

NARS NEWS

MARCH 2023

Northwest Amateur Radio Society P.O. Box 11483 Spring, TX 77391 <u>w5nc.net</u>

President's Message Page 3 New STX Traffic Manager Page 17 NASA Calls For Help Page 18

ET 1401



Contents

President's Message
Exam Practice4
The ARRL Letter
NARS Monthly Club Meeting
Amateur Radio Activities15
Overcoming Shyness15
Ham Radio Team Reaches World's Most Remote Island16
A New Section Traffic Manager for the South Texas Region17
A Call for Help From NASA
VE Sessions and Results
New General Question Pool Released for Ham Radio Licensing Effective July 1, 2023
New and Renewing Club Members21
NARS Membership – Due Dates and More
•
Training and Education
Training and Education
Training and Education
Training and Education 22 Upcoming Skywarn Spotter Training for 2023 23 Of Interest to the Club 24
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25Social Events25
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25Social Events25Hamfests and Conventions26
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25Social Events25Hamfests and Conventions26Contests and Radiosport26
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25Social Events25Hamfests and Conventions26Contests and Radiosport26NARS Club Officers and Information27
Training and Education22Upcoming Skywarn Spotter Training for 202323Of Interest to the Club24Calendar25Club Activities and Events25Social Events25Hamfests and Conventions26Contests and Radiosport26NARS Club Officers and Information27Board Officers with Voting Privileges27

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 <u>k5blr@arrl.net</u>



President's Message

BY RON MATUSEK, WA6TQH

Houston HamFest

I would like to thank the NARS members for a great turnout at this year's HamFest. The location was Fort Bend County Fairgrounds in Rosenberg, TX and the weather was perfect! We participated in Balloon launches, VE testing and of course the opportunity to sell or swap some of our Radio Gear. There were also some technical presentations which drew large crowds and provided lots of meaningful information.

Equipment Donations

Some members are cleaning house and have donated large amounts of Amateur radio equipment and parts to NARS for the purpose of securing a new home for this equipment. Paul Kent KI5FJS has been heading up this project and has pictures of the assortment of equipment which has been shown during our recent ZOOM session. The amount of equipment will overwhelm anyone but Paul feels that there would be enough interest that we may have a special event to offer this equipment to some needy ham. Contact Paul Kent for more information.

Repeater Enhancements

Our Technical Team continues to improve on tweaking our Echo Link, Allstar interfaces to bring about a more robust communication link including better audio. Be sure to check out these links especially weekly during our VHF/UHF nets on Wednesday evenings 8PM. Your feedback is encouraged.

FIELD DAY 2023 – The fourth weekend in June is June 24-25 – so save the date!

I would like to thank Robert Ewers K9HOU who has come forward and will be our "Field Day Coordinator". A field day coordinator is responsible for appointing team captains, facility survey for antenna placements and gaining facility management approval and, most important ensuring ALL guidelines for Field Day as outlined by ARRL RULES are followed. If you would like to be one of our team captains, please contact Robert Ewers K9HOU. Look for more communications about Field Day to come in the next few weeks.

See you at the General Meeting!

Ron Matusek President NARS





Exam Practice

Are you new to the hobby and looking to pass your Technician exam? Are you preparing to level up your license by taking the next level exam? Check out the questions below to test your knowledge!

Technician (Element 2)

T4A12

What is an electronic keyer?

- A. A device for switching antennas from transmit to receive
- B. A device that assists in manual sending of Morse code
- C. A device for voice activated switching from receive to transmit
- D. An interlock to prevent unauthorized use of a radio

General (Element 3)

G0A08

Which of the following steps must an amateur operator take to ensure compliance with RF safety regulations when transmitter power exceeds levels specified in FCC Part 97.13?

- A. Post a copy of FCC Part 97.13 in the station
- B. Perform a routine RF exposure evaluation
- C. Post a copy of OET Bulletin 65 in the station
- D. Contact the FCC for a visit to conduct a station evaluation

Amateur Extra (Element 4)

E8A04

What is "dither" with respect to analog-to-digital converters?

A. An error caused by irregular quantization step size

B. A method of decimation by randomly skipping samples

C. An abnormal condition where the converter cannot settle on a value to represent the signal

D. A small amount of noise added to the input signal to allow more precise representation of a signal over time

See the answers on <u>Page 23</u>.



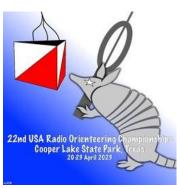
The ARRL Letter

An excerpt from the weekly ARRL Letter

USA Radio Orienteering Championships Set for April 19 - 23, 2023

Registration is now open for the 22nd USA Radio Orienteering Championships.

The event will be held April 19 - 23, 2023, at Cooper Lake State Park in Texas, and is hosted by the <u>New Mexico</u> <u>Orienteers</u>, Albuquerque, New Mexico, using maps provided by <u>North Texas</u> <u>Orienteering</u> Association.



The <u>White Rock Lake Amateur Radio Club</u> will provide communications support.

"Radio Orienteering" has been transitioning to this new name but it is actually the same radio navigation sport known as Amateur Radio Direction Finding (ARDF).The sport involves using special radio receivers to find hidden transmitters in timed events.



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 <u>http://www.arrl.org/arrlletter</u>

USA ARDF Co-coordinator Gerald Boyd, WB8WFK, said the event is open to everyone of all age groups, and three medals will be awarded for first, second and third place in all groups. "We have events beginning with the Sprint," said Boyd. "Participants will have 60 minutes to find their transmitters. After that, three more events, the Fox -O, and two Classics events, all lasting three hours." Results of the competitions on April 20 - 23, 2023, will help determine the members of Team USA who will compete in the ARDF World Championships scheduled for the fall of 2023 in Liberec, Czech Republic.

Charles E. Scharlau, NZOI, USA ARDF Co-coordinator, said they are hoping for a good turnout. "It is difficult to estimate attendance this year. We can accommodate up to 100 persons," said Scharlau. "Historically, we've had about 35 or fewer competitors in non-pandemic years, but we are hearing rumors of many people who are eager to get out and do things, so perhaps attendance will be up this year."

Scharlau said this year everyone participating in or attending the event will need to pay a \$5.00 parking fee at the park.

"Visit the <u>USA Radio Orienteering Championship</u> <u>website</u> for more information about the event and registration." More information about Radio Orienteering is available on the <u>ARRL website</u>.



ARRL Foundation Accepting Applications for Grants in February

The ARRL Foundation is now accepting applications for grants to amateur radio organizations. The grants program



awards limited funding to organizations for eligible amateur radio-related projects and initiatives, particularly those with a focus in educating, licensing, and supporting amateur radio activities. Youth-based projects and initiatives are especially encouraged. The ARRL Foundation grants program accepts proposals on a cyclical model three times a year, in February, June, and October. Proposals for the February grant period are being accepted through February 28. Awardees will be notified approximately 1 month after the closing of each cycle.

Additional information and a link to the grant application can be found at <u>www.arrl.org/amateur-</u> radio-grants.

Amateur Radio on the International Space Station Contacts two US Schools

Astronauts on board the International Space Station (ISS) were busy the last week of January using amateur radio to

make contact with two schools.

The <u>Amateur Radio on the</u> <u>International Space</u>



Station (ARISS) program arranged contacts with Brentwood Magnet Elementary School in Raleigh, North Carolina, and Norwich Free Academy (NFA) located in Norwich, Connecticut.

On January 26, 2023, nearly 400 students at Brentwood Magnet Elementary School filled the gymnasium to listen to astronaut Koichi Wakata answer questions about his experience on the ISS. Wakata told students he loves being in space but is looking forward to taking a shower when he returns in March.

He also told the students that it's not scary in space and encouraged them to pursue careers in science and engineering.

Then on January 30, 2023, astronaut Dr. Josh Cassada contacted students at NFA. During his 10minute contact, Cassada shared with students how his career as a Navy Test Pilot helped him become an astronaut. "Do the things you love," Cassada told the students.During the remainder of the contact, Cassada talked about cargo vehicles making frequent trips to resupply the ISS and how his routine is different each day, including working weekends.

The NFA Amateur Radio and Engineering Club, W1HLO, members and advisors installed an amateur radio satellite ground station on the NFA campus in 2023, thanks to an Amateur Radio Digital Communications (ARDC) grant, which helped make the contact with the ISS possible.

ARISS is a unique STEM educational program which inspires young people to develop knowledge and skills through their participation in space science and amateur radio. ARISS conducts 60 - 80 of these special amateur radio contacts each year between students around the globe and crew members with ham radio licenses aboard the ISS.

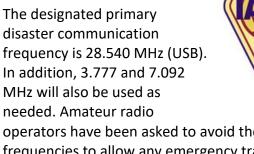
ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include from NASA's Space Communications and Navigation program (SCaN), the ISS National Lab - Space Station Explorers, <u>ARRL</u> <u>The National Association for Amateur Radio</u>[®], and AMSAT.



Amateur Radio Active in Turkey and Syria Following Earthquakes

In the days following the 7.8 magnitude earthquake and aftershocks that hit Turkey and Syria on February 6, 2023, emergency communications have been active with rescue and response efforts.

The emergency communications group Türkiye Radyo Amatörleri Cemiyeti (TRAC) is coordinating primary communications.





operators have been asked to avoid these frequencies to allow any emergency traffic.

In a statement issued to ARRL on February 9, 2023, IARU Region 1 Emergency Communications Co-Ordinator Greg Mossop, GODUB, said the full effects of this disaster continue to unfold along with the search for any remaining trapped people.

Here is his full statement:

"Aziz, TA1E, is now at the disaster area and coordinating frequencies for teams carrying out search operations. Many countries have sent Search and Rescue [(SAR)] resources but the only ones known to have [r]adio [a]mateurs embedded in them are Georgia and Bosnia [and] Herzegovina. The Romanian SAR team has no operators, but [it] does have communications equipment supplied by RVSU, one of the Amateur Radio emergency groups in Romania.

Aziz reported yesterday that 'due to the overwhelming dimension of the incident, some problems in coordination occur[ed]. These naturally have an impact [o]n the coordination of the incoming foreign SAR [g]roups.

As the assignment of their duty area is sometimes [a] 'last-minute decision,' and this decision is made by government officials, I would kindly ask the groups to report to me [for] that assignment. I will then [be] able to inform the groups [of] the usable frequencies in the area.'

With the large number of rescue teams deployed to the country, the challenges in coordinating teams, locations, and frequencies are to be expected.

With the death toll now over 17,000 in Turkey and Syria, the focus remains [on] getting the right help to the right place. A clear message from Aziz, when asked whether any radio operators or equipment were required, was:

'Assistance of individual radio amateurs is only possible if they are 'embedded' to SAR Teams with [International Search and Rescue Advisory Group] (INSARAG) Certification, which [has] been accredited by the Turkish government."

At the time of the earthquake, a [European Conference of Postal and Telecommunications Administrations] (CEPT) meeting was taking place, and it has been reported that the Turkish delegation to that meeting confirmed that Radio Amateurs were being deployed in the emergency response.

Traffic is being heard on 10 and 80 meters in the Turkish language, so the request to keep frequencies in the area clear remains. The majority of emergency communications traffic remains on VHF.

The earthquake affected Syria as well. I have tried reaching the Syrian [Scientific Technical Amateur Radio] Society but with no response, as they seem to have gone QRT.



[The] full effects of this disaster continue to unfold and [are] now encompassing the needs of survivors [to]search for any remaining trapped people."

To date, there have been more than 17,000 casualties in Turkey and Syria combined, and more than 14,000 casualties in Turkey alone, with more than 63,000 people reported injured. Aftershocks continue and relief organizations are on site, with more aid arriving in the areas daily.

Additional and updated information is available at <u>https://www.iaru-r1.org/2023/turkiye-</u> earthquake-6-february-2023/

Registration Open for the 2023 QSO Today Virtual Ham Expo

The 2023 QSO Today Virtual Ham Expo will be held on March 25 - 26, and registration is now open.



The event is a fully interactive virtual ham radio convention offering new

content, networking opportunities, and more than 50 amateur radio presentations on a wide variety of subjects.

There is still time to participate in the event as a presenter. You can submit an application to present a video on a topic of your choice. The deadline for submission is February 15, 2023. Tickets are \$15, and registration information can be found at the <u>QSO Today Virtual Ham Expo</u> website.

-- ARRL is a QSO Today Expo Partner.

Utah Students Talk to an Astronaut on the International Space Station

Amateur Radio on the International Space Station (ARISS) was active on February 7, 2023, with a

downlink to students in the Cache County School District in Millville, Utah.

Astronomy students from Ridgeline and Sky View high schools were able to talk to Astronaut Josh Cassada, KI5CRH, with the help of the Bridgerland Amateur Radio Club (BARC), an ARRL Affiliated Club.

Ten students were able to ask questions that ranged from how fast you're able to spin in a



Astronaut Josh Cassada, KI5CRH. [NASA, photo]

weightless environment, to which NASA project Astronaut Cassada thinks is most important to us as human beings.

A <u>YouTube</u> video of the entire event, including Astronaut Cassada's answers, is available.

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include NASA's Space Communications and Navigation program (SCaN), the ISS National Laboratory's Space Station Explorers program, <u>ARRL The National Association</u> for Amateur Radio[®], and AMSAT.

IARU Holds First 2023 Meeting

The 56th meeting of the Administrative Council of the International Amateur Radio Union (IARU) was held via Zoom on January 16, with President Tim Ellam, VE6SH, presiding.

The council received reports from the officers of each of the three regions. The meeting's focus was on the International Telecommunication Union's (ITU) upcoming World Radiocommunication Conference (WRC-23) later this year in Dubai,



United Arab Emirates. The IARU effort for WRC-23 is being led by IARU Vice President Ole Garpestad, LA2RR.

Here is a summary of the meeting submitted by IARU Secretary Joel Harrison, W5ZN:

"Of particular interest to the amateur radio and amateur satellite services for WRC-23 is agenda item 9.1b concerning the amateur allocation in the 23 - centimeter band at 1240-1300 MHz. The Radio Navigation Satellite Service (RNSS) is seeking protection from secondary users in addition to an expanded allocation. Preparatory work for this item is being conducted within the ITU's Working Party 5A. IARU's global WRC-23 9.1b team, led by Barry Lewis, G4SJH, has been consulting with the amateur community, resulting in a <u>contribution</u> to the draft guidance recommendation in support of coexistence with RNSS. Details on this work can be found at <u>www.iaru.org</u>.

The council reviewed a comprehensive written report from IARU [Electromagnetic Compatibility] Coordinator Dr. Martin Sach, G8KDF, on his work with the International Special Committee on Radio Interference (CISPR). CISPR was formed in 1934 to set standards for controlling electromagnetic interference in electrical and electronic devices. CISPR's specific areas include radio interference measurements and statical methods, and limits for the protection of radio frequencies.

An ongoing strategic planning review of the current IARU structure is being conducted within several Working Groups (WGs). The Administrative Council received reports from the Futures WG Steering Committee, Relationship WG, Governance WG, and the Legal WG. This work is scheduled for completion no later than July to allow discussion at the Region 1 [General] Conference in Serbia in October, with additional opportunities provided to the other two regions. Region 1 has received several inquiries regarding the status of [John Devoldere's,] ON4UN, and [Mark Demeuleneere's,] ON4WW, book, Ethics and Operating Procedures for the Radio Amateur and is considering how this document [can] be updated.

The Summary Record from this meeting, in addition to previous meetings, is available at www.iaru.org/reference/ac-summary-records/."

The next virtual meeting of the Administrative Council is scheduled for March 20, and an in-person meeting is scheduled for June 25 at the conclusion of Ham Radio in Friedrichshafen, Germany.

The IARU Administrative Council is comprised of the IARU global officers and the President/Chairman and Secretary from each of the three regions. Members participating in this meeting were IARU President Tim Ellam, VE6SH/G4HUA; Vice President Ole Garpestad, LA2RR; Secretary Joel Harrison, W5ZN; Region 1 President Sylvain Azarian, F4GKR; Secretary Mats Espling, SM6EAN; Region 2 President George Gorsline, VE3YV; Secretary Rod Stafford, W6ROD; Region 3 Chairman Ken Yamamoto, JA1CJP, and Director Yudi Hasbi, YD1PRY. Also participating was IARU Assistant Secretary David Sumner, K1ZZ.

Founded in 1925, IARU is the worldwide voice of radio amateurs who secure and safeguard the amateur radio spectrum. ARRL serves as the International Secretariat of IARU.

Amateur Radio Digital Communications Releases 2022 Annual Report

<u>Amateur Radio Digital Communications</u> (ARDC) has released it's 2022 Annual Report detailing grants made for amateur radio projects.



In 2022, overall, ARDC approved nearly \$6.7 million in grants, and distributed nearly \$7.7 million.

ARDC's 2022 grants were distributed in four categories: Amateur Radio,



Education, Scholarships, and Research & Development. Below is a list of the total grant amounts distributed in each category.

- Amateur Radio \$2,145,686
- Education \$2,326,744
- Scholarships \$1,561,548
- Research & Development \$2,402,293

In 2022, international grant making was expanded to 13% of funded projects, which was an increase from 9% in 2020, and is an area where ARDC is aiming for additional growth in 2023.

ARDC made 47 grants to amateur radio in 2022, which accounts for almost half of the total projects funded.

These included nine college amateur radio club projects and 33 community amateur radio club projects which involve network build outs, equipment upgrades, and repairs to old equipment.

Communications vehicles were commonly applied for, meaning that they were more competitive and difficult to obtain funding for. Clubs often share that these projects re-energize their membership and activities.

ARDC reviewers focused on selecting projects with strong outreach plans or opportunities to bring new people into the hobby. Projects with unique approaches and ones that aimed for big impacts stood out from the crowd. At the same time, funds were available for bread-and-butter club projects in order to continue supporting typical groups enjoying the hobby.

An example of a stand-out project is the one proposed by Bay Area Mesh (BAM). BAM's goal is "to install a resilient, high-speed, wireless network throughout San Francisco and the greater Bay Area." The network would be used by responders, volunteers, and served agencies during disasters, emergencies, and large community events.

ARDC noted in the awarding of the grant, "They're building this network using inexpensive, commercial-grade Wi-Fi equipment, running opensource software developed by the Amateur Radio Emergency Data Network (AREDN)." Using AREDN software allows BAM volunteers to set up a node with minimal expertise and effort, Advanced network technology is not needed because the software configures the network automatically.

Scholarships continue to be a focus for ARDC. In 2023, ARDC is funding 95 scholarships, bringing the all-time ARDC scholar total to 313. The <u>ARRL</u> <u>Foundation</u> was the biggest beneficiary, with a grant of \$500,000. And, in keeping with their goal of reaching underserved groups, scholarship programs were also funded for the Society of Women Engineers and OMIK (a multicultural amateur radio organization), among others.

ARDC is a private foundation that exists to support amateur radio and digital communication science and technology.

The mission of ARDC is to support, promote, and enhance digital communication and broader communication science and technology, and to promote amateur radio, scientific research, experimentation, education, development, open access, and innovation in information and communication technology.



You can read more about ARDC at their website.

Amateur Radio on the International Space Station Seeking Contact Proposals

The Amateur Radio on the International Space Station (ARISS) program is seeking formal and informal educational institutions and organizations, either individually or working together, to host an amateur radio contact with a crew member on board the International Space Station (ISS).

ARISS anticipates the contact

will be held between January 1, 2024, and June 30, 2024. Crew scheduling and ISS orbits will determine the exact contact dates. To maximize these radio contact opportunities, ARISS is looking for organizations that will draw large numbers of



participants and integrate the radio contact into a well-developed education plan.

The deadline to submit a proposal is March 31, 2023. Proposal information and more details, such as expectations, proposal guidelines, and the proposal form, can be found

at <u>https://www.ariss.org/apply-to-host-an-ariss-</u> contact.html.

An ARISS introductory webinar will be held March 1, 2023, at 8:00 PM EST. The Eventbrite link to sign up for the free webinar

is <u>https://www.eventbrite.com/e/ariss-proposal-webinar-for-spring-2023-proposal-window-registration-515706320487</u>.

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. The United States sponsors are ARRL, the Radio Amateur Satellite Corporation (AMSAT), Amateur Radio Digital Communications (ARDC), NASA's Space Communications and Navigation program (SCaN), and the ISS National Lab Space Station Explorers (SSE).

ARISS is a cooperative venture of international amateur radio societies and the space agencies that support the ISS. In the US, participating organizations include NASA's Space Communications and Navigation program (SCaN), the ISS National Lab - Space Station Explorers, <u>ARRL</u> <u>The National Association for Amateur Radio</u>[®], and AMSAT.

ARRL Welcomes Kevin Beal, K8EAL, as the Director of Development

Kevin Beal, K8EAL, has joined ARRL staff as the Director of Development.

He has a significant background in nonprofit administration, and for the last 17 years, has managed large-scale projects and teams. His previous experience includes various roles supporting organizations and higher education institutions with program management, events, alumni engagement, and fundraising.



Kevin Beal, K8EAL, is the ARRL Director of Development.

Beal has also worked on cybersecurity infrastructure training projects supported by the Federal Emergency Management Association (FEMA) and feels that amateur radio has significant value as an emergency communications tool.

With a father who was an electronics engineer during Vietnam in the US Army Signal Corps, Beal has been surrounded by radio his whole life. "I grew up in a household of spare electronics and communications equipment where at-home repair



and soldering were commonplace," he said. He's excited to grow as a licensed ham and was thrilled to make a contact from the Hiram Percy Maxim Memorial Station as W1AW.

He joins ARRL after a career at his alma mater, Norwich University, from which he earned a bachelor's degree and a master's degree in international conflict management and resolution. As a cadet at Norwich University, he participated in the Naval and Marine Reserve Officers' Training Corps (NROTC) as a part of the cadre training new cadets, and he was a member of the Cavalry Troop.

Beal looks forward to getting to know ARRL donors. He and his wife live in Connecticut near ARRL Headquarters with their two daughters and their rescued hound. On most weekends during the winter, he can be found on the road taking his oldest daughter to her next hockey game.

World Amateur Radio Day Theme: Human Security for All

The International Amateur Radio Union (IARU) announced that Human Security for All (HS4A) will be this year's theme of <u>World Amateur Radio</u> <u>Day</u> on April 18, 2023.

The day is being celebrated with a 2week operating event occurring April 11 - 25. Special



event stations will be operating from around the world, making two-way radio contacts to call attention to the HS4A campaign.

The <u>concept of human security</u> measures the security of an individual by things essential to one's well-being. This includes economics, food, health, the environment, personal factors, the community, and political factors. Amateur radio is uniquely positioned to address those challenges by promoting technical knowledge, practical skills, innovative technology, and the deployment of backup systems at the community level that can be called upon in times of emergency.

IARU, a federation of the national amateur radio societies of over 150 countries worldwide, is the global advocate for amateur radio through its Sector Membership in the International Telecommunication Union, an agency of the U.N., and other activities.

The <u>United Nations Trust Fund for Human</u> <u>Security</u> and the <u>World Academy of Art and</u> <u>Science</u> are partnering with <u>IARU</u> in the campaign.

In a release, the partners wrote, "Amateur radio has repeatedly demonstrated its ability to address human security needs. It is a truly global communications medium comprising some three million radio enthusiasts connecting communities and the peoples of the world."

ARRL participates in World Amateur Radio Day each year. It was on this day in 1925 that the IARU was formed in Paris. ARRL co-founder Hiram Percy Maxim was its first president. For additional World Amateur Radio Day resources, visit http://www.arrl.org/world-amateur-radio-day.

Click the image below to watch a video about HS4A:





ARRL Podcasts Schedule

The latest episode of the ARRL On the Air podcast (Episode 28) features a discussion of digital multimeters with practical usage examples and shopping tips.



Eclectic Tech

The latest edition (Episode 58) of the ARRL <u>Eclectic Tech</u> podcast features a discussion with author Nick Tusa, K5EF, about his new book Wes Schum - Amateur Radio's Unsung Hero.

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 -- <u>On the Air</u> | <u>Eclectic Tech</u>.

Amateur Radio in the News

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

"<u>Rescued by ham radio</u>" / WMUR -TV / New Hampshire Chronicle (New Hampshire), January 31, 2023

"Dr. Mark 'KF4MLT' Aulick memorialized at Amateur Radio Winter Field Day" / Grice Connect (Georgia), January 27, 2023. -- The Statesboro Amateur Radio Society is an Affiliated ARRL Club.

"<u>The Amateur Radio Emergency Services looks to</u> <u>recruit volunteers</u>" / WGXA -TV (Georgia), January 28, 2023. -- Macon-Bibb Amateur Radio Emergency Service (ARES[®]).

"<u>Eastern Carolina amateur radio club puts</u> <u>emergency response skills to the test</u>" / WITN -TV (North Carolina), January 29, 2023. -- The Onslow Amateur Radio Club is an ARRL Affiliated Club. "<u>The dits and dahs of Morse Code in the digital age</u>" / WANE-TV (Indiana), January 30, 2023. -- The Fort Wayne Radio Club is an ARRL Affiliated Club.

"<u>People across North Central Florida learn to use</u> <u>ham radios for communication</u>" / WCJB-TV (Florida) January 30, 2023. -- The Gainesville Amateur Radio Society is an ARRL Affiliated Club.

"<u>Local HAMS celebrate Kansas Day</u>" / The Gardner News (Kansas), January 31, 2023. -- The Santa Fe Trail ARC is an ARRL Affiliated Club.

"<u>Dixie Amateur Radio Club makes widespread</u> <u>contact during annual field day</u>" / Cedar City News (Utah), February 2, 2023. -- The Dixie Amateur Radio Club is an ARRL Affiliated Club.

"<u>Helping through ham radio: Emergency services</u> <u>use amateur radio specialists</u>" / East Oregonian (Oregon), February 6, 2023. -- Amateur Radio Emergency Services[®].

"<u>Helping through ham: Emergency services enlist</u> <u>amateur radio specialists</u>" / The Columbian (Oregon) February 7, 2023 -- Umpqua Valley Amateur Radio Club.

"<u>Ham radio operators and their role with sled dog</u> <u>safety</u>" / WJMN TV (Michigan), February 17, 2023. -- Al Augustyn, W8FYZ, is Secretary of the Marquette Radio Repeater System.

"<u>Schofield club excels in international radio</u> <u>outreach</u>" / Aiken Standard (South Carolina), February 20, 2023. -- The Schofield Amateur Radio and Technology Club.

Arrl.org. 2022. ARRL Letter. [online] Available at: http://www.arrl.org/arrlletter?issue=current [Accessed 1 January 2023]



NARS Monthly Club Meeting

February Club Meeting

In February, Rich Jones, W5VEK, gave a talk about setting up high performance wire antenna in residential locations. Rich taught us about all aspects of hanging an antenna, feed line practices, and his experiences with them.

Take a look at past presentations by viewing the club website at http://www.w5nc.club/nars/index.php/club-info/technical-presentations.

Next Club Meeting

Our next club meeting will be March 17th at the Klein Fire Station #3 Training Facility. We look forward to seeing you there!

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 77379Zoom 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.

Overcoming Shyness

Inspired by "Reaching Out on the Repeaters—And Getting Responses", published in the ARRL monthly On the Air email, accessed at <u>http://arrl.org/files/file/On%20the%20Air%20Email/Reaching%20Repeaters.pdf</u>

BY BRANDON ROGERS, K5BLR

For many hams, the joy of amateur radio lies in the ability to communicate with people from all over the world, and yet, many hams struggle with shyness. It's an odd contradiction - a hobby centered around communication, yet many of its participants find themselves hesitant to reach out and start a conversation.

Amateur radio provides a unique solution for shy communicators. With the exception of visual modes such as amateur television, no one can see you when you're on the air. In other words, ham radio allows us to hold the world at arm's length while still maintaining contact. It can act as a filter and a shield for those who are uncomfortable with close, personal communications.

However, breaking through the shyness barrier to communicate with a stranger can be difficult. Similar to school days, when the teacher asked for student volunteers, many hams hesitate to be the first to raise their hand. A similar situation occurs on repeaters. When a new ham announces that they're listening, a dozen people may have heard them. However, since they are an unknown, many hams don't know what to say and choose not to respond.

So how does one overcome this barrier? The key is to join an existing conversation. Listen to the repeater during peak hours and wait for an opportunity to contribute something. Even if it's just a question, it can help break the ice. In the pauses between transmissions, announce your call sign and introduce yourself. Engage in enough of these conversations on the same repeater, and you'll gradually melt through the shyness barrier. In time, your call sign will be as familiar as any other, and you'll have a much better chance of getting a response.

Another way to establish yourself in the ham radio community is to become involved in NARS club activities. Volunteer for public service events, attend meetings regularly, and be prepared to jump in whenever help is needed. Don't worry about your lack of experience. You'll be told exactly what to do, and in most cases, an experienced ham will be nearby.

Amateur radio provides unique solutions for shy communicators. By joining existing conversations and becoming involved in club activities, you can establish yourself in the community and overcome social fears to enjoy ham radio to its fullest. So don't let shyness hold you back; reach out and make connections today!



Ham Radio Team Reaches World's Most Remote Island

The original article, written by John Konrad, can be viewed at <u>https://qcaptain.com/ham-radio-team-reaches-worlds-most-remote-island/</u>

A team of amateur radio operators recently completed an expedition to the world's most remote inhabited island, Tristan da Cunha, located in the South Atlantic Ocean.

The expedition, which took place over several weeks, was organized by the 3YOJ DXpedition team and aimed to make contact with other amateur radio operators around the world. The team consisted of 14 members from six countries, and they traveled to the island aboard the yacht Braveheart.

Tristan da Cunha is home to just over 250 people and is known for its isolation, with the nearest land being over 1,200 miles away. The island is also known for its unique wildlife, including rockhopper penguins and the Tristan albatross.



The 3YOJ DXpedition team faced numerous challenges during their journey, including rough seas, unpredictable weather, and logistical difficulties. However, they were ultimately successful in establishing a ham radio station on the island and making over 70,000 contacts with amateur radio operators around the world.

According to team leader Paul Ewing, the expedition was a great success and demonstrated the power of ham radio in connecting people across the globe.

"Despite the challenges we faced, we were able to establish a ham radio station on Tristan da Cunha and make contacts with amateur radio operators from all over the world," Ewing said. "Our expedition shows that ham radio is a powerful tool for connecting people and overcoming geographical barriers."

The 3YOJ DXpedition team is already planning their next expedition, which will take them to another remote location in the Pacific Ocean.

Overall, the team's journey to Tristan da Cunha was a remarkable achievement, showcasing the resilience and resourcefulness of amateur radio operators and their ability to connect with others across great distances.



A New Section Traffic Manager for the South Texas Region

New ARRL STX Section Traffic Manager Brings Impressive Qualifications

The American Radio Relay League (ARRL) South Texas (STX) section has announced Sheree Horton, WM5N, as their new Section Traffic Manager (STM).

Horton brings with her an impressive list of qualifications, having served as the Houston Local Traffic Manager (HLTM) for a year and running the Thursday HLTM for two years since its inception. She has also presented at various local ham clubs about the National Traffic System (NTS) and traffic handling.

In addition, Horton has supported Summer Field Day operations for two years by teaching, originating, and sending radiograms for bonus points in the event. She has also handled traffic digitally for Oklahoma and Arkansas and relayed it through the NTS/Digital network, communicating effectively with the Northwest and Southwest Units on a weekly basis.



Horton has mentored newer hams into traffic handling, recommending them for net operators and Amateur Radio Service (ARS), and has created, maintained, and sent HLTN monthly reports and STM reports in a timely manner. She has also checked into over 70 nets handling traffic, including ARES, RACES, EMROG, 7290 Traffic Net, and Texas Traffic Net.

Horton's qualifications and experience demonstrate her commitment to the hobby of ham radio and her dedication to traffic handling. We wish her the best of luck in her new role and look forward to seeing the positive impact she will make on the community.

The STX section is excited to welcome Horton as their new STM, and they look forward to her contributions to the community.



A Call for Help From NASA

Ham Radio Operators, We Need Your Help During Solar Eclipses!

NASA scientists are calling on ham radio operators around the world to help with research during solar eclipses. During a total solar eclipse, the ionosphere, a layer of the Earth's atmosphere, can be significantly impacted, causing disruptions to high frequency radio communications. By collecting data on these disruptions, researchers can better understand the behavior of the ionosphere and its effects on radio signals. Ham radio operators are uniquely positioned to help with this research, as they have the equipment and expertise to make these measurements. By participating in these efforts, ham radio operators can contribute to scientific discovery and help improve our understanding of the complex interactions between the Sun and Earth's atmosphere.

For more information, please read the article at <u>https://science.nasa.gov/science-news/citizenscience/ham-radio-operators-we-need-your-help-during-solar-eclipses</u> or visit <u>https://hamsci.org/festivals-eclipse-ionospheric-science</u>.

This Hack-a-Day article about the topic may also be interesting: <u>https://hackaday.com/2023/02/23/nasa-help-wanted-ham-radio-operators-please-apply/</u>

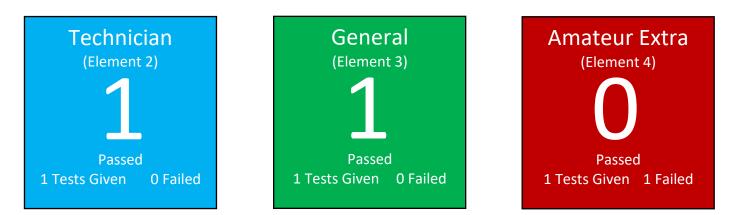


VE Sessions and Results

PROVIDED BY SHEREE HORTON, WM5N

Attendees

On Saturday, February 11, 2023, a VE Test Session was held at Klein Fire Station #3 in Spring, Texas. During the testing session, 2 candidates took 3 tests.



Congratulations!

Congratulations to the following for passing their new license exams¹:

• John Ryan – Technician

Congratulations to the following for passing their upgrade exams:

• Jorge A Gutierrez NOJGS – Upgrade to General

Pre-registration for Testing Sessions

To pre-register for an upcoming testing session, you can use one of the following links:

HamStudy.org page link: https://hamstudy.org/sessions/arrl/77070/inperson

The next session will be March 18, 2023. Please visit <u>www.w5nc.net</u> for the announcement.

Did you know...

NARS now has the ability to run computer-aided tests through <u>Ham.Study</u>. Computer-aided tests provides many benefits, including the ability to make the tests easier to administer, quicker to get results, easier for many test-takers, and many more!

¹ Successful candidates will only receive their <u>NEW</u> licenses if they pay the \$35 fee to the FCC within 10 days of receipt of their notification emails. They will have to request the ARRL VEC to resubmit their paperwork if they miss the 10-day deadline. They do <u>NOT</u> have to retest.



Thanks and Gratitude

Thanks to the Exam VE's in attendance:

- Bob Ewers, K9HOU
- Michael Robinson, KIODE
- Paul Owen, N5NXS
- Vicki Owen, AC5EW

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

Volunteering and Becoming a Volunteer Examiner

Anyone who wants to observe and/or participate in a session is always welcome. Please let Sheree Horton know if you want to learn more about becoming a volunteer examiner.

New General Question Pool Released for Ham Radio Licensing Effective July 1, 2023

The National Conference of Volunteer Examiner Coordinators' (NCVEC) Question Pool Committee (QPC) has released the 2023 - 2027 General Class FCC Element 3 Syllabus and Question Pool to the public. The new General Question Pool is effective July 1, 2023, through June 30, 2027.

The new pool incorporates some significant changes compared to the 2019 - 2023 version. Its 432 questions were modified slightly to improve wording and to replace distractors; 51 new questions were generated, and 73 questions were eliminated. This resulted in a reduction of 22 questions, bringing the total number of questions in the pool down from 454. The level of difficulty of questions is more balanced, and the techniques and practices addressed have been updated.

The pool is available as a Microsoft Word document and PDF. The single graphic required for the new General Question Pool is available within the documents, or separately as PDF and JPG file formats.

The newly revised pool must be used for General-class license exams starting July 1, 2023," said ARRL VEC Manager Maria Somma, AB1FM, who is a member of the NCVEC Question Pool Committee. "New test designs will be available to ARRL Volunteer Examiners on that date. The ARRL VEC will supply its officially appointed, field-stocked VE teams with new General exam booklet designs around mid-June."

General class examination candidates preparing for their exams using the 9th edition of The General Class License Manual, and/or the 6th edition of ARRL's General Q & A are encouraged to test by, or before, June 30, 2023. New editions of ARRL licensing publications will be available in May, for exams taken on, or after, July 1, 2023.



New and Renewing Club Members

New Club Members

Welcome to the following new members of NARS!

- Jorge Gutierrez, NOJGS
- John Ryan
- Vicki Owen, AC5EW

Renewing Club Members

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

- Gary Greer, N5EXP
- Richard Nelson, KF5WRD
- Randy Handley, KC6WYH
- Rob Nixon, KD5BXZ
- Dave Lalor, WA5OUW
- Paul Owen, N5NXS
- Mike Lodge, K7LEX
- Marie Rogoff, N5VLA
- Schalee Lodge, KD5WLL
- Martin Rogoff, N5GPS
- James Lovett, KI5NVD
- Larry Simko, WA8EXE
- Harry Mallery, W5BD
- Nora Stovall, KB5FYJ
- David Meine, KI5MJD
- Mike Wilson, KC5MW

NARS Membership – Due Dates and More



Did you know that you can find your membership expiration date on the club website? Simply click the "Membership Reports" link on the home page or visit this link: <u>http://www.w5nc.club/nars/index.php/2014-03-30-18-23-31</u>. Find your name in the list and look at the "Expires" column of the table!



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

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

Exam Review for Ham Radio - <u>http://www.arrl.org/examreview</u>

Find an Amateur Radio License Class http://www.arrl.org/find-an-amateur-radio-license-class

Free Study Guides

A study guide for Technician license preparation, Dan Romanchik, KB6NU

A <u>study guide</u> for Technician license preparation on the Inland Empire VHF Radio Club website, Jack Tiley, AD7FO (Click on "Training Links" and go to the Technician training link)

Online Video/Audio Courses

<u>Online Technician license exam self-study course</u>, Fred Benson, NC4FB - The purpose of the resources developed for this course is to provide candidates in geographical areas that do not provide classes and candidates who cannot attend a class with the means to prepare for the Technician license exam. The materials cover all questions in the question pool with explanations, sub element tests, and sample license exams. Help is available upon request via email.

Benson also offers a <u>"kid friendly" self-study course</u> and a self-study program especially designed for <u>emergency services personnel</u>.

"The Ham Whisperer" <u>Video Course</u>, Andy Vallenga, KE4GKP – This course is based on the FCC question pool sequence to assist with Technician license preparation.

<u>A Self-Study Video Course</u>, Dave Casler, KEOOG – This course provides a guided self-study <u>video</u> <u>course</u> based on ARRL's Ham Radio License Manual curriculum.

Online Technician License Preparation Course – Chris Johnson, N1IR





Study Tools

<u>HamStudy.org: Cutting edge amateur radio study tools</u> - Free ham radio flash cards, practice tests, and question pools as well as introduction to ham radio and explanations for questions.

HamTestOnline – Study Tips for the Ham Radio License Exams

HamExam.org - Free Amateur Radio Practice Tests with Flash Cards

eHam.net Ham Radio Practice Exams

Paid Resources

W5YI Group - Your Resource for Ham Radio and Commercial Radio Licensing

<u>HamRadioPrep</u> - Enroll in Ham Radio Prep, the industry's #1 online test prep and training program, and pass your FCC Amateur Radio License exam on the first try - or your money back.

HamTestOnline - Study for your Ham Radio License Exam!

Upcoming Skywarn Spotter Training for 2023

Training is free and open to the public. More dates to be added soon. For more details, please see <u>SKYWARN - Schedule (weather.gov)</u>.

Date/Time	Location	Point of Contact
Basic	Lone Star Convention Center	Victor Reyes
February 13th	9055 Airport Road	Victor.reyes@mctx.org
6:30 pm to 8:30 pm	Conroe, TX 77303	936-523-3908
Basic	Dunbar Gym	Polk County Emergency Management
March 8th	1103 Dunbar Street	emergencymanagement@co.polk.tx.us
6:30 pm to 8:30 pm	Livingston, TX 77351	
Basic Advanced	Brazos Center	Amy Zaragoza
March 9th	3232 Briarcrest Drive	azaragoza@cstx.gov
Basic 1 pm to 3 pm	Bryan, TX 77802	
Advanced 6 pm to 8 pm		
Advanced, Virtual	Virtual, online, <u>register here</u>	dan.reilly@noaa.gov
March 21st		
6 pm to 815 pm		

Exam Practice Answers

Technician: T4A12 – B. A device that assists in manual sending of Morse code **General**: G0A08 – B. Perform a routine RF exposure evaluation **Amateur Extra**: E8A04 – D. A small amount of noise added to the input signal to allow more precise representation of a signal over time



Of Interest to the Club

Houston Local Traffic Net

The Houston Local Traffic Net meets each Monday night at from 6:30 – 7:30pm on the 146.940 repeater with a PL tone of 167.9 Hz. The backup repeater for Monday night is the NARS repeater 146.660/100.0. The Thursday night edition of the Houston Local Traffic Net meets on Thursday evenings at 6:30pm on the 146.660 repeater with a PL tone of 100.0 Hz. This repeater is linked to the 70cm repeater on 444.375 also with a PL tone of 100 Hz. You can access the two linked repeaters via EchoLink node W5NC-R. The Thursday night backup repeater is 147.000 with a PL tone of 103.5 Hz. The purpose of both nets is to pass National Traffic System (NTS) radiogram messages into and out of the Houston area. The Monday edition of the Net also provides traffic handling instruction/training.

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 <u>Greater Houston Simplex Network</u> 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 <u>the website</u>. Contact Mark - <u>N5PRD@yahoo.com</u>

Local Events

March 11 - Buffalo Bayou Regatta

April 29-30, 2023 – Texas MS 150 - To complete your 2023 Sign-Up you need to visit two separate websites as outlined below:

- The Com Form
- 2023 TX MS 150 Volunteer Registration (Galaxy Digital Site)

Please make sure you have completed the process on both websites. You will not be considered fully registered for the event until you have done so.



Calendar

Club Activities and Events

Monthly Club Meeting – March 17, 2023 - Klein Fire Station #3

VE Test Session – March 18, 2023 – <u>Klein Fire Station #3</u> - Check-in will start at 8:30am with testing lasting from 9:00am - 11:30am. All testing activities will be completed by noon.

The full NARS calendar can be viewed at: <u>https://w5nc.groups.io/g/main/calendar</u>

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

Near the Medical Center and want to take a break with fellow radio operators and enjoy a lunch together?

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 <u>W5NC Facebook page</u> 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



Hamfests and Conventions

- March 18 | MARC St. Patricks Day Hamfest, hosting the ARRL West Texas Section, Midland, Texas
- March 18 | <u>Charleston Area Hamfest</u>, hosting the ARRL West Virginia Section Convention, Charleston, West Virginia
- March 24 25 | ARRL Maine State Convention and Hamfest, Lewiston, Maine
- March 25 26 | <u>QSO Today Virtual Ham Expo</u> (online)
- April 7 8 | Green Country Hamfest, hosting the ARRL Oklahoma Section Convention, Claremore, Oklahoma
- April 8 | Raleigh Hamfest, hosting the ARRL North Carolina State Convention, Raleigh, North Carolina

Contests and Radiosport

- February 4 5 -- Vermont QSO Party (CW, phone, digital)
- February 4 5 -- 10-10 International Winter Contest, SSB (phone)
- February 4 -- EurAsia HF Championship (CW, phone)
- February 4 5 -- F9AA Cup, CW (CW)
- February 4 5 -- Mexico RTTY International Contest (digital)
- February 4 -- Minnesota QSO Party (CW, phone, digital)
- February 4 -- FYBO Winter QRP Sprint (CW, phone, digital)
- February 4 -- AGCW Straight Key Party (CW)
- February 4 5 -- British Columbia QSO Party (CW, phone)
- February 4 5 -- European Union DX Contest (CW, phone)
- February 4 5 -- North American Sprint, CW (CW)
- February 6 -- OK1WC Memorial (MWC) (CW)
- February 6 -- RSGB 80-Meter Club Championship, SSB (phone)
- February 7 -- ARS Spartan Sprint (CW)
- February 8 -- NAQCC CW Sprint (CW)





NARS Club Officers and Information

Board Officers with Voting Privileges

President: Ron Matusek, 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: Rich Jones, W5VEK, officers@w5nc.net

Director: Sam Labarbera, N6HB, 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: Sheree Horton, WM5N

ARRL/VEC Liaison: Sheree Horton, WM5N

Repeater Team Lead: Marty Fitzgerald, W5MF

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

Trustee: Paul Owen, N5NXS

Did you know...

that NARS has a messaging service, called Groups.io, that allows you to connect with a giant group of experts, club members, and resources. Get more information on our club website at <u>http://w5nc.net/index.php/clubinfo/email-reflector-groups</u>

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 (<u>http://w5nc.net</u>) or contact a club Elmer. Sam Labarbera, N6HB, coordinates this Net.

<u>The Weekly Wednesday Evening Net</u> - 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. Kirc Breden, N5XJB, coordinates this Net.

Repeaters

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