The Pileup
Newsletter of the CDXA

The Carolina DX Association

AA4ZZ	Paul Trotter	President
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2019 ARRL DX Contest Wrap Up

John Forbus, NV4A

The 2019 ARRL DX Contest is in the books. We announced the results and prize winners at the annual Hamfest Banquet at 73 and Main Restaurant in Mt. Pleasant, which was a really nice restaurant with great food, and it was very near the Hamfest site. (Thanks to our Club VP Bill, W4GRW, for his good work in making the Banquet happen!)

Final, official, Contest results will be available later in the year in QST and on the ARRL website, and will be summarized in the Pileup. Even though our club's aggregate score is on a downward trend as propagation continues to get worse, we had a "raw" score of over 8.45 million. The main thing is that our score was well over last year's 7.1 million points. Thanks to all who helped make that happen!

Our Club Contest winners are listed below:

Top Combined CW plus Phone:	Ed, K5EK, with 2,783,649 points
Top CW score:	Paul, W3GQ with 1,272,303 points
Top CW score, low power:	Cliff, W3ZL with 80,028 points
Top Phone score:	Dave, K4AJA with 477,000 points
Top Phone score, low power:	Dick, W3OA with 142,200 points
Most Improved score:	Bill, W4ZV with an increase of 39,120 points over his previous best score
1000 or more QSOs:	Richard, W4GE
500-999 QSOs:	Ed, K4KAY; Scott, K2SD
250-499 QSOs:	Bruce, K4ZO; Joe, KC4G; John, NV4A; Nyles, KS4S; Bill, K4FX; Steve, AA4V; Paul, AD4IE; Lou, N2TU; Barry,K6RM.

A couple of notes are in order. K5EK actually had high score in both the CW and Phone segments of the

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CDXA PacketCluster & Other Communication Systems	
K4MD (AR V.4 Cluster via Telnet)	k4md.no-ip.com:23
K4MD (AR V.6 Cluster via Telnet)	k4md.no-ip.com:7373
W4DXA (AR V.6 Cluster via Telnet)	w4dxa.no-ip.com:23
CDXA Repeater 147.18 MHz (+600)	W4DXA, Near Fort Mill, SC
World Wide Web Homepage	www.cdxa.org
Wednesday Luncheon (11:30 AM)	Skyland Family Restaurant, 4544 South Boulevard, Charlotte, NC

3Y0Z Settles Accounts

The leaders of the aborted 3Y0Z DXpedition surely were disappointed in seeing Bouvet Island from their boat and then having to abandon the effort because of the crippling problem of one inoperable engine on their vessel in such unforgiving waters.

Each individual on the 3Y0Z team had contributed well over $22,000 of their personal funds into the pot to cover about half of the expedition's budgeted expenses. The rest of the funding came from foundations, like the Carolina DX Foundation, INDEXA, Northern California DX Foundation, the German DX Foundation and various clubs and individual donors. The commitment of the 3Y0Z team was that after all expenses were paid, remaining funds would be returned to donors. Donors were given the option of accepting their prorated returned amount, donating the proposed returned amount to one of several major foundations, or to have the funds allocated to the team members who, as a group, had the biggest single stake in the venture.

Cliff Wagoner, W3ZL, reported on behalf of the CDXF that he recently was offered a refund of $960 of the $2,000 originally donated by CDXF. CDXF officers opted to accept $720 but asked that $240 be retained by the team to be allocated amongst the team members for their sacrifice.

The Pileup
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Published monthly 10 times per year, excluding the months of June and December.

The purpose of the Association is to secure for the members the pleasures and benefits of associating with persons having a common interest in Amateur Radio.

Members of the CDXA shall adhere to "The Amateur's Code" as published from time to time in *The ARRL Handbook for Radio Amateurs*, and shall consist of those valid licensed amateur operators having an interest in promoting amateur radio. Long distance communications (DX) is of special interest to members of the Association, but said interest is not a requirement of membership.

Yearly dues are $25.00. A second licensed Amateur family member living in the same household can join for $5.00 for a total family price of $30.00 per year. The total price for 3 or more licensed family members living in the same household is only $35.00 per year. All family members enjoy full member status. Dues are payable annually in December by check to the Secretary/Treasurer:

Cliff Wagoner, W3ZL
218 Ohenry Avenue
Davidson, NC 28036

Address, telephone, and email address changes should be directed to the Secretary/Treasurer at the above address or via email at: jcw53@cornell.edu.

A Bit of Humor

Two antennas met on a roof, fell in love, and got married. The ceremony wasn't much, but the reception was excellent.

A man walks into a bar with a slab of asphalt under his arm and says: "A beer please, and one for the road."

Two fish swim into a concrete wall. Then one turns to the other and says "Dam!"

Welcome New Members

One of this month's "new members" is not exactly new to CDXA. **David Funderburk, N4DKF**, of Peachland, NC rejoins CDXA after being absent for a while. Good to see you back, David.

Our "newest" new member is **Ray Price, KE4YOG** of Goldsboro, NC. Notice of Ray's arrival to our ranks came just as your editor was wrapping up this month's issue of the Pileup. Welcome, Ray.

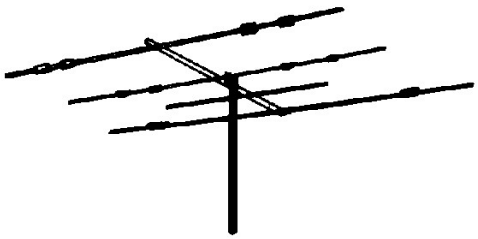
Both names should be appearing on the online roster very soon.

CDXA Lunch at Raleigh Hamfest

Any and all that may be going to the Raleigh Amateur Radio Society's hamfest (RARSFEST) are encouraged to attend a luncheon on Saturday, April 20 at Noon at a site only 5 minutes from the hamfest.

The location is: **Backyard Bistro**
1235 Hurricane Alley Way
Raleigh, NC 27607

This luncheon gathering is planned for all members of the Raleigh/Triad/Eastern NC area that cannot make it to the Charlotte area for the recurring Wednesday luncheons and other CDXA events.



Ham Radio to the Rescue

Every once in a while the cartoon artists bring ham radio to the forefront. The most recent (about a month ago) this author has seen was in the **"Rex Morgan, MD**" series published daily in the Charlotte Observer.

In a recent portrayal of amateur radio by the artists of "Rex Morgan", despite our ham being somewhat a recluse in his desert radio shack, he comes to the aid of a crippled plane by his adept networking skills and EMCOM training. Below are five daily strips of the ongoing series where our ham was involved . . . . .

HURRAH for the hams in the world!!

Charlotte Hamfest 2019 Wrap-up

The 2019 CDXA Charlotte Hamfest dinner featured a new location—73 and Main Restaurant—just five minutes drive from the Hamfest. This restaurant is in a historic restored building (https://73andmain.com). CDXA had a very large private room for our banquet.

We had as a guest Gene Spinelli, K5GS, who would give the Hamfest DX forum on the VP6D Ducie Island DXpedition on Saturday.

Bill Fisher, W4GRW, won the banquet door prize radio from Yaesu.

At the Hamfest the CDXA booth was next to the booth where the W4 QSL bureau was located, and Gary Dixon, K4MQG, did his usual card checking for DXCC and VUCC. Lots of members dropped by the booth for a chat. Thanks to all the club members who staffed the booth.

Gary Dixon, K4MQG, won the raffle for an antenna tuner.

The Hamfest DX forum was presented by Gene K5GS. Gene talked about the VP6D Ducie Island DXpedition on which he was a participant. Gene also dropped some hints about the location of the next DXpedition he was helping plan. Before the weekend was over, it was announced to be South Orkney Islands (https://sorkney.com/).

Thanks to the Mecklenburg ARS for all the work they do putting on the Hamfest.

--73 Paul Trotter, AA4ZZ
CDXA President

Left: Bill Fisher (W4GRW) is the happy recipient of a Yaesu radio as the banquet door prize winner. CDXA President Paul Trotter, AA4ZZ, presents the radio to Bill.

Right: Paul Trotter, AA4ZZ, presents the CDXA Hamfest raffle prize of an automatic antenna tuner to Gary Dixon, K4MQG. Gary is delighted at the "luck of the draw".

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ARRL DX 2019 Contest Wrap-up (con'd)

contest, but since one person can only win one prize, the top CW and Phone scores went to those who finished close behind him. Also, we added a "Most Improved" category this year. I have to confess that, after this year's Contest rules were published in the *Pileup*, I had serious second thoughts. After all, as noted above, and as is obvious to anyone who's been on the air in the last couple of years, things aren't getting easier, and scores aren't exactly going up. I figured our only chance to get a winner was for someone to put in a lot more hours than in earlier years. Bill, W4ZV, really came to our rescue. Bill always operates 160m only, and this year he was actually the only participant to have good things to say about *improved* propagation! ...and sure enough, he beat his previous score by over 39 thousand points. Thanks Bill, and glad all those long nights on 160 paid off for you.

2019 DX King Contest Through March

John Forbus, NV4A

The year is only a little over three months old, but through March we have three entrants who already have QSOs from all 40 zones. Don't let that keep you from jumping in, though. There's still plenty of time, and all your Q's to new "year-entities" from the first of January count, and no QSLs required. So, if you aren't in the DX King Contest yet, it's easy to join in. Check January's *Pileup* for details. Here are the results through March:

Callsign	Category	Countries	Zones	Total
K7BV	Unlimited	224	40	264
K5EK	Unlimited	222	40	262
K3WA	Unlimited	208	39	247
N4PQX	Unlimited	179	40	219
W1AJT	Unlimited	182	36	218
W4HG	Unlimited	159	35	194
W3GQ	Unlimited	152	35	187
VE3UTT	Unlimited	141	34	175
K8YC	Unlimited	101	26	127
NV4A	Unlimited	95	25	120
W3ZL	Formula	89	21	110
W4WNT	Formula	59	21	80

The 2019 Six Meter Challenge is Slowly Gaining Momentum...

John Forbus, NV4A

...but we need two things: *lots* more participants, and some good 6 meter openings to liven things up. As I said when announcing the contest, we expect this one to be a bit tougher than last year's FT8 contest. But, all is takes is a good opening to start racking up the new Grid Squares, and don't forget that FT8 seems to be just as popular on 6 meters as it is on HF. In fact, there was one particularly strong and long 6 meter opening last spring, and quite a few people added lots of new grids on 6 for the FT8 challenge. So, the message is to get on board. Be on the lookout for openings, and don't forget that if you don't have a dedicated 6m antenna, your tribander, or even your 80 meter dipole will work on 6. In the meantime, here's what we have to report so far:

Call	Category	Grids
W3OA	Low	63
W3GQ	High	45
K5EK	High	11
W4WNT	Low	7
NV4A	Low	7

JDTX and WSJT-X Decoding Study

Get two hams in a room talking about their favorite radio, and you're bound to get some disagreement. The same is true about software performing a similar function. So, the inevitable discussion of which FT8 product—JTDX or WSJT-X—does a better job of decoding signals didn't take too long to arise.

While the basic code used for WSJT-X was put into the public domain for anyone to use, enhancements to the software are fair game as long as credit is given to the original source. A ham from Russian and a ham from Estonia have produced some enhancements to the coding in producing JTDX. The information below was provided by CDXA's own Art Tolda, W1AJT, to quantify what you can expect when choosing JTDX. Please note that JTDX still does not have contest support, but the development team is providing frequent updates, so it may yet appear. The decoding "test suite" was performed by recording 237 audio "WAV" files, each containing 25 CQ messages with signal strengths no greater than –22dB.

The discussion follows. . .

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JTDX - A Short Description

JTDX software is based on WSJT-X v2.0 and was created by Igor Chernikov, UA3DJY, and Arvo Järve ES1JA. The stated purpose for JTDX from the JTDX website is:

> *JTDX supports JT9, JT65, T10 and FT8 © digital modes for HF amateur radio communication, focused on DXing and being shaped by the community of DXers.*

JTDX adds a number of FT8 decoding options that are useful on crowded bands and in situations when signals are very weak. These features can be selectively enabled to match band and signal conditions as well as the user's available CPU horsepower.

Some interesting features beyond WSJT-X include:

- Multiple decoding passes
- DX Country shown for all decode lines, not just the ones calling CQ
- "Directed CQing" - for example, "CQ DX" and get responses from callers in your country. JTDX Auto Sequencing can be configured to ignore such callers and only work DX stations that answer your CQ. Directed CQ's can also be applied to specific regions of the world (CQ AS, EU, NA, JA, etc. for example) at the push of a button
- Right-click split setting without weird key combos
- Continent filtering
- Filtering options to selectively hide decoded messages to enable the operator to focus on messages from stations that they are looking for, e.g. only "CQ" messages.
- Blocking for QRM callers,
- Decoded messaging filtering features with color highlighting e.g. choosing a station to answer based upon distance or best Signal To Noise Ratio (SNR), including or excluding stations that you've worked before, or including or excluding other stations calling CQ.
- Wanted calls and grids, notification and selection on these in call priority search,
- SWL mode pass and decoding weak and poor quality signals,
- Logging in TCP and UDP,
- Auto-logging
- Superior UI
- Advanced automatic sequencing and QSO selection features without errors e.g. limit the number of tries that the auto sequencing algorithm uses before returning to calling CQ or working the next available caller.
- Additional FT8 and JT65 decoder options to improve sensitivity
- There is also a QSO partner decoding "filter" option which concentrates the FT8 decoder on a narrow bandwidth around a specific weak signal that you are trying to receive and decode.
- Far superior decoding described later

Remote assistance from the JTDX team can be done and is offered—unlike the WSJT-X development team.

WSJT-X is a better tool for contests as it contains support for specific contest exchanges via FT8—a feature which JTDX does not yet support. WSJT-X also supports important modes like MSK144 for Meteor Scatter QSOs.

Sensitivity and Decoding Comparisons

The test data stream were from a Web SDR: with 237 audio WAV files each containing 25 CQ msgs/signals in each file for a total 5000 signals at a maximum signal strength of -22dB.

All of the tests can be used to make comparisons using your own set ups and methods, and all the published results are compared from the same publically available test files from the links and on JTDX tech site.

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Here is the link to the .wav files: https://cloud.mail.ru/public/LixE/pQ3cPLdJ1

Following are tabular results comparing various JTDX versions versus WSJT-X (Note: JTDX is being refined via updates almost weekly). The top row identifies different JTDX decode options. The left hand column identifies various JTDX "release candidates" of JTDX software which are undergoing regular updates compared to WSJT-X. One of the benefits of JTDX is that, depending on your computer's "power", JTDX can decode up to 12 "threads" of data, while the WSJT-X design is currently limited to decoding a single thread.

4 threads, AGCc On, Hint On, 0-3500Hz RX 1220Hz number of the decoded messages:						
	deep Hint Off	deep	low th	subpass	swl	
rc130	6737	7305	7494	7493	7938	Web SDR
			1088	1088	1043	-22dB AGCc Off
			1067	1068		-22dB AGCc On
rc131	6742	7309	7492	7488	7938	Web SDR
	396	737	1087	1165	1122	-22dB AGCc Off
			1066	1144		-22dB AGCc On
rc132	6736	7303	7499	7487	7939	Web SDR
	397	736	1087	1164	1122	-22dB AGCc Off
rc133	6738	7305	7488	7487	7939	Web SDR
	398	737	1086	1164	1122	-22dB AGCc Off
rc134	6747	7396	7607	7605	8086	Web SDR
	396	738	1088	1165	1122	-22dB AGCc Off
WSJT-X	6389	6566	-	-	-	Web SDR
v2.0.1	296	697	-	-	-	-22dB

(Note: The WAV files of the test suite include 5000 CQ messages but an unknown number of other messages. The capability of decoding multiple threads as well as possessing multiple decoding modes (i.e., low th, subpass, and swl) as well as at least 8 filters, with subfilters, permits JTDX to decode a greater number of messages if you possess sufficient computing power. This along with some of the "features" outlined on Page 5 may make JTDX a candidate worthy of your consideration for your FT8 client software.--The Editor)

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Join us for lunch at the Raleigh ARS RARSFEST. Page 2.

3Y0X Returns unspent funds. Page 2

Ham Radio highlighted in **"REX MORGAN"** toon strip. Page 3

2019 Hamfest Recap. See Page 4

DX King and **6m Challenge** contests progress reports Page 5.

Comparison of FT8 decodes between WSJT-X and JTDX. Begins Page 5.