THE SIGNAL

NEWSLETTER OF THE BELLA VISTA AREA RADIO CLUB

Arkansas' Largest Amateur Radio Club

BELLA VISTA RADIO CLUB
ARKANSAS

SPECIAL ISSUE:
SPECIAL EVENT STATION
&
N5T TRAIN MOBILE

ARRL Field Day 2025

JUNE 28-29

Metfield Park
49 Commonwealth Road
Bella Vista, AR

- May Program – "Ask The Elmer"
- WWV – A Radio Icon
- EXPERIMENTER'S CORNER – A 20-Meter Vertical Antenna, Part 2
- Special Event Stations
- Making Sense of Propagation Forecasts
- DXCC DEN – Sovereign Military Order of Malta

ARRL SPECIAL SERVICE CLUB

June 2025

Monthly Meetings: 1st Thursdays @ 7 p.m.
Arkansas Law Enforcement Training Academy (ALETA)
3424 S. Downum Road, Springdale AR

(HAM 101 Workshop for Newcomers @ 6pm preceding meeting)

Club Calls: N5BVA / W5NX

(Repeater Nets) *(Contesting & Special Events)*

Repeaters: 147.255 +600 khz offset, pl 162.2

444.100 + 5 MHz offset, pl 162.2

Website: www.bellavistaradioclub.org

WEEKLY NETS:

BVRC HAM 101 Net
Tuesdays @ 7 pm on the WX5NAS Skywarn Link System:

Bentonville – 146.865, -offset, pl 103.5
Springdale – 147.315, +offset, pl 97.4
Fayetteville – 147.315, +offset, pl 110.9
Huntsville – 443.625, +5 MHz, pl 97.4
Green Forest – 145.310, -offset, pl 103.5

BVRC Legacy Net
Wednesdays @ 7 pm on the BVRC Dual Linked Repeaters:

N5BVA/Bella Vista
147.255, +offset, pl 162.2

N5BVA/Springdale
444.100, +5 MHz, pl 162.2

BVRC 3830 Roundtable
Sunday Afternoons
4 pm during CST
4:30 pm during CDT
3.830 MHz

NEXT BVRC MONTHLY MEETING

Thursday, June 5, 2025 @ 7pm
Arkansas Law Enforcement Training Academy
3424 S. Downum Road
Springdale, AR

June Meeting Information

HAM 101 Workshop, 6pm preceding monthly meeting – The June HAM 101 Workshop promises to be educational and fun. BVRC Hospitality Director and the Signal newsletter's stellar "Experimenter's Corner" author Bill Durham – KG5ZCI will be on hand to conduct a "Hands-On Ohm's Law" program. Bill's talk will include lots of actual measurements. He will be bringing with him 15 work stations with digital multimeters, breadboards, and a collection of resistors.

Be sure and join-in on this intriguing class!

BVRC June meeting, 7pm – BVRC Field Day Chair Tom Northfell – W5XNA will conduct BVRC's annual Field Day Preparation meeting for this month. Tom will review previous Field Days, as well as advise the club on what current preparations have been finalized, and what positions and tasks are still needed. He will also answer any questions concerning BVRC's biggest yearly event.

It will be an enjoyable and informative evening guaranteed to give all club members "Field Day Fever"!

SEE YOU THEN!

BOARD MEMBERS

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Jan Hagan – WB5JAN
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N5BVA Trustee
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Tom Northfell – W5XNA
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arsk5db@gmail.com

From The Desk of the President

A major part of the culture of the Bella Vista Radio Club involves providing support for and cooperation with those entering our wonderful hobby and those who are early-on in their amateur radio journey. To that end, BVRC has numerous activities and programs to help fulfill this mission – Technician and General license classes, monthly VE testing opportunities at two locations, an annual CW Academy training, as well as our Tuesday evening HAM 101 net and our monthly HAM 101 Live workshop preceding each monthly meeting.

These, along with our monthly club presentations, our nationally recognized newsletter and website as well as operating activities such as special event stations, Parks on the Air activations and, especially our award-winning Field Day weekend, all go towards supporting all our members and area amateurs no matter how far along they are on their amateur journey.

With such a culture of welcoming support for both club members and amateurs throughout the region, it seems natural that our club would want to reach out to support the community in general with our unique skills and capabilities as amateur radio operators. Indeed, one of the most popular selections on the interest survey of new club members is EMCOMM (emergency communications).

With all of this as a background, there is clearly a gap in our core activities as a well-rounded club supporting all interests in Amateur Radio – Community Support and Emergency Communications readiness.

Recently, one of our Leadership Team members, Alex Smith – KI5EQK, has taken the mission of building our club's community support program. The BVRC Leadership Team sees Alex's efforts to provide community support for other community-based organizations as not only a worthy goal in and of itself, but also as a first step into the establishment of an active EMCOMM program for BVRC.

I believe it is important that our club support Alex in his efforts to help "fill the gap" in the development of a community support program leading to an ongoing EMCOMM effort.

Below is an opportunity to get involved and become a part of an exciting and necessary new program for BVRC. Supporting the "Bodies Race Program" nonprofit organization in their staging of bicycle races throughout Northwest Arkansas provides an excellent first opportunity to get engaged in.

Please consider supporting BVRC in this new and important club initiative. Below is Alex's contact information and his "pitch" from our last meeting so you can reach out and get involved:

A Unique Community Service Request and Opportunity For BVRC

Why Should BVRC and You Get Involved?

- **Invaluable service to the community**
- **Good practice and discipline**
- **Opportunity to Lead**
- **Field testing and deployment**
- **Low stakes environment**
- **Great Visibility for recruitment**
- **Networking**

CONTACT INFORMATION:

Alex Smith KI5EQK
Call/text: 479 – 445 – 4153
Email: ki5eqk@gmail.com
Facebook: https://www.facebook.com/Smithe079

73,
Jan – WB5JAN

BVRC NEEDS YOU!

FOR FIELD DAY 2025 JUNE 28-29!

The biggest ham radio event of the year is just around the corner! Mark your calendar and join us for food, fun, fellowship, operating, & hands-on experience in setting-up portable ham stations. The 4 Field Day Stations setups have been finalized, but volunteers are still needed for set-up, tear-down, food, drinks, snacks, accessories etc. If you would like to help, contact

Tom-W5XNA at:
w5xna@arrl.net

C U THEN!!!

May Program Features Excellent "Ask the Elmer" Q&A Session, Plus HF Mobile Demonstration

BVRC members enjoyed a super informative and entertaining evening for the May program as they once again packed the meeting room for a BVRC monthly program first, as a panel of some of our most experienced Elmer members formed a panel to field any and all types of ham radio related questions from attendees.

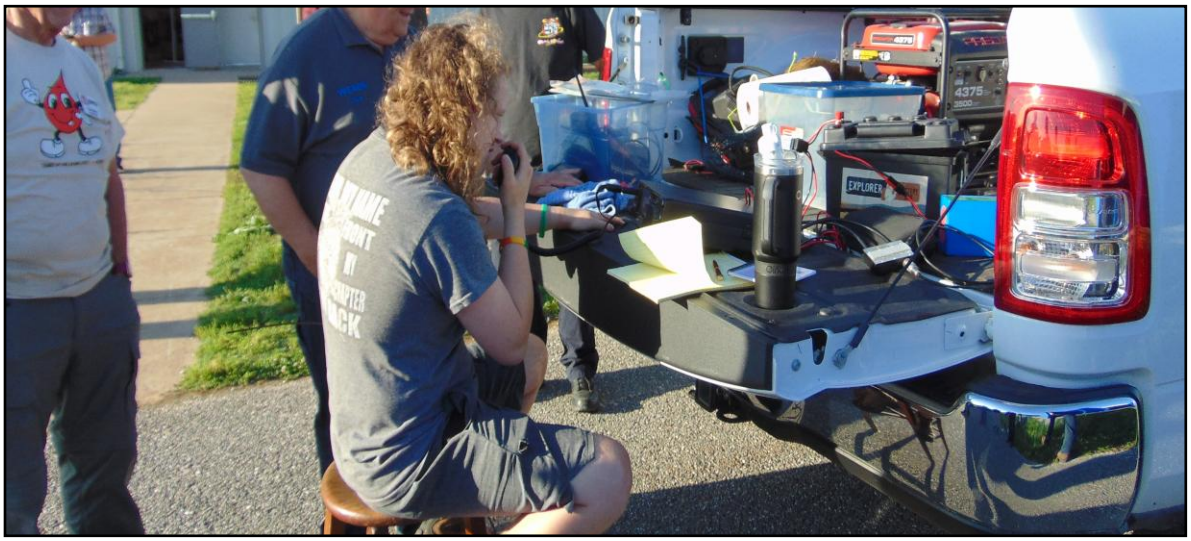
Attending members came up with many excellent questions, and it was super interesting to hear the responses from the panel members. Of course, you can't get a group of veteran operators together without a few laughs to accompany the great answers they rendered, and tonight was no exception. (LOL)

The most popular question topics posed to the panel were on antennas and RFI, along with all the other excellent topics that were covered. A HUGE thanks to our Elmer panel for a job well done!!!

The 2025 "Ask the Elmer" panel, L to R: Jay Bromley – W5JAY, Robert Hill – K5NZV, Stan Stockton – K5GO, Murray Harris – W5XH, Mark Whatley – K5XH, Tem Moore – N5KWL, and Chuck Korzendorfer – KM5G

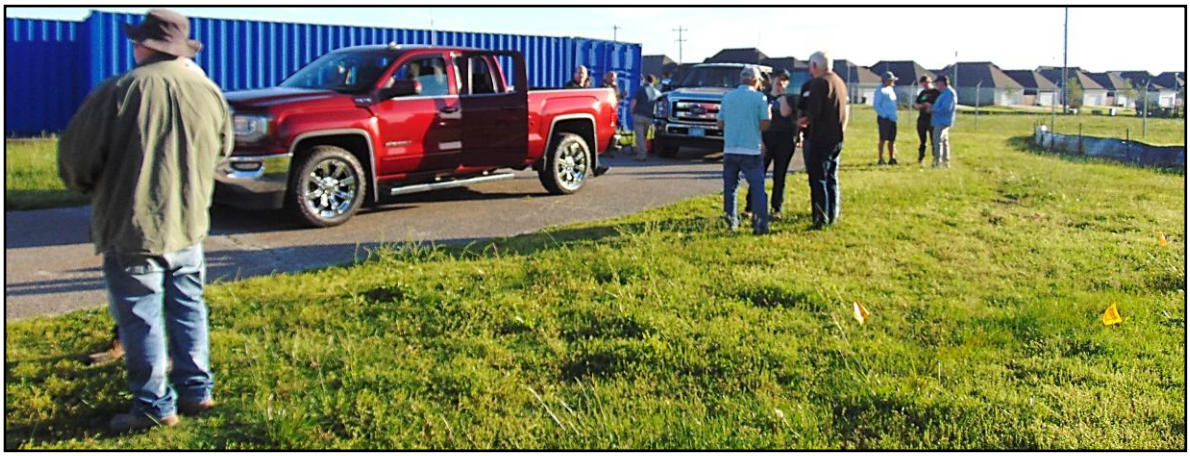
For our May HAM 101 Workshop, a throng of both newcomers and veterans filled the “side yard” of the ALETA facility to observe and experience a live demonstration by Joe-W5AEN, Robert-K5NZV, and Don-K5DB on HF mobile operation. Joe and Robert also demonstrated how you can also use mobile antennas for portable operation as they had both their mobile and portable stations setup for workshop attendees.

Some of the newcomers also braved the microphone and made some SSB contacts, giving them a big thrill.



Even though the solar K-index was 4 (usually not good for long distance propagation), mother nature’s ionosphere still provided a couple of surprises as HZ1TT from Saudi Arabia and E7ØF from Bosnia-Herzegovina came rolling through the speaker. Don made numerous attempts to work them for the observers, but the pileups were so huge it’s pretty tough for a semi-rare DX station such as Saudi Arabia to hear a mobile signal among the home stations, many of them running amplifiers. Many newcomer attendees were quite amazed at signals being received by the mobile stations from over 7500 miles away.

There were also a couple of French special event stations on the air which the mobiles easily worked both on SSB and CW. Many newcomers experienced their first encounter with FT8, which of course can be used for mobile (as well as, of course, home) operation.



Although you can conduct a normal HF QSO (ragchew) going down the road, Joe, Robert, and Don shared with attendees how much they enjoy using their mobile stations primarily for activating POTA (Parks On The Air) parks, and participating in contests (ex: QSO parties) that have a mobile or portable category.

Special Event / POTA Station Provides Fun & Quality Operating Adventure

With four QSO parties operating simultaneously for the weekend and band conditions being below average BVRC operators still garnered 205 QSOs on SSB, FT8, and CW with BVRC's SES/POTA Day.

During the day on Saturday, May 3, around 40 visitors and club members came by the J.B. & Johnelle Hunt Ozark Highlands Nature Center to see the portable station setup, discuss antennas, enjoy a great lunch, operate, or just have some plain fun "eyeball QSOs".

Due to the temperature being a little cool in the mid to upper 60s, coupled with a north wind at 10-20 mph, the club utilized its 'major portable station operation tent'. The tent is a three-prong design and can house up to 4 stations easily with extra seating room. It kept operators comfortable for most of the day (the morning was a little chilly).

W5NX Special Event Station site

A great midday lunch was provided with drinks and Domino's pizza, along with some fabulous pulled pork supplied by Dale – W5DSL.

A *BIG* thanks goes out to all the great members who assisted with setup and dismantling. Events like this would never be a success without folks like you!

The Special Event/POTA station was comprised of its two mainstays, the Yaesu FT-991A and FT-450d for CW and SSB, along with Robert-K5NZV's trusty Icom IC-7300 on FT8 and James-KA5DVS with his Yaesu FT-817 running on 6 and 10 meters, feeding several of his really nifty homebrew antennas.

Many newcomers 'got their feet wet' really well on HF during this operation, which was also a great warmup for BVRC's **BIG** event coming up on June 28-29, our annual Field Day event at Metfield Park in Bella Vista.

Here are some photos of this fun and lively event:

W5NX SE station

James-KA5DVS at the 6- and 10-meter station

James' impressive 6-meter portable antenna!

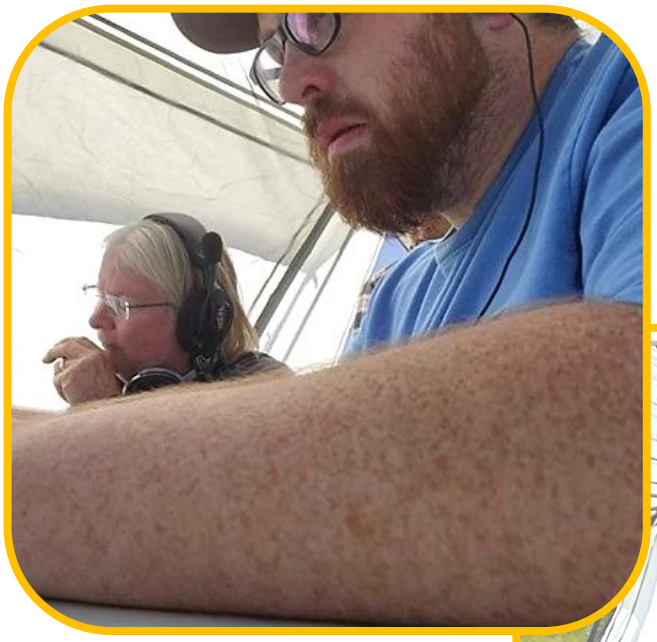
Brandon-KJ5IOP and Tom-KN4SLP explaining amateur radio to visitors

Early morning setup

BVRC members chow-down at lunch time

Ryan – N5PZ and Stephen – N5ZE

Brad – KJ5CWR and BVRC President Jan – WB5JAN (foreground) with Tom – KN4SLP and Dale – W5DSL (background)



Chuck – NS5C makes a SSB contact with Brandon – KJ5IOP logging

One of the highlights of the day was the arrival of BVRC's newest youth member, Lee – KJ5KXW and his friend Clayton. Lee didn't waste any time getting on the SSB station and making a QSO. He is already working on recruiting Clayton into the ham radio ranks! Our thanks to Lee's grandfather Randy – KB5RLM for bringing the young gentlemen to the event.

Ham Radio Helps Cognitive Skills

Amateur Radio is helping lifelong hobbyists stay mentally fit in old age. It comes with all the benefits of social media but without "any of the downsides" and one of Australia's oldest ham radio enthusiasts says it is also the perfect hobby for retirees looking to stay mentally sharp.

West Australian-based Norman Gomm, VK6GOM, took to ham radio over forty years ago and now aged 82 has no intention of signing off just yet. As one of Australia's estimated 10,500 licensed ham radio operators, Mr. Gomm, is also the president of the Bunbury Radio Club.

He says it is rare that a day goes by without him spending at least a couple of hours in his purpose-built 'ham shack'. "I find it's very good for me," Mr. Gomm told the ABC amid a dazzling display of flashing lights and crackling radio static.

"I'm 82 years of age and you need to keep your mind working actively all the time," he said. "Ham radio requires a lot of cognitive skills and a lot of understanding technology, so I find that's very good for keeping me active."

Watch the video and read the full story at:

http://www.abc.net.au/news/2018-06-27/ham-radio-helping-older-hobbyists-stay-mentally-fit/9908468

For Sale

Vintage Hammarlund HQ-180 receiver in operational condition.
Belonged to his grandfather. Asking $350 or best offer.
If interested contact Patrick in Fayetteville: 408-667-6716

BVRC VE REPORT
From Don Cooper – KC7DC
BVRC VE Coordinator
May 2025

Congratulations!

Mark Huber – KJ5LHQ – Bella Vista
New Technician!

Ryan Biazo – KJ5LHS – Tontitown
New Technician!

Next month's test sessions:

- ***June 14, 10 am – Shiloh Museum, 118 W. Johnson Ave, Springdale***
- ***June 14, 2 pm – Bella Vista Public Library, 11 Dickens Place, Bella Vista***

WWV: A RADIO ICON

If you're an amateur radio veteran (or even possibly a newcomer to the hobby) at some point in time past you have probably set your radio and/or shack clock to that mighty signal coming out of Fort Collins, CO from the U.S. quintessential time station WWV.

2019 was a year of both celebration and uncertainty for WWV which transmits automated time broadcasts on the shortwave bands.

On the plus side, it marked the 100th year of WWV's call letters, making the site, operated by NIST (the National Institute of Standards and Technology), one of the world's oldest continually operating radio stations, broadcasting a continuous time signal since 1945 and still going strong.

On the negative side, WWV and its sister time station WWVH in Hawaii nearly missed this centennial. That's because NIST's original 2019 budget called for shutting down the pair, along with WWVB, the longwave code station co-located next to WWV, as a cost-saving move.

Fortunately, those cuts never happened, and WWV, WWVH and WWVB seem likely to keep broadcasting the most accurate time from NIST's atomic clocks, at least for the immediate future. (No further cuts have been threatened.)

That's good news for the stations' many supporters, who say that over-the-air time broadcasts still matter in the Internet Age.

WWV was established in 1919 by the Bureau of Standards in Washington, D.C.

In 1931, the station relocated to the first of three suburban Maryland sites, before moving to a location near Fort Collins in 1966. WWV shares this site with longwave (also known as "low frequency" or LF) station WWVB, which transmits carrier and time code (no voice) at 60 kHz.

In other words, WWV transmits the audio time announcements, while WWVB transmits time codes to all atomic clocks that are capable of receiving the time code signal. If you have an atomic wall or desk clock that displays the icons of , , or something similar, this indicates the clock has received the signal and you can thank WWVB for that. Most atomic clocks receive the time code and recalibrate themselves every 24 hours to automatically maintain accurate time without the need for manual adjustment. Commercial and institutional interests use these time signals where accurate time plays a vital role in daily operations including shipping, transport, technology, research, education, military, public safety and telecommunications. It is of particular importance in broadcasting, whether it be commercial, public, or private interests such as – you guessed it – amateur radio operators, who use the station's transmissions to test and calibrate their equipment.

Part of the massive WWV antenna system – aerial view

WWV antennas – ground view

WWV building

WWV operates in the high frequency (HF) portion of the radio spectrum and broadcasts on 2.5, 5, 10, 15, and 20 MHz frequencies. Each frequency is broadcast from a separate transmitter. The station radiates 10,000 watts on 5 MHz, 10 MHz, and 15 MHz, and 2,500 watts on 2.5 MHz and 20 MHz.

A portion of the transmitter bank and tone generators

On top of the standard carrier frequencies, WWV carries additional information using standard double-sideband amplitude modulation. WWV's transmissions follow a regular pattern repeating each minute.

WWV transmits audio "ticks" once per second, to allow for accurate manual clock synchronization. These ticks are always transmitted, even during voice announcements and silent periods. Each tick begins on the second, lasts 5 ms and consists of 5 cycles of a 1,000 Hz sine wave. To make the tick stand out more, all other signals are suppressed for 40 ms, from 10 ms before the second until 30 ms after (25 ms after the tick).

On the minute, the tick is extended to a 0.8 second long beep, followed by 0.2 s of silence. On the hour, this minute pulse is transmitted at 1,500 Hz rather than 1,000 Hz.

The transmitted time is always given in Coordinated Universal Time (UTC).

Voice announcements of time of day are made at the end of every minute, giving the time of the following minute beep. The format for the voice announcement is, "At the tone, X hour(s), Y minute(s), Coordinated Universal Time." The announcement is in a male voice for WWV and female for WWVH and begins 7.5 seconds before the minute tone. (For WWV,click here. for WWVH, click here.)

Most amateur radio receivers/transceivers have access to the WWV frequencies. If you've never heard WWV live, tune in!

Part of the 15 MHz antenna

Another portion of the massive WWV transmitter bank

WWV feedlines exiting station

Of course we all know the old – and very true – adage, "Your radio is only as good as your antenna."

WWV is no exception, and has the outstanding antennas to prove it. Its antenna system sits on 390 acres near Fort Collins, CO, about 70 miles north of Denver, just off Interstate 25.

WWV's antennas are half-wave vertical antennas that radiate omnidirectional patterns, with each antenna connected to a single transmitter using a rigid coaxial line (see photo at bottom). The tallest tower, for 2.5 MHz, is about 200 feet tall, and the shortest tower, for 20 MHz, is about 25 feet tall. Each antenna is mounted on a tower that is approximately one half-wavelength tall. The top half of each antenna is a quarter-wavelength radiating element, while the bottom half consists of nine quarter-wavelength wires that connect to the center of the tower and slope downwards to the ground at a 45-degree angle. This sloping skirt functions as the lower half of the radiating system and also guys the antenna.

The station site is designed so that no two coaxial lines cross, ensuring optimal signal transmission.

WWV coax runs

Today, listeners around the world can get the most accurate time possible via WWV's broadcasts on the shortwave bands.

To make this happen, "WWV broadcasts continuously on five shortwave frequencies," said Glenn Nelson, an electronics technician at WWV and WWVB. "WWV has 11 operational HF transmitters (including standby equipment), eight transmitting antenna towers, and associated time and frequency distribution equipment."

Why They Still Matter

The possible closing of WWV, WWVH and WWVB did not pass unnoticed. Tens of thousands of supporters signed petitions opposing the move, for a variety of reasons.

Even today, WWV and WWVH's standard time broadcasts and frequencies are a great help for engineers calibrating equipment.

"While time-of-day information can nowadays be obtained through the internet, the combination of circuits involved in internet distribution can result in delays," said Dr. Kim Andrew Elliott, retired Voice of America broadcaster and audience research analyst, and now producer of the experimental broadcast Shortwave Radiogram.

"These delays usually involve fractions of seconds, but that is enough to be significant in certain endeavors such as high-speed trading. For a lack of delay, nothing beats terrestrial radio. It is held back only by that pesky speed of light."

WWV/WWVH's audio tones are also precise and thus useful. "On WWV, the 440 Hz tone (the musical note A above middle C is broadcast once each hour, during Minute 2 on WWV, and Minute 1 on WWVH," Elliott said. "You can tune your violin using WWV."

"Atomic clock signal accuracy at the Colorado and Hawaii transmission sites means that modest receivers using inexpensive, modern technology can use these time signals as beacons to sense ionospherically induced changes," Erickson said. "This allows the formation of a distributed space weather network in the backyards of thousands of amateur radio enthusiasts across the continental U.S."

These benefits would come to an end should NIST's time stations ever go dark. It's not just WWV and WWVH that would be missed: The general public would immediately take notice if NIST station WWVB were to shut down, as its 60 kHz signal controls self-setting atomic clocks (over 50 million in the U.S.), not to mention weather stations, cameras and potentially a number of other devices which have a built-in receivers that self-calibrate.

Welcome New BVRC Members!

Carla Sloan – Bella Vista

Justin Goggans – KJ5LAG – West Fork

David Lord – Tontitown

Joe Peden – N5JBP – Green Forest

Ryan Biazo – KJ5LHS – Tontitown

Darrell Best – WAØQYI – Lincoln, NE

Strays . . . Recently, I literally stumbled across this nifty QRP rig on Amazon. It is the (tr)uSDX radio. The unit is pocket sized, runs 5W output, and operates on the modes of CW, SSB, AM, and Digital (with the right interface). It operates on the *low HF bands*, 80-20 meters. For those in the club interested in QRP operation for POTA, SOTA, or even at the home QTH, it has many neat options and features for a rig under $200. Here is the link in case you would like to take a look at it: https://www.amazon.com/transceiver-5-Band-Multimode-Assembled-PE1NNZ/dp/B0BJ247SNL/ref=sr_1_1?crid=19FIY5EZCMFGR&dib=eyJ2IjoiMSJ9.SzXGQZCgWLEdVSeiB1Ohq5JcZGgL6kAOzZzmJyQkFyubK-_fbqure1bmoaAILREHeurCVfn0SF7d8GWAkBuAtnhsS1MQXgTJFsny1-Q4_L71dvowK7a87f9o3D1PMYxkRuvrqX937AuVBTQrHOmi0gCAJH11jxLVl0trlHikc_3YiIniTLvEw6IwAutHlAEMgX36g_dvz0qBh_nInmQcHv7L

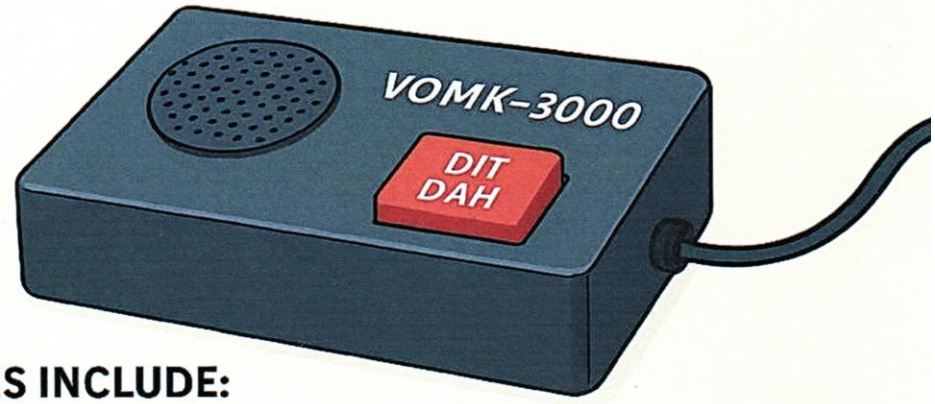
You can find all the info (firmware, cat control, user manual, etc.) on the (tr)uSDX website: https://dl2man.de/

BVRC CW Buffs: AI Is Here!

BREAKTHROUGH CW TECH: VOICE-ACTIVATED MORSE KEY

Introducing the all-new VOMK-3000 – world's first VOICE-OPERATED MORSE CODE KEYR

No more paddles, no more timing stress – just say "DIT" and "DAH" and let the AI do rest!



FEATURES INCLUDE:

- Smart Timing AI – adjusts speed based on how caffeinated you sound
- "QRS Mode" – whisper and it slows down
- "DX Shout Mode" – yell "DAHHH" and it auto-boosts power
- Multilingual Support: also recognizes "bip" and "bop" for international ops

"I sent a *perfect* CQ call while brushing my teeth." – Dave, N0WAY

WARNING: Do not use near parrots, children, or during arguments

EXPERIMENTER'S CORNER

By Bill Durham – KG5ZCI

This Month's Topic:

20-Meter Vertical Antenna – Part 2

Last month I described a full length collapsable vertical antenna that can cover all bands between 10 and 20 M. This article will describe some testing and the first pass at building a mounting system. As the local readers will know, the weather has not been friendly for antenna testing but I did make some telling measurements.

One of the things I wanted to look at was how well the antenna works in a POTA type environment. On May 24, Stephen Ponder–N5ZE, Don Banta–K5DB, and I went to Murphy Park in Springdale. The plan was to set up the antenna on my car and use Don's mobile radio in his truck. I have not as yet set up my vehicle for mobile operation and in keeping with standard scientific testing – i.e., change only one variable at a time – this plan would only change Don's antenna. As most of you know Don's system gets lots of exercise so that part of the test was very well known.

I had radials prepared and a wire for connecting to the frame of my car. My first idea for mounting the antenna to my car was simple. I had a good–sized magnetic mount on the roof and four bungy cords clamped about 4 feet up from the base of the antenna. I also added an aluminum plate to the plastic box at the base of the antenna. I drilled a 1" hole in the aluminum and attached a large bolt to the magnetic mount. When the antenna was raised the hole would go over the bolt and keep the base from moving around. That worked as expected. The bungies were difficult to attached with sufficient tension to hold the antenna. After some exercise, however, the system was assembled as planned and the antenna was held well enough and upright. We connected the antenna to Don's radio with some coax. We were parked side by side. The pictures below should help understand what we did.

Keep in mind that the antenna length in theory can be changed as needed to tune the antenna for a good SWR. I have done this, and it works very well. However, the mounting system does not lend itself to raising and lowering the antenna. Don's radio has a good onboard auto-tuner and we were able to get the SWR near 1 on the CW portion and SSB portion of the 20 meter band by tuning for each. CW signals were plentiful, loud and clear, but we had no key. The SSB portion was working but the activity was very low, a storm had just cleared the area.

We tried one radial but that did not allow the radio to tune. I connected one of the radials to the car body and it tuned easily. Don's system uses the truck body as well for a ground plane.

The bottom line from the exercise was that the antenna is working very well but the mounting system is not. I plan to bring a functional mounting system to this year's BVRC Field Day.

Vertical vs Horizontal

The ARRL Antenna Handbook states that vertical antennas are 50% less efficient than horizontal dipoles, given all else being equal. This last little catch phrase has a lot to do with how high the antennas are and a variety of other things. The vertical antenna is obviously 50% shorter.

Being an experimenter, I decided to see how my metal roof mounted system would compare to a 20-meter dipole. I built a standard 20-meter dipole and raised it up to 35-40 ft which is a good height for a 20 dipole. There was about 40 ft of RG59 transmission line and a 6 turn coaxial choke at the center of the dipole. The transmission line is terminated at the box with lightning arrestors for three antennas. One of these is selected by connecting a 20 foot length of LMR400 which goes to a ICOM7300. All the connections are through PL259 connectors. The transmission line from the vertical is about 20 feet of LMR400. With this system changing from the vertical to the dipole only requires moving the LMR400 cable from the radio about 5 inches.

I used two sources for the tests. The first was FT8. There is always plenty of activity on FT8 from all over the world. For comparison, I looked at the number of stations registered on JTAlert. On the day of the test, JTAlert showed about 30 contacts with the vertical and about 40 with the dipole. The picture below just illustrates what it looks like. It was not one of the test shots and it was taken in the rain, 28 contacts with the dipole.

The second source was the CW contacts on POTA from 14.050 to 14.066 MHz. This was not as quantitative but the difference was obvious. The noise showing on the waterfall (Figure A) was very small with the dipole. However, when I switched to the vertical, the noise was clearly visible (Figure B).

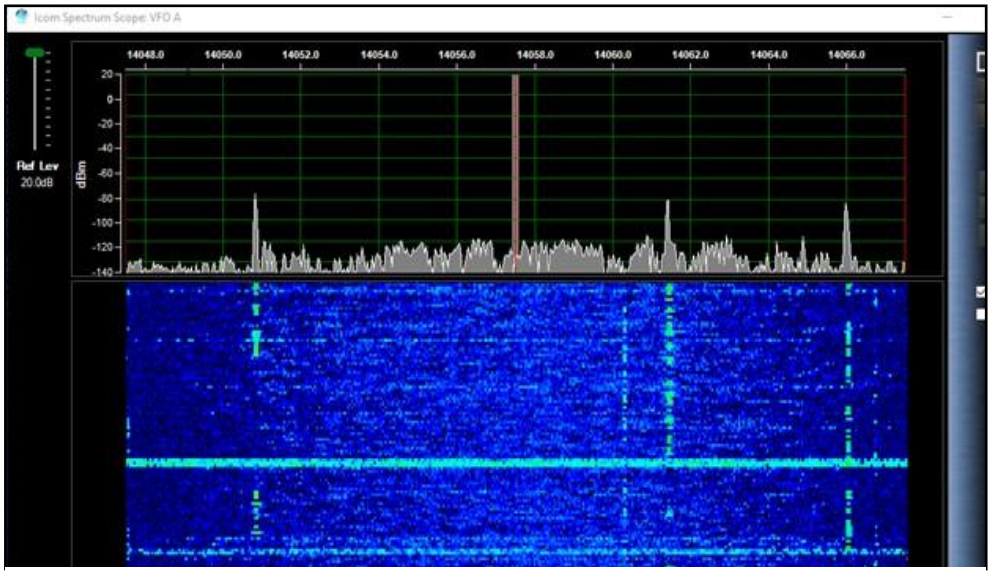


Figure A

The number of potential contacts was about the same but the contacts with the vertical came with some noise and would be definitely more difficult to copy.

The horizontal bars are from lightning in the area. These are screen shots taken with a software package called Win4Icom which allows full computer control of the ICOM7300 with full screen display. The number of contacts is obviously different because they come and go often.

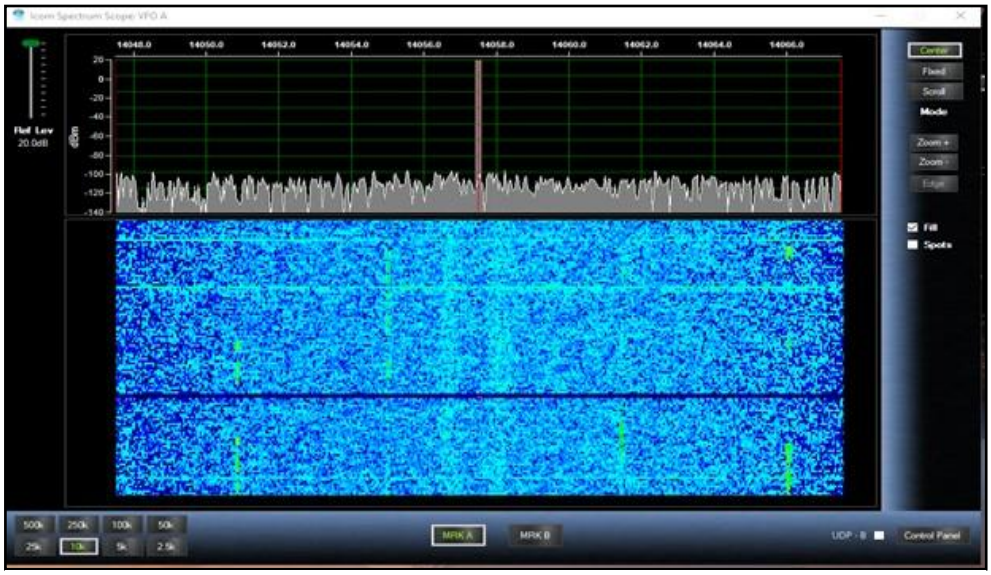
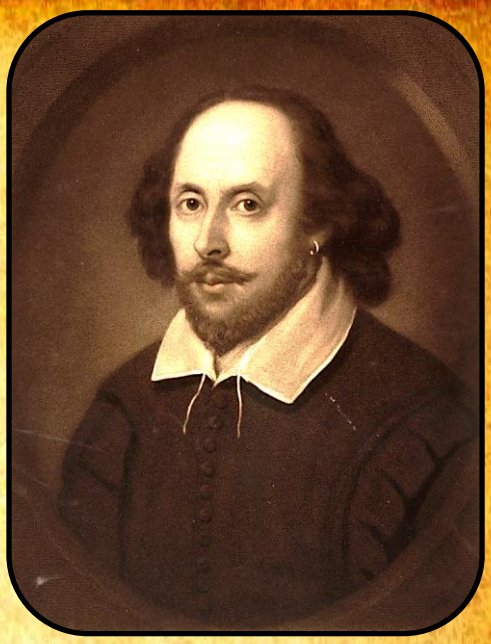


Figure B

Until next month, 73 – Bill.

Congratulations BVRC on Attaining ARRL Special Service Club status!

SPECIAL SERVICE CLUB



You don't have to write like William "Bill" Shakespeare in order to write an article for The Signal. --- In fact, we prefer articles without the words "thy", "whilst", ""tis" and "oft".

Working on a new kit or homebrew project? Have you recently received a rare or interesting QSL card to share? Received a new radio award? Or, do you have a cool photo (ham radio related) or some comments to share with other club members? Maybe you have acquired a new piece of equipment or constructed a new antenna? Taken a trip focused around ham radio to share an amateur radio related experience? Why not write an article for The Signal?

The article can be short or long, simple or elaborate. Please include pictures! We're always looking for material for the BVRC newsletter and feedback from our readers goes a long way toward keeping the newsletter interesting. So why not give it try? Write an article and send it to the newsletter editor, and we'll get it in there! It's fun, and at the same time your contribution helps support BVRC and our hobby! Articles can be submitted electronically or on paper, whichever way you feel most comfortable with. Send pictures, too!

As The Signal editor, I particularly look forward to putting a new issue together when I have material submitted by our club members. Hope to hear from you soon & 73!

Submit your material via e-mail to: arsk5db@gmail.com
Or, via regular mail to: Don Banta, K5DB
3407 Diana St.
Springdale, AR 72764

(Send it in!)

After over a 10 year hiatus, last year in 2024 Bella Vista Radio Club revived the Train Mobile Special Event Station, N5T, with an excellent participation by BVRC members. ***By the way, for ARRL members in the club the train mobile activation of last year is in the current June 2025 QST! Be sure and eyeball that story! (Page 84)***

For 2025, the club put N5T on the air once again on Sunday, April 27, with a small contingent of members participating. This year's event had to be scaled down from last year, but the exciting ingredient of this year's activation was operating from the Arkansas & Missouri Railroad's just renovated caboose! The "new" caboose has an awesome appearance and unlike the other two cabooses AMRR owns, has the longest wheelbase of the three, giving the passenger a smoother ride (although it still "rocks and rolls" somewhat.....it's a caboose!)

N5T operators not only enjoyed the challenge of operating with, as last year, sub-par band conditions, but also the very nice lunch the railroad provided, and of course, great fellowship and camaraderie.

Even though the bands weren't a lot to write home about, they were somewhat improved from last year. QSOs were made from coast to coast, with the majority of them being stations participating in the Florida QSO Party which was also held on this weekend.

When they arrived back at the Springdale depot after a full day of Special Event Station operating, most everyone was fairly tired, but it was a "fun tired".

Enjoy the photos from this year's N5T event on the following pages.....

This year's 2025 N5T team from left to right. Front row: Chuck Haley-NS5C, Stephen Ponder-N5ZE, and Don Banta-K5DB.

Back row: Brad Ponder-KJ5CWR, Robert Hill-K5NZV, Mark Whatley-K5XH, Joe Dunne-WA5JD, and Sharron Edmondson-KC5SKY.

Above in the cupola: James Wood-N5ZMX and Jeanne Harlan-W5GIJ

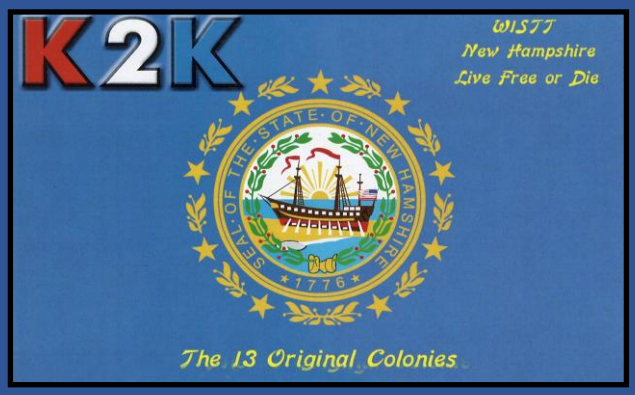

RADIO
CONNECTS
FD25

Special Event Stations Commemorate, Educate, & Improve Skills

by Don – K5DB

Many amateurs enjoy traffic nets, DXing, contesting, working states and counties, emergency communication preparedness, assisting in public events, and many other areas. And...many amateurs enjoy the twist of working Special Event Stations.

Special Event Stations offer us the opportunity to collect QSLs and/or certificates that observe or commemorate local, national, and international events. You can quickly construct a 3-ring binder with a very interesting plethora of Special Event Station QSL card confirmations, and show-off your collection the family and friends. Even people who are uninterested in, or ignorant to, amateur radio, find Special Event Station QSLs and certificates interesting and entertaining. And, who knows...there's always the chance your collection will spark an interest in them for our hobby.



Probably the best reason for the operation of Special Event Stations is they are educational. For example, in November of 2013 November Special Event Station W4D was on the air from Mayaguez, Puerto Rico. If you happened to miss-out in working that station, then you probably do not know that they were celebrating the 520th anniversary of the discovery of the island by Christopher Columbus. When Columbus landed on the island on Nov. 19, 1493 he named it San Juan Batista in honor of St. John the Baptist, a name that was later changed to Puerto Rico (rich port).

In September of 2022, a group of us from BVRC participated in the activation of Special Event Station K5A, commemorating the 300th anniversary of the discovery of the area that would become the Arkansas state capital – Little Rock.. The pileups were big.....S/E/S chasers, WAS (Worked-All-States) award pursuers, and DX stations alike were all wanting to work us. During that 4-day activation, we made 2,091 QSOs, worked all 50 states, 10 of the 13 Canadian provinces, and 29 DX countries.

Again, working Special Event Stations is very educational. If you ever decide to activate a Special Event Station yourself and if you do it right, there is an element of work involved, but it's fun work. Putting a Special Event Station on the air is not like contesting. It can at times get a little fast-paced, but most of the time it is very easy-going and you will meet many interesting people as they call you to work your Special Event.

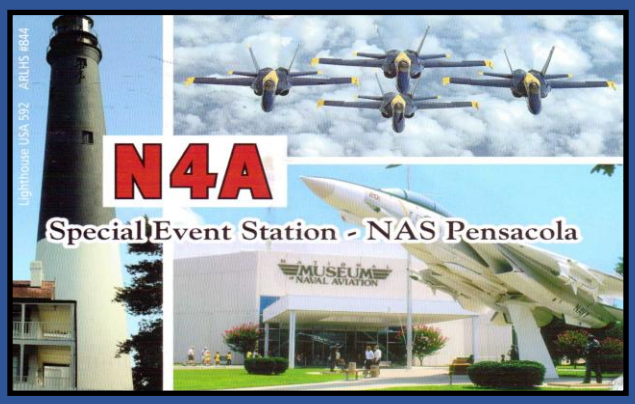
So how do you find a Special Event Station? One of the easiest ways is to consult the ARRL website. The URL is: **http://www.arrl.org/special-event-stations**. Special Event Stations can observe, commemorate or celebrate just about anything: from holiday celebrations and observances to historical events, to local, area, and/or state festivals, fairs, etc. Anything of interest!

As stated earlier, you may wish to organize and operate your own Special Event Station sometime. It can be a lot of fun and very rewarding. If you would like to pursue an activity such as this, here's a quick checklist of what you would need to do:

First (and obviously), choose your event. Some research will be involved in this. You will probably have to visit your local library or search the web for historical timelines and dates of the event you wish to observe or commemorate.

As you search for and find an event for your S/E station, be sure and collect all the information you can about it, along with the timeline information. If you're going to put a S/E/S on the air, you'll want to be knowledgeable about your topic because you'll probably get several on-air questions. You will then need to construct hard-copy documentation for the stations that work you, as written confirmation that they did work you. This would be in the form of either a QSL card or a certificate, or both if you so choose.

If a QSL, you can either create and print your own on card stock (make sure you have the correct average QSL dimensions), or engage one of the many quality QSL card commercial printers that you can find on the internet. Make sure you when you enter the QSL information when you complete the Special Event Station listing, that a S.A.S.E (Self-Addressed-Stamped-Envelope) is required for the requesting station to receive the card back from you. Most stations who search for and work Special Event Stations do mind to to include a SASE when they mail their card to you, and it will save you on postage costs.

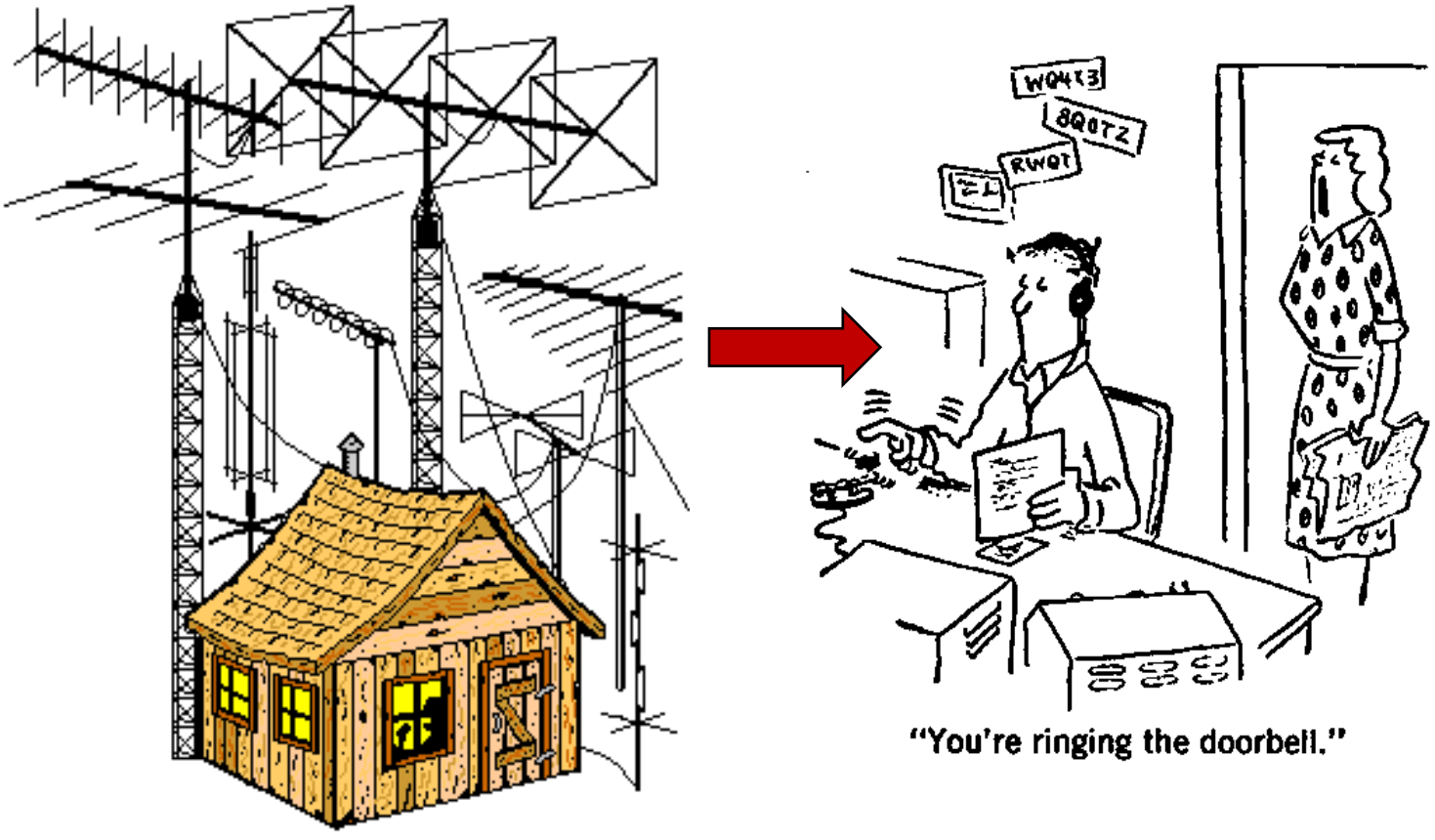


If you prefer to issue a certificate, you can create/construct a handsome "Master Template" certificate with pictures, data, information, etc. about your event (if you use pictures off the internet, make sure you use non-copyrighted photos, or get permission for copyrighted from the copyright owner). You can then use the master certificate template to fill-out the names and callsigns of the stations that request a certificate via e-mail and send it to them as an e-mail attachment. You can print it on your own printer (yes you will be printing it with your ink at your cost, but you would be spending that same money for the cost of a manila envelope plus return postage for you to send them a hard-copy certificate anyway and will probably be cheaper for you in the long run). This saves certificate printing, buying card stock, and postage costs for you. Of course, you can also print or have your certificates commercially printed and issue via regular mail if you wish to go that route.

You will now need to choose and request to be assigned a 1x1 callsign for your Special Event Station. The best place to do this is: **www.arrl.org/special-event-call-signs** . Not only will the ARRL secure the callsign for you (if it is not already taken), but you can also ask them to list your event in the corresponding monthly issue of QST for the month your event will take place. Be sure and secure your callsign *at least 6 months* before you conduct your event to ensure you get the callsign you want .

Then, approximately 2 weeks before the event, contact QRZ.com. Have them transfer the editing privileges for the webpage for your S/E/S (make sure you give them its callsign). You can then edit the page with all applicable information: The title of your S/E station (example: Special Event Station W5D. Commemorating the 108th anniversary of the discovery of diamonds in Arkansas), information/history supporting the event, information on how to obtain a QSL or certificate, etc. *You can save a lot of on-air time by doing this.* Then when you are on-air with your S/E callsign, all you need say (unless you would be answering specific questions about the event) is "full information is available on QRZ.com." After you have accomplished these tasks, you should be ready to go when your S/E/S date rolls around.

Special Event Stations are a unique and very interesting aspect of amateur radio. They are educational, promote the hobby, increase your skillset of operating, and definitely make an "out of the ordinary" contact for other stations. But – of course! – the most important element of Special Event Stations, as it should be, is that they are fun.



Making Sense of Propagation Forecasts

Since prehistoric times, humans have struggled to find explanations for events that seemed to have no rational cause. What may have started with interpreting patterns in tea leaves and animal entrails graduated to tarot cards, mystic beads, crystal balls and more. The methods were different, but the goals were the same – to summon some small sense of order out of everyday chaos.

Thankfully, amateur radio is purely rational. We deal only with inflexible facts and equations. Power equals current multiplied by voltage in all times and places – period. When it comes to the conditions of the atmosphere into which we launch our signals, we speak with the same confidence.

Well...sort of.

The truth is, while we've figured out electricity pretty well, we still have a long way to go in the propagation forecasting department. This isn't to say that our level of knowledge hasn't advanced considerably in the last century or so, but a huge margin of uncertainty still exists.

If the sun belches out a torrent of energetic particles, we can predict when they will slam into Earth's magnetic field and subsequently render some of our HF bands nearly useless – but how long they will remain useless is hard to say. We can also predict that as the Sun's overall output intensifies, the higher frequency HF band are *likely* to propagate signals over greater distances – but notice that we're dealing once again with probabilities; an HF propagation prediction is never iron clad.

At VHF frequencies and above, the task of forecasting becomes even more challenging. Take the somewhat spooky propagation mechanism known as *sporadic E*, which can suddenly bust the 6-meter band wide open for long-haul contacts. We know that it tends to occur during daylight hours between May and September, but exactly when and where is a mystery. (You may as well ask the crystal ball!) On the 2-meter band and above, weather systems have a large influence. Layers of air can create so-called "ducts" that can transport signals over hundreds of miles or more. Like the rest of the weather, however, these can be difficult to predict.

FORECASTING TOOLS FOR HF

The good news is that there are internet tools that will provide reasonably good predictions of what to expect on your favorite bands – if you know how to interpret their "tea leaves". for conditions on the HF bands, one of the most popular tools is the Solar-Terrestrial-Data widget created by Paul Herrman-NØNBH (see Figure 1). It appears on many websites such as

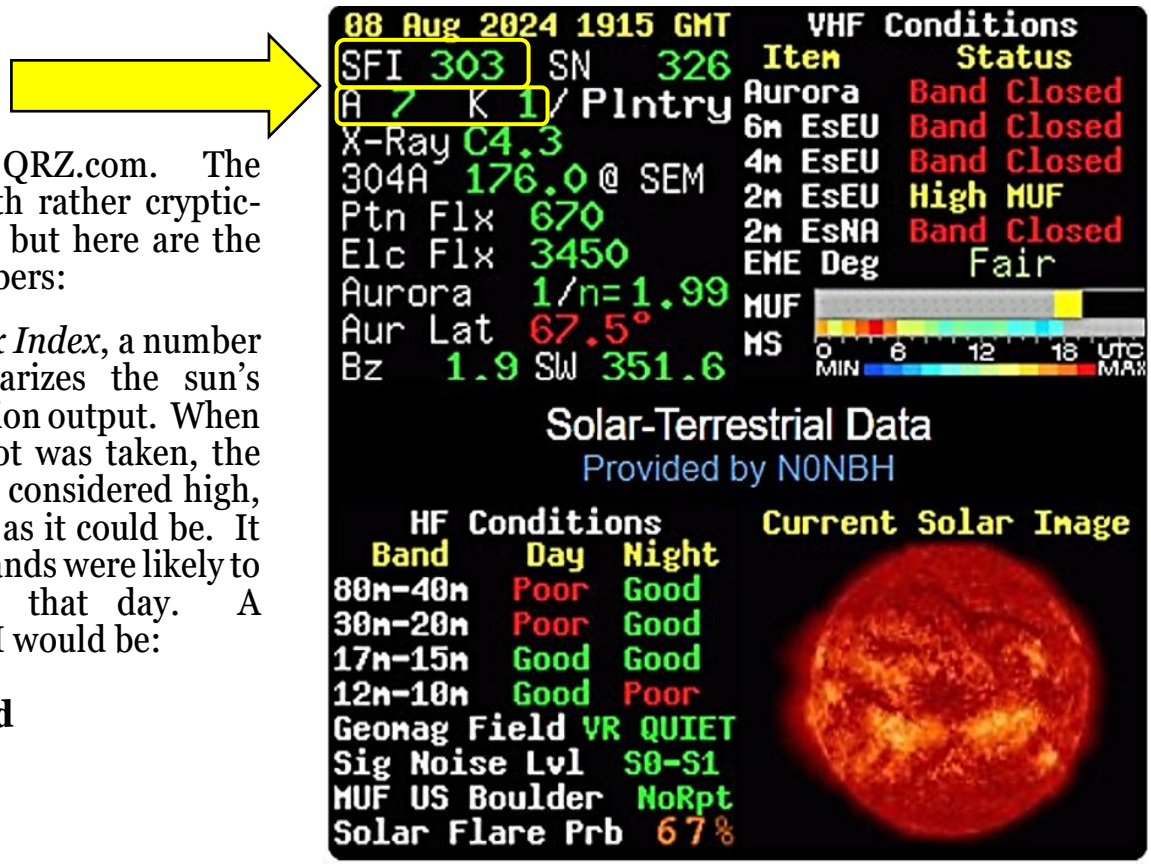


Figure 1

the home page of QRZ.com. The widget is packed with rather cryptic-looking information, but here are the most important numbers:

SFI – The *Solar Flux Index*, a number that roughly summarizes the sun's overall level of radiation output. When the Figure 1 snapshot was taken, the SFI was 303. That's considered high, although not as high as it could be. It means the high HF bands were likely to be very productive that day. A breakdown of the SFI would be:

70 – not good
80 – good
90 – better
100+ – best

Also remember that it takes a few days of high values for conditions to improve. Typically values in excess of 200 will be measured during the peak of a sunspot cycle with high values of up to 300 being experienced for shorter periods.

K – Better known as the *K-Index*, this is a measure of our planet's magnetic field conditions, and it is updated every 3 hours. When the sun isn't hurling lots of cosmic particles at us, the K-Index tends to be low, typically between 0 and 3. But during a magnetic storm, it can rise to as high as 9, which indicates a severe disruption to the HF bands. According to Figure 1, the K-Index on that day was 1. That means conditions are good. A breakdown of the K-Index would be:

0 to 3: best
4: ok
5-7: not so good
8-9: terrible

A – The *A-Index* represents a daily average of magnetic activity. An A-Index between zero and 3 means calm conditions, but if it spikes above 40 or 50, you have a solar storm underway. In Figure 1 the reading is 7 indicating a very mild disruption. A quick breakdown summary of the A-Index would be:

0 to 3: Quiet
4: Quiet to unsettled
15-27: Active
48: Minor storm
80: Major storm
132: Severe storm
208+: Very major storm

Note that the NØNBH widget takes all this information and more, and attempts to forecast conditions on several frequency ranges and labels the results as "Good", "Fair", or "Poor". Be careful not to take the predictions too literally, especially the "Poor" forecasts. A "Poor forecast, for example, for 12 and 10 meters doesn't mean that communication is impossible on these bands. It only means that the likelihood of long-range communications is low, so using CW or digital on those bands may improve your odds.

You'll also find propagation information on other websites, probably not as colorful as NØNBH's widget, but most will at least include the latest SFI, and A and K numbers.

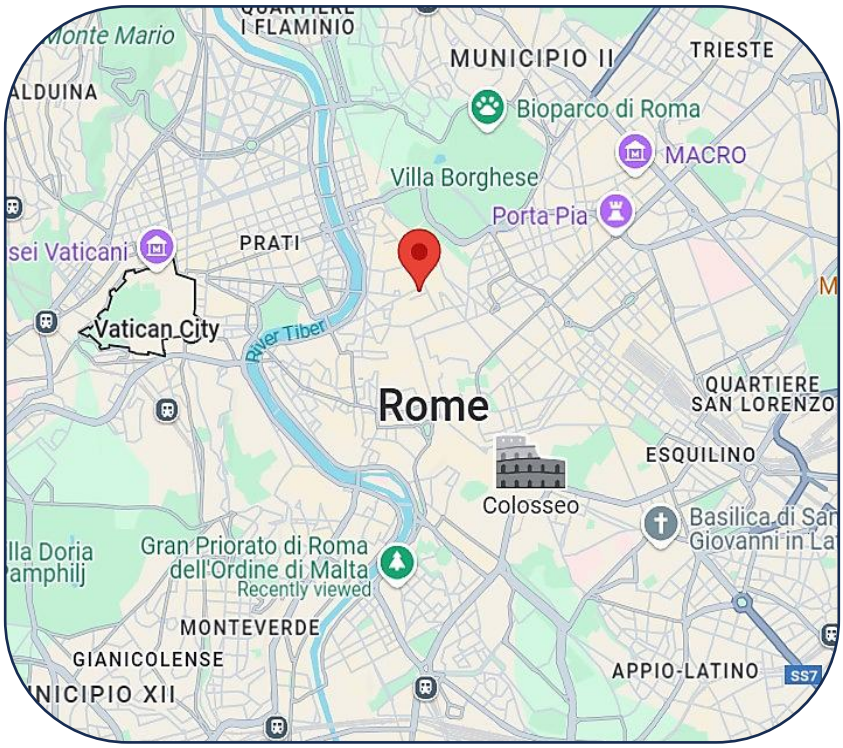
In our DXCC travels this month, we feature a very unique DXCC entity. 'Entity', rather than country, fits it exactly as it possesses no geographical boundaries at all. It is the Sovereign Military Order of Malta.

The Sovereign Military Order of Malta (designated SMOM for the remainder of this article), officially the Sovereign Military Hospitaller Order of Saint John of Jerusalem, of Rhodes, and of Malta, and commonly known as the Order of Malta or the Knights of Malta, is a Catholic lay religious order, traditionally of a military, chivalric, and noble nature. Though it possesses no territory, the order is often considered a sovereign entity under international law, and for that reason it is on the ARRL DXCC Current Entities List.

The order claims continuity with the Knights Hospitaller, a chivalric order that was founded about 1099 by the Blessed Gerard in the Kingdom of Jerusalem. The order is led by an elected prince and grand master.

The Order's membership includes about 13,500 Knights, Dames and Chaplains. Thirty-three of these are professed religious Knights of Justice.

The SMOM is headquartered at Palazzo Malta on Via dei Condotti in downtown Rome, Italy, where it enjoys extraterritorial rights similar to those of embassies. The headquarters serves as the residence of the Grand Master and the seat of the government bodies of the Order.



Sovereign Military Order of Malta HQ Location

The other main location of the SMOM is the Villa del Priorato di Malta, which is situated on Aventine Hill, about 5 miles south of the headquarters building (see photo on the title of this article on the preceding page). This villa houses the Grand Priory of Rome and the embassy to the Italian Republic.

The Order's modern-day role is largely focused on providing humanitarian assistance and assisting with international humanitarian relations, for which purpose it has had permanent observer status at the United Nations General Assembly since 1994. The Order employs about 52,000 doctors, nurses, auxiliaries and paramedics assisted by 100,000 volunteers in more than 120 countries, assisting children, homeless, disabled, elderly, and terminally ill people, refugees, and lepers around the world without distinction of ethnicity or religion.

SMOM Embassy – Aventine Hill, Rome

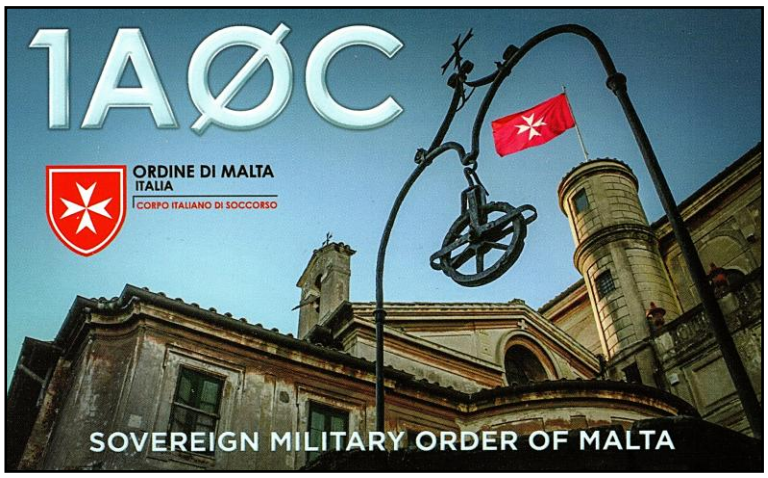
SMOM Headquarters - Rome

Over the centuries, the SMOM has held small land areas in many different locales in the Mediterranean Sea area, the most recent on the island of Malta in 1530 (hence the island's name in their organizational title). Also commonly called The Knights of Malta, they were indeed true warrior knights when they defended Malta against the Ottomans in 1565. From 1651-1665 they not only ruled Malta, but also four islands in the Caribbean. However, in 1798 Napoleon invaded Malta and defeated the knights. Afterward, they were dispersed, though the Order continued to exist in a diminished form and negotiated with European governments for a return to power as part of the agreement between France and the Holy Roman Empire. The SMOM then went through decades in exile and transplantation, until it was recognized by the papacy and the seat moved to Rome in 1834 where it operates today.

Because of its humanitarian service and diplomatic relations, the ARRL DXCC Advisory Committee does regard it as an entity. It was added to the DXCC list in 1982, and activations often aim to raise funds for the Order's humanitarian projects.

Several of these activations have occurred in recent years past with 1AØKM in 1991, 1AØC/1AØX/1AØZ in 2017, and 1AØC in 2019 and 2023.

So, reading between the lines and if you haven't worked this semi-rare DX entity, I bet you can surmise to just be patient. When they become needful for more funds they will conduct a new activation and you'll be able to work them. They usually operate on most of the amateur bands. Currently, SMOM is ranked at #77 on the DXCC Most Wanted List.



My QSL from the 2023 activation

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