
The 147.105 and 147.075 repeaters are frequently linked. Please leave an extra second after the courtesy beep to allow the link to reset as well.

Visitors are welcome *to all meetings and nets.*
Meetings are held in the Clubhouse at the
Davidsonville Family Recreation Center*,*
Queen Anne Bridge and Wayson Roads off
MD Route 214 near Davidsonville, MD.
For en-route directions,make initial contact on the 147.105 repeater.

Wednesday Night Talk Net -- All are welcome

8PM, On the AARC Repeater 147.105

Other Amateur Radio nets

Name	Frequency	Day	Time
The "Holly Net"	147.105+Mhz PL 107.2	Weekdays	0700
AA County ARES Net	146.805- Mhz PL 107.2	Sunday	2000
Baltimore Traffic Net	146.670- Mhz	Daily	1830
Maryland Emergency Phone Net	3.820Mhz	Daily	1800
MD-DC-DE Traffic Net	3.557Mhz	Daily	1900 and 2200
Maryland Mobileers Net	146.805 PL107.2	Monday	1930
Maryland Slow Net	3.563 MHz	Daily	1930
REACT Net	442.300+Mhz PL107.2	1st Sunday	1930

The Radio Amateur Operator is...

CONSIDERATE

...He/[She] never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL

...He/[She] offers loyalty, encouragement and support to other amateurs, local clubs, the IARU Radio Society in his/[her] country, through which Amateur Radio in his/[her] country is represented nationally and internationally.

PROGRESSIVE

...He/[She] keeps his/[her] station up to date. It is well-built and efficient. His/[Her] operating practice is above reproach.

FRIENDLY

...He/[She] operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

BALANCED

...Radio is a hobby, never interfering with duties owed to family, job, school or community.

PATRIOTIC

...His/[Her] station and skills are always ready for service to country and community.

- adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928The Radio Amateur's Code