

The Eastern Iowa DXer



The Official Newsletter of the
Eastern Iowa DX Association

An affiliated club of the American Radio Relay League



April 2000

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Club Officers

President	Dave Andersen, KØRX
Vice President	Nelson Moyer, KUØA
Secretary/Treasurer	Tom White, KØVZR
Repeater Committee	Al Groff, KØVM
	Joe Finkstein, WØMJN
Membership Committee	Jim Spencer, WØSR

PacketCluster WB8ZRL
147.51, 144.91, 223.40, CRNETROM

Repeater WØNX/R
144.59/145.19

From the President

Dave Andersen, KØRX

It's been a great season for working DX. Clipperton was a new one for me, and as I am writing this, there are two new entities showing up on the bands. East Timor (4W) has recently achieved its independence from Indonesia, and the Chesterfield Islands (TX0) will probably become a new entity due to the fact that the mother country, New Caledonia, has just joined the IARU. Large groups are putting both of these countries on and we all should have a pretty good shot at working them.

The DX contesting season is just about over - bummer. We had a super club turnout for the CQ WW DX contests and an excellent one for the ARRL DX tests. Last weekend was the CQ WW WPX contest and there were a couple of local stations on in that one too. Keep up the good work. Contests are a great way to improve your operating skills, and to fill in all of those needed band-countries on your way to the King-Kong award.

The Dayton Hamfest is just about here too. That will be the weekend of May 19. It's always an interesting time - we get to see the new toys that various manufacturers will be releasing and some of the more seasoned stuff too out in the flea market. Another thing I really enjoy is getting to catch up on news with old friends that I haven't seen for a long time. If you haven't been there, it is well worth the trip.

This month's meeting will be in Friday, April 14

at the usual time and place. KAØY will be discussing his DXing exploits via the moon. I'm looking forward to the presentation, because I don't really know anything about moonbounce. If you want to see a former incarnation of his station, take a look at the QST covers from 1982. One of those issues has a picture of the big KAØY dish, complete with battleship gunmount, on the cover. Hope to see you all there!

73, Dave

DXCC Field Checking Program

Effective March 31, 2000, the current QSL card field checking program will expire. Existing checkers may submit an application for reappointment, as must new volunteers. Nominations will be accepted from Section Managers and ARRL sanctioned DX clubs with a membership of 25 or more. The EIDX had six checkers under the old program. The club may wish to consider submitting nominations for reappointment of present checkers and nominations of additional checkers at the April meeting.

Changes in the new field checking program include eligibility of all current entities on the DXCC list worked within the past 10 years, except cards for 160 meter DXCC, and deleted entities, both of which must still be mailed to the DXCC desk for credit. Field checkers will be approved under new criteria, which presumably would include being on the Honor Roll. Volunteers may notify EIDX president KØRX of their interest. de KUØA

Minutes—January 2000

The meeting was called to order by Dave, KØRX, at 7:30 pm Friday January 21, 2000 in Linn Hall at the Kirkwood Community College. Introductions were made all around.

Reports

Callsign committee reports being ready to follow through with the electronic application for the new club call.

N2BTJ was voted into membership as an associate member.

WØSR was awarded a trophy for all he has contributed to the group.

WB8ZRL reported the link to the east is down and the link at Williamsburg is off the air. The eastern link problem is expected to be temporary and plans for linking to the west will probably involve spring weather.

Nelson, KUØA, shared his reply from N6FF to his Email on suggestions for the operators of XZØA to improve the odds for operators in the midwest.

KØRX handed out certificates to participants of the CQWW contests. A contest awards program was proposed for club members to compete in three classifications. Handouts for the program were passed out for everyone's review. Comments can be Emailed to KØRX or NØYY. The structure is simple and the purpose is to provide incentive for members to operate.

WØEJ was away attending his first ARRL Board meeting as the Midwest Director. He passed greetings back to the group and announced the election of the new ARRL President, W5JBP.

WØMJN gave the repeater report. Investigation of the periodic keying of the repeater is ongoing.

NØLNO announced the National Weather Service Training at the St. Lukes Hospital Annex on February 19, 2000. Doors open at 1:00 pm and the program begins at 1:30 pm. It runs about 3 hours and is reported to be well worth attending.

Date for the next meeting was set for April 14, 2000. Meeting was adjourned at 8:04 pm.

Jeff Davis, NØDY presented a program demonstration of DX Base 2000, DX4WIN and Writelog database and contest logging software. Very well done with lots of Q & A. Glen, KØJGH, demonstrated

LOGEQF. Also Terry, WØAWL presented Log Windows.

Treasurer's Report

Bank Iowa Savings Account	\$518.31
Cash on hand	5.00
Asset (EIDX cap)	5.00
Total (March 24, 2000)	\$528.31

Editorial

Restructuring

Nelson Moyer, KUØA

What can I say? The FCC, in true governmental fashion has reviewed the comments to their notice of proposed rulemaking and come up with a final rule that nobody likes, with the possible exception CW-phobes. I certainly wasn't prepared for a reduction of the code speed for an Extra class license to 5 wpm! I've tried to be objective about this turn of events by equating it to the dumbing down of society in general, but somehow I just can't stand the thought of "slow code Extras" in the bottom 20 KHz of the HF bands. It tries my patience to read the editorials in the Iowa City Press Citizen, which are written at the reading comprehension level of a third grader. Now amateur licensing has degenerated to the same level of mass appeal as CB radio. The "little Extras" have the potential to destroy DX'ing in the Extra class phone allocation. To get a preview of what the DX window could sound like, just listen to the upper end of 75 meters some night. But the worst thing I can imagine for DX'ing is to turn loose a hoard of "Extra slows" on CW. Can you imagine the chaos on the transmit frequency of rare DX when the "nothing Extras" can't copy "up 5"? And what about QSO rates? Will the DX have to come back to the "Extra lites" at 5 wpm while the rest of us QRX? Maybe I'm just being a snob, after all, I took my 20 wpm code test in the Kansas City FCC office back in the days before the VE system with its multiple guess or fill-in-the-blank code tests. Now, the FCC is encouraging social promotion! Whatever happened to the privilege of earned achievement!? There isn't anything I can do to return the system to a state of normalcy, but I don't have to actively participate in the cheapening of my license class. I will no longer serve as a Volunteer Examiner.

DX Is!

Buying a New Radio

Nelson Moyer, KUØA

After using my faithful FT-707 for nearly 19 years, I finally bought a new radio. I have considered each HF radio introduced for the past five years, but, for one reason or another, I ultimately decided to wait for something else. Aside from the rather substantial amount of money you must fork over for new rigs in the 1990s, there was always a performance issue which kept me from taking the plunge. Usually, the deficiency which kept my money in the bank had something to do with receiver performance or CW wave form. After using my FT-707 without filters for all those years, I wanted to be able to hear weak signal DX without receiver blocking from adjacent local QRM, and I wanted a radio designed with CW operation in mind. Three years ago, I almost bought a FT-1000MP, but reports of menu intricacies, high noise floor, and necessary third-party modifications, caused me to hesitate. After much agonizing, I decided on the Omni VI+, but just when I was ready to order one, TenTec came out with the Pegasus, and I decided to wait for a review, before buying anything. I was hoping that the lower priced Pegasus would rival the Kachina. Well, the review came out, and it didn't. The Kachina had never been a serious option for me because I use Macintosh computers, and the combined cost of changing computer platforms and buying a radio were above my comfort threshold until Pegasus came out.

I became under increasing pressure to buy a new radio about two years ago, when my external VFO (FV-707DM) developed an intermittent circuit somewhere which caused the split frequency to randomly jump all over the HF spectrum. That was disconcerting when I was trying to work split. The only cure I ever found was to rap the top of the case smartly, which instantly caused the VFO to return to stability, at least until I had to push the RX button to return the DX transmit frequency. You can visualize the dilemma I faced, of having to listen to the DX call a station, switch to the pileup frequency, rap the VFO case, tune to find the station being worked, tune to the spot where I thought the DX would hear me for the next call, return to the DX transmit frequency,

make my call, and start the process all over again, if I didn't hear my call. The Clipperton operation was especially frustrating in this regard. My XYL watched in amusement as I struggled to control the errant VFO with several smart raps on a day when it was being particularly belligerent. She shook her head and told me to buy a new radio. That sounded like a word of wisdom, a commandment from above.

I had been intrigued by the FT-100, ever since I first saw the magazine ads about two years ago. The "Field Commander" was one of the new micro-mini multi-band HF/VHF radios which fit in the palm of your hand (almost). It did everything I wanted to do and more. It covered all the HF bands and modes, including 160 meters, which my FT-707 didn't. It covered 6 meters and 70 cm, neither of which I had never had before. And it covered 2 meter SSB/CW in addition to FM. It had DSP and optional CW filters, and it could control a tunable mobile antenna for instant band changes without stopping the car to change Hustler resonators. As a mobile HF operator and closet county hunter, I liked that feature. I read the review in QST, looked up the extended review on the ARRL "Members Only" web page, and compared it to the IC-706MkII G. Because the IC-706MkII G clearly wasn't designed for CW operation, I was inclined toward the FT-100.

I had a professional meeting in Dallas in February. Since Texas Towers is just up the road in Plano, I arranged to visit the store and spend several hours with the FT-100 and its owners manual. I was impressed by the small size, and the range of features, and I decided that the FT-100 would be the perfect radio to permanently mount in my new Accord. With the tunable mobile antenna, I would have 40 through 10 meter HF, 6 meters, 2 meters, and 70 cm at my command any time I was in the car. The decision seemed like a no brainer at the very attractive special pricing of \$1099.95 for the radio. However, when I found out that the sales tax was 8.5%, I decided not to take it with me. I did reward their patience for letting me preview the FT-100 by buying the ATAS-100 antenna from them, but that was about all the tax hit I could swallow. As soon as I got home, I picked up the phone and called AES in Milwaukee. Two days later, the UPS truck rolled up in front of the house and the fun began. Next time, I'll tell you if I made a good choice.

2000 EIDX A Membership List

Call	Name	Email Address	Call	Name	Email Address
AB0M	Creighton Lang	Sutterer5@JDRX.deere.com	N0YY	Rick Heinrich	heinrich@solli.inav.net
AK0M	Steve Sutterer	allan-culbert@uiowa.edu	N2BTJ	Tom Campbell	
K0AL	Al Culbert	k0cf@arrl.net	N3BF	Brad Farrell	
K0CF	Craig Fastenow	q-knee@inav.net	NC00	Tom Hise	tlhise@inav.net
K0DX	Tom Kuery	gary2730@earthlink.net	NN0L	Ron Borkgren	ronnie@ia.net
K0GT	Gary Toomsen	taylor@waterboindustries.com	NROX	Heinz Blankenhagen	blanken@netins.net
K0IIR	Clark Pantel	k0jgh@lisco.net	W0AWL	Terry Cellman	w0awl@hotmail.com
K0INR	Tom Taylor	k0rx@uiowa.edu	W0CK	Jonathan Poulton	jonathan-poulton@uiowa.edu
K0JGH	Glen Kesselring	al@ia.net	W0EJ	Wade Walstrom	w0ej@arrl.net
K0RX	David Andersen	tomk0vzr@jtt.net	W0FG	Richard Hadley	
K0VM	Al Groff	hthauer@home.com	W0GWK	Frank Apple	fpapple@inav.net
K0VSV	Tom Kramer	ka0y@aol.com	W0LBK	Arlo Meyer	w0lbk@juno.com
K0VZR	Tom White	ku0a@blue.weeg.uiowa.edu	W0MID	Dennis I. Mallory	mallory@pcpartner.net
K0XG	Richard Bennett	n0aaa@n0rx.d.ampr.org	W0MJN	Joe Finkstein	josephf@inav.net
K0YA	Tom Hauer	n0av@netins.net	W0NB	Jim Livengood	
KA0CVR	Mary Dennis	n0dy@arrl.net	W0OF	Bill Snyder	
KA0Y	Ken Cucera	n0lno@rf.org	W0PPF	George Carsner	w0ppf@juno.com
KE0MO	Tom Redlinger	tonywhitmore@lisco.com	W0SML	Doug Byal	dugbert@home.com
KK0U	Paul Feddersen	hsmiller@pcsia.com	W0SR	Jim Spencer	w0sr@aol.com
KU0A	Nelson Moyer	sawyers@inav.net	W0SSR	Chuck Dennis	nitesky@pcpartner.net
KZ0C	Jim Bohnsack		W0WV	Tom Lindgren	tommyl@cedar-rapids.net
N0AG	Jan Clute		WA3AFS	Bruce Goldstein	wa3afs@inav.net
N0AV	Jim Harvey		WB0B	Larry J. Newby	
N0DY	Jeff Davis		WB8ZRL	Tom Yavra	wb8zrl@inav.net
N0LNO	Bill Caldwell		WR0U	Scott Augsburger	augsburg@interl.net
N0PG	Tony Whitmore		VV0D	Terry Perkins	terryp4871@aol.com
N0SM	Steve Miller		VV0Q	Rich Bingham	richard-bingham@uiowa.edu
N0TVY	Steve Sawyers				

DX Is! RTTY Contests

Nelson Moyer, KUØA

I finally did it. After thinking about it for years, and doubting the capability of my equipment, my software, and myself, I finally got on RTTY. The motivation to take the plunge turned out to be the FOØAAA operation. They had a station dedicated to RTTY, they had a booming signal, they had already worked all the big RTTY guns, and I figured, why not start there. I made my first ever RTTY QSO with FOØAAA on the second call. It almost seemed anticlimactic, when I remember how I sweat blood for my early phone QSOs with major DX'peditions. But I have to confess, that RTTY QSO got my adrenaline pumping for the first time in years. It was like the first time I worked some of the semi-rare countries in my novice DX'er days. I actually got a rush. I decided right there to dedicate that QSO to the memory of WØIZ. Somewhere up there Dale's smiling.

I'd been meaning to talk to WØIZ about RTTY, but I never got around to it. I guess I figured Dale would always be there when I needed some advice about RTTY, and I procrastinated. Dale was definitely the guru of RTTY in the EIDX. I've seen his eyes light up at the mere mention of the word, and when there was a new one due up, he got positively animated in anticipation. I figured that if RTTY could get a ham of his longevity and experience wound up, it had to be fun. But I never got around to it, and now it's too late to benefit from his vast experience.

For my second venture into RTTY, I decided to try to work some DX in the contest the weekend of March 18-19th. I wasn't very good on the keyboard, and some of the serious RTTY ops let me know in rather abrupt terms when I screwed up a contact. Seems like RTTY ops have little tolerance for ineptitude. Anyway, it was a baptism of fire, and before long I was able to make a QSO without getting yelled at, figuratively speaking. I logged 29 contacts with 27 countries on 5 continents during about 4 hrs. of casual operating. Africa was the missing continent for WAC, and I guess there isn't much RTTY activity there. I'll keep an eye out for a cluster spot for a RTTY station in Africa, just to finish RTTYWAC. Reminds me of my early DX'ing days. I get to start the chase for DXCC all over again on RTTY. This one

should be a piece of cake, if I can work 27 countries in my second and third RTTY sessions, ever. With FOØ/C in the log, I've already got 28 entities worked. Some of them are creditable DX in any mode, like Z3I, UAØ (Zone 19), UN (Zone 17), LZ (Zone 20), and UR (Zone 16). I must have worked a few more entities that I didn't get clear confirmation text on, because an ON told me I was a "worked before". I'm pretty sure I worked 4 or 5 entities I didn't log. I had a lot of trouble with interference from other contest stations because my FT-707 doesn't have a 500 Hz filter. That meant that I could only work the loudest stations, by setting the threshold fairly high to avoid the trash characters on the screen. It reminded me of my first DX contests when I was running low power to a vertical and I could only work the big guns after all the rest of the world had already worked them.

The neat thing about RTTY is that all you need is a multi-mode TNC, a computer, RTTY software, an HF radio, and your usual high band antennas. It helps if you're not intimidated by the thought of it like I was for years. My FT-707 was the first all solid state HF radio Yaesu introduced in the late 1970's, and the transistor finals weren't designed for 100% duty cycle. I was afraid I'd fry the finals if I ran RTTY, so I used that as an excuse for not giving it a try. Well, DX and contest exchanges are short, as I discovered while reading the mail on the FOØAAA operation. I switched the output to a dummy load and tried a few transmissions with the power set at 50% output, and found that I could make several transmissions before the cooling fan started blowing. That was encouraging enough for me to make that first on the air QSO. As it turns out, that is enough output to run my Alpha 78, but the immediate TVI feedback from the XYL when I transmitted RTTY on 10 meters convinced me that barefoot was better. With the solar numbers as high as they are now, I found I didn't need the amp to work around the world. The only drawback to my present setup, besides the RFI on 10 meters and no filters in the radio, is that I only have one TNC, it will only let me use one port at a time, and that means that I can't be connected to the packet cluster while I'm on RTTY. I think it's only a matter of time before I add a HAL DXP-38.

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A Solar Propagation Primer

Paul, NA5N

We all know the sun goes through a solar cycle about every 11 years. During the minimum, or QUIET SUN, there are few sunspots, the solar flux is very low (<100), which means the sun's ionizing radiation is quite low. As a result, our upper atmosphere, where the E and F layers reside, are not well ionized. This means the E and F layers do not reflect HF radio waves very well ... and most of your signals will pass right on through to space to be picked up by Jodie Foster in the sequel to "Contact." One measure of how well ionized our E and F layers are is the MUF, or Maximum Usable Frequency. During the quiet sun, the MUF is often below 15-18MHz. This is why 15M and 10M are "dead" during the quiet sun, except for local (line-of-sight) communications. However, during the solar maximum or ACTIVE SUN, there are many sunspots, the solar flux is high, and this highly ionizes our ionosphere. This in turn means our E and F layers become very reflective to HF signals. Virtually all the power hitting the E and F layers will be reflected back to Earth and Jodie Foster will hear nothing out in space. This high reflectivity causes the MUF to rise, often to above 30MHz. And when this occurs, 10M will be open all day long to support global communications by using "skip propagation" ... in that your signals are skipping (or being reflected) off the ionosphere back to earth.

OK ... now a couple of definitions:

SOLAR FLUX (SF) is a number that attempts to describe the total power output of the sun at radio wavelengths, which in turn helps describe the total ionizing power delivered to our ionosphere. The higher the SF, the more ionization, and the more reflective our ionosphere is to HF. An SF <100 is fairly poor propagation, the MUF <15MHz. An SF >150 is fairly good propagation, the MUF >25MHz. A general rule of the thumb is 10M is open when the solar flux >150.

IONIZATION. The solar radiation reaching the Earth contains IONIZING radiation. This means the incoming solar radiation can rip electrons away from the oxygen molecules high in our atmosphere. So now you have all these "free electrons" roaming

around that makes the upper atmosphere (or ionosphere) more dense. Now the mass or weight doesn't change, it's just denser. Think of a bunch of popcorn balls on a floor, and shooting a marble through the open spaces without hitting a popcorn ball. Likely, not hard to do. The marble represents your radio signal passing through to space. Now go out there and stomp those popcorn balls so a bunch of individual popcorn kernels are scattered all over the floor. The mass of the popcorn has not changed, but it is distributed to make the field more dense. Now try to shoot that marble across the floor without touching a piece of popcorn. Gonna be very hard to do. The marble, or your RF signal, does NOT pass on to space. In the real case, your RF signal strikes all these free electrons, and that is what reflects them back to earth ... DURING DAYLIGHT HOURS when ionization occurs. Now the really amazing thing that happens in our ionosphere, is when the ionizing radiation from the sun goes away (night time), all these free electrons rejoin (or recombine) with their host molecules, making intact oxygen molecules again. In our example, this would be like watching all the popcorn kernels on the floor magically turning back into popcorn balls again. (Woah ... what have you been drinking?) Of course, this means RF signals will again pass through on to space and will not be reflected. By the way ... when electrons are stripped away from oxygen, it turns the oxygen molecules into helium. Another way of measuring the extent of ionization is to measure the amount of helium in our upper atmosphere. This is usually done through optical spectral line equipment or launching high altitude instrument balloons. However, this is seldom done today since other means and satellite surveillance is far more superior for measuring the extent of ionization. This is why the higher bands, such as 15M and 10M, are open (that is, signals being reflected back to earth) during the DAYLIGHT HOURS, but these same bands go dead (no reflective propagation) nearly as soon as the sun sets - because the sun's ionizing radiation goes away. This is also why these same bands tend to be completely dead during the quiet sun, because there is insufficient ionizing radiation to cause ionization for reflection. This is a phenomenon of the active sun, the period we are well

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into right now. And, during a quiet sun, the ionization can be so low, that the MUF drops below 14MHz at night, which is why even 20M can go dead at night. During an active sun, the MUF almost always remains above 15MHz even at night, which is why 20M often becomes a 'round-the-clock band during the active sun.

So what about 40M? Truth is, the solar cycle has virtually no effect on 40M or below. Propagation on 40M remains pretty much the same during the active sun as it does the quiet sun, because the MUF seldom drops below 10MHz. This is why 40M is the main nighttime band, year in and year out. Even with low ionization, the very long wavelengths of the lower frequencies will be reflected by the ionosphere. This would be like rolling a basketball through the popcorn balls ... while the high frequency RF (the marbles) pass through pretty easy, certainly the low frequencies (basketball) would not. Quiet sun or active sun.

The active sun DOES effect 40M in that absorption to RF can be very good to very bad, or very high noise levels from geomagnetic storms ... both due to solar flare activity that occurs only during an active sun. A large solar flare sends an extra dose of ionizing radiation to the Earth. This can raise the MUF to very high frequencies (>100MHz), but this radiation can also penetrate far into our atmosphere to ionize the lower D-layer. RF signals must pass through the D-layer on their way to the upper E and F layers, where the reflection occurs. The more ionized the D-layer is, the more collisions that will take place with your RF signal, absorbing or attenuating some of its power. Thus, high absorption to HF signals can occur during and after a solar flare. This would be like rolling that marble across the popcorn covered floor, which encounters so many collisions with the popcorn that the marble comes to a halt. Now that is total attenuation or absorption. Your poor little QRP signals just vanish on their way to the E and F layers!

80M signals are almost always highly or fully attenuated by the D-layer, and what "propagation" that occurs on 80M is actually by the signals traveling across the Earth's surface, or "ground wave" propagation. The wave front is confined between the Earth's surface and the D-layer, which causes attenuation to the power as it travels along the ground, skims the D-

layer, and propagates through the dense atmosphere near the surface. This is why QRP on 80M is challenging at best since the absorption rates are fairly high - day and night, quiet sun or active.

The other major effect to HF propagation during the active sun is geomagnetic storms. Very briefly, this is caused by a shock wave from a solar flare hitting the Earth's magnetic field, causing it to compress and wiggle for awhile. And while it's wiggling, it's generating huge electrical currents, which in turn creates gobs of noise on HF. I'll present geomagnetic storms in another lesson.

SUMMARY:

BAND	THE QUIET SUN	THE ACTIVE SUN
80M	Seldom has skip propagation	Seldom has skip propagation
40M	Open around the clock	Open around the clock
30M	Open daylight hours	Open around the clock
20M	Open daylight hours	Open around the clock (usually)
15M	Dead - no skip propagation	Open - daylight hours only
10M	Dead - no skip propagation	Open - daylight hours only

If you have questions about the above, I suggest you pose them on QRP-I so I and others can answer them for the benefit of all those interested.

Why I Became A DX'er

Bill Turner, W7TI

It all started when I was just a lad at my father's knee. Dad always held DXers in high esteem, naturally, and often pointed out how they just seemed to be better than most people. In high school, the DXers always drove the nicer cars and had the prettiest girlfriends. In college, they were the Big Men On Campus, as well they should be.

DXers are of course pillars of their communities, being involved and consulted on all the major civic affairs. Their homes are usually the better ones, with fine landscaping and well-behaved children either playing happily on the lawn or studying for their entrance exams. Wives of DXers are among the finest

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