



**INDIAN
RIVER ARC**

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**ARMANDO DELGADO
KN4JN**

HAPPENINGS

After the 2024 Olympic Games, there will be a special event station for **the 2024 Paralympic Games**, August 11 through September 8. TM2024JPP will be active on all bands from 0000Z - 2359Z. For additional information visit: <https://log-et-qs1.associations-radioamateurs.org/wp>

The peak of hurricane season will begin soon. Generally, it extends from the middle of August to the middle of October. As hams, we want to be prepared for any emergency and now is the time to be sure all our equipment is ready, just in case.

One useful net to monitor during hurricanes is the [Hurricane Watch Net](#). This net is activated when a hurricane is within 300 miles of a populated land mass. It meets on

President Steve Luchuk, N4UTQ called the meeting to order at 7:15 PM. Following the Pledge of Allegiance, Steve called for visitors; there were none.

Treasurer's Report: The general checking is stable at \$1306.60 and the Equipment Fund is also unchanged at \$2013.65. The Treasurer Report was accepted for audit.

Next, the minutes of the July meeting were approved.

Technical Committee: Dave, KU0R reported that the 220 MHz repeater again failed to link. He checked the machine and the clock was off by 4 hours. Dave also got an error message as he tried to access the controller. He thinks the problem could be the controller not being compatible with Windows 11 since it is an older machine and may need an upgrade to eliminate the problem. Otherwise, the repeater is working fine.

Past President Report: Viron, N4VEP reminded the members that this coming Saturday, August 17 there will be a QRP event at Rotary Park on Merritt Island. The activity will begin at around 9:00 AM and go until

1:00 PM. Participants are advised to bring snacks, water, and their own antenna support since the park does not have good trees close to the pavilions.

Following the business meeting Steve gave a presentation on tornados. He showed many slides illustrating examples of tornados and mesocyclones.

Apparently, the mechanics of tornados are not well understood. The prevailing theory of tornado formation is of a wave of cold air sliding under warm air and causing the latter to rise rapidly. As the warm air rises, Coriolis forces cause it to spin, initiating the process of tornado formation. However, what forces the tornado to move down to earth is not understood. Mesocyclones are large rotating clouds that form due to wind shear from conflicting air masses. Many mesocyclones will create tornados, but not always, and some tornados do not develop in mesocyclones. As a rule, the jet stream is what determines the direction of travel of mesocyclones.

Tornado strength is classified according to the Enhanced Fujita scale that ranges from EF-0 to EF-5 depending on the

frequencies 14,325 MHz and 7,268 MHz, depending on propagation. The NHC station WX4NHC starts the net but many other stations act as NCS. They will receive reports from stations in the affected areas and periodically provide official updates on the storm. The net will also handle health and welfare traffic for SATERN, the Salvation Army Net. WX4NHC also receives reports via

wind speeds inside the tornado. Tornados are also classified by the shape of the funnel as rope tornados, the weakest, cone, elephant trunk, and wedge tornado, the most destructive, and rare forms, cylinder and hourglass. Rarely, also twin tornados may happen in one storm. Other forms of tornado-like phenomena are dust devils and waterspouts which are tornados over water.

Tornados can be detected by radar, where they show as a distinctive "hook" echo caused by the wind rotation.

Tornado research trying to recreate them has failed to mimic what occurs in nature, showing that the mechanics that produce tornados are not understood. In closing, Steve mentioned that tornados may produce radio signal in the frequency range of 53 MHz that may provide a means of detecting approaching tornados.

After a brief period of questions, the meeting adjourned at 8:19 PM.

Respectfully submitted,

Armando Delgado, KN4JN

Secretary

Winlink email over amateur radio via the address wx4nhc@winlink.org. The email subject line must start with //WL2K. There is a web-form on the WX4NHC web site to provide information as well. Also, the [VoIP Hurricane Net](#) provides a parallel capability using modern digital technologies. It connects directly to their net on *WX_TALK* Echolink conference node: 7203/IRLP 9219

SPURIOUS EMISSIONS

AUGUST, 2024

CLUB MINUTES

HAPPENINGS

reflector. The connections to the net can include other VoIP modes such as Fusion, All-Star, Hamshack Hotline, certain types of DMR among other VoIP modes via the KC5FM, AUXCOMM and Sunflower systems.. The VoIP Hurricane Net also provides observations from social media monitoring..

ARRL Southeastern Division Vice Director Jeff Beals, WA4AW, Silent Key.



The Vice Director of the ARRL Southeastern Division, Jeffrey J. "Jeff" Beals, WA4AW, has become a Silent Key. He died on July 20, 2024. Beals devoted a lifetime of

service to amateur radio, having served in many local clubs, the ARRL Field Organization, and on the ARRL Board of Directors. He was also elected Vice President of the Quarter Century Wireless Association (QCWA) in 2023. Club members may remember Jeff, as he visited almost every year our Field Day site.

International Lighthouse Lightship Weekend - ILLW

Normally held on the 3rd full weekend in August. This year: 00.01 UTC 17th August 2024 to 24.00 UTC 18th August 2024 (48 hours). For more information, including list of participating lighthouses go to the [ILLW](https://www.illw.org/) website.

W1AW to QSY on 17 Meters for CW Beginning on Friday, September 6, 2024, Maxm Memorial Station W1AW will begin using a new 17-meter frequency

for its scheduled CW transmissions due to increased activity near the current bulletin frequency. In order to reduce the possibility of interference, W1AW will move to 18077.5 kHz.

The ARRL September VHF Contest, will be held from 1800 UTC on Saturday, September 14 through 0259 UTC on Monday, September 16. All amateur frequencies above 50 MHz may be used.

Andy Milluzzi, KK4LWR, Appointed Vice Director of ARRL Southeastern Division Andrew "Andy" Milluzzi, Ph.D., KK4LWR, has been appointed Vice Director of the ARRL Southeastern Division. ARRL President Rick Roderick, K5UR, appointed Milluzzi to the remainder of the term ending in December 2025 following the recent death of former Vice

Director Jeff Beals, WA4AW (SK). Milluzzi works for Walt Disney Imagineering as a Senior Ride Control Systems Engineer. He earned his Ph.D. at the University of Florida in electrical and computer engineering, focusing on high-performance computing.

The [High-frequency Active Auroral Research Program](https://www.haarp.gi.alaska.edu/) (HAARP) will be conducting a research campaign beginning August 13 - 16 and continuing on August 18 - 20, 2024. Operating frequencies will vary, but all HAARP transmissions will be between 2.8 MHz and 10 MHz. Actual transmit days and times are highly variable based on real-time ionospheric and/or geomagnetic conditions. Amateur radio operators are invited to listen and send reception reports to uaf-gi-haarp@alaska.edu or to: HAARP, PO Box 271, Gakona, AK 99586. More information on PARS can be found at <https://haarp.gi.alaska.edu/pars2024>.

ON THE AIR

Get ready for the 25th anniversary of Route 66 On the Air.

The 2024 event will start Saturday, September 7 and run until Sunday, September 15. The event, sponsored by the Citrus Belt Amateur Radio Club, celebrates the "Mother Road," U.S. Highway 66, which was established in 1926 and was the first major roadway improvement to link the West Coast with the nation's heartland. Joining the celebration for the 18th year will be the Barstow Amateur Radio Club with special event station W6E. There will be 21 (1x1) special event stations along the route from Santa Monica, California, to Chicago, Illinois. In 2023, there were 77 such stations, making a total of 623 contacts during the 9-day event. Email route66ota@yahoo.com with questions or for additional

information.

N5J Team will be active from **Jarvis Island**, IOTA OC - 081, 7 - 19 August 2024. Team on Island - AA7JV, N1DG, HA7RY, KN4EEI, KO8SCA. N5J Remote operators CW:W1VE, CT1BOH, CT1ILT, KL9A, N6MJ, KL2A, K5GO/ZF9CW, MODXR, KL7SB, JE1CKA, JN1THL, SM6LRR, F6AKK, E77DX, CE3CT, VE5MX, ZL3CW, HA2NA. They will operate on 160 - 6m, CW, SSB, FT8.

US Coast Guard Radio Station Guam/NRV 80th Anniversary Aug 15-Aug 30, 0001Z-2359Z, N4V, Memphis, TN. NRV Veterans. 7.030 7.185 14.030 14.235. Certificate & QSL. Jim Pogue, 699 Dickinson St, Memphis, TN 38107. KH2AR@comcast.net

International Lighthouse Lightship Weekend

Aug 17-Aug 19, 0001Z-0000Z, T44IJ, Isla de la Juventud, CUBA. Radioclub Isla de la Juventud (CO9DAA), Cuba. 7.091 10.131 14.090 21.091. QSL. Vasilij, P.O. Caja "8", g. Novopavlovsk, distrito de Stavropol, RUSIA 357300, CUBA. La estación estará activando el Faro de Carapashibey al sur de la Isla de la Juventud, Cuba, con número de Isla NA-056 <https://www.qrz.com/db/T44IJ>

International Dog Day 2024

Aug 21-Aug 26, 0001Z-2359Z, K2D, K2D/x, Melville, NY. Caryn Eve Murray, KD2GUT. 7.045 14.050 21.030 28.050. Certificate. Caryn Eve Murray, 2 Wallingford Dr, Melville, NY 11747. CW and SSB operation only. Please check spotting clusters frequently.

Certificate will be downloadable after event is over. qrz.com

100th Anniversary of the Ontario Provincial Air Service

Sep 1-Sep 30, 0000Z-2359Z, CG3CBHC, Sault Ste Marie, ON. Algoma Amateur Radio Club. 14.074 7.074. Certificate. Dave Rowlinson, 315 Old Garden River Rd., Sault Ste Marie, ON P6B 5A7, CANADA. Event will run the month of September, but the most activity will be September 21 and 22 during Canadian Bushplane Heritage Centre (bushplane.com) - Bushplane Days Commemorative Certificates will be sent to all contacts during the event. www.aarclub.ca

Coast Guard Anniversary

Sep 14-Sep 15, 0900Z-0500Z, W1H, Elkins, NH. KB1QXJ. 7.250 14.285 21.300 18.150. QSL. Bill Hopwood, P.O. Box 272, Elkins, NH 03233.

The Drake Equation by Armando Delgado, KN4JN

Ancient astronomers observed the sun, the moon and the stars moving across the sky in an east to west movement regularly. These observations led to the logical conclusion that the celestial bodies rotated around the Earth and that the Earth was the center of the universe. In the second century AD, the Greek astronomer Ptolemy developed a mathematical equation that showed that the Earth was indeed the center of the universe, and this belief was generally accepted for many centuries.

Ancient astronomers also recognized certain stars that moved across the night sky not staying in the patterns of the recognized constellations. The Greeks called these bodies *planetai*, or “wanderers”, a term that later led to the name planet. The ancients recognized five of these bodies and gave them names of their gods. They also noticed that some of these planets periodically did not follow the regular east to west movement, but at times turned back on their track in the sky and moved in a retrograde path. No one could explain this phenomenon at the time.

For centuries, the retrograde movement of the planets puzzled astronomers until 1543 when Copernicus published a theory that answered the question. He suggested that the sun and not the Earth was the center of the universe and that all other celestial bodies rotated around the sun. He argued that all the planets rotated around the sun in circular orbits, some closer to the sun than others. This arrangement would answer the retrograde movement of the observed planets. Later in that century Johannes Kepler proved mathematically the orbits of the planets.

The heliocentric theory of the universe remained established until the late 19th and early 20th century when more powerful telescopes showed that our sun not only was not the center of the universe, but that our solar system was just one of many in our galaxy, the Milky Way. They also showed that our universe is very vast and populated by billions of galaxies like our own.

Throughout most of history people did not think of the possibility of life anywhere except on Earth. Then in 1877

Italian astronomer Giovanni Schiaparelli observing the planet Mars during one of its periodic close approaches to Earth noticed “canal-like” patterns on its surface. The media miss-translated the Italian word and reported the possibility of some intelligence building canals on Mars.

Following this report, there was a universal awareness that there could be life in other planets. Then in 1897 H.G. Wells published his novel “The War of the Worlds” which solidified the widespread belief that life could exist in other planets. Yet, following the astronomical discoveries and space exploration of the 20th Century, it became clear that none of the other planets in our solar system could sustain life. Moreover, recognizing the vastness of the universe a general belief developed that there could be intelligent life in other solar systems.

In 1959 Philip Morrison and Giuseppe Cocconi published a paper in which they suggested that since hydrogen is the most common element in the universe that the hydrogen emission frequency of 1420.40 MHz could be used by an extraterrestrial civilization to communicate with other worlds. Then in 1961 a group of scientists met to plan methods of investigating the issue; a gathering that eventually led to the formation of a formal research consortium known as SETI—Search for Extraterrestrial Intelligence. At this meeting, one of the organizers, Frank Drake, introduced an equation to help them define their agenda and their chances of success. Once published, the equation caught the popular imagination and solidified the idea that we are not alone in the universe.

The Drake equation is:

$$N = R_s \cdot f_p \cdot n_e \cdot f_i \cdot f_c \cdot L$$

where

N = the number of civilizations in the Milky Way galaxy which communication might be possible (i.e. which are on the current past light cone);

and

R_s = the average rate of star formation in our Galaxy.

f_p = the fraction of those stars that have planets.

n_e = the average number of planets that can potentially support life per star that has planets.

f_i = the fraction of planets that could support life that actually develop life at some point.

f_c = the fraction of planets with life that go on to develop intelligent life (civilizations).

L = the length of time for which such civilizations release detectable signals into space.

L = the length of time for which such civilizations release detectable signals into space. ^{[6][7]}

Unfortunately, many of the variables in the Drake Equation are unknown and can not be known, which leave any values attached to them to pure speculation. Attempts to assign values to the equation variables has led to results ranging from 1 to several millions.

Although the equation fails to predict any credible probability of communicative civilizations in our galaxy, the vast size of the galaxy and of the universe at large leads to the inescapable conclusion that there must be others out there and that we are not alone in the universe.



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, 18.0775, 21.0675,
28.0675, 50.350, 147.555



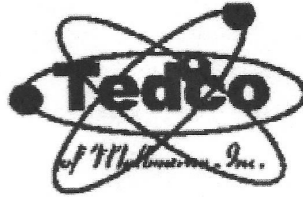
Editor's Note:

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		195 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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HITACHI
HYGAIN

ICOM RADIO

JSC WIRE
JW DAVIS SOUND
JVC PARTS

KENWOOD RADIO
KOSS
KESTER

LITTELFUSE
LOWELL

M & G
MALLORY
MACOM
MAXON
MIDLAND
MOTOROLA

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NELLO TOWERS
NTE ELECTRONICS
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