



Legacy Amateur Radio Club

RCA AMATEUR RADIO CLUB



AFFILIATED CLUB

INDIANAPOLIS, INDIANA

RCA ARC Indianapolis 60th Anniversary 1956 - 2016

NOVEMBER, 2016

MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, NOVEMBER 8th, 6:30 PM AT [G.T. SOUTH'S](#),
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE OCTOBER MEETING – Thanks to everyone who attended the October meeting, we had a good turnout! Jim, AF9A reported on the continuing noise problems we've been experiencing on the '88 repeater. No solution yet, but there are several things we want to try in the next week or so. On the antennas and towers belonging to Dave Brown, no progress has been made in getting these down. Several on the air events are coming up... The CQ WW DX contest, Veteran's Day operation from WW2IND in Nov., ARRL FMT (Frequency Measuring Test) Nov. 2, and the upcoming IRC (Indianapolis Radio Club) meeting will feature a program on the recent Children's Museum contact with the International Space Station. Jim, K9RU, reported conditions on 10m and 15m were good during the recent RTTY Contest. The meeting then evolved into a discussion on HF dipole antennas of various types.

NEXT RCA / IRC AMATEUR RADIO LICENSE TEST SESSION

Time: Saturday, Dec. 3, 2016. Exams start at 12:00 noon. Walk ins allowed.

Location: Salvation Army EDS Training Facility,
4020 Georgetown Rd,
Indianapolis, IN 46254

Contact: Jim Rinehart, (317) 496-1933, e-mail: k9ru@arrl.net

Help Needed for Upcoming Events: Ham Radio volunteers are needed in all the public service events that we support. These are:

Nov. 5 Indianapolis Monumental Marathon

Contact Mike Palmer, N9FEB, N9FEB@comcast.net www.IndyHams.org

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Nov 5 Indianapolis Monumental Marathon www.IndyHams.org

Nov 5 -7 ARRL SS CW Contest

Nov 12 Fort Wayne Hamfest, Fort Wayne, IN www.fortwaynehamfest.com

Nov 19 - 21 ARRL SS Phone Contest

Nov 26 – 27 CQ WW CW DX Contest

Dec 2 - 4 ARRL 160M CW DX Contest

Opportunities for public service: <http://indyhams.org/events>

ARRL SAYS CURRENT RULES HOLDING HAMS BACK FROM ADOPTING STATE-OF-THE-ART TECHNOLOGY

In [comments](#) filed on October 12 with the FCC, ARRL reiterated its case that the FCC should impose a 2.8 kHz limit on symbol rate for digital modes, arguing that its approach is both balanced and necessary. ARRL had asked the FCC to change the Part 97 rules to delete the symbol rate limits in Section 97.307(f) and replace them with a maximum bandwidth for data emissions of 2.8 kHz on amateur frequencies below 29.7 MHz. In a July *Notice of Proposed Rule Making* ([NPRM](#)) in WT Docket 16-239, the FCC proposed to eliminate the current baud rate limitations for data emissions, consistent with ARRL's *Petition*, but it declined to propose a *bandwidth* limitation for data emissions in the MF and HF bands to replace the baud rate limitations.

ARRL told the FCC in its comments that the current HF symbol rate "speed limit" reflects 1980s technology and has no place in an experimental radio service in which modern protocols could be efficiently deployed in crowded RTTY/data subbands.

"The symbol rate limit was created in order to maximize the efficient use and reuse of that crowded, shared spectrum, but the assumptions made at the time are no longer valid," ARRL said, "and the rules now prohibit radio amateurs from utilizing state-of-the-art technology, thus precluding or substantially inhibiting any meaningful contribution to the advancement of the radio art in this area." ARRL said earlier assumptions are no longer valid mainly because there is no correlation between the data rate and the occupied bandwidth in the rules now.

The League said present rules in the HF data subbands promote inefficiency, allowing data transmissions of unlimited bandwidth as long as the symbol rate is sufficiently low, and it stressed that there must be *some* limit on occupied bandwidth for HF data emissions.

"Eliminating the symbol rate limitations for data emissions *and substituting a maximum authorized bandwidth* would permit the utilization of all HF data transmission protocols presently legal in the Amateur Radio Service, as well as state-of-the-art protocols that fall within the authorized bandwidth," the League said. The deadline to file reply comments in the proceeding -- i.e. comments on comments already filed -- is November 10. Read [more](#). --ARRL Letter

NEW RUSSIAN ARCTIC OVER-THE-HORIZON RADARS SET FOR 2017 STARTUP

According to media accounts, more long-range, new over-the-horizon (OTH) radars that can identify aerial and sea targets hundreds of miles away are scheduled to begin operation next year in the Russian Arctic. It's doubtful, however, that the news heralds the return of interference on the level of that generated by the so-called "Russian Woodpecker" OTH radar, which plagued Amateur Radio HF bands in the 1970s and 1980s.

Over the past couple of years, OTH radars, *sans* woodpecker, have become increasingly commonplace intruders on Amateur Radio bands, according to the International Amateur Radio Union Region 1 ([IARU R1](#)) Monitoring System ([IARUMS](#)), which has noted OTH radars in Russia, China, Cyprus, Iran, and Turkey. The frequency-hopping nature of the technology accounts for the annoying interference that covers wide swaths of spectrum. The Russian systems-intelligence "Konteyner RLS" OTH radar, transmitting from in the Nizhny Novgorod region, is frequently spotted on 20 meters. While no woodpecker, it transmits a broad, frequency-modulated CW signal at 50 sweeps per second with a bandwidth of 80 kHz or greater, accompanied by signal splatter, IARUMS Coordinator Wolfgang Hadel, DK2OM, reported recently.

Sputnik, a Russian government-controlled radio service, [cited](#) a *Rossiiskaya Gazeta* newspaper report that six OTH radar installations will operate in the region. Deputy Defense Minister Dmitry Buklgakov, who visited the construction site, said a runway capable of handling all types of combat aircraft was simultaneously being reconstructed nearby, the report continued. Other reports have indicated that similar systems will be deployed in the Far East in 2018. Russia has

sold its OTH radar technology to China.

OTH radars employ widely separated transmitting and receiving site and can "see" beyond the horizon, the typical limit for ordinary radar. The systems employ antenna arrays of up to 5 kilometers long and 5 meters tall. — *Thanks for news tip to Frank Smith, WS1MH --ARRL*

"SWEEPS" TIME IS UPON US!

The very popular [ARRL November Sweepstakes](#) (SS) operating events take place in November on separate weekends for CW (November 5-7) and SSB (November 19-21). The contest period for each contest begins at 2100 UTC on Saturday and continues through 0259 UTC on Monday. Stations may operate for 24 hours out of the 30 hours available. Logs are due 15 days after each event. SS is a "domestic" contest that not only has broad appeal, but is within the reach of stations with modest equipment and antennas. Many stations enjoy operating in the QRP category each fall (5 W or less output).

The challenge of Sweepstakes is the lengthy exchange, as compared with other operating events. In SS, stations exchange:

A consecutive serial number (leading zeros are not required).

Operating category -- Q for Single Op QRP; A for Single Op, Low Power (up to 150 W output); B for Single Op, High Power (greater than 150 W output); U for Single Op, Unlimited, regardless of power; M for Multi-Op, regardless of power, and S for School Club.

Your call sign.

Check -- the last two digits of the year of first license for either operator or station.

Your [ARRL/RAC Section](#).

Many, if not most, Sweeps operators try for a "clean sweep" by working all 83 ARRL/RAC Sections, which count as multipliers for Sweepstakes, and earning a(nother) coffee mug for the shack shelf.

The SS *Operating Guide* package, available for [download](#), explains how to participate. It includes all rules, plus examples of log formatting. Clubs or public service teams thinking about giving Sweepstakes a try this year will find the guide a valuable resource.

A new system for submitting club eligibility lists has been undergoing testing and is [available online](#). Club secretaries can submit a list of eligible members by [uploading](#) a file or by copying and pasting from a list. Uploaded lists must include the club's full name; the club territory (center of the club's circle as a 6-digit grid locator or ARRL Section for medium and unlimited category clubs); the club's call sign, the eligible member's call sign, and a 6-digit grid locator of each eligible member living in and operating from the club territory.

The deadline to submit an eligibility list is now the start of each contest -- November 5 at 2100 UTC in the case of SS CW, and November 19 at 2100 UTC in the case of SS phone. There's more [information](#) on how to do so.

Complete sets of [ARRL November Sweepstakes](#) (SS) [records](#) for both modes are now available. [Direct](#) questions to ARRL Contest Branch Manager Bart Jahnke, W9JJ. --ARRL Letter

RULE MAKING PETITION TO FCC CALLS FOR VANITY CALL SIGN RULE CHANGES

The FCC is inviting comments on a *Petition for Rule Making* ([RM-11775](#)) from a Nevada radio amateur that seeks changes to the rules governing the Amateur Radio Vanity Call Sign Program. Christopher LaRue, W4ADL, of North Las Vegas, is proposing that any licensee obtaining a vanity call sign be required to keep it for the full license term. LaRue contends in his petition that excessive and frequent vanity call sign filings are hampering the ability of other qualified licensees to obtain vanity call signs in one of the more desirable 1 × 2 or 2 × 1 formats.

LaRue said that since the FCC dropped the fee to file for a vanity call sign, some applicants are taking advantage by regularly obtaining new call signs, thereby keeping them out of circulation.

"Some are changing call signs almost monthly, just to keep the newer code-free Extra class operators from obtaining a shorter call sign," he said in his petition. "I even saw an older operator that said he does it all the time and has not even owned a radio in over 6 years. When I looked him up, he has had 16 different [call signs] in 18 months."

LaRue said his proposed minor rule change would require any licensee applying for and obtaining an Amateur Radio vanity call sign "be required to keep it for the duration of the license, which is currently 10 years."

He said this would "alleviate a lot of the stress on the ULS system and manpower requirements" at the FCC. "It will also keep inactive amateurs from changing call signs regularly, thereby tying up call signs for 2 years after dismissal of said call."

Interested parties may comment using the FCC Electronic Comment Filing System ([ECFS](#)). Comments are due within 30 days of the October 26 posting date. --ARRL

SUSPICIOUS BANGLADESH BORDER HAM BAND SIGNALS NOW OF INTEREST TO INDIAN INTELLIGENCE

What have been called "highly suspicious" VHF transmissions along the Bengal-Bangladesh border now are being considered signals of interest to India's Intelligence Bureau. After several days of monitoring, Ambarish Nag "Raju" Biswas, VU2JFA, [told *The Indian Express*](#) that he and his team have determined that the transmissions, taking place on Amateur Radio frequencies, are coming from the area of Basirhat in West Bengal. The voice communications have been heard at night. Federal Ministry of Communication officials in India had asked Biswas, the secretary of the [West Bengal Amateur Radio Club](#), and his fellow hams to keep an ear on the strange VHF signals.

Biswas told *The Indian Express* that he'd found the recent signals suspicious because he'd heard similar communications in 2002 and 2003. Subsequently, police arrested six "extremists," from Gangasagar, an island in the Ganges River delta, he told the paper.

An earlier [article](#) in the *Hindustan Times* reported that the signals were being heard in the dead of night, with participants said to be in motion and speaking in some sort of code in Bengali and Urdu with a Bangladeshi accent. They also used numerical codes, according to the report.

Indian Intelligence Bureau officials did not rule out the possibility that terror organizations were behind the signals. "The border of India-Bangladesh near West Bengal is porous," a senior Intelligence Bureau official told *The Indian Express*. "Smugglers and extremists try to exploit it fully." --ARRL Letter

DONATIONS OF UNWANTED AMATEUR RADIO, TEST GEAR SUPPORT ARRL'S MISSION

Downsizing your shack? Want your now-unused equipment to help promote and preserve Amateur Radio for future generations? Consider donating your used Amateur Radio and test equipment to ARRL.

The ARRL Lab accepts used equipment from radio amateurs and their families. Once evaluated, much of the donated equipment is sold, and proceeds help to fund programs that educate, promote, and preserve the values of Amateur Radio. Assistant ARRL Laboratory Manager Bob Allison, WB1GCM, is spearheading the donation program.

"A common problem for hams and their families is what to do with surplus Amateur Radio equipment," Allison said. "We have, for a number of years, accepted in-kind donations on a limited basis. Now, thanks to dedicated volunteers in the ARRL Lab, we have additional help to efficiently clean and test donated equipment. So, we're letting our members know that the

donation door is open; all are welcome!"

Allison said that many donors have expressed satisfaction and, at times, relief that their equipment is going to a good cause. "An alarming amount of relatively new equipment has ended up in dumpsters, because family members had no idea what the equipment was or what to do with it. That is a shame," he said.

For more information on how to donate used amateur equipment, accessories, and test equipment, [contact](#) the ARRL Laboratory via e-mail at labdonations@arrl.org or by telephone at (860) 594-0214 during ARRL Headquarters business hours.

ARRL is an IRS-designated 501(c)(3) organization holding federal tax identification number 06-6000004. While ARRL gladly acknowledges receipt of all in-kind donations, the League cannot, by law, provide donors with a dollar value for items donated. --ARRL Letter

NATIONAL GEOGRAPHIC CHANNEL HAM RADIO GUIDE SUPPORTS BEFORE MARS PREQUEL

The National Geographic has produced A Guide to Ham Radio to support its recently released digital short, Before MARS — a prequel to its upcoming MARS series. The 33-minute prequel, which has a heavy Amateur Radio theme, provides the back story of two principal characters in the upcoming MARS global event series.

In the prequel, twin teenaged sisters Hana and Joon Seung are the new kids in town, after their single mother relocates. In due course, they come across old ham radio transceivers — one in an attic, the other in a thrift shop — and use them to communicate with each other and with an older, local ham.

Tuning about, Hana — whose character gets most of the attention — hears an astronaut on the International Space Station (ISS) on her radio and eventually makes contact, as Amateur Radio on the International Space Station (ARISS) program participants do. In a touch of realism, the female astronaut uses the NA1SS call sign.

The Amateur Radio researcher on the film was veteran electrical engineer Michael Gilmer, N2MG, who said the producers contacted him through his connection with the eHam.net website. Patrick J. Kiger authored the guide.

Gilmer concedes that the depictions of Amateur Radio in the production take a few liberties, although he believes that non-hams will likely overlook these and focus instead on the story arc of self-discovery and relationships within a theme of young women becoming interested in science and scientific careers.

The sisters' exposure to ham radio helps to inspire them to pursue careers in space exploration, become astronauts, and take part in a 2033 mission to Mars. MARS will combine documentary sequences about real-life efforts to travel to and colonize Mars. --ARRL Letter

<http://channel.nationalgeographic.com/mars/videos/before-mars/>

<http://channel.nationalgeographic.com/mars/articles/a-guide-to-ham-radio/>

IARU GENERAL ASSEMBLY ADOPTS REVISIONS TO REGION 2 BAND PLAN

Delegates to the 19th International Amateur Radio Union Region 2 (IARU-R2) General Assembly in mid-October adopted ARRL-proposed changes to the Region 2 (the Americas) band plan as well as other recommended revisions. Representatives of 24 IARU member societies took part in the General Assembly, held in Viña del Mar, Chile, either in person or by proxy. ARRL President Rick Roderick, K5UR, headed the League contingent. Alternate head of delegation and ARRL Second Vice President Brian Milesosky, N5ZGT, chaired the IARU Region 2 B/C Committee, which handled LF/MF/HF and VHF+ band-planning matters and proposals and made recommendations to the full assembly — or plenary.

“The IARU Region 2 has established this band plan as the way to better organize the use of our bands efficiently,” the introduction to the updated document states. “To the extent possible, this band plan is harmonized with those of the other regions. It is suggested that member societies, in coordination with the authorities, incorporate it in their regulations and promote it widely with their radio amateur communities.”

General Assembly delegates approved minor modifications to band segments and modes of operation within 160, 80, and 15 meters, to align the Region 2 band plan with the Region 1 and 3 band plans, where appropriate. Changes also acknowledged AM operation within band plans where it commonly occurs (e.g., 160 meters), and added narrowband (i.e., 200 Hz bandwidth or less) digital operation to accommodate such modes as WSPR.

The revisions adopted also called for changing references to 660 meters to 630 meters, to more accurately describe the wavelength of the spectrum actually allocated to Amateur Radio; adding 60 meters to the Region 2 band plan, and making minor modifications to bands at 13 centimeters and above, with respect to Amateur-Satellite operation — again, to bring the Region 2 band plan into alignment, as appropriate, with the Region 1 and 3 band plans. The General Assembly also approved various editorial changes to improve readability, and clarified various footnotes and definitions.

The General Assembly unanimously approved the formation of a region-level working group that will interact with Region 2 member societies in order to become better informed of and to track band planning issues, challenges, and opportunities. The working group will report its findings and recommendations to the Region 2 Executive Committee as well as to future General Assembly band-planning committees, and it would interact with corresponding Region 1 and 3 groups toward developing a more global approach to band planning. Driving formation of the working group was a desire to transition Region 2 band planning to an ongoing process, rather than addressing it every 3 years — especially given the rapid pace of technological development within Amateur Radio.

Milleshosky stressed that while the FCC provides more explicit direction regarding the use of Amateur Radio allocations in the US, other countries prefer not to regulate allocations by mode and to allow amateurs to adopt voluntary band plans. The Region 2 band plan was last revised in 2013.

630 METER SPECIAL EVENT SET FOR MID-NOVEMBER

Participants in the ARRL WD2XSH 630-meter experiment, Canadian radio amateurs, and members of the Maritime Radio Historical Society (MRHS) will participate in a special event on Sunday, November 13 (UTC) on 630 meters (the evening of Saturday, November 12, in US time zones). The event will commemorate the Berlin Treaty of 1906 that made 500 kHz the International Distress Frequency. US Part 5 Experimental licensees will operate in the 472-479 kHz band, using CW for two-way contacts and beacons with commemorative messages. There may also be some operation on 500 kHz.

“Canadian amateurs will also engage in QSOs in the 472-479 kHz band,” said ARRL 630-Meter Experiment Coordinator Fritz Raab, W1FR. “They will also participate in cross-band QSOs with amateurs operating on 160, 80, and 40 meters.”

Canadian radio amateurs gained 630-meter privileges in 2014. A proceeding that would grant similar privileges to US hams is still awaiting FCC approval.

For more information: <http://www.arrl.org/news/630-meter-special-event-set-for-mid-november>

TWO ARRESTED IN GEORGIA FOR PLANNING TO ATTACK HAARP FACILITY IN ALASKA

Authorities in Georgia recently arrested two men who said they were planning to attack the High

Frequency Active Auroral Research Project (HAARP) facility near Gakona, Alaska. Michael Vickers, a detective with the Coffee County Sheriff's Office, told Alaska Dispatch News that the pair explained to authorities "that God told them to go and blow this machine up that kept souls, so souls could be released."

"Yes, that news caused a bit of a stir," said Chris Fallen, KL3WX, a faculty member at the University of Alaska-Fairbanks (UAF), which now operates the HAARP facility. "I can also confirm that no souls are stored at HAARP."

Long of interest to the Amateur Radio community as well as a target of various mind and weather-control conspiracies, HAARP is now operated as an ionospheric research facility by the UAF, which took it over last year from the US Air Force.

Police also seized a "massive" arsenal of weapons the individuals had apparently planned to use in attacking the remote facility. According to a WALB TV news account, investigators discovered the plot after they began looking into possible drug sales by one of the men. A local gun shop also alerted authorities that the same individual was attempting to buy a large number of weapons. The two men, who face domestic terrorism charges, also were charged with selling drugs, and they could face other charges.

UAF spokesperson Marmian Grimes told Alaska Dispatch News that HAARP has been the target of previous threats, and she thanked the Georgia authorities for heading off this one. At an August open house at HAARP, Sue Mitchell of UAF's Geophysical Institute said they hoped, among other things, "to show people that [HAARP] is not capable of mind control and not capable of weather control and all the other things it's been accused of."

Opened in 1960, HAARP is capable of generating extremely high-power signals in the HF range, aimed at the ionosphere. It has run listening tests in the past for the Amateur Radio community. — Thanks to Alaska Dispatch News and other media

SHORTS

Austrian Moonbounce Enthusiast Demonstrates Success with Small-Scale Setup – Hannes Fasching, OE5JFL, of Braunau am Inn, Austria, has demonstrated that you don't need a huge antenna system to operate EME (moonbounce) successfully. Fasching fired up for the October 22-23 weekend of the [ARRL EME Contest](#), using a small horn antenna on 1.2 GHz.

"Because of other commitments I had only a few hours to be QRV in the first part of the ARRL EME Contest," he said in a Moon-Net post on October 26. "As tests with my recently built 23-centimeter horn antenna were promising, I decided to give it a try to work some stations." Fasching placed the horn on his balcony with an 80 W solid-state amplifier.

Operating *WSJT*, he logged contacts with Switzerland, Russia, Germany, and the Czech Republic. He also heard stations in the Netherlands, Finland, Denmark, and Italy on digital modes and in the UK, Czech Republic, Denmark, and Italy on CW.

Fasching, who also has a 7.3-meter homemade dish, has [uploaded](#) recordings of some EME signals to his website, along with the results of tests with his small system.

Joe Taylor, K1JT, to Keynote Radio Club of America Annual Gathering – Nobel laureate Joe Taylor, K1JT, will keynote the Radio Club of America (RCA) annual banquet and technical symposium on November 18 at the New York Athletic Club ([NYAC](#)) in New York City. [Registration](#) for the event ends on Friday, November 4. The event will feature an [awards](#) presentation.

Taylor will share stories from his years in Amateur Radio. Taylor and Russell Hulse received the Nobel Prize in Physics in 1993 for their discovery in 1975 of the first binary pulsar system. Their discovery confirmed Albert Einstein's theories about the existence of gravitational waves.

Taylor will receive the RCA's Lifetime Achievement Award. ARRL Atlantic Division Vice Director Bob Famiglio, K3RF, will receive an RCA Special Recognition Award. --ARRL

Broadcasters, jammers wreak havoc on Amateur Radio Frequencies – The battle continues between Radio Eritrea (Voice of the Broad Masses) and Radio Ethiopia, which is said to be jamming the Eritrean broadcaster with broadband white noise. The problem for radio amateurs is that the battle is taking place in the 40-meter phone band -- 7.145 and 7.175 MHz -- with the jamming signal [reported](#) by the IARU Region 1 Monitoring System (IARUMS) to be 20 kHz wide on each channel.

The on-air conflict has been going on for years; Ethiopia constructed new transmitting sites in 2008 and is said to use two or three of them for jamming purposes. The interfering signals can be heard in North America after dark. According to IARUMS Region 1 Coordinator Wolf Hadel, DK2OM, Radio Eritrea is airing separate programs on each frequency. He said in the IARUMS September newsletter that telecommunications regulators in Germany, Austria, and Switzerland have been informed, so they could file official complaints.

Other AM broadcast intruders on 40 meters include Radio Hargeisa in Somaliland on 7.120 MHz, which, Hadel said, is even audible in Australia and Japan. He further reports that the Voice of Iran's signal on 7.205 MHz is splattering up to 5 kHz on either side of its channel, while Radio France International, which operates on the same frequency, is splattering down to 7.185 MHz. Read [more](#). --ARRL Letter

ARRL President Emeritus Jim Haynie, W5JBP, SK. Jim Haynie, W5JBP died on November 1. He was 73. His death followed a period of ill health. Haynie was elected as the 13th President of ARRL on January 21, 2000, succeeding Rod Stafford, W6ROD (ex-KB6ZV).

A radio amateur for more than 40 years, Haynie was twice re-elected by the ARRL Board to the ARRL's top volunteer office, serving until January 2006, when Joel Harrison, W5ZN, succeeded him. Prior to assuming the ARRL presidency, Haynie was ARRL West Gulf Division Director during two different periods — from 1987 until 1990 and from 1997 until 2000, and an ARRL Vice President from 1990 until 1992.

During his 6 years as president, Haynie focused on promoting Amateur Radio in the classroom, and his ARRL Amateur Radio Education Project — which he dubbed the “Big Project” — was an initiative to offer a turnkey Amateur Radio curriculum as well as radio equipment to schools. His project eventually grew into the ARRL Education & Technology Program (ETP). --ARRL Letter

Maybe a Solar Minimum Can Be Too Deep for 160 Meters - Propagation observer Carl Luetzelschwab, K9LA, recently offered some “deep thoughts” on the Top Band Reflector. As he explained, while less geomagnetic field activity heading into winter bodes favorable 160-meter propagation, more galactic cosmic rays entering our atmosphere could become a factor.

“The Sun’s magnetic field is weakening, probably to the lowest levels in our lifetimes,” Luetzelschwab said in an October 27 post. “With a weak solar magnetic field, more galactic cosmic rays will be able to get into Earth’s atmosphere. We are now seeing unprecedented high neutron counts (neutrons are one of the byproducts of cosmic rays). Since galactic cosmic rays are mostly very energetic protons, they can get down to low atmospheric altitudes, causing collisional ionization in the D region and lower E region.”

He said a cursory estimate using cosmic ray ionization rates confirms greater ionization in the lower atmosphere, and 160 meters is not too tolerant of more absorption.

“Many of us think that ‘solar min is solar min is solar min,’” Luetzelschwab said, “but maybe a solar minimum can be too deep for 160 meters.” He said a good question to ask in the early 2020s may be “How was 160 meters?” Only time will tell, he suggested. — ARRL

80th Anniversary of BBC broadcast television On 2 November 1936, the BBC launched the nation's first regular TV service from Alexandra Palace. Apart from WWII when its transmitters were used to help defend against bomb attacks by jamming signals. Alexandra Palace was the

main location for the BBC's television broadcasts until the 1950s. The single channel, regular television service continued until it was joined by another channel in 1964, then taking on the names BBC One and BBC Two.

THANKS FOR READING!

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