

WorldRadio

ONLINE

Year 43 Issue 7

JANUARY 2014

\$2.99

A Colorful Return to St. Kitts and Nevis with V4/AH6HY

***We Revisit the 2009 DXpedition
With a Rich Palette This Time, p. 38***

Last Issue!
See page 33
for details.

PLUS:

- **Kids Bond with Space Science and Ham Radio, p. 8, 12**
- **The Importance of the 'Smoothed Solar Index,' p. 19**
- **A New Day for MARS-Ham Radio EmComm, p. 22**



Photo A. The world-wide WIN System consists of about 90 linked repeaters that cover more than a dozen U.S. states and four countries. (Internet screen grab <<http://www.winsystem.org>>)

VHF-UHF 'WIN System' Plays Key Role in Nevada Rescue

When Nathan Rischling, KDØHFM, found himself stranded during a hike in the hills outside of Henderson, Nevada, his call for help on a repeater linked to the Western Intertie Network (WIN) was answered by Jim Frederick, KF6QBW, hundreds of miles away in Arizona.

According to the *ARRL Letter*, Frederick again used the WIN system to seek out a ham in the Las Vegas area. James Freeman, KG7EWP, answered that call and called 911 to alert a search-and-rescue team. Frederick reported that a few hours later, Rischling came back on the system to thank everyone involved in his successful rescue.

The WIN System <<http://www.winsystem.org>>, **Photo A**, is a series of about 90 linked, or inter-tied, repeaters — most on UHF (70 cm) — that cover a substantial portion of California, more than a dozen other states, and four countries around the world. It is owned and operated by Shorty Stouffer, K6JSI. KF6QBW is an affiliated repeater station with the system.

ARRL 'Symbol Rate' Petition Filed With the FCC

The American Radio Relay League has asked the Federal Communications Commission to delete the symbol rate limit in Part 97.307(f) of its Amateur Service rules, replacing it with a maximum bandwidth for data emissions of 2.8 kHz on amateur frequencies below 29.7 MHz, according to *Southgate ARC News*.

(**READ:** The FCC rules in Part 97.307 at <<http://bit.ly/1cHQKF3>>. — KI6SN.)

The ARRL Board of Directors adopted the policy underlying the petition initiative at its July 2013 meeting. The petition was filed November 15.

“The changes proposed would, in the aggregate, relieve the Amateur Service of outdated, 1980s-era restrictions that presently hamper or preclude Amateur Radio experimentation with modern high frequency (HF) and other data transmission protocols,” the League’s petition asserted. “The proposed rule changes would also permit greater flexibility in the choice of data emissions.” Symbol rate represents the number of times per second that a change of state occurs, not to be confused with data (or bit) rate.

Current FCC rules limit digital data emissions below 28 MHz to 300 baud, and between 28.0 and 28.3 MHz to 1,200 baud. “Transmission protocols are available and in active use in other radio services in which the symbol rate exceeds the present limitations set forth in Part 97.307(f) of the Commission’s Rules, but the necessary bandwidths of those protocols are within the bandwidth of a typical HF single sideband channel (3 kHz),” the ARRL’s petition pointed out.

The League said that while bandwidth limitations are reasonable, the symbol rate “speed limit” reflective of 1980s technology, prohibits radio amateurs today from utilizing state-of-the-art technology.

(**IN DEPTH:** Read the full ARRL petition at <<http://bit.ly/1im3g5>>. — KI6SN.)

K9W Wake Atoll DXpedition OK'd for DXCC Credit

The K9W Wake Atoll Commemorative DXpedition has been approved for DXCC credit, according to Bill Moore, NC1L, at the ARRL Awards Desk.

More information — including QSL card routing — can be found on the web at <<http://www.wake2013.org>>.

Interference: New Mexico Man Hit with \$25,000 FCC Fine

The FCC has affirmed a \$25,000 Forfeiture Order issued to Estevan J. Gutierrez of Las Vegas, New Mexico, alleging his “willful and repeated violation of Sections 301 and 333 of the Communications Act by his operating on an unauthorized frequency and maliciously interfering with emergency service communications.”

The Enforcement Bureau’s San Diego office issued the Notice of Apparent Liability (NAL) to Gutierrez, saying he operated on 159.150 MHz without authorization and interfered with the Las Vegas (New Mexico) Police Department.

In response to the NAL, Gutierrez did not deny the violations, *Amateur Radio Newsline* reported. “He did, however, request cancellation or reduction of the forfeiture amount based on his inability to pay.” The FCC gave him 30 days to pay the full amount since Gutierrez did not produce documentation detailing his financial status.

Canadian High School Students Launch Balloon to 117K Feet

Radio Amateurs of Canada has congratulated the students, volunteers, and educator Robert Streimer, VE4SHS, at Shaftsbury High School in Winnipeg, Manitoba for the team’s

“very successful launch of the SHARP 3.1 helium-filled balloon that reached an impressive maximum altitude of 117,214 feet. SHARP 3.1 carrying a payload consisting of four cameras, a number of electronic sensors, a Geiger counter, a three-axis accelerometer, magnetometer, and numerous other sensors.”

RAC said data gathered in the flight is in the process of being analyzed.

Hams Pitch In After Philippine Typhoon

Like hams everywhere, amateur radio operators in the Philippines were able to get on the air after Typhoon Haiyan and provide initial communications after the storm destroyed much of the infrastructure in Tacloban and surrounding areas. For detailed coverage, see *CQ's Public Service* column—“Radio HEROs Provide Critical EmComm in Philippine Typhoon Tragedy” by KI6SN—on page 13 of the January issue.

Staff Shuffle at FCC Wireless Bureau

Communications attorney Roger Sherman is the new Acting Chief of the FCC's Wireless Telecommunications Bureau, which oversees amateur radio as well as other two-way radio services. Sherman replaces former Bureau Chief Ruth Milkman, who was named Chief of Staff to new FCC Chairman Tom Wheeler. According to the ARRL, Sherman previously served as the Democratic Chief Counsel to the House Committee on Energy and Commerce, along with other Congressional staff positions.

WRC-15 Advisory Committee Makes Recommendations Regarding Ham Bands

The FCC's advisory committee for the 2015 World Radiocommunication Conference (WRC-15) has issued three recommendations regarding bands used by amateurs, and the ARRL says it agrees with all three. The first called for no changes to current allocations in the 70-centimeter band, which hams share with government radiolocation. The *ARRL Letter* says one country has proposed allowing international cellphone and broadband use between 420 and 430 MHz, but the advisory committee said it does not feel sharing between the pro-

posed service and radiolocation is feasible. Likewise, the committee recommended no changes to current allocations on 22–26 GHz, a frequency range in which amateur radio has a primary allocation from 24–24.5 GHz. Finally, the

committee tentatively approved a proposal for short-range automotive radar in the 77.5–78.0 GHz range. If OKed by the conference, these radars would have co-primary status in the band with amateur radio and amateur satellites.

NewsFront Contributors

This month's WRO NewsFront was compiled from reports from the ARRL Letter, Southgate ARC News, Amateur Radio Newslines, the CQ Newsroom <<http://www.CQNewsroom.blogspot.com>>, and VE2MBS/VE2QQ) – KI6SN

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On the Cover: You may have seen this shot from St. Kitts before. But it was in black and white and marked the transition from *WorldRadio* to *WorldRadio Online* and the magazine’s color publication. The caption from the January 2009 edition read: “*The push-up mast and dipole used on 20 meters by V4/AH6HY. The QTH was on top of a hill in St. Kitts with a nice view of the capital city of Basseterre below.*” It’s much more interesting in color, don’t you think? Revisit Dave Flack’s DXpedition to St. Kitts and Nevis from five years ago on page 38. (Photography courtesy of AH6HY.)

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2009 to 2014: What a Colorful Difference 5 Years Make

Happy New Year!

If our cover photograph this month looks vaguely familiar, you may remember it in black and white fronting the January 2009 edition of *WorldRadio* — five years ago this month.

If you do, by the way, we'll hook you up with Alex Trebek for an appearance on *Jeopardy!*

Anyhow, it was the last edition of the magazine in B&W before making the leap to full color and to digital publication as *WorldRadio Online* in February 2009.

Looking back at that “final” B&W edition, we were struck by just how much full-color production can enliven a magazine. Compare the January 2009 cover, **Photo A**, with the January 2014 cover to see what we mean.

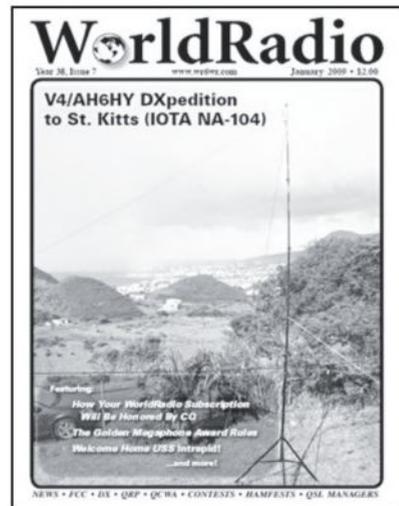


Photo A

Dave Flack, V4/AH6HY, told us in his 2009 feature what a beautiful place St. Kitts and Nevis are, but it was a stretch for the reader to “get it” from the B&W pictures.

In this month's *DX World* we're re-running Dave's story from that last B&W edition, but with the richness of his color photography this time around. He was kind enough to provide us with color versions of each picture.

AH6HY's wonderful narrative is as fresh today as it was in 2009. He's an excellent writer in addition to being a top-notch photographer. The package — in its colorful glory — begins on **page 38**. Enjoy it all over again. We hope you appreciate as much as we do the joy such striking color images can bring to story-telling.

Here We Go, a-Carole ... 'er, Karel-ing

January 2014 *WRO* kicks off the New Year with a particularly delicious edition — *if we say so ourselves!* We hope you like it, too. Especially deserving your attention are two features that underscore the importance of outreach to young people and prospective amateurs of all ages.

No one works harder to bring amateur radio to the consciousness of young people than *Hams With Class* columnist **Carole Perry, WB2MGP**. She travels the country — and the globe, you'll soon see — exciting pre-teens, tweens, and teens about amateur radio in ways most Elmers can only dream about.

This month, beginning on **page 8**, she chronicles her recent work in Florida and Missouri introducing young people to a couple of real-life astronauts — highlighting the ever-increasing connection between space science and amateur radio.

Also this month, **Karel Bott, AC2LR**, tells how she used JPL “Hi Juno” project to introduce young people and their families to amateur radio with *hands-on* excitement — *hands on* a Morse key, that is.

Through the Great South Bay (Long Island) Amateur Radio Club, Karel helped a group of young people participate in a real space-science experiment as the Jet Propulsion Lab's Juno spacecraft swung by Earth on its way to Jupiter. Her story — complete with *Star Trek* implications — begins on **page 12**.

Each of these pieces serves as a reminder of how important it is for us to take advantage of every opportunity exposing amateur radio's infinite excitement.

Carole and Karel show us the way. We thank and congratulate them both!
(**APOLOGIES:** Please excuse the post-holidays reference in our sub-headline. It was just too tempting to resist. — KI6SN.)

WRO-Pop'Comm Live Online Chat, January 5

Want to get 2014 off on the right foot? Join this month's *Pop'Comm-WRO* Live Online Chat beginning at 8 p.m. Eastern time on Sunday, January 5. It'll be our Post Holidays De-Briefing! *Everyone is welcome.*

At chat time go to <http://worldradioonline.blogspot.com>, check in and get in on an hour of fun. See you there!
— **Richard Fisher, KI6SN**



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Photo A. *Hams With Class* columnist Carole Perry, WB2MGP, posed for a picture with old friend NASA astronaut Jerry Ross during a visit to the Kennedy Space Center. (Courtesy of NASA)



HAMS WITH CLASS

Two Astronauts in Two Weeks: Out of This World

Science Education Continues Long After They're Back on Earth

By Carole Perry, WB2MGP

To say that the end of October and the beginning of November 2013 were exciting times for me and some of my students would be to put it mildly. With space and student education in the forefront, it was hard to keep my feet on the ground, **Photos A and B.**

At the end of October, I had been invited to do a radio presentation at the Lantana Community Middle School in Florida, **Photo C.** The technology teacher at the school, Robert Pauley,

Photo D, was the first recipient, several years ago, of a Radio Club of America (RCA) grant from my Youth Activities Committee. I enjoyed meeting with him again. He continues to garner nationwide recognition for his good works. I was delighted at the response of Ms. Keester's sixth graders in the gifted track.

Since it's a Florida school, and I was already all excited about taking my twin granddaughters to the Kennedy Space Center



Photo B. Col. Steve Nagel, N5RAW, an Atlantis astronaut, met with students at Lebanon (Missouri) High School. (Courtesy of WB2MGP)

the next day. I did a lesson on astronauts and radio communications. Their questions and responses were analytical and well thought out. It was great fun.

Once before, I had done a presentation with the ham radio to special needs classes at this school. I had a request to come back again. I could not have been more delighted at the interest and attention of the autistic 6th, 7th, and 8th graders. Their questions to me, as well as their follow up thank you letters, were wonderful. All teachers and instructors who follow my column will understand the feeling of satisfaction after teaching lessons at both ends of the learning spectrum, and then receiving appropriate and appreciative responses from both. It was a day well spent. I of course, gave my commitment to offer assistance through RCA Youth Activities to any teacher wanting to start a radio/technology program at the school.

On the drive to the Kennedy Space Center the next day I shared with my granddaughters the fun experience I had with my students back in April 1991 when we contacted the “All Ham Crew” on the Atlantis space shuttle.

Back then I was lucky enough to have received an invitation from astronaut Jay Apt, N5QWL, to visit the crew of STS-37 at the Johnson Space Center. All these years later, former students still come back to reminisce about the excitement they remember when Jay got on the ham radio and had the students designing a space suit on the board.

His invitation to visit the crew at the Johnson Space Center was immediately accepted by me, as I booked my flight to



Photo C. Sixth-grade students get a lesson in space science and amateur radio at Lantana (Florida) Middle School, compliments of Carole Perry, WB2MGP. (Courtesy of WB2MGP)

Houston, Texas. What followed was a once-in-a-lifetime experience: getting to meet all the astronauts who were going up into space the next week on board the Atlantis space shuttle.

Two generations later I found myself escorting my grandchildren to have the incredible experience of visiting the new Atlantis exhibit at the Kennedy Space Center, and to be able to chat with former astronaut Jerry Ross, who was one of the crew members on that SAREX (shuttle amateur radio experiment) flight.

He signed their copies of his new book *Spacemaker: My Journey in Space and Faith As NASA's Record-Setting Frequent Flier*, **Photo E**, and has ignited a whole new excitement for them about pursuing technical studies.

Purely by an amazing coincidence, two weeks later, former astronaut Col. Steve Nagel, N5RAW, also from the same Atlantis flight, was a special guest at my Youth Forum at the ARRL Midwest Convention in Lebanon, Missouri, **Photo F**, and at a presentation at local Lebanon High School to an audience of excited avionics and engineering students.

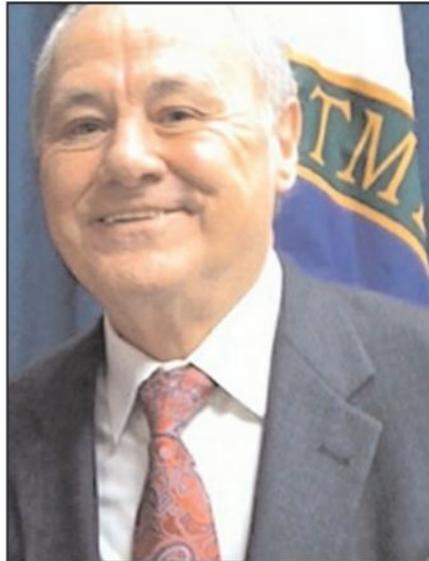


Photo D. Lantana (Florida) Middle School technology teacher Robert Pauley several years ago was the first recipient of a Radio Club of America (RCA) grant from WB2MGP's Youth Activities Committee. (Courtesy of WB2MGP)

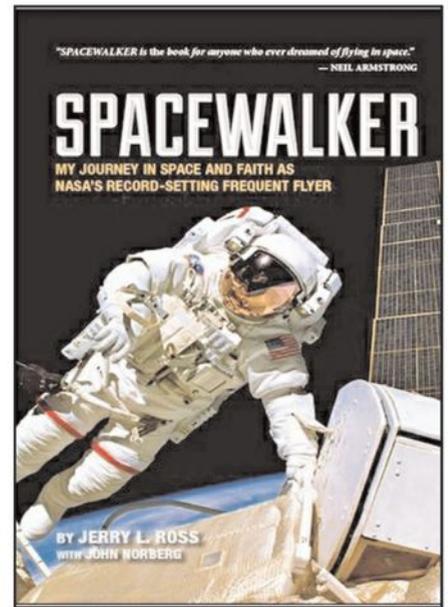


Photo E. "Spacemaker: My Journey in Space and Faith As NASA's Record-Setting Frequent Flier" is an account of the space exploits of NASA astronaut Jerry Ross.

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Photo F. Astronaut Col. Steve Nagel, N5RAW, was WB2MGP's special guest at the Youth Forum during the ARRL Midwest Convention in Lebanon, Missouri. (Courtesy of Gary Avery, NØRMB)

“It was so wonderful to watch young people have the opportunity to ask questions of a person who had actually gone into space multiple times.”

It was so wonderful to watch young people have the opportunity to ask questions of a person who had actually gone into space multiple times. I threw out the invitation to any student who wanted to know more about becoming a ham to contact me. I also invited the teachers and administration to get in touch with me to learn how to set up a program that will let their students be able to speak on the ham radio and possibly make contact with the International Space Station.

At the Youth Forum the next day, I had two young speakers. Sterling Coffey, NØSSC, is the former Youth Editor for the ARRL. He gave a terrific presentation on his “Experiences with College and Ham Radio.” There is definitely a niche here for us to explore, as we encourage our young people to explore technical programs in their colleges.

Jacob Keogh, KDØNVX, age 15, did a beautiful job with his topic of “Different Niches in Ham Radio.” Jacob has been invited by me to be a presenter at the Dayton Youth Forum in May 2014. He is a great role model for teenagers considering ham radio as a hobby.

Col. Nagel was a huge hit, of course. He not only gave us a brief history of the shuttle program, but spoke of plans from the government and commercial interests to investigate and research new programs for transportation and exploration of space.

The audience of adults and children were wonderfully responsive to the opportunity of interacting with our astronaut guest. Youngsters got to ask questions of a unique human being who was so gracious and wonderful about answering so many questions all weekend, as well being so very patient about all the requests for picture taking.

This was an extraordinary experience for everyone lucky enough to partake in this convention. I am so grateful to Col. Nagel for providing the rest of us with an experience we will never forget.

Special thanks must also go to the convention committee of the Lebanon Amateur Radio Club, which was tireless in its efforts to make this be the huge success it was.

Ron Lowrance, K4SX, and Bill Wheeler, KDØDEW, were the liaisons who spearheaded the efforts for almost two years. Mike Edwards, WB9M, and all

the other hard workers who were gracious, hospitable, and *so much more* helped make the event to be as successful as it was. According to Bob Heil, K9EID, who played a major role behind the scenes, there was an attendance of about 3,500 people. He shot an episode of *Ham Nation* with Gordon West, WB6NOA, and George Thomas, W5JDX, from the convention. There was no admission charge, free parking, and an outreach to all in the area to come.

The ARRL was very well represented in their forum. Dave Summer, K1ZZ; Cliff Ahrens, KØCA, the Midwest Director; and other staff always provide the latest happenings and other information about our hobby and service. An invitation to attend the ARRL Centennial in July was extended to all.

I was also happy to see the vendors who are so supportive of our Dayton Youth Forum: Ray Novak, N9JA, from ICOM; Richard Stubbs from MFJ Enterprises; and Phil Parton, N4DRO, from Kenwood.

Kudos are extended to all those who had a part in producing the ARRL Midwest Convention in Lebanon, Missouri in 2013.

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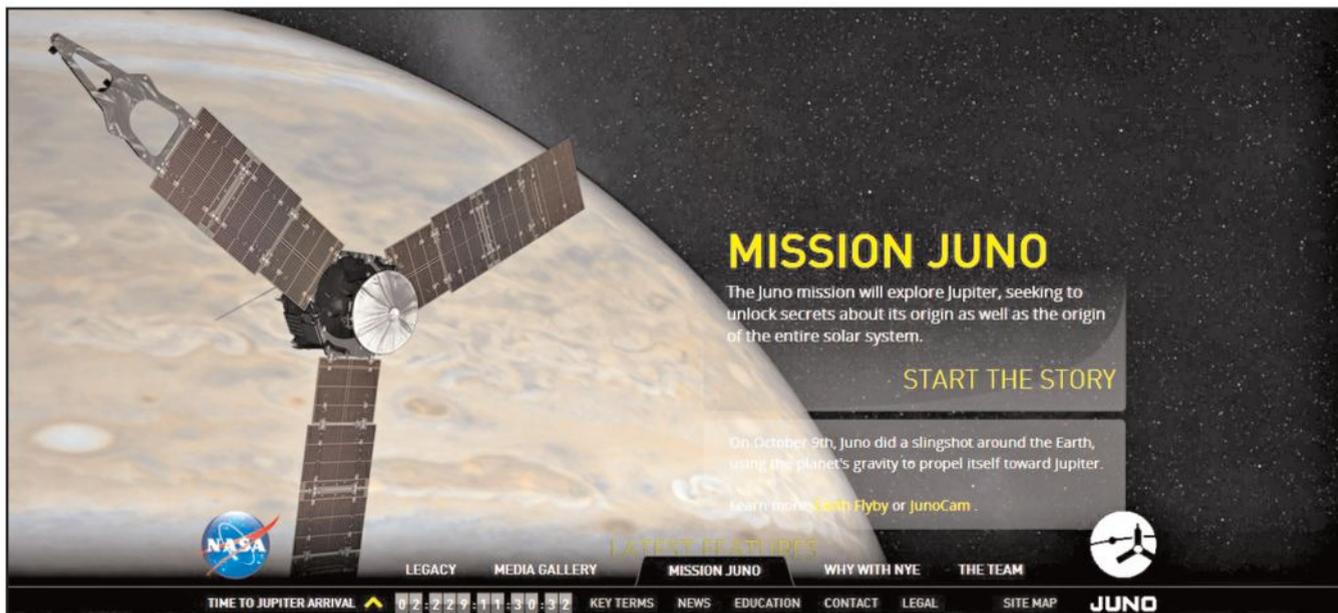


Photo A. The Jet Propulsion Laboratory in Pasadena, California, invited radio amateurs from around the world to send a coordinated CW signal to the passing Juno spacecraft on its way to Jupiter. (*Internet screen grab <<http://www.missionjuno.com>>*)

Turning ‘*Hi Juno*’ into a High-Flying Teaching Moment for Prospective Radio Amateurs

By Karel Bott, AC2LR
The Great South Bay ARC

Last October, NASA’s spacecraft Juno flew by Earth for a gravity assist to propel it to Jupiter where it will collect data to assess the planet’s abundance and distribution of water and oxygen, gain insight into its origins based on Jupiter’s composition, investigate the range of radio waves coming from the planet, the convection patterns in Jupiter’s atmosphere and the planet’s gravitational field and its huge magnetosphere.

Photo B. JPL’s Mission Juno and the *Hi Juno* amateur radio experiment put writer Karel Bott, AC2LR, of the Great South Bay ARC in mind of the hit movie “Star Trek, First Contact.” Watch and listen to the movie’s trailer here: <http://bit.ly/1cEYoQF>. (*Internet screen grab*)



Before making a swing by Earth on October 9, though, the Jet Propulsion Laboratory in Pasadena, California, invited radio amateurs worldwide to beam toward Juno with a 10-meter signal as it flew by. (**INDEPTH:** See more about the Juno mission, **Photo A**, at <http://www.missionjuno.com>). – AC2LR.)

As explained on the *HI Juno* Facebook page, <http://on.fb.me/lirvmZy>, the spacecraft flew past Earth last October “to receive a gravity assist from our plan-

et, putting it on course for Jupiter. To celebrate this event, the Juno mission (invited) amateur radio operators around the world to say *HI* to Juno in a coordinated Morse code message.”

Juno’s radio and plasma wave experiment, called WAVES, was set up to detect the message if enough radio amateurs participated. The event began at 1800 UTC and ended at 2040 UTC.

This would be the first time in human history that radio signals were sent from



Photo C. At the Virginia Tech amateur radio station, K4KDJ, students made a video of the *Hi Juno* experiment while the event was taking place. See it at <http://bit.ly/1jghH3>. Nathan Frissell, W2NAF, narrates and provides a detailed explanation of how *Hi Juno* worked. (*Internet screen grab*)



Photo D. The Great South Bay ARC’s Kenwood 570-D was set to 28.019 MHz to send signals to Juno on October 9, 2013. (*Photography courtesy of GSBARC*)

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Earth's surface to a spacecraft coming in from the solar system. It made me think of *Star Trek, First Contact* when Vulcans saw that Earth was more advanced than they thought so they stopped by to have a chat. (**WATCH and LISTEN:** To the "*Star Trek, First Contact*" movie trailer, **Photo B**, at <<http://bit.ly/1cEYoQF>>. – AC2LR.)

OK, back to the Juno mission. If enough Earthlings sent a simultaneous signal, the WAVES instruments on the spacecraft would be able to detect us. People around the world did participate, including the Great South Bay (Long Island) Amateur Radio Club!

(**INDEPTH:** For a detailed explanation of the Hi Juno amateur radio experiment, watch a video made at K4KDJ, the Virginia Tech amateur station, during the event <<http://bit.ly/1jghH3>>, **Photo C**. Nathan Frissell, W2NAF, narrates, and the two-minute point of the production explains in detail what radio amateurs around the world were instructed by JPL to do. – AC2LR.)

With permission from the Great South Bay Amateur Radio Club Board of Directors, I used the clubhouse and the club's Kenwood 570-D transceiver, **Photo D**, to send a 10-meter signal to Juno.

I invited local students to participate, **Photos E** through **I**. Four families were on hand and enthusiastically stayed for the



Photo F. Christiana Fiorillo, 12, of Garden City, teaches 10-year-old Nolan Hidaka, of Queens, how to send his name in Morse code.

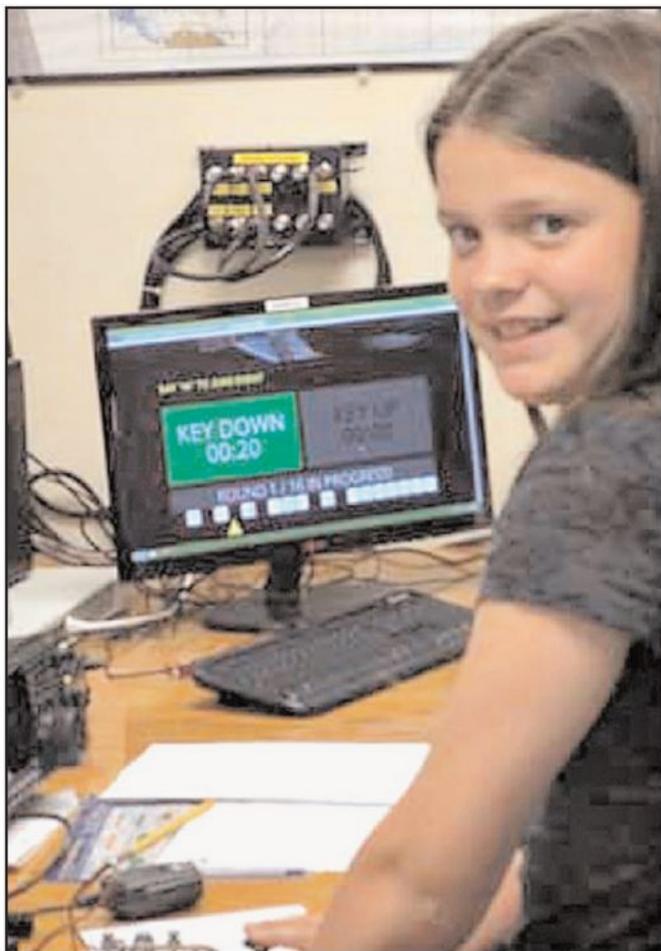


Photo E. Eleven-year-old Jennifer Field, of Bellmore, holds down a straight key to send signal to Juno. The Mission Juno timer is visible on the screen in the background.



Photo G. Jennifer Field, 11, gets Morse instruction from the GBARC's Tom Favilla, N2MIG.



Photo H. Here are three of the students taking part in the *Hi Juno* experiment at the GSBARC are, from left, Jennifer Field, Christiana Fiorillo, and Alexis Kastinidis. Giving a thumbs-up behind them is their mentor Karel Bott, AC2LR.



Photo 1. Taking part in the worldwide Hi Juno event on the GSBARC team was 10-year-old Nolan Hidaka, of Queens, New York, he's holding down the straight key during one of the group's CW transmissions.

entire two-and-one-half hour event. Both students and parents took turns sending a total of 96 Morse signals to Juno using a straight key.

The families also enjoyed practicing Morse code and the phonetic alphabet with Tom Favilla, N2MIG, and learning about satellites from Pete Portanova, WB2OQQ. Jeff McManus, KC2OEP, and Jeff Garruba, KC2ZQO, were also there providing technical and video support.

One neat experience during the event was that a few seconds before and after we sent each 30-second signal, we could faintly hear nearby hams sending their signal on the same frequency. Although JPL had organized it so we would all be coordinated to send signals simultaneously, some people's timers were off by a few seconds here and there.

The families said they really enjoyed the event, which made me so happy. One of the father-daughter teams returned the following week for Kevin Morgan, AB2ZI's Technician's class and another family is planning to attend some of our upcoming meetings and functions so their daughter can start studying for her ham license.

So, were Earth's collective 10-meter signals detected by Juno? At first, we didn't know. Something happened to Juno during the flyby that caused it to put itself into a protective *sleep mode*. (**WONDERING:** *Could it have been that Juno hit space junk when descending from 25,000 miles away to as low as 347 miles high over South Africa?* – AC2LR.)

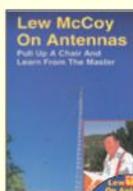
Mission scientists remotely got Juno's systems back up and running later in the week, and at this writing, we still don't know if Juno received our signals. *Stay tuned!*

(**NOTE:** *A version of this story appeared in the November 2013 edition of The Compass, the Great South Bay ARC newsletter. It is carried here with permission. Visit the GSBARC website at <<http://www.gsbarc.org>>. – K16SN*)



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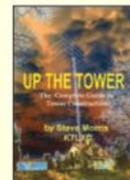
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‘Elmering’ in the Age of the Internet

By Cory GB Sickles, WA3UVV
<WA3UVV@gmail.com>

When I first became a member of the amateur radio community, I had several others helping me along.

There were hams from the local radio club who helped me get licensed and on the air in myriad ways. Although he would not be considered an Elmer in the traditional sense, since he was never licensed, my grandfather was one. His engineering background and helpful teaching provided me with a significant understanding of electronics — well before I’d even heard of amateur radio.

To this day, I have vivid memories of his hands and his voice guiding me with some early experiments in understanding the basics. Lots of times he had to convince my mother that I wouldn’t hurt myself with something powered by a 9V battery. (*CAVEAT: Now, 20 of them connected in series is a whole different matter! – WA3UVV.*)

No matter who your ham radio mentor was, or were, chances are good that when you spent time with them, you were together in the same room. When I was starting, the Internet was in its infancy (ARPANET) and the only practical ways to reach a

large audience of potential hams was through books, magazines, broadcast radio, or television. Ham radio was something taught interactively — in small groups or one on one.

Just as Julia Childs’ “The French Chef” and Graham Kerr’s “Galloping Gourmet” television programs ignited and cultivated a love of cooking, YouTube videos today do much the same for just about any hobby or special interest you can name.

Not all of them — very few, in fact — are well-produced programs with high-production value, but most get the point across. (*SUGGESTION: For a look at a conceptual hit among YouTube cooking shows, check out the extremely-watchable Average Betty <<http://bit.ly/19AXD86>> - WA3UVV.*)

Lights, Camera, Ham!

As for amateur radio, think of almost any special area of interest — a specific transceiver, operating mode, and so on — and you’ll find some video pieces covering that on YouTube and similar sites.

If you want more interaction and a knowledge resource, then Special Interest Groups (SIG) on sites such as Yahoo! or Google



Photo A. Rem Donnelley, K6BBQ, of San Rafael, California, has lots of “amateur radio in action” videos on YouTube that are as entertaining as they are instructional. He often uses a high-tech recumbent tricycle while QRP mobile-in-motion. (*Internet screen grab <<http://bit.ly/1anryoJ>>*)

might be for you. Pick a subject — QRP, military radios, specific Swan, Collins or Hallicrafters enthusiasts, to the latest in Digital Radios — it's all there, with growing groups. Appended areas with Frequently Asked Questions (FAQ), photos and notes are there for members to review and add to.

Along with being part of a family that encouraged education and knowledge came a responsibility to share that knowledge. So I've always been fairly sharing

when it comes to information and guidance — hoping to pass on what I know to others. After all, so many people did that for me.

Writing for publications such as *WRO* and *CQ* helps me reach out to so many more than I could in person. When my first article, “*Strategies for Buying Ham Gear in Troubled Economic Times*,” was published in *WRO* in October 2011 — I was surprised how quickly questions and follow-up emails began to appear, **Figure 1**.

Of those, one guy in particular piqued my interest with his questions and issues — being a “cliff dweller” in Manhattan. Through numerous emails, video attachments (with ongoing improvements in camera technique) and telephone calls, his issues were addressed and we became friends. He was my first “Remote Control Elmer” experience.

It has been enjoyable to learn more about him and his family, plus a new set of questions that getting a single-family home in the 'burbs has solicited. I may not always have an immediate answer and sometimes I need some pictures, but he's learning, getting more enjoyment from ham radio and I'm having fun helping him — and others — along.

For most of the subsequent columns and articles I've written, I've been greeted with questions and comments. The feedback from my column in *Popular Communications — CB and More* — has been incredible. I wish some hams were as enthusiastic as some of those CBers. And the fact is: most of the CBers writing in are hams.

If you have some special area of knowledge or would like to share the results of an antenna or shack accessory project, then writing about it in these pages is an excellent way to share your experiences with others. Take it from me — The *WRO* editing and production team does a great job and can polish up virtually any dull-looking text into a brilliant shine! (**NOTE:** *Cory, the check is in the mail! — KI6SN.*)

If you know how to hold a video or still camera steady and have even basic editing software, perhaps you can make some short programs that tell the story of your field radio trek, step-by-step kit building or successful contesting techniques.

You can share those productions with hams all over the world. Take a look on YouTube for videos by:

- Rem Donnelley, K6BBQ, **Photo A** <<http://bit.ly/1anryoJ>>
- Randy Hall, K7AG, **Photo B** <<http://bit.ly/IdrsVG>>
- Steve Galchutt, WGØAT, **Photo C** <<http://bit.ly/o9JyKI>>

Each has his own unique style of storytelling — quickly engaging you in what's going on and inviting you to learn more.

As someone who works with television and video production professionally, I know what makes for “good” and “non-good” storytelling. These guys, and



Photo B. Randy Hall, K7AGE, of Grass Valley, California, is one of the most prolific video producers in amateur radio. “I have videos of my shack, QSOs with DX stations, viewing of QSL cards, and other various topics,” he writes. “I try and add something new every few weeks.” (*Internet screen grab* <<http://bit.ly/IdrsVG>>)



Photo C. Steve Galchutt, WGØAT, popularly known as “The Goat Man,” documents his outdoor radio excursions with his goats Peanut and Rooster and posts them on the Web. The trio is from Monument, Colorado, and are often seen operating from the mountains in the area. (*Internet screen grab* <<http://bit.ly/o9JyKI>>)

many others, deserve the multitude of accolades they get.

Perhaps you're a more technical type that prefers to maintain a lower profile. Maybe you'd be more comfortable as a regular contributor to an online SIG or even a moderator. In September's *WRO*, KI6SN asked us to think about hams we know who give of themselves and better the amateur radio community through their efforts. To that end, I offer Chuck Carpenter, W5USJ, **Photo D**.

Chuck is the moderator of several groups, including those focused individually on the RockMite, DC-40 and Tuna Tin QRP (low power operation) kits, plus the incredibly active and growing QRP-L. And he's probably involved with others I don't even know about.

Chuck also designs helpful products like the Tuna Topper 5W "Full Gallon" QRP amplifier. Ask Chuck a technical question and he's quick to respond.

I'm not just talking "What value resistor should I use for ..." kinds of queries. I'm referring to questions more like:

- What components do I need to change to put the RockMite on 12 meters?
- Can the DC-40 kit work on 160?

Chances are, he already has that figured out — if what you're asking is technically practical — or will do a quick modeling session to figure it out. Some questions are challenging, while others would have been answered if only that person first read the FAQ or old messages. If a given group goes "off the rails" for too long, Chuck steps in to *gently but firmly* guide everyone "back on track."

His mentorship and deep knowledge of electronics isn't limited to ham radio, either. Back in the 1970s, Chuck wrote articles for *Creative Computing* — a popular and eclectic magazine for hobbyists during the micro-computing revolution — and other publications. In short, Chuck is one of those truly "stand out" guys who makes our hobby more enjoyable and contributes greatly to our community. If you can pattern your activities in a similar fashion, you will certainly touch many others.

So whether you're a "Remote Control Elmer" or prefer to reach your audience one at a time, look for ways to add the Internet for greater reach. While many predicted it would be the end of amateur radio, it's really enhanced our ability to learn, experiment, connect, and share — increasing the "fun factor" for all who are paying attention.



Photo D. Cory Sickles, WA3UVV, suggests adding Chuck Carpenter, W5USJ, of Point, Texas, to any list of radio amateurs who should be recognized for doing excellent "Elmering" and "Remote Elmering." A visit to his website proves what a prolific and active ham he is, and how willingly W5USJ reaches out to help others. Visit <http://www.w5usj.com>. (Internet screen grab)



Photo A: Sometimes a cup of change is all you need to buy used radio gear and accessories to get on the air. In this case, a vintage Heathkit DX-40 transmitter, Heathkit VF-1 VFO, homebrew keyer and a Hallicrafters S-38B receiver — all for about \$35. The computer mouse serves as the keyer paddle. (Photographs Courtesy of WA3UVV)

Amateur radio is so much like other interests or hobbies. You can start small and before you know it, fill a room with all the "goodies" you've acquired.

In the case of ham radio, it might be impressive to visitors, but could leave the impression that ours is an expensive hobby.

While you can certainly invest many thousands of dollars in radios, accessories and antennas, it is not a financial requisite to getting in on the fun. In fact, both new and experienced hams can assemble a station and make contacts for very little money. That's certainly an advantage in these troubled economic times.

With some selective purchasing and heeded advice from an Elmer (mentor), you may find that you can happily be on the air for less than \$200. In fact, that figure could even be \$100 or less!

There are strategies for finding inexpensive radios, for incorporating everyday items as accessories and to funding your pursuits in an almost "invisible" way.

Whether you just passed the license exam — and if so, congratulations! — or you're an Old Timer, a basic setup will consist of a transmitter, receiver, antenna system and power supply. If you think about it, the simplest of these combinations is found in a handheld radio. For about \$100, you can find a new 2-meter rig that fits in your palm. With some batteries, you are on the air.

Operation on high frequencies (HF) — 160 through 10 meters — is where it gets more challenging.

Tempering Goals and Expectations

To start working HF with as little cash outlay as possible, QRP (low-power output) and CW operation, kit building and wire antennas are natural options. While low power and Morse code may sound like too much of a challenge, remember for a moment that this is the path followed by many hams (including me) as we became members of the community through the Novice license.

In the early 1970s, when I became a Novice, I limited my activities to CW operation with 75 watts maximum input power (which, at best, meant for me about 40 watts output) on portions of the 80-, 40- and 15-meter bands. My transmitter was a crystal-controlled. While this may not sound like the foundation of fun to some people, I assure you the thrill of my first QSO — between Pennsylvania and Texas with 15 watts — was an emotional event I still vividly remember today.

Change for the Better

Let's return from this nostalgic moment and figure out how to pay for all this fun. Many household budgets seem stretched

Figure 1.



The Need for a Smoothed Solar Index — Characterizing a Solar Cycle

By Carl Luetzelschwab, K9LA, <k9la@arrl.net>

Sunspots have been observed for more than 2,000 years. The invention of the telescope in the early 1600s allowed permanent records of sunspot activity to be made. Around the middle of the 18th century European astronomers began keeping records on a

regular basis. From these records scientists put together the familiar sunspot cycle plot that started with Cycle 1 in 1755, and continues with the present Cycle 24.

The raw data is a daily sunspot number. The data in the early cycles is some-

times sparse but by 1850, around the peak of Cycle 9, the data was very reliable.

(BACKGROUND: My “Propagation” column in the November 2011 edition of WorldRadio Online, **Photo A**, discusses the possibility of missing an early solar cycle due to insufficient data. The gaps were shown in **Figure 1** of that column. — K9LA.)

After World War II — 1947, to be exact — we began measuring 10.7-cm solar flux. The 10.7-cm solar flux is *objective*: it’s a measurement, assuming a calibrated setup. Visually counting sunspots, on the other hand, is *subjective*. In other words, human interpretation is required. Just like sunspots, the raw data is a daily 10.7-cm solar flux value.

Modern Methodology

So why do we need anything more than the daily sunspot number or daily 10.7-cm solar flux? There are two reasons.

- The first has to do with characterizing a solar cycle, which I’ll address in this month’s column.
- The second has to do with propagation predictions, which I’ll address in next month’s column.

Accompanying this column, **Figure 1** shows Cycle 23 in terms of the daily sunspot number. The data is very spiky, which simply says the daily sunspot number — and daily 10.7-cm solar flux — are very dynamic. With respect to the figure, three questions to ask are:

- When did Cycle 23 start?
- When and how big was the maximum?
- When did Cycle 23 end?

When, What and Why?

As for the start of Cycle 23, it was likely sometime in 1996. The spiky data precludes pinning this down to a specific month.

As for the maximum of Cycle 23, it kind of looks like there might have been

PROPAGATION

‘... Now You Don’t’ — Did We Lose a Solar Cycle?

By Carl Luetzelschwab, K9LA

At the Huntsville, Alabama hamfest in August 2009, Dr. David Hathaway, solar scientist at the Marshall Space Flight Center, gave a great presentation about solar cycles.

One of his slides showed the monthly mean sunspot numbers for all 23 recorded cycles. What made this slide interesting was the fact that it indicated where there were gaps in the data, and thus where assumptions were made about the monthly mean sunspot number. **Figure 1** is this data.

From 1850 onward, we have very good data — it was available on a very consistent basis. But prior to 1850, there has been much missing data and estimates had to be made — especially from about 1780 to 1800 (the beginning of several small cycles referred to as the Dalton minimum).

Many of these estimates used geomagnetic field activity as a proxy for sunspot numbers, so these estimates weren’t simply wild guesses. But still you have to wonder...

This brings us to the purpose of this month’s column — *Did we lose a solar cycle in the 1780 to 1800 time frame?* The driving force behind this question is the exceptionally long Cycle 4 — it lasted about 14 years based on a start in 1784 (solar minimum between Cycles 3 and 4) and an end in 1798 (solar minimum between Cycles 4 and 5). **Figure 2** shows a histogram of the duration of our 23 solar cycles (with the specific solar cycles listed in each vertical column).

As expected, most of the solar cycles fall in the 10-year, 11-year, and 12-year buckets. Cycle 4, the only one in the 14-year bucket, appears to be an outlier — and thus brings suspicion with respect to the quality of the early data.

So how does one determine if there was just one extremely long cycle from 1784 to 1798, or if there were two shorter cycles? The clue is in the previous paragraph that mentioned a proxy for sunspot numbers. So let’s look deeper into proxies.

One of the most obvious proxies for solar activity is indeed

Figure 1. Monthly Mean Sunspot Numbers with Missing Data

36 WorldRadio Online, November 2011 A publication of CQ Communications, Inc.

Photo A. In “... Now You Don’t — Did We Lose a Solar Cycle?” from November 2011’s WorldRadio Online, propagation expert Carl Luetzelschwab, K9LA, looked into the mystery of a missing solar cycle early in the recording period — due, perhaps, to insufficient data. (With permission, courtesy of WorldRadio Online)

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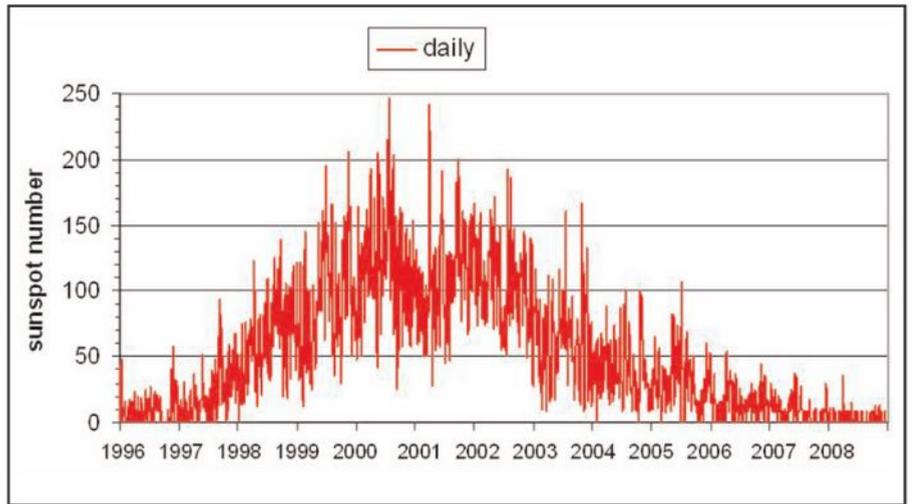


Figure 1. Cycle 23 daily sunspot numbers

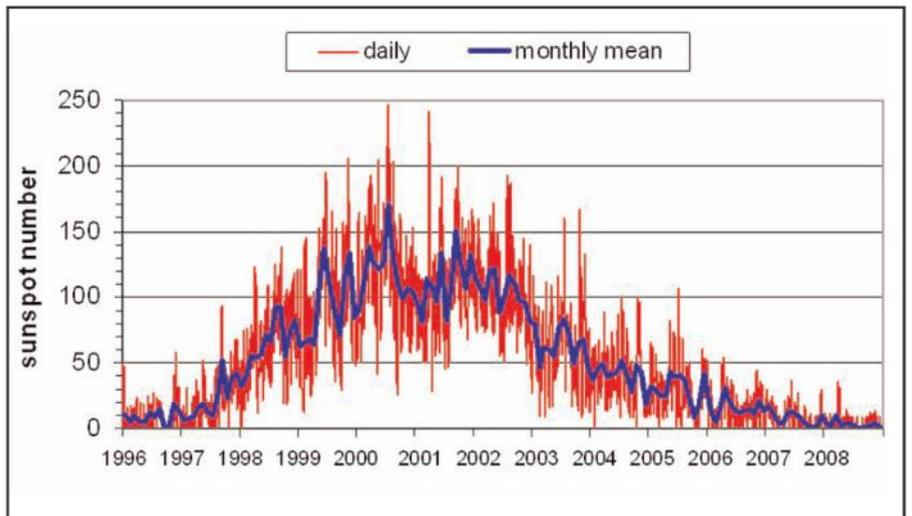


Figure 2. Cycle 23 daily and monthly mean sunspot numbers

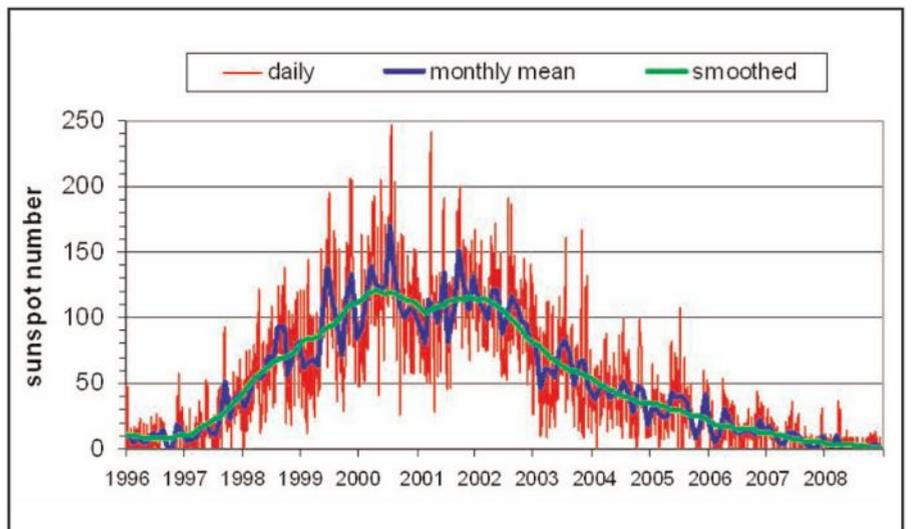


Figure 3. Cycle 23 daily, monthly, and smoothed sunspot number

two peaks — one around the middle of 2000 when the sunspot number was almost 250 and another in early 2001 when the sunspot number was around 240.

The dip between these high sunspot numbers also hints at two peaks. But what about the sunspot number around 210 in late 1999? Could this be considered a peak? If so, couldn't the other daily maximums in the sunspot number be considered peaks? So could Cycle 23 have had many peaks?

As for the end of Cycle 23, it's somewhere in the 2008 time frame. Again the spiky data precludes pinning it down to a specific month.

Since we're having trouble pinning down the start and end and the peak — or peaks — let's average the daily values to give us monthly means. (**REMEMBER:** The "mean" is the same as the "average." — K9LA.)

Figure 2 is the same data as in **Figure 1**, but with the monthly means added in dark blue.

The monthly *mean* data is still kind of spiky, and does not allow us to pin down the start and end of Cycle 23 to a specific month/year. But at least we can now better see that Cycle 23 appears to have had two broad peaks.

With respect to the peaks, should we take the two highest monthly *means* — about 170 in mid-2000 and about 150 in late-2001 — as the peaks? But what about all the other peaks in the monthly mean data? *Should they figure in somehow?*

Making It All Work 'Smoothly'

Enter: the use of the *smoothed value*.

Now, hang on! The smoothed value for a desired month uses:

- The monthly *mean* from the desired month
- The monthly *means* from the five months before the desired month
- The monthly *means* from the five months after the desired month
- One-half the monthly *mean* from the sixth month prior to the desired month
- One-half the monthly *mean* from the sixth month after the desired month

Whew! Thus the smoothed value is heavily averaged. Also note that the smoothed value is six months behind the current month.

The calculation of the smoothed value requires 13 months of data, but using one-

half the monthly *means* at both ends results in 12 full-month data points. This can cause some confusion, as I've seen the smoothed value called a 13-month running average (since 13 months of data is required) and a 12-month running average (since it ends up with 12 full-month data points). Regardless, the smoothed value is heavily averaged — in other words, it is *smoothed*.

Figure 3 is the same data as in **Figure 2**, but now with the smoothed values added in green.

Now it's easy to see that Cycle 23 indeed had two broad peaks — one in April 2000 at a smoothed sunspot number of 120.8 and the other in November 2011 at a smoothed sunspot number of 115.5.

These months and smoothed values easily come from the raw smoothed data that is used to produce **Figure 3**.

That's More Like It

Now we can also easily determine a likely start and end for Cycle 23. We can simply use the lowest smoothed sunspot number for both.

For the start of Cycle 23, May 1996 has the lowest smoothed value (8).

For the end of Cycle 23, November 2008 and December 2008 have the lowest smoothed value (1.7).

Be advised that these numerical minimums for the start and end times are usually the starting points — the official start and end times of a solar cycle can be revised a bit based on the comparison of old versus new sunspots and other factors.

Another Option

Although I went through this exercise using sunspot numbers, I could have used 10.7-cm solar flux with the same results. That is, the smoothed value allows us to better determine the start time, the end time and the peak(s) of a solar cycle. This is why the official measurement of a solar cycle is the smoothed value.

Coming Up

This month's *Propagation* addressed the first reason why we need a smoothed solar index: to best characterize a solar cycle.

Stay tuned for next month's column. It will address the second reason why we need a smoothed solar index: for accurate propagation predictions. — K9LA.

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Opening the Door for the World's Radio Amateurs to Support Military Response in Disasters

COMMENTARY

By Bill Sexton, N1IN

With no advance planning but some quick thinking to make up for it, a single ham from the U.S. mainland solved a weighty problem for the U.S. Navy during the Haitian earthquake catastrophe of 2010.

The hospital ship *USNS Comfort* had just anchored off Port-au-Prince, but it lacked radios equipped for frequencies in use ashore. Floridian Jack Satterfield, W4GRJ, who had deployed in support of a medical team from Miami, opened up his ama-

teur rig to work the international distress channel and for a brief time relayed emergency traffic out into Port-au-Prince Bay.

It's probably coincidence, but over the next three years the Pentagon and other national commands have carved out a place for amateur radio in global relief operations conducted by the military.

Picking up where Satterfield and colleagues left off, radio amateurs Dr. Sanjeeb Panday, 9N1SP, and Satish Krishna



New Role for the Radio Amateur. There's room at the table for amateur radio at the Multinational Communications Interoperability Program (MCIP), which successfully tested ham participation in military humanitarian operations during the MCIP's 2013 conference in Singapore (Courtesy of U.S. Pacific Command)



Showing the Flag. National emblems show the diversity of the 22 Asia-Pacific nations — from America to Vietnam — that dedicate their armed forces to teamwork in confronting trans-national catastrophe like the 2004 Sumatra-Andaman Islands tsunami that killed some 250,000 in 14 countries bordering the Indian Ocean.
(Courtesy of Chai Sian Liang, Singapore Government)

Kharel, 9N1AA, came on the air last Aug. 26 from *Pacifica*, a fictitious south Asian country hit by a simulated seismic catastrophe.

Their call on the 15-meter ham band reached Tim McFadden's Army MARS station in Kabul, Afghanistan. That contact triggered an ingenious cross-band relay race to U.S. Pacific Command headquarters in Hawaii, the Army MARS control station in Arizona, and the Pentagon.

In an actual incident, what the military calls *Humanitarian Assistance and Disaster Relief* (HADR) could have gotten underway immediately.

A New Global Connection

In other words, all the necessary elements were in place for an innovative response system utilizing indigenous amateurs as the first-on-the-scene communicators anywhere in the world, with MARS stations poised to relay their traffic into military channels of participating countries. "Cross-band" interchange between amateur and military frequencies is a basic task of MARS operators since they're licensed for both.

I haven't seen a final *After Action* report, but both the Pentagon and ARMARS Headquarters are known to be considering the *Pacifica* model for global implementation by the U.S.-sponsored Multinational Communications Interoperability Program (MCIP). In fact, only three weeks after the *Pacifica* drill, MARS was activated to track an actual tropical cyclone that battered India's east coast.

The MCIP currently embraces some two dozen regional partners including Australia, India, Indonesia, Japan, Republic

of Korea, Malaysia, New Zealand, the Philippines and, yes, Vietnam. It had already conducted a "proof of concept" test with amateur HF in 2012. Next steps can be expected at the program's annual conference this coming August. MCIP sponsored the Pacific Endeavor 2013 (PE-13) exercise described above as part of its annual two-week workshop in Singapore.

Nepal's Dr. Panday, a computer science professor, and Satish, a lawyer, were actually transmitting from remote Kathmandu,

No 'Simulated Test' This Time

Barely three weeks after the simulated event testing MARS connectivity with Nepal, the auxiliary was activated for an actual cyclone, or hurricane, headed into neighboring India.

Acting on an alert from the Pentagon, Daniel Wolff, Army MARS regional director for Eurasia, instructed the handful of members in south and east Asia to monitor amateur frequencies "for information relevant to Cyclone Phailin" and report on damage and impact.

Tim McFadden, AE3TM, in Kabul, made CW contact with VU2BGS 400 miles from the affected area and learned where emergency traffic was concentrated. Unfortunately, he reported, there was no propagation for the two bands cited.

Even so, "this mission gave operators a chance to use and refine skills learned during Exercise Pacific Endeavour 2013," Wolff said in his *After Action Report*.

Phailin 13, described as India's worst storm in 14 years, caused heavy damage but a high death toll was averted by mass evacuation upward of a million persons. — *Bill Sexton, NIIN*



Critical Connection. Tim McFadden, T6TM, a civilian military trainer in Afghanistan, provided the essential link between military circuits and the amateurs in Nepal. He'd only been a member of MARS for less than a month when his station proved to be the only one with propagation to 9N1AA in Kabul. *(Courtesy of KB2RLB)*



Teamwork. Symbolic of the new partnership, Sanjeeb Panday 9N1SP greets Lt. Col. David Joerres, the branch chief of multinational communications at U.S. Pacific Command, Honolulu, during the Singapore conference at which Panday demonstrated amateur capabilities. *(Courtesy of U.S. Pacific Command)*



With His Hands Full . . .

Before the PE-13 exercise David McGinnis, the ARMARS HQ operations officer at Fort Huachuca, Arizona, broadcast simultaneously on two separate transmitter and beam systems to determine whether long or short path worked best with Kathmandu. Long path — over water — won, but on the crucial day, propagation wasn't satisfactory for handling messages direct. *(Courtesy of Juanita Portz)*

From New Callsign to Action: 12 Days

By Bill Sexton, N1IN

Even with his broad communications experience with the Special Forces before he retired from active duty, Tim McFadden must have been amazed how quickly Army MARS put him to work in the globe-straddling *Pacifica* exercise last summer.

McFadden had just settled into a civilian job training Afghan soldiers in Kabul. He still remembered MARS for phone patches that members provided him and his family in the 1970s during a deployment in Panama and decided it was time to join up himself.

His application reached Region Director Daniel Wolff in Germany on August 14. Twelve days later, after a crash course in MARS procedures and the exercise plan, he was co-starring in the first international cross-band operation of its kind, *Pacific Endeavor 2013*.

"I knew instantly that Tim's location would be ideal for the exercise," Wolff recalled. "So I pushed hard to prepare him."

Actually, as a communicator for all his 21 years active duty and senior communications non-commissioned officer at retirement, McFadden had something of a head start. He's also been a licensed radio amateur since 1994.

"I have been a communicator since I was a kid and disassembled my walkie-talkie and reassembled it inside a football helmet," he said.

McFadden, now in his mid-50s, was born in Indiana, made his home in Massachusetts when he wasn't deployed, and looks forward to settling down in Germany when his current training contract is completed. His wife, Rita, is German-born, but a naturalized American citizen.

Among his favorite radio memories is the time in northern Iraq

when his friend Mark Besch, NS1V, had a contact going with New York using his 20-watt military "manpack" transceiver. "I held up one end of his long wire antenna," McFadden said.

For the exercise August 26, he operated from his office in a military compound. The rig was a Yaesu FT-897D with two antennas: a homebrew delta loop for 20 meters and a G5RV Jr. installed as an inverted V.

Propagation was the challenge, not language. Both operators in Kathmandu were proficient in English: Dr. Sanjeeb Panday, a 37-year-old Ph.D. with a long list of published engineering papers in English; and Sadish Kharel a veteran attorney versed in international law. It was Kharel's station in use, one of only two amateur rigs in Nepal equipped for HF. Panday, a member of the ham majority equipped only for VHF, conducted the QSO.

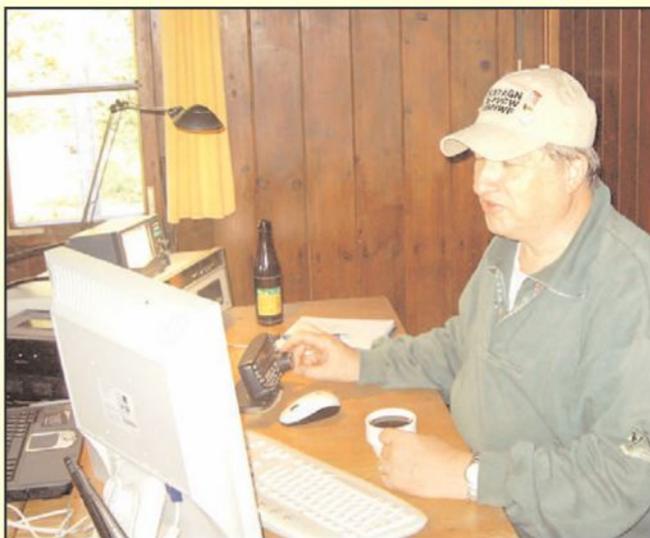
"It was more of an *I know that you are there call* and not a *Is there anybody there? call*," McFadden said. "I kept the conversation going by asking pre-determined questions."

"We did announce that it was an IARU exercise at regular timed intervals to keep the band clear," he added. "I was able to receive answers for four out of the five information requests received. The final IR (*request for information*) couldn't be completed due to loss of propagation."

As a career communicator serving in all conditions of deployment, McFadden had this to say of his new adventure on the air: "I'm learning that MARS continues to be a viable communications asset and requires more amateur radio operators bringing in new blood and learning from those who have set high standards of preparation, performance, and reliability."



Memories. In this souvenir photo from his active-duty years in northern Iraq, Tim McFadden, left, was enjoying an early brush with amateur radio serving as long-wire antenna support for a friend's contact with New York. The rig was a military man-pack 20-watt transceiver. (Courtesy of T6TM)



A Perfect Fit. When Tim McFadden, T6TM, applied from Afghanistan for MARS membership, Army MARS Region Director Daniel Wolff realized he would be ideally located for contact with Nepal. Shown at his station in northwest Germany, Wolff's region covers Eurasia and Africa — including Iraq and Afghanistan. Wolff's task was forwarding McFadden's relays from Kathmandu onto the APAN network. (Courtesy of Joel Erpelding, LX1ER)

And Then Commercial Power Failed ...

By Bill Sexton, N1IN

Am ham since only 2011 and with limited experience in emergency communications, Sanjeeb Panday, 9N1SP, was suddenly confronted with a decision that could make or break a disaster exercise of multinational significance in August 2013.

Dr. Panday, a computer science professor, learned the night before that low river levels meant there'd be no commercial hydropower — the only source — for the 7:45 a.m. (local) STARTEX. That called into question the whole point of the exercise, which was collecting the amateur radio operator's observations on a simulated earthquake catastrophe.

Should Panday notify the exercise controllers and abort the complex scenario? Or should he gamble on a weak battery-powered signal being heard outside remote Nepal?

He gambled, and the 25 watts of RF output from 9N1AA did get through to a waiting Army MARS relay station in Afghanistan — weak but readable some 950 miles from Kathmandu.

"I was praying the whole night," Dr. Panday said later. "This was the main reason I said afterward I felt like I had climbed Mt. Everest."

Panday and Satish Kharel 9N1AA, whose HF rig was used for PE-13, weren't all that far from Everest (about 100 miles) and still well above sea level (about 4,600 feet). Kathmandu sits in a bowl surrounded by major peaks that complicate HF propagation in the best of seasons. The Kathmandu station consisted of an ICOM 756 transceiver, ACOM 1000 linear amplifier, LDG AT-1000

auto antenna tuner, and three-element Yagi 45 feet above ground. DXers may recognize Kharel's callsign — he says he has accumulated more than 120,000 QSLs working the rest of the world, including North America.

Commercial power was still on at 7:15 Monday morning (Kathmandu local time) when Tim McFadden, T6TM, called by voice from Kabul on the 15-meter emergency frequency designated by the International Amateur Radio Union (IARU).

Answering with normal RF output, Panday warned that any moment he'd have to switch to battery. They settled on proceeding in a particularly robust digital mode, PSK-31.

Right on schedule, commercial power cut off at 7:30 a.m., 15 minutes before STARTEX. It was due back on at 10 o'clock — well within the exercise window, but propagation would be *iffy* at that hour — *and in fact, did fail soon after.*

The point of the exercise was obtaining situational awareness from an amateur station close to the scene and relaying it on the U.S. Defense Department's All Partners Access Network (APAN). This is an Internet adjunct dedicated to Humanitarian Assistance and Disaster Relief (HADR). From there data is immediately available to the U.S. Pacific Command HQ in Hawaii and other potential responders.

Exercise controllers at Army MARS HQ in Arizona had scripted five Information Requests (IRs) that were fed via APAN to MARS regional HQ in Germany and on to Tim McFadden in Kabul. During the exercise



High Confidence. The signal from Kathmandu was captured by Tim McFadden's homebrew delta loop just outside his office within a military compound in Kabul, Afghanistan. That is Mount Scorpion in the background. (Courtesy of T6TM)

window McFadden successfully completed four of the five IR exchanges, again relayed via APAN.

Dr. Panday came to ham radio by an unusual route. After completing his Ph.D. studies in Japan, he returned to Nepal "and thought of doing something to help my country and its people," he said. He thought about the geographical — tensions that create mountains like Everest cause frequent earthquakes — "so I thought of working in disaster communication." One of his academic advisors, a Nepali living in California, suggested amateur radio.

He got his license in December 2011 and now is one of no more than 30 licensed amateurs (quite a few of them his students) in this nation of around 28 million.

Meanwhile, the academic advisor had introduced him to officials of the U.S.-sponsored Multinational Communications Interoperability Program. Dr. Panday, who is coordinator of the master's degree program in computer systems and knowledge engineering at Nepal's national university, was invited to join as an advisor beginning with the MCIP's first amateur radio test in 2012, conducted from Singapore.

After that, Scott Griffin, the MCIP technical director at Pacific Command HQ in Hawaii, recruited him as lead operator for the 2013 operation from Kathmandu.

The congratulatory messages Dr. Panday received after PE-13 suggest he succeeded brilliantly. Since it was amateur radio really on trial, along with a mechanism for bringing hams into the MCIP globally, it was definitely something to celebrate.



Link to Nepal. Veteran attorney Satish Krishna Kharel, 9N1AA, left, operates one of only two amateur HF stations in Nepal. The other 30-or-so licensees are equipped for VHF. 9N1AA is with Dr. Sanjeeb Panday, 9N1SP, who pioneered Nepal's participation in the multinational interoperability program. The station is in Krishna Kharel's home with the antenna mast just outside. (Courtesy of 9N1AA)

Nepal, on battery power. Just short of 1,000 miles to the west along the Himalayas, McFadden, a retired army communicator working for the U.S. in Afghanistan, copied 9N1AA's weak signal and relayed the information to Dan Wolff, the Army MARS region director based in northwest Germany.

Wolff posted Kathmandu's traffic on a special Internet bulletin board that the Pentagon operates for HADR coordination. Back along the same route came requests for more information.

Nepal's participation was no coincidence. Geophysical observations warn of an approaching event comparable to the 1934 quake that killed nearly 20,000 persons and destroyed much of Kathmandu and a quarter of the country's homes.

Preventing Panic

PE-13 followed the International Amateur Radio Union (IARU) protocol that protects "emergency center of activity" frequencies on the amateur bands. To avoid alarming anyone overhearing the traffic, all exercise contacts were conducted using sporting jargon from cricket, a popular game in much of Asia.

The two-and-one-half hour exercise window accomplished all but one of its planned tasks: a photo transmission via HF. However, McFadden successfully captured three Kathmandu images the next day, one showing a likely landing site for relief helicopters.

Details of Pacific Endeavor 13 were largely planned out of Army MARS headquarters at Fort Huachuca, Arizona, under direct guidance from the Chief Information Officer/G6 in the Department of Defense and the U.S. Pacific Command in Hawaii.

In the month leading up to PE-13, ARMARS Program Officer Paul English and Operations Officer David McGinnis conducted three "train-ups" fine-tuning the operation.

What was not in the plan was a power outage imposed in Kathmandu minutes before the exercise because of low water levels in Nepal's hydroelectric system. Fortunately 9N1AA was ready with battery power. RF output of 25 watts sufficed to reach Kabul using the sturdy PSK-31 digital mode.

Preventing Pileups

Initially, the Multinational Communications Interoperability Program was created a decade ago to untangle the snarl of colliding frequency assignments

accompanying emergency response across national borders — each nation with its own net plans. It has grown into a significant educational as well as operational planning center.

The backbone of MICP's operation is an Internet-based reporting system called APAN. This is a makeover of the U.S. Pacific Command's old Asia-Pacific Area Network which has long since been replaced by satellite communications. To shed its warfighting identity it was given the more neutral name "All Partners Access Network" — with its acronym unchanged.

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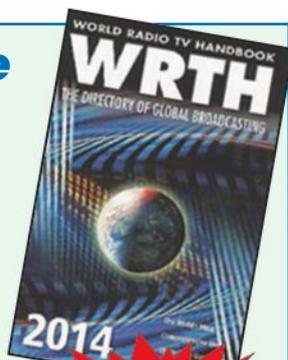
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rarity of transnational catastrophes, the auxiliary's primary mission of domestic response shouldn't be noticeably affected. The real challenge is building the overseas side of interconnectivity, and that is the MCIP's job.

Born of Catastrophe

This program dates back to 2004, the year of the epochal Sumatra-Andaman Islands "undersea mega-thrust earthquake." The resultant tsunami and inland flooding claimed roughly a quarter of a million lives in 14 countries along the Indian Ocean. The U.S. was in the forefront of many nations providing HADR.

Indigenous hams, most notably in India and Indonesia, were heroes in that catastrophe. It took quite a while, but as part of the MCIP's annual workshop in August 2012 an "Amateur HF Radio Proof of Concept" took place — with Nepal's Panday at the meeting site in Singapore receiving simulated hospital data from Kharel in Kathmandu. Dr. Panday volunteered on the spot to take a lead in 2013. Officially, he's an academic advisor to the program.

MCIP defines its mission as "To provide Interoperable reliable and effective Communications Information Systems (CIS) procedures, framework, and systems architecture among multinational mission partners (MNMP) to support a timely response to HADR operations in order to save lives."

Adds Patrick Lanphier, a professor and emergency communications expert at Carnegie Mellon University-Silicon and Pacific Command Advisor: "I think many people who are outside the military simply view the military as warfighters and don't appreciate what the military does in terms of humanitarian assistance around the world. And here the military has a chance to really change the world."

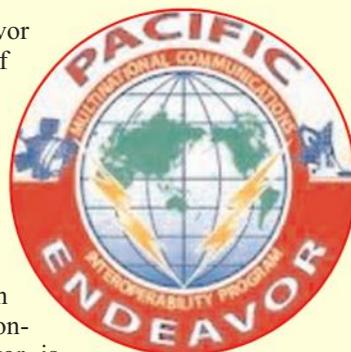
New Acronyms for EmComm

HADR: Humanitarian Assistance and Disaster Relief is an international term for military response to disaster situations on a peaceable, non-aligned basis.

MCIP: Multinational Communications Interoperability Program is a group of diverse national military commands outside the traditional alliances of like-minded governments. Its mission is facilitating HADR.

APAN: The All Partners Access Network is the Internet-based facility organized by the U.S. Defense Department for immediate information sharing by all participants in HADR operations whether military, civil, or non-governmental.

PE-13: Pacific Endeavor is the annual meeting of MCIP delegates to determine policy and test procedures. PE-12 (in 2012) provided proof of concept for amateur participation in the program. PE-13 (last year) tested its application in simulated catastrophe conditions. Pacific Endeavor is sometimes used interchangeably with MCIP. — *Bill Sexton, NIIN*





Here's a Snapshot of Your QCWA 'Scorecard'

By Richard Fisher, KI6SN

This month we're going to do a little "grounding." That is, we're going to lay out some basic facts about the Quarter Century Wireless Association, QCWA.

There's no arguing that for prospective members, new members or longtime members, "you can't follow the game without a scorecard."

So, here you go.

What Is QCWA?

The Quarter Century Wireless Association, Inc. was founded December 5, 1947, as a noncommercial association of radio amateurs organized for the promotion of interest in amateur radio communication and experimentation, for the establishment and advancement of the radio art and of the public welfare.

QCWA is an incorporated association without capital stock chartered under the laws of the State of New York, and is a tax exempt 501(c)(3) organization under the Internal Revenue Code of 1986.

Who's In Charge?

QCWA's affairs are governed by a President, Vice President, Secretary, Treasurer, and a Board of Directors, whose voting members are elected every three years by the general membership.

Who Can Join?

In order to qualify for membership in QCWA, one must have demonstrable proof of having been first licensed as an amateur radio operator at least 25 years prior to application for membership and must be currently licensed. Membership inquiries and general correspondence should be addressed to the business office at:

Quarter Century Wireless Association, Inc.
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Phone: (352) 425-1097

QCWA Operating Frequencies

Recommended QCWA calling frequencies for informal member QSOs are:

CW: 1.810, 3.540, 7.035, 14.040, 21.050, 28.050
Phone: 1.845, 3.810, 7.244, 14.262, 21.365, 28.325

Chapters on the Air

QCWA chapters around North America and the world hold



Photo A. Members of the QCWA Board of Directors include: Seated from left: Secretary Vic Culver, W4VIC; Vice President Larry McCalvy, WA9JMO; President Ken Oelke, VE6AFO; and Treasurer Mort Cohen, WA2ARS. Standing from left: Pete Varounis, NL7XM; Myron Cherry, K4YA; John Johnston, W3BE; Sue Simpson, N8AJU; Gerry Gross, WA6POZ; Ken Simpson, W8EK; Howard Cunningham, WD5DBC; and Jeff Beals, WA4AW. (Courtesy of QCWA)

regular nets to keep members in radio contact with one another. Here's a link to a comprehensive list of chapters and nets – with at least one likely to be in your general area: <<http://bit.ly/1aI1WyB>>

QCWA Then: Past Presidents

- John DiBlasi, W2FX (SK) 1947 - 1964
- Earl R. Thomas, W2MM (SK) 1965 - 1968
- Clarence Seid, W2KW (SK) 1969 - 1971
- Barry Goldwater, K7UGA (SK) 1972 - 1973
- Frank A. Gunther, W2ALS (SK) 1974 - 1977
- Harry S. Gartsman, W6ATC 1978 - 1981
- Stuart Meyer, W2GHK (SK) 1982 - 1985
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- John Kelleher, W4ZC (SK) 1996 - 1998
- Gary R. Harrison, KØBC 1998 - 2002
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- Robert A. Roske, NØUF 2008 - 2012

QCWA Now: Current Leadership

Here is a rundown of QCWA's current leadership team, Photo A.

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QCWA Journal Editor:

Amber Pelletier, K1AMP
 Racine, WI
 <qcwaeditor@gmail.com>



Photo B. QCWA Hiram Percy Maxim Memorial Chapter 222 members visited the gravesite of T.O.M. (“The Old Man”) in Hagerstown, Maryland. From left are Al Brown, KZ3AB; Ken McKee, W3RFQ; Butch Eigenbrode, NI2W; Bruce Carpenter, W3YV; Gary De-Palma, AC8NE; Carl Morris, WN3DUG; Jack Willock, W3NHR; Joe Plum, WB8QPG; Don Eisenhart, WB3FTQ; Fran Little, W3SCC; Page Pyne, WA3EOP; John Johnston, W3BE; and Bob Bishop, W4NBJ. (Courtesy of Mary Lou Plum)

Scholarship Chairman:

Timothy G. Donovan, W4CLK
 Fairfax, VA
 <tdonovan6@mac.com>

Historian:

Jeffrey Beals, WA4AW
 Loxahatchee, FL
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Callsign Historian:

Pete Varounis, NL7XM
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Activities Manager:

Ted W. Edwards, Jr., W3TB
 Williamsburg, VA
 <w3tb.ted@gmail.com>

Net Manager:

George Roach, VE3BNO
 Ottawa, Ontario, Canada
 <groach@storm.ca>

About 25 members and guests attended. The chapter’s election of officers for the 2014 term was held: President, Al Brown, KZ3AB; Vice-president, Butch Eigenbrode, NI2W; and Secretary/Treasurer, Joe Plum, WB8QPG.

Sharron Eigenbrode, Butch Eigenbrode, NI2W’s, XYL, “knitted two beautiful afghan blankets and donated them to the chapter to be raffled off,” according to the *QCWA Journal*. “The winners were Betty Johnston, W3BEJ; and Mary Lou Plum. Two additional prizes — LED flashlights donated by President Page Pyne, WA3EOP — were won by Ken McKee, W3RFQ; and Don Eisenhardt, WB3FTQ.

“Members of the Chapter would like to thank our charter year president, Page Pyne, WA3EOP, for guiding us through the first year of our existence and providing us with a firm foundation for the future,” writes KZ3AB. “Without Page’s persistence and leadership there would be no Chapter 222.”

After the meeting, the group convoyed to the nearby gravesite of Chapter 222’s namesake and founder of the American Radio Relay League, Hiram Percy Maxim, W1AW, **Photos B** and **C**.

“After we visited the gravesite, many of us returned to City Park and toured the historic Hager House — built in the mid-1700s by Hagerstown founder, Jonathan Hager, a German immigrant. The two-story house is now owned by the Washington County Historical Society.”
 – KZ3AB

This Month’s Chapter News

Chapter 222, Hiram Percy Maxim Memorial, Maryland: Hiram Percy Maxim, W1AW’s, birth date is September 2, 1869, and the HPM Memorial Chapter (Maryland) holds Chapter 222’s Anniversary Meeting in September to celebrate his birth. It was chartered on September 2, 2012, HPM’s 143rd birthday.

Last September, chapter members met in the South Pavilion at Hagerstown’s City Park for its picnic and Anniversary Meeting.



Photo C. A plaque donated by the Antietam Radio Association, W3CWC, commemorates the grave of Hiram Percy Maxim, W1AW (SK), at Rose Hill Cemetery in Hagerstown, Maryland. (Courtesy of KZ3AB)



Photo D. Dave Goodwin, VO1AU/VE3AAQ, gave a presentation at QCWA Chapter 70's meeting (Ottawa, Ontario, Canada) about his world travels. "Dave had the opportunity to call Beijing, China, his home base for travels to many Pacific rim countries including New Zealand, Hong Kong, Macau, Christmas Island, Japan and South Korea," VE3LC reported. (Internet screen grab <<http://www.QRZ.com/db/VO1AU>>)



Photo E. Tom Lewis, N4TL, gave Piedmont (North Carolina) Chapter 126 "an interesting talk and video presentation on *Ham Logging, Paper to Computer*, outlining the various programs available," reported K4HF. Tom also shared the results of a member survey of what logging methods people are using in Chapter 126. (Internet screen grab <<http://www.QRZ.com/db/N4TL>>)

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Chapter 70, Ottawa, Ontario Canada: Chapter 70 welcomed 39 members and guests to the September quarterly dinner meeting. The meeting featured a talk from chapter member and world traveler, Dave Goodwin, VO1AU/VE3AAQ, **Photo D.** Over the last two years, Dave had the opportunity to call Beijing, China, his home base for travels to many Pacific Rim countries including New Zealand, Hong Kong, Macau, Christmas Island, Japan, and South Korea. And of course, Dave made every effort to operate ham radio from these locations and told of his challenges and experiences.

At the meeting, President Dave Conn, VE3KL, congratulated Richard Ferch, VE3KI, for being added to the ranks of the ARRL Triple Play WAS award as confirmed on Log Book of the World. Rich is an avid contester and sets the standard for the Chapter in achievement despite his wire antennas and modest power.

Norm Rashleigh, VE3LC, advised the membership of the Industry Canada Consultation on the Proposed Revision to the Canadian Table of Frequency Allocations that includes a domestic ham allocation of 472 to 479 kHz.

Chapter 70 has now prepared and sent a letter of response to this government consultation in support of this as a new amateur domestic MF band, which was won as an international allocation largely because of Canadian efforts at WRC 12.

Also at the Chapter meeting, a special gift book signed by Chapter members was presented to Ernie Brown, VA3OEB. Ernie will be leaving us in Ottawa to take up residence near Toronto to be close to members of his family. Ernie also just celebrated his 93rd birthday.

Our very best regards to Ernie in his new home. – VE3LC

The Piedmont (North Carolina) Chapter 126: Nineteen members and

guests of Piedmont Chapter 126 attended a recent meeting in Denton, North Carolina, including board officials Wayne Ashworth, W4HG; Gray Fulk, WX4F; Kent Miller, K4MK; Chuck Littlewood, K4HF; and Tom Lewis, N4TL, **Photo E**, who gave us an interesting talk and video presentation on “Ham Logging, Paper to Computer.”

Tom outlined the various programs available and gave us the results of chapter member’s survey of what folks are using. He provided some highlights of the programs and explained what computer equipment and compatibilities are essential. Tom offered to go into further detail of any of the mentioned programs at a future meeting if members had specific interests. We were reminded to participate in the Fall National QCWA QSO Party on September 7.

At the general meeting, there was a moment of silence for Silent Key Bill Finch, W4EHF, who died July 27 at age 101.

Chapter 126’s weekly net is at 8:45 a.m. local time Saturdays on 3.826 MHz. All members are encouraged to check in. – K4HF

Chapter 203, Gilbert Crossley (Pennsylvania): The chapter held its quarterly meeting at Doan’s Bones Barbecue restaurant, 6 miles south of State College on PA Route 26.

Attendance was somewhat light this year. One reason might have been the thousands of Penn State students who were returning to campus after the summer break. Local residents who had *any common sense* stayed home and left their cars in the driveway. Another reason could have been the anxiety prospective diners might have had.

Last year’s summer quarterly meeting was also to be held at Doan’s Bones, but a few days earlier the driver of a pickup truck might have thought this was a drive through restaurant ... so he did just that, driving right *into and through* the dining room.

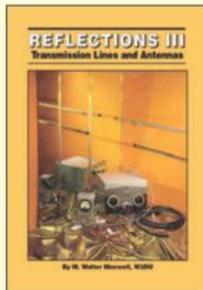
Those in attendance were Sharon Geisler, N3SG; Mike Coslo, N3LI; Woody Brem, K3YV, the chapter president; Bob Spooner, AD3K; John Passaneau, W3JXP; and Walt Supina, N3WS. – N3WS

Correction

In the December’s *QCWA*, two scholarship recipients’ award amounts were listed incorrectly. Both J. Pike and M. Torgenson received a Hasslinger scholarship in the amount of \$1,500. – K16SN

REFLECTIONS III by Walter Maxwell, W2DU

Here’s a sampling of what you’ll find inside this fully revised and updated third edition!



- ◆ Too Low an SWR Can Kill You
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WORLD RADIO ONLINE To Be Merged Into



KI6SN to be Editor of New Digital Supplement

This is the final issue of *WorldRadio Online* as a standalone publication. Starting *next* month, content from *WRO*, as well as *Popular Communications* and *CQ VHF*, will be merged into a new expanded digital edition of *CQ*, which we're calling *CQ Plus*.

"The hobby radio market is changing," explained CQ Communications President and Publisher Dick Ross, K2MGA, "and we are changing what we do and how we do it in order to continue providing leadership to all segments of the radio hobby." CQ Communications is currently the only publisher in the United States serving the broad radio hobby, from broadcast-band DXing to amateur radio moonbounce and satellite communications, and we will continue to do so through our enhanced digital edition of *CQ*.

Effective with the February 2014 issue of *CQ*, said Ross, content from the magazine's three sister publications, *Popular Communications*, *CQ VHF*, and *WorldRadio Online*, will be incorporated into *CQ*'s digital edition as a supplement to be called "*CQ Plus*." With this change, hobby radio enthusiasts of all types will be able to go to a single source — *CQ* — for articles on the broader aspects of hobby radio, from shortwave listening and scanner monitoring to personal two-way services and Internet radio, as well as amateur radio. Richard Fisher, KI6SN, currently Editor of both *WorldRadio Online* and *Popular Communications*, will be Editor of *CQ Plus*.

"Our primary audience is ham radio operators," explained Ross, "but very few hams began their radio involvement as amateurs. Most of us started out as shortwave listeners, broadcast-band DXers, CBers, or scanning enthusiasts. Many continue to be involved in many different aspects of the radio hobby in addition to amateur radio.

"By consolidating four specialized publications into one," Ross continued, "we will be better able to keep these multidimensional readers informed on all aspects of the radio hobby while simultaneously exposing those who are not hams to all the excitement and opportunities that amateur radio has to offer. We see this as a win-win for all of our readers and our advertisers, who will now be able to reach a wider and more diverse audience."

The expanded material will be an integral part of the digital edition of *CQ*, and will be included as part of a standard digital subscription. Each month's digital edition will simply continue beyond where the print edition ends, offering supplemental material on all aspects of hobby radio communication and will include selected columns carried over from the other magazines. **Follow this link for a preview of the complete table of contents for February's *CQ* and *CQ Plus*:** <<http://bit.ly/19mzbOK>>.

What's Happening With My Subscription?

Current subscriptions to *WorldRadio Online*, *Popular Communications*, and *CQ VHF* have been converted to CQ subscriptions — and will include *CQ Plus* at no additional charge!

Subscribers to *WorldRadio Online* and the **digital editions** of *Pop'Comm* and *CQ VHF* will receive the **digital edition** of *CQ* (including *CQ Plus*) for the remaining number of issues in their subscription terms. [Print subscribers to *Pop'Comm* and *CQ VHF* will receive *both* the print and digital editions of *CQ* (including *CQ Plus*) for the remaining number of issues in their subscription terms.]

While we understand that not everyone will be happy with these changes, they are the best that we are able to do in a difficult economy to continue providing the coverage of the broad radio hobby that our readers have come to expect and look forward to. Again, a preview of the February issue's Table of Contents for *CQ* and *CQ Plus* is available right now on the CQ website at <<http://bit.ly/19mzbOK>>.





Activating Rhode Island On a Trail-Friendly Radio Sunday

By Richard Fisher, KI6SN

Periodically this year we'll be dipping into reports submitted by trail-friendly radio operators who took part in the Adventure Radio Society "Flight of the Bumblebees" — an annual event held on the final Sunday of July each year.

This time we have a brief report from Peter Harrison, AA1PL, who is from Hope Valley, Rhode Island — one of the most-sought states for low-power operators working on QRP Worked All States.

For the July 2013 FOBB, AA1PL ventured to the state's Arcadia Wildlife Management Area where he ran up a score of 1,653 points and came in No. 42 among the almost 100 operators who submitted logs. Here Peter's account:

Peter Harrison, AA1PL, 2013 FOBB No. 176

I'd wanted to participate in FOBB for several years now, but during previous years other family commitments had prevented it from happening.

So 2013's event was my first FOBB experience. I was not able to get to the site until 40 minutes after the start time due to church commitments, so I missed the first hour of operating.

I set up at the Teft Hill Trail primitive campsite in the Arcadia Wildlife Management Area in Rhode Island. It is only about a 10-minute hike from the trailhead parking.

I ran my new trail-friendly Ten-Tec R4020 CW transceiver, a lightweight homebrew wire dipole, and my homemade CW trail key, **Photos A and B**.

Everything went great *except for one thing*: I forgot to bring along some bug spray! I was getting eaten alive by mosquitoes as I sat at the campsite's picnic table.

In spite of the bugs, I had a blast. I worked stations from a coastal island in Maine to Lake Tahoe, California.

As I was working other Bumblebees, I was trying to imagine what their location was like. I love QRP, CW and outdoor radio adventures, so FOBB 2013 was a great experience and a lot of fun for me.



Photo A. Peter Harrison, AA1PL, works at the key of his trail-friendly radio set up during the annual Adventure Radio Society "Flight of the Bumblebees" held on the last weekend of July. For his first FOBB, AA1PL operated from Arcadia Wildlife Management Area in Rhode Island. (Courtesy of AA1PL)



Photo B. A Ten-Tec R4020 CW transceiver, lightweight wire antenna, homebrew T-FR Morse paddle, and a gel cell battery were the workhorses of AA1PL's operation in July 2013. (Courtesy of AA1PL)



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Arcadia Management Area (Division of Forest Environment)



At over 14,000 mostly forested acres, the Arcadia Management Area is the state's largest recreational area, offering users a great variety of opportunities to enjoy the outdoors. Co-managed by DEM's Divisions of Forest Environment and Fish & Wildlife, it is promoted as, and actively managed for hunting, as well as fishing, boating, hiking, mountain biking, and horseback riding, to name a few activities. "Multiple use" management principles apply, assuring a safe and satisfying experience for hunters and non-hunters alike.

Miles upon miles of gravel roads and well marked and maintained trails entice hikers to return to a different section each visit. These same trails are often used by mountain bikers or horseback riders so all users need to act responsibly, show courtesy, and "share the road". Recommended parking for mountain bikers is at either the Browning Mill Pond Recreation Area lot, or the Brook Trail lot which accesses Midway Trail.

Fishing and boating is allowed in Breakheart Pond, but not swimming, cooking, or fires. If you are 14 years old or under, try fishing for trout in the stocked Freesty Hollow Pond, which has a handicapped accessible fishing platform. The Wood River, which flows through the

Figure 1.

Peter Harrison, AA1PL, 2013 ARS Bumblebee No. 176

103 VEZJFM	JF	Outside in Derson, Quebec City, Canada
155 KI8R	Mike	Local park near Lancaster, OH
172 W1FMR	Jim	Newmarket, NH
176 AA1PL	Pete	Arcadia Wildlife Management Area, RI
177 W4JDS	Jim	Fort Clinch State Park, Amelia Island, FL
200 N9NF	Todd	Rural field and woods in Portane County WI

Figure 2.

AA1PL's 2013 FOBB Score

AS4F / BB41	30	20	00	1000
K9EW / BB22	26	23	69	1794
WA5RML / BB86	30	19	57	1710
AA1PL / BB176	29	19	57	1653
W1FMR / BB172	27	20	60	1620
W5ODS / BB333	23	19	57	1311
W6IR / BB911	22	19	57	1254

Figure 3.

(A GREAT SHOWING; From his remote location in Rhode Island, **Figure 1** <<http://bit.ly/1vj8z2>>, AA1PL/BB, FOBB No. 176, **Figure 2**, made 29 contacts during the contest — 19 of which were fellow “Bumblebees.” With a multiplier of 57, his score was 1,653 points, **Figure 3**. His excellent showing placed him at No. 42 in the scoreboard. Great operating, indeed! — KI6SN.)

For complete information on ARS’ annual *Flight of the Bumblebees*, visit the organization’s website at <<http://ARSqrp.blogspot.com>>.

New Hi-Tee SOTabeams Tuner

At press time comes news from United Kingdom-based SOTabeams:

“Portable accessory specialists SOTabeams has introduced the first in its new range of antenna tuners — the Hi-Tee.”

According to SOTabeams’ website <<http://www.sotabeams.co.uk>>:

“Our Hi-Tee tuner has been designed with flexibility in mind.”

- The tuner is suitable for most unbalanced wire antennas.
- It will tune from 60 through to 10 meters.
- An air-dielectric coil is used to give better Q than can be achieved with toroids.
- A plastic case is used to maintain the Q of the coil and to keep weight low.
- A custom-made front panel includes a table that you can fill in with the optimum settings for your favorite bands using a permanent marker (supplied).
- 100-volt-rated variable capacitors are used to give a power rating of 20 watts.
- The antenna is connected using standard 4mm plugs, which are supplied.
- Output to your radio is via a BNC plug.
- Your Hi Tee Tuner is supplied *kite ready* with a static discharge resistor installed at the antenna input.
- Naturally, the tuner is also suitable for shortwave listening between 5 and 30 MHz.
- Dimensions: 130 x 68 x 35 mm (5.11 x 2.67 x 1.38 inches)
- Weight: 150 g (5.3 Oz)

What’s included?

Standard items coming with the Hi-Tee package are:

- Fully-assembled Hi Tee Tuner, with static-bleed resistor installed

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Photo C. The SOTAbears Hi-Tee Antenna Tuner has a front-panel provision for the operator to jot down the dial settings for each band operated. It covers 5 to 28 MHz, the company notes. (Courtesy of SOTAbears)

- Instruction manual
- Marker pen to record settings on the tuner
- 60-cm BNC-BNC patch lead (24-inches long)
- One BNC-PL259 adapter
- Two 4-mm plugs

Matching Range

According to SOTAbears:

“We tested the Hi-Tee Tuner into four resistive loads:

- 4,700 Ohms
- 1,100 Ohms
- 390 Ohms
- 8 Ohms

“The loads were selected to simulate a wide variety of different antennas from end-fed halfwaves to short verticals.

“Tests were carried out on all bands from 60 to 10 meters (5 to 28 MHz). This arrangement gave a total of 32 resistance/band combinations.

“In 21 of the combinations (about 2/3rds) a VSWR of better than 1.5:1 was achieved.”

For updated Hi-Tee pricing and ordering information, visit: <<http://www.sotabeams.co.uk>>.

You there, on the Trail!

WRO's Trail-Friendly Radio is always on the lookout for readers' adventures operating from outdoor locations. So why not take a digital camera and a notepad on your next excursion. Jot down your thoughts and experiences, take pictures of your T-FR location and radio gear, and send them to *WRO* for publication.

Simply put your narrative and pictures in an email addressed to: <KI6SN@aol.com>. We'll take it from there.

When you think about it, trail-friendly radio is a life-long learning experience. Sharing your challenges and ingenuity with *WRO* T-FR readers is a great way to contribute to our niche in the hobby. We hope to hear from you soon!

That's a Wrap

To the entire T-FR community, here's to a happy, healthy, safe and prosperous 2014. Please keep in touch, and we hope to hear you often from the trail in this New Year! – Richard Fisher, KI6SN

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In Color: ‘Returning’ to St. Kitts and Nevis, 5 Years Later ...

By Dave Flack, AH6HY

In the pursuit of catching new amateur radio entities, DXers spend a lot of time looking forward. This month, though, we’re looking back five years. Veteran DXer Dave Flack, AH6HY, took WRO readers on a DXpedition to St. Kitts and Nevis in our January 2009 edition. It was the last copy of WRO to appear in black and white. With the February edition, WRO went full color. Enjoy this flashback from five years ago this month for a most enjoyable trip to the Caribbean. Beautifully written, it’s just as much fun to read today as it was in 2009, and this time in color!

— Richard Fisher, KI6SN

Where do we go next? The perennial DXer’s question. This year (2009) the answer took me to the twin-island nation of St Kitts and Nevis for a combination scuba diving/radio holiday. As in years past I took along the barest of essentials to get on the air; it really doesn’t take much to get a signal out, especially if you’re near saltwater or (as I was) on one of the highest points of an island — a lightweight switching power supply from Samlex, coiled wire dipoles, a portable Kenwood rig.

I always pack a complete station in my carry-on luggage just in case my checked baggage is never seen again, but I pack extra luxury supplies (additional lengths of coax, collapsible tripod — anything to make getting on the air easier) in my suitcase up to the weight that the airlines let me transport for free. Despite needing to take four connecting flights to get from Hawaii to St Kitts, American Airlines delivered all of my luggage to Robert Bradshaw International Airport in the capital city of Basseterre intact.



Photo A. This was the stunning view from the V4/AH6HY shack during the 2009 Caribbean DXpedition. “From on top of a hill in Ariel Heights, this is the view to the northwest with the capital city of Basseterre down below.” (Photography courtesy of AH6HY)

In fact, the equipment arrived in better shape than I did; after four consecutive flights over a nearly 24-hour period, I spent the first afternoon on St. Kitts fast asleep. Once I had caught up on some much needed rest, it was time to start putting everything together and get ready to call CQ.

Thankfully the Internet takes much of the guesswork and uncertainty out of travel these days, and the villa I had found on St. Kitts was perfectly situated for amateur radio operation. The island has several hotels and properties that cater to visitors, but my single criterion in narrowing down the search was elevation.

My concern was not so much what the place looked like as long as it was at the highest location possible. I ended up with a very reasonably priced stand-alone villa in Ariel Heights above Half Moon Bay, the main tourist area of the island. The site was perfect for radio, higher than almost anything else on the island yet near enough for a quick car ride down to sea level when I was in the mood for sight-seeing or finding something to eat.

A few emails from the owner confirmed that there was ample surrounding land to work with for antennas and that she would have no objections to me setting up a temporary radio station at her place. In no time at all the property was covered with crisscrossing wires as half-wave monoband dipoles for everything from 10-40 meters were strung up.

A reciprocal operating license for St. Kitts and Nevis costs EC \$75 (approximately U.S. \$29). Although the ARRL website stated that all permits are good for a year from January 1 to December 31, I was surprised to see that my permit was good for one full year from date of issue. I was not given a choice of callsign format nor did I ask for anything special by way of vanity calls. My V4/AH6HY license arrived in my mailbox about a month after my paperwork had been sent.

Included in the envelope with the license were official stamped receipts from the Inland Revenue Department and

National Telecommunications Regulatory Commission. When I traveled to the island, I took all of these materials with me and was lucky I did, as we will see later.

Conditions were about what I had expected at the very bottom of the sunspot cycle. My original plan called for operating 10 through 40 meters, but I knew that was probably too optimistic. To no great surprise 10 and 12 meters proved to be almost useless with no sunspot activity, so I spent very little time on those bands. I was disappointed to discover that 15 and 17 meters weren't much better.

Luckily, things improved dramatically as the frequency lowered from there. Twenty meters proved itself as a very reliable workhorse band — open every day and night and accounting for nearly seven of every 10 QSOs I made from St Kitts. Forty meters was also a pleasant surprise — at least on CW — always wide open until the wee hours of the morning when I could no longer keep my eyes open.

I had a very hard time generating any pileup on 40-meter SSB for some reason, but would almost always have a nonstop stream of stations calling whenever I put a CQ out on CW.

This offered further proof of the well-known truism that with minimal working conditions — in this case, my 100 watts barefoot into simple wire antennas — CW does a much better job of getting a signal out and being heard.

Unfortunately my pileup skills are much slower when operating CW than SSB, so it took quite a bit of effort over several nights for me to log the nearly 600 stations on 40-meter CW I worked.

In all, I made nearly 2,200 contacts from the island, which was well above my goals, considering present-day (2009) solar conditions, the limited amount of on-air time, and my very modest station. I was also proud of the fact that I nearly achieved DXCC in just one short week with 96 total DXCC countries in the log.

The final QSO breakdown was approximately 70 percent SSB and 30 percent CW.

The highlight for me was having exotic DX like 7X, 5U, EL, and 9L call me in the pileups instead of the other way around. It's always fun to be on the other side of a pileup for a different perspective; you truly never know who will be calling you next when you hit the airwaves far from home.

Africa is on the exact opposite side of the world from my home QTH in Hawaii, so hearing so many Africa stations with

such loud signals on this trip was a real treat for me.

As Murphy's Law warns us, it is always best to be prepared for anything, and I had a couple incidents on St. Kitts that underscored that lesson dramatically.

Problems started from the first moment I switched the rig on. The villa I had rented had wiring for both American style plugs/voltage and the equivalent three flat prong British plug-voltage settings — not forgetting that St. Kitts used to be a British colony before gaining independence in 1983.

I chose to use the American plugs at first, since all of my equipment was already set up for use in the U.S., but I was shocked to see random error messages and indecipherable characters decorating the LED readout on my TS-450S.

This panicked me greatly as I could not shake this problem no matter how many times I turned the rig off and back on, re-did all of the connections, and even tried different wall outlets. I feared the worst: that the rig had somehow been damaged in transit, in which case this mini-DXpedition was going to be over before it began.

I turned to the troubleshooting section of the rig's manual and found that my problem was indicative of the radio not getting enough voltage. Even though the

villa was supposedly wired for both American and European voltages, it was apparent that something was wrong with the American wiring at the place.

Fortunately I had the alternate option. I opened up the switching power supply and pulled the jumper to convert it for 240-volt operation, then changed the plugs and adapters to switch everything over to the European sockets. Things worked fine after that for the rest of the week.

At the time, I had been using a Kenwood TS-450S for over 15 years and thought I knew just about everything about its quirks, but I was thankful I brought the operating manual because I probably would not have guessed insufficient voltage was the problem without referring to the manual's troubleshooting section.

One crisis solved. On to the next.

On my second day of operating I was interrupted by a loud honking coming from the road in front of the house. Since I was a new arrival and didn't know anyone on the island, I assumed the commotion didn't pertain to me. But the driver kept sounding his horn so I eventually had to take off the headphones and go out front to see what the fuss was all about. Outside was a representative from the island Cable and Wireless who introduced himself and showed me his ID. It was Joel, V44KAI. He asked if I was a



Photo B. "My idea of paradise!" Dave Flack, AH6HY, wrote in *WRO's* final B&W edition in 2009. "It's a villa in Half Moon Bay (on St. Kitts) with its own private pool looking south. Just visible in this picture is the narrowest part of the island, with the Atlantic Ocean on the left and the Caribbean Sea on the right."

radio amateur. I told him my home call sign and he answered that he didn't remember seeing my V4 license application. In short, he was there in an official capacity to check on whether I was operating legally or not.

This was the first time in all my operations around the world where a local authority wanted to see proof of licensing. Just goes to show you that you should always have your proper credentials available, because you never know when you might need to provide them.

I was thankful that I had brought all of my receipts and not just the license, as he carefully noted the receipt numbers and who signed and stamped each of them. Of course, this being a very small island, he recognized the signatures of the relevant personnel immediately.

After meticulously jotting everything down on his clipboard, he was off, never to be seen or heard from again. I'm still at a loss as to how he found my station, seeing as I was at the end of isolated road on a high hill using wire antennas that could not possibly have been visible from very far away.

A third visit from Mr. Murphy was the frequent power outages, about which nothing could be done. St. Kitts is still not on the main tourist circuit, but there are enough new housing construction sites that the island's infrastructure is starting to get sorely tested. A gigantic new Marriott resort, visible at the bottom of the hill from my deck, places an obvious strain on the island's electricity grid.

At times, the power would go out for hours at a time, and almost always at night when demand was at its highest and propagation was at its best. On more than one occasion I was working a steady pileup and then disappeared completely from the airwaves with no warning. To those stations that might have been wondering what happened, now you know.

Staying up late on 40 meters night after night was shorting me on sleep anyway, so when it became apparent that the lights weren't going to come back on anytime soon, I usually used the occasion to climb under the mosquito netting and catch a quick nap.

Days were mostly driving around the island sightseeing or in the water scuba diving. St. Kitts was the first island in the Caribbean to be permanently settled by both English and French colonists, and the plantation system built on sugar and slavery had its beginnings here. In short,

there is a lot of history packed within the country's relatively small landmass.

St. Kitts is most famous for Brimstone Hill Fortress National Park, the only UNESCO World Heritage site in the West Indies. A massive walled cannon compound of several different levels, it is a well-preserved outdoor museum of 17th and 18th century military architecture.

Designed by British military engineers and built on the backs of African slaves, construction of the fort started in

earnest in 1690 in an effort to dislodge the French from positions they had taken up along the coast. The fort is 800 feet high up some very steep slopes, and navigating a rental car through the narrow gates and around several very sharp turns up to the entrance is not for the faint of heart. But the sweeping mountain and ocean views alone are worth the effort. Sint Eustatius (PJ5) sits surprisingly close offshore, seemingly in the sights of many of the fort's armaments.



Photo C. "These cannons are in the massive Brimstone Hill Fortress National Park grounds," AH6HY wrote, "the premier sightseeing spot on the island of St Kitts." It was the only UNESCO World Heritage Site in the West Indies.



Photo D. AH6HY made note of this "signature scuba diving spot in St. Kitts," site of the 144-foot sunken freighter MV River Tau.

In the other direction, the sister island of Nevis is just a few miles across the seas and makes for an easy day tour. Passenger ferries link the main cities on each island (Basseterre on St. Kitts with Charlestown on Nevis), but for those wanting to take their rental car from one island to the other, the MV Sea Bridge connects the two islands from their closest geographic points — Majors Bay on St. Kitts and Cades Bay on Nevis — barely three miles apart. The trip between the islands takes less than 20 minutes, but it can be an agonizing hour or even longer waiting and watching the boat's crew slowly try to pack in as many cars and oversized trucks on deck as possible for each journey.

Nevis is small and can be circumnavigated very quickly on its lone round coastal road. But for a relatively tiny island, it's loaded with history as well. Alexander Hamilton was born there, and his birthplace is now a museum.

The drive around the island is pleasant, taking in lovely coastal scenery and centuries-old highland plantations whenever the road veers inland. Nevis is a fraction of the size of its sister island with an even smaller share of the total country's population, so it wasn't long before I was feeling the longing to get back to the hustle and bustle of the teeming metropolis of St. Kitts with all of its 35,000 people. Funny how perspectives can change in an instant; St. Kitts seemed like a sleepy backwater in the morning but the most modern of places when I returned later that afternoon.

Underwater, St. Kitts is known for wreck diving, and it didn't disappoint. There was quite a bit of sediment in the ocean during my dives, and visibility was not as good as I am used to at home. But this had an added upshot of making the wrecks appear gradually from the murk like silent ghosts. *Very cool effect!*

The signature wreck dive in St Kitts is the massive hulk of the MV River Taw. This 144-foot freighter sank in 1985 and was ripped in half by Hurricane Hugo four years after that. It now sits on the bottom in two separate bow and stern halves, eerily reminiscent of the Titanic.

Fortunately both sections are close enough together to be taken in as a single memorable dive. The three different photo QSL cards I printed for this operation feature some of my favorite sight-seeing and scuba diving shots from around the island, including one from this amazing dive.

Though the Eastern Caribbean dollar

is the official currency, U.S. dollars are accepted practically everywhere. Many menus and price lists show the dollar amount in both currencies so conversion is a snap.

Driving is on the left of course, a legacy from British colonial days, but there was so little traffic that it was easy to forget which side was the "right" side anyway. You're more likely to have to slow down for grazing goats or cows than for pedestrians. The islands have no stoplights, though the frequent roundabouts take some getting used to for people who aren't familiar with them.

It is necessary to register and get a local driver's license before getting behind the wheel on St. Kitts, but this is something that your rental car company assists you with and isn't much of an obstacle save for the extra fees involved.

After thousands of QSOs and several good scuba dives in the bag, it was time to take all the wires down and return the yard back to its semi-wild state. The trip ended with the same lingering question with which it began: *Where do we go next?* — 73 and Aloha, AH6HY

(VISIT: The AH6HY website at <<http://www.qsl.net/ah6hy>>. — KI6SN.)

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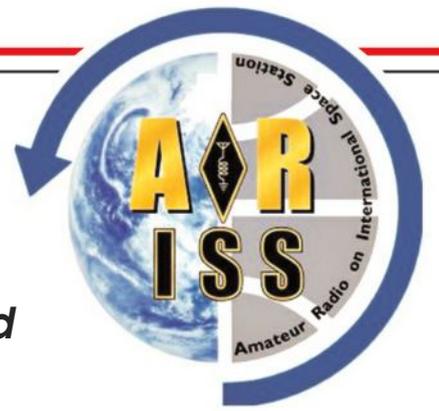
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NA1SS: In Orbit About 250 Miles Above Earth

WRO Checks-in with Radio Amateurs Aboard the International Space Station

Compiled from Multiple Web Sources



For more than a decade, radio amateur-astronauts aboard the International Space Station have been having a running conversation with fellow hams back on Earth. It's a great program that has been expanding and improving with every passing year.

In "Station Appearance" this month we accompany Expedition 25 Commander Doug Wheelock, KF5BOC, **Photo A**, on a video tour of the ISS and a fascinating look at the spacecraft's amateur radio station — NA1SS — in action during a pass of the western United States. (**WATCH and LISTEN:** To KF5BOC's ISS amateur radio tour at <<http://bit.ly/fN6lcU>>. — KI6SN.)

Are you as proud of your station as the team at NA1SS? Send digital photographs of your station with details to: <WorldRadioOnline@gmail.com> and we'll consider them for publication in Station Appearance in an upcoming edition of WRO.

If there's a YouTube video to accompany the still pictures, let us know and we'll set up a link.

— Richard Fisher, KI6SN

“October 2000 marked the beginning of amateur radio as a part of the International Space Station,” notes NA1SS, the International Space Station Amateur Radio Club 1, on its QRZ.com page <<http://www.QRZ.com/db/NA1SS>>.

ARISS (Amateur Radio on International Space Station) was created in 1996 “and was the logical outgrowth of

the very successful amateur radio activities on the MIR space station and the space shuttle,” according to NASA's ISS Ham Radio web portal <<http://1.usa.gov/19Hb9qN>>.

The organization was “formed to design, build, and operate equipment. In 1996, delegates from major national radio organizations and from AMSAT, which stands for the Radio Amateur Satellite

Corporation, in eight nations involved with the international space station signed a Memorandum of Understanding to form ARISS.

“NASA and the Russian space organization Energia (signed) agreements that spell out the place of amateur radio on the station. A technical team, called ISS Ham, has been officially established to serve as the interface to support hardware development, crew training, and on-orbit operations.”

Amateur radio operations began with the crew setting up the first ham radio system in the functional cargo block (FGB) portion of the ISS, **Photo B**. “Several check-out passes were conducted during November 2000 and the first school contact was made by Expedition 1 astronaut Bill Shepherd, KD5GSL, on December 21, 2000 with Burbank School in Burbank, Illinois.” (**FIRST ISS SCHOOL CONTACT:** Listen to the Burbank (Illinois) School contact with the ISS in December 2000 at <<http://bit.ly/1h2Sej0>>. — KI6SN.)

“Since that time, crew members have made numerous school, personal, and general contacts with people on every continent,” the website notes.

“The ISS has continued to grow in size and capability and so have the amateur radio operations,” the NA1SS QRZ.com page notes. “Several space walks were performed to place antennas on the out-



Photo A. International Space Station Commander Doug Wheelock, KF5BOC, shows viewers the ISS amateur radio station beginning at 11-minutes, 30 seconds of this YouTube video. Watch and listen as he puts NA1SS on the air during a pass over the western United States. <<http://bit.ly/fN6lcU>>. (Internet screen grab)



Photo B. During U.S. Space Shuttle flights, amateur radio played a part, as well. Astronaut Michel Tognini, KD5EJG, mission specialist, uses the Shuttle Amateur Radio Experiment II (SAREX-II) on Columbia's flight deck. SAREX was designed to demonstrate the feasibility of contact between the shuttle and ground-based radio amateur operators. (Courtesy of NASA)

side of the Service Module (SM) and additional equipment has been placed inside. This equipment has increased the options available for ham radio operators on the ISS and on the Earth. Future plans call for even more capability and expanded modes of operation.”

Currently, amateur gear on the ISS include: Ericsson M-PA VHF radio, Ericsson M-PA UHF radio, Kenwood D-700E radio, the NA1SS web page notes. Operating modes include: Packet/APRS, Voice and SSTV. “Typically just one mode is operational at a time.

“You might hear the crew talking when the ISS is overhead by monitoring the standard downlink frequency of 145.80 or Packet bursts on the frequency of 145.825.”

For more information on ham radio on the ISS, follow this link: <<http://1.usa.gov/18o3FNy>>.

For updates on the current ISS mission, visit: <<http://1.usa.gov/1hXswOa>>.

International Cooperation

The Russians have provided ports so that antennas can be mounted on the sta-

stations that will allow crews to make recorded reports on their daily activities and permit hams on Earth better contacts with men and women aboard the station.



This is a photo of the initial radio station amateur equipment while it was being tested. After testing, the equipment was stowed aboard space shuttle Atlantis for delivery to the international space station during STS-106.

The initial space station operations will be mostly voice and packet, a text messaging device. The first initial radio station was flown onboard the space shuttle Atlantis on STS-106. The crew transferred the ham

Photo C. A photograph of the initial ISS amateur radio station equipment being tested is posted on the ARISS website. After check-out, the equipment was stowed aboard space shuttle Atlantis for delivery to the International Space Station during STS-106. (Internet screen grab <<http://1.usa.gov/19Hb9qN>>)

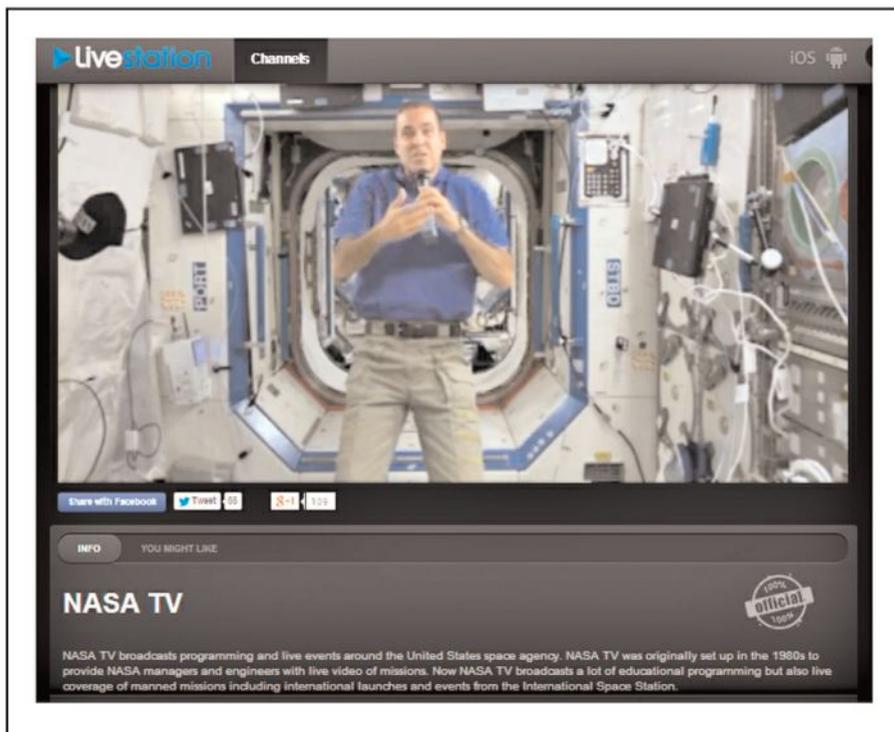


Photo D. NASA TV broadcasts programming and live events involving the United States space agency <<http://bit.ly/1eiimm1>>. It was originally set up in the 1980s to provide NASA managers and engineers with live video of missions. Now NASA TV broadcasts a lot of educational programming but also live coverage of manned missions including international launches and events from the International Space Station. (Internet screen grab)

ARRISS Japan の ホームページへようこそ

1. ARISSとは

ARRISSは、Amateur Radio on the ISS (International Space Station) の略称で、国際宇宙ステーション上のアマチュア無線という意味です。

国際宇宙ステーション (ISS) は、高度約400kmで地球を周回する108m X 88mの大型宇宙施設で、1998年から米国、ロシア、日本、欧州、カナダが共同で建設中です。ここにはすでに3名の宇宙飛行士が3~4カ月交替で滞在しており、この中には、アマチュア無線の免許を持っている人もたくさんいます。アマチュア無線は、これら宇宙飛行士の心理的安定を保つための要素のひとつとして、NASA (米国航空宇宙局) 始め各国宇宙機関で活動が認められています。

ARRISSは、ISS上のアマチュア無線局の設備を開発・運用するためのプログラムで、ISSの共同開発国である米国、ロシア、日本、欧州、カナダ他のアマチュア無線家によって進められています。第一期のアマチュア局は、既にISS上で運用されており、宇宙飛行士は余暇時間を使って交信することが出来ます。

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Figure 1.

tion's Zvezda Service Module — the space station unit that provides living quarters for the astronauts and cosmonauts, NASA officials said. United States and Russian teams have trained the astronauts and cosmonauts to operate the equipment.

“The Italian team has designed and built antennas. The German team has built sophisticated repeater stations that will allow crews to make recorded reports on their daily activities and permit hams on Earth better contacts with men and women aboard the station.”

The initial radio station was flown onboard the space shuttle Atlantis on STS-106. The crew transferred the ham radio gear into the space station for future use by the Expedition 1 crew.

According to NASA, “sponsoring agencies have stated that they consider access to a ham radio system a requirement for psychological support of the crews, by providing family and general contacts for people who will be in space many weeks at a time.

“As the international space station takes its place in the heavens, the amateur radio community is prepared to do its part by helping to enrich the experience of those visiting and living on the station.”

More ARISS Web Resources

The official website of ARISS is: <<http://ariss.rac.ca/oindex.htm>>. But there are several other websites from around the world related to ARISS. Here they are:

- English (Europe) <<http://www.ariss-eu.org>>
- French <<http://ariss.fr.free.fr>>
- Japanese <<http://www.jarl.or.jp/ariss/>>, **Figure 1**
- Russian <<http://rs0iss.ru>>
- Portuguese (Brazil) <<http://www.qsl.net/py1kcf>>
- Polish <<http://ariss.pzk.org.pl>>
- Italian <<http://www.amsat.it/arissc1.html>>
- Ukrainian <<http://ariss-ua.blogspot.com>>

Live ISS TV on the Web

Watch and listen to NASA TV transmissions from the International Space Station at <<http://bit.ly/1eiimm1>>, **Photo D.**

DX Predictions

December 2013

Maximum usable frequency from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 1934, Middleburg, VA 20118). The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Toyko, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janerio. Smoothed sunspot number = 42.

Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in (parenthesis) for poor. UTC is hours.

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
10	(11)	9	*14	(9)	*14
12	(11)	9	*14	(9)	13
14	(17)	9	*13	(13)	*27
16	21	*11	*19	(12)	*32
18	23	(11)	(18)	(10)	*34
20	22	*19	23	(9)	*34
22	19	*21	28	(9)	*32
24	*17	*19	*31	9	*28
2	*13	16	28	9	*18
4	*12	11	18	9	*16
6	(11)	*10	16	9	*15
8	(11)	10	*15	*9	*14

CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SA
8	(11)	9	*15	*9	*14
10	(11)	9	*14	(9)	*14
12	(18)	9	*14	14	*25
14	23	9	*18	16	*29
16	25	(9)	20	15	*32
18	*25	(9)	(18)	(12)	*34
20	*23	(9)	24	(10)	*33
22	*19	17	28	10	*28
24	*14	(15)	30	9	*19
2	*12	(11)	21	9	*17
4	12	(10)	17	9	*15
6	(11)	(10)	16	9	*14

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	14	*9	(14)	9	*14
9	13	9	*14	*9	*14
11	24	9	*13	14	*25
13	*30	10	*25	*18	*30
15	*32	(9)	21	*17	*32
17	*32	(9)	(17)	15	*34
19	*26	(9)	(22)	(11)	*33
21	*22	(14)	26	*10	*29
23	*17	(14)	27	*10	*20
1	*16	(11)	18	9	*18
3	*15	(10)	16	9	*16
5	*14	(10)	(15)	9	*15

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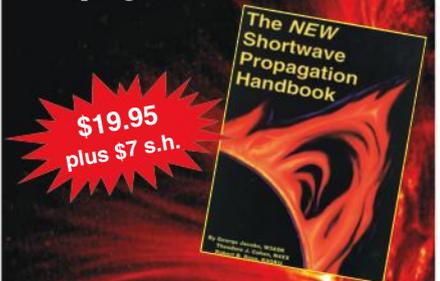
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A License Upgrade Tutorial: 'Decibels for Dumbbells'

By Kevin Morgan, AB2ZI
Great South Bay ARC

It's clear that the topic of decibels is more confusing than it needs to be. And it's a subject you'll see coming up periodically as you prepare for getting or upgrading your amateur radio license.

But once you understand how decibels work you should have no trouble working with them and performing the calculations as you work your way up the ham ladder.

Here are some main points to become familiar with:

- Decibels are based on a ratio of a measured value compared to a reference value (measured divided by reference).
- The ratio (measured/reference) is constant once calculated. That means that, for example, if an input to an amplifier is 5 watts (reference) and the output is 10 watts, the ratio is 10/5 or 2. The reference value multiplied by this number gives the measured power and vice versa — the measured power divided by the ratio gives the reference value. So 5 watts reference times 2 is 10 watts measured. 10 watts measured divided by 2 is 5 watts reference.
- If there is a loss (-dB), instead of a gain (+dB), the measured power (or voltage) is a smaller number than the reference. So if the reference is 5 watts and the measured is 2.5 watts we end up with 2.5 divided by 5 = 0.5 for our ratio. Again, reference power multiplied by the ratio equals measured: 5 watts times 0.5 = 2.5, and measured divided by the ratio equals the reference: 2.5 watts divided by 0.5 = 5. *See?*

So Far, So Good ...

Now let's look at the decibels:

Decibels are based on the base 10 log of the ratio multiplied by 10 for power or 20 for voltage in order to get a whole number answer. The formula looks more intimidating than it needs to.

- dB watts = 10 times Log10(measured/reference)
- dB volts = 20 times Log10(measured/reference)

We'll only look at the power dB formula since the only difference is multiplying by 20 instead of 10.

- OK, previously we got our power ratio, or factor, by dividing power measured (P_{meas}) by the reference power (P_{ref}), now we want to convert that power ratio into a decibel value.
- Take the power ratio we calculated and press the LOG button on your calculator. You will get a positive or negative decimal answer that is then multiplied by 10 to get our whole number decibel value. Remember, to multiply by 10 you just move the decimal point one place to the right. So 0.355 times 10 is 3.555.

So what do we do when we are given a decibel value to work with and either the output or input power and are asked to find the other?

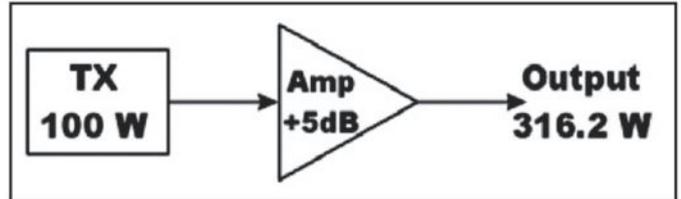


Figure 1.

Remember we can calculate measured power or reference power with the power factor so all we have to do is find out what power factor a given decibel value represents.

The decibel value is the log of the power ratio times 10. So to get the power factor (ratio) from a decibel value we first divide that decibel value by 10.

After dividing by 10 we take the anti-log of that number (see the end of this article for a talk on what Log10 and anti-Log10 are). Anti-log is the 10X key on your calculator and since it is the inverse, or anti-, function of Log10 it is conveniently located as a second function of the LOG key. On the TI-30Xa calculator you access the second function of a key by, surprise, pressing the yellow 2ND key then LOG. The result is the power factor you use to find reference or measured power.

Putting It All Together

Let's look at a complete example:

Referring to **Figure 1**, we have a diagram of a transmitter putting out 100 watts, into an amplifier supplying 5 dB of gain, for a total output power of 316.2 watts:

FIRST: The 100 watts from the transmitter is the reference power, or P_{ref} , and the 316.2 watts out of the amplifier is our measured power, P_{meas} . We know our answer for gain is going to be +5 dB so we can do the math as if we didn't.

The formula for dB power is: $dB = 10 \times \text{Log10} (P_{meas}/P_{ref})$

- To start, get the power ratio: $(P_{meas}/P_{ref}) = (316.2/100) = 3.162$
- Power reference times the power ratio should equal measured power. $100 \times 3.162 = 316.2$

OK, so far that checks with what we've been saying.

Power measured divided by the power ratio should give us the reference power, $316.2 \div 3.162 = 100$. *Again, this checks out.*

Now what about decibels?

The Log10 of 3.162 is 0.5, which we then multiply by 10 to get 5 dB! *Easy, right?*

Now what if we didn't know either the measured power or



Compiled by Jason Feldman, WPC2COD

the reference power, but we knew only one of them and the amplifier's gain in dB?

SECOND: Remember that the decibel value is based on the ratio. By getting the ratio from the dB's we can calculate measured power from the reference power, or the reference power from the measured power.

All we have to do is convert the dB number into the ratio number:

- We know our amplifier is giving us +5 dB of gain. That's the only number to look at right now.
- Divide that 5 dB by 10 and we get 0.5
- Take the anti-log of 0.5 (this is the 2ND function of the LOG key, or 10X) and we get the ratio 3.162

If we have the reference power, we multiply it by the ratio to get the measured power:

$$100 \text{ W} \times 3.162 = 316.2 \text{ watts.}$$

If we're given the measured power, we divide that by the ratio to get the reference power:

$$316.2 \text{ watts divided by } 3.162 = 100 \text{ watts.}$$

Notes on Log10 and 10X or Anti-log, and What They Mean

So, what does it mean to take the base 10 log of a number?

The base 10 log, written as Log10, is the number that 10 (the base) when raised to that power will give the original number.

Now that sounds confusing as heck, right? So let's look at a practical example of what that means:

Let's take the number 2. What number when 10 is raised to that power will give the answer 2?

If you press your LOG key with 2 showing you will get 0.301. 10 to the 0.301 power, 100.301, equals 2! *That's all there is to it!*

Remember, when we take the Log10 of a number we multiply by 10 for the decibel number (for power).

So in our example, a factor of 2 is 3 dB ($0.301 \times 10 = 3.01 \text{ dB}$).

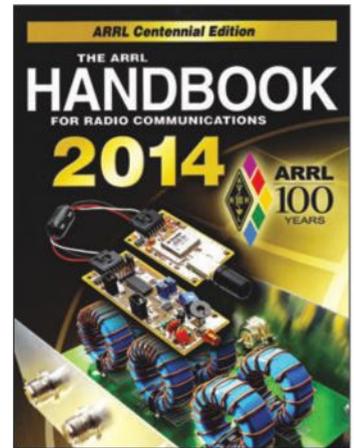
(NOTE: This tutorial first appeared in the January 2011 edition of Great South Bay (Long Island) ARC's "The Compass." - KI6SN.)

ARRL Centennial Edition Handbook

The ARRL is celebrating its 100th anniversary this year and has released a special Centennial Edition of The ARRL Handbook for Radio Communications. "This is a reference that should be in every ham's library, and if you're like most of us who buy one only every few years, this should be a good commemorative edition to hold onto in the future. This year's edition starts out with a history of the Handbook itself, which was first published in 1926. That book was less than 200 pages long, and in a small format. By comparison, the 2014 Handbook is over 1200 pages long, with additional material on an included CD," the ARRL said.

New this year is a chapter on telemetry and navigation, as well as significant updates throughout the book. Contributors include Nobel laureate Joe Taylor, K1JT, as well as CQ columnists Joe Eisenberg, KØNEB, and Riley Hollingsworth, K4ZDH, plus CQ VHF columnist Bill Brown, WB8ELK, and WorldRadio Online Propagation Editor Carl Leutzelschwab, K9LA.

The Handbook (including CD-ROM) sells for \$49.95 in softcover (\$59.95 in hardcover) and is available from ARRL book dealers or directly from the League at <www.arrl.org> or 860-594-0200.



ICOM Introduces New FR9000 Series P25 Repeater

ICOM America has released the FR9000 Series, a new, P25 110-watt repeater operating 100 percent duty cycle. This unit has the features required for interoperable communication such as P25 conventional, analog FM, and mixed mode operation. Combined with ICOM's P25 subscriber units, the new repeater provides public safety agencies a complete ICOM P25 compliant system.

ICOM's new FR9000 Series complies with Project 25 standards and achieves 100 percent duty cycle at 110W (VHF FR9010 model) and 100 watts (UHF FR9020 model) output. The Mil-Spec repeater has a heat sink built into the chassis, promoting stable and continuous operation. ICOM's new repeater can also be configured as a base station and has a 500-memory channel capacity, user-friendly interface, and an internal speaker. A programmable D-SUB 25-pin accessory connector is available to secure an external P25 trunking controller or remote control.

The new P25 repeater joins ICOM's current P25 interoperable "all-in-one" F9011 portable and F9511 mobile radios with built-in P25 conventional, P25 trunking, and analog conventional. Both subscriber series possess P25 Compliance Assessment Program (P25CAP) certification and FIPS 140-2 validation.

The FR9000 Series repeater is available now with an MSRP of \$9,000. For more information contact ICOM, ICOM America Inc. 2380 116th Ave NE, Bellevue, WA 98004. Phone: (800) 426-7983. Website: <<http://www.icomamerica.com>>.





JANUARY 2014

BRIGHTON, MISSOURI — **The Ozark Mountain Amateur Radio** will hold **The Ozark Mountain Hamfest** beginning 8 a.m., Saturday, January 4 at the Brighton Assembly of God Church. Activities include a flea market, prizes, food concessions, and VE exams that begin at 10 a.m. Contact: Mike Ballantyne (417) 788-8882. Email: <kc5mnp@gmail.com>. Website: <<http://www.w0omd.org>>.

LOCUST FORK, ALABAMA — **The Blount County Amateur Radio Club** will hold **FreezeFest 2014** from 8 a.m. to 2 p.m., Saturday, January 4 at the Locust Fork High School, 155 School Road. Activities include a flea market, tailgating, hourly door prizes, food concessions, and VE exams that begin at 10 a.m. Tickets are \$5 each. Tables are \$5 each. Tailgating is free. Contact: Bill Pond, AE4IE, (205) 647-5705. Website: <<http://freezefest.w4blt.org>>. Talk-in 146.700 (PL 91.5) or 443.775.

WAUKESHA, WISCONSIN — **The West Allis Radio Amateur Club** will hold its **42nd Annual Midwinter Swapfest** from 8 a.m. to 1 p.m., Saturday, January 4 at the Waukesha County Expo Center Forum, 1000 Northview Road. Activities include a flea market, a Badger Contester's meeting, and VE exams from 9 to 11:15 a.m. Tickets are \$5 each at the door. Tables are \$24. Contact: WARAC Swapfest, P.O. Box 1072, Milwaukee, WI 53201. Phil Gural, W9NAW, (414) 425-3649. Website: <<http://www.warac.org>>.

WHITE PINE, TENNESSEE — **The Lakeway Amateur Radio Club** will hold its **22nd Annual Hamfest** beginning 8 a.m., Saturday, January 4 at the Walter State Community College's Great Smoky Mountain Expo Center, 1615 Pavilion Drive. Activities include a flea market, indoor tailgating, RV camping, and door prizes. Tickets are \$8 each and include 1 prize ticket. Children under 8 are admitted free. Extra prize tickets are \$1 each or six for \$5. Tailgating spaces are \$10 each and include a prize ticket. Contact: Pete Balling, K2QZH, <pballing@musfiber.com>. Website: <<http://www.lakewayarc.org>>. Talk-in 147.030.

BETHPAGE, NEW YORK — **The Great South Bay Amateur Radio Club** will hold **Ham Radio University 2014** beginning 7:30 a.m., Sunday, January 5 at Briarcliff College, 1055 Stewart Avenue. Activities include 28 forums throughout the day, demonstrations, Special Event Station W2V, door prizes, food concessions, and VE exams that begin at 1:30 p.m. Tickets are \$3. Email: <info@hamradiouniversity.org>. Website: <<http://www.hamradiouniversity.org>>.

GREENWOOD, SOUTH CAROLINA — **The Greenwood Amateur Radio Society** will hold its annual **Hamfest** beginning 9 a.m., Saturday, January 11 at the Piedmont Technical College Multipurpose Building N., 620 North Emerald Road. Activities include a flea market with commercial dealers, ARRL forums, door prizes, food concessions, and VE exams that begin at 10:30 a.m. Tickets are \$7 each. Tables are \$10 each. Electricity is \$10. Contact: GARS, P.O. Box 2404, Greenwood, SC 29646. Email: <w4dew@arrl.net> or <ai4wn@arrl.net>. Website: <<http://www.w4gwd.org>>. Talk-in 147.165+ or 443.900+ (PL 107.2).

SCHERTZ, TEXAS — **The San Antonio Radio Club (W5SC)** will hold the **2014 San Antonio Amateur Radio Fiesta and Texas VHF Society Winter Meeting** from 8 a.m. to 2 p.m., Saturday, January 11 at the Schertz Civic Center, 1400 Schertz Parkway. Activities include a flea market, tailgating, door prizes, DXCC/WAS card checking from 9 to 11 a.m., ARES forum, and VE exams from that begin at 9 a.m. Tickets are \$8 in advance, \$10 at the door. Extra prize tickets are \$1 each or 12 for \$10. Tables are \$10 in advance, \$14 at the door. Tailgating spaces are \$5 each. Contact: Amateur Radio

Fiesta, c/o San Antonio Radio Club, P.O. Box 34263, San Antonio, TX 78265-4263. Rowena Archer, KF5JCZ, (210) 415-6894. Website: <<http://www.w5sc.org>>. Talk-in 146.940- (PL 179.9).

WINSTON-SALEM, NORTH CAROLINA — **The Forsyth Amateur Radio Club** will hold **The Winston-Salem F.A.R.C. 2014 Winter First-Fest** from 7 to 11 a.m., Saturday, January 11 at the Summit School Dining Area, 2100 Reynolda Road. Activities include an indoor flea market, tailgating, and free coffee and donuts for early birds. Tickets are \$5 each. Email: <info@w4nc.com>. Website: <<http://www.w4nc.com>>.

HAZEL PARK, MICHIGAN — **The Hazel Park Amateur Radio Club** will hold its **48th Annual Hamfest** from 8 a.m. to noon, Sunday, January 12 at the Hazel Park High School, 23400 Hughes Street. Activities include a flea market and prizes. Tickets are \$5 each. Tables are \$15 each. Parking is free. Contact: Bernie Hildebrand, (248) 506-3502. Email: <w8nbc@arrl.net>. Website: <<http://www.hparc.org>>. Talk-in 146.640 (PL 100).

FORT WORTH, TEXAS — **The Lockheed Martin Recreation Area and Amateur Radio Club (W5SJZ)** will hold the **Cowtown Hamfest and ARRL North Texas Section Convention** from Friday, January 17 to Saturday, January 18 at the Lockheed Martin Recreation Area, 3400 Bryant Irvin Road. Activities include 100-table vendor area, tailgating, educational programs, door prizes, food concessions by Sassy Hotdogs, and VE exams. Pricing was not determined as of press time. Contact: David Forbes, KC5UYR, <kc5uyr@compuserve.com>. Website: <<http://www.cowtownhamfest.com>>. Talk-in 147.28 (PL 110.9).

FORT MYERS, FLORIDA — **The Fort Myers Amateur Radio Club, Florida (W4LX)** will hold its **FMARC Hamfest** on Saturday, January 18 at 4312 Michigan Avenue. Activities include an indoor flea market, tailgating, hourly door prizes, and food concessions. Tickets are \$5 each. Children 12 and under are admitted free with a paying adult. Students between 13-18 are \$3 with a valid student ID. Tables are \$15 plus cost of admission. Tailgating spaces are \$10 each and include one admission. Additional tailgating spaces are \$5 each. Contact: Drexel Turner, W4DHT, 7670 Eaglet Court, Fort Myers, FL 33912-1828. Phone: (239) 225-0826 or (239) 464-1350. Email: <dturner@embargmail.com>. Website: <<http://www.fmarc.net>>. Talk-in 147.345 (PL 136.5).

HAMMOND, LOUISIANA — **The Southeast Louisiana Amateur Radio Club** will hold the **33rd Annual Hammond Hamfest** beginning 8 a.m. Saturday, January 18 at the Magnuson Hotel & Conference Center, 2000 South Morrison Boulevard. Activities include a flea market, forums, swap tables, food concessions, door prizes, and VE exams at 8:30 a.m. Admission is free as is the parking. Tables are \$30 each. Contact: SELARC Hamfest Committee, P.O. Box 1324, Hammond, LA 70404. Patti Fauri, <ke5ng@yahoo.com>. Website: <<http://www.selarc.org>>. Talk-in 147.000- (PL 107.2), 145.130- (PL 107.2), or 444.250+ (PL 107.2).

HARRISBURG, PENNSYLVANIA — **The Harrisburg Radio Amateurs Club** will hold its **Winterfest** from 8 a.m. to noon, Saturday, January 18 at the Cooper Student Union, South Hall, 1 HACC Drive. Activities include a flea market, food concessions, DXCC/WAS/VUCC card checking, and VE exams at 10 a.m. Tickets are \$3 each. The first table is free, additional tables are \$3 each. Contact: Tim Lehman, (717) 982-8550. Email: <kb3oza@arrl.net>. Website: <<http://www.w3uu.org>>. Talk-in 146.76 (PL 100).

LOVELAND, COLORADO — **The Northern Colorado Amateur Radio Club (NCARC)** will hold its **NCARC Winter Hamfest 2014** from 8:30 a.m. to 1 p.m., Saturday, January 18 at the Larimer County Fairgrounds, 1st National Bank Building, 5280 Arena

Circle. Activities include an indoor flea market with vendor exhibitions and demonstrations, technical forums, NCARC "Kids on the Radio" ham station, door prizes, and VE exams. Tickets are \$6 each. Tables are \$12 for a basic table, \$14 for an interior table with electricity, and \$16 for an outside table with electricity and external antenna access. Contact: NCARC, P.O. Box 272956, Fort Collins, CO 80527. Email: <hamfest@ncarc.net>. Website: <<http://www.ncarc.net>>.

ST. CHARLES, ILLINOIS — The Wheaton Community Radio Amateurs (W9CCU) will hold the WCRA 47th Annual Mid-Winter Hamfest beginning 8 a.m., Sunday, January 19 at the Kane County Fairground Expo Center, 525 S. Randall Road. Activities include a heated indoor flea market, food concessions, door prizes, forums, and VE exams. Tickets are \$8 in advance and include four raffle tickets. Tickets at the door are \$10 and include one raffle ticket. Children under 12 are admitted for free. Tables are \$25 each before January 7, \$30 afterwards. Electricity is \$10. Contact: WCRA, P.O. Box QSL, Wheaton, IL 60187-1055. Phone: (630) 604-0157. Email: <info@w9ccu.org>. Website: <<http://www.wheatonhamfest.org>>.

JACKSON, MISSISSIPPI — The Jackson Amateur Radio Club and the Jackson Mississippi Convention & Visitors Bureau will hold the Capital City Hamfest 2014 from 5 p.m. to 8 p.m., Friday, January 24 and from 8 a.m. to 4 p.m., Saturday, January 25 at the Mississippi State Fairgrounds, Trademart Building, 1207 Mississippi Street. Activities include an indoor flea market with commercial dealers and exhibitions, door prizes, DXCC/VUCC/WAS card checking, a test bench, and VE exams that begin at 8 a.m. Saturday. Tickets are \$8 each and include one free raffle ticket or \$15 with 10 free raffle tickets. Children 12 and under are admitted free. Website: <<http://hamfest.msham.org>>.

ARCADIA, FLORIDA — The DeSoto Amateur Radio Club Inc. (W4MIN) will hold the 18th Annual Hamfest in Arcadia beginning 6 a.m., Saturday, January 25 at the Turner Civic Center Exhibit Hall, 2260 NE Roan Street. Activities include an indoor/outdoor flea market, tailgating, food concessions, hourly door prizes, and VE exams that begin at 10 a.m. Tickets are \$5 each. Inside tables are \$10 each. Outside tables are \$5 each. Tailgating spaces are free with paid admission. Contact: Doug Christ, KN4YT, (863) 990-2507. Email: <kn4yt@yahoo.com>. Website: <<http://desotoarc.org>>. Talk-in 147.075+.

COLLINSVILLE, ILLINOIS — The St. Louis & Suburban Radio Club Inc. will hold its Winterfest 2014 on Saturday, January 25 at the Gateway Convention Center, 1 Gateway Drive. Tickets are \$6 in advance, \$8 at the door. Tables are \$23 each. Electricity is \$45. Additional exhibitors passes are \$6 each. Contact: St. Louis and Suburban Radio Club Inc., P.O. Box 2233, St. Louis, MO 63139. Jim Glasscock, WØFF, (636) 584-8888. Bill Coby, KBØMWG, (313) 504-1104. Email: <bcoby@att.net>. Website: <<http://www.slsr.org>>. Talk-in 146.760.

LOCKPORT, NEW YORK — The Lockport Amateur Radio Association will hold the 53rd Annual Winter Hamfest beginning 8 a.m., Saturday, January 25 at the South Lockport Fire Company, 5666 South Transit Road. Activities include a flea market. Tickets are \$5. Tables are \$10 and include one admission. Additional tables are \$5 each. Website: <<http://www.lockportara.us/>>.

MIAMI, FLORIDA — The Dade Radio Club of Miami, Inc. will hold The 48th Annual South Florida Tropical Hamboree from Friday, January 31 to Saturday, February 1 at the Miami Dade Fair Expo Center, 10901 SW 24th Street. Activities include an indoor exhibition with commercial dealers, tailgating, foxhunts, forums, and VE exams. Tickets are \$10 each. Students under 18 are admitted free with valid ID. Tables are \$50 each on the wall, \$45 each in the interior. Commercial booths are \$245 with 1 table, \$425 with 2 tables, \$600 with 3 tables, \$750 with 4 tables, and \$900 with 5 tables. Tailgating

slots are \$35 each. Electrical outlets are \$40 each. RV camping is \$45 per night. Contact: Dade Radio Club of Miami, Inc., P.O. Box 835387, Miami, FL 33283. Phone: (305) 590-8523. Email: <tropicalhamboree@gmail.com>. Website: <<http://hamboree.org>>.

FEBRUARY

RICHMOND, VIRGINIA — The Richmond Amateur Telecommunications Society (RATS) will hold Frostfest 2014 from 8:30 a.m. to 3:30 p.m., Saturday, February 1 at the Richmond Raceway Complex, 600 East Laburnum Avenue. Activities include an exhibition hall with manufacturer exhibits, indoor flea market with commercial dealers, door prizes, VE exams, forums, meetings, and RV camping. Tickets are \$10 each. Early bird tickets are \$10 each but grant access to the show at 8 a.m. Additional prize tickets are \$5 each. Tables are \$30 plus admission. Electrical hookups are \$40 each. Commercial booths are available and include electric, call for pricing. RV camping is \$45 and includes electric. Contact: RATS/Frostfest, P.O. Box 14828, Richmond, VA 23221-0828. Commercial booth sales: Mike Hackett, AC5PT, (804) 657-7038. Website: <<http://www.frostfest.com>>.

ELYRIA, OHIO — The Northern Ohio Amateur Radio Society will hold its Winter Hamfest & Computer Show 2014 from 9 a.m. to 1 p.m., Sunday, February 2 at the VFW Post 1079, 500 South Abbe Road. Activities include a flea market, hourly door prizes, 50/50 raffle, and pancake and sausage breakfast. Tickets are \$6 each. Tables are \$10 each. Contact: Darlene, KA8VTS, (216) 398-8858. Email: <dohman@roadrunner.com>. Website: <<http://www.noars.net>>. Talk-in 146.70- (PL 110.9).

YUMA, ARIZONA — The Yuma Amateur Radio Hamfest Organization and the Amateur Radio Council of Arizona will hold the 10th Annual Yuma Hamfest from noon to 5 p.m., Friday, February 14 and from 8 a.m. to 5 p.m., Saturday, February 15 at the Yuma County Fairgrounds, 2520 East 32nd Street. Activities include an indoor exhibition center, flea market, tailgating, VE exams, hourly door prizes, RV camping, Buzzard BBQ, ARRL speaker, transmitter hunt, seminars, DXCC card checking, hospitality area, "near space" balloon launch, and an antenna clinic. Tickets are \$5 each. Children 12 and under are admitted free. Parking is free. Commercial vendor booths are \$50 if you pre-register, \$60 at the door. Additional vendor tables are \$5 each if you pre-register, \$10 at the door. Tailgating spaces are \$10 each if you pre-register, \$15 at the door. Camping spaces are \$15 per night if you pre-register, \$20 at the event. Saturday's barbeque dinner is \$10. Contact: YARHO, P.O. Box 1843, Yuma, AZ 85366-1843. Email: <info@yumahamfest.org>. Website: <<http://www.yumahamfest.org>>. Talk-in 146.840- (PL 88.5).

BROOKFIELD, WISCONSIN — The Milwaukee Radio Amateur's Club and the Milwaukee Area Amateur Radio Society will hold the Mid-Winter Interclub Swapfest from 8 a.m. to noon, Saturday, February 15 at the Channel 10 Auction Building, 12560 W. Townsend Street. Contact: MRAC, P.O. Box 26233, Milwaukee, WI 53226. Phone: (414) 459-9741. Email: <w9rh@arrl.net>. Website: <<http://www.w9rh.org>>.

GLOUCESTER CITY, NEW JERSEY — The Gloucester City Amateur Radio Club will hold its annual Hamfest from 7 a.m. to 3 p.m., Saturday, February 15 at the Pine Grove Fire Association Hall, 827-829 Jersey Avenue. Activities include a flea market, food concessions, and VE exams from 10 a.m. to noon. Tickets are \$5 each. Tables are free to vendors. Website: <<http://www.nj2gc.org>>. Talk-in 146.820 (PL 131.8) or 447.775 (PL 146.2).

LIVONIA, MICHIGAN — The Livonia Amateur Radio Club will hold the 43rd Annual Swap-N-Shop from 8 a.m. to noon, Sunday, February 16 at the Civic Park Senior Center, 15218 Farmington Road. Activities include a flea market, door prizes, and food concessions.

Tickets are \$5 each. Tables are \$16 each in advance or \$20 each at the door. Contact: Livonia ARC, P.O. Box 51532, Livonia MI 48151-0532. Phone: (734) 941-5043. Email: <k8uns@arrl.net>. Website: <http://www.livoniaarc.com>. Talk-in 145.35 (PL 100) or 146.52.

NEW PROVIDENCE, NEW JERSEY — The New Providence Amateur Radio Club will hold its **Annual Auction** beginning 6:30 p.m., Friday, February 21 at the New Providence High School, 35 Pioneer Drive. Activities include an auction and refreshments. Tickets are \$5. No commissions will be charged to sellers. Free parking. Contact: Barry, K2JV, <bgochenusa@verizon.net>. Website: <http://www.nparc.org>. Talk-in 147.225+ (PL 141.3).

BROWNSBURG, INDIANA — The Hendricks County Amateur Radios Society will hold the **Third Annual Brownsburg Hamfest** from 7 a.m. to 3 p.m., Saturday, February 22 at the American Legion Post 331, 636 East Main Street. Activities include a flea market and food concessions. Tickets are \$5 each. Tables are \$15 with electricity, \$10 without. Parking is free. Email: <hcars46122@gmail.com>. Talk-in 147.015+

DALTON, GEORGIA — The Dalton Amateur Radio Club Inc. will hold the **Dalton Hamfest** beginning at 8 a.m., Saturday, February 22 at the North Georgia Fairgrounds, 500 Legion Drive. Activities include an indoor flea market with commercial dealers, outdoor tailgating, hourly door prizes, and VE exams at Western Sizzlin at 1 p.m. Tickets are \$5 each. Tables are \$10 each. Tailgating is \$5 per space. Parking is free. Contact: DARCI, P.O. Box 211, Dalton, GA 30722-0211. Vendor contact: James Jordan, K4FLG, (706) 278-0630 or David Stanley, W14L, (706) 537-5090. Website: <http://www.w4drc.com>. Talk-in 145.230-

CASTLE SHANNON, PENNSYLVANIA — The Wireless Association of South Hills will hold **WASHfest 2014** from 8 a.m. to 3 p.m., Sunday, February 23 at the Castle Shannon VFW Memorial Hall, 3600 Library Road. Activities include a flea market, free coffee throughout the hamfest, food concessions by Jack's Catering, DXCC card checking, and hourly door prizes. Prize tickets are \$2 each or three for \$5, seven for \$10, 15 for \$20. Tables are \$15 each with electricity, \$10 without. Contact: Carol Danko, KB3GMN, (412) 884-1466. Email: <n3sbf@comcast.net> or <washarc@yahoo.com>. Website: <http://www.n3sh.org>. Talk-in 146.995- or 443.650+ (PL 131.8).

MARCH

CAVE CITY, KENTUCKY — The Mammoth Cave Amateur Radio Club will hold the **38th Annual Cave City Hamfest** beginning 7:30 a.m., Saturday, March 1 at the Cave City Convention Center, 502 Mammoth Cave Street. Activities include an indoor flea market, tailgating, free coffee, ARRL forum, 3.960 MHz meeting, door prizes, and VE exams that begin at 9 a.m. Tickets are \$6 each. Children under 12 are admitted free. Tables are \$8 each. Tailgating spaces are \$10 each and include admission. Contact: Larry Brumett, KN4IV, 108 Withers Drive, Glasgow, KY 42141. Phone: (270) 651-2363. Email: <lbrumett@glasgow-ky.com>. Talk-in 146.34+.

BIRMINGHAM, ALABAMA — The Birmingham Amateur Radio Club (W4CUE) will hold the **Birmingham Hamfest 2014** from 9 a.m. to 5 p.m., Saturday, March 1 and from 9 a.m. to 2 p.m., Sunday, March 2 at the Zamora Shrine Temple, 3521 Ratliff Road. Activities include a flea market with commercial vendors, door prizes, forums featuring *WRO* propagation columnist Carl Luetzelschwab, fox hunting, and VE exams at 9 a.m. and 1 p.m., Saturday and 9 a.m., Sunday. Tickets are \$8 each and include one prize ticket. Children under 12 are admitted free. Additional prize tickets are \$5 for six tickets, \$10 for 15 tickets, and \$20 or more are two tickets for every dollar. Contact: Bob Thomas, KC4AF, (205) 283-4000. Email: <kc4af@arrl.net>. Bill Davidson, KW4J, (205) 587-1993. Email: <kw4j@arrl.net>. Website: <http://birminghamfest.org>.

CLAREMORE, OKLAHOMA — Green Country Hamfest Inc. will hold the **Green Country Hamfest** from 4 to 8 p.m., Friday, March 7 and from 8 a.m. to 3 p.m., Saturday, March 8 at the Claremore Expo Center, 400 Veterans Parkway. Activities include an indoor flea market with commercial dealers and exhibition booths, door prizes, forums, and VE exams. Tickets are \$8 if you pre-register, \$10 at the door. Children 12 and under are admitted free. Tables are \$10 if you pre-register, \$15 at the door. Commercial booths are \$50 each. Electricity is available along the outer wall for \$25. Parking is free and includes a free shuttle. Contact: Green Country Hamfest Inc., P.O. Box 470132, Tulsa, OK 74147-0132. Website: <http://www.greencountryhamfest.org>. Talk-in 147.09+.

CONCORD, NORTH CAROLINA — The Mecklenburg Amateur Radio Society, Inc. will hold the **2014 Charlotte Hamfest** from 4 p.m. to 8 p.m., Friday March 7 and from 8:30 a.m. to 4:30 p.m., Saturday, March 8 at the Cabarrus Arena & Events Center, 4751 Highway 49 North. Activities include an indoor exhibition center featuring major manufacturers, flea market, tailgating, forums, hourly door prizes, VE exams on Saturday, bingo, and a testing booth. Tickets are \$7 each in advance, \$10 at the door. Children 12 and under are admitted free. Extra prize tickets are \$1 each. Parking is free. Website: <http://www.w4bfb.org>. Talk-in 146.655- or 146.94- (PL 118.8).

PUYALLUP, WASHINGTON — The Mike & Key Amateur Radio Club will hold the **33rd Annual Mike and Key ARC Electronics Show & Fleamarket** beginning 9 a.m., Saturday, March 8 at the Pavilion Exhibition Hall-Washington State Fair Grounds, 110 9th Avenue SW. Activities include a 44,000-square-foot, indoor flea market with commercial dealers and exhibits; snack bar; consignment area; overnight RV camping; and VE exams. Tickets are \$8 each. Children under 16 are admitted free with an adult. Commercial booths are \$112. Tables are \$25 each. Seller registration is \$7 each. Table helper registration is \$9 each. Contact: Diane Dinkelman, 22222 148th Avenue SE, Kent, WA 98042. Phone: (225) 631-3756. Email: <dmdink@clearwire.net>. Talk-in 146.82- (PL 103.5).

LINCOLN, NEBRASKA — The Lincoln Amateur Radio Club will hold the **2014 Lincoln Hamfest and ARRL Nebraska State Convention** from 8:30 a.m. to 2 p.m., Saturday, March 15 at the Lancaster County Event Center, 84th and Havelock Avenue. Activities include an indoor flea market with commercial dealers, forums, demonstrations, hourly door prizes, RV camping, and VE exams that begin at 10 a.m. Tickets are \$8 per person and include one raffle ticket. Children under 18 are admitted for free. Tickets for LARC members are \$5 and include one raffle ticket. Additional raffle tickets are \$1 each. Tables are \$10 each. RV hookups are \$20. Parking is free. Contact: Lincoln ARC, P.O. Box 5006, Lincoln, NE 68505-0006. Phone: (402) 770-9157. Website: <http://www.lincolnhamfest.org>. Talk-in 146.16+, D-STAR 145.25-, APRS beacon 144.39.

PALM SPRING, CALIFORNIA — The Desert Rats Club and The Palm Springs DX Club will hold the **Palm Springs Hamfest 2014** beginning 9 a.m., Saturday, March 15 at the Palm Springs Pavilion, 401 S. Pavilion Way. Activities include a flea market, tailgating, and presentations. Vendor spaces are \$60 each before January 31, \$80 afterwards. Tailgating spaces are \$25 each. Camping is \$25 for Friday and Saturday night. Email: <info@palmsspringshamfest.com>. Website: <http://palmsspringshamfest.com>.

SCOTTSDALE, ARIZONA — The Scottsdale Amateur Radio Club and the Amateur Radio Council of Arizona will hold the **Scottsdale Spring Hamfest** from 6 a.m. to noon, Saturday, March 15 at the Mountain Valley Church, 17800 North Perimeter Drive. Activities include a flea market, RV parking, hourly door prizes, ARCA meeting at 11 a.m., food concessions, and VE exams. Tickets are \$4 each. Children under 12 are admitted free. RV parking and vendor spaces are \$15 for 2 spaces. Contact: Scottsdale Amateur Radio

Club, WA7APE, P.O. Box 10878, Scottsdale, AZ 85271-0878. Website: <<http://www.scottsdalearc.org>>. Talk-in 147.18 (PL 162.2).

BUFFALO, MINNESOTA — The **Maple Grove Radio Club** will hold its **Midwinter Hamfest** on Saturday March 29 at the Buffalo Civic Center, 1306 County Road 134. Website: <<http://www.k0lrc.org>>.

APRIL

NOBLE, ILLINOIS — The **WHERE Amateur Radio Club** will hold the **April Fools Fest** from 8 a.m. to noon, Saturday, April 5 at the Lions Club Building, 110 W. South Avenue. Activities include an indoor flea market, tailgating, fox hunt, food concessions, forums, hourly door prizes, and VE exams. Ticket and table pricing was unavailable at press time. Website: <<http://whereradio.webs.com>>.

TIMONIUM, MARYLAND — The **Baltimore Amateur Radio Club, Inc.** will hold the **2014 Greater Baltimore Hamboree & Computerfest and Maryland Emergency Preparedness Expo** from 8:30 a.m. to 4 p.m., Saturday, April 5 at the Maryland State Fairgrounds – Cow Palace, 2200 York Road. Activities include an indoor exhibition hall with commercial dealers and free VE exams. Tickets are \$8 in advance, \$9 at the door. Commercial spaces are \$75 each. Flea market spaces are \$30 each. Basic indoor spaces are \$20 each. Contact: GBH&C, P.O. Box 120, Reistertown, MD 21136. Phone: (443) 590-1444. Email: <gbhc2013@yahoo.com>. Website: <<http://www.gbhc.org>>.

CUYAHOGA FALLS, OHIO — The **Cuyahoga Falls Amateur Radio Club** will hold its **60th Annual Hamfest Electronic and Computer Show** from 8 a.m. to noon, Saturday, April 12 at the Emidio & Sons Party Center, 48 E. Bath Road. Activities include a flea mar-

ket and prizes. Tickets are \$6 each. Tables are \$15 for the first two tables, \$12 for each additional table. Tables still available on the day of the event are \$18 each. Contact: Ted Sarah, W8TTS, 239 Bermont Avenue, Munroe Falls, OH 44262. Phone: (234) 206-0270. Email: <hamfest2014@cfarc.org>. Website: <<http://www.cfarc.org>>. Talk-in 147.27+.

KANSAS CITY, MISSOURI — The **Ararat Shrine Amateur Radio Club** will hold its **Hambash 2014** from 8 a.m. to 2 p.m., Saturday, April 19 at the Ararat Shrine Temple, 5100 Ararat Drive. Activities include an indoor flea market with commercial dealers, seminars, hourly door prizes, snack bar, ladies hospitality room, an emergency service vehicle display, and VE exams at 9 a.m. Tickets are \$10 for three tickets, \$4 at the door. Tables are \$17 each and include three admissions. Vendors contact: Dave Michael, WA0NXD, 3361 Blue Ridge Boulevard, Independence, MO 64052. Phone: (816) 254-9011. Email: <demichael38@hotmail.com>. General contact: Dave Hinckley, KA0SOG, 1221 SE 11th Street, Lees Summit, MO 64081. Website: <<http://www.hambash.com>>. Talk-in 145.13-.

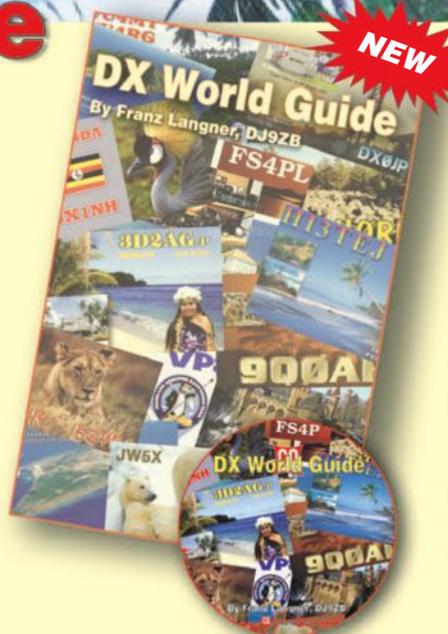
RALIEGH, NORTH CAROLINA — The **Raleigh Amateur Radio Society** will hold the **42nd Annual RARSfest and ARRL Roanoke Division Convention** from 8 a.m. to 3:30 p.m., Saturday, April 19 at the Jim Graham Building-NC State Fairgrounds, 1025 Blue Ridge Road. Activities include an indoor flea market with commercial dealers, hourly door prizes, a youth lounge, hands-on workshops, contests, forums and meetings, DXCC/WAS/WAC/VUCC card checking, RARSfest dinner that begins at 8 p.m. Friday, and VE exams at 9 a.m. Saturday. Tickets are \$7 if you pre-register before April 12, \$8 afterwards. Children 16 and under are admitted free when accompanied by an adult. Tables are \$18 each before April 12, \$20 afterwards. Electricity is \$25. Parking is free. Website: <<http://www.rars.org>>. Talk-in 146.64, 145.13 (PL 82.5), or 444.525 (PL 82.5).

DX World Guide

By Franz Langner, DJ9ZB

Known throughout the DX and DXpedition world as a meticulous and tireless operator, Franz Langner, DJ9ZB, is also noted as one of the most knowledgeable individuals in Amateur Radio in terms of documenting DXCC entities. This is the third edition in his series of books bearing the title *DX World Guide*, first published in Germany in 1988, and then in a second edition, also in Germany in 1997. This edition is the first to use color throughout, and includes information on well over 300 DX entities. Whether used as a desk reference for the DXer of any level of proficiency or as a “wish book” for DXers just starting his or her DXCC journey, the new *DX World Guide* is a worthy and pleasant companion.

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CONTEST CALENDAR

CONTEST: Straight Key Night
DATE & TIME: 0000Z – 2359Z 1 Jan.
BANDS/MODE: 80/40/20 CW
POINTS: None
MULTIPLIERS: None
EXCHANGE: Conversation! Include “SKN” so others know you are participating.
ENTRY CATEGORIES: Single-Op
ENTRIES: A list of stations worked to: ARRL Straight Key Night, 225 Main Street, Newington, CT 06111
 E-mail to: StraightKey@arrl.org
(NOTE: Be sure to vote for best fist heard! Story and photo submissions: <http://www.arrl.org/soapbox>)

CONTEST: EUCWA 160M
DATE & TIME: 2000Z – 2359Z 4 Jan. & 0400Z – 0700Z 5 Jan.
BANDS/MODE: 160M CW
POINTS: 1 Pt. per QSO with same country; 2 Pts. per QSO with other DXCC country, same continent; 5 Pts. per QSO other continent
MULTIPLIERS: EUCW club, per day (Confusing – see rules!)
EXCHANGE: Classes A, B & C give RST + name + Club + membership #; Class D gives RST + Name + NM (non-member)
ENTRY CATEGORIES: A = EUCW affiliated club member >150W; B. EUCW affiliated club member <150W; C. EUCW affiliated club member QRP (<5W); D. All others
ENTRIES: 8 Feb.
 ASCII logs to: f6cel@orange.fr
 Rules at: <http://www.eucw.org/eu160.html>

CONTEST: ARRL RTTY Roundup
DATE & TIME: 1800Z 4 Jan. – 2359Z 5 Jan.
BANDS/MODE: 80-10M RTTY, ASCII, AMTOR, PSK31, Attended Packet
POINTS: 1 Pt. per QSO
MULTIPLIERS: States/Provinces/DXCC (Hawaii and Alaska count as DX)
EXCHANGE: RST + State/Province; DX gives RST + Serial #
ENTRY CATEGORIES: Single-Op – Low (<150W), High (>150W); Multi-Op – Single XMTR, Low or High
ENTRIES: 7 Feb. RTTY Roundup, 225 Main St., Newington, CT 06111
 Cabrillo format (preferred) to: rtyru@arrl.org
 Rules at: <http://www.arrl.org/rty-roundup>

CONTEST: Kid’s Day
DATE & TIME: 1800Z – 2359Z 5 Jan.
BANDS/MODE: All bands 80-10M SSB (*NOTE: Not on 30M band*) + 2M repeaters
POINTS: None
MULTIPLIERS: None
EXCHANGE: Name + Age + QTH + favorite color
ENTRY CATEGORIES: Single-Ops encouraged to bring in a group of kids and have fun!
ENTRIES: Certificates are available for 9 X 12 SASE to: Kids Day Certificate Request, ARRL 225 Main St., Newington, CT

06111 ATTN: Mike Dechristoper, N1TA. Post your Kid’s Day story at: <<http://www.arrl.org/soapbox>>. Survey and Certificates also available as a download at: <<http://www.arrl.org/kids-day-survey-certificate>>
 Rules at: www.arrl.org/kids-day

CONTEST: MI QRP
DATE & TIME: 1200Z – 2359Z 11 Jan.
BANDS/MODE: 160-6M CW
POINTS: 2 Pts. W/VE non-member QSO, 4 Pts. non-member DX, 5 Pts. QSO with member
MULTIPLIERS: X 1.25 for homebrew RCVR or XMTR, X 1.5 for homebrew sta.
EXCHANGE: Members give RST + State/Province/Country + MI-QRP membership #; Non-members give RST + State/Province/Country + power output
ENTRY CATEGORIES: Single-Op only
ENTRIES: 25 Jan. Hank Greeb, N8XX, 5727 11 Mile Rd. NE, Rockford, MI 49341-9502
 Cabrillo logs to: n8xx@arrl.org
 Rules at: <http://www.qsl.net/miqrplclub/contest.html>

CONTEST: North American QSO Party
DATE & TIME: 1800Z 11 Jan. – 0600Z 12 Jan.
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. per QSO
MULTIPLIERS: State/Provinces/Territories/NA Countries
EXCHANGE: Name + State/Province/Territory/NA Country; non-NA sta’s give name only
ENTRY CATEGORIES: Single-Op; Multi-Op, 2 XMTRS
(NOTE: Maximum power is 100W; QRP maximum power is 5W)
ENTRIES: 14 Days. Chris Hurlbut, KL9A, 1733 E. Broad Ave., Spokane, WA 99207
 E-mail: cwnaqpmgr@ncjweb.com
 E-mail Cabrillo (preferred): cwnaq@ncjweb.com
 Online Cabrillo form at: www.ncjweb.com/naqplogsubmit.php
 Rules at: <http://www.ncjweb.com/naqprules.pdf>

CONTEST: DARC 10M
DATE & TIME: 0900Z – 1059Z 12 Jan.
BANDS/MODE: 10M CW & SSB
POINTS: 1 Pt. per QSO
MULTIPLIERS: Each DXCC/WAE country and DL DOK’s
EXCHANGE: DL Sta’s give RS(T) + serial # + DOK # (NM if non-member); All others give RS(T) + serial #
ENTRY CATEGORIES: Single-Op mixed or CW
ENTRIES: 3 Feb.
 Cabrillo logs to: 10m@dxhf.darc.de
 Rules at:
<http://www.darc.de/referate/dx/contest/10m/en/rules/>

CONTEST: SKCC Weekend Sprint-a-thon
DATE & TIME: 0012Z – 2359Z 12 Jan.
BANDS/MODE: 160-6M CW
POINTS: 1 Pt. per QSO per band
MULTIPLIERS: States/Provinces/DXCC countries
EXCHANGE: RST + QTH + Name + SKCC # if a member (Non-members give “NR None”)
ENTRY CATEGORIES: Not given

ENTRIES: 7 Days.Online submission via score sheet at: <http://bit.ly/li8wNsN>Rules at: <http://bit.ly/wtizsk>**CONTEST:** Hungarian DX**DATE & TIME:** 1200Z 18 Jan. – 1159Z 19 Jan.**BANDS/MODE:** 160-10M CW/SSB**POINTS:** 1 Pt. per QSO with same country or continent, 3 Pts. other continent, 6 Pts. per QSO with Hungarian sta.**EXCHANGE:** RS(T) + serial #**ENTRY CATEGORIES:** A lot of them! See rules!**ENTRIES:** 30 days. MRASZ, 1400 Budapest, P.O. Box 11, HungaryCabrillo logs to: hadx@mrasz.axelero.netRules at: http://www.ha-dx.com/HADX/html/rules_en.html**CONTEST:** North American QSO Party**DATE & TIME:** 1800Z 18 Jan. – 0600Z 19 Jan.**BANDS/MODE:** 160-10M SSB**POINTS:** 1 Pt. per QSO**MULTIPLIERS:** State/Provinces/Territories/NA Countries**EXCHANGE:** Name + State/Province/Territory/NA Country; non-NA sta's give name only**ENTRY CATEGORIES:** Single-op; Multi-op – 2 XMTRS
(NOTE: Maximum power is 100W; Maximum QRP power is 5W)**ENTRIES:** 14 Days. Bill Lippert, ACØW, 2013 6th Ave. SE, Austin, MN 55912-4321Info E-mail: ssbnaqpmgr@ncjweb.comE-mail Cabrillo (preferred): ssbnaqp@ncjweb.comOnline Cabrillo form at: www.ncjweb.com/naqplogsubmit.phpRules at: www.ncjweb.com/naqprules.pdf**CONTEST:** Run for the Bacon**DATE & TIME:** 0100Z – 0300Z 19 Jan.**BANDS/MODE:** 80-10M CW**POINTS:** 1 Pt. non-member QSO, 3 Pts. FP member, 5 Pts. FP member different continent**MULTIPLIERS:** States/Provinces/Countries**EXCHANGE:** RST + State/Province/Country + FP #; (non-members give power)**ENTRY CATEGORIES:** Single band; All band**ENTRIES:** Online only!Form at: www.fpqr.org/pigrunRules at: www.fpqr.org**CONTEST:** ARRL January VHF Sweepstakes**DATE & TIME:** 1900Z 16 Jan. – 0359Z 18 Jan.**BANDS/MODE:** 6M and up**POINTS:** 1 Pt. 50 or 144 MHz, 2 Pts. 222 or 432 MHz, 4 Pts. 902 or 1296 MHz, 8 Pts. 2.34 GHz or higher**MULTIPLIERS:** Grid squares per band**EXCHANGE:** Grid squares**ENTRY CATEGORIES:** Single-Op – Low or High; Portable; Rover; Limited Rover; Unlimited Rover; Multi-Op – Limited**ENTRIES:** 20 Feb. January VHF, ARRL 225 Main St., Newington, CT 06111Cabrillo files to: janearyvhf@arrl.orgRules at: <http://www.arrl.org/january-vhf>**CONTEST:** SKCC Straight Key Sprint**DATE & TIME:** 0000Z – 0200Z 22 Jan.**BANDS/MODE:** 160-6M CW**POINTS:** 1 Pt per QSO, per band**MULTIPLIERS:** States/Provinces/DXCC**EXCHANGE:** RST + QTH + Name + SKCC # (if a member of SKCC)**ENTRY CATEGORIES:** Not given**ENTRIES:** 3 Days.Online submission via score sheet at: <http://bit.ly/OFaDpR>Rules at: <http://www.skccgroup.com/sprint/sks/>**CONTEST:** CQ 160M**DATE & TIME:** 2200Z 24 Jan. – 2159Z 26 Jan.**BANDS/MODE:** 160M CW**POINTS:** 2 Pts. own country; 5 Pts. different country, same continent; 10 Pts. other continents; 5 Pts. Maritime Mobile QSO's**MULTIPLIERS:** 48 States + DC/CA Provinces/KH6/KL7/DXCC**EXCHANGE:** RST + State/Province; DX gives RST + CQ Zone**ENTRY CATEGORIES:** Single-Op – High (>150W); Low (<150W); QRP; Assisted; Multi-Op**ENTRIES:** 31 Jan. CQ 160M Contest, 25 Newbridge Rd., Hicksville, NY 11801E-mail (Cabrillo): 160cw@kkn.netRules at: <http://www.cq160.com/rules.htm>**SURVEY****Tell Us About Your Operating Habits**

January 2014's *WorldRadio Online Reader Survey* focuses on radio amateurs' operating habits. During what times are you most often on the air? On what frequencies? What modes? *You get the idea.*

To access the survey, visit: <http://svy.mk/18TjxUD>.

It takes only a few minutes to complete and will help us to better pack *WRO* with content relevant or entertaining to you.

If there are questions or topics you're curious about, we'd be glad to look into them via this monthly survey. Drop an email with your suggestions to: WorldRadioOnline@gmail.com. Thanks for your consideration!

– Richard Fisher, KI6SN

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VE EXAMS

As a service to our readers, WorldRadio Online presents a feature listing of those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your group is scheduling an exam for December, please have the information to us by October 1st. *World Radio Online*, VE Exams, 25 Newbridge Road, Hicksville, NY 11801. List the location (city and state), any information examinees should have (advance registration, etc.) and the name of the person to contact for further information. Examinees should bring their original license (along with a photo copy), two forms of identification (at least one should be a photo), and required fee.

p/r pref. = pre-register preferred but w/i OK
p/r = pre-registration only-no w/i

w/i = walk-in only
w/i pref. = w/i preferred to p/r

CITY	DATE	CONTACT	NOTES	CITY	DATE	CONTACT	NOTES
ARIZONA				MISSISSIPPI			
Mesa	3rd Mon	Steve, KY7W, 480-804-1469, kj7wk@cox.net	w/i	Gulfpport	1st Sat	Harrison Cty., Clay, W5ACS 228-863-2042 w5acs@arrl.net	w/i ok
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@arrl.net		NEVADA			
ARKANSAS				NEW JERSEY			
Vilonia	3rd Sat	James, KE5OVE, 501-796-3910, ke5ove@arrl.net	p/r pref.	Stagecoach	2nd Sat	Jack, AC6FU, 775-577-2637, ac6fu@arrl.net	
CALIFORNIA				NEW YORK			
Highland	Call	Ed, WU6I, 909-864-0155, wu6i@arrl.net	p/r pref.	Roselle	4th Sat	Gerry, AA2ZJ, 732-283-2795, aa2zj@arrl.net	p/r pref
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arrl.net	p/r	Winslow	4th Tues	Mark, K2AX, 609-820-1523, JTRA@comcast.net	
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r	Cranford	2nd Sat	Drew, W2OU, 732-801-4654, w2oudrew@gmail.com	p/r pref
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5df@arrl.net	p/r	NORTH CAROLINA			
Redwood City	Call	Al, WB6IMX@arrl.net, www.amateur-radio.org	w/i	Fayetteville	Call	Patricia Edwards, N4UGH, n4ughpat@aol.com, 910-584-1801	w/i
Sacramento	Hotline!	916-492-6115, n6na@arrl.org		OHIO			
San Francisco	See site	www.hamcrams.com	p/r pref	Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok	Independence	2nd Sun	Gary, N1RZ, 216-642-8705	w/i ok
Sebastopol	Hotline!	Recording 707-579-9608		Sandusky	Call	Luther, N8HC, 419-684-7864, n8hc@arrl.net	p/r
Sunnyvale	Visit Site	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i	OREGON			
COLORADO				PENNSYLVANIA			
Englewood	1st Sat	Dave, N0HEQ, 303-795-5718, n0heq@arrl.net, Commerical Exams also	p/r pref	Erie	3rd Sat	Ron, KB3QBB, 814-833-6829, kb3qbb@arrl.com, www.wattsburg-wireless.us	p/r
FLORIDA				PUERTO RICO			
Longwood	4th Sat	James, N4ZKT, 407-333-4245		San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
Melbourne	1st Sat	John, AA8IS@earthlink.net, 321-412-2779	w/i ok	SOUTH CAROLINA			
North Port	Call	Bill Norris, KC7TSG, 941-426-0214	w/i pref.	Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org, www.qsl.net/wa4usm/	w/i
St. Pete	Call	Mark, NP3R, 727-528-0071	w/i pref.	Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hyy@sc.rr.com	w/i
St. Petersburg	4th Sat	Thomas Wedding, A14QP, 727-867-8450	w/i pref.	VIRGINIA			
Sanford	4th Sat	James, N4ZKT, 407-333-4245, n4zkt@bellsouth.net		Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arrl.net	w/i
Venice	2nd Sat	Jack, W4JS, 941-475-1929, w4js@juno.com		Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arrl.net, www.qsl.net/semcomm	p/r
HAWAII				TEXAS			
Oahu Is.	Call	Lee, KH6BZF, 808-247-0587	p/r	Plano	3rd Mon	Stan, NW5Q, 817-729-6246	w/i ok
IDAHO				WASHINGTON			
Kamiah	2nd Tues	Alan, 208-937-2222, Ken 208-935-8888		Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
IOWA				WEST VIRGINIA			
Ames	Call	George Oster, NP2N, 515-233-3535, np2n@arrl.net	w/i pref.	Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
Vinton	3rd Tues	Kenneth, N0EGV, 319-223-5739, n0egv@southslope.net	w/i ok	WISCONSIN			
ILLINOIS				WASHINGTON			
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok	Racine	1st Sat	Robert, W0WLN, 262-886-8551	w/i pref.
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r	WEST VIRGINIA			
Lake in Hills	4th Sat	Jeffrey Dubin, N9MXT, 847-815-9407		WISCONSIN			
Roselle	2nd Tues	Sam, W9SFB, 630-894-0708, w9sfb@aol.com	p/r	WASHINGTON			
INDIANA				WEST VIRGINIA			
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r	WASHINGTON			
Richmond	Call	Mike, 765-969-3932, w1idx@arrl.net	w/i	WASHINGTON			
MASSACHUSETTS				WASHINGTON			
Brookline	Call	Jim, N1ICN, 617-364-4658, n1icn@arrl.net	p/r	WASHINGTON			
Marlboro	3rd Sat	Bill, K1IJ@mmra.org, mmra.org/exam	w/i pref.	WASHINGTON			
MICHIGAN				WASHINGTON			
Garden City	Call	Ken Wardell, AB8ZD, 734-421-7730, gsnapshot@att.net	w/i ok	WASHINGTON			
Muskegon	1st Sat	Bob, 231-780-5575, res00lwt1@frontier.com		WASHINGTON			
Oak Park	1st Tues	D. Flint, 248-981-8145		WASHINGTON			
MINNESOTA				WASHINGTON			
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arrl.net	p/r pref.	WASHINGTON			

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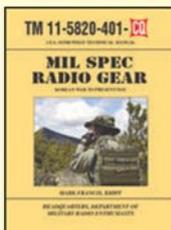
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In Kurt's Humble Opinion, 'Ixnay' To the Reader's Remote Antenna Tuner

By Kurt N. Sterba

A reader writing to Krusty Acres is using a double Windom antenna with 100 feet of high-grade coax leading to his transceiver.

This radio amateur tells the Krusty One he figures the most critical point of impedance matching is between the antenna and its feed line. "By having my tuner at the radio I would have a less-than-efficient system." So he decided to install a remote tuner at the antenna feed point, with the coax line passing straight through to his radio.

He vaguely recalled Kurt had said "ixnay" to this configuration in the past because there was nothing substantial to be gained. "My remote tuner design is more expensive and I am wondering if I've wasted a bunch of money to pursue that path."

(TRANSLATION: What is "ixnay?" Visit: <<http://bit.ly/Ig9zWg>>. – KNS.)

Kurt's Assessment

In Krusty Olde Kurt's opinion the writer would have been just fine with a tuner at the transceiver and feed line, **Photo A**.

The writer's is a common and fundamental question that Kurt has written about many times before. In fact, it is the focus of part of the late Walt Maxwell, W2DU's book *Reflections III*, in a chapter titled *Low SWR for the Wrong Reasons*.

As Kurt has noted in past columns, the difference between having the tuner at the antenna instead of at the radio is in the



Photo A. With a double Windom antenna, Kurt says there is little to be gained with the use of a remote antenna tuner. This Kenwood TS-430S HF transceiver is paired with the Kenwood AT-250 automatic antenna tuner — which would perform just fine for the questioner's purposes. (Courtesy of ChrisRuvolo via Wikimedia Commons)

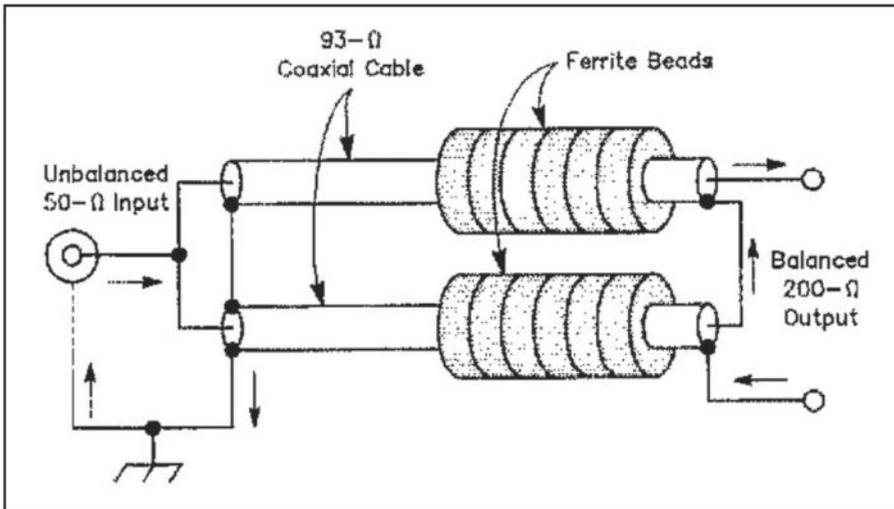


Photo B. Figure 4 in “Transforming the Balun,” by John Belrose, VE2CV, in the June 1991 edition of *QST* shows the author’s 4:1 balun configuration using two ferrite-bead coax-shield chokes. (Reprinted with permission from June 1991 *QST*; copyright ARRL)

SWR on the coax line. With the tuner at the antenna you can have 1:1 SWR on the line. With the tuner at the transceiver you will have higher SWR on the line depending on the antenna characteristics.

The Windom was designed to give low SWR on all of its operating bands. It’s not low enough for modern transceivers so you have to use a tuner.

But still, the SWR is not very high on any band. To explain this here’s a good example:

With 100 feet of Belden 9913, which is a “low-loss” cable, and using the Transmission Lines for Windows (TLW) program that came with Kurt’s *ARRL Antenna Book*, we find that if we had our tuner right at the antenna so we could have 1:1 SWR, the loss on 20 meters would be 0.459 dB. And even less on the lower bands.

Now let us put the tuner at the rig and, at the band edges, we have a 3:1 SWR. Now according to TLW, the loss is 0.752 dB.

The added loss is 0.752 minus 0.459 or 0.293 dB. Conclusion: Yes, it is better to have the tuner at the antenna. But is it worth the additional cost?

Remember that one “S” unit on your receiver’s signal strength meter is 6 dB. So 0.293 dB is $0.293/6 = .049$ or less than 1/20th of an “S” unit.

That’s less than the width of the needle on your “S” meter. Do you think that the amateur on the other end of your contact is going to be able to tell the difference? Kurt thinks not.

The Krusty One thinks the writer should have saved his money on that remote tuner and stuck with a tuner at the rig where it is easy to adjust. He’d not have had to figure out how to suspend the remote tuner *waaaaay* up there at the Windom’s feed point.

More Curiosity About Baluns

While we are at it, here’s another issue that keeps popping up in Kurt’s inbox:

A reader writes about baluns: The subject of baluns and coax

radiation has had little attention in the amateur radio literature. “It is not only radiation and RFI to worry about; it is also received noise and RFI polluting those weak DX signals you are chasing.”

“The W2DU ferrite bead balun, if properly designed, solves the coax problem for both transmitting and receiving.”

Kurt agrees with the writer. But the writer goes on to wonder:

“What about the common toroid and ferrite rod baluns widely available on the market with various impedance ratios?”

“At the connection between the coax and balun, the inside surface of the coax shield is connected both to the balun and the outer surface of the coax shield. So you see, there is the same problem.”

Kurt disagrees with this statement. His favorite balun is the transmission line balun — greatly refined by Jerry Sevick, W2FMI.

This is simply a short transmission line wound on a ferrite toroidal core.

Usually it is a twisted pair line but it can be just coax wound on the core. The operation is easiest to visualize using the coax type. Imagine that the end of the coax line near the antenna is wound on the ferrite core.

The RF signal coming up the line goes right on through to the antenna. At the antenna, the shield is connected to one side of the antenna and the current on the inside of the shield goes into this side of the antenna.

But will it also flow down the outside of the shield? *No it will not.* Why? Because the shield is wound around the toroid. This greatly increases the reactance of the coiled shield thus preventing the RF from flowing down it. This is the balun action.

As Kurt has written many times before, the transmission line balun has several advantages over the W2DU bead balun. Since it has several turns through the core — usually about 10 — and, since the impedance goes up as the square of the turns, it is possible to get desired impedance while using low-loss 61 ferrite. These baluns are very low loss. And it is easy to build them with 1:1, 4:1, or 9:1 ratios to match differing antenna impedance.

The W2DU bead baluns are simple to apply — just slip beads over the cable. To get adequate impedance most such baluns use 73- or 77-mix ferrite. These beads get hot if you apply high power.

Better to use 43-mix ferrite that runs a lot cooler — less loss — but you have to use more or larger beads to get the same impedance. These baluns usually are just 1:1 ratio.

John Belrose, VE2CV, in a June 1991 *QST* article, showed how to make 4:1 and 9:1 bead baluns, **Photo B**. His designs are good for low power but the beads get boiling hot at even moderate power levels.

Each type of balun has its uses. If you run coax to your antenna, Krusty Olde Kurt’s advice is to always use a balun.

Kurt welcomes questions of general interest from readers and will even answer them in his Kolumn. Write to <WorldRadioOnline@gmail.com>.

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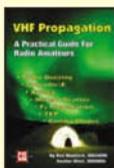
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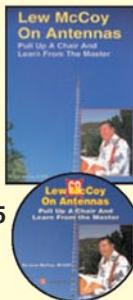
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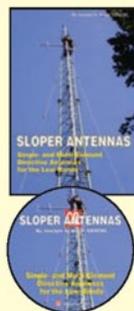


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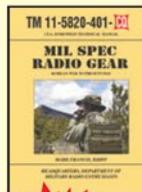
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