

Treasure Coast Ham News

SUMMER 2023 SPECIAL HURRICANE PREPAREDNESS ISSUE

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THE 2023 ATLANTIC HURRICANE SEASON

Here we go again!

Tropical Cyclone History

Data from 1949 in the Pacific, from 1851 in the Atlantic



According to Colorado State University, they “anticipate that the 2023 Atlantic basin hurricane season will have slightly below-average activity.”

“Current neutral ENSO conditions look fairly likely to transition to El Niño this summer/fall. However, there is considerable uncertainty as to how strong an El Niño would be, if it does develop. Sea surface temperatures in the eastern and central Atlantic are much warmer than normal, so if a robust El Niño does not develop, the potential still exists for a busy Atlantic hurricane season. Larger-than-normal uncertainty exists with this outlook; therefore we anticipate a near-average probability for major hurricanes making landfall along the continental United States coastline and in the Caribbean.”

“As is the case with all hurricane seasons, coastal residents are reminded that it only takes one hurricane making landfall to make it an active season for them. They should prepare the same for every season, regardless of how much activity is predicted.”

From the Publishers

Growing up in South Florida in the 50s and 60s, the weather was not the same as today. Our spring and fall were very pleasant. Winter could vary greatly from mild to outright chilly. Wearing a sweater or jacket at night was not uncommon. Summers were warm and occasionally hot. I can not remember experiencing day after day of high temperatures and oppressive humidity. We had rain, but being sub-tropical to tropical, that was expected.

Hurricanes were an ever present danger to South Florida as well as the entire southeast and south central U.S. (For hurricane history please go [here](#).) Our Treasure Coast is named for the 1715 Spanish Fleet that wrecked along our coasts after being torn apart by a late season November hurricane. For centuries beach goers and metal detectorists have found Spanish coins on the beaches after storms. Coins, jewelry and more are still found in the ocean today by treasure salvers in leased search areas.

As a kid during hurricane season, we would gather around the TV at night with our parents to see the weather people discuss storm probabilities. Before school in the morning we would listen to the AM radio stations for the latest landfall predictions. We were excited, but I suspect our parents did not see it quite the same way. They knew hurricanes could be very dangerous. Preparations started early all the while hoping the hurricanes would never arrive. Unfortunately, many did.

My first hurricane was 1960's Donna. We were living on Florida's west coast near Tampa. Donna came through our area. We were spared the worst, just a few trees came down. Others were not so lucky. Our next major hurricane was Cleo in 1964. By that time we were living in Fort Lauderdale. Cleo's eye came right over top of us. I can remember being outside during the short time we were in the eye wall. Menacing clouds surrounded us, the wind blew strongly, but looking straight up there was a beautiful blue sky. During Andrew I was deployed by Palm Beach County ARES to the EOC. My main job was keeping contact with Andros Island via 40m HF. The National Hurricane Center had us in Andrew's path. Andrew cut across Miami-Dade county and made a beeline for the west coast leaving a trail of devastation that still has impacts today.

Living through almost six decades of hurricanes, I learned to have a healthy respect for preparation, safety and awareness for what they can do. If you want to read a good book about residents not taking a hurricane seriously, please read John D. MacDonald's "[Condominium](#)."

* * * * *

This issue of TCHN is departing from our regular format. We are focusing on hurricane preparedness. For many readers this issue will be a refresher. For others not experienced with hurricanes it will be a worthy read. Either way we think it has important information for everyone. Be prepared.....

73, [TCHN Publishers](#)



TREASURE COAST HAM NEWS

The editors like to reserve the last few pages of *Treasure Coast Ham News* for you, the readers. With your help these pages will include:

For Sale Section – Have something to sell or trade? Send us a description and/or picture to have it listed in this section. Looking to buy something? Provide a description and we will print your request.

QSL Card Section – Many hams enjoy viewing QSL cards, especially those with colorful pictures. Send us scans of your favorite QSL cards. We will include some in each issue as space permits.

The last few newsletter pages are yours. Help make them a success by submitting your photos, For Sale listings and QSL cards to tchamnews@gmail.com.

Want to be published? Treasure Coast Ham News invites you to write about your ham radio activities, kit building, DX operations, or any other amateur radio subject. You don't need to be a polished writer. We will help you edit your work. While we can't pay for articles, you will receive a full byline. Contact us at: tchamnews@gmail.com.

Hurricane Ian

[Editor's note: This is an abridged summary of 2022's Hurricane Ian from Wikipedia. As most of us know, southwest Florida took a major hit from the storm. Hurricane Ian should be a wake up call for all of us.]

[Hurricane Ian](#)
 Formed: 9/23/2022
 Finished: 10/1/2022
 Category: 5
 Highest winds: 160 mph
 Lowest pressure: 937 mb
 Fatalities: 161
 Missing: 13
 Damage: \$113 billion



Hurricane Ian was a powerful Category 5 Atlantic hurricane, the third-costliest weather disaster on record, the deadliest hurricane to strike the Florida since the [1935 Labor Day hurricane](#), and the strongest hurricane to make landfall in Florida since Michael in 2018. Ian caused widespread damage across western Cuba, Florida, and the Carolinas. Ian was the ninth named storm, fourth hurricane, and second major hurricane of the 2022 Atlantic hurricane season. Ian was the first Category 5 hurricane in the Atlantic since Lorenzo in 2019, and the fifth since 2016 to reach that strength before making landfall in the U.S.

Ian originated from a tropical wave that moved off the coast of Western Africa and across the central tropical Atlantic towards the Windward Islands. The



wave moved into the Caribbean Sea on September 21 bringing heavy rain and gusty winds to Trinidad and Tobago, the ABC islands,

and the northern coast of South America. On the morning of September 23, the wave had enough organization to be designated as a tropical depression, after which it strengthened into Tropical Storm Ian

early the next day while it was southeast of Jamaica. As Ian rapidly intensified into a high-end Category 3 hurricane it made landfall in western Cuba. Heavy rainfall caused widespread flooding across the area resulting in a nationwide power outage. Ian lost a minimal amount of strength while over land and soon re-strengthened while over the southeastern Gulf of Mexico. It peaked as a Category 5 hurricane with sustained winds of 160 mph (260 km/h) early on September 28, while progressing towards the west coast of Florida, and made landfall just below peak intensity in Southwest Florida on Cayo Costa Island. In doing so, Ian tied with several other storms to become the 5th-strongest hurricane on record to make landfall in the contiguous United States. After moving inland,

Ian quickly weakened to a tropical storm before moving back offshore



into the Atlantic. There it re-strengthened to become a hurricane once again before making its final landfall in South Carolina on September 30. Ian became extratropical shortly after landfall and fully dissipated early the next day.

Hurricane Ian caused 161 fatalities: 5 in Cuba, 150 in Florida, 5 in North Carolina, and 1 in Virginia. Ian caused catastrophic damage with losses estimated to be around \$113 billion.

Much of the damage was from flooding brought about by a storm surge of 10–15 ft (3.0–4.6 m). The cities of Fort Myers, Cape Coral, and Naples were particularly hard hit, leaving millions without power in the storm's wake and numerous inhabitants forced to take refuge on their roofs. Sanibel Island, Fort Myers Beach, and Pine Island bore the brunt of Ian's powerful winds and its accompanying storm surge at landfall, which leveled nearly all standing structures and collapsed the Sanibel Causeway and the Matlacha bridge to Pine Island, entrapping those left on the islands for several days. *(from Wikipedia)*

Hurricane Preparation

Hurricane season has just started and we have already had multiple named storms. We are just at the beginning of hurricane season. All is quiet now, but that can, and probably will change as we near the season peak in late August and September. Whether you shelter in place, evacuate, or field deploy with ARES, now is the time for you and your family to get prepared and be ready. If you plan to evacuate know your route, leave in plenty of time and make sure you have enough gas. Be prepared by getting prepared!

HAVE A FIRST AID KIT

- . Non-latex Surgical Gloves
- . Cleansing agent – soap, antimicrobial towelettes or hand sanitizer.
- . Breathing Barrier with one-way valve for use during CPR.
- . Space Blanket
- . Sterile Dressings – 3" x 3", 4" x 4"
- . Roller Bandages for sterile dressings
- . Adhesive Cloth Medical Tape
- . Adhesive Bandages (Band-aids)
- . Triangular bandages for arm slings
- . Scissors & Tweezers
- . Petroleum jelly or other lubricant
- . Cold Compress
- . Antibiotic Ointment
- . Burn Ointment
- . Insect Bite Cream
- . Eye wash solution to flush eyes
- . Aspirin, Ibuprofen, etc.
- . Snake bite kit
- . Prescription medications. Periodically rotate medicines to account for expiration dates.
- . Power Bars or Candy Bars for quick energy.
- . First Aid Instruction Booklet
- . Personal Emergency Contact Info and a copy of your ID – in case you become injured.
- . Think about any other items you may need and add them to your kit.

Keep all trees and shrubs well trimmed.

Place valuables and personal papers in a waterproof container on the highest level of your home.

Cover windows with hurricane shutters or pre-cut plywood.

Bring in all outdoor furniture and anything else that is not secured.

Create a Ready kit with enough supplies for at least three days, consider needs of children, pets and elderly.

Develop an evacuation plan and where to reconnect with family.

Set refrigerator to the coldest setting.

Fill gas tank.



A 72 HOUR KIT

- . 1 gallon of water for per person per day
- . Non-perishable food easy-to-prepare
- . Mess kit or light weight cook pot
- . Sharp knife, cups, plates, utensils
- . Gasoline for generator & car/truck
- . Flashlight & extra batteries
- . Cell phone, chargers / battery packs
- . Radio (with NOAA Weather Channels)
- . Whistle/horn to signal for help
- . Paper and pencils
- . Insect repellent and sunscreen
- . Sanitation & personal hygiene items
- . Portable shelter – Tent or large tarp . . . Bedding or sleeping bags
- . Change of clothing
- . Rain gear
- . Pet care items & IDs
- . Compass (needs no batteries), GPS
- . Duct Tape
- . Extra set of car and house keys
- . Cash
- . Pictures of family members for ID
- . Matches in a waterproof container
- . Fire starter (ferrocium rod)
- . Magnifying lens (wallet size)
- . Family and emergency contact information & documents (a USB stick)

MAKE A RADIO GO-KIT

A radio go-kit can be a duffel bag, backpack, or carry case. Many hams use hard sided Pelican style cases. These cases come in different sizes and are waterproof. If you are deployed to a shelter your radio needs may be different than if you shelter in place. Some hams build a portable station in a box that includes radio, power supply/battery pack, meters, antenna, microphone, digital interface, radio and programming manuals, etc.

Items to have in your possession at all times are your official FCC Amateur Radio License and if an ARES member, your County issued Communications Response Volunteer credentials.

Make sure your VHF/UHF radio is programmed for your county ARES repeater and your local radio clubs. SARNET repeaters (our SARNET repeaters are Martin Co. and Sebastian) are a must as well as national simplex frequencies.

Are you Winlink Express/VARA savvy? If not, get training now from your ARES Group.

Portable Generator Usage & Safety



Hurricanes can be very devastating. Our electrical infrastructure is not always resilient to the force of a hurricane. Many of us could find ourselves without electricity during

and for many days after a hurricane passes.

A portable generator is one solution when the electrical grid is temporarily interrupted. Portable generators are good, but that does not mean you should not understand a generator's capabilities before a hurricane strikes, nor not take precautions when using a generator during and after the event.

How much critical wattage you need, will help size a portable generator. Running a portable generator at peak output for a long period of time is not always good. Estimate your total critical wattage needs and then add at least 25% spare capacity when looking to purchase a portable generator or when upgrading the one you have.

During a storm is not the best time to test your

generator. Test your generator on a regular basis. While most have low oil shutoff, performing regular oil changes is a must. Many of us learn how to operate the generator when it is new, but quickly forget as time passes. Have the generator manual and the start-up procedure readily available. Review before the storm.

Generators should not be run in an enclosed area, such as a garage. They should always be used in an area with lots of outside ventilation. A covered screened porch can be used. Allow plenty of open space around the generator. Make sure you are using the right size power cords. You should never plug your portable generator into your home's electrical service. A permanently installed whole house generator is meant for that purpose and has approved home electrical switching capability. Always store fuel in an approved container and in a cool, dry, ventilated and secure area. Many generators now have built in carbon monoxide detectors and automatic shutoffs.

Remember to ground your generator according to the manufacturer's recommendations. Thoroughly read and understand all recommended safety precautions. Being prepared is always best. **BE SAFE!**

Amateur Radio Emergency Frequencies

Emergency communications networks in North/Central/South America and the Caribbean are encouraged to establish their operations within 20 kHz+/- of these frequencies (kHz): 3750 or 3985 LSB, 7060, 7240, or 7290 LSB, 14300 USB, 18160 USB, 21360 USB

Maritime Mobile Service Net (and others):

14300 kHz USB (mmsn.org)

Hurricane Watch Net:

14325 kHz USB (hwn.org)

National Hurricane Center (during hurricanes):

14325 USB (day/primary) 7268 LSB (night & alternate)

Caribbean: 3815 LSB, N. FL: 3950 LSB, S. FL: 3940 LSB

IRLP Node: 9219, Alternate Node: 9508 or 9123

EchoLink Conference: "WX-TALK" Node 7203

EchoLink Alternate Conference: "VKEMCOMM" w4ehw.fiu.edu/wx4nhc-contact.html

Amateur Radio Calling Frequencies

80 Meters: 3.885 AM

40 Meters: 7.290 AM

20 Meters: 14.286 AM

6 Meters: 50.125 SSB, 52.525, 52.540 FM Simplex

6 Meters: 50.620 Digital (packet)

2 Meters: 144.200 SSB, 146.520 FM Simplex

1.25 Meters: 222.100 CW/SSB

70 Centimeters: 432.100 CW/SSB

70 Centimeters: 446.000 FM Simplex

33 Centimeters: 902.100, 903.100 CW/SSB

33 Centimeters: 927.500 FM Simplex

23 Centimeters: 1294.500 FMSimplex

23 Centimeters: 1296.100 CW/SSB

FM amateur calling frequencies use carrier squelch. A mixture of digital modes or mixed modes could be found locally (P25, NDXN, DMR, D-Star, etc.)

Source: [National Interoperability Field Operations Guide](#)



The Hurricane Watch Net is a group of licensed Amateur Radio Operators, trained and organized to provide essential communications support to the National Hurricane Center during times of Hurricane emergencies. We are not housed in a

single location - as some of our followers believe - but strategically disbursed across North America, throughout the Caribbean Basin, Central America, and the northern coast of South America, so that we can provide a continuous path of communications from storm-affected areas to the forecasters in the National Hurricane Center in Miami, and when needed, the forecasters in the Canadian Hurricane Center in Dartmouth, Nova Scotia.

The primary mission of the Hurricane Watch Net is to disseminate tropical cyclone advisory information to island communities in the Caribbean, Central America, along the Atlantic seaboard of the U.S., and throughout the Gulf of Mexico coastal areas. We also collect observed or measured weather data from amateur radio operators in the storm-affected area as well as any post-storm damage reports and convey that information to the Hurricane Forecasters in the National Hurricane Center via the amateur radio station in the center (**WX4NHC**). In addition, we provide the same service for the Canadian Hurricane Centre whenever a hurricane threatens their country.

The Hurricane Watch Net generally activates whenever a system has achieved hurricane status and is within 300 statute miles of populated landmass (this can vary, however, due to the forward speed and intensity of the storm) or at the request of the forecasters at the National Hurricane Center or the Canadian Hurricane Centre.

Our area of coverage includes the Caribbean, Central America, Eastern Mexico, Eastern Canada, as well as all US Atlantic and Gulf Coast States. When activated, you will find us on 14.325 MHz (USB) by day and 7.268 MHz (LSB) by night. When required,

we will use both frequencies simultaneously. Why do we state these frequencies without a plus or minus amount? Because many non-hams listen in via shortwave radio and know this is where to find us when we are activated. Before any net activation, if either frequency is in use, we always ask permission to use it.

Additionally, it is our practice of being on the air ahead of the amateur radio station at the National Hurricane Center - **WX4NHC**- for the explicit purpose to establish our net operating frequency, read the latest advisory information, and line-up reporting stations. It helps us tremendously to know the operator's location, name, and weather data measuring capabilities in advance of the storm's arrival.

Streaming Audio of Net Activations is often provided by private owners.

(Delivery of these services is not guaranteed.)

NA5B WebSDR RECEIVER SYSTEM

Washington, D.C.

To listen to audio on 14.325.00 MHz USB, [Click Here](#).

To listen to audio on 7.268.00 MHz LSB, [Click Here](#).

Streaming Audio from Minnesota

For 14.325.00 MHz

[Click Here](#).

Please Note: When the Hurricane Watch Net is active, the listing may show a frequency of 14.300 MHz but you will actually be listening to 14.325 MHz. Whenever the Hurricane Watch Net is NOT active, the audio will be from the nets of 14.300 MHz.

KØQEI - [Click Here](#).

Please Note: This stream is not guaranteed to be active all of time. At times, there will be dual audio streams, with the right and left speakers re-broadcasting different nets. To listen to just one net, simply reduce (or mute) the volume of one of your computer speakers.

Hurricane HF Antennas

by Bruce, W8HW

Hurricane HF antennas? What are they?

Why is this important? Perhaps a little history will answer that question. Were you living in this area 2004 when we were hit by two (2) devastating hurricanes? I lived in the Savannah Club on the east side of PSL and the storms were not fun.

Electricity was out of service for 2 weeks after each hurricane. Restaurants and food markets were all closed for two weeks or more (*times 2 hurricanes*). Gas stations were closed with no way to pump fuel. The weather was hot and humid with no air conditioning. Showering were hard because of unsafe tap water that was now cold with no electricity to heat it. How do you now get food and water and medical supplies?

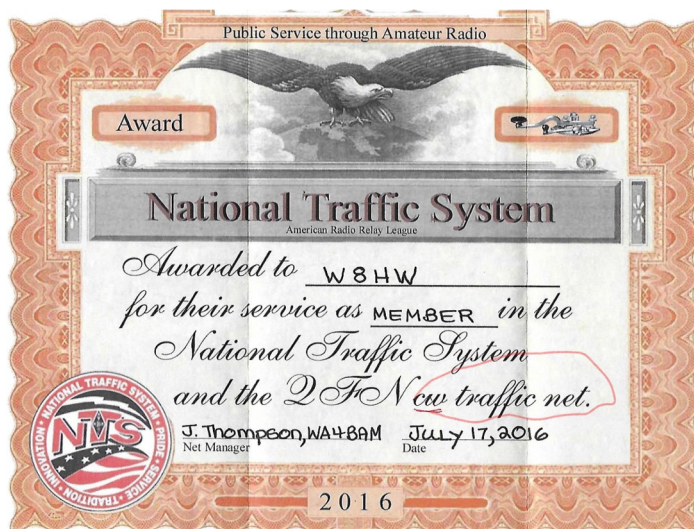
Everyone needed supplies, but could not get them. Many people woke up to no communications and no gas for the car. I was one of the few that had a generator with 35 gallons of gas in cans and a well stocked refrigerator. This was not the case for most people. Many people needed supplies and needed them now. Many hams were not prepared either.

Are you prepared today? **Please think about your preparations before it is too late.**

We badly needed communications for food, water and medical supplies. Ham radio should have been the answer. It wasn't. Repeaters were off the air and most hams were not on HF. I was on the HF bands with a makeshift antenna and passing traffic to other states. I passed traffic only for my neighbors, but not others. You are probably wondering why?

The problem was that no one in my area knew that a ham radio station was on the air and capable of contacting their loved ones or officials in other areas. I was not able to contact other local hams either. I had no phone service, and local hams were not on the versatile long-middle-short range HF bands. The National Traffic System / NCS informed me that I was the only ham in the PSL area that was passing traffic. This article will show you how to change that.

After the storms Savanna Club HOA told me to not to worry about antenna regulations and to put up whatever was needed to get on the air. I am sure you will get the same response from your HOA after a hurricane. Later, the Savanna Club board decided to give the hams the green light to put up a club station. They even purchased and installed a nice sized shed with air condition. WOW! Before this, no cooperation was given to hams. I retired from the National Traffic System in 2016.



Would you like to help during the next emergency? You can. The three main steps are:

- 1. Learn to pass traffic.** Even if you do not know how to pass traffic and an emergency happens, get on the air anyway. Net control stations (NCS) will help you. Many have learned "under fire". Note, learning is easy and the ARRL has online videos and other supplies to assist you. Modes available for traffic are Phone, CW and Digital. Operate the mode you are most comfortable with.
- 2. Learn how to make an emergency HF hurricane antenna.** It is quick and easy. Below we will walk you through the steps.
- 3. Have some kind of emergency power.** Either a generator with extra gas or low power station (QRP) running on batteries with solar or a wind generator. In a pinch a car battery will suffice. QRP stations are often given priority. Thus QRP works well in emergencies.

(continued on page 8)

Hurricane HF Antennas

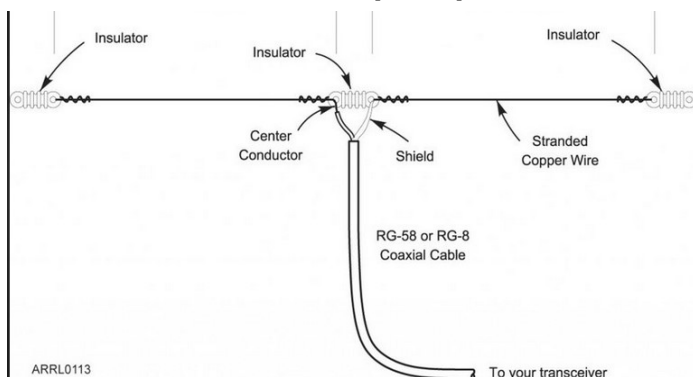
by Bruce, W8HW

(continued from page 7)

So how do you build a simple emergency HF hurricane antenna? You have two (2) easy options. The first and simplest is to use a tuner. A good tuner can tune just about anything including an end fed antenna. I am told to assuming that you might not have a tuner. For that reason, option 2 will focus on simple HF antennas that will do its job without a tuner.

A simple dipole is a good choice if a tuner is not available. I am told that many hams have not been taught how to compute wire length, and then build a dipole antenna. That is not your fault. Let's fix that today. Also, I am also told that most hams do not have enough land for an 80-meter antenna. For that reason the focus will be on 40- and 20-meter bands. These two bands will perform well for both long and short range communications. Your coverage will be both statewide and nationwide. These bands use sky wave; thus, you do not need internet or repeaters for your communications. This antenna can be simple and quick to construct.

Construction of a simple dipole antenna



(picture by ARRL)

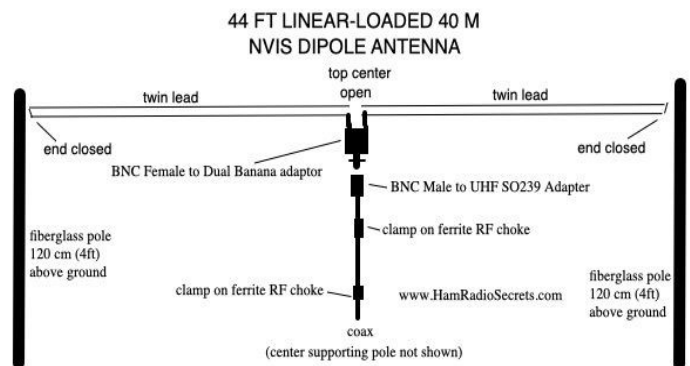
What will you need? There's a good chance that between you and your ham buddies you have all the parts needed. Check and see now. If not, we will tell where you can get what you need at a low price. Needed is some coax and a little wire with a few PL-259 coax connectors and of course an HF radio of some kind.

The wire for the antenna can be any wire from Low-

e's, Ace or Home Depot. Normally the wire gauge ranges from 18-12ga. Stranded is best, but solid will also work. The coax, insulators and PL-259 can be ordered from Amazon and should arrive in a few days. Get the parts now and have them in storage. Insulators should be porcelain. However, in an emergency loose pieces of wood will work if operating with 100 watts or less.

To calculating wire length for the HF antenna, refer to the graph below. The length for 20-meters (14 MHz) is 16 feet and 8 inches per side. The length for 40-meters (7 MHz) is 33 feet 6 inches per side. I make the length a little long as each location will tune different. You may have to trim a few inches off for perfect match. If you don't have a meter, then the lengths mentioned will work just fine for emergencies and will not harm your transmitter. I arrived at these lengths for each side of the antenna simply by dividing 234 by the frequency in MHz. This formula will work for all HF bands. Try the math yourself.

NVIS studies have shown that low height can improve short range communications on the HF bands when using horizontal antennas. So don't let lack of height issues stop you from getting on the air during an emergency.



Please remember the reverse is true for long range DXing. However in this article we focus on emergency communications not DXing. This is a large topic so for more information, refer to past article in TCHN September 2021, Page 14, 15 and 16.

Now you will be able to save your neighborhood. Be ready. And allow me to say in advance...

Thank you for helping in the next emergency.

73, Bruce, W8HW



Ramblings of An Antenna Alchemist

VHF AND UHF ANTENNAS

VHF and UHF antennas can be almost any size and shape. They can be vertically or horizontally polarized. Ionized propagation can be rare, but sporadic E skip is possible and capable of reflecting signals many thousands of miles.

Natural and man-made objects such as trees, terrain, and building types can impede VHF/UHF signals. Inside building electrical wiring, appliances and lights can affect signals. Shorter wavelength antennas and higher frequencies work better.

Common shapes include dipoles (vertical & horizontal), 1/4, 1/2, & 5/8 wavelength verticals, YAGI, loops, log periodics, etc.

Along with VHF/UHF antennas, the list of analog and digital modes available for VHF/UHF grows almost daily. From the early beginnings of converting simplex Motorola and Johnson VHF public safety mobile radios to what the ham radio operator has available today exceeds many lifetimes and product life cycles.

While analog is still a viable mode, packet X-25 (being repurposed) and the newer digital modes such as DMR, D-STAR, and APCO P-25 have evolved to become the new standards.

Following public safety, many hams moved on from simplex to repeaters, although simplex is still used for ARES and local talk. Now many of these repeaters are being linked (such as SAR-NET) to provide wider area coverage.

What was once the exclusive purview

of HF, digital modes using Internet backbone linking are enabling long distance world-wide communications.

So where do we start with VHF/UHF antennas? Many hams start at a ham radio dealer, Amazon, or eBay, preferring to buy rather than build, but this is not always the case.

One of the good things about VHF/UHF antennas is that most are easy to build, given their smaller size. Although HF antenna wire can be used, more prevalent construction materials are aluminum and copper tubing. That is not to say wire is not viable. An excellent antenna can be made from window or twin lead wire cut to be a J-pole. This design was popularized by Ed Fong in February 2003 and March 2007 QSTs.

An article on the ARRL web site describes an easy to build VHF ground plane that can be made with an SO-239 connector and #10 copper wire or hobby brass tubing radials. The radiating element and 4 radials are cut for 1/4 wavelength. The radiating element is soldered to the SO-239 center and the 4 radials are attached or soldered to the connector's 4 bolt holes.

Another easy antenna for VHF is a Delta loop. Using the loop formula of 1005 divided by the frequency will give a total length of about 6 feet.

The antenna can be mounted on a window using suction cup hooks and fed from a corner with a 75 ohm 1/4 wavelength coax matching transformer. Remember to multiply the matching length by the coax velocity factor. The design is on the Internet. Search for "Indoor VHF Delta Loop."

73, [The Antenna Alchemist](#)

Coax Cable Loss

dB loss per 100 ft of coax

Cable type	Mhz			
	10	50	100	400
RG-8, 8A, 213	0.55	1.3	1.9	4.1
RG-8 MINI, 8X	1.1	2.5	3.8	7.9
LMR-400		0.9	1.2	2.5
RG-58	1.2	3.1	4.6	10.5
RG-58A, 58C	1.4	3.3	4.9	12
RG-59, 59B	1.1	2.4	3.4	7

Digital Communications - Voice Modes for Emergencies

In the public safety world, radio interoperability (the ability to communicate with each other) has been a major problem. Since September 11, 2001 much has been done by governments to overcome the issue. With the help of federal and state partners, many local governments now have an infrastructure to support interoperability. Radio vendors and public safety groups wishing to participate in the interoperability inrush have developed radio communication protocols such as P25, DMR, NDXN, NEXEDGE, TETRA, etc. Many hams have ventured into these commercial protocols, with DMR probably the most common.

DMR Digital Mobile Radio (DMR)

- Digital Mobile Radio was developed by the European Telecommunications Standard Institute for commercial two-way radio communication. DMR lets devices from various manufacturers connect to the same network as long as their functions abide by the standard. Introduction of the DMR radio standard resulted in significant manufacturing cost efficiencies. China successfully entered the DMR market with inexpensive radios, to the delight of many hams. The standard is open to any vendor who wishes to compete. DMR receives regular operational updates to extend its capabilities.

DMR is used extensively by hams; but another protocol, D-STAR, is increasing in popularity. Is D-STAR better than DMR? And what about System Fusion? Let's look at the strengths and weaknesses of each.



D-Star is a digital radio standard developed in the late 1990s by the [Japan Amateur Radio League](#). It allows local and distance

communication using digital voice, control data, and data messaging. In terms of spectrum efficiency, D-Star repeaters perform very well using low-speed digital voice and data transfer. This is made possible because it requires only a 6 kHz channel. D-STAR compatible radios are manufactured by [Icom](#), [Kenwood](#), [Flex Radio Systems](#) and possibly others.



System Fusion - Fusion was developed by Yaesu, but it is not an open standard.

System Fusion radios are relatively easy to program. System Fusion uses true multimode repeaters designed to work with both analog and digital modes. Using a WiRES-X internet-connected repeater you can connect to different "reflectors" (virtual chat rooms created by linking multiple repeaters together via the internet). Fusion's downside can be its availability. Locally, Port St. Lucie and Vero Beach have Fusion repeaters, but it is unknown how active they are at this time.

Communications - D-STAR is very suitable for most users. DMR has extensive capabilities to communicate long distances, but relies on Internet communications to do so. System Fusion via WiRES-X offers local and long range communication capabilities. Many D-STAR and DMR radios come with a pre-installed list of all known repeaters worldwide. Most digital radios also support analog mode.

Cost - With D-STAR's ham only user base, the typical commercial sector's drive down of radio system costs is not present. Some D-STAR handhelds can cost as much as an entry level SDR HF transceiver. DMR has benefited from its use by the commercial sector. Handheld Chinese DMR capable radios start at under \$100. Mobile radios start in the \$200 range. Yaesu System Fusion radios are generally competitively priced for the ham market.

Demand - Hams considering DMR, D-STAR, or Fusion may initially lean toward DMR because of its lower cost and wide range communications capability. While DMR is very capable and cost effective, D-Star is gaining in popularity and may become the dominant ham digital mode in the near future.

Ease Of Use - Digital radios and modes are fairly easy to use, but may take some time to learn as their operation and terminology are not exactly the same as analog.

(continued on page 11)

Digital Communications - Voice Modes for Emergencies

(continued from page 10)

Ease Of Programming - Programming varies by radio type and mode. You will need to learn new concepts to program a digital radio. In the beginning DMR programming meant that you had to develop a "code plug" which included a variety of information such as talk groups, time slots, etc. Some DMR vendors (ex. Bridgecom, etc.) have preprogrammed their radios to alleviate the difficulty of using DMR software to build code plugs and upload into the radio. System Fusion programming is not as difficult, more like analog. The real power of System Fusion lies in the WiRES-X repeater programming.

Flexibility - All digital radios offer some degree of flexibility. D-STAR and Fusion were developed for hams and offer the most. DMR offers less as commercial radio systems on which it is based are not designed for end user programming. You just pick a channel and talk. No doubt dedicated hams will find ways to create more DMR flexibility. Hams typically are never satisfied with a radio's capabilities.

Survivability - D-STAR uses the Internet DNS (domain name system), a kind of phone directory, to connect its' nodes. If one node goes down, it does not affect your ability to connect to another one. D-STAR is probably the most survivable mode. DMR requires connection to a C-bridge (a central controller) to function. All communication must go through the C-bridge. If the C-bridge becomes unavailable the DMR repeater will only work locally. That is something to think about with hurricanes and our ever increasing man-made and natural disasters.

BrandMeister

DMR Master Server

more safeguards to ensure the connected repeaters still function. But if we have a significant interruption, this DMR flavor will revert to standalone operation. Fusion's survivability is generally good. WiRES-X looks for directory servers in Japan and the U.S. WiRES-X is a peer-to-peer system. There-

Brandmeister - Is a type of DMR. It does not use C-bridge architecture. It employs

fore it does not rely on the central servers for voice data. If directory servers go down after a node has downloaded a server list it most likely will not have any effect, unless the node is restarted or requests updated directory lists.

Extendibility - All digital modes provide some degree of extendibility beyond radio-to-repeater. D-STAR may be best, followed by System Fusion.

Field Programmable - Most digital mode radios can be field programmed, but do you want to do this? That is up to you. When I bought my DMR handheld, I could not find a code plug for my model of radio. If it were not for Craig, KK4CID and Michael, W4PPM giving me copies of their radio's code plugs and descriptions, I would have struggled. Even though their code plugs were for a different brand, I was able to figure out how to create my own. Digital radios made specifically for hams will have a much easier approach for programming, whether in the shack or in the field. That moves these radios way up on the ladder.



So what radio is best for you? That depends. Analog radios are a proven mode, but can have limitations when tasked with more than just communicating. Digital radios offer vastly improved capabilities but need connected technology to make full use of those capabilities. For me, I think of VHF/UHF radios as tools for emergency disaster use. So I don't want a radio that is too complicated or too reliant upon connected technology. The best thing to do is study the modes in more detail. And be sure to talk to fellow hams to determine the digital modes supported in your area.

If only there was a Swiss Army radio that had all three digital modes. Let's hope.....

73 TCHN

Prepare for an Emergency - Know Your SMA Connector Type

[Radio SMA connectors can be confusing to both new and experienced hams. While many Icom, Kenwood, Yaesu & Alinco HTs use SMA connectors on their radios, some Chinese manufacturers do not. Hopefully, the following guide will take some of the mystery out of which connector your radio uses. Be sure your emergency antenna has the proper connector to mate to your radio. Verify before needing the radio in an emergency.]

Determining SMA Connector Polarity

Before describing the specifics of **SMA-Female** and **SMA-Male**, please note that **polarity** is determined by the center pin. Generally, the SMA connector with a center pin is **Male**. The SMA connector without a center pin is **Female**. The key to male or female is the presence or absence of a center pin. A cause of confusion for hams is that they expect the one with threads on the outside to be **SMA-Male**, but it is usually **SMA-Female**.



SMA-Female radio antenna connectors were very rarely seen until about 2014. That is when many Chinese manufacturers began building inexpensive radios capable of operating on amateur radio frequencies. Since that time Yaesu,

Icom, and Kenwood have adopted the **SMA-Female** connector. These radios require **SMA-Male** antennas. With today's proliferation of Chinese radios, knowing your SMA connector is critical.



SMA-Male radio connectors are used by many of the more "traditional" amateur radio manufacturers, including Motorola, Vertex, and others.

Amateur Handheld Portable Radios

The following are picture examples of radio antenna connectors. It is by no means complete as new handheld radios show up almost daily. Remember to verify your radio's antenna connector.



SMA-Female (radio)



SMA-Male (antenna)

(Alternate HT connector configuration)

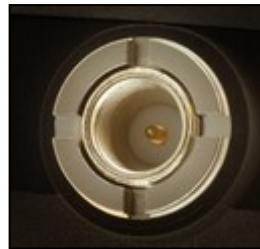


SMA-Female (antenna)



SMA-Male (radio)

(Motorola/ICOM/Kenwood/Alinco/Vertex-Yaesu)



SMA-Female (radio)



SMA-Male (antenna)

(Baofeng/Wouxon/Radioditty/AnyTone/TYT/Bridgecom)



SMA-Male (radio)



SMA-Female (antenna)



Some older handheld radios can use a BNC connector.

Now that you have a better idea of handheld radio antenna connectors, what happens if you are deployed during an emergency and need to connect your radio to an external male (PL-259) or female (SO-239) UHF antenna connector? Easy - get an adaptor/cable. But what if you don't know what you might need? For my emergency go-kit I have a number of adaptors and cables.

Stock adapters. While you can't predict everything during an emergency you can - and should be - prepared.

73, TCHN

Upcoming Hamfests

FLORIDA

07/07/2023 - 07/08/2023

2023 Milton Hamfest

Milton Amateur Radio Club
Milton, Florida

<http://miltonarc.org>

07/08/2023

K4KDI Summer Tailgate 2023

Conway Baptist Church
Orlando, Florida

<http://k4kdi.square.site>

08/19/2023

TarcFest

Tampa Amateur Radio Club
Tampa, Florida

<http://www.hamclub.org>

(Hamfests offer exhibits, forums and flea markets for Amateur Radio operators or hams.)



ARRL 2023 Florida State Convention October 13-14 2023

Fri 1:00 PM - 7:00 PM, Sat 9:00 AM - 3:00 PM
Melbourne Auditorium

625 E Hibiscus Blvd, Melbourne, FL 32901

Admission Tickets are ONLY \$10 for Both Days
Talk-in on the 146.85 MHz Repeater

Indoor Swap Tables & Outdoor Tailgate Area
ARRL Amateur License Exams
Hourly Door Prizes + Grand Prizes
Forums & Special Interest Groups
W4MLB/57 HF Special Event Station
Famous PCARS Consignment Table

Amateur Radio Emergency Service® (ARES)



ARES members are licensed amateurs volunteering with local emergency management for communications duty when disaster strikes. All licensed amateurs are eligible for membership in ARES.

IS FLORIDA GOING AUXCOMM?

Florida is moving toward being an "AUXCOMM State," meaning that the communications resources that could be asked to deploy outside of their local county (whether inside or outside of the state) must complete the AUXCOMM training course as well as the AUXCOMM position task book. [Volunteers in local counties that don't wish to deploy outside of their own county would continue to use whatever program they are currently under, which could be ARRL ARES, RACES, or AUXCOMM.]

Florida has offered one AUXCOMM course so far in 2023, two in 2022 and 2021, and is working to get more courses available in various parts of the state this year and next.

The AUXCOMM training equips volunteers with practical skills, such as radio operation and data network management, as well as fostering relationships within the emergency response community under common incident management concepts. Having the opportunity to practice and prove your skills alongside professional career response personnel is a great way to learn as well as get to know the people you may be deployed alongside of during an incident or even a planned event.

AUXCOMM is about more than just amateur radio, as volunteers are trained to be used in any position in which a communications resource may be needed.

Report by David Byrum, KA4EBX, published in QST NFL June 2023 issue. Marty Brown, N4GL, editor.

ARES® Emergency Coordinators (EC)

Indian River County
Bud Holman, WA4ASJ

Martin County
Brian Gibson, KN4YWW

St Lucie County
Paul Horner, W4ISZ

Okeechobee County
Jack Schwartz, KM4CRA

Get involved. Volunteer for ARES.

ARES® Resources
[Download the ARES Manual \(PDF\)](#)

[Emergency Communications Training \(ARRL\)](#)

Send your ARES info to:
tchamnews@gmail.com

Are 5-watt handheld radios dependable in emergencies?

Many hams include a 5-watt VHF/UHF handheld in their emergency radio cache. They may also include a 10, 25 or 50 watt mobile, or a 100 watt base radio as well. And sometimes, to avoid too many radios, hams buy an HF rig with VHF/UHF capability. With so many options, modes and capabilities it really is a “soup de jour” when it comes to VHF/UHF choice.

Of course radios need antennas and again, there is no shortage of types to consider. Handheld radios typically come with a “rubber duck” style antenna. Given all the after market handheld antennas available, and that many hams toss out the rubber duck that came with the radio in favor of an aftermarket, it makes me wonder why one is included at all.

Mobile antennas can be 1/4, 1/2, or even 5/8 wavelength. Magnetic mounting is the generally accepted mounting method, but I have used glass mounts as well as screw mounts with good success. Permanent mounting is also an option.

VHF/UHF base station antennas can either be dedicated VHF/UHF or combined with HF antennas. A recent look at what is available is overwhelming: verticals, yagis, log periodics, j-poles, loops, discones and more. A 2015 Nuts & Volts magazine included an article about using aluminum crutches for 6-meters. Now that is ingenuity!

So a ham buys a super duper antenna. The advertisement states 15dB gain and broadband. (Not sure how that works?) Anyway one Saturday morning up it goes on the house, pole, tower, tree or where ever. The ham gets on the local simplex frequency and asks for a signal report. A fellow ham responds that his signal is pinning the S-meter and the audio is good. We are off to the races. A few days later the ham is back on the simplex frequency and asks for another signal report. This time however his signal is not as strong. What gives?

Several years ago SLC ARES conducted a simplex drill between the EOC and primary shelters. Most stations used high power mobile radios, but several

had 5-watt handhelds. One ARES communicator used a handheld with a magnetic mount antenna instead of the handheld’s rubber duck antenna. From my location at Tradition Hospital his signal was very strong. Almost as strong as the higher power mobiles.

A variety of factors could have been at play. We were approximately 9 miles apart with no appreciable manmade or natural obstacles to speak of. Maybe it was just a good radio day, but I wanted to see if the path was a fluke or could the same results be obtained using propagation modeling.

Propagation modeling requires many factors to be considered including terrain, radio system type, antenna type and height, frequencies, coverage goals and more.

Commercial modeling applications use very robust Irregular Terrain (Longley-Rice) propagation modeling and USGS or Shuttle Terrain Mapping (SRTM) elevation data. Radio Units (stations) can be placed via latitude / longitude. Individual radio unit performance can be modeled using power, sensitivity, antenna parameters, etc. Radio paths between units (base or mobile) can be modeled.

While commercial modeling applications can be very expensive, there are alternatives such as [Splatt](#). It can give good VHF/UHF results.

The modeling application I like is [Radio Mobile](#). The application is written by a Canadian ham, Roger Coudé, VE2DBE. Radio Mobile is a commercial application, but Roger makes it available for free for non-commercial use. There are a number of “How Tos” available as well as a forum, but understanding this application takes time. [Ian G3TVU \(SK\)](#) wrote several excellent tutorial books that made the learning process much easier for me. Try [Radio Mobile](#) and get ready for some modeling fun.

And the conclusion? Yes, a 5-watt handheld can work well in an emergency.

73 for now

Welcome to the Treasure Coast Ham News Monthly Meetings, Nets, and Events Calendar

If you know of an event, net, or meeting that would be of interest to our Treasure Coast Hams, please let us know. Send your event announcements and any changes to tchamnews@gmail.com.

July 2023

June							August						
Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2	3				1	2	3	4	5
4	5	6	7	8	9	10	6	7	8	9	10	11	12
11	12	13	14	15	16	17	13	14	15	16	17	18	19
18	19	20	21	22	23	24	20	21	22	23	24	25	26
25	26	27	28	29	30		27	28	29	30	31		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26	27	28	29	30	1
2	3	4	5	6	7	8
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)	Sunrise CW Net 7123mHz @ 1300UTC PSLARA Board Mtg (via Zoom) IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 145.150(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	INDEPENDENCE DAY Sunrise CW Net 7123mHz @ 1300UTC IRC ARES Net-7:30pm 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B OARC ARES Net-8pm 147.195(-) (100.0)	Sunrise CW Net 7123mHz @ 1300UTC SLC ARES WinLink Wednesday's	Sunrise CW Net 7123mHz @ 1300UTC PSLARA R/T Net-7:30pm 146.995(-) (107.2) VBARC Mtg-7:30pm Indian River Co. EOC 4225 43rd Av, Vero Bch	Sunrise CW Net 7123mHz @1300UTC Milton Hamfest Milton, Florida http://miltonarc.org	Milton Hamfest Milton, Florida http://miltonarc.org K4KDI Summer Tailgate Orlando, FL http://k4kdi.square.site
9	10	11	12	13	14	15
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)	Sunrise CW Net 7123mHz @ 1300UTC IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 145.150(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	Sunrise CW Net 7123mHz @ 1300UTC IRC ARES Net-7:30pm 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B	Sunrise CW Net 7123mHz @ 1300UTC FPARC Mtg-7:30pm Indian Rive State College Bldg R, Rm 126 3211 Virginia Av, Ft Pierce SLC ARES WinLink Wednesday's	Sunrise CW Net 7123mHz @ 1300UTC PSLARA R/T Net-7:30pm 146.995(-) (107.2) MCARA Mtg-7pm	Sunrise CW Net 7123mHz @ 1300UTC	
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30	1	TC: Treasure Coast IRC: Indian River County SLC: St. Lucie County PSLARA: Port St. Lucie Amateur Radio Association (www.pslara.org) FPARC: Ft. Pierce Amateur Radio Club (https://fparc.org/) MCARA: Martin County Amateur Radio Association (https://mcaraweb.com/) OARC: Okeechobee County Amateur Radio Club VBARC: Vero Beach Amateur Radio Club (http://www.w4ot.com/)				
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)		R/T: Ragchew/Traders Emer.: Emergency				

Antennas - New hope for Hams in Deed Restricted Communities

[editor: The following is a summary of a bulletin from ARRL. View the complete bulletin [here](#).]

6/13/2023

Congressmen Bill Johnson (OH-06) and Joe Courtney (CT-02) reintroduced bill H.R.4006 in the US House of Representatives on June 12, 2023 to remove private land use restrictions that prohibit, restrict, or impair the ability of Amateur Radio operators from operating and installing reasonable antennas on property that they own or control. Similar legislation, H.R. 9670, was introduced by Congressman Johnson in 2022.

The full text of the bill can be found in PDF format at,

https://billjohnson.house.gov/uploadedfiles/amateur_radio_emergency_preparedness_act_signed_bill_text.pdf

"I reintroduced the Amateur Radio Emergency Preparedness Act to remove barriers to disaster and emergency communications and training, and to promote education in STEM subjects related to critically needed wireless technology," Congressman Johnson said in a release. "Passage of this bill will promote developing and sustaining our nation's wireless future and facilitate and encourage amateur radio operations as a public benefit."

"As their actions during recent natural disasters such as Hurricane Sandy proved, amateur radio operators in Connecticut can be a critical component of disaster response and emergency management. It is in our communities' best interest that we give them the capabilities to operate at the highest level, and with the re-introduction of this bill, we've taken a strong step in that direction," said Congressman Courtney.

The exponential growth of communities bound by private land use restrictions that prohibit both the operation of Amateur Radio and the installation of amateur station antennas has significantly restricted the growth of the Amateur Radio Service.

The ARRL continues its multi-year efforts to eliminate private land use restrictions that prevent Amateur Radio operations and has pledged to strongly support Congressman Johnson and Congressman Courtney in their efforts on behalf of Amateur Radio.

Rick Roderick, K5UR, President of ARRL, on behalf its Members and America's Amateur Radio community extended his thanks and appreciation for the leadership of Congressman Johnson and Congressman Courtney in their tireless efforts to support and protect the rights of all Amateur Radio Operators and to further STEM education and the advancement of American expertise in wireless technology.

About TCHN - Who / What We Are (and are not)

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[The Publishers](#)

Area Club News

Port St. Lucie Amateur Radio Association

The club officers for 2023 are: President - Bob, AI4RB; Vice President - Scott, AI4TT; Secretary - Bruce, WA3RHW; and Treasurer - Bob, W4RJP. Jody, W4SLD; Derek, KO4DAD (web Master); Greg, KB4VVE (repeater trustee); Steve, N4SGL; and Paul, W4ISZ (ARES EC) serve as directors.

Our club meetings are held at the IRSC Veterans Resource Center, 500 NW California Blvd. At our May meeting, Mickey Baker, N4MB, ARRL Southeastern Regional Director updated us on the goings on at the ARRL. He talked about future plans for Logbook of The World, HOA antenna issues and resolutions, and on the Volunteers on the Air program. Mickey also answered many member questions.

At our June meeting Rob, W4CRA replayed a 1996 on-air discussion between Art Bell, W6OBB (SK) of *Coast-To-Coast AM* fame and Wayne Green, W2NSD (SK), publisher of *73 Magazine*.

Our next meeting is July 26th, 2023. Join us at our monthly meeting and support the club. Bring along a friend. PSLARA always welcomes visitors.

Martin County Amateur Radio Association

MCARA serves the Martin County, FL amateur radio community and ARES. MCARA holds weekly Rag Chew nets, ARES nets and in-person / ZOOM meetings. Please click the ZOOM link on their [web site](#).

MCARA sponsors the annual Stuart Hamfest, which this year was held in March at the Martin County Fairgrounds. A good crowd always attends. Everyone has a good time. Area hams owe MCARA a big **Thank You** for sponsoring this event every year.

Fort Pierce Amateur Radio Club

The club's officers are: President - David, KG4ORQ, Vice-President - Kevin, W4KKW, Secretary - Pete, KD4SPW, and Treasurer - Kurt, W4KFH.

FPARC is a general purpose amateur radio club with a digital emphasis. The club meets on the 2nd Wednesday of the month on the Main Campus of Indian River State College in Fort Pierce. Watch for email announcements concerning upcoming meetings and events. Additional information is available on the club's [web site](#).

NOTE: THE FT. PIERCE HAMFEST USUALLY HELD IN AUGUST HAS BEEN CANCELLED FOR 2023.

Vero Beach Amateur Radio Club

VBARC was formed in November, 1961 with a small number of local hams. Today the club has over 100 members and encompasses all of Indian River County. Visit their [web site](#) to learn more about the club. Join them on the Treasure Coast Net, 7.153Mhz every morning at 8:00am.

If you are interested in QRP, VBARC has operating events for you. See the club web site for details.

Okeechobee Amateur Radio Club

The club officers are: President/Treasurer - Mark, KF4EA; Vice President - Jack, KM4CRA; Secretary - Josh, K4JHI.

The Okeechobee Amateur Radio Club (OARC) is a general purpose amateur radio club. The club has been in existence over 30 years. For more information please contact [Jack, KM4CRA](#).

OARC nets include: Club - Monday nights at 8.00pm on 147.195, pl.100.0; and ARES - Second Tuesday of each month at 8.00pm on 147.195, pl 100.0.

(Attention club officers: Please send an email announcing your upcoming events and activities to: tchamnews@gmail.com.

Coming in the fall TCHN

Bruce, W8HW is writing a multi-part article about Artificial Intelligence (AI). The article parts include:

What AI is not. AI progress through the years. Does AI have a will to live or survive? What do the top experts say? If it has a will to live, does it have a soul?

How fast can AI learn? How fast can it grow? The promise that AI gives us and the Dangers of AI. Core and redundant knowledge of AI: two different things. Virtually unstoppable. Military applications, minds and goals.

AI looking forward. Impact on the workforce. How it will influence our everyday life. How AI is handled in different parts of the world. Regulations and debate. Examples of the difference between a Smart Device and AI.

POTA Operations - A morning spent with Dick, K4NJ learning the ropes and operating at Allapattah Flats Wildlife Management Area.

Xiegu x6100 SDR HF 160 to 6 meters transceiver operation.

\$35 Inovato Quadra Linux computer for ham radio use.