



INDIAN RIVER ARC

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

VOLUME XLII, NUMBER 11

SPURIOUS EMISSIONS

NOVEMBER, 2021

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NEWSLETTER EDITOR

ARMANDO DELGADO
KN4JN

CLUB MINUTES

The meeting was called to order by President Viron, N4VEP at 7:16 PM

Following the Pledge of Allegiance the minutes of the October, 2021 meeting were approved.

The Treasurer's Report: Equipment Fund, \$1883.96. Checking Account, \$818.17.

The club's nets every Wednesday at 7:15 PM on 145.37 MHz repeater, tone 156.7 Hz followed by the Ragchew Net on simplex frequency 147.42 MHz. The next Monthly Exercise will be on Saturday 11/27/2021 at 9:00 AM. Every Tuesday there is the Digital Training Net at 7:00 PM on 145.37 MHz.

Technical Committee Report: All repeaters are operational. The Ecom Ops Center at the church still has not resolved the dedicated Winlink node issues.

President's Report: Viron discussed the proposed MOU with

ARES/BCAT and the reasons why IRARC should support ARES/BCAT. He further praised the work of BCAT in promoting amateur radio and training new hams. In 2021 so far they have trained and licensed 67 new hams. BCAT has an MOU with the Ecom Ops Center to operate from the church during emergencies. Some members present found some of the wording of the proposed MOU too broad, raising potential for problematic future conflicts.

New Business: The new proposed budget: Income, \$860.00. Expenses: Equipment insurance, \$171.31, Liability insurance, \$321.20, PO Box, \$95.00, Corporate filing, \$65.25, Field Day Food/Drinks, \$100.00, Christmas Party, \$100.00, Discretionary spending, \$9.24. Total expenses, \$860.00.

Next, the amendment to the By-Laws: "A quorum is established when at least twenty percent of

membership eligible to vote is present in person or electronically." The amendment was read and passed by majority vote.

The election of new officers for the next two years followed. Steve Luchuk, N4UTQ was elected President, Sam Thorpe, KJ4VGR Vice-President, Dave Lerret, KUOR Treasurer, Armando Delgado, KN4JN Secretary, Bob Scolah, WOAGE Director-at-Large. The new officers will assume office on January 1, 2022.

After the election, Viron showed a brief video demonstrating how antennas work.

The meeting adjourned at 8:07 PM.

Respectfully submitted for the Secretary by Armando Delgado, KN4JN.

HAPPENINGS

Two hams in Italy succeeded in making contact between the island of Sardinia and the Tuscan summit of Monte Amita, 304 kilometers, or nearly 200 miles away using Wi-Fi. The connection made across the Tyrrhenian Sea was a project undertaken by the Italian Center for Experimental Radio Activities and was reported recently on the Wi-FiPlanet website. The 802.11a link was created using radio modules on both

ends from Ubiquity Networks based in San Jose, California. The modules were connected to 35dBi 5GHz parabolic dish antennas.

Crocodile Rock Amateur Group (CRAG) based in Scotland will be operating two Paul Godley commemorative stations to celebrate the centenary of the successful transatlantic test 2 conducted in December 1921. Both the special

and rarer special/special event stations will be operated between the 1st - 26th December 2021. The callsigns used for the centenary will be GB2ZE & GB1002ZE respectively. Back in 1921, the American Paul Godley (2ZE), embarked on a DX-pedition ultimately to Ardrossan, Scotland in order to receive the first transatlantic shortwave amateur radio message from the amateur station -

1BCG- located in Greenwich, Connecticut, U.S.A. In fitting tribute to Paul Godley, negotiations between OFCOM & CRAG resulted in OFCOM offering all UK and Crown dependency licenced radio amateurs the ability to use the suffix "/2ZE" with your own callsign from the 1st - 26th December 2021. Further details surrounding the centenary can be found here:

HAPPENINGS

www.transatlantic.org.uk.

Additional historical information can be found on the RSGB site: <https://rsgb.org/main/activity/transatlantic-tests/> & also the ARRL site: <http://www.arrl.org/transatlantic>.

Expeditions, a very popular amateur radio activity, suffered greatly during the past two years due to Covid-19 traveling restrictions. Many planned expeditions were cancelled or postponed. Now with the pandemic subsiding, many new expeditions are being planned for the coming year.

Bouvet Island, the second most-wanted location in Club Log's DXCC most wanted list, saw the cancellation of a planned expedition in 2021, and the failure of two other expeditions in the previous two years.

In December, 2018 an expedition reached the shores of Bouvet Island only to have to turn back because the ship developed engine

trouble.

Then in 2020 a new attempt to reach Bouvet Island had to be aborted due to a severe storm that damaged the ship transporting the expedition.

Now, a new operation is planned for November, 2022 and hopefully this time it will be successful.

The third most wanted site in the Club Log DXCC list is **Crozet Island**, and an expedition is planned for December, 2022 to last three months. Crozet Island, like Bouvet Island, is an uninhabited land in the Antarctic region, part of the French Austral Islands, under French jurisdiction, and part of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage sites and declared as protected areas. Because of that classification, the erection of antennas on the island is very restricted and the operation may be unable to reach some

parts of the world. However, with propagation in the higher bands improving, by the end of 2022 contacts in those bands may happen, even with limited antennas.

The Radio Society of Great Britain has been granted the call sign GB21YOTA for use by young operators during **YOTA Month**. GB21YOTA and other stations with YOTA suffixes will be active during the entire month of December. The idea is to demonstrate amateur radio to youth and to encourage young operators to be active on the ham radio waves.

Space Physicist Martin Archer of Imperial College London wants to know the best approach to making space physics data audible.

Specifically, the project seeks the best method of making ultra-low-frequency waves around Earth audible. Archer believes

feedback from radio amateurs and others could help space scientists to improve science communication, public engagement, and citizen science.

Completing the survey should take no longer than 10 minutes. A [participant information sheet](#) offers greater detail. [Direct](#) questions should be sent to Archer via email.

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog ... [Read more](#)

ON THE AIR

France. François, F8DVD, will activate the special event station TM60ANT between November 16-30th. Activity is to commemorate the 60th anniversary of Antarctic Treaty Signature (ATS)

The phone portion of the **ARRL November Sweepstakes** will be on the third full weekend in November (November 20-22, 2021). Contest period begins 2100 UTC Saturday and runs through 0259 UTC Monday (4:00 PM EST Saturday -10:00 PM EST Sunday). This contest is a great opportunity to contact all states, including rare and difficult ones such as Delaware, Montana, and Alaska. Full details of the contest are found [here](#).

NRA's 150th Birthday Party Nov 17, 1500Z-2359Z, K7GST, Prescott, AZ. Yavapai Amateur

Radio Club. 21,3325 14.250 14.040 7.250. Certificate. E-Certificate, or direct to: YARC, P.O. Box 11994, Prescott, AZ 86304. 9X12 SASE. See website for details. Times 1500Z to 2400Z. www.w7yrc.org/nrbirthday

Last Day of Hurricane Season 2021 and Volunteer Recognition Nov 30-Dec 5, 1600Z-2300Z, W5C, Carol Stream, IL. Cajun Navy Relief Amateur Radio Club. 14.250 7.250 D-STAR DSC/XLX 256i JS8Call. QSL. Cajun Navy Relief Amateur Radio Club, 681 Paxton Place, c/o Thomas Sarlitto, Carol Stream, IL 60188. For a Special Event QSL Card, please send a #10 SASE to: Cajun Navy Relief ARC, c/o Thomas Sarlitto, 681 Paxton Place, Carol Stream, Illinois 60188. Please visit our website for more information on this Special Event Station. <https://www.cajunnavyrelief.com/W5CNR>

W2W Pearl Harbor Day Commemoration Dec 3-Dec 13, 1300Z-2200Z, W2W, Baltimore, MD. Amateur Radio Club of the National Electronics Museum. 14.241 14.041 7.241 7.041. Certificate & QSL. W2W-Pearl Harbor, P.O. Box 1693, MS 4015, Baltimore, MD 21203. Amateur Radio Club of the National Electronics Museum (ARCNEM) will operate W2W in commemoration of the anniversary of Pearl Harbor Day and the role of electronics in WWII. Primary operation will be Dec 3-Dec 7 with additional operation possible during the Dec 8-Dec 13 period as operator availability permits. Operation on 80M (3.541, 3.841) and digital modes possible during event. Frequencies +/- according to QRM. QSL and Certificate available via SASE; details at ww-2.us

The ARRL 160 m Contest. First full weekend in December (December 3-5, 2021). Begins 2200 UTC Friday and runs through 1559 UTC Sunday. For full rules go [here](#).

ARRL 10 Meters Contest. Second full weekend in December (December 11-12, 2021). Begins 0000 UTC Saturday and runs through 2359 UTC Sunday. Operate for a maximum of 36 hours out of the 48-hour period. Off times must be at least 30 minutes long. Contest rule found [here](#).

Bob, WX4G will be active as V4/WX4G from **Saint Kitts Island**, IOTA NA - 104, 24 November - 2 December 2021. He will operate on 160 - 6m, including activity in CQ WW DX CW Contest, 27 - 28 November 2021 as V47A .

Radio Direction Finding by Armando Delgado, KN4JN

Amateur radio direction finding (ARDF) is a rather popular aspect of amateur radio. This activity ranges from simple hidden-transmitter searches by a few hams to complex competitions using orienteering techniques covering several miles of wild terrain and many participants.

The frequencies used in most ARDF activities are generally VHF, mainly 2 meters, but 80 meters transmitters are also used. Most participants use portable beam antennas to detect the hidden signals.

Radio direction finding (RDF) is not limited to amateur radio and is not a new concept.

Actually, RDF is as old as radio itself. When Heinrich Hertz discovered radio waves, he used a loop antenna to receive the signal and noticed that when the loop was oriented aligned with the transmitter, it triggered a signal, but when the loop was perpendicular to the transmitter, the signal did not appear.

Years later, after Marconi introduced his radio, experimenters tried to use loop antennas to find the direction of radio transmissions. Unfortunately, the early radios transmitted in very long wavelengths and the loops used were very large, unwieldy, and impractical.

In 1904 two Italian engineers, Ettore Bellini and Alessandro Tosi, reasoned that to receive a radio signal without transmitting, the size of the antenna was not critical. They developed a detection system that utilized two fixed perpendicular loops, each connected to an induction coil that induced a magnetic field proportional to the strength of the received signal. Inside these two loops was placed a smaller rotating loop antenna that detected the direction of the strongest signal.

The Bellini-Tosi system became widely accepted, although it had some flaws. The most significant being its inability to correctly detect sky-wave signals. During the early radio era, the wavelengths

were very long with little sky-wave component, but in time, as the transmitting frequencies increased and the wavelengths became shorter, the sky-wave component of transmissions increased creating a problem for radio detectors using the Bellini-Tosi system.

In 1919 an Englishman by the name of Frank Adcock patented an antenna system that neutralized the horizontal or sky-wave component of the signal. The Adcock system utilized four equidistant vertical monopoles. When coupled with the Bellini-Tosi system, the combination permitted increased directional sensitivity. Still, to accurately detect the direction of a radio signal required a skilled operator and several minutes, which was a problem for radio signals of short duration.

During World War II the German submarines capitalized on this limitation to avoid detection by keeping their transmissions short. The English engaged Robert Watson-Watt, the inventor of the radar, who had long experience experimenting to locate the direction of lightning using radio. Watson-Watt utilized an oscilloscope coupled to a directional antenna to rapidly locate the direction of the radio signal. His system, known as high-frequency direction finding and nicknamed "huff-duff" proved very effective in detecting submarines.

Modern RDF systems use phased array antenna systems and use amplitude comparison and phase comparison to determine direction.

RDF not only serves to find hidden or unknown transmitters, but also for the reverse purpose of finding the location of a receiver when the location of the transmitter is known.

For many years Automatic Direction Finding (ADF) equip-

ment was used in aviation navigation. The ADF unit would provide the aviator an angle to the transmitter relative to the direction of flight. By getting two or more fixes from different transmitters, the pilot could determine his location.

Radio signals were also used in the Loran system of navigation, mainly employed in maritime navigation. Loran used a chain of transmitters in the LF frequencies located several hundred miles apart that used a signal time differential between the transmitted signals of each antenna to allow the receiver to provide a fix.

Most radio navigation systems, both aeronautical and maritime, have been mostly replaced by GPS, although most countries still keep a new form of Loran known as eLoran (Enhanced Loran) as a back up in case of a failure of the GPS system.



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



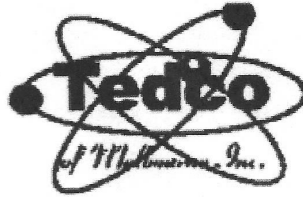
Editor's Note:

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 user 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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CALRAD
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HYGAIN

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JSC WIRE
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JVC PARTS

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KOSS
KESTER

LITTELFUSE
LOWELL

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MACOM
MAXON
MIDLAND
MOTOROLA

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