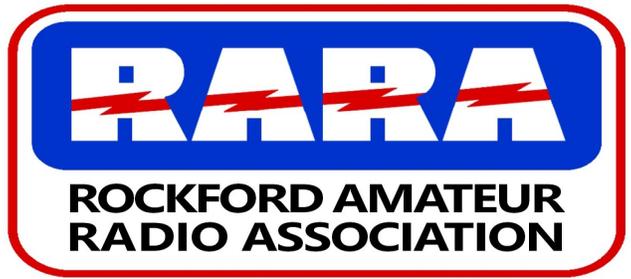


HAMIRAG

Visit our website for more club and area ham information at <http://w9axd.org>, or join us on Facebook at this [LINK](#)



RARA Mission Statement

A member association with common interest of public service to the community through the use of amateur radio.

Presidents Message

Hello Everyone,

Happy New Year to everyone!

Congratulations to Jim Dorsey, KC9GCR, for being the RARA Ham of the Year for 2022. Jim spends a lot of time on the radio and provides many services to the radio community, and RARA.

If you want to join RARA, or renew your membership and pay your dues for 2023, this would be a good time to do so. Money collected for RARA goes to maintaining the repeaters, financing our events throughout the year, club insurance, and other yearly expenses. Without your support, we would not be able to provide these things.

January is a busy month with many activities going on. There's the Winterheat 2023 simplex contest for the month of January, some DXpeditions, and Winter Field Day on January 28th and 29th. See inside for details.

Our January meeting will be a Google Meet internet meeting with a presentation by Kerry, KD9MAP. Kerry's presentation will be about space weather. We will also be discussing Winter Field Day.

The link to the meeting is: <https://meet.google.com/dod-ygzh-sux>
Please join us for Kerry's presentation, and upcoming RARA events.

See you Friday night,

Kurt Eversole—KE9N

January 2023

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NEXT MEETING

FRIDAY

January 13, 2023

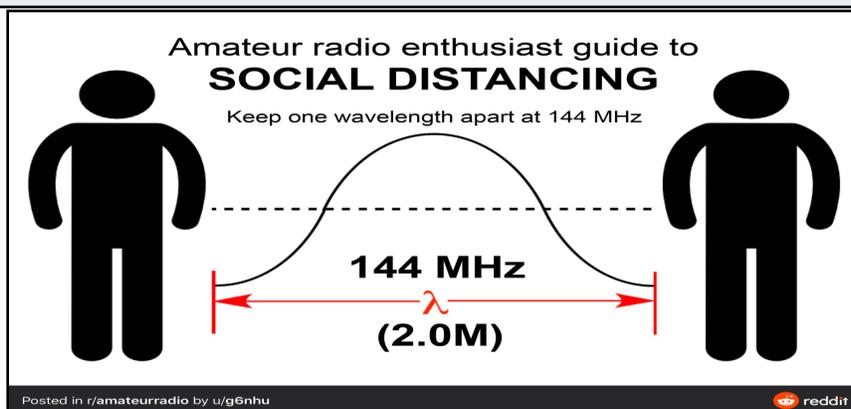
7:00 pm

"Space Weather"

By
Kerry, KD9MAP

Google Meet Link:

<https://meet.google.com/dod-ygzh-sux>



Local Events and Information

UPCOMING EVENTS

January 13, 2023 - General RARA Meeting 7:00pm on Google Meet

January 25, 2023 - RARA Board Meeting 7:00pm on Google Meet

February 10, 2023 - General RARA Meeting 7:00pm on Google Meet

February 22, 2023 - RARA Board Meeting 7:00pm on Google Meet

January 28-29th - Winter Field Day (see page 9)

2023 RARA Officers and Board

Officers:

President - Kurt Eversole, KE9N, 815-389-2784, kurt.eversole@gmail.com

Vice President - Tom Shouler, N9VJU, 815-633-0089, n9vju@comcast.net

Secretary - Larry McFall, KD9HKX, 815-900-1820, lpmcfall@charter.net

Treasurer - Gordon Seaman, KC9NEX, 815-262-0294, kc9nex@gmail.com

Directors:

Kevin Puckett, N9EGF, 815-218-1551, krpuckett@gmail.com

Ron Callahan, N2RON, 608-289-0198, ron.n2ron@gmail.com

Larry Lisle, K9KZT, 815-397-9595, l.lisle@usa.net

Kerry Tatlow, KD9MAP, kd9map@gmail.com

Webmaster - Kerry Tatlow, KD9MAP, kd9map@gmail.com

Repeater License Trustee - Gordon Seaman, KC9NEX, 815-262-0294, kc9nex@gmail.com

Hamrag Editor/Repeater Chairman - Kurt Eversole, KE9N, 815-389-2784, kurt.eversole@gmail.com

Local Net Information

Mon - 7:00pm - RARA Info. Net & CW Lesson, 146.610 (-) offset, pl 114.8
8:00pm - McHenry Cnty. RACES Net, 146.835 (-) offset, pl 91.5

Tues - 7:00pm - Health & Tech Net & CW Lesson, 146.610 (-) offset, pl 114.8
7:00pm - Rock County Public Service Net, 145.450 (-) offset, pl 123.0

Wed - 7:00pm - Stephenson Cnty. ARES Net, 147.390(+) offset, pl 114.8
7:30pm - Greater Beloit Radio Net, 147.120 (+) offset, pl 123.0

Thurs - 7:00pm - Northern Illinois Skywarn Training Net, 147.195 (+) offset, pl 114.8, with the Health & Tech Net & CW Lesson following.

Fri - 8:00pm - Friday Night Fun Net, KC9GCR, 146.610 (-) offset, pl 114.8

Sat - 8:00pm - Saturday Ragchew Net, 146.610 (-) offset, pl 114.8
9:00pm - Saturday Night Fun Net Milw., 146.910 (-) offset, pl 127.3

Mon. thru Friday - 8:00am to 9:00am - Senile Net, 14.287 (HF USB)

On the Air Events

TIME
UTC: 15:34



WINTERHEAT
AMATEUR RADIO
SIMPLEX EVENT

MENU

[WINTERHEAT HOME](#)
[GUIDELINES](#)
[FAQ](#)
[TROUBLESHOOTING](#)
[HAMACTIVE HOME](#)

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WINTERHEAT is a month long amateur radio simplex event.

The goal and purpose is for amateur radio operators to make as many contacts as possible over a month long period of time using only designated simplex frequencies..

WINTERHEAT 2023 started at 00:01 UTC on January 1, 2023 and concludes at 23:59 UTC on January 31, 2023.

- This is the fourth year for this event. Last year over 1,000 participants made over 134,000 contacts.
- The event is open to all FCC licensed amateur radio operators.
- All contacts shall be via FM-voice but can be either analog or digital (fusion, D-STAR, DMR).

After registering, if you do not receive a confirmation e-mail, please check the Junk/Spam folder within your e-mail client.

[CONTACT](#)

[DONATE](#)

UTILITIES

[EVENT STATS](#)

[VHF PROPAGATION MAP](#)

[PARTICIPANT MAP](#)

[EVENT QSO MAP](#)

[STATE CONTACT MAP](#)

[STATE PARTICIPANT MAP](#)

TIME

UTC: 15:35



WINTERHEAT
AMATEUR RADIO
SIMPLEX EVENT

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[HAMACTIVE HOME](#)

[REGISTER](#)
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WINTERHEAT OPERATING GUIDELINES

GENERAL INFORMATION:

- All participants must be registered with the automated logging system for contacts to be credited
- All contacts must be made on the designated amateur radio frequencies.
- Contacts must be via FM voice and can be either analog or digital (DMR, Fusion, D-Star).
- All contacts must be made during the event period. (00:01UTC January 1, 2023 to 23:59UTC January 31, 2023)
- Stations may only make contact with each other once per day on each designated frequency.
- DMR, C4FM and D-STAR Simplex Frequencies are simply recommendations. Since some areas have pre-designated digital voice simplex frequencies, they may use those frequencies as long as no external repeaters or other infrastructure is used. Simply select the frequency/mode that closely matches your method.

ANALOG

2M	70cm	OTHER
147.570 IL2-Charlie	446.700 ILUHF-Charlie	52.540 6M-Xray
147.525 IL2-Bravo	446.400 ILUHF-Bravo	223.400 1.25M-Xray
		927.100 33cm-XRay

DIGITAL

147.555 C4FM-V	446.600 C4FM-U	
145.790 DMR-V	446.0750 DMR-U	
TG:99 TS:1 CC:1	TG:99 TS:1 CC:1	
145.670 D-STAR-V	446.225 D-STAR-U	

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[STATE CONTACT MAP](#)

[STATE PARTICIPANT MAP](#)

By Larry Schubert, AC9GO

I had a fleeting thought that maybe I should take a picture of my workbench and include it with the article, but after I thought, I decided the better for it. Anyone who has seen it probably wondered just how I was able to get anything done in such a mess. The truth is I've been working on it for quite a while actually, trying to find a place for everything. If you're looking for someone to tell you how to put everything in it's place, sorry, wrong guy. What I can tell you is how to best trouble shoot a problem, and the basics of what you might need to find and fix the problem.

To start with, you may just be handed a product that may or may not have any reference to what went wrong. It may or may not be obvious. You might get a simple "doesn't work", "fix it", or maybe a note that says: "The *\$#@%^& thing just quit". At least in this second case we do have a hint, because we now know that it was working, but something has caused it to stop. This is important, because the more clues you have, the easier it is to figure out where the problem might be. Here are some of the clues to look for. Something from a factory that says "couldn't get it started Monday morning" tells you that it sat all or part of the weekend, and if it requires stored memory it may have lost memory because of a dead battery. You may get a note saying: "it just quit." If it is in the summer something may have over-heated, and in the winter maybe it got cold and a solder joint let loose, but it may be something as simple as a short caused by someone spilling coffee into the unit.

First open the unit. Look closely at the product for scorch marks where something has over-heated. In a power supply look closely at the parts. Is there a MOV (Metal Oxide Varistor, usually bright red, orange or blue, flat and looks like a capacitor). If it looks burned, measure it with an ohm meter. If it has shorted internally replace it, and the fuse will probably be open. Look at the capacitors in the power supply. If they are bulging or burned replace them. The MOV shorts out if hit by a spike in voltage. Lightning can sometimes cause this. The MOV is across L1 and L2 and will short out if their voltage is exceeded. After numerous hits it will put a direct short across the incoming line, which will blow the fuse. Often times the rest of the unit is saved by the part, and after the MOV and the fuse are replaced everything else is just fine. Be sure to check the board in that area, because when this lets go there are often traces burned and in need of repair. By the way, lightning probably comes through the service entrance as many times as it will come down an antenna. I've had two commercial radio stations put off the air while I was on the air and in both cases the spike came through the service entrance, and in both cases it took out a series of diodes at the front end of the transmitters.

The MOV's are generally located where the power enters the board, and next to that is the power supply for the rest of the unit. Usually, if you spot a group of good sized caps and a transformer or two you will also see the power supply section. Most of the power supply's I've dealt with had smaller transformers and were switching supplies. If you work on an older radio, transmitter, or amplifier you may see some big transformers. **THE THING TO KNOW ABOUT A POWER SUPPLY, BIG, LITTLE, OLD OR NEW. THEY CAN KILL YOU** even if the power is off. Most power supplies have resistors to bleed the energy stored in the capacitors after they are turned off. But bleeding off the energy takes a while, and if the resistor has been damaged or a trace opened, all bets are off. Please be careful, the life you save may be that of one of my readers, a rare bred indeed, and you fit that description. If you have gotten this far and everything seems ok. It is time to power up the unit. *(continued)*

Get the schematic out, and start checking voltages. If the supply is putting out the right voltages, move on to the next section of your device. Make sure the voltages that you checked are still as you found them at the power supply. If not check the traces and connections and fuses or anything else that may cause the loss. A shorted IC or other component may be drawing down the voltage, and the voltage might look great at the power supply, but really low a short distance away. Check quickly to see if you have a component on the board that is heating up. Sometimes if you run your hand above the board, you will find an area that is giving off heat, so be careful not to touch the part because you may come back with a burned finger. I have a hand multi-meter that I get from Harbor Freight for \$15 that checked accurate against meters costing hundreds of dollars, and it came equipped with a thermocouple and wire to read out temperatures in C. It is easy to run the thermocouple over components in a board to check their temperature and it saves burned fingers.

Back to diagnostics, if you have good voltages on your unit, see if you can check the rest of it out. Before I move on, I should tell you that my experience is over 30 years troubleshooting electronics at the component level but I worked with computerized modules that worked together in a system that controlled plastic making machines that ranged in size from maybe ten feet long to a block long and 3 stories tall. The system controlled everything from the sequence of movements of machine parts to temperatures, pressures, and anything else needed in the extrusion, injection or blow molding of plastics, but I really have little or no experience diagnosing receivers or transmitters. Having said that, there are a number of things I've learned over the years that might help.

First most problems I've found through the years have come from age or heat, and most have come from the power supplies or an area where the unit is connected to the outside world. If you are working on a transceiver, check the receiver first. If it isn't working. I suggest starting at the outside and moving in. Look at the caps. Electrolytic capacitors tend to bulge and leak when they go bad. Most have a vent plug on the top so that they no longer blow up like they did years ago. Some of the other caps will turn colors when they get hot and short out, and then blow a fuse. Resistors that are pulling a lot of current, (generally because of a short) will at times catch fire and open up. This usually happens when a fuse has been replaced with a much higher amperage because it was blowing the recommended device. I suggest starting at the outside and working in because if an electronic device is working as it should it is more likely to quit because of outside things then to something inside of the unit. I've known of a couple of extreme cases where power companies were causing huge spikes on the lines and killing units. More often than not, age and/or heat has caused the failure. Lightning can come through the power lines as well.

Radios are going to be subjected to spikes coming down the antenna lines. This is why it is a good idea to have lightning protection. An antenna can pull a lot of static out of the air. I remember static jumping big insulators on the cables holding up a commercial radio tower, when a thunderstorm was still several miles away. AM radio towers by the way are generally the antenna, and insulated from ground. Any large piece of metal will collect a charge outside if isolated from ground. Late in my teenage years I made the mistake of touching a DC3 aircraft shortly after a storm. Lets just say if it had been one of the larger jets of today, someone else would have to write this, cause I would have been history. Anyhow, I think you get the picture. Static is not your friend, or your radio's either.

(continued)

Other things that can cause problems include ground loops. These are generally caused by voltage differences caused by more than one ground. A ground loop can cause all kinds of problems. Static can short out or open up a diode. IC's are made of thousands of diode junctions and transistors which consist of two diode junctions each. Wear a static protection wrist or foot strap so that you don't cause a static problem and kill an IC or other part on the board. By the way some parts hit with static will work for even a couple of weeks and then quit, so be careful.

Again, I would start with the power supply section, if there is one. Some work off of a 12 volt battery (which will read about 13.9 v) but may turn the power into different voltages like a 5v for TTL logic. So you may have to check for other voltages. In the radios with tubes you will have power supplies with some very high voltages, and if you work on anything with an old CRT you will find very high voltages, some in thousands of voltages. CRT's are like big capacitors, and they can deliver high voltages with high enough current to really ruin your day.

If you are interested in working on radios, I would suggest watching "Mr. Carlson's Lab" on YouTube. He works on a lot of old radios, and does everything from fixing to tuning and refurbishing. He has been at this for a long time, and I think his presentations are the best I've seen on finding and fixing the problems you will find in ham radios. I've seen some others on YouTube, but none with his expertise. He has developed some tools that he uses to find the resistance of caps that beat out instruments costing hundreds of dollars. He shows how to fix electronic instruments, and a number of other things like hints that you should take a picture of where components are before you start the work so you can refer to it if you lose your place and can't remember where something goes. There are some radios that have a "Hot" chassis which could electrocute you if plugged in and turned off, because of a common failure. He has a vast amount of knowledge of the subject, and more than most. I suggest watching some of his videos, and if you are interested in working on this type of thing. Start out on a small radio first, get a schematic, take a picture of the chassis, from the bottom and top, before you start, and then go for it. Find out where you can get parts from some of the guys in the club, and good luck. Don't be afraid when you have problems finding the problem, because that is when you learn how to check them out.

Suggested tools:

Temperature controlled solder iron and solder sucker

Solder in at least two sizes small and medium with rosin core

Set of screw drivers flat and Phillips

Needle nose pliers & Regular pliers

Multi-meter ac and dc voltages, current, resistance and diode, (some have temperature, capacitance, and transistor tester as well)

Wire cutters (maybe a heavy duty for line cords and such and small for resistor leads

Something to measure frequency with, and yes, an oscilloscope would be nice, but not something you have to have. There are other things that fall into that category as well, but I've found a multi meter will find most problems. Like many of my friends, a work bench may look cluttered, but that is what happens when you work on things. Still trying to find a place for things.

Happy New Year & 73,

Larry Schubert, AC9GO, larry.schubert@gmail.com

News From Around The Globe

Amateur Radio Astronauts Head for the International Space Station

Three of the four new astronauts on February's planned launch of the SpaceX Crew-6 mission to the International Space Station (ISS) are amateur radio operators.

The four crew members that comprise the SpaceX Crew-6 mission pose for a photo during a training session on the crew access arm at the Kennedy Space Center's Launch Pad 39A in Florida. From left are, Mission Specialist Andrey Fedyaev, Pilot Warren "Woody" Hoburg, Mission Specialist Sultan Al Nedayi, and Commander Stephen Bowen. Photo Courtesy of SpaceX.

Pilot Warren "Woody" Hoburg, KB3HTZ; Commander Stephen Bowen, KI5BKB, and Mission Specialist Sultan Al Neyadi, KI5VTV, will join Mission Specialist Andrey Fedyaev on board the SpaceX Dragon spacecraft, Endeavour. The spacecraft will be atop a Falcon 9 rocket and, while a launch date has not been selected, the earliest date would be mid-February 2023.



Bouvet Island

Frozen and foreboding Bouvet Island, the most remote spot in the world, remains an elusive quarry for legions of DX hunters who well understand the logistical nightmare of operating from there and the disappointment stemming from the noble but failed attempts to activate it in recent years.

This coveted DXCC entity, second to North Korea on Clublog's Most-Wanted List, has seen only a handful of successful DXpeditions, including 3Y5X in 1989 and the noteworthy trip of the late Dr. Charles "Chuck" Brady, N4BQW, a retired astronaut and DXpeditioner who traveled to Bouvet Island (3Y0C) as part of a research team in December of 2000 and logged 17,000 QSOs during his three-month stay. Attempting to add to this legacy is the 3Y0J DXpedition. Two members of the team, Otis, NP4G and Dave, WD5COV, discussed what it's going to take to pull off the activation of what interviewer, DX Engineering CEO Tim Duffy, K3LR, called "the worst place on Earth." DX Engineering is one of the equipment sponsors of the DXpedition, along with InnovAntennas and others. DX Engineering has a long history of supporting DXpeditions, including building a custom 90-foot top-loaded 160M vertical antenna that was originally made for Bouvet 3Y0Z and was eventually deployed, with great results, during the VP6R Pitcairn Island DXpedition in 2019.

As NP4G pointed out, more people have been to space than to Bouvet, which is located in the South Atlantic Ocean 1,100 miles north of the Princess Astrid Coast of Queen Maud Land, Antarctica. About half the size of Manhattan, uninhabited Bouvet is mostly covered in ice and snow (about 93%) and experiences 300 storms annually, with winds reaching 100 MPH.

FRIDAY MORNING BREAKFAST

Meets every Friday morning from 8:00 am until about 10:00 am. An informal gathering of ham folks, no affiliations necessary, good food and good company.

Everyone is welcome to attend.

"The Spring Garden Family Restaurant"
4820 N. 2nd Street
Loves Park, IL 61111



Editors Note

If you would like to have something published, please call me, or email me at kurt.eversole@gmail.com

Cut-off for the February 2023 Hamrag will be Sunday, January 29, 2023

Kurt - KE9N, Editor

Announced DX Operations

Announced DX Operations: 2022

[\[About ADXO\]](#) [\[ADXO Text Version\]](#) [\[Abbreviations\]](#) [RSS](#)

[\[Submit a Dxpedition\]](#)
[\[Cal DXCAL link\]](#)

Active/Upcoming	Expired	Previous Years
Expired Contest and Special Operations (1996+)		

Last updated: Monday, 09-Jan-2023 00:10:00 EST

[\[Currently Active Operations\]](#)
[\[Spots provided courtesy of DX Watch\]](#)

Start Date	End Date	DXCC Entity	Call	QSL via	Reported by	Info
2022						
December						
2022 Dec22	2023 Jan20	Senegal	6W <small>[spots]</small>	WA3DX Direct	TDDX 20221205	By WA3DX as 6W1/WA3DX, 6W6/WA3DX, 6W9/WA3DX; mainly 20m, but also 40-10m; SSB FT8; spare time operation
2022 Dec24	2023 Jan14	Crozet	FT8WW <small>[spots]</small>	LoTW	TDDX 20211028	By F6CUK; 30 20 17m; QSL via Club Log OQRS or F6EXV Buro; see Web for direct options; end date unclear
2022 Dec29	2023 Jan22	Ecuador	HC1FIT <small>[spots]</small>	N9EAJ Direct	TDDX 20221224	By N9EAJ fm nr Otavalo; 40-10m; SSB CW
2022 Dec29	2023 Mar15	Gabon	TR8CR <small>[spots]</small>	F6AJA (B/d)	TDDX 20221110	By F8EN; 30-10m; CW
2023						
January						
2023 Jan01	2023 Jan15	Wallis & Futuna	FW <small>[spots]</small>	VK4MAP Direct	DXW.Net 20221227	By VK4MAP as FW/VK4MAP; 80 40 20 15 10m; SSB; dipole; holiday style operation
2023 Jan02	2023 Jan31	Montserrat	VP2MDX <small>[spots]</small>	LoTW	TDDX 20220508	By W2APF; HF; CW SSB 10m_FM; 100w; operation to continue until March 31
2023 Jan23	2023 Jan27	Palau	T8	Home Call	DXW.Net 20221010	By JH3LSS (T88DK), JA3HJI (T88DN), JA3IVU (T88ED), JA3ARJ (T88EF) JA3AVO (T88MB); 160-10m; all modes
2023 Jan23	2023 Feb28	Bouvet I	3Y0J	LoTW	DXW.Net 20210809	By LA7GIA LA7THA LB1QI + team; 160-10m; CW SSB FT4/FT8 RTTY; QSL: M0OXO; about 22 days; dates tentative
2023 Jan27	2023 Jan29	Jersey	MJ5E	LoTW	GU4YOX 20221220	By GU4YOX fm IOTA EU-013; QRV for CQ 160m CW Contest; QSL via GU4YOX (B/d)
2023 Jan31	2023 Feb15	St Kitts & Nevis	V47JA	LoTW	W5JON 20220530	By W5JON fm Calypso Bay; 160-6m; SSB FT8; yagi, verticals; QSL also OK via W5JON direct
February						
2023 Feb04	2023 Feb27	Burundi	9U4WX	LoTW	DXW.Net 20221122	By OK2WX fm Bujumbura; also IV3FSG using 9U5R; 80-10m; CW SSB; 100w; QSL via Club Log OQRS or IZ8CCW
2023 Feb08	2023 Feb15	Honduras	HR9 <small>NEW</small>	LoTW	TDDX 20230106	By K6VHF as K6VHF/HR9; 80-10m; FT8 RTTY, perhaps SSB CW; QRV for CQ WPX SSB
2023 Feb09	2023 Feb23	Vanuatu	YJ0A <small>NEW</small>	LoTW	DXW.Net 20230107	By W7YAQ K7AR fm Port Vila; 160-10m; CW FT8 SSB; 2 stations; M/S in ARRL DX CW
2023 Feb11	2023 Feb26	Bonaire	PJ4	LoTW	NE9U 20221208	By NE9U as PJ4/NE9U; HF; QSL via NE9U direct w/ SASE; QRV in ARRL DX CW with PJ4 team
2023 Feb15	2023 Feb21	St Vincent	J8	LoTW	PA2LO 20220911	By PA2LO as J8/AJ4YX fm Ratho Mill (IOTA NA-109, FK93jd); 80-10m; CW SSB FT8; QSL via Club Log OQRS preferred, PA2LO direct w/ SASE or SAE w/ sufficient funds
2023 Feb15	2023 Apr30	Solomon Is	H44MS	DL2GAC	DXW.Net 20221029	By DL2GAC; HF; SSB FT8
2023 Feb17	2023 Feb24	Cocos Keeling	VK9CVG	M0OXO	G0VJG 20221114	By G0VJG fm IOTA OC-003; 80-10m; mainly SSB, a little FT8

Winter Field Day 2023

Winter Field Day is a communications exercise. Winter Field Day is always held the last full weekend in January. For 2023, it will be held on January 28th and 29th. The 24-hour operational period starts at 1900 UTC on Saturday, the 28th and ends at 18:59 UTC on Sunday, the 29th. Stations may begin setting up no earlier than 19:00 UTC on Friday before. However cumulative set-up time shall not exceed 12 hours. WFD can be worked from the comfort of your home or in a remote location. You can participate by yourself or get your friends, family, or whole club involved. Winter Field Day is open to participants worldwide. Amateur radio operators may use frequencies on the HF, VHF, or UHF bands and are free to use any mode that can faithfully transmit the required exchange intact. Similar to the ARRL's Field Day, bonus points are earned in several ways, including using non-commercial power sources, operating from remote locations, satellite contacts, and more.

Winter Field Day is sponsored by the Winter Field Day Association. We believe that ham radio operators should practice portable emergency communications in winter environments as the potential for freezing temperatures, snow, ice, and other hazards present unique operational concerns. WFD is formatted to help increase your level of preparedness for disasters and improve your operational skills in subpar conditions. Click [here](#) to read more about the history and purpose of Winter Field Day.

NOTE: If you would like to participate in RARA's Winter Field Day, send me an email, or call me, and we can operate WFD if we can get at least 6-8 people involved. Let me know when you can operate, on Saturday or Sunday, or both, and about what time you can participate! My email address is: kurt.eversole@gmail.com or call me at (815) 389-2784.

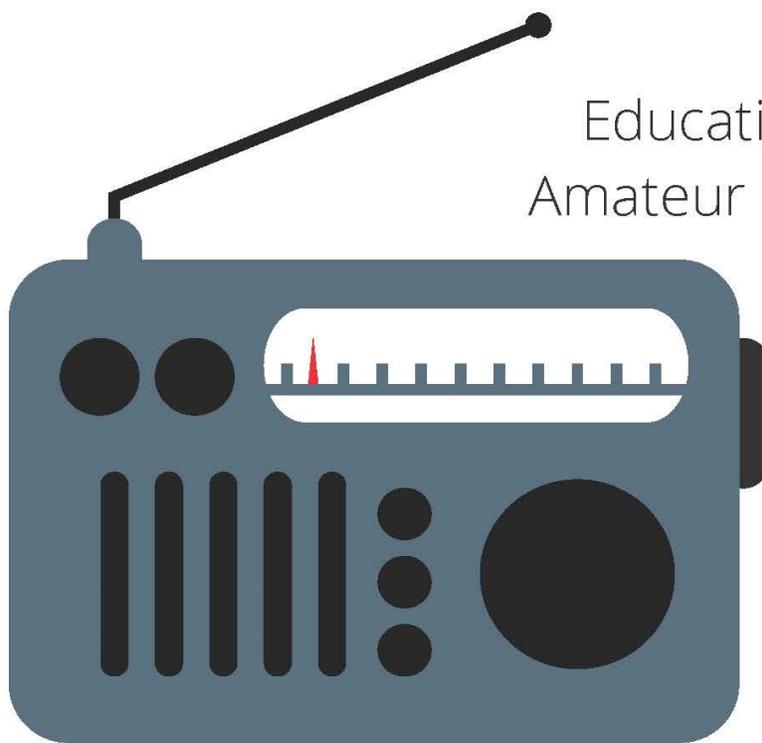
Let me know by January 23rd at the latest!



Wheaton Community Radio Amateurs
56th Annual
Mid-Winter Hamfest
(Computer, Radio, and Electronic Hobby Expo)



Door Prizes
Educational Forums
Amateur Radio Exams



w9ccu.org



January 15th, 2023

8 am - 1 pm

Kane Country Fairgrounds

Tickets: \$10 At the door (\$8 in advanced online)

Children under 12: Free

All scouts under 18 and in official uniform: Free

Ham Radio Perspectives

The Case for Simplex by Adam Fleming, KD9VDX

The first QSO in my logbook, six months after earning my Tech license, was a 2-meter simplex contact which I completed operating mobile with an HT running into a mag mount antenna. The QSO was quick, but thrilling. With my 5 watts, we managed a brief QSO at a range of about 25 miles on 146.52. It was brief, as we had just enough time to exchange callsigns, operating QTH, and a brief signal report until my copy of his signal became too intermittent for me to copy. I didn't realize it at the time, but I later figured out that had I turned off my squelch prior to throwing out my callsign, we might have managed a few more minutes for two-way contact.

I was pleased to find that my QSO partner logged the contact as I did, so the contact was not only the first of any kind in my log, but also the first QSL. In addition to the excitement of making that first radio contact direct from my station to another, I took from the experience some valuable lessons about the case for monitoring and operating simplex.

Something we can always strive for as amateur radio operators is to continually learn and maintain proficiency in a variety of radio operating skills. My 2-meter simplex QSOs, though limited in number to date, have already taught me a lot about the importance of elevation when operating VHF and I've learned that if I want to operate simplex, I need to turn squelch down to a minimal level or even off. Hopefully as I operate more, I'll keep getting better at that mode.

Simplex operation also presents an opportunity to learn more about the operating capabilities of my transceiver, antennas, and other equipment at my home QTH and at mobile or portable sites. I have learned that from my home station, I can get a 30 mile simplex contact to the south and southwest of my location running just 5 watts (admittedly with the other station doing the heavy lifting), but I struggle to hear or make contact very far to my north. I wouldn't have learned that had not a kindly Lee County station answered my call on 52 on Christmas Eve. My primary interest in amateur radio is not necessarily the field of emergency communications, but I do feel good to know that if we had an emergency situation in which our very capable repeaters were down, I know what I can expect to be able to do with my equipment.

Simplex is also a great opportunity to make contacts, even briefly, with travelling hams on their mobile stations. I likely would have never had occasion to speak with the station on the other side of that first QSO, but now we'll take a moment to at least exchange 73s if we hear the other's call on the FM38 repeater. We can also help out travelling Hams who may need information but may not have ready access to the frequencies, offsets, and tones for our local repeaters.

Lastly, I'll also say that as a new operator myself, I've gravitated toward the fun and challenge of trying to make simplex contacts. Early difficulty in doing so was discouraging; final success was thrilling. I think helping our new operators make simplex contacts is one way among many that we can retain the interest of those new operators who have come to the hobby.

I also realize that many operators do not log VHF-UHF contacts. I certainly do not do so for repeater contacts, but I will often log at least first-time simplex contacts with an operator on LotW and QRZ. First, it is fun and the logbook entry is personally a bit of a trophy especially for

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the longer ones. You also never know if your other operator might need your QSL for one of the VHF-UHF awards like VUCC or for a contest.

Don't get me wrong, I'll be the first to acknowledge that our excellent repeaters give us the most reliable means for clear, wide-spread, FM radio communications under normal circumstances. However, as we monitor and remain active on our repeater frequencies, let's not neglect simplex operations. The national 2-meter FM simplex calling frequency is 146.52 MHz (it even has its own Facebook page). For those with Yaesu C4FM capable radios, I understand that Yaesu has suggested 145.5625 MHz on the DN setting as a worldwide calling frequency for System Fusion, though regionally I've also heard of some System Fusion operators using 147.525 on the DN setting for that purpose. I keep all three frequencies in my scanning frequencies and occasionally throw out my call on all three. The activity I hear on 52 is sporadic, and on the other two, non-existent. I also have a handful of UHF simplex frequencies on my scanning list and have never heard anything on them. I don't have a rig capable of D-STAR or DMR, so I'm not as familiar with the operating frequencies for those mode, but perhaps another member can follow up this article with The Case for D-STAR and The Case for DMR.

We have the opportunity as a community of radio operators to help one another keep proficient in FM simplex operating skills and to help each other continually learn and understand the capabilities of our equipment. We can also meet and sometimes help travelling operators and new operators who might either not be able to readily access our repeaters or who may be branching out for a new radio challenge. If this article prints in the January Hamrag, the annual Winterheat event by Hamactive will already be underway, encouraging Hams everywhere to routinely make FM simplex contacts during the month of January. Specific simplex frequencies are dedicated to Winterheat, so check those out on the website. I'd also encourage all operators to include at least 146.52 in your scanning frequencies. If you have a System Fusion rig, consider adding 145.5625 and 147.525 to your scans on the DN setting. Throw your call out on all three from time to time. Use a long-ish call with the frequency in the call to give scanners time to catch you and to give your listener a chance to realize where you were if the scanner moves on (I usually say something like "KD9VDX, Kilo Delta Niner Victor Delta X-Ray, calling all stations and monitoring on 146.52. . . KD9VDX monitoring on 52"). You may also want to turn off your squelch when you call CQ on simplex, just in case a weaker station comes back to you. I know if I hear you, I'll answer, and if you give me a signal report, I'll log the contact.

73,
KD9VDX, Adam Fleming

QDX Xcvr Kit Review, by Kerry, KD9MAP

QDX from qrp-labs.com is a 5W SDR digital-mode-only transceiver for 20, 30, 40, and 80 meters. It is inexpensive, and has a thoroughly modern, clever design. I ordered mine with the optional metal case; with the tax and shipping (from Turkey,) the total cost was \$108, saving \$45 off the assembled version. It's a lot of radio for little money, great for my favorite HF modes FT8 and WSPR.

The QDX theory of operation is *fascinating* and fully explained in the excellent online docs. I won't summarize it here because I can't do any better than the author already did. See links below.

You get a PCB with all the SMD components pre-soldered, which is preferred; I personally haven't the skill or equipment to solder SMD chips. The rest of the kit is through-hole parts for the builder to solder in. There are 16 caps, 6 diodes, 4 molded inductors, an LED, 4 MOSFETs, 9 wound inductors, and a few connectors to be soldered.

There's a menagerie of inductors to wind: 6 plain toroidal inductors, a binocular center-tapped transformer, a toroidal tapped inductor, and a toroidal trifilar transformer. These are tiny and tricky and (fumbly?) to wind. Once they are installed, their mounting wires are fragile, so the board needs to be handled with greater care from then on, and that's the reason you should order the optional aluminum case. There was not quite enough AWG28 enameled wire in the kit to complete the last toroid; fortunately I had a spool of it on the shelf.

The four connectors are all PCB mount, so there are no pain-in-the-butt pigtailed needed between main board and connectors. The finished board slides into a tiny extruded aluminum case. Altogether there's about 100 solder pads to do. It's close work, a challenge for both my eyesight and steadiness of hand. Use the best solder you can get online; you probably won't find good PCB construction solder at a local hardware store. I used a Weller WLIRK3012A 30W soldering iron, and Kester "44" rosin-core 0.5mm solder.

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For trimming leads off solder pads, use the best quality diagonal cutter or wire snipper you can find. I constantly used a 10X jewelers loupe to inspect my work. This is the first kit I've built where I've spread the work out over several 45 minute sessions, even though it could *maybe* be done in one day in one long sitting. This kit is maybe too hard for first-timers, so I've listed a couple of easier ones below.

I was gratified, and relieved :), when my QDX worked immediately without any fuss. Add an antenna, a 9VDC power supply, a USB-A cable, a computer, and free WSJT-X software, to make a complete QRP HF digimode station.

First I made a few easy FT8 contacts, then I "burned-in" the radio with two full days of WSPR beaconing. I received 4000 spot reports, from 290 callsigns worldwide, from as far away as VK5ARG Adelaide, 9900 miles.

My *very minor* quibbles with this radio are:

- (1) It only runs four bands. I'd trade the 80m for just about any other band.
- (2) I'd prefer it to use a standard "12VDC nominal/13.8VDC actual" supply, instead of 9VDC.
- (3) The firmware is closed-source. In this design, the firmware ***IS*** the xcvr! I'd *pay extra* to get a copy of the STM32 source code for this amazing device, just to learn how he does it. Meanwhile, I've obtained from walmart.com a \$10 STM32F4 explorer board to study that 'do-anything' miracle processor more on my own in future.

QDX kit docs:

https://www.qrp-labs.com/images/qdx/manual_1_15.pdf

https://www.qrp-labs.com/images/qdx/manual_operation_1_05a.pdf

<https://www.qrp-labs.com/images/qdx/schem4.png>

A video with an excellent explanation of how the QDX detector circuit works:

<https://www.youtube.com/watch?v=JuuKF1RFvBM>

WSJT-X software:

<https://www.physics.princeton.edu/pulsar/k1jt/wsjt.html>

Starting point for learning STM32F4 development. You could spend several lifetimes trying to learn everything there is to know about this processor:

https://www.st.com/content/st_com/en/products/microcontrollers-microprocessors/stm32-32-bit-arm-cortex-mcus/stm32-high-performance-mcus/stm32f4-series.html

The Si5351A VFO chip, used in so many radio designs today:

<https://qrp-labs.com/images/synth/si5351a.pdf>

Here are a couple among other good kits I've built in the last few years. These are easier to build than the QDX is. Both are quality, useful items:

MightyOhm geiger counter kit:

<https://www.flickr.com/photos/157679245@N07/albums/72157694720981150>

DSO138 (single trace) oscilloscope kit:

<https://www.flickr.com/photos/157679245@N07/albums/72157699974534115>

73,
de Kerry Tatlow, KD9MAP





website: w9axd.org
email: w9axdrara@gmail.com

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Can we release your e-mail and phone number to members only? Yes _____ NO _____

Are you a member of the ARRL (American Radio Relay League)? Yes _____ NO _____

What things do you like to do with ham radio?

What things do you want to do, but need more information to do so?

Would you be available to make a presentation on some part of our hobby and what?

Do you have any questions that we can help you with presently? If so, explain below.

Mail In: Please fill out all the information on the form and mail it with \$25.00 to the following address:

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