Eastern Iowa DX Association

An ARRL affiliated club - Established 1975

In this issue

April 2017

President's Propagation, Pontifications and Prognostics

Joe Hungate
K8OM

Ahh… spring is finally in the air and paraphrasing Alfred Tennyson “In the spring a hams fancy lightly turns to thoughts of putting more aluminum and

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Club Officers:
President: Joe Hungate K8OM

Vice President: Jerry Rappel WWØE

Secretary: Rich Haendel W3ACO

Treasurer: Rich Haendel W3ACO

copper in the air". In addition to new antennas maybe you have some repair work to perform after old man winter decided to reconfigure some of your antennas, towers and supports to be less than optimal. For me, about all I have to do is roll up my 160 meter BOG (Beverage on Ground) receive antenna and store it away in the garage until next fall.

Or maybe you have some other amateur radio related construction project that is moving from design stage to implementation. Building a new ham shack in the basement, making a new operating desk, putting together a moon bounce station or mentoring a new ham? Maybe you're not quite that ambitious but are getting geared up to jump into operating a new digital mode like JT65 or meteor scatter with your existing station.

Whatever your project(s) is this spring I ask you to share it with your fellow EIDXA members. Post your upcoming spring and summer amateur radio endeavors via the club email reflector (eastern-iowa-dx-association@googlegroups.com) or send them to our news letter editor Bob – W0GXA. Remember, more pictures the better. If you have something that you would like to present to the members at an upcoming meeting please let me know. Remember, it doesn't have to be a full blown program.

Repeater Committee:

- Al Groff KØVM
- Joe Finkstein WØMJN

Membership Committee:

- Jim Spencer WØSR
- Tom Vavra WB8ZRL
- Nelson Moyer KUØA

Packet Cluster: WB8ZRL 147.51, 144.91, WB8ZRL.no-ip.org:7300

Repeater: NØDX/R 144.59 / 145.19 (tone 192.8)

www.EIDXA.org

Web Master: Craig Fastenow KØCF

Newsletter Editor: Bob Lee WØGXA rclee2266@gmail.com

Upcoming Events

EIDXA, Apr 21st
Mercy Medical Center
Hallagan Education Center

CVARC, April 13, 2017, 7PM
Kenwood Park UMC

Speaking of club programs, don't forget that Tom – NY0V, Rod – K0DAS and Bryan – KA0YSQ will be presenting at our April 21 meeting on their latest support effort in the search for Amelia Earhart's missing airplane (http://nauticos.com).

We have a change in venue for this meeting. Instead of holding or meeting at Kirkwood Community College we will be meeting at Mercy Medical Center in Cedar Rapids in the Hallagan Education Center. This new venue offers stair-free access and free parking. For additional information please visit the club web site at http://eidxa.org/Meetings/Meetings.html

Hope to see everyone at the April club meeting. Until then, best 73 and good DX!

Cedar Rapids

Collins ARC, April 18, 2017

Musings from the lunatic fringe

Dreaming of non-radio activities (Teter Rock, 23 miles SW of Madison, KS)

Thank you for the kudos on the new newsletter format. I'm glad people like it. I appreciate the enthusiasm I see from members in their willingness to contribute content. At the moment, we're not hurting for ideas!

.I hope everyone had a good winter operating season; that you worked plenty of DX and contest QSOs. As I was taking down my winter beverages I was mindful where I'll point one next year (toward Bouvet). I might even make it longer than normal, just for good measure

We have a lot of content in this edition. Two members wrote bios (Jeff WØODS and Jim NOØB), lots of pictures and an article I wrote for the Bouvet team. New in this issue will be a contesting column written by Rick NØYY with the occasional guest contributor. Given the results of the contesting survey, it seems like a good use of electrons in the newsletter and it gives Rick something to do in his spare time.

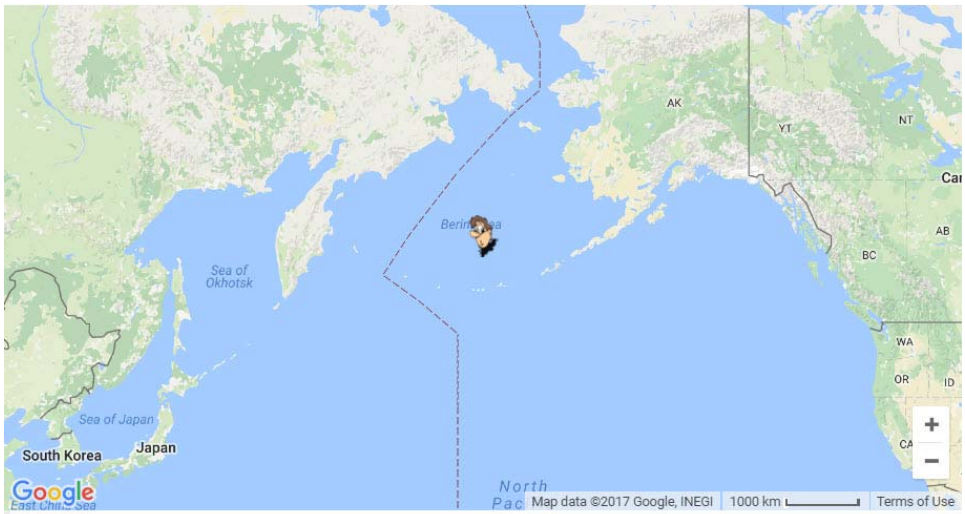
Altogether, it is nearly 70 pages of content! Be sure to take your time. We don't want you passing out trying to read it all in one sitting.

I will be sending out a brief google survey after you've had a chance to digest this issue of the newsletter. I'll be seeking feedback on the content. What do you like and what don't you really care about, etc...

Thank you to everyone who contributed!

Enjoy!

Bob WØGXA



Have you checked out the antipode for Bouvet yet?

Club News and Administrative Items

Minutes of the EIDXA meeting January 20, 2017

1. Meeting called to order at 7:30 PM by our president Joe, K8OM. Twenty-one Hams were present.

2. Discussion of the newsletter, congrats to Bob, WØGXA for putting out a first class effort.

3. Jim, NOØB achieved DXCC, now he is a full member, congratulations !

4. Rich , W3ACO gave the treasurers report. Was accepted.

5. DX funding discussion, There were no short term DXpeditions identified. The next one scheduled is KH1, as noted in the NG3K announced operations. The club decided not to make another contribution to 3Y0Z at this time. There was a notice that someone will be going to San Felix, but no details were given.

6. Jeff Woods, WØODS joined our group, welcome Jeff.

7. Repeater committee, Al, KØVM reminded everyone that the re-installation of the repeater is now scheduled for sometime in February. We will need insurance to cover the effort. Joe, K8OM will pay the $200 premium by credit card and the club will reimburse Joe. *And we were all glad to see Al back with us! - Ed.*

8. By law changes. The club voted to accept the new by laws. This will provide for 4 officers, President, Vice President, Secretary and Treasurer. The secretary position was not voted on, so Rich W3ACO will continue to perform secretary duties until the next meeting. A clarification regarding donations and use of the Tom Hise fund. A donation shall be initiated from the general fund, then matched up to 200% from the Tom Hise fund. Funds shall not be withdrawn ONLY from the Tom Hise fund.

9. Discussion of alternate venues for future meetings. Kirkwood now charges $80.00 per meeting. Two alternates were discussed, First was the Ely library which would be free. A second alternative was

suggested, use of St. Luke's Hospital (and Mercy Hospital) meeting rooms. Supposedly at no charge. St. Luke's has nearby free parking. Joe, K8OM will investigate further with assistance.

10. Web page discussion . The club now uses Iowa Solutions which has limitations and the web master cannot delete files. KØCF and NRØX will look at alternates. Also, costs for domain registration of EIDXA.ORG were highly variable. Iowa Solutions charges $50.00 annually. It appears that there are lower registration fees offered by others. NRØX and KØCF will investigate.

11. EIDXA reflector. The club now uses mailman.qth.net, it is free but has severe limitations. Limited messaging size, no attachments allowed no pictures, etc. Google groups may offer better alternatives. K8OM and KØCF will investigate. We may also choose to do a beta test and use BOTH during a trial period to see which works better.

12. Club apparel: A Marion company , “Cotton Gallery” and Embedded Memories , W5HB, samples were shown. Both companies have the EIDXA logo. Individuals may order a wide selection of embroidered clothing from either one as desired.

13. Club QSL cards. Earlier cards were printed by Rockwell and U of Iowa. UX5UO has the EIDXA logo and can supply single sided full color cards at $59.00 per thousand. Individuals can make up their own cards, single sided, full color or two sided and include the EIDXA logo as desired. Two sided cards, glossy full color front + B&W back are < $80.00 and shipping from Ukraine is included. E-ham review shows 5.0/5.

14. Discussion of mentoring for new hams /members. If interested, please contact Joe, K8OM.

15. Recruiting new members. Joe, K8OM asks the club members to become active and recruit new members, especially younger ones as the average age of our club is 69 !

16. Bob, WØGXA and Jeff, WØODS gave an excellent presentation on using chicken wire mesh for ground returns on an 80 meter vertical. Field testing showed that there was measurable improvement in far

field gain compared to a number of ground radials. Great job fellas !

Submitted Rich W3ACO

Next Meeting

New Location

April 21, 2017
Mercy Medical Center
Hallagan Education Center
Map & directions here
Social Hour 6:30 PM
Meeting & Program 7:30 PM

Program: Lost and Found? An update on the search for Amelia Earhart
Rod KØDAS, Tom NYØV

Card Checkers

We have three club members who can check your QSL cards

- Tom, WB8ZRL
- Glenn, WØGJ
- Mike, NA9Q

Contact info can be found here: http://www.arrl.org/dxcc-card-checker-search

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Did you know...

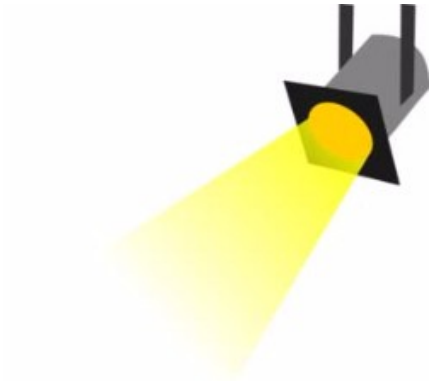
Can't' hit the repeater? Want to see what's been on the bands?

Eastern Iowa DX has a chat room at kd0q.com/chat?room=2 . It works great on mobile devices using any browser. No download

required.

I tried it and it didn't infect my computer...that I'm aware of - Ed.

Member Spotlight



Jeff Woods WØODS

Jeff's our newest member. Welcome!

Bob (WØGXA) decided last year that he needed some 160m Q's to be competitive in NAQP. Well, somehow my name came up as a so-called "expert" on the low-bands, and here we are. My name is Jeff, W0ODS, and I spend a lot of time down on our mediumwave allocation.

Like most of you, I had the good fortune to grow up in a boring place filled with interesting people. Living out in rural Coggon, there wasn't all that much to keep a boy entertained, so my natural tendency was to Tinker and Read. Probably the best thing about growing up in eastern Iowa was the large number of very interesting people around, many of whom were heavily into radio.

My WWII-era grandfather and an uncle working at Rockwell Collins were early supporters of my radio experiments. Between the two of them, there was never a shortage of cast-off, worn-out, and generally obsolete electronic devices in my bedroom. The ancient Johnson Messenger CB radio from my grandfather was the first thing to grab my attention, but it was the multi-band shortwave receiver from my grandmother that really set me off. "Don't tell any of the other kids I

gave this to you," she whispered. "You'll know what to do with it." Still don't know why Grandma had a shortwave radio, but the best guess is that Grandpa picked it up for cheap at a garage sale somewhere and compulsively bought it. I come from a long line of packrats and scavengers.

All the big players were still on the air at the time – it was early 1980's after all. Radio Habana, Moscow, the BBC, and the Voice of America made regular appearances in my bedroom. Using the earphone to keep the parents at bay, I often left the radio on all night. From the he Big Stations, I learned tons about geography and the Cold War. The VOA promised "Jazz for the Asking." The BBC delivered "Poems by Post." And every Thursday evening, a small northern European country called The Netherlands broadcast a show about Shortwave Radio and the people who listen to it. It was called "Media Network." They spoke of "DXers", people who seek out weak signals from far flung places, listening on antennas with funny names like "Yagi" and "Beverage." It was almost too cool for words. I simply had to be one.

Sometime in the fall of '85, Rick Hadley of Vinton put an ad in the paper advertising an Explorer's group for aspiring Radio Amateurs. I sent in a note of inquiry and was soon registered for the class. The rules and theory were already familiar and soon mastered. The Morse Code, however, was the worst of it. I played that borrowed 5 wpm code tape over and over until it was all but memorized. When I was ready enough, Rick found another ham to witness the test. He charitably marked out a minute of solid chicken-scrawl, and a Ham was born. The "ticket" bearing callsign KAØVCL arrived about 6 weeks later.

It turned out that my high school science was also a ham. He had with a spare Heathkit HW-16 for the borrowing. The two years I had that rig failed to net a single contact. The couple of times I screwed up enough courage to tap out CQ on that stamped-brass Radio Shack key only brought a reply once. That time, I froze up. Couldn't copy a thing. In shame, I snapped off the power switch. Your first Solo Flight is usually pretty rough.

Fast-forward to the fall of '87, Terre Haute Indiana. I got signed up for the Ham Radio Club at Rose-Hulman Institute of Technology at the

Fall Club fair, still having yet to make a contact. One cold and wet Friday night in late October, the club president came knocking at my dorm room. An ARRL Technician-Class license manual flew through the doorway, hitting me square in the face. “Read up!” Harold says. “You’re taking the Technician exam tomorrow. We leave for Bedford at 6 am. Test is at 8.“ Twelve hours, Eight bucks and 35 questions later, I was Technician.

The ham club’s VHF gear was entertaining for a while, and did net my first few contacts. The big draw, though, was still DX. This time, on 10m SSB using the club’s reasonably well equipped HF station. Technicians had just gotten SSB privileges on 10m, and I spent a lot of time there while building up my CW speed to pass the 13 WPM test. That took a while – and 5 tries at the exam. I swore I’d never use CW again after passing.

Fate can be cruel. Maybe it was Karma. Either way, the beat-up Heath SB-100 I’d picked up for $80 at the Peoria Superfest the September before had some issues, besides leaving me flat broke. One of them was the VFO. You might call it sticky, or just plain cantankerous. The upshot was an inability to tune smoothly enough to zero-beat SSB signals. I’d sworn to never pound brass after passing the Advanced test. But whaddya do? I was in a pinch. So the microphone made its way to the back of the desk and the key returned to the fore. Little by little my CW improved.

At some point my Junior year, it became apparent that my code had improved enough to pass the 20 WPM CW requirement. The very

next VE session, I hauled my carcass down to the Red Cross building scored that coveted Extra ticket. With it came access to the lower-25kHz DX Zone. That ticket changed my life.

“Travel! High Income!” The ad promised. “Radio Officers urgently needed for shipboard employment.” Frankly, any kind of employment would have been welcome then. It was 1990. The Berlin Wall had fallen, defense contractors were laying off, and the economy was in recession for the second time in a decade. Cell Phones weren’t yet a thing, and this kid from Iowa was having hard and uncomfortable thoughts about his looming student loan debt.

Saddam Hussein crashed that pity party when he rolled his tanks into Kuwait City, kicking over the hornet’s nest that was to become the Gulf War. 73 Magazine wrote up a nice article in their December issue, describing the life of a seagoing Radio Officer, nickname of “Sparks.” Sparks visited exotic places, never knowing where his ship was bound next. And oh yes – his off-hours were spent chatting with TONS of rare DX! It seemed far too good to be true, a real long-shot gamble. With nothing to lose, I called.

It turned out to be legitimate. It wasn’t, however, going to be easy. I’d have to pass the FCC 2nd Class Radiotelegraph Exam, written in 1959. The technical sections covered vacuum tube theory almost exclusively. The CW exam was 20 WPM, solid copy, written, for one minute out of five, plus another CW Exam at 16 WPM with random characters. All of them included the full set of punctuation – those are needed for commercial telegrams.

It was intimidating. Yet my situation was dire: Savings were gone. Daily expenses were going on my credit card. Mom and Dad were tapped out. In a word, I was MOTIVATED. My financial salvation hinged on one thing: That FCC 2nd Class Radiotelegraph exam. I studied.

In April, I took the exam at the FCC’s Denver field office and passed handily. This led to a visit to the St. Louis Coast Guard office for my Merchant Mariner’s documents. In a matter of weeks, I had my first ship assignment. Just three days after walking across the stage to get my BSEE, I found myself standing on the deck of a big grey ship

bound for Dammam, Saudi Arabia.

Dammam Saudi Arabia

USS Cape Cod

It was, indeed, The Dream. I was young and had virtually no living expenses. The pay was great and life was good. In the next four years I put about 20 new stamps in my passport and CW became literally a second language. Maritime regulations required that the Radio Officer listen to the 500kHz international distress and calling channel for 8 hours a day. We did not send much traffic via CW, relying instead on the INMARSAT Telex system for most communications.

Copying CW was a different story. Nearly all our weather information came in through CW broadcasts from the major coast stations. In calm weather, you'd have to copy one or two a day. As you neared the transition from one weather area to another, you'd begin picking up the forward area broadcast too. The typical broadcast was half an hour. It was imperative to copy it absolutely correctly – missing a number on the position of a depression rendered the product useless.

Hurricane Season was the real test of a Radioman's mettle. It wasn't unusual to be tracking 4 Hurricanes or Tropical Depressions at the same time. During one memorable Atlantic crossing, we were tracking 6. Each weather system had its own associated bulletins. That meant 6 broadcasts to copy, from 3 different coast stations. Each broadcast was 20 to 30 minutes. Updates came every 4 to 6 hours. There was no way to keep up in real time.

The solution was to pick up what you could in RTTY (SITOR, the commercial version of AMTOR), set up a cassette recorder on the strongest CW station broadcast, and copy the weakest CW station in real-time. Then go transcribe the recorded CW forecast. Get 'em all to the bridge. Repeat.

Copying code via the "mill" had become a reflexive action. It remains so to this very day. I hear a character; my finger hits the typewriter key.

A wife and baby later, it became apparent that there were actually some compromises involved in the seafaring life. Time to put the Peter Pan outfit aside and get a Real Job.

In 1996, I put away my sea-bag and moved the family to Cottonwood, AZ to work for Kachina Communications. As luck would have it, they were about to release the world's first amateur radio transceiver featuring a full I.F. DSP processor. Lucked out again!

It would be cool to say that I got to design a piece of that fine rig, but the truth is that my job was to run interference for Doug Smith and Les Earnshaw, the real designers of the rig. I handled the legacy and support issues leaving them the bandwidth focus on the new '505.

Dayton 1996 was glorious. We were "the" booth to visit that year, the belle of the ball if you will. The line to see the new rig was constantly a dozen wide and half-a dozen deep, causing congestion in that area of arena. Our marketing manager, Al Hugeny, had gone so far as to buy an ad on the billboard nearest Hara Arena, highly visible to vehicle traffic crawling to the parking lots. Those days went by in a blur – 9 hours of constantly talking about the new rig to excited hams

Between that Dayton and the next, as the Kachina factory ramped up the assembly line for the '505, I took on another role as the Sales and Service engineer for the company's largest customer, the government of Indonesia. In the days before satellite communication was cheap and ubiquitous, Indonesia relied upon an HF Radio network to tie their 13,000 island archipelago, spanning some 3000 miles. The Kachina designs, being simple to use, rugged, and inexpensive, had cornered that particular market. 4 times a year, I flew over to our in-country agent's office in Jakarta. There, I would conduct training for the military and police users. When that was done, I picked through the bone-pile of units at the repair depot.

Meanwhile back on the home front, We'd had a second daughter in the spring of '97, and my wife was increasingly feeling the isolation of life in rural Arizona without a support network. By this time, the national economy was heating up and my father in Iowa was dropping hints that Rockwell-Collins was hiring again. Walking away from the ham radio stuff and the global travel was tough, but other responsibilities dominated. We made our way back "home" in the fall of 1997.

The next 20 years went by quickly: A small house in town with an

Armstrong Rotor triband on the garage roof gave way to a 3-acre plot in the country in 2001. The planned tower installation is still a plan – The Low-Band bug bit and I've been keeping perfectly busy on 160 and 80.

People ask why I live in rural Coggon. I tell them I have 3 hobbies. Any one of those hobbies would get me expelled from atypical HOA-controlled neighborhood. First is Ham Radio, of course.

Two Swedish beauties

The second is a passion for collecting and tinkering with cars and tractors. At the moment, there are 13 on my lot ranging from the early 60s to the modern era. Most are Volvos. There's something about the way the engineers got to put their hands on those cars before the accountants and marketeers got a chance to screw up a good design.

Doctor's aren't certain what is the cause and what is the effect: Low band DXing or playing bass guitar - Ed.

The third noxious hobby is music. You'll see the pictures in this newsletter, no doubt, of me in a long blonde wig and spandex. I play bass (Yea for the low-end!) in Cedar Rapids' biggest local cover band.

Music and the radio hobby conflict regularly. In fact, I find it necessary to take a "vacation day" on the band's calendar to ensure that CQ160 weekend remains clear. Catching the rare ones is often difficult owing to the lack of schedule slack. The music gig generates my discretionary funds, so it usually gets precedence over the operating schedule. Everything is a balance.

It's a pleasure meeting you all. May we hoist many cold 807s to our future DX conquests!

Jeff WØODS

Jim NOØB

One of Jim's hobbies

Jim is our latest member to achieve DXCC
Congratulations!

I operate a FlexRadio 6500 with an Elecraft KPA500 amplifier from the basement of my farm house near Tiffin, west of Iowa City. The primary antenna is a SteppIR 4 element yagi on a 51' Tashjian tower. There is also an 80m inverted V and a 40-80m inverted L. My only mode right now is phone. In addition to the recent mixed phone DXCC, I have WAS on 80m phone through the Geratol net.

After high school, I drove a cement mixer with a business radio as an introduction to wireless. I then enlisted in the Army in 1962 for training In Ft. Monmouth, NJ as a microbarograph repairman where we got an extra week tacked on to teach us about this new-fangled thing called transistors and was then assigned to Army Security Agency units at Misawa Air Force Base, Japan and Camp Henry, Taegu, Korea. Our equipment involved 4 acoustic antennas in a square about 10 miles on a side and tuned to about one cps or one mile on a side tuned to about 10 cps. What do you suppose we were listening for? We heard volcanoes and earthquakes well, among other things. On separation, I came home and enrolled in the University of Iowa where I joined ROTC and pursued a major in Japanese Language and Culture. Yes, I like raw fish and kimchee.

My first duty station after Infantry Officer Basic Training in 1969 was Schofield Barracks, HI. From there I went to Vietnam and served a tour as Mobile Advisory Team Leader with 4 other soldiers living in a Vietnamese village where we trained local militia. After RVN, I finished my active duty obligation at Ft. Leonard Wood, MO, where I separated in 1972. Although as a youngster I'd been curious about ham radio and enjoyed using radios in the truck and the Army, phone patches from Vietnam to my wife in Hawaii were my introduction to amateur radio. It created an interest that was activated 20 years later in Germany.

My next acquaintance with radio was in getting my pilot's certificate in 1972 and then using a CB radio in my long-nosed Peterbilt as a cross-country independent trucker in the late '70s. My handle was Gypsy Jim. I may be one of the few truckers to actually hold a CB license, and no, I never ran a linear. Hey, one time I was a little overweight and running hard as I was behind time and I heard a bear in the air over the scanner……uh, that may be a story for another time.

The Army was in my blood and I stayed on first in the Iowa National Guard and then in the Reserves before returning to active duty in Munich, Germany, in 1981 where I led a computer requirements study for the 66th MI Group, the US Army Europe strategic intelligence unit. After 500 or 600 man-hours of analysis, we determined that the 66th MI needed an astronomical 3 gigabytes of storage for their PDP-11 computer system.

After my Vietnam 1971 phone patches, there wasn't any amateur radio interaction until I returned to Germany as US Army Reserve Europe Liaison Officer near Heidelberg in 1988. My son was assigned as a tanker in Germany and I looked forward to seeing him for the next few years. It wasn't to be, as his unit was sent on to Saudi Arabia for the First Gulf War. MARS, Vietnam and the Gulf War all got in phase in the front of my mind and I immediately investigated how to get active in MARS to support my tanker son and other deployed soldiers. After testing at Wiesbaden, GE, I was issued KB2LMO novice effective 11/20/90 and upgraded to technician on 3/26/91. I had to hold a German call and was granted DA 2 ME. We processed a lot of MARS Health and Welfare traffic through Heidelberg during the First Gulf

War.

Besides MARS, I got active in 2m in Germany and worked in packet nets dominated by US soldiers. I built the 2m gear. My first HF rig was a Kenwood TS440AT. I put a 20m dipole in the attic of my German house and the first station I remember working was in Malta. I wonder where that QSL card is? It was fun to operate from the US Army amateur station in Heidelberg that had legal limit equipment into a 19 element log periodic up 100 feet.

After retirement in 1993, I returned to the family century farm which I'd purchased and became a farmer again. After a year or two, I missed radio and got into the Iowa Army MARS network and got involved in 2m operations in the Iowa City area. Tech Plus came on 06-23-97 and amateur extra on 02-16-2001. There was still a lot of health and welfare traffic on MARS and I enjoyed the nets.

The Kenwood developed problems and was uneconomical to repair so I bought and assembled an Elecraft K3 to continue HF. About this time, I got interested in the Geratol net and earned WAS on 80m phone. MARS changed as cell phones killed health and welfare traffic and the organization became very formal as it transitioned to emergency communications backup roles. The MARS equipment needs and net formality took the fun out of it for me and I'd met my Geratol goals so it was time to explore other aspects of radio.

My restlessness happily coincided with meeting two superb Elmers who challenged and supported improvements in my equipment and operations. Craig KØCF and Rich W3ACO were generous and patient and are instrumental in encouraging my interest in DX. I could not have accomplished what I did without them and others in EIDXA and elsewhere. The generosity of hams is a joy to celebrate in this age when so many times we feel unengaged with those around us. At the same time, on a humorous note I must confess these two and others are good at helping one spend one's money.

In addition to membership in EIDXA, I am an active Storm Spotter for western Johnson County. QCWA 36874, FISTS 16707, Geratol 2381.

Amateur radio is a lot of fun and very satisfying, but it is not my main

passion. First in my heart is flying airplanes. I had a chance to combine the two on several occasions when I checked into MARS on 75m USB from 30,000 feet over Chicago.

My next goals in amateur radio are to learn CW, get into digital and work DXCC in more modes and specific bands. That will give me something to pursue for the rest of my life. I've tried and failed to learn CW so far but have not given up. Getting set up in digital is a question of getting the time to get the radios set up and learning the operating techniques. Working more DX is mostly a question of time and propagation. My wire antennas need serious work, as well. A problem with pursuing radio more than I do is that I'm flying a Flight Design light sport airplane, a Pipistrel Taurus self-launch glider, building a Rans S7 and still farming. I have a dozen irons in the fire and I always claim I can do radio when I'm too old or crippled up to fly or farm. I intend to put an HF radio in one or two of the airplanes.

I may never be an amateur radio fanatic, but radio is embedded in my life now and I look forward to growing my competence and capabilities as other interests slow down and radio expands. EIDXA is a great support group that I'm fortunate to be a member of and I look forward to many years of enjoyment and sharing radio adventures.

Jim NOØB

DX News

DXpedition Planning - It's more than just radios. A whole lot more.

Bob Lee WØGXA

This article can be seen here

The article was written with help from the Bouvet DXpedition planning team and EIDXA has granted permission to republish the article in other newsletters around the US.

Feature Articles

Musings on 160m

Bob Lee WØGXA

Two things prompted me to explore the dark recesses of 160m this past year, namely achieving 5B-DXCC and contesting. After I completed my fifth band, it seemed like a natural thing to do; however, what really motivated me was my performance in NAQP. After analyzing my scores, I realized I was getting beat by other SO1R stations due solely to their Qs/Mults on 160m.

After researching transmitting antennas I settled on an inverted L like a lot of other hams. I've had good luck with verticals/inverted Ls on 40m and 80m so I wanted these two bands covered as well. I decided I'd erect a system allowing all three bands.

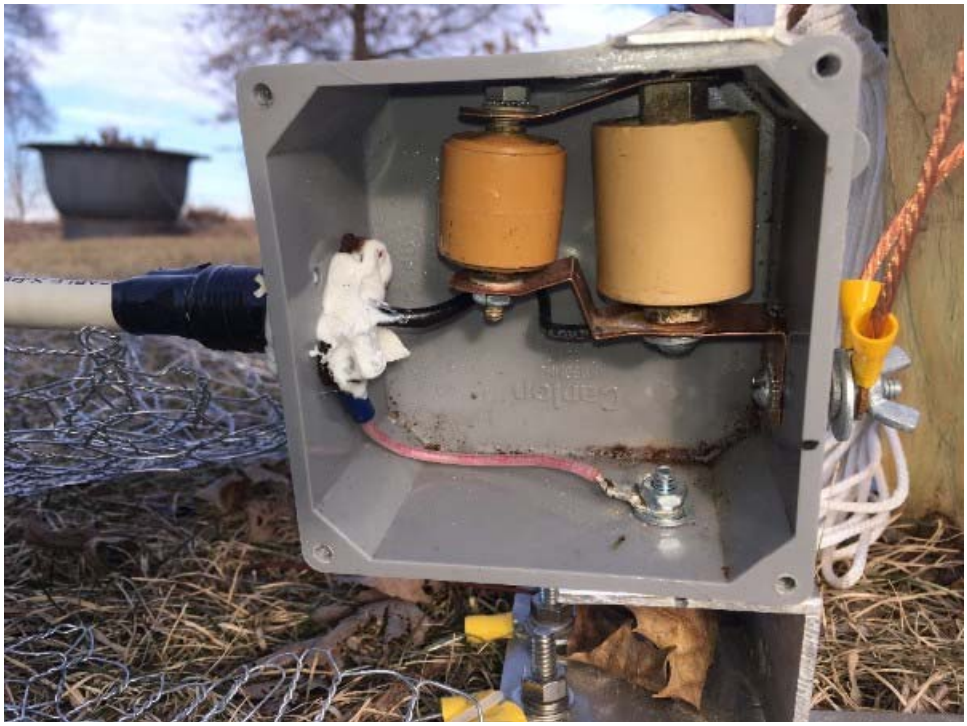
My verticals are wire, strung up in a tall tree. A multi-band vertical would present some challenges namely not getting the elements tangled with the wind blows.

It all starts with a bar hoisted into the tree about 50'

Lower mounting bracket. White ropes run to pulleys on a 4' bar hoisted into the tree.

I wanted to be able to work on individual elements without lowering all of them, so I put pulleys on a bar hoisted into the tree and then looped rope through them. The upper bar is prevented from twisting in the wind by tying it off independently from the antenna elements.

Each element wire has a splice block fastened to it to give me something to pull tension against.



Feed is straightforward. The coax feeds direct to the screw terminal on the right (40/80). The two capacitors are in series with the 160m terminal (aluminum angle at top of box).

The feed system (picture above) was borrowed from the guy in the wig you read about elsewhere in the newsletter. I lengthened the driven element about 22' and when matched with the 220pF caps, I get a good match across the 160m CW portion.

It seems to work. Country count stands at 37. If I can hear'em, then I can work'em. Now, if I could only stay awake...zzzz

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Jurassic Journal

- A look back in time -

Tom Vavra WB8ZRL

Twenty years ago, the Spring of 1997

Bill, VK6ZX and his wife Diane, VK6KYL were active (on 20 and 40 metres) as 6OØX and 6OØYL from Somalia for a few hours between 8 and 10 April.

A new Internet DX bulletin, THE DAILY DX, made its debut, written and produced by Bernie McClenny, W3UR (ex WR3E and WB3JRU).

FR5DJ/J and FR5KH/J were active (all bands, CW and SSB) from Juan de Nova Island (AF-012). 6000 QSOs were logged but only four with USA stations.

KH7K - Pat, KE2LJ reports that Art, N2NB expects to be operating from Kure Island (OC-020) from 17 to 23 May with an amplifier and a vertical antenna for 160-10 meters which he will try to set at the waters edge if possible. Art, was not granted permission to land a plane on Kure and cannot organize other transport, so the trip was canceled.

Scarborough Reef, BS7H, was expected on the air for approximately 7 days, starting 30 April. As with most DXpeditions of this type, the exact schedule dependended on weather, transportation and other variables. The primary goal of this operation was to give as many DXers as possible the opportunity to work an all-time new one. This is only the second operation from BS7H that counts. The 1995

operation was eventually approved by the ARRL board of directors only after disolving into a committee of the whole to avoid formal minutes. We still do not know exactly what happened in that session.

Scarborough Reef 1997 started at approximately 04.45 UTC on 30 April. It is went QRT on 3 May at 8 UTC much earlier than planned. The Philippine and China governments came close to armed conflict, and the operation terminated to avoid this. Finally, wishing to avoid a further escalation of tensions, the Chinese Ocean Bureau captains made the decision to leave the reef and return to Guangzhou, cutting the planned seven-day BS7H operation down to only three days.

3D2_fij- Ron, ZL1AMO was active from Fiji as 3D2RW.
Ron additionally went to Tarawa (T30). He was not able to go to T33, Banaba, as planned.

T30 - Tada, JA1WPX was active (SSB/CW, 160-10 metres) as T30WP from 27 April to 5 May.

R1F - Nick, R1FJV was active (mainly on CW) from Franz Josef Land until the end of the year.

FT5Z - Eric, FT5ZG has received an amplifier (thanks to the Clipperton DX Club) and was now active again from Amsterdam Island.

XW - Hiroo, JA2EZD (formerly XW2A), a resident in Vientiane, Laos got a special permission to operate as XW8KPL for one night only on 13 May.

3C0 - The 20-27 May 3CØDX expedition to Annobon Island was cancelled at the very last moment. Eleven out of 13 operators have been unsuccessful in obtaining visas for Annobon.

R1M - Activity from Malyj Vysotskij Island from 5 to 16 June as OH5AB/MVI and R1MVI. This all-band, all-mode operation (the 7th from M-V) planned a 24/7 operation running at least three complete stations They went QRT at 03.30 UTC on 16 June. Propagation was very poor and they made 30,000 QSOs.

VK0_mac- Tom, VKØTS (Macquarie Island) was active, but often only on the VK9NS net.

Ten years ago, the spring of 2007

Propagation was much like it is today. During the quarter the Solar Flux ranged between 65 and 88. The A-index ranged from 0 to 37.

KH8S - The N8S team arrived at Swains Island and were active on 4 April. They went QRT around 18.30 UTC on 15 April. They set a new QSO record with 117,205.

VQ9 - Jim, ND9M (VQ9JC) returned to Diego Garcia for another four-month tour. The base provided a Ham Station for off duty recreation, something it no longer provides.

YK - Saad, N5FF was active as YK1BA from Damascus, Syria on 10-27 April. He operated at least 3-4 hours a day mostly on 40m CW.

9M2_spr - Gerben, PG5M was active as 9M2/PG5M from Pulau Layang Layang, Spratly Islands during April. He operated CW only with most spots on 20M.

4W - Korea DX Club members Kim/6K5YPW, Lee/DS2BGV, Choi/HL5FUA and Yoon/6K2AVL were active as 4W6AAV from Dili, Timor-Leste from 30 May through 4 June. They were very active on all modes.

BS7H - The team arrived at the rocks on 28 April at sunset local time, entered the lagoon at daybreak and worked throughout the day in setting up the stations. They managed to get one station operational as darkness fell, and BS7H made the first QSO on 29 April at 13.47 UTC. By 2 May four stations (two of them dedicated to 20 metres) on four different rocks were in full operating mode. All radio operations ceased at 00.00 UTC on 6 May (8 a.m. BS7H time). This was an ATNO for many East Iowa DXers. NR0X swore he

worked them on 40M but the QSL came back NOT IN LOG. He was VERY disappointed!

The band/mode breakdowns are as follows:

Band	SSB	CW	RTTY	TOTAL
160m	0	54	0	54
80m	121	217	0	338
40m	509	3039	0	3548
30m	0	4226	0	4226
20m	10391	11435	54	21880
17m	3325	3744	0	7069
15m	4011	1985	268	6264
12m	402	474	0	876
10m	841	724	0	1565
	19600	25898	322	45820

The continental breakdowns were: Asia 21112, Europe 16329, North America 6918, Oceania 948, South America 301, Africa 212.

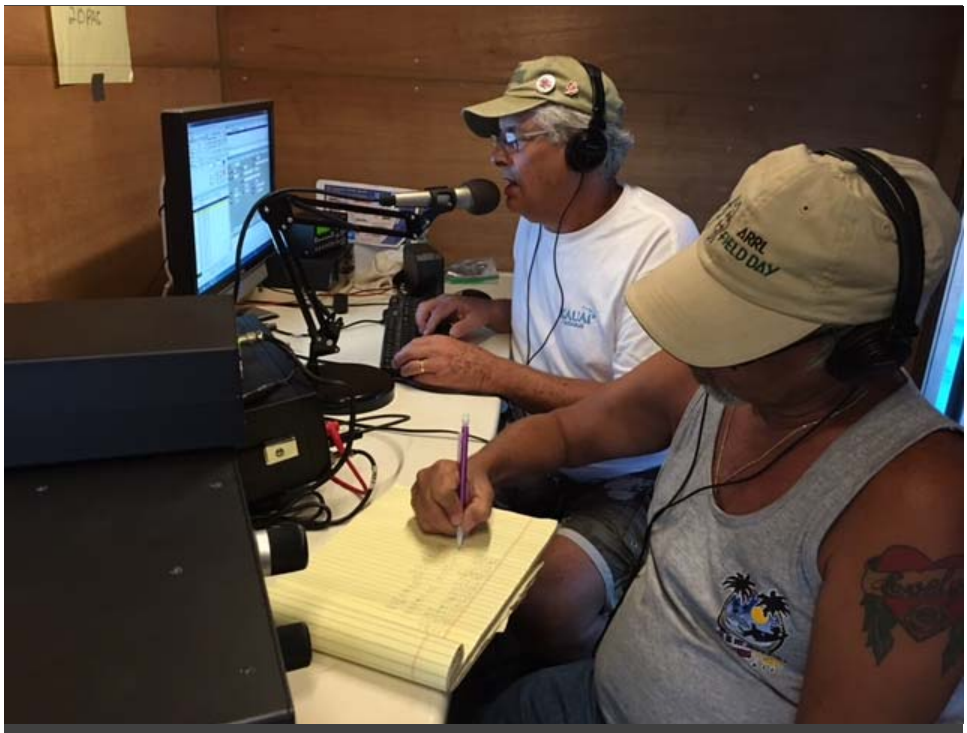
3X - Michael, PA5M was working for the UN World Food Programme in Guinea. He operated as 3XY5M on 160-6 metres in his spare time (which was very spare), using 100 watts and wire antennas.

3B7 - The 3B6SP team en route to Agalega encountered serious problems with the catamaran, which lost one engine and a sail. The catamaran, towed by a fishing vessel, reached Raphael Island, Saint Brandon The team remained there for some 12 days and activated 3B7SP.

4U1UN - LA5IIA, OH2BH and W3UR operated from the United Nations Headquarters station (4U1UN) on 9 June.

Member News

KØJGH In Hawaii



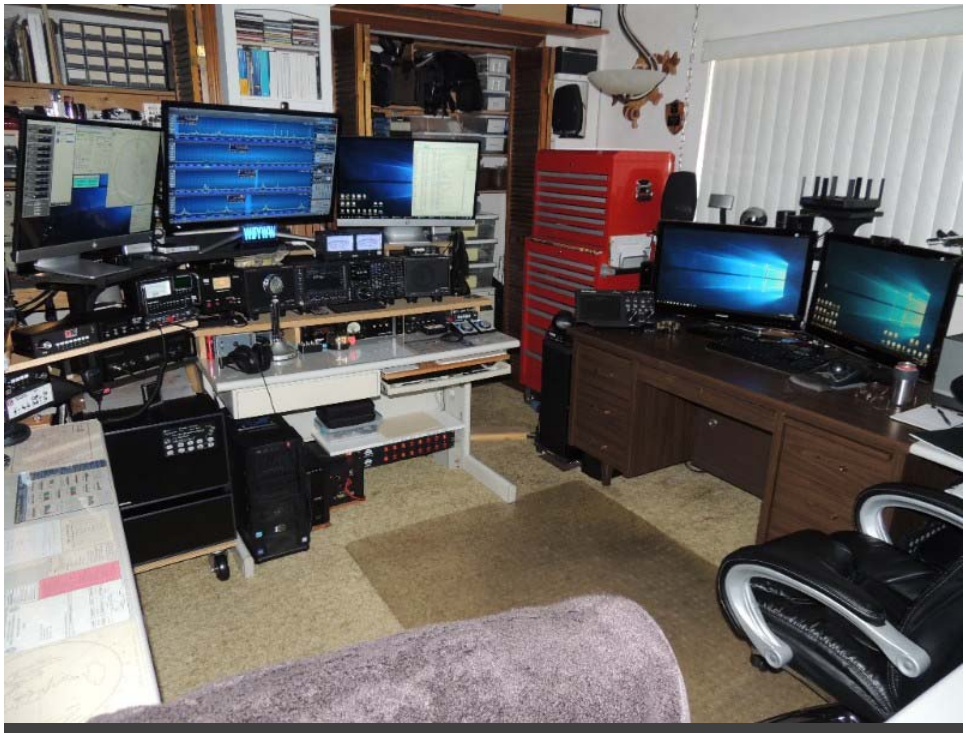
Glen operating in the Winter Field Day from Kauai

A warm winter day on Kauai

From left to right: NH6JC Mitch, Glen KØJGH, Jason WH6EXC, Allan NH7NJ, Kurt NH6WZ

Dewey WØYWW

Dewey sent us a couple of shots of his well equipped stations.



Station on the left is a Kenwood TS-990. To the right is a Flex 6700.

Two nice Yaesu rigs. There's a Prometheus amp in there somewhere.

Setting beverages

Jeff Woods (WØODS) and Bob Lee (WØGXA)

It's a well known fact that antenna performance is inversely proportional to the temperature when they're erected. This was the scene in a field behind Jeff's house in mid-December. Jeff notes that the thermal coefficient of expansion for aluminum is such that the wire will shrink 4' (out of 2500') as temps go from 50F to -20F. Putting out the wire in the cold improves reliability. When asked how frostbitten fingers affect CW speed, he said: "Negatively".

Setting wire for the NW beverage at WØODS. Temps around 10F, winds NW at 15mph - Only 700m to go...

Bob (WØGXA) driving, Jeff (WØODS) doing the real work

Logbook

NYØV: C31KC, T77NM, C5FUD, CU2/OL0M, J79WTA, C50VB, 6W/UA4WHX/P, ZS2CR, RI1AND, E51DWC, E51AMF, 5Z4/DL2RMC, TU5MH, HB9FAX, V51WH, TL8TT, V53DX.
RI1AND was the only 'new' one on RY.

KØAFN RY: A31MM, ZL3PAH, 5W1SA, 5C5W, 7X3FG, IS0DSW, TU5MH, ...and on CW .... E51WWA (17), E51DWC (30), 5R8IC (20), HI1UD (12), CE0Y/DF8AN (17), 3B8CF (40), 3XY3D (15 & 17)... and on SSB.... E51AMF (40), HI1UD (40), 3XY3D (20), 5B4VL (40), 6W/UA4WHX/p (17), EA8/UA4WHX (17).

WØNB: A5A, XX9D, KØDAS/mm3 and KØJGH/KH6 with his shirt-pocket-size radio and a few milliwatts

W3ACO RY: OA6Q, PJ6T, LT0H, ZL3PAH, PP1CZ, 3G1D, PJ2T, ZB2TT, EB8AH, 8P9NX, V51WH, TO7D, C5YK, S51CK, 5A1AL, CU6NS, TL8TT, FG/F6ITD, E51AMF, HI1UD, FG5LA, VY0ERC, ON7TK, TU5MH, OA4CN, P4/S50N, E51DWC, 4M1K, J35X, PZ5RA, XX9D, YV5AAX, C50VB.

KØJGH RY: 5A1AL, RI1AND, 8R1/AG6UT, TL8TT, XX9D, 5U5R, HL4/JA8COE, TL0A, TU7C (160m)

WØAWL: Snagged 5U5R on 80m CW

WB8ZRL: TU7C on 160m for #200

KDØQ: 160m - CY9C, OX/OZ1LXJ, H44GC, CX6VM, ZL7G, OG1X, 9Y4/VE3EY, FJ/KO8SCA, TK/S57C, VP2EHC, 5B4AMM, 4O/KC0W, OE3XMA, LU5YF, SV3RF, 7Z1SJ, OF0TA, LY5A, BG2AUE, LA1MFA, GU4YOX, PA3FYM, OA4DX, LX7I, GM4Z, TL8TT, TY2AC, DU7ET, TX5T, S01WS, YS1YS, TU7C, 5U5R, 9G5X, ZP5DBC, V633KS

Apparently Glenn (KDØQ) achieved DXCC-160 last April. In case it wasn't published previously: Congratulations! - Ed.

CQ Test

Contesting Corner

Rick Heinrich NØYY

Welcome to the launch of a new column in the EIDXA Newsletter. A survey (see results here) of members indicated an interest in understanding contesting basics and maybe even more detailed contest related subjects. I thought I would help by trying to bring resources, knowledge, trends, etc. that would impact contest and day to day operations.

For me contesting is one of those areas of amateur radio that is part of the hobby's diversity. Just like DXing, Public Service, ragchewing, and other aspects; contesting brings the "sport" element to the hobby.

Why do I like contesting so much? When you consider my degree of business travel, contesting offers me a concentrated amount of operating in a short period of time. I can make any number of goals happen over a given weekend. 1000 QSOs, DXCC in a weekend, completing my 160M Worked All States – any number of operating objectives that keep me engaged and energized in this great hobby.

I chose to do this as a column as opposed to a feature article. My goal is to respond to areas of interest raised by you our members. Each of you has a question or an area of interest – my desire is for you to identify them and I will do my best to bring a perspective forward.

Contesting is a growing domain. Contest University has been established to bring the beginner and the more advanced together to share ideas and to expand the participant pool. Radios are becoming more capable, station automation expanding, remote control of stations are steeped in advanced operating concepts – many of which have their roots in contesting.

So what can you expect in future columns? Here are some ideas – but remember – this is your column, ask a question, bring an observation forward, is there a question of station performance, whatever your area of interest – let me know.

To "chum the water" let me offer some potential topics:

- Setting goals
- Where do I start?

- What can I do with 100W and a wire?
- Sleep strategies for contesting
- Cut numbers – what are they and why use them
- Tools, tips, and tricks
- Web resources for the contester
- Station ergonomics
- Station automation
- Logging

This is not an exhaustive list – but it begins to offer some insight of where the column can go.

Maybe we can draw from the survey to better understand areas of interest. Send me your thoughts and ideas!

Most of you know me – but let me offer a bit more background on my contesting history. I was first licensed in 1967 as WN8ZDR in Detroit, Michigan. I lived on a 35 foot by 100 foot city lot. I had an 80/40 multi-wire dipole and a Heath Mohawk and Johnson Ranger. I got frustrated with ragchewing with stations that I had worked before when what I really wanted was to get WAS.

I also had a narrow group of friends. I made more friends that I met on the air – all within a bicycle ride. We were “fearless” – contesting was a way of competing with the other club members. It became a social outlet.

I also found that my operating skills increased quickly while operating in contests. I had my 35 word per minute Code Proficiency Award as a novice class ham! I just had to get the technology to move at the same pace! We put up verticals on garage roofs, wires in the alley ways, and even a TA33 Jr on a 20 foot pipe; all attempting to make more QSOs than before.

That led to Field Day outings where I was one of the CW focal operators. Then I operated as part of a multi-operator team in a variety of 160M contests. The bug had bitten – HARD.

Yeah, school and family “got in the way” of my contesting. In 1978, upon graduation from college I started at Rockwell Collins and met

many of the early members of EIDXA. I started contesting with KØSVX, Dewey; Roger, N4RR; John, WØVU; Fred, KØAT; Tom, WØWP – and made close friends with all of them. We did CQWW, ARRL, and Field Day together. Those skills were turned to DXing during the non-contest periods.

I left and came back in 1994. In the interim period I met Frank, W3LPL and many of the Maryland/Washington DC contest community. I soaked up all I could. But when I returned I finally had the opportunity to put together a competitive contest station. Well – at some level competitive. I started to put "hardware" on the wall - Midwest Division winner of Sweepstakes several times. And then in 2005 I operated from PJ2T for the first time for the CQWW Phone weekend – finishing 3rd in a M/2 entry.

I always wanted to know if I had the skills to play in the "premier" class of contesting. So after my PJ2T experience, the following February, I went to Guadeloupe – FG – for ARRL DX CW as a low power, single operator entry. When the dust settled, I was #1 North America and #2 World. Yes, I could play at that level.

Now, 12 years later and 11 PJ2T contests under my belt I have put more hardware on the wall. Two #1 PJ2T phone efforts for CQWW. Five #1 ARRL DX CW wins. Three #2 CQWW CW finishes. I have really enjoyed my time being on the other end of the pileup!

So now it is up to you – ask away! I know I don't have all the answers to all of your questions – but I have a fairly broad network where I can access many different perspectives and "opinions". I look forward to hearing your questions.

Rick NØYY

Iowa QSO Party has a new sponsor!

From WØYL.com:

SCARC is pleased to announce that we have assumed sponsorship of the Iowa QSO Party starting in 2017. Many thanks to the Ottumwa ARC for their past sponsorship of this event.

2017 Event Details:
Date: Sept 16, 2017
Time: 0900 - 2100 CDT

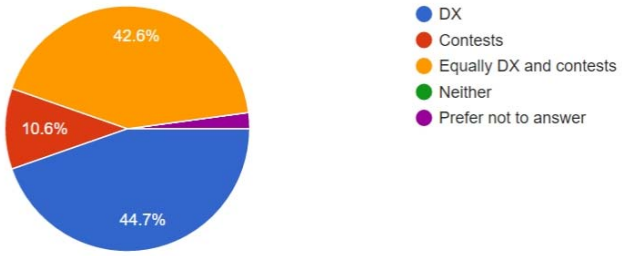
More information and detail about this event will be posted here in the coming weeks.

Questions about the 2017 event can be directed to Clint Miller, KCØJUO.

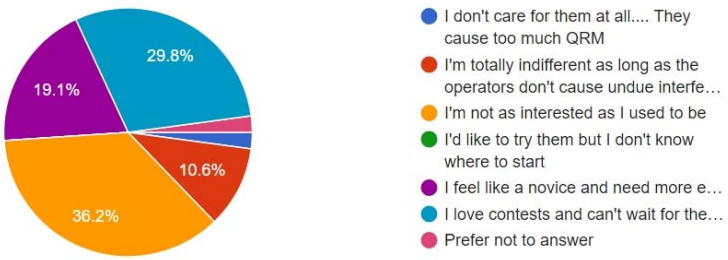
Note: This contest is one month earlier than in past years - Ed.

EIDXA Contest Survey Results

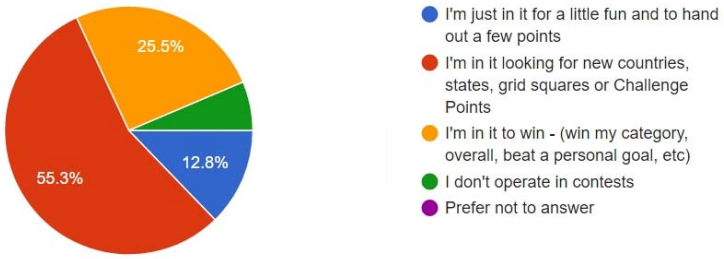
Are you more interested in working DX or operating in contests? (47 responses)



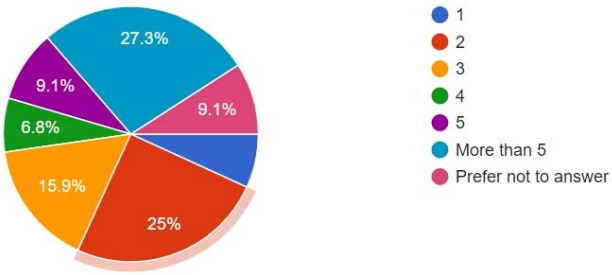
How would you characterize your interest in contesting? (47 responses)



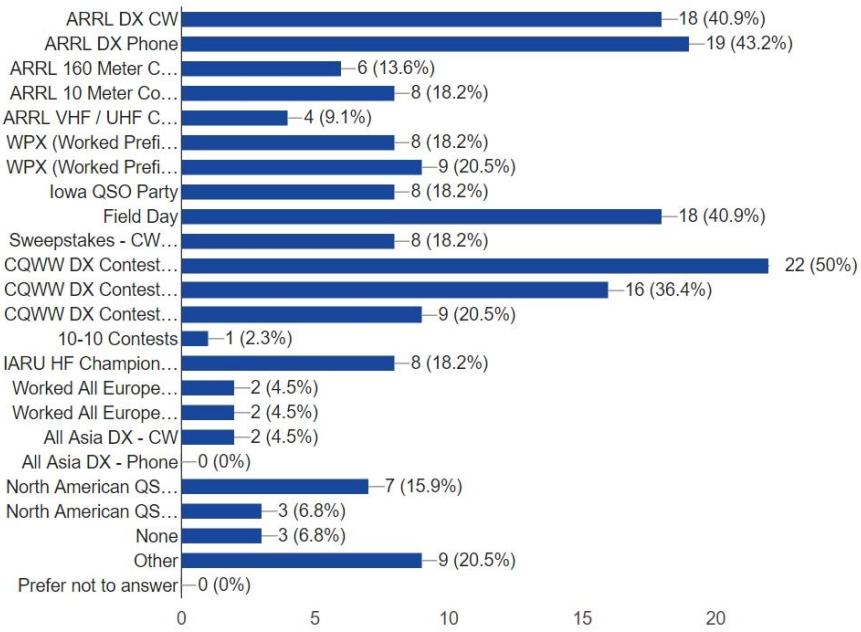
How serious are you if and when operating in a contest? (47 responses)



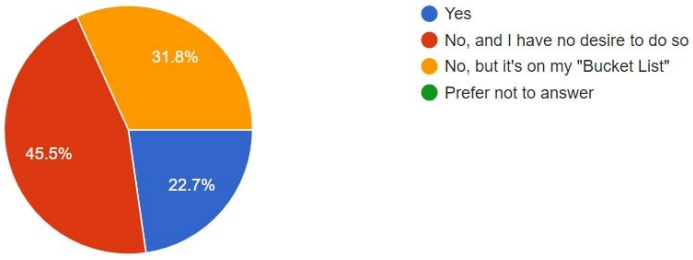
In the last 12 months, approximately how many contests have you participated in?
(44 responses)



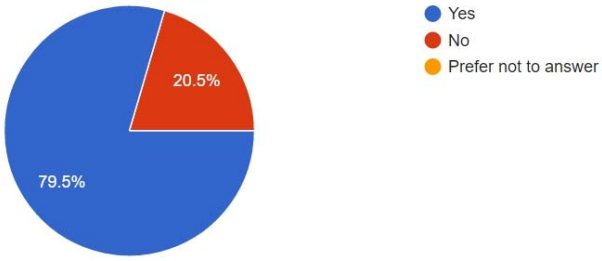
Which of the following contests have you operated within the last 12 months?
(44 responses)



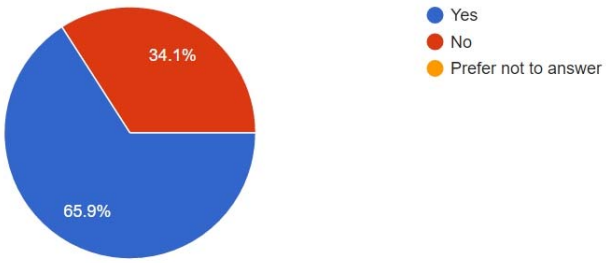
Have you ever operated a contest from a DX country outside of the continental United States?
(44 responses)



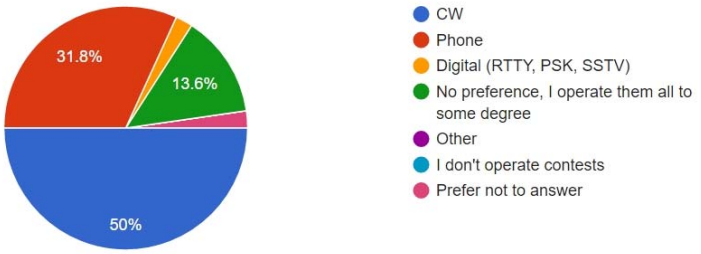
Have you ever operated a contest as part of a "multi-team member" entry?
(44 responses)



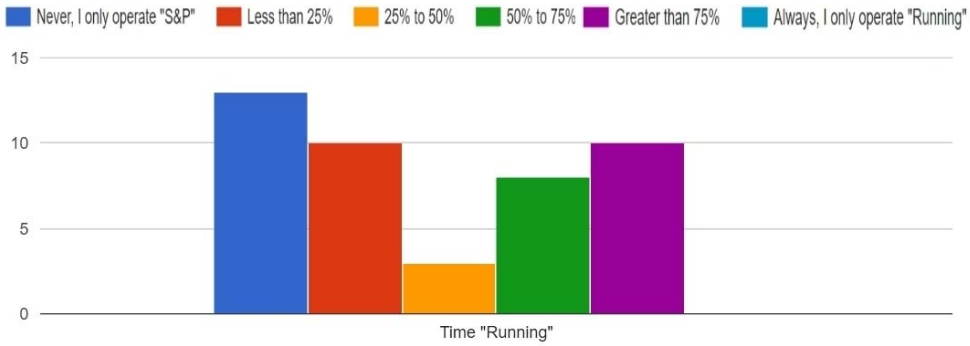
Individually or as part of a multi-operator entry, have you ever come in "First Place" overall in any contest or specific category (i.e., 15 meters, QRP) that you have entered?
(44 responses)



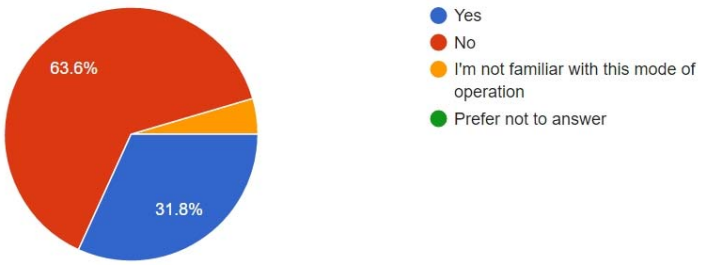
What is your preferred emission mode during contests? (44 responses)



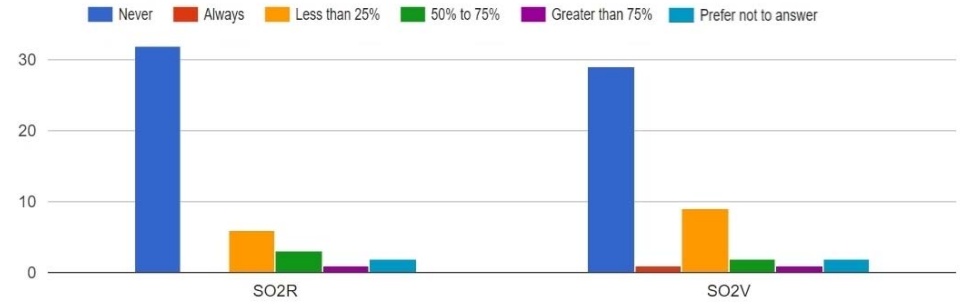
When operating in a contest, how much time do you spend "Running" (staying on one frequency and letting them come to you) as compared to "Search and Pounce - S&P" (tuning around and finding who you want to work next ?



Do you operate SO2R (Single Operator, 2 radios) or SO2V (Single Operator, 2 VFOs)?
(44 responses)

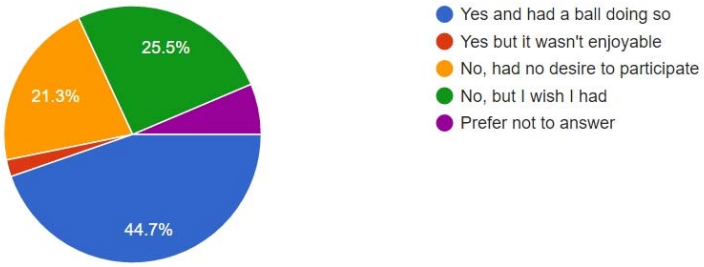


If you use SO2R or SO2V, what percentage of time do you operate this way?



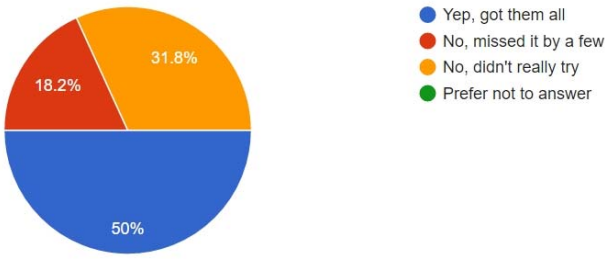
Not really a contest (even though it sure seemed like it at times), did you operate as W1AW/0 Iowa during the ARRL Centennial QSO Party?

(47 responses)

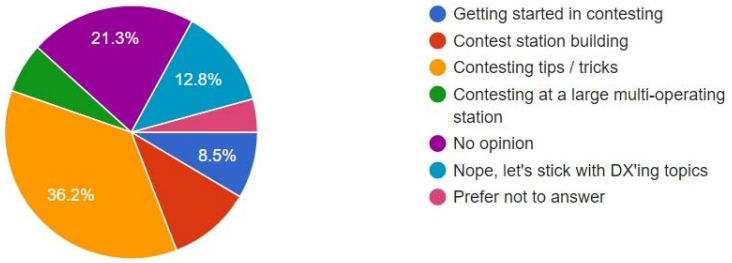


Speaking of the ARRL Centennial QSO Party, did you get Worked All States (WAS) with W1AW portable stations?

(22 responses)



Would you like to see any of these contesting topics presented at a EIDXA meeting?
(47 responses)



Upcoming Contests:

ARRL Rookie Roundup, SSB 1800Z-2359Z, Apr 16 - Get on the air and hand out some QSOs to a new ham

CQ WW WPX Contest, CW 0000Z, May 27 to 2359Z, May 28 - A great "everyone works everyone" contest. Lots of activity and plenty of stations to work (domestic and DX)

ARRL Field Day 1800Z, Jun 24 to 2100Z, Jun 25

Scores & Commentary

CQ 160m CW

Call: **WØGXA**

Class: Single Op Assisted HP
Operating Time (hrs): 3
Location: USA

Summary: Compare Scores
Total: QSOs 145 State/Prov 50 Countries 22 Total Score 34,344

Call: **WØODS**

Class: Single Op HP
QTH: IA
Operating Time (hrs): 21.5

Summary:
Total: QSOs = 885 State/Prov = 58 Countries = 23 Total Score = 180,711

Comments:

Finally made it through an entire CQ160 without an amp failure! Added bonus: all 7 beverages were and remained fully functional without the need for any last-minute repairs in ice and dark.

Highlight of the Contest: Being called by IQ9UI early Sunday morning after failing to crack his pileup hours earlier.

Thanks, callers, for your peristence. With 7 directions, it can take more than a few seconds to "find" you, more so if your callsign does not match your actual QTH. So if you're loading up bedsprings or running QRP, throw out a few calls so I can get your bearing.

Kudos to the DX that found me running. Attempting to break a pile-up dominated by the guys on the coasts is fruitless. If you can hear me call, I can hear you. Don't be afraid of S&P to find us.

And to the cluster-click guys with big amps and no ears: May the LIDS of a thousand pile-ups infest your next run frequency. If you can't hear the DX, lay off the key already.

QRM

QST QST QST

Reliable sources have provided evidence the FCC is finally listening to the plight of various ham radio operators. Apparently, they are proposing the use of 5kW Italian amplifiers in a large section of the United States, colloquially known as "The Black Hole". Borders are roughly Nebraska to Ohio, Missouri north to the Canadian border. Note the quick response deadline for comments!

Federal Communications Commission FCC 17-39

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Improving competitiveness of stations operating in the Amateur Radio service from certain areas of the United States	)	WC Docket No. 17-106

NOTICE OF PROPOSED RULEMAKING

Adopted: March 31, 2017 **Released: April 1, 2017**

Comment Date: May 27, 2017
Reply Comment Date: June 27, 2017

By the Commission: Chairman Wheeler and Commissioners Clyburn and Rosenworcel issuing separate statements; Commissioners Pai and O'Rielly dissenting and issuing separate statements.

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Para.

Rumor has it W3LPL has been working on a new technology to improve his network of skimmer receivers

Legislative actions

In case you missed it, a bill regarding changes to phone use while driving in Iowa was recently introduced in the Iowa House. House File 85 “prohibits a person from driving a motor vehicle while using a mobile telephone unless the mobile telephone is specifically designed and configured to allow hands-free listening and talking and is used in that manner.” There are a few exceptions allowed for emergency personnel and someone receiving safety-related information.

I asked our ARRL legislative representative, Craig Long KØCSL, to look into the specific wording of the bill to see if it put us at risk using two-way radios. The short answer is, no. It's clear two way radio services are excluded from this bill. Here is the text of his input to our state's Section Manager, Robert McCaffrey, in case you want to research this more on your own

Bob,
House File 85 and Senate File 100 both focus on mobile telephone use. This legislation has been introduced, and although I'd prefer to see some clarification included within these bills specifically excluding amateur radio from their provisions, I think we're pretty much already there. I say this because both bills use the phrase "Mobile Telephone" as defined in 49 C.F.R. §383.5 (Federal Motor Carrier Safety Regulations). I believe that this definition, which is set out immediately below, provides is with the protections we're looking for:

Mobile telephone means a mobile communication device that falls under or uses any commercial mobile radio service, as defined in regulations of the Federal Communications Commission, 47 CFR 20.3. ***It does not include two-way or Citizens Band Radio services****. (emphasis added).*

49 C.F.R. § 383.5

As you can see, the specific definition of "Mobile Telephone" used in this proposed legislation specifically excludes "two-way . . . radio services." Perhaps I'm being naive, but I am not concerned at this time.

Bob Lee WØGXA

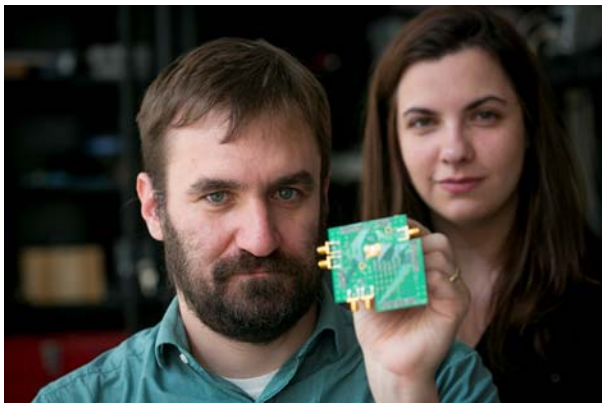
p.s. This story is REAL!

And finally...

Engineers devise two-way radio on a single chip

March 8, 2017
from Cornell University

Al Molnar, holding a test board with the two-way transceiver chip mounted in the



center, is shown with graduate student Hazal Yüksel in Molnar's lab. Yüksel is co-lead author of the latest paper from the Molnar lab, published Jan. 27 in the Journal of Solid-State Circuits.

Two-way communication requires, of course, both send and receive capabilities. But putting them in the same device requires a filter between the send and receive circuits to provide signal isolation.

Without a significant filter, communication would be impossible.

“Your transmit signal is 1014 times stronger than your receive signal,” said Alyosha Molnar, associate professor of electrical and computer engineering (ECE). “That’s 100 trillion times stronger – that’s a really hard problem.”

But researchers in Molnar’s lab have offered up a solution.

Molnar and collaborator Alyssa Apsel, professor of ECE, have devised a method for both transmitting and receiving a radio signal on a single chip, which ultimately could help change the way wireless communication is done.

Their work is described in “A wideband fully integrated software-defined transceiver for FDD and TDD operation,” published online Jan. 27 in the Institute of Electrical and Electronics Engineers’ Journal of Solid-State Circuits. Doctoral student Hazal Yüksel and Dong Yang, Ph.D. ’15, are co-lead authors.

Separating the send and receive bands is difficult enough, but the problem is compounded by the ever-increasing number of bands in the latest devices. From GPS to Bluetooth to Wi-Fi, each band requires a filter to stop the strong transmit signals from drowning out reception.

Molnar and Apsel have come up with an ingenious way to separate the signals. Their idea lies in the transmitter – actually a series of six subtransmitters all hooked into an artificial transmission line. Each sends its signal at regular intervals, and their individually weighted outputs are programmed so that they combine to produce a radio frequency signal in the forward direction, at the antenna port, while canceling out at the receive port.

The programmability of the individual outputs allows this simultaneous summation and cancellation to be tuned across a wide range of frequencies, and to adjust to signal strength at the antenna.

“In one direction, it’s a filter and you basically get this cancellation,” Apsel said. “And in the other direction, it’s an amplifier.”

“You put the antenna at one end and the amplified signal goes out the antenna, and you put the receiver at the other end and that’s where the nulling happens,” Molnar said. “Your receiver sees the antenna through this wire, the transmission line, but it doesn’t see the transmit signal because it’s canceling itself out at that end.”

This work builds on research reported six years ago by a group from Stanford University, which devised a way for the transmitter to filter its own transmission, allowing the weaker incoming signal to be heard. It’s the theory behind noise-canceling headphones.

Unlike the Stanford work, the Cornell group’s subtransmitter concept will work over a range of frequencies – a positive in this age of scrambling for available frequencies that used to be the realm of over-the-air television.

“This wire is a fairly broadband structure,” Molnar said. “And the thing you do to make it work over a wide range of frequencies is just control those different subgains of the transmitters, to make this cancellation always happen.”

Instead of needing a filter for every band, signal separation can be controlled digitally. Upgrading to the latest version would be like updating an app – as simple as downloading the latest software.

“You could have a single device that can be anything,” Apsel said. “You wouldn’t have to buy a new piece of equipment to have the newest version of it.”

Other contributors included Changhyuk Lee, Ph.D. ’14, and doctoral students Zachariah Boynton and Thomas Tapen.

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Thanks Jerry for the article - Ed.