January 2023 Volume 01-2023

Nacogdoches Amateur Radio Club

2022 CLUB OFFICERS

Pres: Bill Rascher – KT5TE

Vice Pres: Aaron Baker – KI5FIQ

Sec/Treas: Army Curtis - AE5P

Visit our web site at

https://w5nac.com/

MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.

DECEMBER MINUTES

The December meeting of the Nacogdoches Amateur Radio Club (NARC) was our annual Christmas Party and White Elephant Auction. This year we met at Clear Springs Café on December 14 due to a scheduling conflict. We had an excellent turnout of 30 people, who filled the Private Dining Room at Clear Springs leaving only one empty chair in the room. Self-introductions were made by everyone present.

Everyone was able to order the meal of their choice from the menu. A blessing was asked by Tom W5TV.

Following the meal, John KC5MIB acted as auctioneer for the White Elephant Auction, raising $412 for the club.

We gained a new member at the party; Suzanne Cronin K5UUU joined NARC. Suzanne is a full time RV'er with radios in her travel trailer. Welcome Suzanne.

The auction concluded and everyone left Clear Springs by shortly after 9:00.

2023 DUES ARE DUE

Dues are just $20 a year and cover all licensed hams in a family. Please get your dues to AE5P. Sooner is better than later. Make checks payable to NARC.

FROM THE PRESIDENT

Hope everyone had a good Christmas holiday and will have a good start to the upcoming new year. Still getting used to having a cast on this hand of mine so going to keep it short and sweet today.

A couple of weeks ago, I picked up a new to me Kenwood HT tri-bander so I can have 220 MHz for our roving and just using it so far, I've been impressed with its performance. While I was away at my parents for my surgery and Christmas, I looked up late Monday night between the 4 clubs down there for who would have a net Tuesday night before I left Wednesday to make it back in time for our meeting net and just as my luck would have it, the Orange ARC W5ND have multiple nets a week, including Tuesday nights. For only being about 15 miles away from the repeater, the aftermarket rubber duck that was shipped with this HT performed really well as I was able to hit their repeater almost full quieting.

All of this to say, if you're ever travelling, I definitely recommend trying to check into a local net at least once. Each net is run differently and so it'll give you a chance to be in a net that is run differently from ours.

Now to get this HT programmed so I don't have to manually switch settings between repeaters anymore 😄

73, Aaron KI5FIQ

Baker.barisax@gmail.com

FROM THE VP CHAIR

I hope everyone had a great Christmas spending time with family, friends and focusing on the true meaning of Christmas. As we start 2023, I want to thank those of you who have given me some great ideas about programs for our monthly meetings. I hope we can have interesting programs for both old and new hams. I look forward to Mike Miles WD5EFY program for our January meeting. If you have any suggestions, please let me know. I wish you all a Happy and Prosperous New Year!

73, Mark KI5POH

KI5POH21@gmail.com

NOTES FROM OUR EC

Do we call this the last 2022 missive (I"m writing it 27 Dec) or the first missive of 2023? Flip a coin.

What a "lovely" month December has been. We recorded 2.5 inches at the mill, others have reported more during the various nets. And then we had more than a few days of cold weather (did I say cold?). We're just barely a full week into Winter.

How did everyone fare during the cold snap? Plumbing issues, loss of power, sluggish batteries, extra sweatshirts?

Thankfully, I didn't lose any electricity or water or damage due to the cold. What are your Winter ham habits or how about shortwave listening? The nights are long and quieter, the lower frequencies 160, 80 and 40 should be busy during the evening hours.

I've also noticed an uptick in the 11m SSB daytime propagation. I've been able to hear California, just haven't drifted off the company channel (39) or reset for LSB to monitor.

Let's shift to the EC side of this. How many of you can operate on 160, 80, 60 or 40m? No, I'm not asking if your radio has those bands available, do you have the antenna or tuner resources to operate in those bands. Most of the new radios can reach down to 160 or have the 60m allocations preporgrammed into the memory banks. Many already have a reasonable 40 or 20m antenna(s) to work there.

Here's another question, how many have worked the Armed Forces Day radio event in an almost full duplex? Listen out of band to the Military station and respond back inside the ham bands. Many of you are aware of listening 5up when chasing rare DX during pile ups. Enjoy the quiet nighttime and maybe chase a little ham AM radio on 40m or maybe spin the dial for some international shortwave DX.

Next month we will take a look at a couple of ARES things.

See you on the nets.

73 de John Chapman KC5MIB
kc5mib@arrl.net

VE TESTING

We had one applicant for the December VE test session.

Lance Flory from Jacksonville passed his Tech and General exams and is now KI5ZEV.

Congratulations to Lance.

Many thanks to VE's, **Ralph N6RH, Robert KD5FEE** and **Army AE5P**.

Remember that we give in-person VE tests the third Wednesday of **EVERY** month. For the latest information always check the club website at:

https://w5nac.com/ve-testing/

73 de AE5P.

email: ae5p@arrl.net

TWO METER CLUB NETS

Please join us each week for the two-meter nets sponsored by NARC. All stations are welcome to check into the nets.

Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3).

Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3).

Please join us for one or both.

HAMLIST

Are you on Hamlist? Check it out and join at: https://w5nac.com/about/email-reflectors/

JANUARY MEETING

Our first business meeting on the air was Wednesday December 28, 8:00 p.m. on the club's 146.84 repeater. All club members are encouraged to participate. You must be a current dues paying member to vote on any measures that are raised. Future on-the-air business meetings will be on the Wednesday preceding our regular meetings on the first Wednesday of the month.

The next regular NARC meeting will be Wednesday January 4th at the Nacogdoches City/County EOC. Meeting begins at 7:00; doors open at 6:30. Come early for socializing before the meeting. After a very short business meeting, we will have what promises to be a most interesting program on RACES, presented by Mike Miles WD5EFY.

Hope to see ya'll there.

UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at https://www.contestcalendar.com//contestcal.html

ARRL RTTY Roundup
1800Z Jan 7 to 2400Z Jan 8, 2023
http://www.arrl.org/rtty-roundup

North American QSO Party – CW
1800Z Jan 14 to 0559Z Jan 15, 2023
http://www.ncjweb.com/NAQP-Rules.pdf

ARRL January VHF Contest
1900Z Jan 21 to 0359Z Jan 23, 2023
http://www.arrl.org/january-vhf

North American QSO Party – SSB
1800Z Jan 21 to 0559Z Jan 22, 2023
http://www.ncjweb.com/NAQP-Rules.pdf

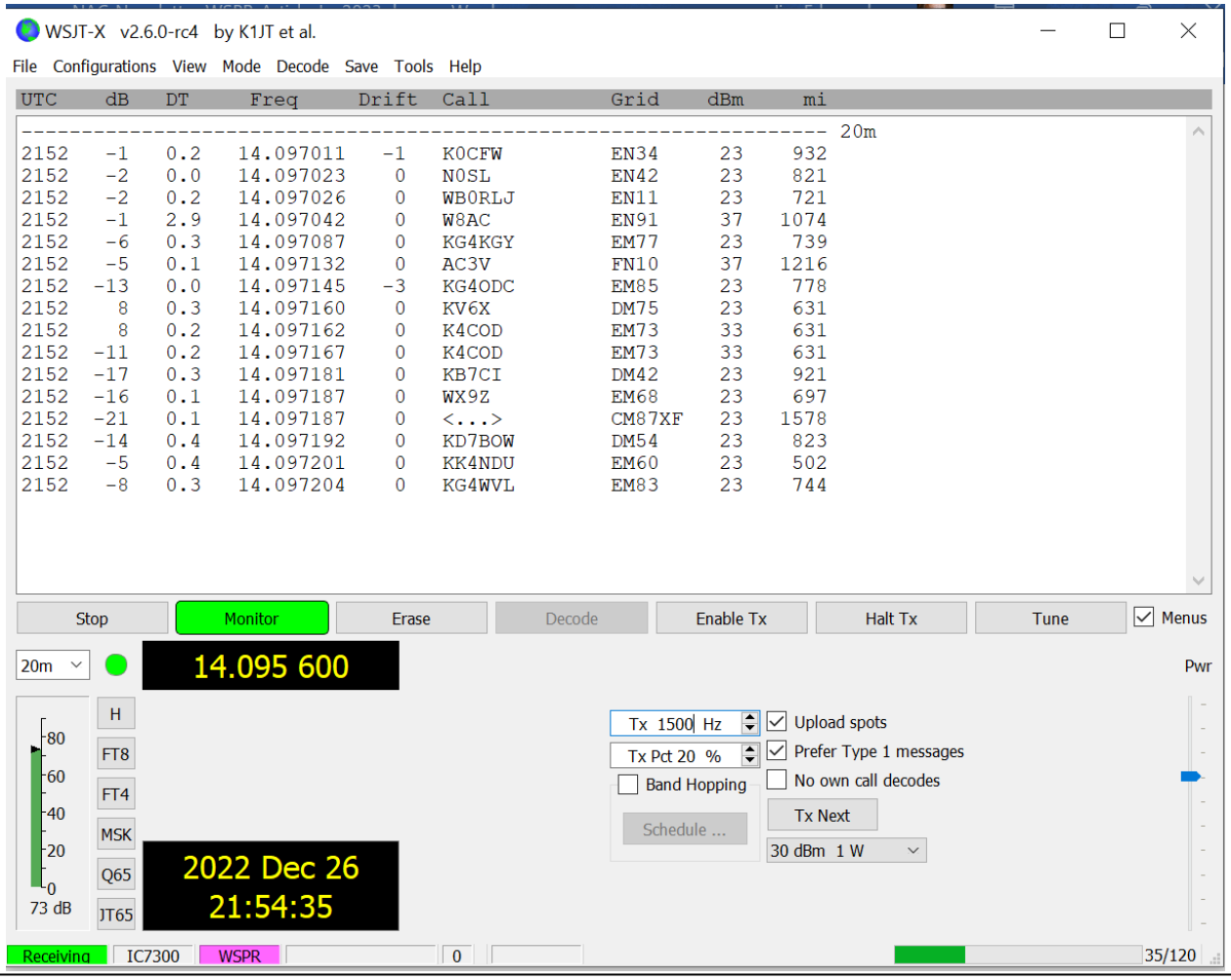
Check out the many contests listed on the Contest Calendar link shown here. There are many State QSO parties and 'Parks-On-The-Air' events that may be just right for you. Check 'em out.

WSPR – Weak Signal Propagation Reporter

Jim Edmondson, N5JGE

WSPR stands for Weak Signal Propagation Reporter. It is one of the modes available in the popular WSJT-X software used by many hams for FT8 digital communication. If you have setup your radio and computer to run FT8, you are ready to try WSPR. WSPR was designed to probe potential propagation paths using low-power transmissions and can operate over a wide range of amateur frequencies. Transmitter power is typically milliwatts to a few watts. Modulation is by frequency-shift keying and the information exchanged is call sign, 4-character grid and transmitted power. The transmission rate is quite slow requiring almost two minutes to transmit the 50 bytes of data. Forward error correction is used to assure accurate transfer of the information.

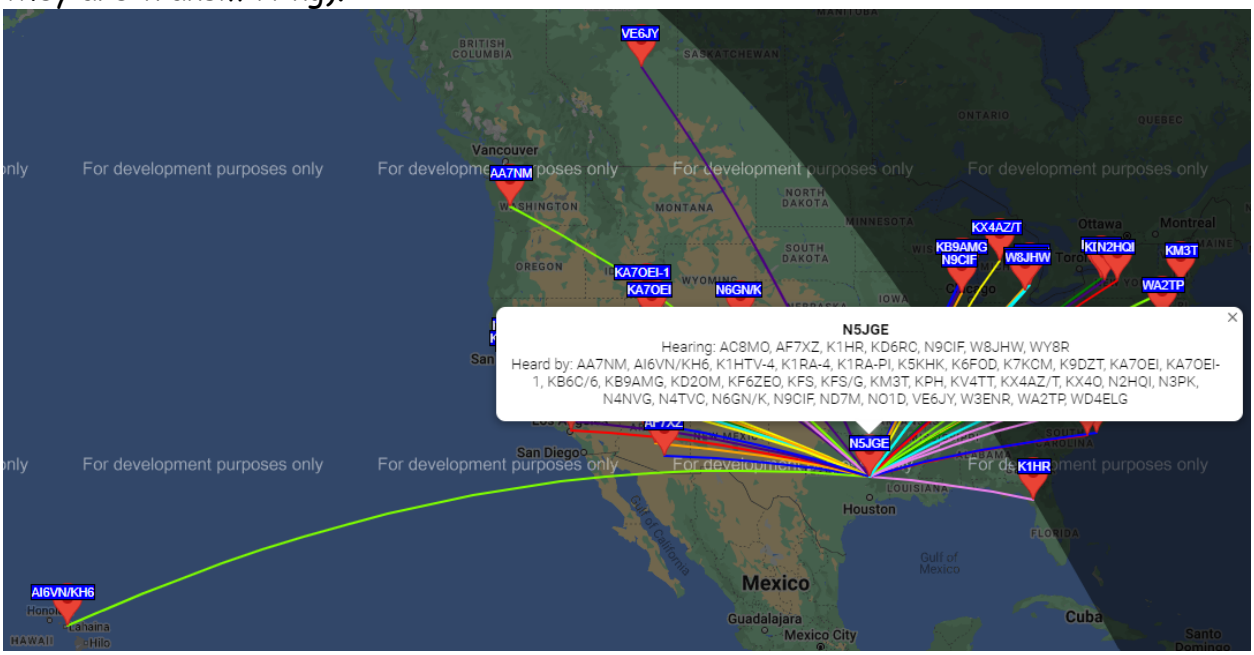
The WSPR interface in WSJT-X is shown below. Just set your transmitter power to 2W or less, choose the band in the software and tune-up. The default WSPR



settings work fine. You can experiment with the other settings; you won't break anything.

A WSPR station can be operated as receive only. If you want to receive only, then set the Tx Pct to "0". WSPR receiving stations can optionally report signals received to the WSPR.net website (see checkbox in WSJT-X "Upload spots"). This website provides data for amateurs to see where they are being heard. WSJT-X will also save your decoded signals in the log file named "ALL_WSPR.TXT".

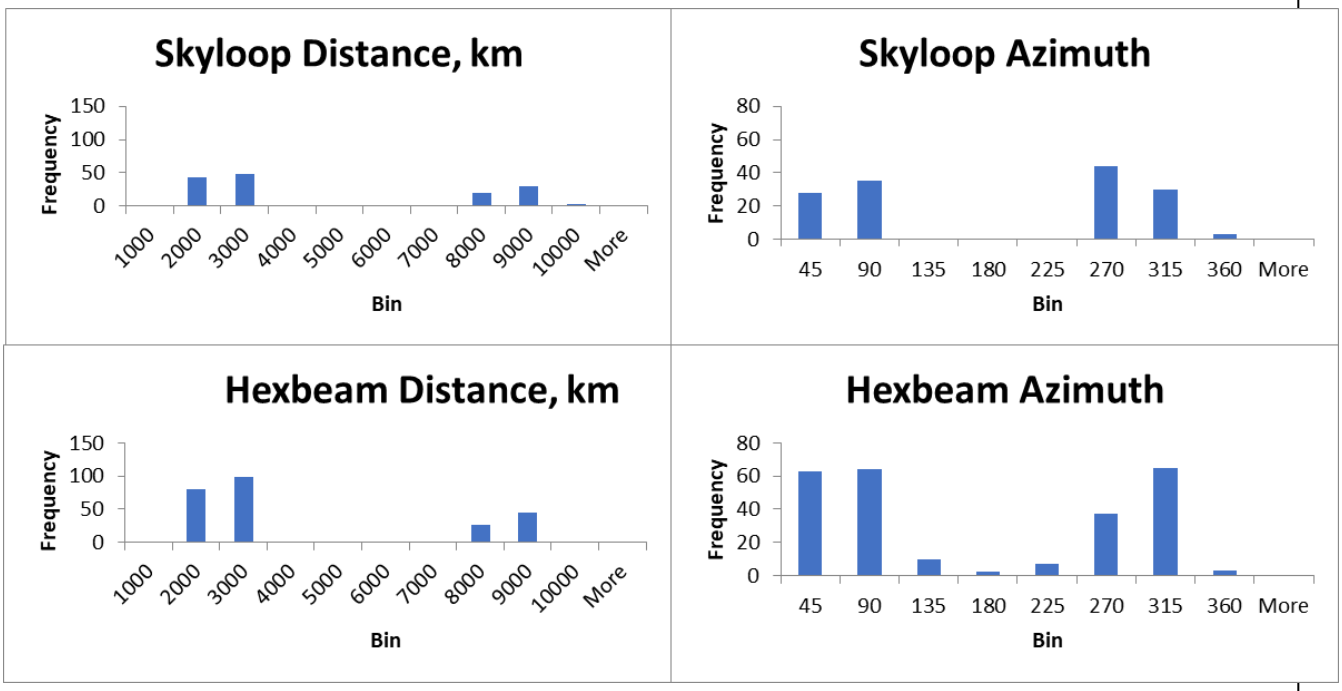
To see who has heard you on the WSPR.net site, a free registration is required. Spots can be viewed on a map as shown in the figure below. To generate the map, click the"Map" link at the top right of the main page. Below the map, you set band, callsign, time period, etc. to view the results. If you click on any of the "map pins", a pop-up shows details of who that station is hearing and who they were heard by (if they are transmitting).



Note: Graphic is from the WSPR.NET website for N5JGE on 17M at 1W (12/26/22, 2216UTC)

Similar to the map, there is a "Database" link at the top right of the main page. This opens a view where you can set band, callsign, time period, etc. to select the full data set for viewing. The plain text table can be copied / pasted into spreadsheet software for offline analysis.

Next, I will go over a simple example of comparing two of my antennas on 15M using 1W of power. The first antenna is a Skyloop cut for 80M at 25' elevation and the second is a Hexbeam at about 15' pointed due North. I ran WSPR using the Skyloop for about 30 minutes with 4 transmit cycles. Immediately after that test, I



switched to the Hexbeam and ran WSPR again for about 30 minutes with 4 transmit cycles.

The graphs on the next page compare the distance and direction results. These graphs are called "histograms" and show the number of contacts in each "bin". Looking at the upper left graph, there 0 contacts between 0 and 1000 km (the "1000" bin), about 40 contacts between 1000 and 2000 km (the "2000" bin) and about 50 contacts between 2000 and 3000 km (the "3000" bin), etc.

Note: Results from WSPRNET website for N5JGE on 15M at 1W (12/26/22, 1410UTC)

Both antennas exhibited maximum distances of about 9000km (5400 miles) with 1W. The maximum distances were similar for both receiving and transmitting. The distance graphs (left two graphs) show a similar pattern. There is a group of contacts between 2000 and 4000 km (1200 – 2400 miles) and another at 7000 to 10,000 km (4000 – 6000 miles). This appears to be from F-layer propagation with 2 – 3 hops. Likewise, the azimuth results (right two graphs) are interesting.

The Hexbeam exhibits a broader spread of contacts than the Skyloop. Partly, this is due to where the receiving stations are located (east and west coasts) and partly due to the broad front-side pattern of the Hexbeam. Side and back lobe contacts are also apparent from the Hexbeam data at azimuths from 90 – 270 degrees.

The biggest difference between the two antennas was the total number of contacts during the same operating time. The Skyloop made 141 contacts, while the Hexbeam made 252, or 79% more contacts! The Skyloop contacts consisted of 55% received

and 45% transmitted. The Hexbeam contacts were 37% receive and 63% transmit. Even though the Hexbeam has a broad pattern, it does concentrate power more uniformly into a smaller area. This higher power density is easier for receiving antennas to capture, so the Hexbeam transmits better.

The 80M Skyloop has many lobes and nulls on 15M, so poorer coverage and less concentration of power in many directions. However, the Skyloop has more much wire in the air and is a little higher, enabling it to capture weaker signals and giving better receive than transmit performance.

One caveat, since the tests were done one after another, things could have changed (besides the antennas) and affected the results. This type of test should be repeated a couple of times under different conditions to make sure the results are consistent and not a one-off event. For the ambitious, a much more rigorous way to compare antennas can be found here.

What else can you do with WSPR? (from Radio Amateur Society of Australia)

- Live propagation data between you and other WSPR stations
- Watch the behavior of propagation over time, the seasons and the sunspot cycle.
- See the bands open!
- Check out the practical performance of your antennas.
- Have fun seeing what countries and prefixes WSPR can work on low power.
- Can participate as a "receive only" station.

FYI, there are inexpensive transmitters and Raspberry Pi computers that can be dedicated to WSPR use in the shack. This frees up your main rig and computer while doing real-time propagation assessment with your antennas.

For further reading and learning

WSPRnet
The $50 Ham
G4ILO's Shack