



**INDIAN
RIVER ARC**

P.O. BOX 237285, COCOA
FLORIDA 32923-7285

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SPURIOUS EMISSIONS

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HAPPENINGS

ARES Connect is ARRL's tool for registering operators and their credentials, recording training and activity hours, and generating reports. It's not just for ARES personnel any more. It is a total management recording system that allows a more robust and efficient way of leading *all* of our amateur radio volunteers throughout the country. This system is designed to track the hours of participation

for every amateur radio volunteer. You don't have to be an ARES member to contribute. For the Southern Florida Region the link to get more information and register is [here](#)

Academic Paper Predicts Sunspot Cycle 25 Could be Among the Strongest Ever. A [research paper](#), "Overlapping Magnetic Activity Cycles and the Sunspot Number: Forecasting Sunspot Cycle 25

Amplitude," by Scott W. McIntosh, Deputy Director of the National Center for Atmospheric Research in Boulder, et al., has concluded that Solar Cycle 25 could be among the strongest sunspot cycles ever observed, and will almost certainly be stronger than the just-ended Solar Cycle 24 (sunspot number of 116).

GOKSC Antenna modelling YouTube Channel Justin Johnson GOKSC inventor of the LFA (Loop Fed Array) Yagi and BOLPA (Band Optimised Log Periodic Array) Log Periodic antennas amongst others, has added a new YouTube channel to help Hams become proficient in Antenna Modelling. [GOKSC - Antenna Design, Build and Tuition - YouTube](#)
www.gOksc.co.uk

HAPPENINGS

The US Coast Guard has invited comments by January 21, 2021, on a proposal to discontinue HF voice watchkeeping. The proposal appeared on November 20 in the Federal Register. The USCG proposes to cease monitoring 4125, 6215, 8291, and 12,290 kHz, in the contiguous US and Hawaii, due to a lack of activity. The Coast Guard said it would continue to monitor HF DSC distress alerting for all existing regions and voice distress and hailing from Kodiak, Alaska, and Guam. The Maritime Mobile Service Net (MMSN) on 14.300 MHz remains available to less-equipped mariners who need assistance in emergencies

QRZ is pleased to announce that a new mobile call sign lookup app will soon be avail-

able for both Apple/iOS and Android phones. The app has no ads, doesn't gather any information about you, and is simple, fast, and accurate. The app is 100% FREE, and no subscription is required. Instead, for the first time at QRZ, this app is being generously supported by the users themselves by way of [Patreon](#) donations. Users who find the app useful are encouraged to go to Patreon and make a donation to the cause. Check out Ham Callsigns today in the App Store or in Google Play when it becomes available (soon).

Justin GØKSC has a YouTube series of 10-15 minutes tutorial videos providing basic information in the use of many antenna modeling and creation packages. They can be viewed at <https://www.youtube.com/channel/UC5IBDg7XIsZU5vTHkNfokUw>

Amateur radio licensees and candidates will have to provide the FCC with an email address on applications, effective sometime in mid-2021. If no email address is included, the FCC may dismiss the application as defective. The FCC is fully transitioning to electronic correspondence and will no longer print or provide wireless licenses with hard-copy authorizations or registrations by mail. The Report and Order can be found in PDF format online at, <https://www.fcc.gov/document/fcc-adopts-electronic-licensing-report-and-order>

On December 11, 1921, radio history was made when the signal from amateur station 1BCG in Greenwich, Connecticut was heard in Ardrossan, Scotland,

marking the first successful transmission of any radio signal across the Atlantic using short wave frequencies. The event, known as the Transatlantic Tests, was organized by the ARRL to prove that short wavelength frequencies could propagate long distances using transmitters running less than 1kW. More details [here](#).

Club Dues. A friendly reminder that club dues for 2021 must be paid by January 2021. General member dues are \$20, Family members \$10, and Associate members \$8.

ON THE AIR

Seba, SQ1SGB is planning to be active again as VP8HAL from **Antarctica** in December 2020 - January 2021. He will operate on 20 and 40m. QTH - CE9/SQ1SGB Halley VI Base, HFOANT Arctowski Station. QSL for VP8HAL via EB7DX. Ads for direct QSL: DAVID LIAÑEZ FERNANDEZ, P.O.BOX 163, 21080, HUELVA, Spain.

W5YD Mississippi State University Amateur Radio Club Centennial Celebration
Jan 1-Dec 31, 0000Z-2359Z, W5YD, Mississippi State, MS. W5YD Mississippi State University Amateur Radio Club. 80, 40, 20, and 17 meters. QSL. Mississippi State University Amateur Radio Club, Dept. of Physics & Astronomy, P.O. Box 5167, Mississippi State, MS 39762-5167. The Mississippi State University Amateur Radio Club received its call sign "5YD" in 1920 when the University was still "Mississippi A&M" and ham radio licenses were issued

by the Dept. of Commerce. This year 2020 we celebrate the 100 years of the licensing of the club. Make a contact with the club station and send a SASE for a special event QSL card to commemorate this centennial! Please be patient, as this is a student-run club. Thanks for celebrating with us! w5yd.org.msstate.edu

120th Anniversary of the First Wireless Voice Transmission
Dec 18-Dec 24, 0001Z-2359Z, W4F, Vienna, VA. Vienna Wireless Society. 14.250 7.185. QSL. Vienna Wireless Society, W4F, PO Box 418, Vienna, VA 22183. W4F will be operating on 80, 40, 20,15,10, 6, and 2 meter amateur bands on CW, and SSB, as well as FT-8 using fox/hound mode. For QSL card, Please send SASE with your QSO information to: Vienna Wireless Society W4F PO Box 418 Vienna, VA 22183 <https://viennawireless.net>

Alaska "RST" QSO Party
Jan 15-Feb 15, 0000Z-2359Z,

KL7RST, various, AK. North Country DX Association. 28.450 21.350 14.250 7.250. QSL. John F. Reisenauer, Jr, 2573 Old Georgetown Rd. W., Kershaw, SC 29067. KL7RST, KL7RST/KL7, VY1RST/KL7, VE8RST/KL7 and VYORST/KL7. Certificates by email for working any 3 of the above when you QSL. www.qrz.com/db/k7ice

Kids Day is designed to give on-the-air experience to young people and hopefully foster interest in getting a license of their own. It is also intended to give older hams a chance to share their station and love for Amateur Radio with their children. Kids Day always runs from 1800 UTC through 2359 UTC on the first Saturday in January, this year January 2, 2021. Operate as much or as little as you like. Suggested Frequencies-
10 Meters: 28.350 to 28.400 MHz
12 Meters: 24.960 to 24.980 MHz

15 Meters: 21.360 to 21.400 MHz
17 Meters: 18.140 to 18.145 MHz
20 Meters: 14.270 to 14.300 MHz
40 Meters: 7.270 to 7.290 MHz
80 Meters: 3.740 to 3.940 MHz

The month of December has been designated as **YOTA month**. YOTA (Youth on the Air) in Region 2 (the Americas) is following step, and K8Y, K8O, K8T, and K8A will be on the air from the US. The overarching idea is to demonstrate amateur radio to youth to encourage them to get licensed and for younger radio amateurs to get active on the ham bands.

All radio amateurs can support this effort by contacting participating stations. Follow YOTA via Twitter: @hamyota and @hamyota_official. All young radio amateurs (up to age 26) are encouraged to participate. Direct questions via email to info@hamyota.com.

Sprites by Armando Delgado, KN4JN

Sprites are ephemeral electromagnetic flashes of reddish light occurring above high thunderstorm clouds. They are not generally seen because of the unique circumstances required for their observation. To observe sprites, the storm must be several tens of miles away so that the tops of the storm are visible, the line of sight must be unobstructed, and it must be nighttime. These factors make the observation of sprites a rare event, even though sprites occur rather frequently.

The scientific literature indicates that these odd flashes of light on top of thunderstorms were reported as early as 1730. However, due to their elusive nature and the strict requirements for their observation, they were not recognized as a natural phenomenon, much less studied, for many years.

In 1989 a group of scientists from the University of Minnesota photographing nighttime phenomena accidentally captured videos of sprites atop of a thunderstorm. Soon thereafter videos from the Space Station also showed similar occurrences on top of thunderclouds. These observations confirmed that sprites were a unique natural phenomenon. Once recognized as such, the name "sprite" was given in reference to those fleeting entities from European mythology of the same name. Thereafter, with the advent of sensitive digital recording devices, sprites have been extensively recorded (see adjacent images).

Although visually recorded and recognized as a natural phenomenon, we still do not know the actual physical processes that cause sprites. There are hypotheses, though.

As thunderstorms develop, strong upward currents of air form in the center of the clouds. When the rapidly rising warm air reaches a certain altitude, the water vapor in the air freezes, forming tiny ice crystals. These rising ice crystals rub against stationary or falling

larger ice crystals called graupel and give up electrons to the graupel. As the thunderstorm matures, the falling graupel will carry a negative charge to the bottom of the cloud while the top of the thundercloud will become positively charged. The negative charge at the bottom of the cloud will trigger cloud to ground lighting through mechanisms that are understood. Yet, what happens on the top of the cloud with the positive charges is not so clear.

One hypothesis suggests that the strong positive electrostatic charges attract electrons from the atmospheric gases. At the altitudes of these high thunderstorms (40,000-70,000 ft), the air is very rarefied and dry. However, the partial pressure of atmospheric gases is the same regardless of air density. Thus, at 70,000 ft. nitrogen is still 70% and oxygen 12% of the air although the number of molecules per cm² is only a fraction of what they are at sea level.

Oxygen exists in the atmosphere as O₂, that is, two oxygen atoms bound in a covalent bond through their outer electrons. This bond is not very strong, and the oxygen molecule is larger than the nitrogen molecule in the air. The end result is that the oxygen electrons yield more readily to the positive attraction from the thundercloud. As oxygen electrons escape from their bonds, two energized free oxygen atoms form. The released electrons flow toward the top of the storm, colliding with other oxygen molecules in their way, thus releasing further electrons in a cascading process. Energized oxygen atoms tend to produce reddish light, so that as the cascading, exponential release of energized oxygen atoms proceeds, flashes of red light are seen. Once the charges on the top of the cloud

neutralize from the incoming atmospheric electrons, the attraction drops below the critical level and the process terminates.

Since sprites are a form of ionized plasma, one wonders whether they might contribute to radio wave propagation by reflecting radio waves.

Maybe we should listen to the VHF frequencies when thunderstorms appear on the horizon.



W1AW CW PRACTICE TRANSMISSIONS

7 PM EST Slow CW : 5-15 WPM
Mon, Wed, Fri

7 PM EST Fast CW: 35-10 WPM
Tue, Thu

FREQUENCIES:

1.8025, 3.5815, 7.0475,
14.0475, 18.0975, 21.0675,
28.0675, 50.350, 147.555



Editor's Note:

Send comments about the Newsletter or to contribute information or articles to the Editor's email address:

olardelga@aol.com.



ACTIVE REPEATERS INCLUDING DMR, PACKET & SIMPLEX							RACESBRE0008 REV B
Repeaters & Packet are open for all licensed amateur radio operators to use.							
OUTPUT FREQ.	STD. NAME	OFFSET	TONE/CC	CALL	LOCATION	OWNER	NOTES
WBFM							
145.130	130 VB	-600	107.2	AB4AZ	VERO BEACH, INDIAN RIVER	AB4AZ	
145.350	350 SC	-600	103.5	K4OSC	St. CLOUD, OSCEOLA	K1XC	Radio Science Club, FI Club
145.370	370 CO	-600	156.7	W2SDB	COCOA-BROADCAST CT.	IRARC	Yaesu Repeater replaced with Bridgecom FM
145.470	470 ME	-600	107.2	K4HRS	MELBOURNE- RIALTO PL.	HIRAC	
145.490	490 TI	-600	100.0	WN3DHI	TITUSVILLE SR405 & Fox lk rd.	WN3DHI	
146.610	610 ME	-600	None/107.2	W4MLB	MELBOURNE- HOLMES HOSP	PCARS	Tone Downlink only
146.625	625 MM	-600	100.0	KE4NUZ	NW of MIMS NEAR HARRISON RD.	KE4NUZ	Limited coverage
146.775	775 MM	-600	100.0	K4KSC	NW of MIMS Hog Valley , W of I95	K4KSC	
146.850	850 ME	-600	None/107.2	W4MLB	PALM BAY- Port Malabar Rd.	PCARS	Tone Downlink Only
146.880	880 RO	-600	107.2	W4NLX	ROCKLEDGE- WUESTHOFF HOSP.	IRARC	FUSION Repeater replaced with Bridgecom F
146.895	895 PB	-600	107.2/107.2	K4EOC	PALM BAY- DeGroot Library	EOC	TSQL as of 5/2018
146.910	910 TI	-600	107.2	K4KSC	TITUSVILLE Water Tower on south st.	TARC	
146.940	940 RO	-600	None	K4GCC	ROCKLEDGE Carver Rd.WLRQ Tower	LISATS	
146.970	970 TI	-600	107.2	K4KSC	TITUSVILLE-T'VILLE TOWERS	TARC	
147.075	075 SC	+600	107.2/107.2	K4EOC	SCOTTSMOOR Near US1-Aurantia Rd	EOC	TSQL as of 5/2018 Relocated 4/2019
147.135	135 RO	+600	107.2/107.2	K4EOC	ROCKLEDGE-EOC	EOC	TSql as of 5/2018
147.240	240 DE	+600	123.0	KV4EOC	DELAND	VARES	
147.255	255 PB	+600	107.2	K4DCS	Near Babcock & Palm City S City limi	PBARC	
147.330	330 TI	+600	107.2	K4NBR	TITUSVILLE-PARRISH HOSP.	NBARC	
147.360	360 TI	+600	107.2	N4TDX	TITUSVILLE-PARRISH HOSP.	NBARC	DSTAR Gateway in work
442.850	850TI4	+5000	107.2/107.2	N4TDX	TITUSVILLE-PARRISH HOSP.	NBARC	TSql;FUSION/WBFM/WIRES-X
444.325	325ME4	+5000	107.2	K4DCS	MELBOURNE-TRINITY TWRS-E	PBARC	
444.375	CNLBRE	+5000	107.2		I95 FDT Twr 1/2 Mile N of County Lin	SARNET	"SARNet Sebastian Repeater"
444.425	425ME4	+5000	107.2	W4MLB	MELBOURNE- RIALTO PL.	PCARS	
444.525	525RO4	+5000	103.5/103.5	K4EOC	ROCKLEDGE-EOC	EOC	TSql; VOICE/NBEMS
444.650	CNMBRE	+5000	107.2	W4NLX	COCOA-FHP SR520	IRARC	"SARNet Cocoa Repeater"
444.750	750TI4	+5000	156.7/156.7	N4TDX	TITUSVILLE- TGO WATERTOER 230 ft.	NBARC	TSql
444.875	875MI4	+5000	107.2	KC2UFO	MERRITT IS. COURTNEY SPRS.	K4UJZM	
444.925	925KS4	+5000	131.8/131.8	N1KSC	KENNEDY SP. CTR.-VAB	KSCARC	FM Tsql ; P25 capable
224.120	120CO2	-1600	123.0	AA4CD	COCOA Broadcast Ct.	AA4CD	
DMR							
444.150	150TI4	+5000	CC1	K2JO	TITUSVILLE-PARRISH HOSP.	KC2CWT	DMR FL
444.575	575CO4	+5000	CC3	K4DJN	COCOA BROADCAST CT.	AA4CD	DMR Brandmeister
444.675	675TI4	+5000	CC3	K4DJN	TITUSVILLE-T'VILLE TOWERS	AA4CD	DMR Brandmeister
ATV							
427.250	250CO4			K4ATV	COCOA BROADCAST CT.	LISATS	NTSC INPUT 439.25 See www.lisats.org
PACKET STATIONS:							
145.090	WL2KPB	WINLINK		W2PH-10	PALM BAY-W2PH QTH	PBARC	WINLINK GATEWAY
145.090	090 ME	PCARS		W4MLB-2	MELBOURNE-TRINITY TWRS-EAST	PCARS-K1YON	BBS W4MLB-4 EASTNET
145.770	770 PB	SEDAN		K4EOC-7	PALM BAY	N2DB	http://www.fla-sedan.com
145.770	770 TI	SEDAN		KD4MWO-4	TITUSVILLE	N2DB	INACTIVE NODE
BREVARD RACES/ARES SIMPLEX							
146.480	CENTX	SIMPLEX		N/A	CENTRAL REG	IRARC	CENTRAL NET SIMPLEX BACKUP
146.550	SOUTHX	SIMPLEX		N/A	SOUTH REGION	PBARC	SOUTH NET SIMPLEX BACKUP
146.580	MLBX	SIMPLEX		N/A	MELBOURNE REGION	PCARS	MELBOURNE REGION NET SIMPLEX BACKUP
146.595	NORTHX	SIMPLEX		N/A	NORTH REGION	TARC	NORTH NET SIMPLEX BACKUP
147.540	EOCROX	SIMPLEX		N/A	RACES Bay	EOC	EOC VOICE/NBEMS
SIMPLEX							
146.520	CALL52	SIMPLEX		N/A	Station to station, anywhere		VHF national simplex calling freq
146.490	TAC A	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
146.560	NBRX	SIMPLEX		N/A	NBARC -Club/Parrish Hosptial Activities		
146.580	TAC B	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.420	TAC C	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.420	IRARCX	SIMPLEX		N/A	IRARC "FUN NET" and CLUB ACTIVIES		
147.450	TAC D	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.570	TAC E	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.000	CALL46	SIMPLEX		N/A	Station to station, anywhere		UHF national simplex calling freq
446.500	TAC A4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.600	TAC B4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.700	TAC C4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
2 Meter & 70 cm WBFM repeaters use CTCSS; if one frequency is listed it is for uplink (user Tx) , if two are listed the repeater is set for uplink and downlink (user Tx and Rx)							
Repeater Call Signs in bold are owned by Brevard Emergency Management and are maintained by the county. Repeater Trustee: Ron K2RJ							
NOT ON AIR							
Standard Names in Bold are recommended for Emergency Radio in Brevard *							
PBARC= Palm Bay Amateur Radio Club (Replaces DCS for South Brevard) See Ed W2PH for more info							

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MACOM
MAXON
MIDLAND
MOTOROLA

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