



NARS NEWS

APRIL 2022

Northwest Amateur Radio Society
P.O. Box 11483
Spring, TX 77391
w5nc.net

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NARS News is published monthly by the Northwest Amateur Radio Society (NARS). Northwest Amateur Radio Society is a Special Services Club affiliated with the American Radio Relay League, ARRL Club No. 2120.

If you would like to contribute to the newsletter by publishing an article, adding calendar events, or any other contribution, please send all submissions before the end of the month to the newsletter editor:

Brandon Rogers (K5BLR)
Newsletter Editor
k5blr@arrl.net

President's Message

BY RON MATUSEK, WA6TQH
GETTING PREPARED FOR FIELD
DAY – JUNE 2022!



Field Day is officially an operating event not a contest. The purpose remains today as it did in the beginning: to demonstrate the communications ability of the amateur radio community in simulated emergency situations. Groups across the continent use Field Day as a literal “show and tell” exhibition.

Field Day is an emergency preparedness exercise, a public relations demonstration, a momentous event for clubs and a fun way to get on the air. Hams set up away from commercial power and normal installations for 24 hours in June.

The main objective is to work as many stations as possible on all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less-than-optimal conditions.

NARS will demonstrate that the Club members can provide communications support across the U.S. without commercial power or internet access. We can contact fellow hams and pass messages when other communications paths are not available due to emergency or natural disasters.

The main objective of Field Day is designed for the portable ham radio operator. The objective is to demonstrate and refine the ability to communicate “in the field.”

Paul KI5FJS and I have been working on a Solar Power station setup that would more than meet Field Day Objectives. I have produced a minimal hardware configuration that I believe would sustain operations off the grid for the weekend. Details of that configuration (Cost & list of components) will be made available during our May General meeting. Paul has developed an automated spreadsheet that will take real time data input and determine based upon analysis what size solar panels are recommended; What size Lithium Iron Phosphate Battery (LiFePO4 chemistry is an evolution in rechargeable battery technology.) It is safer, non-toxic, higher performing, and longer lasting compared to lead-acid batteries. What load could be supported i.e., Laptop, Radio, misc. equip.

We are challenging all participants in this year's field day activities to demonstrate their stations off grid power efficiency. Special recognition to the station who can meet the 24hour self-sustaining power requirement.

Here is some of the equipment I am assembling:

Powerwerx MEGAbox Portable Power Box for 30-70Ah Lithium Iron Phosphate (LiFePO4) Bioenno Batteries



Bioenno 40AMP/HR battery



Bioenno Power 120-Watt Foldable Solar Panel for Charging Power Packs (BSP-120)



I am using an ICOM-7300 along with my Dell Inspiron 7706 2n1 laptop and calculations show for Field Day moderate usage I should be able to run all day.

Let us know about some of the projects you are working on or would like to have the club do together.

See you at the April meeting!

Ron Matusek

President NARS

The ARRL Letter

An excerpt from the weekly ARRL Letter

Volunteer Monitor Program Releases February 2022 Activity Report

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the Federal Communications Commission (FCC) to enhance compliance in the Amateur Radio Service. This is the February 2022 activity report of the VM Program.

Technician-class operators in North Attleborough, Massachusetts; Cedar Rapids, Iowa, and Broken Arrow, Oklahoma, were issued Advisory Notices for FT8 operation on 20 meters. Technician licensees have no privileges on 20 meters.

Technician-class operators in Auburn, Indiana; Crosby, Texas; Pierre, South Dakota; Chicago, Illinois, and Mojave, California, were issued Advisory Notices for FT8 operation on 7.074 MHz. Technicians have only CW privileges on 40 meters.

General-class operators in Pittsburgh, Pennsylvania; Phoenix, Arizona, and Hephzibah, Georgia, were issued Advisory Notices for operation on 20-meter frequencies not authorized to General-class operators.



Did you know...

that the ARRL sends a weekly letter describing some of the current events, activities, and policies that are taking shape in the Amateur Radio world? The following is an excerpt from these letters in January. View all the ARRL letters at <http://www.arrl.org/arrlletter>

RSGB Legacy Committee to Fund 50 MHz Meteor Scatter Beacon

The Radio Society of Great Britain (RSGB) has announced that its Legacy Committee has agreed to fund a 50 MHz beacon specifically aimed at studying meteor events above the UK. The RSGB website reports, "Unlike conventional propagation beacons, this will beam vertically up using circular polarization. The 50 MHz band is particularly suitable for observing meteors by radio as they create an ionized trail strongly reflective to radio at that frequency, while they burn up on entry to the Earth's atmosphere. This is a collaborative project between the amateur radio and radio astronomy communities, and will enable a range of radio-based citizen science and STEM projects studying meteors. The beacon is to be located at the Sherwood Observatory of the Mansfield and Sutton Astronomical Society, a central location for UK coverage."

-- Thanks to Southgate Amateur Radio News

Ham Payload Going to the Chinese Space Station

The International Amateur Radio Union (IARU) satellite frequency coordination panel reports that an application has been submitted for an amateur radio payload to be hosted on the Chinese Tiangong space station. The coordination request states:

"CSSARC is the amateur radio payload for Chinese Space Station, proposed by Chinese Radio Amateurs Club (CRAC), Aerospace System Engineering

Research Institute of Shanghai (ASES) and Harbin Institute of Technology (HIT)."

The first phase of the payload is capable of providing the following functions utilizing the VHF/UHF amateur radio band:

- 1) V/V or U/U crew voice
- 2) V/U or U/V FM repeater
- 3) V/V or U/U 1k2 AFSK digipeater
- 4) V/V or U/U SSTV or digital image

The payload will provide resources for radio amateurs worldwide to make contacts with onboard astronauts or communicate with each other. It will also play a role to inspire students to pursue interests and careers in science, technology, engineering, and math, and to encourage more people to get interested in amateur radio.

The planned launch from Wenchang is scheduled for the third quarter of this years.

- Thanks to AMSAT UK

ARRL Podcasts Schedule

The latest episode of the On the Air podcast (Episode 26) features an audio tour of the 10-meter band.



The latest edition (Episode 56) of the Eclectic Tech podcast features a conversation with Steve Allen, KC1SA, about circuit simulation software.

The On the Air and Eclectic Tech podcasts are sponsored by Icom. Both podcasts are available on iTunes (iOS) and Stitcher (Android) as well as on Blubrry -- [On the Air](#) | [Eclectic Tech](#).

Amateur Radio in the News

ARRL Public Information Officers, Coordinators, and many other member-volunteers help keep amateur radio and ARRL in the news.

["Ham Radio Operators Tune In to Giant Waves in the Earth's Ionosphere"](#) / NASA Science, March 22, 2022

["Ukraine Maintains Ham Radio Silence in State of Emergency"](#) / ARRL, March 3, 2022

["New Amateur Radio License Applications Fee To Become Effective April 19, 2022"](#) / ARRL, March 24, 2022

["When all other communication systems fail, El Dorado County's amateur radio groups step in"](#) / ABC10, March 29, 2022

["Remarkable man believed we could lick fuel addiction"](#) / *Baltimore Sun* (Digital Edition) (Maryland) March 8, 2022

["New proposed \\$1,400 Forest Service fee may impact Manistee County"](#) / *Manistee News Advocate* (Michigan) February 24, 2022

["When all else fails, ham radio works"](#) / *Santa Cruz Sentinel* (California) February 8, 2022

["Amateur radio operators make contacts in global winter training"](#) / NBC Montana (Montana) February 6, 2022

Arrl.org. 2022. *ARRL Letter*. [online] Available at: <http://www.arrl.org/arrlletter?issue=current> [Accessed 28 March 2022].

NARS Monthly Club Meeting

March 18th, 2022 – ARES and Emergency Response

On March 18th, the NARS club membership met in person, after several months of not being able to do so, at Klein Fire Station #3. Club members were also able to join via Zoom meeting and participate remotely.

Lee Glassman, WA5LEE, presented information about emergency response, including Amateur Radio Emergency Service (ARES) activities. ARES consists “of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes.” (ARRL, <http://www.arrl.org/ares>, Accessed March 31, 2022). Lee shared a brief history of ARES and how and when emergency response is activated. The activities that occur during an activation were also shared.

In addition, Lee shared the several different certifications or positions that can be worked as a member of an ARES section.

Get Involved in ARES

If you are interested in getting involved in ARES, below are some actions you can take:

- Fill out the [ARES Registration form](#) and submit it to your local Emergency Coordinator.
Note: Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Because ARES is an Amateur Radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable, but is not a requirement for membership.
- Review the [ARES Manual](#).
- Review the [ARES Standardized Training Plan Task Book](#).

Next Club Meeting

The March club meeting will be in person at the Klein Fire Station #3 Training Room.

NARS General Club Meetings

NARS holds monthly club meetings where a variety of topics are presented from a number of guests. Come learn anything from antenna design, phasing, emergency response, and more!

Who: All club members, friends, or anyone interested in the Amateur Radio hobby

When: The Third Friday of the Month at 7:30pm

Where: Klein Fire Station #3, [9755 Landry Blvd, Spring, TX 77379](#)
Zoom Conference Call, Meeting ID: 2815436502, Passcode: 123456

Amateur Radio Activities

The “Amateur Radio Activities” feature of NARS News highlights various activities related to ham radio. Each issue provides a quick overview for those who may be interested in the learning new aspects of the amateur radio hobby.

A Simple Ground Plane Antenna

BY BRANDON ROGERS K5BLR

One of my favorite parts of the ham radio hobby is building and experimenting with antennas. While it is true that any conductor will radiate, the creativity that comes from working with different designs to achieve different outcomes, and the learning that comes from these experiments, can be quite rewarding.

Background

For a long time, I only had the opportunity of owning a cheap, Chinese HT. This small, underpowered radio, allowed me to get in the world of amateur radio. Coupled with an AMBE3000 USB dongle, this equipment helped me talk on analog and digital modes and communicate with other radio operators all across the area.

Soon, my desire to get on the HF bands pushed me to obtain a Hermes Lite 2 SDR. With 5W of transmit power, I learned to operate digital modes at low power levels using a speaker wire fan dipole that I created for 10m and 20m. Most of my contacts, so far, have come from this radio and I have learned that with an antenna and just a little bit of power, you can communicate all across the globe.

Recently, however, I have wanted to boost my power a little and decided to purchase a Yaesu FT-991A, which is a 100W, multi-band, multi-mode Transceiver which covers HF, VHF, and UHF. While I was eager to get the radio out of the box and start transmitting, I realized that I did not have an antenna for most of the spectrum that the radio

supports. I suppose I could attach the HT’s rubber duck antenna to the radio, but that felt, to me, a bit too much like buying a luxury car to use as a pickup truck. So, with this in mind, it was time to build another antenna or two.

The Antenna

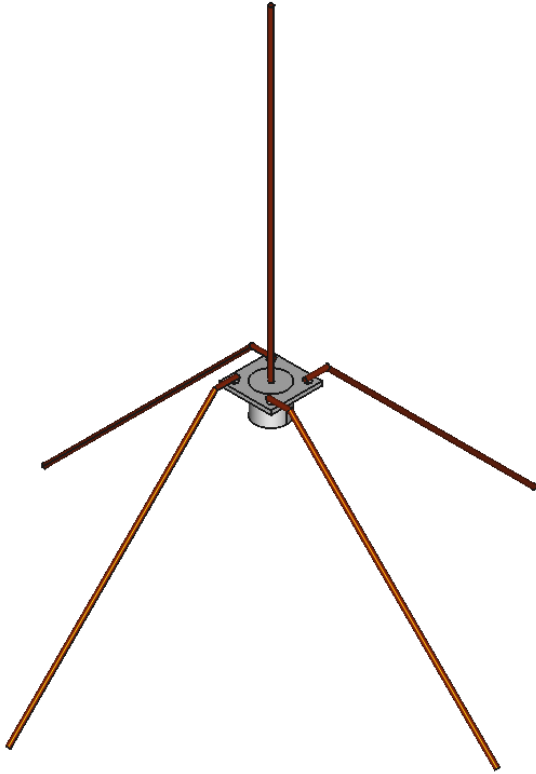
The first antenna that I wanted to build was a UHF antenna so that I could use the radio, instead of my HT, to call in to the NARS weekly nets on their repeater system. Since I am in the Klein area, the UHF repeater is closest to me. This new UHF antenna would give me an option to call in to the repeater. Since I had never built a ground plane type of antenna (my experience has been largely with dipoles), I was interested in learning more about them. With the band and type of antenna chosen, I moved on to the build phase of my antenna project.

Equipment

- 3/32” x 36” Welding Rod
- N-type Connector
- Wire Ring Connectors
- Bolts and nuts to fit the holes in the N-Type Connector
- Soldering iron and solder
- Coax and NanoVNA (for testing)
- ¾” PVC pipe for the mast
- Hose clamp to secure the antenna in the mast

Design

I consulted the expertise in the ARRL Antenna Book (24th Edition) for the basic design of the ground plane antenna (see Chapter 15, Section 15.2 for details). This ground plain antenna is simple to build and I designed my version of the antenna using CAD software as shown in Figure 1 below.



Rendering of ground plane antenna.

This simple antenna is built directly on an N-Type chassis connector. The driven element is soldered directly to the center pin on the connector. The ground plane is soldered, or screwed, to the chassis of the connector. Each of the ground plane elements are bent at a downward 45 degree angle. In this way, a feedline can be directly connected to the antenna and the structure of connector can be used to secure the antenna to the mast.

Antenna Construction

Construction of the antenna was simple. First, I cut each element. I cut 5 lengths of welding rod at 6.5"

(a little long for what is needed). Second, I soldered a ring connector on to four of the elements. I then used a speed square to bend these four elements at a 45-degree angle. Next, I soldered the fifth element on to the center pin of the chassis connector. Finally, I used nuts and bolts to attach the ring connectors to the chassis to form the ground plane.



Connections of ring connectors and nuts and bolts. Note: please forgive/ignore the atrocious soldering (I recruited the family to help build this antenna and learn more about radio) and the layer of sawdust on the connector.

Mounting the Antenna in a Mast

Next, I cut a section of PVC pipe to a reasonable measurement that would fit in my attic (where I will be mounting the antenna). On the end where I would be mounting my antenna, I cut a short, lengthwise line in the PVC.

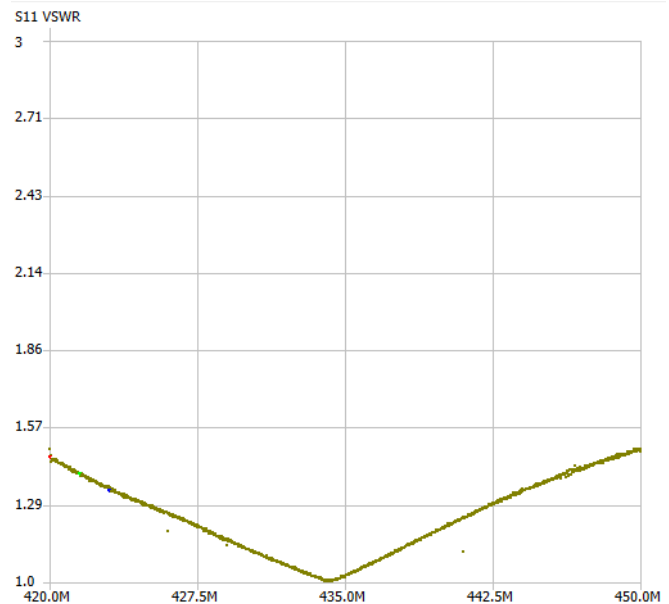


Mast and antenna assembly using hose clamp.

This will allow the PVC pipe to compress against the connector and hold it in place, using a hose clamp. Next, I fed a short section of feedline through the PVC pipe and attached the feedline to the antenna. Finally, I seated the antenna in the end of the PVC pipe and tightened the hose clamp to secure the antenna in the mast. The antenna was then ready for testing and trimming.

Trimming the Antenna

Once constructed, I only had to trim the antenna. I attached my NanoVNA to test the SWR of the antenna. As expected, since the driven element was cut long initially, the SWR “sweet spot” was at a much lower frequency than desired. I trimmed the vertical, driven element bit by bit until the low SWR “valley” rested right around 435MHz.



VSWR Readings from NanoVNA

Improvements

For others attempting to build a ground plane antenna like this, I would suggest the following improvements:

- Use a piece of sheet metal as the base of the ground plane. This is how the ARRL Antenna Book describes the design and would be better to keep the four ground plane rods in place. Ring connectors bend easily and bumping the antenna can often require the need to re-adjust the bottom components. Fortunately, as this will be in my attic, I am not extremely concerned with the antenna being bumped or the ground plane elements being bent out of shape.
- Using 3/4" PVC resulted in a tight fit for the stiff feedline. In the future, I would recommend using 1" PVC to allow a little more play/room for the feedline. Note that you will likely need to wider lengthwise slit to allow the PVC to fully compress against the connector.

VE Sessions and Results

Attendees

On March 26th, a VE Test Session was held at Klein Fire Station #3 in Spring, Texas. During the testing session 23 candidates took 32 tests.

Technician
(Element 2)

15

Passed
18 Tests Given 3 Failed

General
(Element 3)

3

Passed
13 Tests Given 10 Failed

Amateur Extra
(Element 4)

1

Passed
1 Tests Given 0 Failed

New General

- Eamonn Simmonds
- Fernando Franco Jr

Congratulations!

The NARS Club extends our sincerest congratulations to the following:

New Technician

- Suzanne Simmonds
- Brandy Lang
- Diane Simmons
- Cassandra Matto
- David Harris
- Nancy Crecelius
- Barry Burke
- Charlotte Joiner
- Yechen Xu
- John Long
- Wade Towery
- John Dettenhaim II
- Orlando Menchada

Upgrade to General

- Nguyen Le, KI5UGC

Upgrade to Amateur Extra

James Strickland, N5NJS

Thanks and Gratitude

Thanks to the Exam VE's in attendance:

- Robert E Ewers, K9HOU
- Stephen G Protz, KA5AUD
- Louis House, W3RZ
- Neal Naumann, N5EN

Next Session

Our next VE Test Session will be on April 16th, 2022 at Klein Fire Station No. 3 in the main Meeting Room in the Main Building. Check-in will start at 8:30am with testing lasting from 9:00am - 11:30am. All testing activities will be completed by noon.

VE Session Guidelines

If you have a temperature or feel ill – DO NOT attend.

- Tables and chairs will be arranged to meet social distancing. DO NOT MOVE THEM.
- Wear masks if you are not fully vaccinated or feel the need to wear them.

Please send an email to either of the following if you plan on attending the test session:

Sheree Horton - wm5n@arrl.net or vec@w5nc.net

New Club Members

Renewing Club Members

Thank you to all the members who renewed their NARS membership this past month:

Diane Binnie, WA5EE

John Parmalee, K5VGM

Ken Binnie, N5VZ

Scott Caskey, N5WTX

Scott Caskey, N5WTX

John M Jeffers, W3GYV

Tom Moore, N5RIV

Tom Moore, N5RIV

From the Community...

The “From the Community...” feature of NARS News shares articles and information coming from the ham radio community, reprinted with permission.

Houston Local Traffic Net First Anniversary

The Houston Local Traffic net celebrated its first anniversary in July 2021. The beginnings of the net started with radiogram training to a few hams on a local repeater in preparation for Field Day 2020. In that year, most clubs were forced to cancel their traditional field operations due to social distancing restrictions as a result of the Covid-19 Pandemic. This made it impossible for Technician Class hams or hams without their own stations to participate in Field Day. However, a closer look at the Field Day rules revealed that any class station participating in Field Day is eligible to earn bonus points for traffic handling. Furthermore, the repeater restriction for QSO credit does not apply to traffic handling. Thus, any ham could pass radiogram traffic on a repeater during Field Day and earn up to 200 bonus points. The training was a success and several hams who did not have their own stations were still able to participate in Field Day and earn the traffic handling bonus points. After Field Day was over, there was a continued interest among local hams in learning more about traffic handling and it was decided to hold a weekly training net. The traffic net was born. Originally called the Fort Bend County Traffic Net, the Houston Local Traffic Net has been in continuous operation since July 14, 2020 meeting every Monday evening. In its first year, the net has shown good growth in both numbers of check-ins and volume of traffic. There were over 850 total check-ins from more than 100 different stations and over 500 radiogram messages passed.

First Year Achievements

- July 14, 2020: Inaugural Net with 7 check-ins.
- October 2020: Net moved to the 146.94 repeater to increase coverage and participation.
- November 2020: First special net session held to support ARES S.E.T Drill
- April 2021: Added second weekly net on Thursday evening due to increased traffic volumes.
- June 2021: Held special net session in support of Field Day traffic handling.
- July 2021: The 500th radiogram was passed on the net.

Sheree Horton WM5N has been serving as the net control station for the Thursday night net since it began, with just a few exceptions. Just an added note, the 500th radiogram that was handled on the Monday night's HLTN was from Sheree.

Bill Novak, KA9IKK, is the Houston Local Traffic Net Manager.

Training and Education

NARS

NARS Member Articles and Tutorials -

<http://w5nc.net/index.php/2014-03-31-00-54-20>

ARRL

ARRL Online Course Catalog - <http://www.arrl.org/online-course-catalog>

ARRL Emergency Communications Training -

<http://www.arrl.org/emergency-communications-training>

ARRL Webinars - <http://www.arrl.org/ARRL-Learning-Network#schedule>

Other

Amateur Radio License Practice Tests - <https://hamexam.org/>



Of Interest to the Club

Houston Local Traffic Net

Houston Local Traffic Net meets each Monday at 6:30pm local time on the 146.940 repeater with a PL tone of 167.9 Hz. It also meets on Thursday evenings at 6:30pm local time on the 147.000 repeater with a PL tone of 103.5 Hz. The purpose of both nets is to pass NTS radiogram messages into and out of the Houston Area. The Monday net also provides traffic handling training. The backup repeater for both nets is 145.190 with a PL tone of 123.0 Hz.

Anyone with questions about the Houston Local Traffic Nets, radiograms and/or message handling can call or email Sheree Horton WM5N for more information.

GHSN monthly Simplex Propagation Net

Beginning January 2022, the [Greater Houston Simplex Network](#) will return to its regular schedule of the 4th Thursday evening of the month, with 6:15pm for the Zoom meeting and 7:00pm for the beginning of the net. Simplex frequencies are 146.540 MHz.

I would also like to restart the relay nets for the 2nd week of each month, so I need volunteer(s) to help out as Net Control Operator. I am just swamped with developing our cool new propagation application. Please contact me if you can help with this. The script is fully developed, and can be found on [the website](#).

Contact Mark - N5PRD@yahoo.com

Calendar

Club Activities and Events

VE Test Session – April 16th, 2022 – [Klein Fire Station #3](#) - Check-in will start at 8:30am with testing lasting from 9:00am - 11:30am. All testing activities will be completed by noon.

Ham Day in the Park – May 7, 2022 - Russ Poppe Park

Social Events

Lunch Break – North

Take a break with fellow radio operators and enjoy a lunch together!

Locations are announced weekly on the NARS email reflector!

Lunch Break – Medical Center

Mar 09 Jason's Deli
Mar 16 Mia's Table
Mar 23 Buffalo Grille
Mar 30 Antonio's Mexican Grill

Watch the NARS email reflector for details!

Saturday Breakfast

Saturdays at 7 am Broken Yolk Café, 16803 Stuebner Airline Road, Spring, TX 77379

Monday Lunch (Taildraggers Lunch)

Mondays at 11 am; Aviator's Grill at Hooks Airport Terminal

Did you know...

NARS has a social media presence! Thanks to Sam Labarbera, N6HB, we have a Facebook page for those who would like to follow us there. Visit the [W5NC Facebook page](#) and join! It is open to ham radio operators, so there is a short quiz to qualify new members.

We also have a Twitter feed. Follow us on https://twitter.com/nars_w5nc

Contests

<p>January 2023 1: <u>Straight Key Night</u> 7: <u>Kids Day</u> 7-8: <u>RTTY Roundup</u> 21-23: <u>January VHF</u> TBD: <u>Winter Field Day</u></p>	<p>February 2023 13-17: <u>School Club Roundup</u> 18-19: <u>International DX – CW</u></p>	<p>March 2023 4-5: <u>International DX– Phone</u></p>
<p>April 2022 18: <u>Rookie Roundup – Phone</u></p>	<p>May 2022</p>	<p>June 2022 12-14: <u>June VHF</u> 19: <u>Kids Day</u> 26-27: <u>Field Day</u></p>
<p>July 2022 10-11: <u>IARU HF World Champ</u></p>	<p>August 2022 7-8: <u>222 MHz and Up Distance</u> 21-22: <u>10 GHz & Up – Round 1</u> 22: <u>Rookie Roundup – RTTY</u></p>	<p>September 2022 11-13: <u>September VHF</u> 18-19: <u>10 GHz & Up - Rnd 2</u></p>
<p>October 2022 18-22: <u>School Club Roundup</u> 23-24: <u>EME - 2.3 GHz & Up</u></p>	<p>November 2022 6-8: <u>Nov. Sweepstakes – CW</u> 20-22: <u>Nov. Sweeps. – Phone</u> 20-21: <u>EME-50 to 1296 MHz</u></p>	<p>December 2022 3-5: <u>160 Meter</u> 11-12: <u>10 Meter</u> 19: <u>Rookie Roundup–CW</u> 18-19: <u>EME - 50 to 1296 MHz</u></p>

Hamfests and Conventions

April 23, 2022 – Emory Hamfest, Emory, TX, Rains Amateur Radio Association

May 20-22, 2022 – Dayton Hamvention and featuring ARRL EXPO, Xenia, Ohio

June 17-18, 2022 - Radio Fiesta, San Antonio Radio Club

August 20-21, 2022 – Hunstville Hamfest, Hunstville, Alabama

NARS Club Officers and Information

Board Officers with Voting Privileges

President: Ron Matussek, WA6TQH, 713-825-9606, officers@w5nc.net

Vice President: Paul Kent, KI5FJS, officers@w5nc.net

Treasurer: Tom Hoherd, KK5YU, 281-370-2941, treasurer@w5nc.net

Secretary: Brandon Rogers, K5BLR, 713-294-6630, officers@w5nc.net

Director: Rob Nixon, KD5BXZ, officers@w5nc.net

Director: Kirc Breden, N5XJB, officers@w5nc.net

Board Non-Voting Associate Members

Administrative Secretary: Neal Naumann, N5EN

Social Media Liaison: Sam Labarbera, N6HB

Newsletter Editor: Brandon Rogers, K5BLR

Public Information Liaison: John Parmalee, K5VGM

ARRL/VEC Liaison: Sheree Horton, WM5N

Repeater Team Lead: Marty Fitzgerald, W5MF

Webmaster: Bill Buoy, N5BIA, webmaster@w5nc.net

Trustee: Paul Owen, N5NXS

Club Nets

[DMR Weekly Net](#) – Every Tuesday at 7pm. Tune in on Talkgroup 3146211 for information on configuring codeplugs, see the DMR pages on the Club website (<http://w5nc.net>) or contact a club Elmer. Sam Labarbera, N6HB, coordinates this Net.

[The Weekly Wednesday Evening Net](#) - Every Wednesday at 8:00 pm. Join us on one of the W5NC repeaters: 146.660 MHz, -600kHz offset, PL 100.0 - wide area centered on downtown Houston and/or 444.375, + 5 MHz offset, PL 100 best in the Spring / Klein area. You can also join from anywhere in the world by connecting to EchoLink node W5NC-R. Neal Naumann, N5EN, coordinates this Net.

Repeaters

For information on NARS-managed repeaters, please see the club website at <http://w5nc.net/index.php/club-info/repeaters>

Did you know...

that NARS has an email list service (sometimes known as an email reflector, Listserv, or email distribution list) that allows you to connect with a giant group of experts, club members, and resources. Register today at:

[http://mailman.qth.net/mailman/
listinfo/nars](http://mailman.qth.net/mailman/listinfo/nars)