

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.



FEBRUARY MINUTES

The February meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on February 2nd. **President Bill KT5TE** opened the meeting at 7:00 p.m. in the Nacogdoches City/County Emergency Operations Center off FM 3314. Self-introductions were made by everyone present. Minutes were approved as published. Treasurer's report read.

The ARRL January VHF contest saw **KT5TE**, **N6RH** and **AE5P** out as rovers on Saturday, with **KI5FIQ** joining them on Sunday.

The weather was decent and they had a good time of it. Unfortunately, there was not any skip of note to add to the scores.

The North American QSO Party (NAQP) saw **KI5FIQ**, **W5TV**, **KI5MHB** and **AE5P** participating.

Darrell KI5PYQ gave a report on his work on the new DMR repeater.

Army AE5P took reservations for the upcoming Shuttle Columbia K5C special event. Looks like we will have very good participation by club members.

January On-The-Air-Challenge was to work as many states as possible. **W5NXX**, **N6RH** and **AA5HH** all achieved Worked All States (WAS). **AA5HH** was not eligible

after winning the previous month. **W5NXX** won a ticket draw with **N6RH** and selected the ARRL book 'The Doctor Is In' as his prize

Discussion followed on the On-The-Air-Challenge for February. There will be two separate challenges. **First** will be for the club member who makes the most QSO's during the Shuttle Special Event. **Second** will be for the club member who makes at least one two-way QSO using SSTV. Should be interesting. The winner must be current on their 2022 dues.

Speaking of dues, it is time for all members to pay their dues for 2022. Dues are just \$20 and cover all licensed hams in a household.

Program: Tom W5TV gave an excellent program on using the EZNEC antenna simulation software program to design antennas.

FROM THE PRESIDENT

The month of February was pretty good for getting a few items completed. For the most part I've been disassembling my brother's observatory. From underneath the structure I dug out and removed two concrete pedestals that were 5' x 2' that supported the steel piers. The base of the tower was easier than I thought to remove. It was set in a 3' x 3' x 3' block of concrete. I dug a sloping hole down to the bottom on one side with a shovel and used the tractor to drag it all out in one piece. The scopes, cameras, and radio equipment were removed the first week of February, so I have now removed the pedestals, tower, ground field and single point grounded entrance box. On the 5th and 6th of March the observatory building will be removed. There are still a slew of radio tasks

to complete, but I'm getting closer. My XYL wants a greenhouse built in the same location as the observatory, and just north of that an arena pasture for training the horses. March looks to be a very busy month and hopefully just as successful.

Our monthly meeting is March 2nd and I look forward to seeing everyone again.

We will be looking forward to seeing you at our March 2nd meeting.

73, Bill KT5TE

bill@watershipfarm.com

FROM THE VP CHAIR

Looks like February came and went and March has snuck up on me. The new job has kept me busy and I haven't really had the time to get on the air. However, you never know when the skills you learn as a ham will pop up in a random situation you find yourself in. As some of you may or may not know, my new job oversees the tech inside of the classrooms at SFA. Part of this includes installing audio equipment. One particular classroom had a grounding issue to where the speakers would hum every time the analog audio cables were plugged into the video switch. The solution? Bond the grounds together - something we've learned to do with our ham shacks. Hopefully soon the job slows down and I can get back on the air again soon. I've been itching to start building me a decent antenna to

try to get out more than the one I've been using inside. Hope everyone has a good March and don't forget that soon we have Daylight savings. 73

73 de Aaron Baker
KI5FIQ

baker.barisax@gmail.com

NOTES FROM OUR EC

March will be soon upon us and thankfully we haven't had a terrible winter this year, Snowmagedon seems like a bad dream now. Knock on wood; perhaps we'll get out of this season without too much difficulty.

Spring is not quite four weeks away and all the wonderful weather that it entails. And Daylight Saving Time starts 13

March. Can't say it quite enough: are you prepared? batteries for the handheld? batteries for the smoke detectors? you get the idea.

We have some new members that are becoming regulars on our net communications. Maybe it's time for a short review of net operations.

The ARES and SKYWARN nets are generally divided into 3 parts:

1. The net call up, pretty much as it sounds, calling the net to order and getting things started.

2. Call for specific traffic (PRIORITY, EMERGENCY or TIME VALUED traffic)"

The dictionary definitions (thank you Oxford on-line) are straight forward:

PRIORITY: the fact or condition of being regarded or treated as more important than others.

EMERGENCY: a serious, unexpected and often dangerous situation requiring immediate action. Please note the word immediate. I might also add possibly resulting in injury, loss of life or significant damage.

TIME VALUED: the value of something with regards to time. Examples: a short notice call to support a community event, a request for examiners for the following night. Notice they all fall under some time constraint.

If you have something that comes in under of these categories, handle it immediately. It may change the net from our usual practice discussion to an event requiring our services. Please do not use this part of the net to ask for a radio check.

3. The call for check-ins and discussion. Roll call, routine traffic, general announcements, discussion, drills, practice and the like.

I hope I haven't clouded the issue too much. The scripts for both of the nets can be found our website.

I'll finish this on a more somber note. John Cechin, W5FWR passed 7 Feb 2022. Many knew him. He held the president's gavel at least once, instigated the summer ice cream social among other things. He helped the club get the "Green Monster" portable antenna mast and launcher. In our discussions, I found he had used either that type of antenna mast or one similar and we had worked on some of the same equipment during our respective military time. I went down to Kingwood for his final services and visited with the family. Mr Alan Mize, his step son said there was ham equipment at the residence and has my phone number to work out disposition. W5FWR, SK.

73 de John Chapman
KC5MIB
kc5mib@arrl.net

VE TESTING

The February 2022 VE session had one applicant. Congratulations to **Darrell KI6PYQ** on upgrading to General.

Many thanks to VE's **Ralph N6RH**, **Mike AA5HH**, **Mike W5NXX**, **Robert KD5FEE** and **Army AE5P**.

Remember that we give 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.

NEXT MEETING

Our next meeting will be Wednesday March 2nd at the City/County Emergency Operations Center off FM3314. Meeting starts at 7:00; doors open at 6:30. Come early for a little socializing before the meeting. A presentation on our recent Shuttle Columbia special event operation is planned.

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 <http://www.hornucopia.com/contestcal/contestcal.html>

ARRL Inter. DX Contest - SSB

March 5 -6, 2022

<http://www.arrl.org/arrl-dx>

Oklahoma QSO Party

March 12 -13, 2022

<http://k5cm.com/okqp.htm>

Idaho QSO Party

March 12 - 13, 2022

<http://www.pocatelloarc.org/idahoqsoparty/>

Wisconsin QSO Party

March 13 - 14, 2022

<http://www.warac.org/wqp/wqp.htm>

Virginia QSO Party

March 19 - 20, 2022

https://www.qsl.net/sterling/VA_QSO_Party/2022_VQP/2022_VQP_Main.html

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.

Weak Signal Propagation Reporter (WSPR)

by

Thomas Atchison W5TV

I saw an article in the January issue of QST entitled "NanoWSPR" by George R. Steber, WB9LVI, and that made me think we all might want to know something about the digital mode 'weak signal propagation reporter' (WSPR).

WSPR utilizes a protocol designed for probing potential propagation paths using low-power transmissions. These transmissions usually contain a station's call sign, a grid locator for the station, and the transmitter power in dBm. Remember that dBm stands for decibels referred to one milliwatt. Specifically, 1 mW = 0 dBm. If we double the signal power we have an increase of about 3 dBm, so 2 mW = 3 dBm, 4 mW = 6 dBm, etc.

The following table gives some idea of what we are talking about:

+30 dBm	= 1 watt
+20 dBm	= 0.1watt = 100 milliwatts
0 dBm	= 0.001watt = 1 milliwatt
-10 dBm	= 0.0001 watt = 0.1 milliwatt
-20 dBm	= 0.00001 watt = 0.01 milliwatt

If you have internet access you can go to <https://www.wsprnet.org/drupal> and see activity on WSPRnet. The software WSJT-X has a mode called WSPR that can be used to listen to many WSPR frequencies including the following:

3.568600 MHz
7.038600 MHz
10.138700 MHz
14.095600 MHz
18.104600 MHz
21.094600 MHz
24.924600 MHz
28.124600 MHz.

Basically, WSPR is a digital beacon mode, not a 'QSO' mode. The purpose is to track propagation. It will run on a station that is currently set up for digital modes. A typical transmitting station uses approximately 1 W (30dbm) or less. Transmissions are two minutes long and the signal sounds like a CW tone with a slight warble.

If you want to pursue additional information and perhaps setup a WSPR station there are several websites that will guide you through the process. I recommend that you look at Joe Taylor's WSPR 2.0 User's Guide at the website: https://www.physics.princeton.edu/pulsar/K1JT/WSPR_2.0_User.pdf

If you want to transmit a low power WSPR signal, you may have a control on your transmitter that will permit you to reduce the power transmitted. If you use WSJT-X and you want to use that software to reduce your output power you can use the slider on the right side of the app to accomplish this.

I used WSJT-X on 20 meters in WSPR mode with a power of **less than 1 watt**. A part of the report I received from WSPRnet is shown below (Fig. 1).

Timestamp	Call	MHz	SNR	Drift	Grid	Pwr	Reporter	RGrid	km	az	Mode
2022-02-15 22:08	W5TV	14.097074	-13	-1	EM21qp	1	KA8BRK	EN81fc	1444	40	2
2022-02-15 22:08	W5TV	14.097077	-19	0	EM21qp	1	AA6DY	EN62ce	1319	25	2
2022-02-15 22:08	W5TV	14.097086	-15	-1	EM21qp	1	WD4ELG	FM06be	1450	66	2
2022-02-15 22:08	W5TV	14.097075	-31	0	EM21qp	1	WB8SCG	FM16qv	1751	66	2
2022-02-15 22:08	W5TV	14.097108	-19	-1	EM21qp	1	N2HQUI	FN13sa	2037	46	2
2022-02-15 22:08	W5TV	14.097090	-25	0	EM21qp	1	KK4NLK	EM84bf	1043	71	2
2022-02-15 22:08	W5TV	14.097073	-24	0	EM21qp	1	EABBFK	IL38bo	7584	69	2
2022-02-15 22:08	W5TV	14.097093	-11	-2	EM21qp	1	W4DJW	EM84ux	1204	69	2
2022-02-15 22:08	W5TV	14.097074	-19	-1	EM21qp	1	WA3TTS	EN90xn	1639	49	2
2022-02-15 22:08	W5TV	14.097080	-5	0	EM21qp	1	KC8COM	EM97kj	1390	59	2
2022-02-15 22:08	W5TV	14.097072	-18	-1	EM21qp	1	WA4DT	EM94lx	1314	70	2
2022-02-15 22:08	W5TV	14.097074	-23	0	EM21qp	1	VE3SXY	FN15wm	2218	41	2
2022-02-15 22:08	W5TV	14.097070	-23	0	EM21qp	1	W7YG	EL88sg	1230	105	2
2022-02-15 22:08	W5TV	14.097113	-24	0	EM21qp	1	KG8ZM	EM89	1360	47	2
2022-02-15 22:08	W5TV	14.097074	-10	0	EM21qp	1	WA2TP	FN30lu	2181	56	2
2022-02-15 22:08	W5TV	14.097055	-25	0	EM21qp	1	WZ7I	FN20kk	2001	55	2
2022-02-15 22:08	W5TV	14.097081	-17	0	EM21qp	1	KD2OM	FN12gx	1966	45	2
2022-02-15 22:08	W5TV	14.097074	-13	-1	EM21qp	1	KX4AZ/T	EN74gc	1600	27	2
2022-02-15 22:08	W5TV	14.097074	-16	0	EM21qp	1	K4RIO	EL88ob	1208	106	2

Fig.1

My best distance (7584 km) at this time is in boldface. The reporting station, EABBFK, is in the Canary Islands.

I completed additional transmissions and decided to show a map centered on my station. This map indicates the stations which reported my 20 meter transmission on

February 17 at about 1600 UTC. My power was approximately 1 watt and my 3 element yagi was pointed at about 15 degrees. The map was built by WSPRnet (Fig. 2).

When I display the map on a computer screen it can be enlarged and manipulated to show more detail. This particular 'snip' reflects what can be done with the data on WSPRnet.

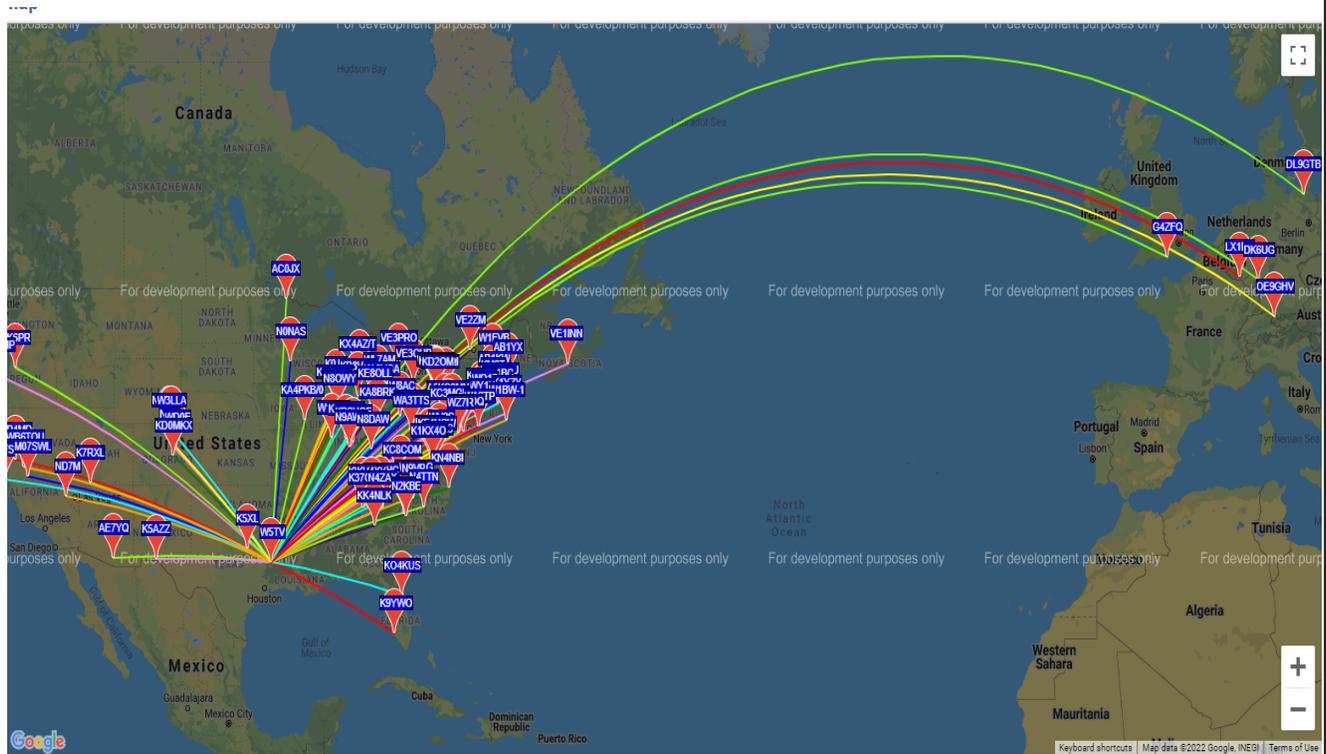


Fig. 2

If you decide to experiment with WSPR be sure to establish a login on WSPRnet (it's free). This will permit you to use several techniques to display your data and it will also provide you with extensive information regarding WSPR. Have fun!

A Low Profile NVIS Antenna for the 60m Band

By

Robert Judy KD5FEE

I became very interested in building an NVIS "low profile" 60m dipole antenna after attending the Feb. 17th Zoom meeting about ham radio and Auxiliary Communications (AUXCOMM) Support to Department of Defense presented by the U. S. Army Network Enterprise Technology Command (NETCOM) Feb. 17, 2022. About 650 people attended the webinar which is probably archived somewhere on the internet and was very interesting, more on that later perhaps but I mention it since it was the final motivator to start this antenna project.

I was successful in building a 60m "low profile" NVIS dipole with apex 14.5 feet, element lengths one side 42 feet 2-1/2 inches and the other side 42 feet 3-1/2 inches (and an extra six (6) inches at each insulator to secure the element to the insulator) with element ends about 3 feet above ground. The antenna gain should be about 2.37 dBi with a "balloon" shape elevation profile and a near circular azimuth. I tested on the 60m "center frequency/channel" 5357.0 kHz and got "599 wow" reports from stations in Texarkana, Harrelson, Bryan, and Kerrville Texas, those stations were "Bell clear and full quiet" to my station and I received similar reports from their stations.

I used EzNEC 2/Pro (free) to model 3 dipoles for 60m at 20 feet (5.5 dBi gain), 14 feet (2.37 dBi gain), and 10 feet (0.7 dBi gain). The 20 foot apex design proved problematic because the center and end supports were modeled non-metallic but a nearby tree afforded 15 feet for the center support so I experimented with that. I finished trimming the elements as indicated above with measured SWR (uncalibrated MFJ-269CPro) readings of 1:1 at 5.32 MHz, 1.2:1 at 5.33 MHz, 1.3:1 at 5.375 MHz (target), 1.6:1 at 5.403 MHz. After the "live test" I took the antenna down and apart for exact measurements then raised the antenna and tested SWR again so I am figuring it is storable and transportable. I will build a second antenna according to the dimensions above and if it tests good will send one to the San Antonio area for more "live testing".

Construction note: element length is from attachment point at center support (feedline connection) to "eye" of the element end insulator with about six (6) inches extra wrapped tightly around the element (antenna wire back towards the center support) to secure the element to the insulator.

Parts list:

(2) 44 foot #12 stranded copper wire such as THHN (smaller wire probably works but much smaller diameter wire might adversely affect the total bandwidth of the antenna. 44 feet allows for securing to the end insulators and some "trimming" for closing in on a good SWR)

(1) Alpha Delta Alpha Delta-C Antenna Hardware Kit for center support

(1) MFJ-915 RF Line Isolator (1:1 Current "BalUn" common mode "choke")

(1) Male to Male UHF adapter, 50 ohm (joining center support to current choke)

(1) 50 ohm feedline from radio to antenna suitable for the frequency.

The initial design parameters were: good and reliable communications to central and west Texas areas, SWR less than 2:1, "round figure dimensions" easy to fabricate, inexpensive, storable, and portable.

KD5FEE, RMJ