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COMMUNICATIONS & TECHNOLOGY

CQ

JUNE 2012

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On the Cover: Dick Stein, K2ZR, and Tom Williams, N2CU, of the Buffalo Light House Crew prepare for Field Day on the shores of Lake Erie in Buffalo, New York. Details on page 106.

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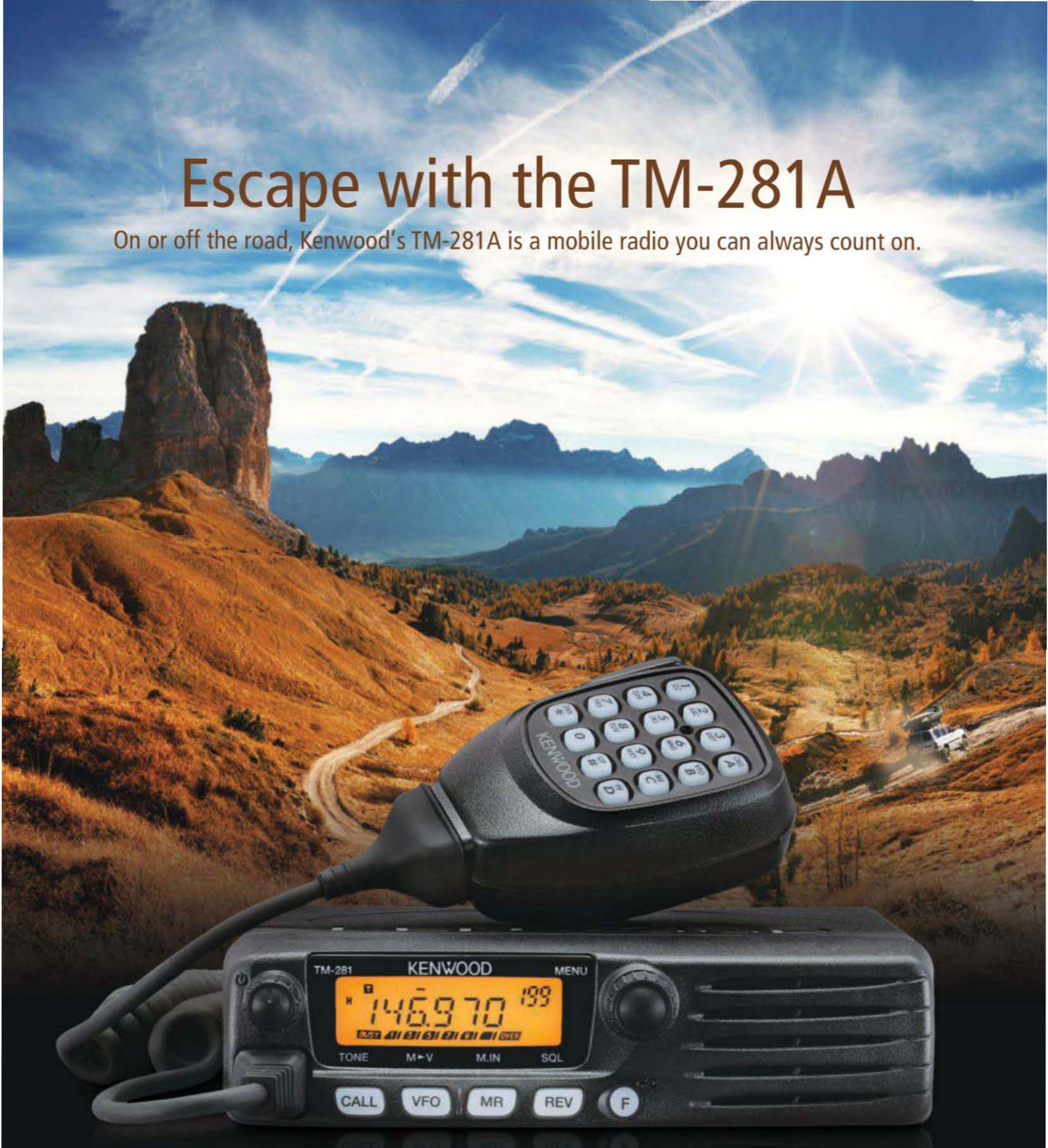

As tough as nails, this MIL-STD-compliant transceiver delivers powerful performance, excellent audio clarity, and a host of advanced features. It offers superb operating ease day or night thanks to the large backlit LCD and illuminated keys. So the next time you take off, take the TM-281A.

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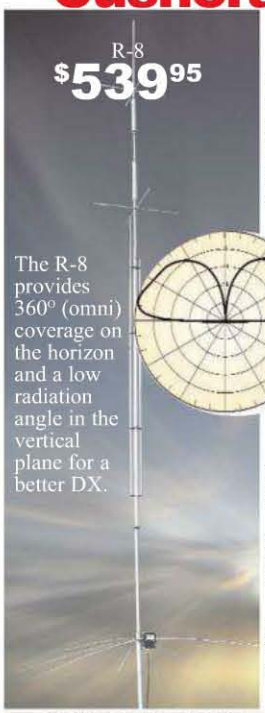
Cushcraft R8 *8-Band Vertical*



Covers 6, 10, 12, 15, 17, 20, 30, and 40 Meters!

The Cushcraft R8 is recognized as the industry gold standard for multi-band verticals, with thousands in use worldwide. Efficient, rugged, and built to withstand the test of time, the R8's unique ground-independent design has a well-earned reputation for delivering top DX results under tough conditions. Best of all, the R8 is easy to assemble, installs just about anywhere, and blends inconspicuously with urban and country settings alike.

Automatic Band Switching: The R8's famous "black box" matching network combines with traps and parallel resonators to cover 8 bands. You QSY instantly, without a tuner!

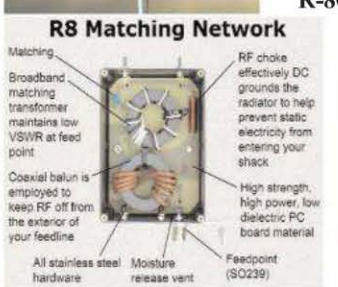
Rugged Construction: Thick fiberglass insulators, all-stainless hardware, and 6063 aircraft-aluminum tubing that is double or triple walled at key stress points handle anything Mother Nature can dish out.

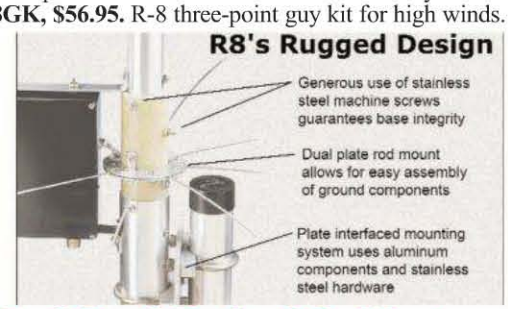
Compact Footprint: Installs in an area about the size of a child's sandbox -- no ground radials to bury and all RF-energized surfaces safely out of reach.

Legal-Limit Power: Heavy-duty components are contest-proven to handle all the power your amplifier can legally deliver and radiating it as RF rather than heat.

The sunspot count is climbing and long-awaited band openings are finally becoming a reality. Now is the perfect time to discover why Cushcraft's R8 multi-band vertical is the premier choice of DX-wise hams everywhere!

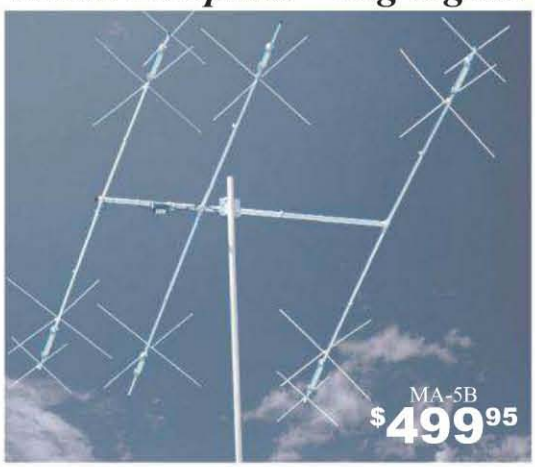
R-8GK, $56.95. R-8 three-point guy kit for high winds.





MA-5B *5-Band* Beam

Small Footprint -- Big Signal



The MA-5B is one of Cushcraft's most popular HF antennas, delivering solid *signal-boosting directivity* in a bantam-weight package. Mounts on roof using standard TV hardware. Perfect for exploring exciting DX without the high cost and heavy lifting of installing a large tower and full-sized array. Its 7 foot 3-inch boom has less than 9 feet of turning radius. Contest tough -- handles 1500 Watts.

The unique MA-5B gives you 5-bands, automatic band switching and easy installation in a compact 26-pound package. On 10, 15 and 20 Meters the end elements become a two-element Yagi that delivers solid power-multiplying gain over a dipole on all three bands. On 12 and 17 Meters, the middle element is a highly efficient trap dipole. When working DX, what really matters are the interfering signals and noise you *don't hear*. That's where the MA-5B's impressive side rejection and front-to-back ratio really shines. *See* ***cushcraftamateur.com*** *for gain figures.*

Cushcraft 10, 15 & 20 Meter Tribander Beams

Only the best tri-band antennas become DX classics, which is why the Cushcraft World-Ranger A4S, A3S, and A3WS go to the head of the class. For more than 30 years, these pace-setting performers have taken on the world's most demanding operating conditions and proven themselves every time. The key to success comes from attention to basics. For example, element length and spacing has been carefully refined over time, and high-power traps are still hand-made and individually tuned using laboratory-grade instruments. All this attention to detail means low SWR, wide bandwidth, optimum directivity, and high efficiency -- important performance characteristics you rely on to maintain regular schedules, rack up impressive contest scores, and grow your collection of rare QSLs!

It goes without saying that the World-Ranger lineup is also famous for its rugged construction. In fact, the majority of these antennas sold years ago are still in service today! Conservative mechanical design, rugged over-sized components, stainless-steel hardware, and aircraft-grade 6063 make all the difference.

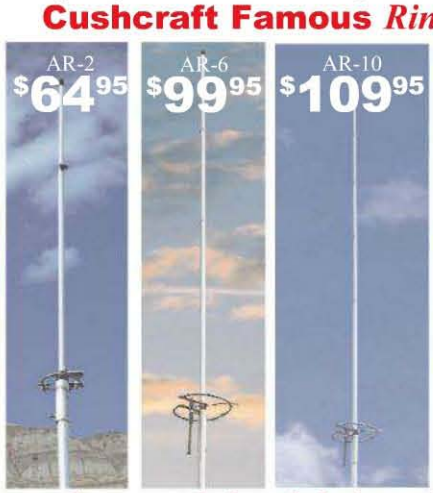
The 3-element A3S/A3WS and 4-element A4S are world-famous for powerhouse gain and super performance. **A-3WS, $499.95,** 12/17 M. **30/40 Meter** *add-on kits* available.

Cushcraft Dual Band Yagis

One Yagi for Dual-Band FM Radios

Dual-bander VHF rigs are the norm these days, so why not compliment your FM base station with a dual-band Yagi? Not only will you eliminate a costly feed line, you'll realize extra gain for digital modes like high-speed packet and D-Star! Cushcraft's A270-6S provides three elements per band and the A270-10S provides five for solid point-to-point performance. They're both pre-tuned and assembly is a snap using the fully illustrated manual.

Cushcraft Famous *Ringo* Compact FM Verticals



W1BX's famous *Ringo* antenna has been around for a long time and remains unbeaten for solid reliability. The Ringo is broad-banded, lighting protected, extremely rugged, economical, electrically bullet-proof, low-angle, and more -- but mainly, it just plain works! To discover why hams and commercial two-way installers around the world still love this antenna, order yours now!

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London Calling...

The Olympics are coming to London this summer and two special event stations will be on the air throughout the competition. *Newsline* reports that 2O12L will be active from Eltham Place in southeast London, operating all modes on 160-2 meters, while 2O12W will be on the air from Wales, operating 160 meters through 23 centimeters, on all modes including slow-scan TV and satellites. 2O12W will be located at Whitmore Bay on Barry Island. Both stations will go on the air as of July 27. More information is available at <www.2O12L.com> and <www.2O12W.com>, respectively. (Please note: Those are "ohs," not zeros, in the callsigns)

Meanwhile, the AMSAT News Service reports that hams in and around the Olympic venues will have temporary limits placed on their operations on 70 centimeters as well as parts of the 2.3 and 3.4 GHz bands between June 28 and September 23. This will be to accommodate the spectrum needs of the world media as well as teams themselves and visitors to the games. Specifics are available at <http://www.uk.amsat.org/6574>.

New Chief for Army MARS

The man who helped scuttle plans to "phase out" the use of Winlink 2000 by Army MARS is now in charge of the program. According to Army MARS, Stephen G. Klinefelter, 61, is a retired Signal Corps colonel who is now a civilian employee of the U.S. Army Network Enterprise Technology Command, under which MARS operates. Late last year, the Pentagon announced that it would be phasing out MARS's use of the Winlink 2000 messaging system due to security concerns, despite the fact that it is widely used by many state and local emergency management agencies with which MARS would be expected to work during a disaster or major emergency. Klinefelter persuaded the army's Chief Information Officer, Lt. Gen. Susan Lawrence that the resources of amateur radio far outweighed any risk from enemy hackers. She ordered an exemption for Army MARS.

Klinefelter assumed the position of Army MARS Chief upon the retirement of Jim Griffin, who held the spot since 2009. Klinefelter is remaining in his primary post and will be helped with MARS matters by a new MARS Program Officer, who had not been named as of press time.

Ham Radio in *Guitar World* Cover Story

Rock superstar Joe Walsh, who is also WB6ACU, is featured on the cover of the May issue of *Guitar World* magazine. In the accompanying interview (timed to mesh with the June 5 release of his newest solo album, "Analog Man"), Walsh makes several references to amateur radio, including a discussion of how the technical knowledge he gained as a ham has helped him work with guitars and their sound. He also discusses introducing the prototype Talk Box to Bob Heil, K9EID, who went on to manufacture and market them to rock musicians.

FCC Pondering Comments on Impediments to Amateur Radio Communication

The FCC in early April requested comments from the public on amateur radio's role in emergency communications and whether private land use regulations impede hams' abilities to perform that role. The request came about as a result of the inclusion in the law that extended payroll tax cuts through 2012 of a section requiring the FCC to make a study of those issues and report back to Congress in six months with recommendations.

The ARRL additionally asked hams to share their personal experiences with amateur radio emergency communications and with deed restrictions and so-called "CC&Rs." The League requested that input by April 25 so it could include the data in its FCC comments, which were due by May 17. The FCC's report to Congress is due by the end of August.

No Restrictions on Specific Data Modes on 60 Meters

***NOTE: The following updates information published in the May issue of* CQ.**

Any digital mode that meets the technical restrictions of the new FCC rules for the 5 MHz band is now permitted. This, after the National Telecommunications and Information Administration (NTIA), which controls primary access to the band, indicated in a letter to the ARRL that it had no objection to any specific modes, as long as they fall into the category of a 2K80J2D emission and have a bandwidth of 2.8 kHz or less. The ARRL, relying on old NTIA advice (but the most current in written form), had originally said the agency asked that only PSK-31 and PACTOR-III be used on the band. With this clarification, any digital mode meeting the above standards is permitted. For more details, see <http://www.arrl.org/60-meter-faq>.

ARRL Introduces Online DXCC Applications

ARRL members may now partially apply online for DXCC awards and endorsements. According to the ARRL website, the new system, which debuted April 2, allows users to use an online form to select cards that they would like to submit. The list is then printed and taken, along with the QSL cards, to an ARRL card checker or sent to League headquarters. It appears that the biggest change is that the application fee (which is lower when using the online form) is collected online by the ARRL, rather than having to go through the card checker. More details are available at <http://bit.ly/HiO6Ke>.

Ham Ranks Keep Growing in Early 2012

The number of applications for new amateur radio licenses in the first three months of 2012 was 30% higher than for the same period last year, according to the ARRL. There were over 7500 new FCC licenses issued between January 1 and March 31, 2012, according to the League, significantly outpacing the 5800 new licenses issued in the first quarter of 2011. However, this is still below the first-quarter total for 2010, which was just over 8200. Nonetheless, the ranks of amateur radio licensees in the U.S. remains at an all-time high, with the total now exceeding 704,000. ARRL/VEC Manager Maria Sommer, AB1FM, also noted in the *ARRL Letter* that the number of license upgrades was also up this year versus last year, although not so dramatically, rising 6% from 2011. Technicians, Generals and Extras all are at all-time highs.

Pop'Comm Monitor Registration Program Tops 1000

Just a little more than three months after its introduction, the *Popular Communications* Monitoring Station registration program has signed up more than 1000 participants. The program, modeled after the old WPE and WDX registration programs of the 1960s and '70s, assigns callsign-like identifiers to active shortwave listeners and scanner monitors. The magazine plans to introduce awards as part of the program as well. For more information, or to register, visit <http://www.popcommmonitors.blogspot.com/>.

Additional and updated news is available on the Ham Radio News page of the CQ *website at <http://www.cq-amateur-radio.com>. For breaking news stories, plus info on additional items of interest, sign up for* CQ*'s free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.*

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CQ contents

JUNE 2012

p. 72

p. 99

features

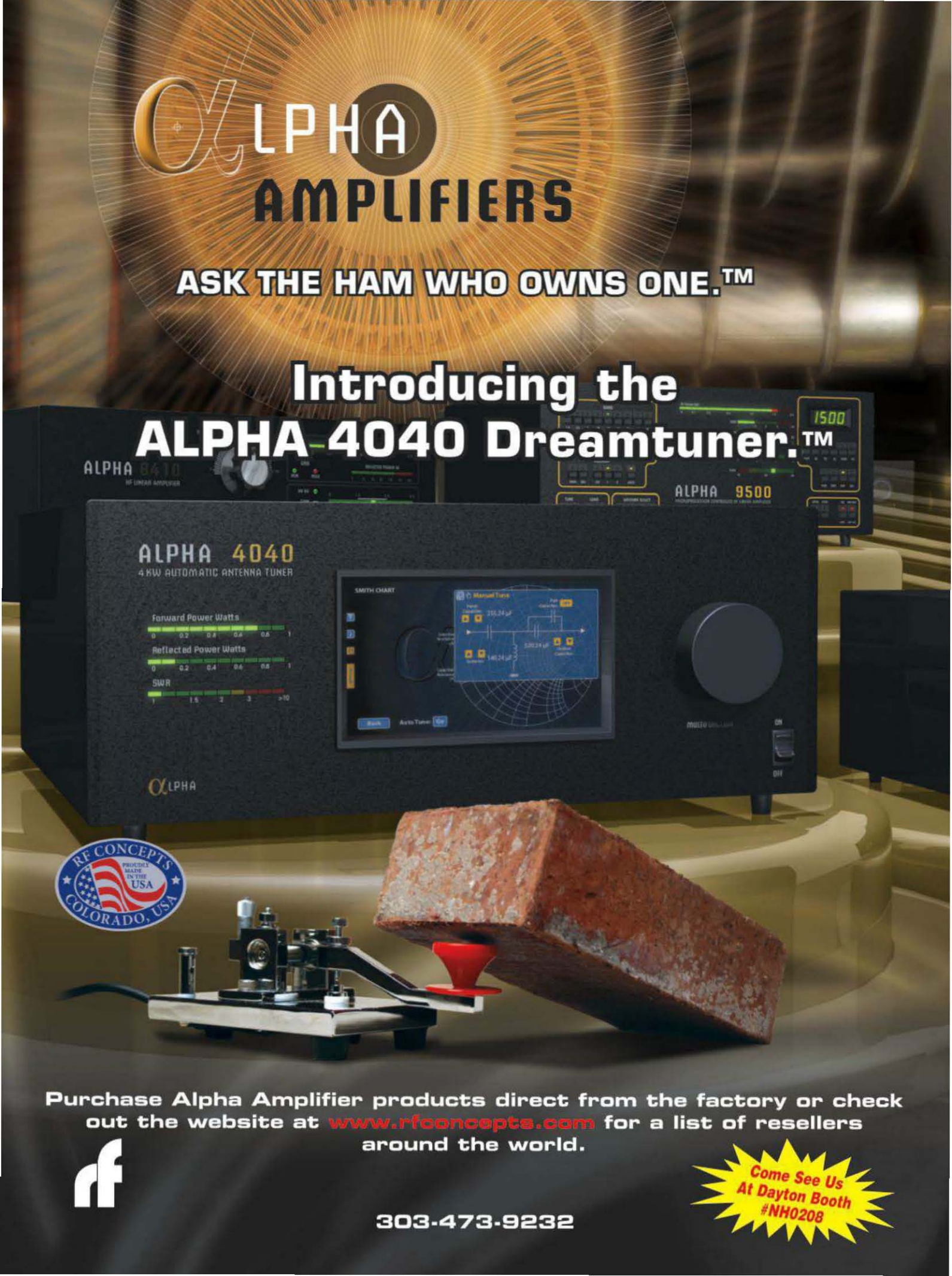
Vol. 68 No. 6

Take It to The Field Special

p. 13

p. 20

departments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FT DX 9000D

The "Fully loaded" model represents the total FT DX 9000 experience. Included is the large TFT display, along with 1.8-14 MHz high-Q "μ" front-end RF tuning circuit, utilizing a large-diameter 1.1" (28mm) ferrite core and precision motor drive. Its Q of over 300 provides razor-sharp RF tuning-ideal for today's crowded bands! Large TFT, Data Management Unit and Flash Memory Slot Built In, Main/Sub Receiver VRF, plus Full Dual Receive Capability, Three μ-Tuning Modules for 160 – 20 M, 50 V/12 A Internal Switching Regulator Power Supply.

FT DX 9000 Contest

The FT DX 9000 gives you the opportunity to build up your radio to match your operating style and competitive requirements. World-class ergonomics combine with leading-edge performance to put more QSOs in your log faster. This is what Amateur Radio is about: building the best, so you can be your best! Two Pairs of Meters, plus LCD Window, VRF Input Preselector Filter, Three Key Jacks, and Dual Headphone Jacks, 50 V/12 A Internal Switching Regulator Power Supply.

FT-2000, FT-2000D, FT-950 and the FT-450D

FT-2000 and FT-2000D

This rugged DX hunter has power and performance to spare. The FT-2000 provides a full 100 Watts RF output on 160 through 6 meters with an internal power supply, but the FT-2000D version doubles down with 200 Watts and an external supply. The impressive feature list for both versions includes dual receive capability for effortless split frequency operation; a receiver front-end VRF (Variable RF Tuning) preselector; 1st IF roofing filters (3/6/15 kHz) for superb dynamic range; variable IF bandwith and IF Shift; receiver DSP with Auto-Notch, Manual Notch, Digital Noise Reduction; and a continuously-variable passband contour control.

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Three electro-luminescent sub-displays indicate sub frequency, graphical wave and menu functions. Additional features: Parametric Microphone Equalizer; Dual Receive In Band Function Contest-ready Antenna Selection; Manual and Automatic Digital Notch; High Speed Automatic Antenna Tuner; DSP Noise Reduction.

FT DX 5000MP
Station Monitor SM-5000 included; 0.05 ppm OCXO included; 300 Hz Roofing Filter included

FT DX 5000D
Station Monitor SM-5000 included; 0.5 ppm TCXO included; 300 Hz Roofing Filter optional

FT DX 5000
Station Monitor SM-5000 optional; 0.5 ppm TCXO included; 300 Hz Roofing Filter optional

FT-950

Whether you're a serious or casual DXer, the Yaesu FT-950 should be at the top of your list. The FT-950 packs a 100 watt punch on 160 through 6 meters and includes a built-in antenna tuner; triple-conversion superheterodyne receiver; three factory-installed 1st IF roofing filters; variable IF bandwidth and IF shift, manual IF notch filter, an Automatic Digital Notch Filter (DNF) and many other expanded features available with optional DMU-2000 Data Management Unit.

FT-450D

This easy-to-pack radio is a DXpeditioner's dream come true – a lightweight, high performance transceiver spanning 160 through 6 meters with 100 Watts RF output. When it's time to wade into the pileups, you'll appreciate the FT-450D's 10 kHz bandwidth roofing filter in the 68 MHz first IF, right after the first mixer. This filter provides outstanding selectivity when the going gets rough – a feature rarely found in rigs in this price range!

zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

The (AC) Power of Motivation

Sitting in my shack, soldering parts onto a circuit board, I find myself thinking, "this is getting to be entirely too much fun!" I've dabbled in building stuff throughout my ham radio career, but I never really enjoyed it that much ... until now. Difference? I'm more motivated now. I'm really enjoying working QRP, and want to be able to hit the trail (or at least my local park) by the time you read this "Take It to The Field" special issue. So here I am in late April, building a QRPKits "SOTA tuner"—winding toroids, soldering components onto a pc board and measuring lengths of wire for end-fed half-wave (EFHW) antennas on the three bands on which my QRP rigs operate. And I'm having a blast!

(*Side-note:* I must say I don't understand why so many kit-builders seem to dislike winding toroids. Sure, it's tedious. Sure, you have to count carefully. But, hey, you are actually *building* an electronic component! How often do we get to do that nowadays? Virtually nobody rolls their own capacitors anymore. And how many of us have built our own resistors, transistors or diodes? If they don't come built into the substrate of a chip, then they come as pre-made, pre-labeled parts that we can, at best, solder into a circuit. But toroids and coils? *We can still make them ourselves!* Their values are determined not by what it says on the label but by how many turns *we* wind on the form. In this world of pre-made, pre-assembled, everything, we should cherish the opportunity to actually create an occasional component.)

Back to motivation... As with my last project, I depended heavily on long-distance advice and support from my colleague, Richard Fisher, KI6SN, while building this one. It has been mostly his "Trail-Friendly Radio" columns in *WorldRadio Online*, along with N6GA's QRP columns and our various specials here in *CQ*, that have been my main motivations in doing all this low-power and portable stuff to begin with. So I was somewhat surprised to get a text from Richard telling me that I was motivating him as well. "You've inspired me," he wrote, "to use the EFHW wire with counterpoise. Built a little tuner from scratch a few years ago. Great antenna for T-FR. Still haven't had time to put that new FT-817ND on the air. Maybe this will be the incentive!" So his motivating me is motivating him!

Another story: My first (and so far only) contact with my "Tuna Tin 2" flea-power transmitter was with Anthony "Goody" Good, K3NG, who was operating from a hilltop in Pennsylvania in the dead of winter. That contact, and a subsequent exchange of e-mails, motivated me to ask for an article about his adventures as a SOTA (Summits on the Air) "activator." He was motivated to write it, and you can read it on page 44.

Of course, Goody's exploits are tame compared with those of Z35M, who operates from just about any location imaginable (see p. 13), or KT5X, who *runs* up mountains to operate from their peaks (p. 20)! These are just a few of the stories we share this month in our second annual "Take It to The Field" special. Don't worry … not everything involves sitting on mountaintops! (We had several more great articles that didn't fit in this issue, so we'll be sprinkling them through upcoming issues to keep motivating you—and me—to "take it to the field.")

Something I've noticed about the power of motivation is that it is always AC. Unlike DC (direct current) which is always one-way, alternating current *must* flow in both directions in order to work. Likewise, you simply cannot provide motivation to another person without getting some yourself, either directly from that other person or from the process of trying to help. Try it. You'll like it!

*e-mail: <w2vu@cq-amateur-radio.com>

Saying Goodbye and Saying Hello…

We at *CQ* recently lost two good friends, and the entire ham radio community has lost two towering figures. *CQ* "Washington Readout" editor Fred Maia, W5YI, became a Silent Key in late March after a battle with cancer. He was 76. Fred had been a *CQ* columnist since 1985, and from 1978 to 2003, was editor and publisher of *The W5YI Report*, a biweekly ham radio newsletter. As regular readers of his column were no doubt aware, Fred's knowledge of the history of amateur radio regulation was encyclopedic, and he took great pride in placing new developments into their proper context based on that history.

But Fred's most lasting contribution to amateur radio was his role as a primary architect of the volunteer examining program. He was the first Volunteer Examiner Coordinator (VEC) appointed by the FCC in 1984, a long-time member and frequent chairman of the Question Pool Committee, and his W5YI-VEC organization grew to be the second largest administrator of amateur license exams in the U.S. In addition, Fred teamed up with Gordon West, WB6NOA, to produce a series of license manuals for both amateur and commercial FCC exams. Fred had been battling prostate cancer for a couple of years, but asked those around him to keep it private, which we all did. Over the course of this year, though, the "treatment" seemed to be taking as much of a toll on Fred as the cancer itself. After submitting his May column, Fred called me to report that his prognosis was not good and that he would have to give up the column. He thought he had several months, but it turned out to be weeks. Fred's work touched the lives of everyone who ever took a VE-administered FCC license exam or applied for a vanity callsign. He will be greatly missed.

Another master of radio's history has also left us. Bob Shrader, W6BNB, lived much of that history—he was 98 when he passed away on April 11—and he got his start as a radio operator in the Merchant Marine back in the 1930s. Later, Bob literally wrote the book on electronic communications. His text, *Electronic Communications*, is a standard reference on the bookshelves of thousands of RF engineers. Bob was also a prolific magazine writer and we were privileged to publish many of his articles here in *CQ*. It was Bob who taught me that the term CW actually referred to a continuous *amplitude* wave, which is what sets it apart (along with its much narrower bandwidth) from the *damped* wave of a spark-gap transmitter. I still have several of his articles in my "waiting for the right issue" stack and will try to publish as many as possible over the coming months to help keep Bob's legacy alive just a little bit longer.

Moving from goodbyes to hellos, I am very pleased to report that retired FCC amateur radio enforcement chief Riley Hollingsworth, K4ZDH, will be joining our staff of contributing editors. When Fred told me he would have to stop writing his column, I immediately began looking for a successor. Riley was the first person I thought of and, to my delight, he accepted the offer immediately and enthusiastically. His column, to be called "Riley's Ramblings," will debut next month and will cover regulatory matters as well as other issues that he feels are important and/or interesting to our readers. Welcome aboard, Riley! We look forward to a long and enjoyable association.

I hope this issue motivates all of you to get out there and "Take It to The Field!"

73, Rich W2VU

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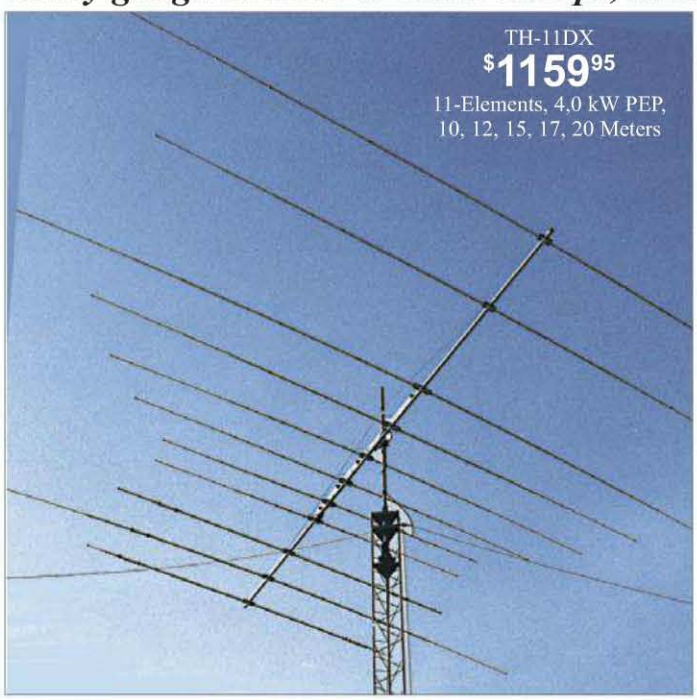

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The broadband *five element* TH5-MK2 gives you outstanding gain.

Separate air dielectric *Hy-Q* traps let you adjust for maximum F/B ratio on each band.

Also standard is *Hy-Gain's* exclusive *BetaMATCH*™, stainless steel hardware and compression clamps and BN-86 balun.

TH-3MK4, $469.95. 3-element, 1.5 kW PEP, 10,15,20 Meters

The super popular TH-3MK4 gives you the *most gain for your money* in a full-power, full-size durable Hy-Gain tri-bander!

You get an impressive average gain and a whopping average front-to-back ratio. Handles a full 1500 Watts PEP. 95 MPH wind survival.

Fits on average size lot with room to spare -- turning radius is just 15.3 feet. Four piece boom is ideal for DXpeditions. Rotates with CD-45II or HAM-IV rotator.

Features *Hy-Gain BetaMatch*™ for DC ground, full power *Hy-Q*™ traps, rugged boom-to-mast bracket and mounts on standard 2"O.D. mast. Stainless steel hardware. BN-86 balun recommended.

TH-2MK3, $369.95. 2-element, 1.5 kW PEP, 10,15,20 Meters

The 2-element TH-2MK3 is Hy-Gain's *most economical* full power (1.5kW PEP) full size tri-bander.

For just $339.95 you can greatly increase your effective radiated power and hear far better!

Ruggedly constructed, top-performing, compact 6 foot boom, tight 14.3 foot turning radius. Installs almost anywhere. Rotate with CD-45II or HAM-IV. BN-86 balun recommened.

EXP-14, $599.95. 4-element, 1.5 kW PEP, 10,15,20 Meters

Revolutionary 4-element compact tri-bander *lets you add 40 or 30 Meters!* Has 14 foot boom and tight 17.25 feet turning radius. Fits on roof tri-pod, mast or medium duty tower.

Hy-Gain's *patented* broadbanding *Para Sleeve* gives you less than 2:1 VSWR. 1.5kW PEP.

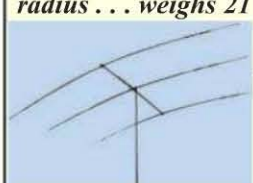
BetaMATCH™ provides DC ground to eliminate static. Includes BN-86 balun. Easily assembled.

Truly *competitive against giant tri-banders at half the cost!*

QK-710, $179.95. 30/40 Meter option kit for EXP-14.

Compact 3-element 10, 15, 20 Meter Tri-Bander

For limited space . . . Installs anywhere . . . 14.75 ft turning radius . . . weighs 21 lbs . . . Rotate with CD-45II, HAM-IV



Fits on light tower, suitable guyed TV pole, roof tri-pod

TH-3JRS, $359.95. Hy-Gain's *most popular* 3-element 10, 15, 20 Meter tri-bander fits on most lots! Same top performance as the full power TH3MK4 in a compact 600 watt PEP design.

Excellent gain and F/B ratio let *you* compete with the "big guns".

Tooled manufacturing gives you *Hy-Gain* durability with 80 MPH wind survival.

Model No.	No. of elements	avg gain dBd	avg F/B dB	MaxPwr watts PEP	Bands Covered	Wind sq.ft. area	Wind (mph) Survival	boom feet	Longest Elem. (ft)	Turning radius(ft)	Weight (lbs.)	Mast dia O.D.(in.)	Recom. Rotator	Sugg. Retail
TH-11DX	11	For Gain and F/B ratio--See...		4000	10,12,15,17,20	12.5	100	24	37	22	88	1.9-2.5	T2X	$1159.95
TH-7DX	**7**			**1500**	**10, 15, 20**	**9.4**	**100**	**24**	**31**	**20**	**75**	**1.5-2.5**	**HAM-IV**	**$869.95**
TH-5MK2	5	• www.hy-gain.com		1500	10, 15, 20	7.4	100	19	31.5	18.42	57	1.5-2.5	HAM-IV	$759.95
TH-3MK4	**3**	• Hy-Gain catalog		**1500**	**10, 15, 20**	**4.6**	**95**	**14**	**27.42**	**15.33**	**35**	**1.9-2.5**	**CD-45II**	**$469.95**
TH-3JRS	3	• Call toll-free		600	10, 15, 20	3.35	80	12	27.25	14.75	21	1.25-2.0	CD-45II	$359.95
TH-2MK3	**2**	800-973-6572		**1500**	**10, 15, 20**	**3.25**	**80**	**6**	**27.3**	**14.25**	**20**	**1.9-2.5**	**CD-45II**	**$369.95**
EXP-14	4			1500	10,15,20 opt. 30/40	7.5	100	14	31.5	17.25	45	1.9-2.5	HAM IV	$599.95

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2. ***Tooled*** *Boom-to-Element Clamp*

3. Thick-wall *swaged* aluminum tubing

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announcements

ATLANTA, GEORGIA: The Atlanta Radio Club and the **Gwinnett Amateur Radio Society Atlanta Hamfest** and **ARRL Georgia Section Convention**, June 2 at Jim Miller Park. Contact John Talipsky, N3ACK, 385 Madison Chase Drive, Lawrenceville, GA 30045; e-mail: <n3ack@atlantaradioclub.org>.; <http://www.atlantahamfest.com>. (Talk-in 146.820- (PL 146.2); exams)

BALTIMORE, MARYLAND: The Amateur Radio Club of the National Electronics Museum (K3NEM) will air special event station **W2W** from 1200 to 2200 UTC June 2 to June 6 to commemorate the role of electronics in World War II. Frequencies: 7.240, 14.270, and 21.270. QSL to W2W – Special Event Station, Box 1693, MS 4015, Baltimore, MD 21203. Certificate available via SASE. Website: <http://ww-2.us>.

HUDSONVILLE, MICHIGAN: The Independent Repeater Assn. 2012 Annual Hamfest June 2 at the Hudsonville Fairground. Contact Don, (616) 532-7769 after 4 p.m. E-mail: <ira-hamfest@w8ira.org>. (Talk-in 147.160 (PL 94.8); exams 9 to 10:30 a.m.)

PORT ALBERINI, BRITISH COLUMBIA, CANADA: The Arrowsmith Amateur Radio Club Third Biennial Swap Meet June 2 at the Alberini Valley Rescue Hall. Contact: Bob, <ve7mtv@gmail.com>. (Talk-in 147.240 +600)

SHOW LOW, ARIZONA: The Kachina Amateur Radio Club White Mountain Hamfest June 2 at the Show Low City Hall.Contact Jim Mortensen, <w7azy@arrl.net>; <http://www.kachina-arc.org>. (Talk-in 145.310 [PL 110.9]; exams)

ST. PAUL, MINNESOTA: The South East Metro Amateur Radio Club will air special event station **WØM** to commemorate the Battle of Midway from 1300 to 0000 UTC June 2 at Fleming Field Airport. Frequencies: 7.260, 14.260, 21.360, and 28.460. For QSL send 8.5- x 11 SASE to WØCGM Special Event, 1655 – 68th Street West, Inver Grove Heights, MN 55077; <http://www.semarc.org>.

TEDROE, OHIO: The Fulton County Amateur Radio Club Outdoor Flea Market and Hamfest June 2 at the Roth Family Woodlot, 105 Hill Ave. <http://www.k8bxq.org>. (Talk-in 147.195+; exams).

TOPEKA, KANSAS: Special event station **WØVFW** will be on the air 1500 to 2350 UTC, June 2 to honor the 92nd Annual State Convention of the VFW Department of Kansas being held at the Capitol Plaza Hotel. Frequencies: 21.240, 18.140 and 14.240 on SSB. QSL requests to: Dwight Holtzen, 795 N. McComas Street, Wichita, KS 67203.

MISSISSAUGA, ONTARIO, CANADA: The Mississauga Amateur Radio Club will operate a special event station 1400–2000 UTC June 2 and 3 at the Annual Bread and Honey Festival. Frequencies: 14.240 and 7.230. For a certificate, contact MARC, c/o Michael Brickell, VE3TKI, 2801 Bucklepost Cres., Mississauga, ON, Canada L5L 1M6. Include $2 U.S. for postage. Website: <http://www.marc.on.ca>.

CAMBRIDGE, ONTARIO, CANADA: The Guelph and the Kitchener-Waterloo Amateur Radio Clubs 38th Annual Central Ontario Amateur Radio Fleamarket and Hamfest, June 3 at the Waterloo Regional Police Association Recreation Centre. Contact: Nick, VA3NNW, weekends and nights only (519) 884-3760. E-mail: <info@hamfest.on.ca>. Website: <http://www.hamfest.on.ca>. (Talk in 146.970- [tone 131.8], 146.529 simplex)

PRINCETON, ILLINOIS: Starved Rock Radio Club Amateur Radio Hobbyist and Collectors Show, June 3 at the Bureau County Fairgrounds. Contact Matthew Weaver, KB9VZH, (815) 313-5924. E-mail: <starvedrockhamfest@hotmail.com>; <http://www.qsl.net/w9mks/hamfest. htm>. (Talk-in 146.955 –103.5; exams 9:30 to 11 a.m.)

PLANO, TEXAS: HamCom Amateur Radio Convention , June 8 –9 at the Plano Centre. VE exams, forums, meetings, prizes and tailgating. Website: <http://www.hamcom.org/>. ***See Us at the CQ Booth.***

ROCHESTER, NEW YORK — The Rochester Amateur Radio Association, Inc. Rochester Hamfest and Technology Expo, June 9 at the Rochester Institute of Technology campus. Contact: RARA, (585) 210-8910; <http://www.rochesterham.org>. (Talk-in 146.61 [PL 110.9]).

BECKLEY, WEST VIRGINIA: Black Diamond Amateur Radio Club Hamfest, June 9 at the Raleigh County Commission on Aging. Contact: Zandle Cline, AC8DU, (304) 683-3395; e-mail: <ac8du@yahoo.com>. (Talk-in 145.370 [PL 100]; exams).

KNOXVILLE, TENNESSEE: RAC of Knoxville 46th Annual Knoxville Hamfest & Electronics Exposition, June 9 at the Kerbela Temple. Contact: Lou Dreinhoefer, Radio Amateur Club of Knoxville, (865) 995-1588; e-mail: <wb3jk@arrl.net>; <http://www.w4bbb.org>. (Exams)

LIME RIDGE, PENNSYLVANIA: Columbia-Montour Amateur Radio Club Bloomsburg Hamfest, June 9 , Lime Ridge Community Center. Contact Randy, N3JPV, (570) 759-2306.; e-mail: <n3jpv@verizon.net>; <http://www.qsl.net/cm-arc>. (Talk in 147.225 +600 (PL 203.5); exams 9 a.m.).

SPEARFISH, SOUTH DAKOTA: Northern Hills ARC Ham in the Hills Hamfest, June 9 at the United Methodist Church, 845 North 5th Street. Contact: Brian Kassel, (605) 645-7303; e-mail: <k7re@arrl.net>. ; <http://www.northernhillsarc.org>. Talk in 146.76/16 (PL 146.2); exams 9:30 a.m.).

WINSTON-SALEM, NORTH CAROLINA: Winston Salem Summer Classic Hamfest 2012, June 9 at the Summit School Athletic Center. E-mail: <hamfest@w4nc.com>. (Talk-in 146.64 [PL 100] or 145.47 [PL 107.2])

MANASSAS, VIRGINIA: "Ole Virginia Hams" ARC 38th Annual Manassas Hamfest Amateur Radio, Computer & Electronics Show, June 10 at the Prince William County Fairgrounds. General contact: Bruce, AB8CI, (703) 596-5617; e-mail: <AB8CI@comcast.net>; <http://www.w4ovh.net>. (Talk in 146.97- or 442.200- or D-Star 442.5125+; exams)

QUEENS, NEW YORK: Hall of Science ARC Hamfest, June 10 at the New York Hall of Science parking lot, 47-01 111th Street. Contact: Stephen Greenbaum, WB2KDG, (718) 898-5599 (nights only); e-mail: <wb2kdg@arrl.net>; <http://www.hosarc.org>. (Talk-in 444.200 [PL 136.5]; 145.270 -600 [PL 136.5];.exams 10 a.m.).

PISCATAWAY, NEW JERSEY: Raritan Valley Radio Club W2QW Hamfest, June 16 at Piscataway High School. Contact: Eric, NW2P, (908) 251-3938 before 8 p.m.; <http://www.w2qw.org>. Talk-in 146.625 or 442.250 [PL 141.3]; exams 10 a.m.)

MONROE, MICHIGAN: Monroe County Radio Communications Association Monroe Hamfest and Computer Show, June 17 at the Monroe County Fairgrounds. Contact Fred VanDaele, KA8EBI; e-mail: <ka8ebi@yahoo.com>; <http://www.mcrca.org>. (Talk in 146.72/12)

SIMI VALLEY, CALIFORNIA — The Ventura County Amateur Radio Society special event station **N6R**, 1800 UTC June 23 to 1900 UTC June 24 to honor the lives of President and Mrs. Ronald Reagan. Frequencies: 28.400, 21.320, 14.255, 7.260. QSL with SASE to Ventura Co. Amateur Radio Society, N6R c/o Peter Heins, N6ZE, 1559 Norwich Ave., Thousand Oaks, CA 91360-3533. Contact: Peter Heins (805) 496-1315; e-mail: <n6ze@arrl.net>; <http://www.qrz.com/db/n6r>.

KINSTON, NORTH CAROLINA — 22nd Annual Down East Hamfest, June 30 at the Lenoir Community College Gymnasium. Contact Down East Hamfest, Inc..; (252) 347-1498;. e-mail: <bhighland@nc.rr.com>; <http://www.downeasthamfest.org>. (Exams 11 a.m.)

*Please submit hamfest and special event announcements **at least three months in advance** by e-mail to <hamfest@cq-amateur-radio.com> or <specialevent@cq-amateur-radio.com>, or by postal mail to: CQ Magazine, Attn: Hamfests (or Special Events), 25 Newbridge Rd., Hicksville, NY 11801.*

A publication of

CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801 USA.

CQ Amateur Radio (ISSN 0007-893X) Volume 68, No. 6. Published monthly by CQ Communications, Inc., 25 Newbridge Road., Hicksville, NY 11801, Telephone 516-681-2922. E-mail: cq@cq-amateur-radio.com. Fax 516-681-2926. Web site: www.cq-amateur-radio.com. Periodicals Postage Paid at Hicksville, NY 11801 and at additional mailing offices. Subscription prices (all in U.S. dollars): Domestic-one year $38.95, two years $70.95, three years $102.95; Canada/Mexico-one year $51.95, two years $96.95, three years $138.95: Foreign Air Post-one year $63.95, two years $120.95, three years $177.95. U.S. Government Agencies: Subscriptions to CQ are available to agencies of the United States government including military services, only on a cash with order basis. Requests for quotations, bids, contracts., etc. will be refused and will not be returned or processed. Entire contents copyrighted 2012 by CQ Communications, Inc. CQ does not assume responsibility for unsolicited manuscripts. Allow six weeks for change of address.

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If you think HF hamming requires a dedicated room and a big antenna, then you've never met Z35M, who has put together an ultralight portable HF QRP station and has operated from … well… just about everywhere.

Flight of the QRP Bird … or the Freedom of QRP

BY VLADIMIR KOVACESKI,* Z35M

Making local and DX contacts, even having a small pile-up, is possible from just about anywhere (see photo A) with an ultra-light HF QRP setup weighing less than four pounds, including radio, battery, antenna, coax, a fishing rod as antenna support, ear bud, mini paddle, light ropes, paper log holder, and all wiring and cables (photo B; also see sidebar for detailed station description). A resonant low-mounted dipole in an inverted-V configuration or a quarter-wave wire vertical with a few ground-mounted radials may be used without an additional antenna tuner. The complete station can be packed in a small rucksack together with other non-radio stuff and needs only 15 minutes to set up at almost any location—the real "Freedom of QRP."

The freedom of QRP may be compared to the freedom of a bird. *If there is enough space for a bird to land, there is enough space to accommodate an effective ultra-portable HF QRP station.* Bear this in mind when you hear complaints from hams that they have no possibility of installing antennas at their homes or other locations. An "Amateur Radio First Aid" kit may be offered, which includes going to any home or other location, setting up an ultra-portable HF QRP station, and making QSOs very shortly after arrival. Not the space, but the will and imagination of the operators are the factors that limit the possibilities of being on the air.

From QRO to QRP

After nearly three decades of QRO (high power) amateur radio activity and close to 400,000 QSOs in the log, operating QRP has refreshed my interest in the hobby. My QRP station as a "free bird" has landed at many interesting locations. From all of them, without exception, I successfully set up a QRP station and conducted many QSOs. The same radio and antennas were used in many different portable applications, including my first pedestrian-, bicycle-, car-, and boat-mobile activations, with the rare addition of an automatic or manual antenna tuner when needed.

Since the spring of 2009, I have conducted more than 150 outdoor HF QRP portable activities from mountain summits (Summits On The Air program, SOTA), national parks (World Flora and Fauna program, WFF), old castles (World Castles Award, WCA), near rivers (World Rivers Award program, WRA), near lakes (World Lakes Award program, WLA), and from other attractive or unusual places.

Follow the story of where the "QRP bird flew and landed" and feel the freedom of QRP operation.

A Family Summer Holiday (with XYL-Approved QRP Expedition)

The June 2011 special *CQ* "Take It to the Field" issue arrived in my mailbox a day before our planned summer holiday in

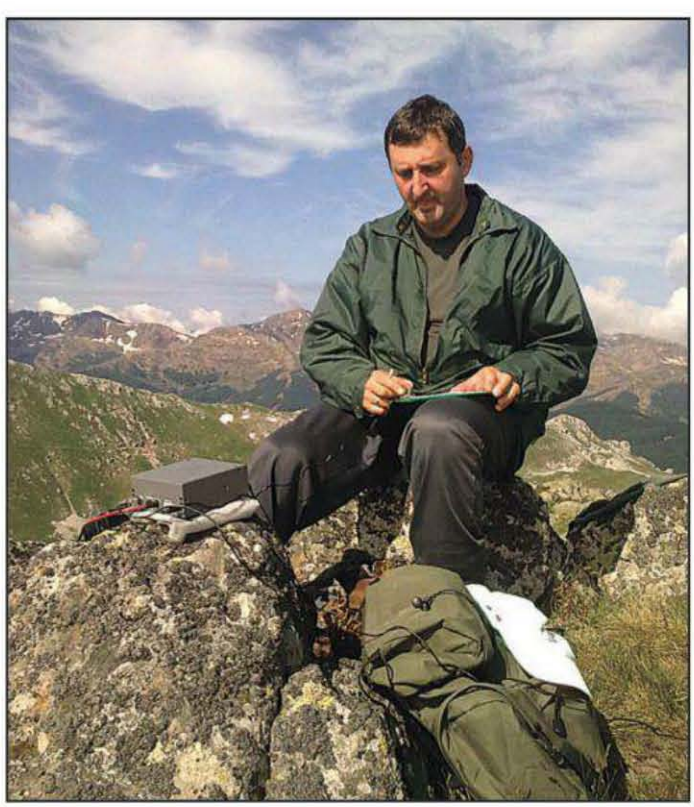

Photo A– Operating QRP gives you the freedom to operate from just about anywhere, in this case activating a summit more than 2000 meters (6500 feet) above sea level for the Summits on the Air (SOTA) program. (All photos courtesy of the author)

* e-mail <vkovaceski@yahoo.com>

Photo B– My ultralight HF QRP portable equipment. See box at right for detailed listing.

Station Description

Elecraft K1 for 40/30/20/15m, 620 gr
Battery 12V/0.8Ah with cable, 365 gr
Link dipole for 40/30/20m, with 7m coax RG-174, 350 gr
Fishing rod 5m, 510 gr
K9LU Bull Dog mini-paddle with magnetic base, 30 gr
Earphones, 11gr
Paper holder, 70 gr
Nylon rope, 30 gr
Station total weight: 1986 gr

Note: The total weight may be reduced to less than 2 pounds if you replace the K1 with a miniature radio such as the ATS-3 (80 gr), smaller battery, etc. If you want to reduce the kilograms, first of all you must take care of reducing the grams.

Albania, where I intended to be active on the air as ZA/Z35M/QRP. What a nice surprise! Most of the articles were about what I had been doing for the past two years and what I intended to do during my QRP operation in Albania. The special *CQ* issue was my companion on the beach together with my HF QRP setup. The family holiday with approved QRP activity of less than a week ended with a total of 781 CW QSOs on 40, 30, and 20 meters using a maximum of 5 watts into dipoles from the apartment, or with a wire vertical on a beach supported by a 5-meter (16-foot) fishing rod.

The highlight of the operation was my first activity from a nearby uninhabited island where at low tide I arrived completely on foot holding all of my QRP gear in my hands, high above my head (photo C). Once I was on the island, I installed a quarter-wave wire vertical for 20 meters supported by my fishing pole. I also set out six ground-mounted radials, with some of them running into the sea water. The radio setup worked on the first try (photo D) and I made a lot of contacts. The only problem was the strong wind threatening the antenna. In order to keep the antenna straight up, I moved the operating position close to the antenna base and held it with my feet. I left the island in the same manner as I arrived—by foot.

Later, I was active from the beach on the mainland and was called by many JAs, even when running only 1 watt into a vertical. On this occasion, a total of 270 QSOs were made in only three hours (90 QSOs per hour is a fantastic rate, not only for a QRP station.).

On the way home, I stopped in Logara National Park and activated it as part of WFF, the World Flora and Fauna program. I made 33 QSOs from the parked car and low-mounted inverted-V dipole supported by a tree limb while my family had a coffee break in a nearby restaurant. All the action lasted a little more than one hour.

From Mountain Summits

My interest in QRP portable activity started in 2009 when I launched the SOTA (Summits On The Air) program in Macedonia. According to the rules of this worldwide program that is growing in popularity, all radio gear and antennas must be carried to the mountaintop by the operator in a non-motorized manner. Also, the use of electrical networks or fuel generators is forbidden. This means that a battery-powered ultralight QRP radio setup is a must for successful HF SOTA activations.

I started to hike to nearby lower summits and put them on the air. During this period I tested and adjusted my radio setup for more ambitious tours. Very soon some higher summits were activated, too, including the highest peak in Macedonia, Golem Korab, with an altitude of 9068 feet (2764 meters). Also remarkable was the winter activation of the summit of Ljuboten at an altitude of 8195 feet (2498 meters). Amateur radio and hiking are perfect companions, indeed.

From Castles

Searching for additional attractive places from which to operate, I discovered the World Castles Award program (WCA). My first WCA activation was conducted in May 2010 from the castle of Skopsko Kale in the center of Macedonia's capital city, Skopje. I took all my equipment in my rucksack, attached the fishing pole to it, and went to the castle by bicycle. After arrival I made a quick inspection of the site in order to find the best place for erecting the antenna and the deploying my radio gear. The most convenient was to use one of the castle walls as a support of the fishing pole with the base attached to the frame of the bicycle, and the radio was set up on the castle stairs. All this attracted some strange views from the visitors, but the pile-up was going on with more than 50 radio contacts in the log over a period of one hour.

Later I activated a few more castles in my country using various means of transport to the operating site and erecting the same antenna as the local conditions permitted. One of the most remarkable activations was from the Castle of Samuil in Ohrid with a spectacular view of Ohrid Lake, the largest lake in Macedonia.

From a Hotel Room

Staying in a small hotel room should not be an obstacle for on-the-air amateur radio activities. The ultra-light HF QRP

station may be deployed in any convenient place in the hotel room. The biggest challenge is how to erect an effective antenna.

When the conditions and time permit, installing a full-size outdoor antenna is the best solution, but when this is not possible, then a lot of combinations can be made using different types of indoor antenna configurations. I have tried using a quarter-wave wire for 20 meters in an inverted–L configuration, using a 2.5-meter (8-foot) fishing rod segment to hold the bottom half of the wire, with the second half of the wire running almost horizontally, attached to the upper part of the closet door. For the counterpoise, I used one-quarter-wave wire radial bent on the room's floor. Other types of wire antennas spread out in available space may also be used to radiate reasonably strong signals to make some radio contacts. In these conditions it is necessary to use a good antenna tuner.

From Home

I have a permanent QRO radio setup at my home, but very often I use it with the power turned down to QRP levels, or I put my portable QRP station on an operating desk and tune it into a single-element multiband dipole. The enjoyment is always greater when using the station that is specifically dedicated to QRP work. In some of the major DX contests I decided to work QRP in S&P (search-and-pounce) mode and often was surprised at how well it worked. Sometimes I even succeeded in holding a frequency for a while to call "CQ Test" and to receive responses. To attract more attention I prefer to use "/QRP" after my callsign.

On a few occasions I have operated my QRP station from the balcony of my apartment. Each January the RU-QRP Club organizes a QRP contest called "CQ Moroz" (Red Nose). The aim of this operating event is to encourage the participants to operate from outdoor sites in winter conditions. I took part in this interesting operating event by working from the balcony, where the temperature was below freezing. It's not easy to operate under these conditions, but it sure was a lot of fun. In order to send proper Morse code, I used gloves to keep my fingers warm. I also operated from the balcony during the summer and enjoyed the feeling of being outdoors, which is much different than staying in an indoor shack. I used my permanent G5RV multiband dipole, or quarter-wave wire vertical with fishing rod attached to the balcony fence and two quarter-wave wire radials running across the fence and then continuing close to the outside wall with ends attached to nearby windows.

Photo C– Destination: an uninhabited island along the Albanian coast. The only way to access it was on foot through shallow water at low tide carrying my gear above my head.

From a Parking Lot

In September 2009, I was preparing the new light link-dipole antenna (see below) for my planned activation of the highest summit in Macedonia. I finished the antenna project late in the evening, the day before the planned activation, and decided to test it in real portable conditions from a parking lot near my home. The radio was set up in the front seat of the car and the link-dipole was raised in inverted–V configuration with the fishing pole fastened to a side-view mirror. The ends of the antenna were attached by ropes to a nearby fence. To prove that all was working well, I managed to make several short contacts on the 40-, 30-, and 20-meter bands, making the antenna resonant by manually attaching or detaching the links (photo E) across the precisely measured parts of the antenna wire. The setup worked without any problems.

Near a River

In the spring of 2011, I took my rucksack with radio gear, attached a fishing pole to the side of it, and used my bicycle for a 20-minute ride to the bank of Vardar River, the largest river in Macedonia. I needed more *time* to figure out where to install the antenna and the radio than to actually *do* it.

I chose structures of a sport exercise playground as antenna supports and a place to sit and operate. The dipole was erected in inverted-V configuration with its center supported by my shorter (4.5-meter) fishing pole attached to the playground structures. In less than a half hour, running 5 watts I made 20 CW QSOs on 20 meters, joining a contest in progress.

From a City Park

On one hot summer day I decided to bicycle to a nearby city park and set up an HF QRP station on a bench. The

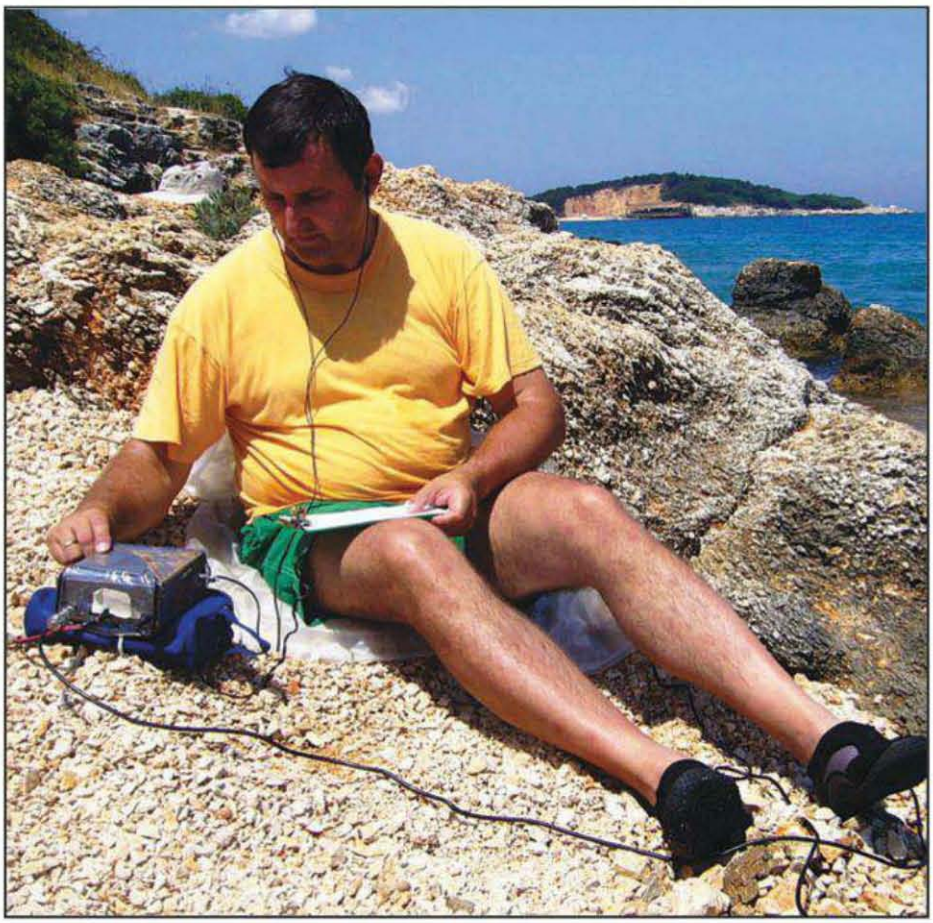

Photo D– After wading to the island (see photo C), I quickly was on the air.

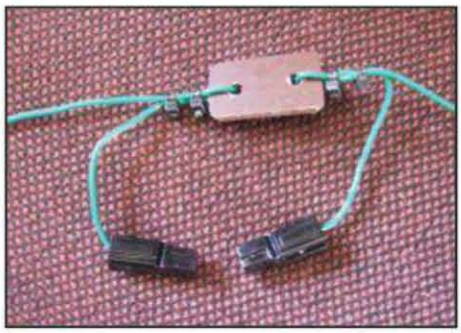

Photo E– A link dipole is a multi-band antenna with different band segments switched in and out by manually attaching or detaching different antenna segments.

antenna was an inverted-V hanging on a tree limb, with the ends attached by tiny ropes to nearby branches. I managed to make 17 CW QSOs with European stations in not-so-good propagation conditions. Some of them were also operating with QRP power and some were also portable. The antenna was practically invisible to the other visitors and nobody even noticed that I was making radio contacts.

I've even tried (once) operating from the bicycle itself. I consider bicycle mobile the ultimate operating challenge. My goal was not to create a permanent bicycle mobile setup, but only to test it. To avoid grounding installation problems, I decided to use a half-wave 20-meter dipole wound on a 4.5-meter (14-foot) fishing rod attached behind the seat at an angle of approximately of 45 degrees to the ground. The radio, battery, and automatic antenna tuner were put into the basket mounted in front of the handlebars. The miniature Morse paddle with the magnetic base was attached to the bicycle's bell. This kind of mobile setup has limited capabilities, especially when running only 5 watts. Only one CW QSO was made on 20 meters, with a Ukrainian station, but this was more than enough to claim successful bicycle mobile operation on HF.

From a Vacation Apartment

Last summer I installed a half-size G5RV multiband dipole at 9 meters from the collective three-story building where I have my holiday (vacation) apartment on the north shore of Ohrid Lake. In Julyl took part in the QRP Marathon organized by the international QRP club "Club 72" and succeeded in making more than a thousand QRP contacts and won on the 40-, 30-, and 20-meter bands. I used my battery-powered Elecraft K1, manual antenna tuner ,and Morse paddle. To have the feel of a back-to-basics operation the logging was done by pencil and paper. The best surprises were the two-way QRP contacts with Japan on 20 meters and the contacts with stations from Australia and New Zealand who answered on my CQ call on 30 meters.

I also found an interesting location with tall trees near the lake, not far away from my summer apartment (photo F). The lower branches of the trees were approximately 5m/16ft high, making them practical supports for either my inverted–V dipole or my 20-meter wire vertical antenna. Erecting the antenna was not difficult at all. I tied a rope to a small plastic bottle filled with water and in the first few tries threw it over the branch. The next step was to tie the center insulator of the dipole or the upper insulator of the wire vertical onto the rope and to lift it up close to the branch. The ends of the dipole with insulating ropes were attached to other branches. When using a vertical, four radials were then placed on the ground. All this radiated an effective QRP signal without need for an antenna tuner. Sitting a few meters from the lake, enjoying beautiful views and at the same time making a radio contacts, was an unforgettable experience.

On Foot, In a Boat, In a Car

In September 2010, I managed to make 20 CW QSOs on the 20-meter band while operating pedestrian mobile for the first time from the summit of Mt. Vodno at 1066 meters (3497 feet). To achieve this, I used the same HF QRP portable setup plus an automatic antenna tuner. The antenna was a quarter-wave wire supported by my fishing rod attached to a side of the rucksack, and a one quarter-wave wire radial dragging on the ground. Actually, it was a 20-meter dipole with one leg attached straight up on the fishing rod and the second leg dragging on the ground. The QRP station was hung on my neck with a tiny rope. The paper log was attached to a small plastic board on which was also attached the miniature Morse paddle with a magnetic base (see station description). The battery and the automatic antenna tuner were placed in a small case attached to my waist.

This type of pedestrian mobile setup was made as a test without intending to

Photo F– No need for wading here … just some relaxed operating along the shore of Ohrid Lake, the largest lake in Macedonia, near my summer apartment.

use it on a permanent basis. I have also conducted test operations from a small boat and from my car.

Isn't 5 Watts Too Much?

Some QRP enthusiasts think that 5 watts is too much power, and they often go *QRPp* with output power of less than 1 watt. I often operated with power of 1 watt or even less and always was surprised that this works and on many occasions exceeded my expectations. One of my regular activations from the summits was conducted with output power of only 0.5 watt, and I managed to make 52 QSOs over a 1-hour period using a low-mounted inverted-V dipole.

And Finally … From a Zoo

While on a short visit to the city of Bitola, Macedonia, I decided to try to make a first World Zoo Parks Award (WZOO) activation from my country. After a brief explanation and negotiations with the Bitola Zoo director I was allowed to set up my HF QRP station inside the zoo grounds. I found a place to install the quarter-wave wire vertical and set up a battery-powered radio on a desk, and then I started to call CQ on 20 mete running only 3.5 watts. A small pile-up very quickly developed and I managed to work more than 60 stations in a period of an hour. I never tried to be active "exactly from the bird's nest," but this time I was very close to the bird's nest—in the cage—as the "QRP bird" landed once again.

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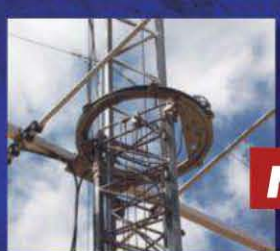

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K5TX isn't your typical mountain hiker. Why waste time walking to the top, he reasons, when you can RUN and have more time at the summit … for ham radio? Here's Fred's story of the first Summits On The Air (SOTA) activation of Mt. Elbert, the highest peak in Colorado …

Getting High with Ham Radio

The Adventures of WSØTA

BY FRED MAAS,* KT5X

It wasn't supposed to be raining. My first awareness emerging from sleep was the random patter of a light rain on the roof of my almost ancient van-camper. This wasn't what I had in mind for the first Summits On The Air (SOTA) activation of Colorado's tallest peak, Mount Elbert. At 14,433 feet, it is difficult enough without rain. Putting a radio on the air from the top adds yet another dimension.

Start the coffee boiling. Slosh water on the granola and powdered milk. Sustenance. First gray light of impending dawn reveals dense fog. Hey! Maybe it isn't really raining after all! Maybe it is just condensed fog dripping off the tall fir trees towering over my little camper parked at the 9000-foot trailhead.

Maybe the morning sun soon will take charge of the day. These fourteeners[1] are so high they create their own weather. It can be stormy on top and sunny at the bottom. It can be still in the valley and blowing 90 miles an hour on top. It can be raining down here, and the top of the mountain can be above the clouds. Whatever it is one moment, in minutes it can be something entirely different. Hikers intending to summit carry equipment to deal with anything, equipment that will let them hunker down if, or rather when, a snowstorm suddenly rears up and slashes them, trapping them up high.

The author with his fishing pole antenna support atop a Colorado mountain peak. (Photos courtesy of the author)

A Different Approach

My approach is different. My defense is mobility. Instead of a winter parka, heavy hiking boots, and food and water for two days, I wear running shorts and tech shirt, carry a 3-ounce windbreaker, and run in lightweight shoes. I don't recommend it. I just do it. My defense is that I can rapidly descend if weather is no longer benign. Besides being a ham operator, I am a *trail runner*. Peaks offer a proud location for a radio antenna, so it is only natural to combine the two hobbies.

The adventure-running pack I use only weighs 10 ounces. It supports a water bladder that can hold nearly two quarts. Remaining pockets easily surround 10 ounces of radio gear: a 3-ounce 5-watt QRP transceiver built from a kit, a 1-amp/hour LiPO battery, ear buds, a spool of wire, a homemade CW paddle that weighs a half ounce, a 3" × 5" card for a log, and a special

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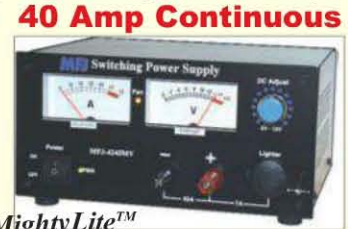
MFJ-4225MV **$99.95**

40 Amp Continuous



MightyLite™

40 Amps continuous, 45 Amps max. Adjustable 9-15 VDC output. Volt/Amp meters, cigarette lighter plug, front 5-way binding posts, two rear quick connects. 5.5 lbs. 7½Wx 4¾Hx9D inches. Use 85-135 VAC or 170-260 VAC input. Replaceable fuse.

MFJ-4245MV **$149.95**

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75 Amps maximum and 70 Amps continuously. Adjustable voltage 4.0-16 VDC. Short circuit, overload and over-temperature protection, 10.5 lbs. 9¾Wx5½Hx9½D". Great for Ameritron's ALS-500M mobile amplifier!

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Power multiple Transceivers/accessories from a* single *DC power supply . . . Keeps you neat, organized and safe . . .Prevents fire hazard . . . Keeps wires from tangling up and shorting . . . Fused and RF bypassed . . . 6 foot, 8 gauge color coded cable . . .

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MFJ-1118, $84.95. Power two HF and/or VHF rigs and six accessories from your main 12 VDC supply. *Built-in 0-25 VDC voltmeter.* Two pairs 35 amp 5-way binding posts, fused and RF bypassed for transceivers. Six pairs RF bypassed binding posts provide 15 Amps for accessories. Master fuse, ON/OFF switch,"ON" LED. 12½x2¾x2½ in.

MFJ-1116 **$59.95**

MFJ-1116, $59.95. 8 pairs binding posts, 15A total.Voltmeter, on/off switch.

MFJ-1112 **$44.95**

MFJ-1112, $44.95. 6 pairs binding posts, 15 Amps total.

MFJ-1117 **$64.95**

MFJ-1117, $64.95. Powers *four* transceivers simultaneously (two at 35 Amps each and two at 35 Amps combined). 8x2x3 inches.

All PowerPoles™

MFJ-1128 **$104.95**

MFJ-1128, $104.95. 3 high-current outlets for transceivers. 9 *switched* outlets for accessories. Mix & match included fuses as needed (one-40A, one-25A, four-10A, four-5A, three-1A fuses installed). 0-25 VDC *Voltmeter. Extra* contacts, fuses. 12Wx1¼Hx2¾D".

MFJ-1126 **$84.95**

MFJ-1126, $84.95. 8 outlets, each fused, 40 Amps total. Factory installed fuses: two 1A, three 5A, two 10A, one 25A, one 40A. *0-25 VDC Voltmeter.* Includes *extra PowerPoles®, extra* fuses -- *no extra cost.* 9Wx1¼Hx2¾ inches.

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MFJ-1129, $114.95. 10 outlets each fused, 40 Amp total. 3 high-current outlets for rigs -- 2 *PowerPoles®* and one 5-way binding post. 7 *switched* outlets for accessories (20A max) -- 5 *PowerPoles®* and 2 binding posts. Fuses include (1- 40A, 2-25A, 3-10A, 3-5A, 2-1A installed). *0-25 VDC Voltmeter.* Includes extra *PowerPoles®* and fuses, 12½Wx1¼Hx2¾D inches.

MFJ-1124 **$64.95**

MFJ-1124, $64.95. 6 outlets each fused, 40 Amps total. 4 *PowerPoles®*, 2 high-current binding posts, Installed fuses: 1-40A, 2-25A, 2-10A, 1-5A, 1-1A. Includes extra *PowerPoles®* & fuses -- *no extra cost.*

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impedance transformer to match the end-fed halfwave antenna. A 16-foot crappie pole to support the antenna on the treeless summit mounts on the outside of the pack. I also carry matches, a small folding knife, windshell mittens, ear bags, and a little athletic tape to cover a blister or support a possible minor sprain.

Out the window I can see the LED headlamps of intrepid hikers already disappearing into the forest with a head-start on me up the mountain. I consume my sustenance slowly, and savor the coffee. Let them have their head-start. Let it be light. Let the sun begin to warm the air and melt the fog. Then it will be the time for a trail-runner.

It's light enough to see the trail. Time to go. I step outside and lock the van. Near freezing, I begin by walking, eyes adjusting to the gray light, seeing roots and rocks. Soon I am in the forest, footing is wet and slippery, but trail-running shoes are designed to adhere to wet rock and grab in mud. The fog is thick among the trees, and the trees are dripping. A snow-melt creek giggles nearby. Otherwise there is silence. I pick up the pace, walking faster, then breaking into a slow run. The trail is steep and the air at 9000 feet is already thin.

Around a corner, surging sound, there's the creek. Hop, rock, log, and over, and now the trail steepens even more. I settle into a series of short sure steps, knees bend and straighten. I start putting some altitude beneath me. Jogging now, warming, it isn't long before I come upon a father and son resting on a log. We wish each other a good day on the hill, and my ascent continues.

Down here the forest is mostly ponderosa pine, tall and imposing, and maybe, dark and sinister. As the elevation increases quaking aspen with their characteristic white bark and waving leaves take charge. Another 500 feet of elevation gone, the pine and aspen give way to fir dripping dew and moss, and then, higher still, even scarce bristlecone pine. The latter have a distinctive drop of sap on the end of each needle, hence the family name, but this isn't the same species that is known to live for so long in Nevada.

The sun is up and the fog is brightening, thinning. My mind wanders and I wonder if skip will allow my QRP signal cast into the ether from such a modest antenna to reach Europe on this day. I grin to myself. No other hiker is thinking such thoughts.

The trees are shorter now and farther apart. I encounter more groups of hikers. They are of all descriptions. There is a group of teens; they are a cross-country team from Kansas. There is a group of tourists from Europe; they shout "bravo" to my old-man attempt to run at altitude. And there is another runner, a real one, at least forty years younger than I, who puts me decidedly in my place as he overtakes me from behind and soon disappears among the thinning forest ahead.

"We're Out of the Woods..."

An hour into it, and I break out of the forest, above tree line, now over 12,000 feet. Incredibly I am also breaking clear of the fog! Another few strides and I am above it. The entire valley spread out below is filled with fog, one side to the other. Above, the peak is sunlit and proud. Challenging. There is not a cloud in the sky! It is going to be a very good day on the peak, and the peak is going to be a good origin for my QRP signals. Onward I go.

The hill becomes steeper yet. No trees, no cover, and now there is wind. Another half hour and the altimeter on my wrist reads 13,000 feet. It has become too steep and too high to actually run, but I keep powering upward as best I can. The trail is about forty-five degrees steep in places, covered with cobbles that roll under foot. Careful! It is hard work to gain a purchase and not just slide back down like striding on mar-

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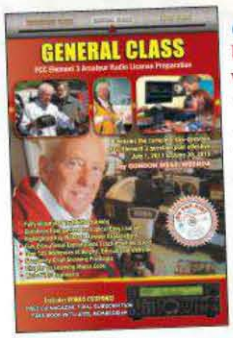

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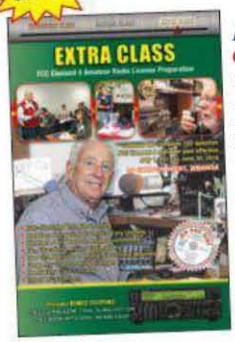

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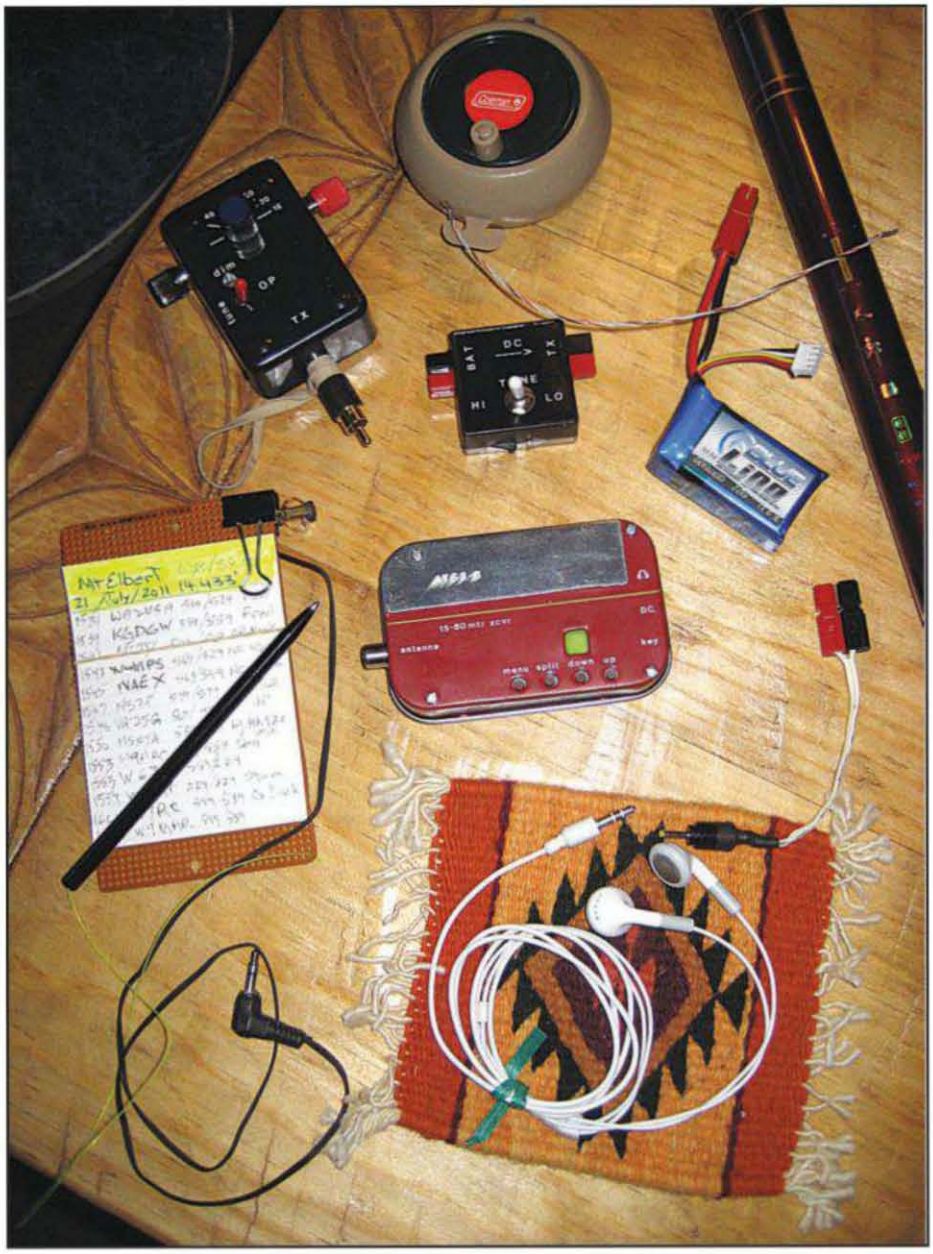

Here's Fred's mountaintop HF station. See text for details.

bles. Around a boulder-made corner, hand over fist, and there, another shelf, now 13,800 feet.

Below are several lakes. Oddly, one is bright green, two others sky blue. It's nearly nine AM and the fog below is thinning and disappearing rapidly. For those people down there, the peak must be coming into view. I stop long enough to put on the 3-ounce windbreaker. That helps. It is cold up here, and the wind is perhaps 40 mph, but the sun is bright. I hasten on, not running really, but my steady long strides erase the remaining distance to the top.

Breathing purposefully deeply, and charging up the hill, I pass still other climbers. Now the altimeter says 14,200 feet. Getting close. Finish strong. Not so steep, I break into a run again for the first time in quite some time, and chug onto the top where I find at least a dozen people, very early starters, already there.

"What time did you start?" I ask.

"3 AM," one couple answers. If there's a way, there's a will. I look at them with even more respect. I socialize with other hikers while setting up; they are curious, and Ianswer their questions and also try to take in the expansive view. I never tire of hundred-mile vistas filled with craggy peaks still decorated with snow even in July! Small lakes in the glaciated valleys are like jewels. I recognize other nearby fourteeners—Mt. Massive to the north, La Plata, Mt. Harvard, Mt. Columbia to the south. Once I saw white mountain goats on Mt. Harvard. I need to do that mountain again, but with a SOTA radio!

My end-fed halfwave (EFHW) antenna is made using 24-gauge Teflon® wire and lofted on the extended fishing pole. The base of the pole is wedged between big rocks, and the top is pulled to one side by the wire, which is then tied off to a boulder. It proves very stable even in the 40-mph winds. The tuner and radio are mounted on the pole near the base using rubber bands. Headphones, paddle, and battery are plugged in. I am set up and on the air in about ten minutes.

It wasn't necessary to even call CQ. I had posted an alert on the SOTA website, and waiting "chasers" hear me tune up, even at 1 watt. Nice spot for an antenna! I identify with my callsign once, WSØTA, the club call that is only used when activating a peak, and the frequency erupts with loud signals calling me! It is as if I am rare DX, and in a way, I am even more rare.

On the Air at 14,000 Feet

First in the log is Dennis, WA2USA, in Indiana, a regular chaser and activator. He is quickly followed by Fred, K6DGW, an activation reporter for NASOTA who is affectionately known as "SOTA Pop." I even manage a ground-wave QSO with Steve, WGØAT, who, with his pack goats, is camping in another area of Colorado. Dozens of stations are logged from all over the country.

Then I work the first of several European chasers to make it into the log. Summits On the Air has been a popular activity in Europe since hams in the UK started it in 2002. They have an elaborate website where data on all qualified summits can be accessed. "Activators" can post "alerts" to notify "chasers" of their intention to be on a peak. "Chasers" can post spots when they work an activator, which often leads to a genuine pile-up!

Respecting the Weather

After an hour of great radio fun, I notice the weather showing signs of change. I glance about and see small but growing puffy white clouds which are already developing black undersides. Other hikers smile, leaning back on their well-filled packs, unconcerned. I am quickly nervous, standing there in my nylon running shorts and thin windbreaker. Time to vamoose. Time for the trail runner to use his legs to get out of harm's way. You must know your limitations and take advantage of your strengths.

In just a few minutes the antenna is down and wound up and the rig is stored in waterproof plastic bags. I retighten shoe laces. With a last wave to the other hikers, still enjoying the view, I turn and disappear over the edge.

Descent for me is like a controlled fall. With short quick steps I gather speed and drop. In just minutes skiing down on the rolling gravel I have erased a thousand feet. After 30 minutes I am approaching tree line and glance over my shoulder to see huge billowing clouds forming rapidly over the peak. My quads are burning,and I slow down, as I am now back into the forest where there are other taller targets for lightning to choose.

An hour into the descent, and deep in the tall forest now, a thunder clap awakens me to full alert. It has grown ominously dark, and I pick up the pace again, still more than 800 feet of elevation over the trailhead. The rain begins gently, and I accelerate more as the trail steepens. Soon it is an outright downpour, but I am close now. Another 10 minutes and I burst out of the forest at a dead run and all but slam into the side of my little camper. Key, open, jump inside.

I exchange wet clothes for dry and set about making lunch. It rains for over an hour, and then the sun returns. I watch drenched hikers begin to trickle back to the trailhead, having started down much too late to escape a wet kiss from the mountain.

It's only one o'clock and already it's been a full day. Hmmm. Maybe time for a swim in Turquoise Lake?

Is There a SOTA in Your Future?

There is a place for everyone to participate in the Summits On The Air program. Activators use almost all bands and modes from 160 meters to 70 cm. All classes of license qualify to chase and activate. SOTA has become very popular in Europe and is quickly catching on in North America. You can find all the rules on the home page of the SOTA website, <http://www.sota.org.uk/>. You can find (or post your own) "Alerts" for upcoming "activations" here: <http://www.sotawatch.org/alerts.php>. Spots for activations in progress can be found here:<http://www.sotawatch.org/spot.php>. Somebody is activating a peak somewhere essentially every day of the year. When you run short of countries to chase, chase a peak!

Any hill with 500 feet of prominence can qualify as a summit. You can find peaks near you, if your area has been cataloged, by entering your GPS coordinates and an allowable distance from that center, at: <http://www.sotawatch.org/summits.php>.

An activation may be as simple as driving up a qualifying hill, getting out, walking the last bit, and using a VHF handheld radio to work startling distances. An activation may be the goal of a holiday vacation to an exotic area and days of backpacking using a station carefully developed after many previous trials.

You can be inventive about your SOTA activation! Steve, WGØAT, is famous for using his pack goats to haul his equipment up some very remote peaks. [*WATCH:* WGØAT Pike's Peak SOTA activation at: <http://youtu.be/2l4kTAvle_M>; Eagle Cap SOTA activationis available for viewing at: <http://youtu.be/9ZviwmrTSRw> (KT5X appears in this video at 10:56)] W6HFP uses his pack horse named Surprise! One never knows what astonishing surprise he has packed aboard. N6AZ likes to ski in and winter camp when doing his SOTA activations!

You are participating just as well when sitting at your cozy station at home, "chasing" the activations. You can share in the adventure and excitement on the little-visited peaks in warm and dry comfort. There are awards given (see the SOTA website) for working chasers, collecting "unique" peaks, as well as mountain-goat awards for activations.

Many ham radio manufacturers produce small, light radios. Most radios suitable for mobile use are also suitable for SOTA. The activity is a natural for QRP power levels, and for homebrew or kit gear as well. Batteries are getting smaller and lighter. The antenna can be complex, but from a peak, a simple wire in a tree or supported by a fishing pole may do fine. Many activations are HF SSB, or VHF FM, but QRP CW is very popular, too.

Next time I am out on a peak, I hope you will be calling me. If you get out on a peak yourself, post an "alert!" Many "chasers," including me if I'm not out on a mountain, will be looking for you!

Note

1. "Fourteeners" is the name given to the 53 mountain peaks in Colorado that rise more than 14,000 feet above sea level and meet other criteria.

Results of the 2011 CQ DX Marathon

BY JOHN SWEENEY,* K9EL/VA3CDX

W8QZA, the 2010 Formula Class winner for 10 watts or less, showing his winning certificate.

IKØOZD, 2011 Unlimited Class winner, shown in his impressive shack.

Was it the announcement of additional plaques? The great propagation in the latter half of the year? Maybe both! Overall participation in the DX Marathon increased dramatically in 2011. Although the maximum possible score increased by only 2 points (333 vs 331) over last year, over 20% of the 2011 Marathon participants scored 300 points or more—a whopping 250% more than 2010! Needless to say, competition at the top of most categories was very fierce. Adding to the competition was the activation of a few countries that only lasted a few hours; if you missed them, you missed critical points in 2011.

Submissions were up by over 20%, with a significant increase in those chasing single-band or single-mode awards. With the expansion of the number of plaques from 2 to 19 in 2011, there will be more Marathon participants hanging a beautiful award on their shack walls. Once again the majority of the logs (75%) were Unlimited Class. Although 60% of the logs came from the USA and Brazil, submissions from Canada, Australia, Italy, Germany, Japan, and Chile were up significantly.

And the Winners Are....

After two years of the Unlimited Class winner coming from North America, we are very pleased to announce that Antonio "Tony" d'Arpino, IKØOZD, won this year's competition with a score of 327, working 287 countries and all 40 zones. Congratulations, Tony! Following closely behind were OM3EY, NYØV, and GØBLB with scores of 325, 324, and 322, respectively. Competition in Formula Class was even closer with Tom Colyard, K4MM, claiming the Formula Class Plaque with a total score of 284—30 points higher than last year's Formula Class winner! Right behind Tom were UT9FJ, DL4CW (last year's winner), and N5UD with scores of 284, 280, and 280, respectively. Since K4MM and UT9FJ had the same score, we used the DX Marathon tie-breaker rule, which looks at the earliest date for the last country worked. K4MM's last entry was December 29th, while UT9FJ's last entry was December 31st. Congratulations to all of our Formula Class participants.

DX MARATHON PLAQUE SPONSORS

We wish to thank the sponsors of the DX Marathon plaques as your support is critical to the success of the DX Marathon program. There are additional openings for plaque sponsors, so please contact the DX Marathon administrator if you are interested in sponsoring a plaque.

Current plaques and sponsors:
Top Unlimited Class Score – Northern Illinois DX Association
Top Formula Class Score - Northern Illinois DX Association
Top CW only score – Bencher, Inc.
Top SSB only score - Collins Amateur Radio Club in Memory of Art Collins, W0CXX
Top Digital only score – Carroll D Jensen Memorial K6CDJ
Top Single band scores (10-80) – Plaque sponsor wishes to remain anonymous
Top Continental scores - Plaque sponsor wishes to remain anonymous

*Program Manager, CQ DX Marathon
e-mail: <K9el@dxmarathon.com>

TOP SCORES

Note: Callsign is followed by final score. Boldface = plaque winner. * = certificate winner.

Unlimited Class

IKØOZD	**327**
OM3EY	325
NY0V	324
G0BLB	322
EA1DR	321
PY2ADR	321

Formula Class - 100w

K4MM	**284**
UT9FJ	280
DL4CW	280
N5UD	272
E77O	264

Formula Class - 10w

PY4ZO	**273**
WG5G	267
W8QZA	259
IV3AOL	245
ND0C	245

CW

W1JR	**306**
W1RM	304
W4VQ	303
OH6MW	297
F5IN	296

Phone

PP5EG	**311**
K3BZ	300
MØTTB	300
W8BBQ	295
N3CDA	288

Digital

IK5FKF	**266**
IK5PWQ	252
K7CMR	230
G3LZQ	228
R6YY	220

Africa

V51YJ	**237**
J28RO	134
7P8PB	118
ZS1D	67

Asia

JH2UVL	**320**
A65CA	319
JAØFVU	312
JAØDAI	308
YB1AR	291

Europe

IKØOZD	327
OM3EY	325
GØBLB	322
EA1DR	321
IWØHOU	320

North America

NYØV	**324**
NØFW	320
W4QN	320
AA6YQ	317
N4BAA	317

Oceania

VK4CC	**303**
VK3HJ	301
ZL2IFB	297
VK2MWG	267
VK3FM	259

South America

PY2ADR	**321**
PP5EG	311
PY4OG	307
PP1CZ	303
PY4OY	300

6 Meters

*9A5CW	117
VE2PIJ	6

10 Meters

F4FDA	**270**
PU2LEP	252
K3NK	233
PU1TMT	204
UA3VVB	202

12 Meters

N4MM	**239**
N4DW	184

15 Meters

W9KVR	**176**

17 Meters

K7MTR	**269**
LY5M	266

20 Meters

SMØMPV	**267**
KØARY	176
YO9CWY	147
DK8JB	72

30 Meters

W9KNI	**286**
SP3BGD	262

40 Meters

N8MZ	**275**
VE3UTT	192
CE3EEA	173
DL2CC	154
SP5JXK	148

80 Meters

No Entrants

160 Meters

*N4IS	192
K7ZV	140
K4IQJ	130

With the expansion of the number of DX Marathon plaques, we are pleased to announce that the CW plaque was won by Joe Reisert, W1JR, with a score of 306; the Phone plaque was won by Oms, PP5EG, with a score of 311; and the Digital plaque was won by Piero Giorgi, IK5FKF, with a score of 266. Additional plaque winners for individual band submissions and the Continental Plaque winners are listed in the Top Scores chart elsewhere in this article. We had quite a few 10-meter-only submissions this year, with some very impressive scores. Welcome back, sunspots! As always, we sincerely appreciate the tremendous support of all of our plaque sponsors.

Certificates will once again be given to the top scorer in each country and zone, plus the 6- and 160-meter top scorers, for those who did not already qualify as a plaque winner. If you or someone you know would like to become a DX Marathon plaque sponsor, please contact me directly.

Many stations lost points due to simple callsign errors, whether by logging incorrect DX spots or simple typing errors. The call FH/W6IZT was found in many logs, but W6IZT was actually operating from FS. Other examples of errors were: S77REX, which was actually H77REX; HN7M, which was 5N7M; and FW/F8DVD, which was JW/F8DVD. However, the biggest mistake made by many stations was claiming ZL50VK to be in Antarctica or other islands and a variety of CQ zones, but the station was actually located in New Zealand. CE9/VE3LYC and CE9/PA3EXX also were a problem for many,

ZONE CERTIFICATE WINNERS

Callsign	Countries	Zones	Score
N6ML	276	39	315
W4QN	280	40	320
VK8PDX	186	40	226

Note: Top scorers in other zones received Plaques or Top Country Certificates. Complete listing of all Zone Leaders is available on the CQ website.

DX MARATHON AWARDS

Plaques will be awarded as follows:

- Highest overall score in Unlimited Class
- Highest overall score in Formula Class
- Highest overall CW only score.
- Highest overall SSB only score.
- Highest overall Digital only score.
- Highest overall score for each of the 6 Continents.
- Highest overall score for single band entries (10-80).

Plaques for the CW, SSB, Continent, and Band winners will be awarded if the winning scores in those categories are at least 50% of the score of the overall DX Marathon Unlimited Class winner. Entrants may receive one plaque per year. In the case of a participant qualifying for more than one plaque, that participant will receive a plaque for the highest level based on the above order.

Certificates will be awarded as follows:

- Highest overall Country score.
- Highest overall Zone score.
- Highest overall score in the Formula Class 10 watts or less option.
- Highest overall score for single band entries (6, 160).

Plaque winners are not eligible for certificates. Only certificate will be awarded per entrant. In the case of a participant qualifying for more than one certificate, that participant will receive a certificate for the highest level based on the above order.

StepplR Antenna Selection Guide

Antenna Specification Sheet

Item	Dipole 20m-6m	2 element Yagi	3 element Yagi	4 element Yagi	DB11 Yagi	DB18 Yagi	DB18E Yagi	DB36 Yagi	DB42 Yagi MonstIR PRO	40m - 30m Dipole Option	BigIR III Vertical	Small IR Vertical
Weight	15 lb 6.80 kg	30 lb 13.6 kg	51 lb 23.1 kg	99 lb 45.0 kg	63 lb 28.57 kg	96 lb 43.5 kg	110 lb 50 kg	160 lb 72.8 kg	238 lb 108 kg	15 lb 6.80kg	15 lb 6.8 kg	12 lb 5.4 kg
Max. Wind Surface Area	1.9 sq ft 0.17 sq m	4.0 sq ft 0.37 sq m	6.1 sq ft 0.57 sq m	9.7 sq ft 0.90 sq m	5.9 sq ft 0.54 sq m	10.1 sq ft 0.93 sq m	12.1 sq f 1.12 sq m	17.5 sq ft 1.63 sq m	19.9 sq ft 1.85 sq m	2.0 sq ft 0.19 sq m	1.9 sq ft 0.17 sq m	1.0 sq ft 0.9 sq m
Wind Rating	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	100 MPH 160 KPH	50-MPH *100MPH w/2 guys	100 MPH 160 KPH
Longest Element	36 ft 10.97 m	36 ft 10.97 m	36 ft 10.97 m	36 ft 10.97 m	19 ft 5.79 m	39 ft 11.9m	39 ft 11.9 m	49 ft 14.9 m	49 ft 14.9 m	39 ft 11.9 m	33 ft 10.05 m	18 ft 5.49 m
Power Rating	3000 Watts	3000 Watts	3000 Watts	3000 Watts	3000 Watts	3000 Watts	3000 Watts	3000 Watts *1500 w w/80m opt.	3000 Watts *1500 w w/80m opt.	3000 Watts	3000 Watts	3000 Watts
Boom Length	—	57 in 1.44 m	16 ft 4.87 m	32 ft 9.75 m	11 ft 3.35 m	19 ft 5.79m	19 ft 5.79 m	36 ft	42 ft 8 in 13.0 m	—	—	—
Boom Diameter	—	1.75 in 4.45 cm	1.75 in 4.45 cm	1.75—2.50 in 4.45—6.35cm	1.75 in 4.45 cm	1.75—2.0 in 4.45—5.08cm	1.75—2.0 in 4.45—5.08cm	1.75– 2.5 in 4.45—6.35cm	1.75 - 3 in 4.45—7.62cm	—	—	—
Mast Diameter	2.0 in 4.45 cm	2.0 in 5.08 cm	2.0 in 5.08 cm	2.0 in 5.08 cm	1.75 - 3 in 4.4-7.6 cm	1.75 - 3 in 4.4-7.6 cm	1.75 - 3 in 4.4-7.6 cm	1.75 - 3 in 4.4-7.6 cm	1.75 - 3 in 4.4-7.6 cm	—	1.5 in 3.81 cm	1.5 in / 3.81 cm
Frequency Coverage	13.8—54.0 MHz	13.8—54.0 MHz *40/30 opt. avail.	13.8—54.0 MHz *40/30 opt. avail.	13.8—54.0 MHz *40/30 opt. avail.	13.9—54.0 MHz	6.8—54.0 MHz (2E on 30m)	6.8—54.0 MHz (3E on 30m)	6.8—54.0 MHz *80m opt. available	6.8—54.0 MHz *80m opt. available	6.8—13.8 MHz	6.8—54.0 MHz *80m coil opt. avail. (1500w)	13.8—54.0 MHz *80/40/30 & 40/30 coils avail
Turning Radius	18 ft 5.48 m	18.15 ft 5.53 m	19.7 ft 6.0 m	24.1 ft 7.35 m	10.5 ft 3.20m	21.58 ft 6.57 m	21.58 ft 6.57 m	26 ft 8.0 m	29 ft 8.8 m	NA Option for 2, 3, & 4E Yagi	—	—
Cable Requirements (shielded)	4 Wire 22 AWG	12 Wire 22 AWG	12 Wire 22 AWG	16 Wire 22 AWG	16 Wire 22 AWG	16 Wire 22 AWG	16 Wire 22 AWG	*16 Wire 22 AWG	24 Wire 22 AWG	—	4 Wire 22 AWG	4 Wire 22 AWG
Balun Included?	No (optional)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No (optional)	No (optional)

StepplR has Auto-Tune Yagi, Dipole, and Vertical Antennas to fit any lot size and any budget.

Come to our web site www.StepplR.com for support information, or to order antennas, parts, and accessories directly from StepplR!

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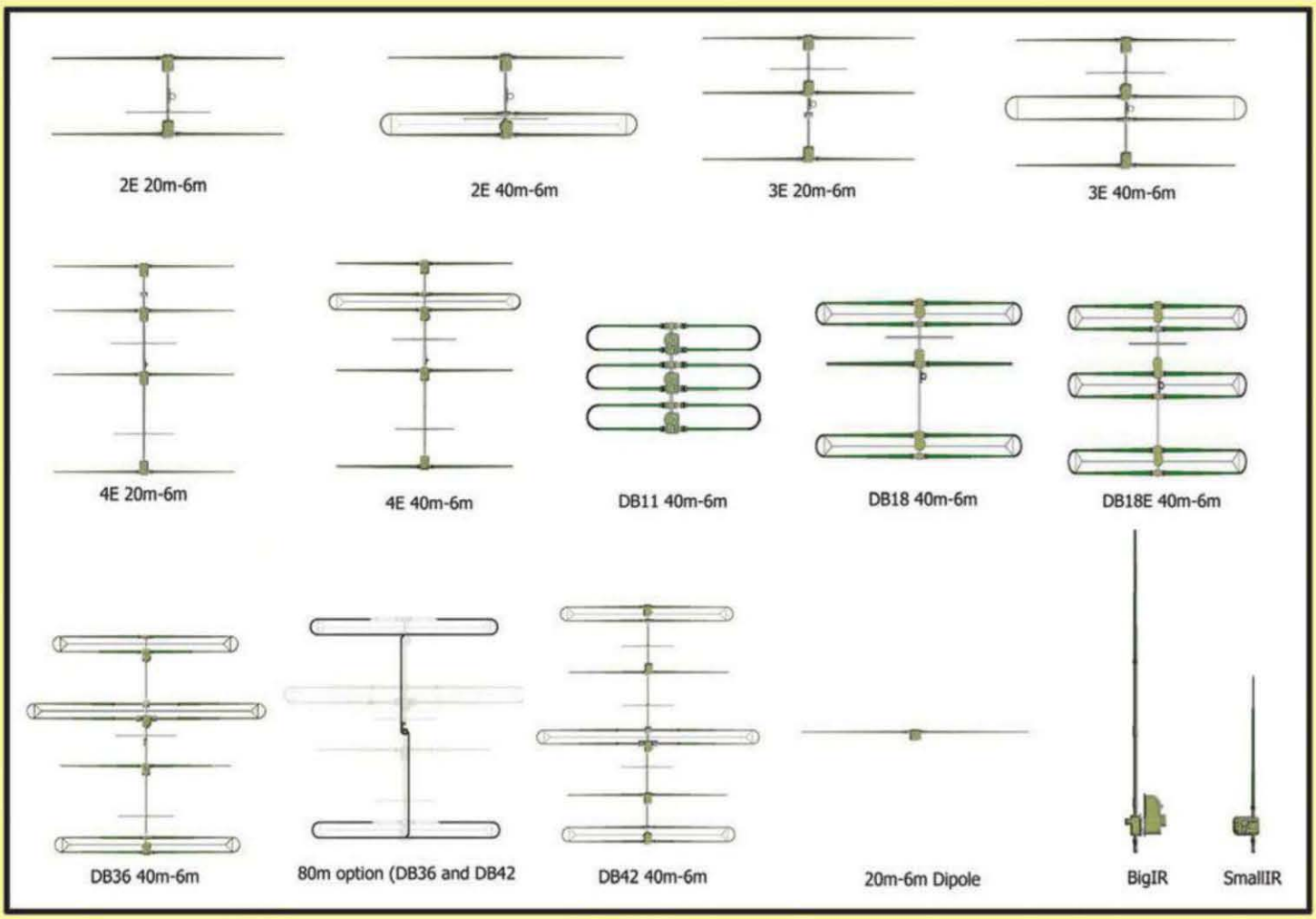

Come see us in the Main Arena in Dayton, and be sure to check our web site often for late-breaking announcements.

2112 116 Ave NE #1-5, Bellevue, WA 98004
Tel: 425.453.1910 sales@steppir.com

SteppIR

Shack of EA1DR, who submitted the top score in Spain in 2011 and tied for 4th place in Unlimited Class.

being logged incorrectly as one of the Antarctic island groups, but the duo was actually in Chile.

Of course, pirates are always a problem and 2011 was no different. As soon as we become aware of pirates and other callsign issues, we publish them on the DX Marathon website. (www.dxmarathon.com). We invite you to use this valuable resource.

In 2011 many entrants lost points due to the complex changes in the Russian callsign system. Be sure to update your logging programs often. We suggest that all participants carefully submit callsigns for zones 2, 3, 4, and 5, as well as carefully check those prefixes that are used for multiple countries—such as E5, FO, 3D2, TA, VK9, and others.

And finally, don't forget that the CQ countries list includes additional valid countries that are not part of the ARRL DXCC program. Since most logging programs use the ARRL list, don't forget to work TA1 (European Turkey), IT (Sicily), IG9/IH9 (African Italy), and others. For complete details, please go to <www.dxmarathon.com>.

73, John, K9EL/VA3CDX

COUNTRY CERTIFICATE WINNERS

Callsign	Countries	Zones	Score
XV4Y	148	37	185
7P8PB	89	29	118
9A2EU	260	40	300
A65CA	279	40	319
BV1EK	146	39	185
BA7IO	251	38	289
CE2WZ	168	37	205
CT1AHU	119	31	150
CU3EJ	104	29	133
DL5AN	272	40	312
DV1/JO7KMB	163	40	203
E77O	232	40	272
EA1DR	282	39	321
EI7CC	239	40	279
F5CQ	267	40	307
FG4NO	205	36	241
GØBLB	282	40	322
GI4SJQ	147	36	183
GMØOAA	139	32	171
GUØSUP	162	39	201
GW4EVX	99	25	124
HA1ZH	261	40	301
HB9DDZ	156	40	196
HC6EP	73	26	99
7Z1HL	202	38	240
J28RO	103	31	134
KH2/N2NL	264	39	303
NP4IW	204	39	243
LA9DFA	238	40	278
LU3JVO	154	39	193
LY3W	262	38	300
OH2BEN	266	40	306
OK2SG	275	36	311
OM3EY	285	40	325
ON4ON	270	40	310
OZ7YY	270	40	310
PAØMIR	197	37	234
S51DX	252	40	292
SM5DJZ	261	40	301
SP6T	268	38	306
SV1DPI	262	40	302
SV9COL	234	40	274
TA1DX	152	36	188
UA9FAR	266	39	305
RA9OO	161	38	199
US7MM	273	40	313
V31AO	127	38	165
VE1DX	277	40	317
VP8NO	256	40	296
VU2PTT	208	39	247
YB1AR	253	38	291
YI1RZ	136	38	174
YO4AAC	164	37	201
YO9CWY	116	31	147
YV6BXN	108	25	133
ZL2IFB	258	39	297
ZL3DW	88	29	117
ZS1D	44	23	67

Note: Top scorers in some countries received plaques. Complete listing of all country leaders is available on the CQ website.

Results 2011 CQ DX Marathon

UNLIMITED CLASS

Callsign	Countries	Zones	Score
IKØOZD	287	40	327
OM3EY	285	40	325
NY0V	284	40	324
GØBLB	282	40	322
EA1DR	282	39	321
PY2ADR	282	39	321
IWØHOU	280	40	320
JH2UVL	280	40	320
N0FW	282	38	320
W4QN	280	40	320
A65CA	279	40	319
EA4KD	278	40	318
AA6YQ	277	40	317
IZ2AMW	278	39	317
N4BAA	277	40	317
VE1DX	277	40	317
W2QO	277	40	317
N5ZM	276	40	316
W3ACO	276	40	316
K3KO	275	40	315
N6ML	276	39	315
K5EK	274	40	314
W4VIC	275	39	314
K4UTE	274	39	313
K9CT	274	39	313
US7MM	273	40	313
WT8C	273	40	313
DL5AN	272	40	312
G4PTJ	272	40	312
JAØFVU	272	40	312
N8RR	273	39	312
VE3KKB	272	40	312
K8OM	271	40	311
OK2SG	275	36	311
PP5EG	271	40	311
W2IRT	271	40	311
G3VKW	271	39	310
KØJGH	271	39	310
K9NB	270	40	310
N8BR	270	40	310
NU8Z	270	40	310
ON4ON	270	40	310
OZ7YY	270	40	310
W6RLL	270	40	310
JAØDAI	268	40	308
W4DXX	268	40	308
DJ9ZB	269	38	307
F5CQ	267	40	307
F6IGS	268	39	307
PY4OG	270	37	307
VE3CRG	267	40	307
OH2BEN	266	40	306
SP6T	268	38	306
W1JR	266	40	306
UA9FAR	266	39	305
W3OA	265	40	305
K6FW	264	40	304
K9NU	264	40	304
N4ZC	266	38	304
W1RM	264	40	304
W3GQ	264	40	304
WA4DT	264	40	304
WX6V	264	40	304
KH2/N2NL	264	39	303
PP1CZ	263	40	303
UX1UA	263	40	303
VK4CC	266	37	303
W4VQ	263	40	303
N6AR	263	39	302
SV1DPI	262	40	302
HA1ZH	261	40	301
K0XB	261	40	301
K6YK	261	40	301
SM5DJZ	261	40	301
VE2BR	263	38	301
VK3HJ	261	40	301
9A2EU	260	40	300
K3BZ	260	40	300
K3XC	260	40	300
K6TA	260	40	300
K6XT	260	40	300
LY3W	262	38	300
LY9Y	260	40	300
M0TTB	261	39	300
PY4OY	260	40	300
K1ESE	258	40	298
K1QS	258	40	298
K2TQC	258	40	298
W6XK	258	40	298
WA5VGI	258	40	298
OH6MW	257	40	297
W4HG	258	39	297
ZL2IFB	258	39	297
F5IN	258	38	296
NØRB	257	39	296
OZ8BZ	256	40	296
VE3ZZ	256	40	296
VP8NO	256	40	296
G5LP	256	39	295
WØEWM	255	40	295
W8BBQ	255	40	295
K2UF	255	39	294
SQ1EIX	254	40	294
W1SKU	256	38	294
IK2DJV	253	40	293
K3WA	255	38	293
S51DX	252	40	292
W6AEA	251	40	291
YB1AR	253	38	291
NØKE	250	40	290
PY2WC	250	40	290
WØVX	250	40	290
W8AV	250	40	290
BA7IO	251	38	289
K7GS	249	40	289
K8SM	251	38	289
N4QS	249	40	289
W4CU	249	40	289
W9OA	249	40	289
F5VHY	248	40	288
K5WAF	248	40	288
N3CDA	248	40	288
PP5BS	249	39	288
W8DX	248	40	288
WD9DZV	251	37	288
PY4HO	247	40	287
W9KNI	246	40	286
N6QQ	245	40	285
PY2TIM	245	40	285
N4PQX	244	40	284
N5KM	244	40	284
WS1L	244	40	284
K1SND	243	40	283
PY3YD	243	40	283
W1EBI	243	40	283
G3TXF	241	40	281
K3TN	242	39	281
K8AJS	241	40	281
KA2D	241	40	281
N4NW	242	39	281
WB4YDL	242	39	281
KØAFN	240	40	280
K3LB	241	39	280
EI7CC	239	40	279
K5VIP	239	40	279
LA9DFA	238	40	278
VE3EK	238	40	278
KF7E	237	40	277
NQ7R	237	40	277
PY2NZ	237	40	277
W2LK	237	40	277
PY1SX	236	40	276
KZ2I	236	39	275
N8MZ	235	40	275
OH5RF	236	39	275
KF4BI	238	36	274
SV9COL	234	40	274
LA8AW	233	40	273
PT7ZT	233	40	273
ON5SY	232	40	272
W9OA/9	232	40	272
F4FDA	230	40	270
K0FX	230	40	270
SM2CEW	230	40	270
IW7DOL	235	34	269
K7MTR	229	40	269

Antenna system of PY4ZO, 2011 certificate winner for 10 watts or less option, Formula Class.

YI1RZ, most active ham in Iraq and DX Marathon participant.

HAØHW	229	39	268
K9DDO/4	229	39	268
W9OP	229	39	268
WA4JQS	229	39	268
PY5KD	227	40	267
SMØMPV	227	40	267
VK2MWG	229	38	267
W9HBH	229	38	267
IK5FKF	226	40	266
LY5M	226	40	266
N4MJ	227	38	265
PY6HD	227	38	265
VE7IG	225	40	265
A65BD	225	39	264
WI4T	227	37	264
WB9IWN	224	38	262
KTØNY	222	37	259
VK3FM	219	40	259
K1KP	218	40	258
N2YBB	219	39	258
W1AJT	218	40	258
WØRIC	219	38	257
IZ3DBA	217	39	256
K7ACZ	216	40	256
PY1NX	216	39	255
NF7E	215	39	254
W9MJ	214	40	254
K1MIJ	214	39	253
K8YC	213	40	253
IK5PWQ	213	39	252
PU2LEP	213	39	252
G3KMQ	212	39	251
PY1NB	211	39	250
W4OX	210	40	250
K5DHY	212	37	249
VK3FZ	210	39	249
PY5IP	208	40	248
N3TD	207	40	247
NKØS	209	38	247
SM2LKW	208	39	247
VU2PTT	208	39	247
F6GPT	205	40	245
K2SX	206	39	245
N9LAH	205	40	245
W9ILY	206	39	245
PY6KY	204	40	244
WA9MAG	205	39	244
NP4IW	204	39	243
W7YS	203	40	243
AE5X	204	37	241
F1UJS	204	37	241
7Z1HL	202	38	240
RX3VF	201	39	240
LA2LI	200	39	239
N4MM	201	38	239
W4MJW	202	37	239
JN3SAC	202	36	238
N8AGU	197	40	237
V51YJ	197	40	237
W5GWH	197	39	236
9A1AA	196	39	235
W5VX	197	38	235
DL1OLI	195	39	234
PAØMIR	197	37	234
WM3O	194	40	234
K3NK	196	37	233
K4XU	193	39	232
F8AAN	196	35	231
K7CMR	190	40	230
N3RC	193	37	230
OZ4FF	193	37	230
KB8KE	191	38	229
G3LZQ	188	40	228
WP3GW	193	35	228
PY2SE	189	38	227
PY3OZ	187	40	227
W2YE	188	39	227
NC4MI	190	36	226
VK8PDX	186	40	226
PY1ZV	182	40	222
VK3TDX	183	38	221
R6YY	181	39	220
N7WO	178	40	218
KD4QMY	182	35	217
N7MQ	178	39	217
PY2PT	178	38	216
PY2ZEA	180	36	216
VK6HG	178	38	216
AB1OD	175	38	213
NB3R	175	38	213
PY1ON	173	38	211
PY5CA	170	39	209
N5PG	169	39	208
CE2WZ	168	37	205
PY3OPP	169	36	205
PU1TMT	166	38	204
DV1/JO7KMB	163	40	203
LA3ZA	167	35	202
PY2SHF	166	36	202
UA3VVB	163	39	202
GUØSUP	162	39	201
VK4EI	166	34	200
RA9OO	161	38	199
PU5AAD	160	36	196
NE5S	155	38	193
N4IS	155	37	192
VE3UTT	156	36	192
CE3PG	154	35	189
AC7GP	151	37	188
KJ4QDZ	155	33	188
VA7ZT	151	36	187
AE9DX	151	35	186
LA1ONA	148	38	186
BV1EK	146	39	185
N4DW	146	38	184
N7QU	145	39	184
VA7ST	152	32	184
WA7PVE	148	36	184
DU1GM	147	36	183
GI4SJQ	147	36	183
SV2FLQ	148	34	182
VK4GH	150	31	181
PY2EL	142	36	178
KT7G	143	34	177
KØARY	140	36	176
PY2CX	140	36	176
PU2RSD	140	34	174
CE3EEA	137	36	173
PP5TR	141	30	171
NTØF	133	34	167
NI3P	133	33	166
PY5WD	129	36	165
V31AO	127	38	165
W8AEF	129	36	165
DU1IVT	122	38	160
NIØC	125	35	160
AJ4FM	123	35	158
PY3KN	121	37	158
DL2CC	122	32	154
CT1AHU	119	31	150

K4IE	120	30	150
NØHF	114	35	149
PY1TR	113	33	146
K7ZV	105	35	140
W9VA	108	31	139
NN6NN	103	35	138
KG5VK	105	32	137
CA3OEV	108	28	136
W6DR	105	31	136
WB9TFH	103	32	135
PY4FQ	109	25	134
CU3EJ	104	29	133
PY5AKW	101	32	133
K4IQJ	100	30	130
JA3EOP	89	37	126
7P8PB	89	29	118
9A5CW	99	18	117
XQ7UP	83	34	117
ZL3DW	88	29	117
CE3TKV	93	16	109
PY1CMT	81	24	105
HC6EP	73	26	99
PU2KXM	62	27	89
CE3NQV	60	26	86
PP5NZ	51	25	76
PP5RZ	53	22	75
ZS1D	44	23	67
SV2OEL	42	14	56
PY5BLG	28	23	51
VE2PIJ	3	3	6

FORMULA CLASS - 100w OPTION

K4MM	244	40	284
UT9FJ	244	40	284
DL4CW	240	40	280
N5UD	240	40	280
E77O	232	40	272
K8CQ	226	38	264
K3STX	223	40	263
AD1C	223	39	262
SP3BGD	223	39	262
SV8PKI	220	40	260
JA1IRH	217	40	257
N4RI	221	35	256
SV8PKJ	216	39	255
W3ZL	216	38	254
LY3BY	209	40	249
SV1IXK	211	38	249
N1AM	210	38	248
PP2RON	208	39	247
AF7S	204	40	244
G4MUL	206	37	243
K6TTT	204	39	243
OK1BA	205	38	243
FG4NO	205	36	241
KD5JWC	200	35	235
PY4XX	194	38	232
LA5LJA	192	39	231
OP4A	192	39	231
I7PXV	192	37	229
W4KVS	191	37	228
AA4FU	188	37	225
SV4FFL	189	35	224
F5LMJ	184	39	223
W4NZC	183	37	220
N9ID	179	40	219
AA5JG	180	37	217
EA5ON	178	39	217
NØCKC	180	36	216
PY4EK	178	38	216
KA9MOM	174	38	212
NU4I	177	35	212
JA6FGC	169	40	209
K6LE	173	36	209
DH5MM	166	40	206
JA7OXR	165	39	204
WA2VQV	168	36	204
WK5X	169	35	204
DK4WO	165	38	203
OK1BLU	168	34	202
OZ4CG	162	39	201
YO4AAC	164	37	201
DF9DD	161	36	197
KFØIQ	160	37	197
HB9DDZ	156	40	196
LU3JVO	154	39	193
PY4LH	157	35	192
DB3KE	153	38	191
NW3H	160	31	191
W4WNT	158	31	189
TA1DX	152	36	188
GØWOU	156	31	187
XV4Y	148	37	185
W9KVR	141	35	176
PR7HR	139	36	175
PU1MMZ	138	37	175
W6HYK	138	37	175
AA7DK	142	32	174
YI1RZ	136	38	174
KE4PT	141	31	172
GMØOAA	139	32	171
N4NQ	134	29	163
PR7AB	126	37	163
ON7BS	127	35	162
WBOLJK	130	31	161
WB4OMM	126	34	160
K9IA	127	30	157
PG1R	129	28	157
KJ8O	122	31	153
OO9O	122	30	152
KJ4VTH	125	26	151
SP5JXK	118	30	148
YO9CWY	116	31	147
K4WSW	118	28	146
N7GVV	113	32	145
VK4BL	112	33	145
IZØRVC	115	25	140
W7KAM	111	29	140
W6GMT	109	30	139
J28RO	103	31	134
KA9JAC	103	30	133
YV6BXN	108	25	133
BD1MWH	96	30	126
GW4EVX	99	25	124
NE2C	91	26	117
VE3FCT	90	25	115
K2KJ	81	25	106
VE3MCF	79	27	106
PU1MKZ	79	26	105
VK3ZPF	81	24	105
G6OKU	82	20	102
DU7/KDØJJO	67	31	98
CE3OPE	60	28	88
VA3RNJ	66	22	88
VE4KZ	64	23	87
PY2IML	59	23	82
DK8JB	58	14	72
W2UIS	49	13	62
MW8T	47	11	58
PY5ZBU	35	14	49
W7JSD	8	8	16

FORMULA CLASS - 10w OPTION

PY4ZO	233	40	273
WG5G	227	40	267
W8QZA	219	40	259
IV3AOL	209	36	245
NDØC	206	39	245
F8AFC	198	40	238
K8ZT	188	38	226
G3LHJ	184	39	223
K8NWD	184	39	223
N3CU	179	36	215
IZ8JFL	152	38	190
ON2AD	134	34	168
NJ3I	108	26	134
N7RN	72	30	102

If you'd like to operate PSK-31 from a portable location but don't want the added weight of bringing along a computer and extra battery, W6DTW has a way to connect a keyboard directly to certain rigs that generate and decode PSK-31 on their own.

PSK Without a PC!

BY DAVID WITKOWSKI,* W6DTW

During the last morning of Field Day 2011, we were sitting at breakfast, tuning around for some last-minute contacts. It was looking like the day would be a hot one, and we were busy trying to pretend that the task of breaking camp and loading the cars in the heat wasn't really just a couple of hours away.

Wayne Burdick, N6KR, of Elecraft, has been a regular member of our Field Day crew for several years. This time he brought an early prototype of the new KX3 to test out in real-world conditions (see photo A).

Someone finally addressed the elephant in the living room and noted how our club's planning and setup process for Field Day (which should—at least in theory—be an exercise in prepared-

*1525 Altamont Ave., San Jose, CA 95125
e-mail: <w6dtw@arrl.net>

Photo A– Birth of an idea: Field Day 2011, a prototype KX3 decoding JT65 on 20 meters.

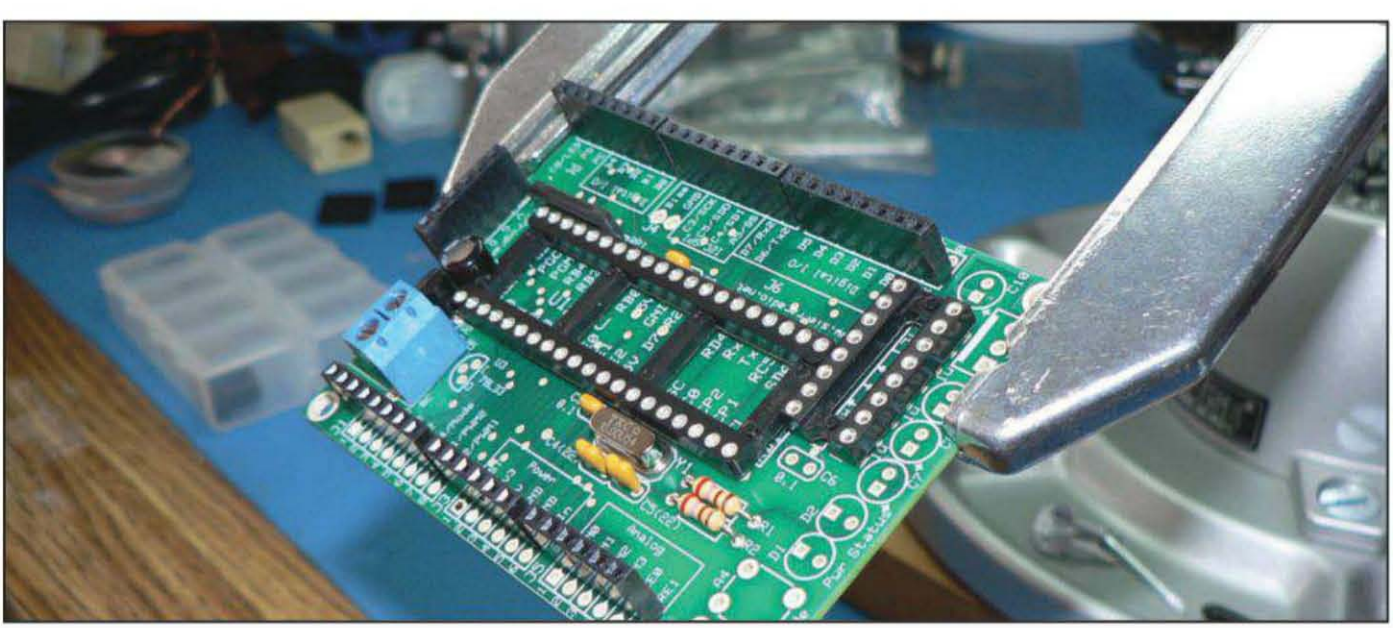

Photo B– Assembling the basic Hamstack kit.

ness and operation with minimal equipment) over the years had become increasingly complex. Given that the Summits on the Air (SOTA), HF Pack, and other QRP-portable folks have proven that they can do more with less, why couldn't we?

The problem with QRP is that it works well for CW, but not so well for phone *(although there are hardcore QRP phone enthusiasts—ed.)*. In addition to CW and phone, we like to work PSK-31 on Field Day. Digital modes can work well at QRP power levels, but they typically require a PC, which implies a need for extra battery capacity. There are apps for smart phones and the iPad which work for PSK-31, but depending on the length of operation, they would still require recharging. Thus, we asked ourselves, what else is there?

We started talking about how the Elecraft K3 (and now the recently released KX3) has a built-in PSK-31 modem which decodes output to the rig's LCD display. Input is done via CW using a keyer paddle. This is a great idea, but the timing requirements are fairly tight, so if (like me) you don't have a golden fist, it doesn't work so well.

However, it turns out you can also generate PSK-31 from the K3/KX3 by sending alphanumeric characters into the rig's serial port. What we needed was a way to interface a keyboard into the rig without a battery-hungry PC. We used a HamStack microcontroller kit from Sierra Radio Systems (http://www.hamstack.com/) and an old PS/2 keyboard to do the job.

The HamStack is a Microchip PIC-based microcontroller similar to the Atmel AVR-based Arduino, but designed with a focus on the needs of radio amateurs. Designed by George Zafiropoulos, KJ6VU, and John Best, KJ6K, HamStack is a project platform that is expandable via "backpack boards" offered by SRS, but is also designed to be largely compatible with Arduino add-on boards (commonly referred to as "shields"). The CPU board for the HamStack system is sold either as a kit or fully assembled (see photo B). Backpack boards are sold only as kits, but assembly is straightforward with only through-hole soldering required.

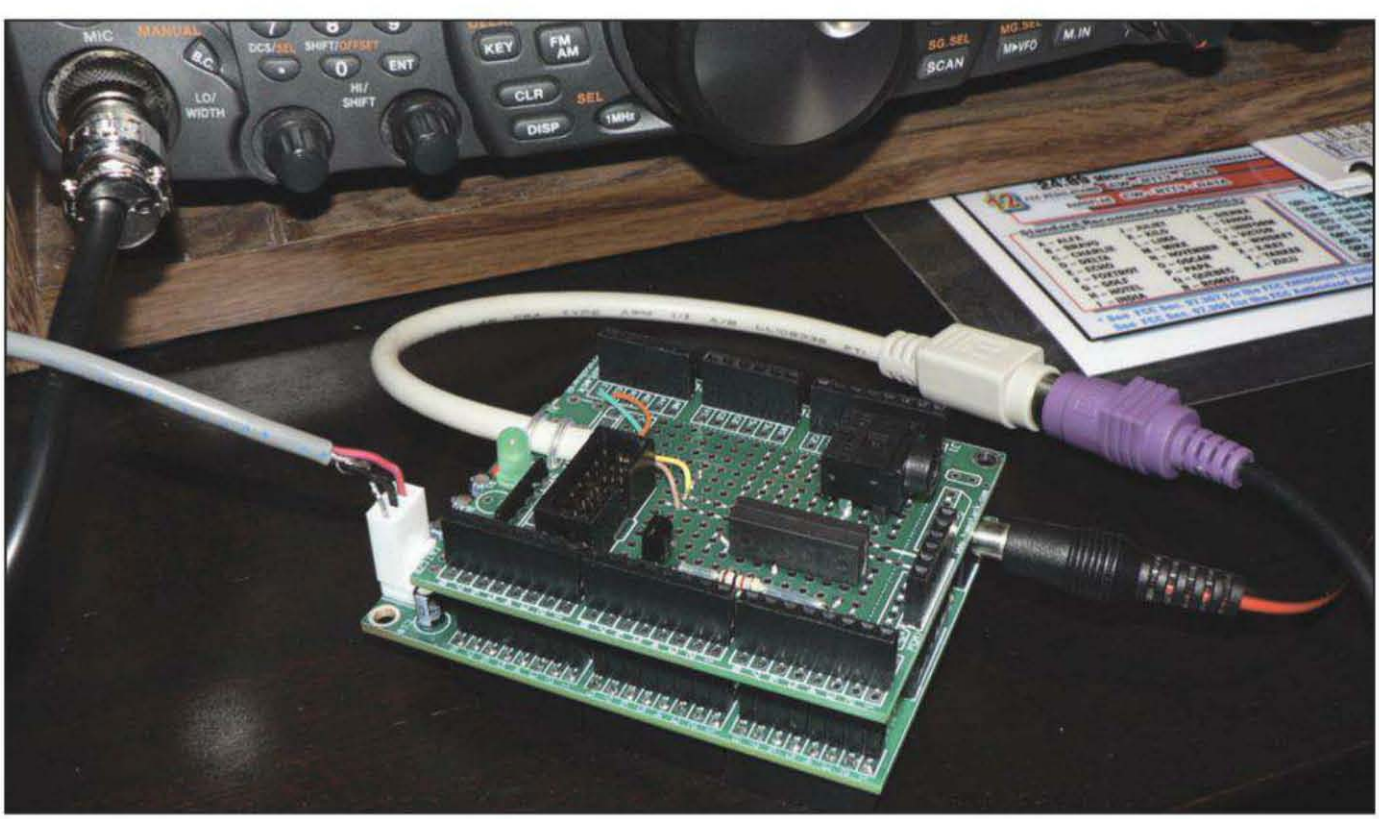

Photo C– The complete keyboard interface: Power in, PS/2 in, serial out.

Photo D– Working AD6BN on 20 meters PSK-31 using the K3 Keyboard interface.

Improving on the Arduino concept, the HamStack base platform offers rig- and station-friendly niceties such as additional digital interface pins, a PWM (pulse width modulation) interface for driving LEDs or motors, and a serial port. HamStack allows the flexibility of programming in either structured BASIC or C language, and there are several development environment options available. Like other microcontroller platforms, the HamStack lends itself to sharing and cooperative development by allowing you to borrow and improve on code libraries and modules created by others.

The approach to building a K3 keyboard interface was fairly simple. Scan the PS/2 keyboard bus for keystrokes, convert the keys to characters, and output them via RS-232 serial line to the K3 (photo C). Some function keys were programmed with macros for common transmit strings such as a CQ sequence, a callsign, a 73 sequence, etc. (*Note:* By adjusting the mode settings on the K3, the same serial commands could be used for operating RTTY.) Just for fun, an I/O routine was added to generate contact closures for keying CW. A routine was added to adjust the speed of the CW generator set via the keyboard's arrow keys. Finally, a routine was added so that the pause key would toggle output to either serial or "straightt keying" in CW mode.

The most complicated aspect of he programming would have been building the PS/2 keyboard interface module, because such things need to be somewhat "real time" and that requires using interrupt routines. However, the power of community code-sharing quickly became evident when we were able to simply download and use an existing PS/2 keyboard library written in BASIC by Graham Mitchell. KJ6K had previously implemented a full-featured and highly flexible CW keyer using the HamStack, and the source code for his project was available on the Sierra Radio Systems website. We leveraged por-

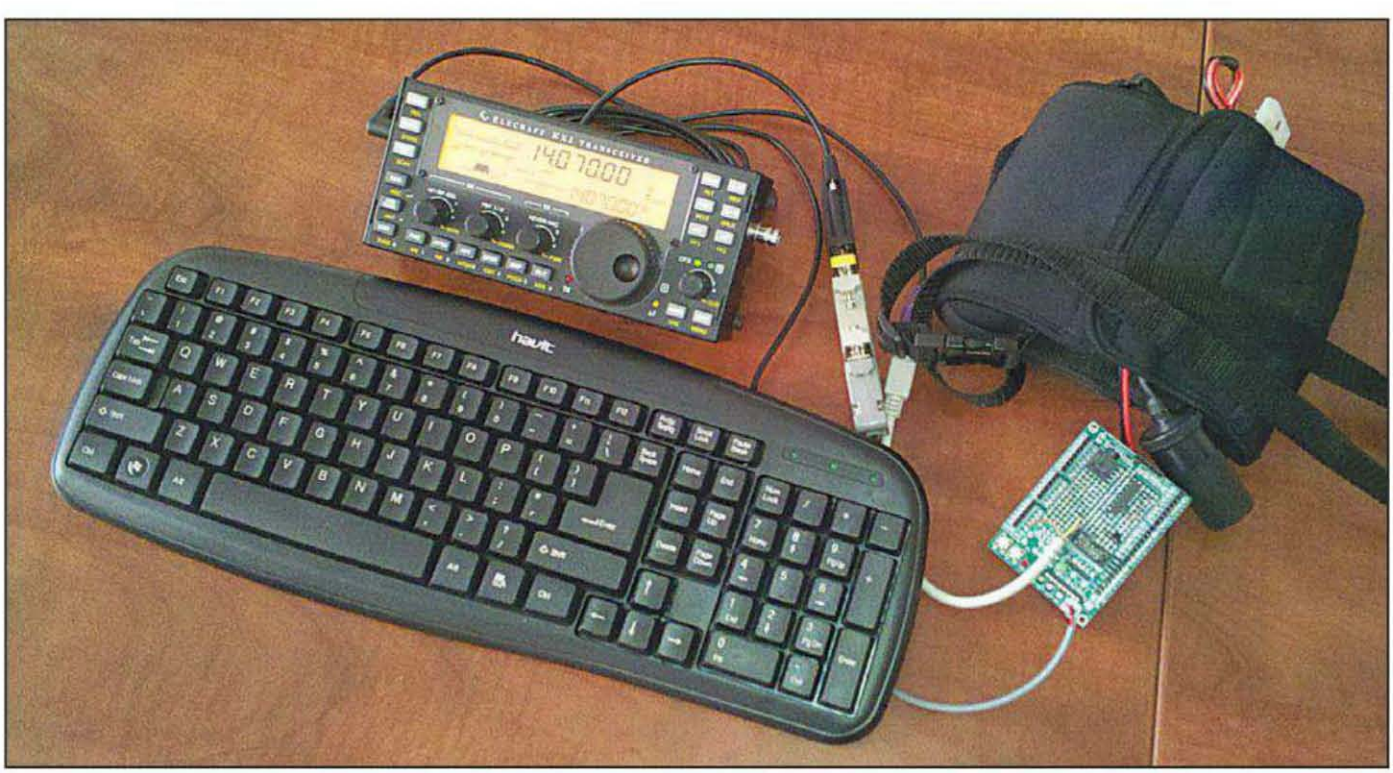

Photo E– Everything you need for PSK-31 in the field!

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tions of his source code to map keyboard characters onto CW sequences and deal with things such as adjustment of the CW weight adjustments based on character speed. Adding a table-to-map keyboard input to serial characters was straightforward, and once that was done the macros and other features were simple to implement (see fig. 1).

Initial results tested on an Elecraft K3 were very encouraging. Several PSK-31 and CW contacts were made using only the keyboard and the K3! (See photo D.) Eric Swartz at Elecraft was also kind enough to let me come by the Elecraft offices and attach the keyboard to a KX3, and he confirmed that the KX3's firmware would have the same PSK and CW generation and decoding routines.

As mentioned before, the open source nature of the HamStack lends itself to experimentation and improvement. After completion of my tests for this article, the design was further enhanced to add an LCD display and additional keyboard macros that can send rig control commands to the K3 to do mode selection and VFO tuning. It will be interesting to see the PS/2 keyboard interface evolve as others improve on the design.

Sierra Radio Systems hosts a HamStack user forum on Yahoo! Groups and a great website with example projects and freely downloadable source code for them (see Resources).

As I write this, we've just started to think about planning for this year's Field Day. I have a feeling that we'll be packing a lot lighter this year, but thanks to the PS/2 keyboard interface (photo E), we'll still be able to operate PSK-31, and we won't have to bring extra batteries for PCs.

Resources

Elecraft: http://www.elecraft.com/
Sierra Radio Systems: http://www.hamstack.com/
User Forum: http://groups.yahoo.com/group/hamstack

hamstack ps2 cw keyboard 49k22 rev 12.bas

```
471
472         '-----[ Process normal characters ]--------------------------
473         If KBD.ValidChar Then                   ' Make sure this is a valid character
474           update_display (KBD.KeyChar,lcd_display)
475           If k3_mode = 0 Then
476             send_cw (KBD.KeyChar)
477           EndIf
478           If k3_mode = 1 Then USART.Write("KY ",KBD.ascii,";") EndIf
479           If KBD.keychar = 43 Then
480             wpm = wpm + 1
481             If wpm < 1 Then wpm = 1 EndIf
482             EE.Write (12,wpm)
483           EndIf
484           If KBD.keychar = 45 Then
485             wpm = wpm - 1
486             If wpm > 90 Then wpm = 90 EndIf
487             EE.Write (12,wpm)
488           EndIf
489           WriteAt (1,10,"      ")
490           If k3_mode = 1 Then WriteAt (1,10,"K3 Mode") Else WriteAt (1,10,DecToStr(wpm)+" WPM ") EndIf
491
492         ElseIf KBD.KeyCode = KBD_ENTER Then ' Was "enter" pressed?
493           USART.Write(13,10)                ' if so, send CR, LF
494         EndIf
495       EndIf
496
497       '-----[ Blink the status LED ]-------------------------------------
```

Fig. 1– A portion of the BASIC code used for the project. To download the code go to <www.hamstack.com/cw_keyboard.html>; and see other Hamstack projects, see <http://hamstack.com/project_home.html>.

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VHF

UHF

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420.000–480.000[2], 1240.000–1320.000[2,3]MHz

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*Frequency coverage may vary. Refer to owner's manual for exact specifications. [1]Optional UX-9100 required. [2]HF (14MHz) [3]See manual for AM output power.

ICOM

What You've Told Us...

Our March survey asked about connections between hams and "makers," and it's clear we have our work cut out for us in making and building those connections. 84% of *CQ* readers responding to the survey said they consider themselves to be "makers" (people who design, build, modify and/or fix things), and the same number agree that hams and the general Maker community have a lot to offer each other and that both groups could benefit by working together. Yet, only 14% of respondents are even aware of a maker/hacker group in their communities, and only 3% belong to a maker group. Another 3% have visited a maker group but have not yet joined and 8% are aware of such groups but have not yet visited or joined. Clearly, we need to make a significant effort—as individuals, clubs and the hobby as a whole—to establish connections with the Maker community.

Other stats from the survey: 77% of you say you build, modify or fix ham radio gear and electronic accessories, followed by 66% who build non-electronic shack accessories, 55% other electronic projects, 40% computer-related projects, 39% woodworking, and 29% other; followed by crafts (19%), robotics (5%) and none (5%). In addition, 64% of you reported designing, building, modifying or fixing something within the past week, and another 24% within the past six months (that's 88% within six months), followed by 5% each within the past year and within the past five years. Only 4% have gone more than five years without making something and only 1% responded "never."

This month's free subscription winner is John Chaput of Chicago, Illinois.

Reader Survey June 2012

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Since this is our second annual "Take It to The Field" special, we'd like to ask some more questions about your away-from-home operating.

Please answer by circling the appropriate numbers on the reply card or by going to the following web link <www.surveymonkey.com/s/CQJun12> [From the digital edition, just click on the link].

1. Approximately what percentage of your operating is done away from home?
- 100% 28
- 75–99% 29
- 50–74% 30
- 25–49% 31
- 1–24% 32
- None 33

2. What are your main reasons for operating away from home? (Select all that apply)
- It's fun 34
- Helps pass time while driving 35
- Helps keep peace in the house 36
- Antenna restrictions limit home operating 37
- Have no home station equipment 38

3. Where do you do your away-from-home operating? (Select all that apply)
- While mobile (in a car, truck or motorcycle) 39
- In an RV/camper 40
- On a bicycle 41
- In a boat or airplane 42
- On foot 43
- At a vacation home/hotel 44

Other 45

4. How much of your away-from-home operating is done on HF?
- 100% 46
- 75–99% 47
- 50–74% 48
- 25–49% 49
- 1–24% 50
- None 51

3. How much of your away-from-home operating is done on VHF/UHF?
- 100% 52
- 75–99% 53
- 50–74% 54
- 25–49% 55
- 1–24% 56
- None 57

5. Do you use or have access to an HF remote base?
- Yes, at my home station 58
- Yes, at another location 59
- No 60

Thank you for your responses. We'll be back with more questions next month.

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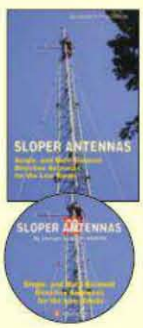

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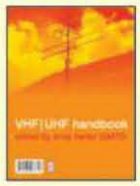

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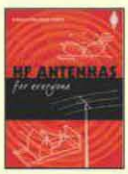

Edited by Giles Rad, G1MFG
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The Summits on the Air program encourages hams to hike, enjoy the outdoors, and enjoy ham radio all at the same time. K3NG says SOTA expeditions can give you all this and help feed bigger dreams as well ...

Summit Expeditions

Outdoor Radio Adventure Close To Home

BY ANTHONY "GOODY" GOOD,* K3NG

As I tap out "QRZ" in CW with a cold fist, the snow and wind outside the tent whip by at over 50 miles per hour. Penguins poke at the tent outside and sound of seals and several portable power generators can be heard in the distance. Hundreds of stations answer my call. I've been operating for several days with little sleep and no shower and I'm very tired, but the nervous energy of the pile-up and cups of hot chocolate keep me going. The DXpedition was years in the making and cost several hundred thousand dollars. Our ship anchored several hundred yards from shore took two weeks to get us here through rough, rolling seas.

But then the video comes to an end and I'm reminded that such dreams are far off and my to-do list for this weekend hasn't gotten any shorter.

I often watch DXpedition videos and dream of someday going to a desolate Antarctic island to activate a rare DXCC country. Ironically, I've never been much of a DXer, only casually working DX stations when the opportunity arises on weekends, never really planning ahead to snag the "big ones" or chase award endorsements. To me, there's something more intriguing about being on the other side of the ether, traveling to somewhere remote, battling the elements to erect a station, establishing communications in lousy conditions, and being a hero to many hams in warm shacks around the globe eager to contact me.

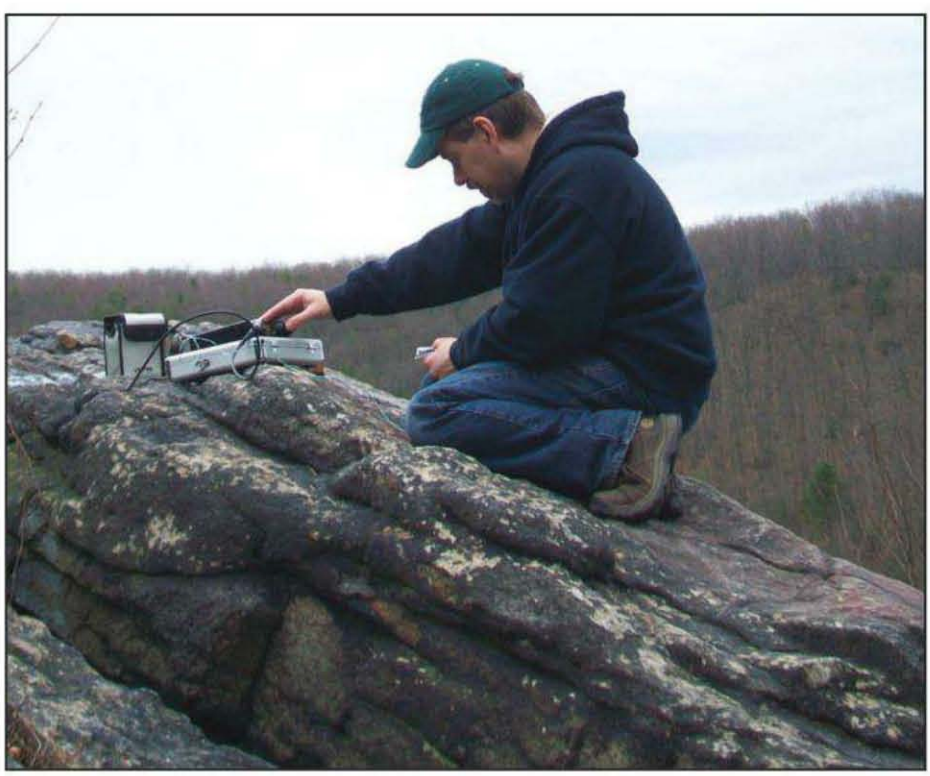

Photo A– The author operating from a summit in Pennsylvania. (Photo by Eliza Good)

Something Special in the Soil?

Having sat in my grandfather's ham shack as a youngster, watching him talk with amateurs in far-off lands, ham radio in the field was initially somewhat foreign to me. I naively thought there was something special about my grandfather's location. Perhaps the ionosphere was just right or there was something special in the ground. Undoubtedly, it was the big tower and triband Yagi antenna that made it magically attract radio signals, but I thought you couldn't set up a station just anywhere and expect it to work. It hadn't occurred to me that one could set up a rudimentary station with a simple antenna just about anywhere on Earth and communicate to just about any other location in the world.

Later in my teenage years, shortly before I decided to go for my ticket, my grandfather took me to a Field Day. Tents and campers were lined up everywhere with cables and wires strung about and the whir of generators filling the air. There were all kinds of antennas and homebrew tower contraptions I had never seen before. We walked from station to station listening to the symphony of signals. It was an eye-opening experience for me, and I was

*e-mail: <anthony.good@gmail.com>

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Operate all bands through 10 Meters, even 160 Meters, with a single wire antenna!

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$44.95

The famous G5RV antenna is the most popular ham radio antenna in the world! You hear strong signals from G5RVs day and night, 24/7.

And it's no wonder . . . it's an efficient, *all band* antenna that's only 102 feet long -- shorter than an 80 Meter dipole. Has 32.5 foot ladder line matching section ending in SO-239 connector for your coax feedline.

Use as Inverted Vee or Sloper, and it's even more compact and needs just one support.

With an antenna tuner, you can operate all bands 80 Meters through 10 Meters and even 160 Meters with an antenna tuner and a ground.

MFJ's fully assembled G5RV handles 1500 Watts. *Hang and Play™* -- add coax, some rope to hang and you're on the air!

MFJ-1778M, $39.95. *Half-size*, 52 foot *G5RV JUNIOR* covers 40-10 Meters with tuner. Handles full 1500 Watts.

MFJ All Band Doublet

MFJ-1777
$59.95

MFJ-1777 is a 102 foot *all band* doublet antenna that covers 160 through 6 Meters with a balanced line tuner. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft. included). Authentic *glazed ceramic* end insulators. Handles full 1500 Watts.

MFJ *Dual Band* 80/40 *or* 40/20M Dipoles

MFJ-17758
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80/40 Meters

MFJ-17758 is a short 85 foot long *dual band* 80/40 Meter dipole antenna. It's *full-size* on 40 Meters and has ultra-efficient end-loading on 80 Meters. Handles full 1500 Watts. Super-strong injection-molded center insulator with built-in SO-239 connector and hang hole. Solderless, crimped construction. 7-strand, #14 gauge hard copper wire. Connect your coax feedline directly, no tuner needed.

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MFJ-1779A **$69.95** 160M, 265 ft.
MFJ-1779B **$49.95** 80-40M, 135 ft.
MFJ-1779C **$29.95** 20-6M, 35 ft.

True 1:1 Current Balun & Center Insulator

MFJ-918
$24.95

True *1:1 Current Balun/ Center Insulator* forces equal antenna currents in dipoles for superior performance. Reduces coax feedline radiation and field pattern distortion -- your signal goes where *you* want it. Reduces TVI, RFI and RF hot spots in your shack. *Don't build a dipole without one!* 50 hi-permeability ferrite beads on high quality RG-303 *Teflon*® coax and *Teflon*® coax connector. Handles full 1.5kW 1.8-30 MHz. Stainless steel hardware with *direct* 14 gauge stranded copper wire connection to antenna. 5x2 inches. Heavy duty weather housing.

RF Isolator

MFJ-915
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MFJ-915 *RF Isolator* prevents unwanted RF from traveling on the outside of your coax shield into your transceiver. This unwanted stray RF can cause painful RF "bites" when you touch your microphone or volume control, cause your display or settings to go crazy, lock up your transceiver or turn off your power supply. In mobile installations, stray RF could cause your car to do funny things even blow your car computer. Clear up these problems, plug an MFJ-915 between your antenna and transceiver. 5x2 in. Handles full 1500 Watts. Covers 1.8-30 MHz.

MFJ-919, $59.95. 4:1 current balun,1.5 kW.
MFJ-913, $29.95. 4:1 balun, 300 Watts.

Antenna Switches

MFJ-1704
$79.95

MFJ-1704 4-Positions heavy duty *antenna switch* lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. 2.5 kW PEP. Less than .2 dB insertion loss, SWR below 1.2:1. SO-239 connectors. Handy mounting holes. 6¼Wx4¼Hx1¼D in.

MFJ-1702C
$39.95
2-Positions

MFJ-1702C Like MFJ-1704, but for 2 antennas. 3Wx2Hx2D"

MFJ-1700C
$99.95

MFJ-1700C *Antenna/ Transceiver Switch* lets you select one of six antennas and one of six transceivers in any combination. Plug in an antenna tuner or SWR wattmeter and it's always in-line for any antenna/transceiver combination. Has lightning surge protection. Handles 2 kW PEP SSB, 1 kW CW, 50-75 Ohm loads. Unused terminals are automatically grounded. 1.8 to 30 MHz. SO-239 connectors. 4¾W6½Hx3D inches.

MFJ-1701
$69.95

MFJ-1701 *Antenna Switch* like MFJ-1700C but lets you select one of six antennas only. 10Wx3Hx1½D inches.

33 ft. Telescoping fiberglass Mast

3.8 feet collapsed, 3.3 lbs.

MFJ-1910
$79.95

Super strong fiberglass mast has huge 1¾ inch bottom section. Flexes to resist breaking. Resists UV. Put up *full size* inverted Vee dipole/vertical antenna in minutes and get *full size performance!*

Make your own antennas

Dipoles, G5RV, Random Wire, Doublets, Beverage Antennas, etc.

MFJ-16C06, $4.56. 6-pack authentic *glazed ceramic* end/center antenna insulators.
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MFJ-58100X, $49.95. 100 ft. 50-Ohm RG-8X with PL-259s on each end.
MFJ-18H100, $34.95. 100 feet, 450 Ohm ladder line, 18 gauge copper covered steel.

Lightning Surge Protectors

Ultra-fast gas discharge tube shunts 5000 amps peak. Less than 0.1 dB loss. Up to 1000 MHz. SO-239s. **MFJ-270, $29.95.** 400W PEP. **MFJ-272, $39.95.** 1500W PEP.

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Photo B– K3NG's outdoor shack: a Yaesu FT-817, straight key, and BLT tuner. (Photo by Eliza Good)

immediately hooked on radio in the outdoors. However, shortly thereafter girls, college, and work made me put amateur radio on hold for a while.

Fast-forward many years. I'm married, have a family, a house, and a full-time job. I have that shack with the typical tower and HF tribander, but my free time is limited. With several outdoor hobbies, it's tough to do everything I'd like to do in a weekend, and on a nice day I don't like to be stuck inside, even to operate amateur radio. With only a free afternoon here and there, I have to make the best use of my time. Any time I can combine hobbies, it's like I've created time that wasn't there before.

One of my favorite ways to do this is by driving and then hiking to a nearby summit (I live in the Pocono Mountains of Pennsylvania.) and operating a portable ham rig from the mountaintop (photo A). Hiking and amateur radio go together like chocolate and peanut butter. I keep my portable station ready to go, and when the opportunity arises, I get out the topo maps and GPS and plot out the day's hike and the summit from which I plan to operate.

Going Out for a SOTA

Summits On The Air (SOTA) provides an opportunity for an armchair DX-peditioner like me to activate summits within driving distance of my home and provide an opportunity for others to collect summits and chase awards, much like DXCC or Islands On The Air (IOTA).

The program got started in Europe and has been around for a few years, but here in the U.S. it's in its infancy. Nearly every summit is a "rare one" that someone wants to work. SOTA offers a nice website (http://www.sota.org.uk/) for announcing activations ahead of time and spotting of stations on the air, similar to the DX Cluster®. Self-spotting from the field (using a cell phone) is allowed and encouraged, so you can almost always be assured of getting a mini pile-up going. Those who go to summits to operate are known as *activators*, and those who operate from home are called *chasers*.

My wilderness shack (photo B) is basic. I use one of two venerable QRP workhorse rigs, the Yaesu FT-817 or the Elecraft K1. CW is a natural choice due to its low-power abilities, but phone on the 817 is a nice change when conditions are good. Low power (QRP) is

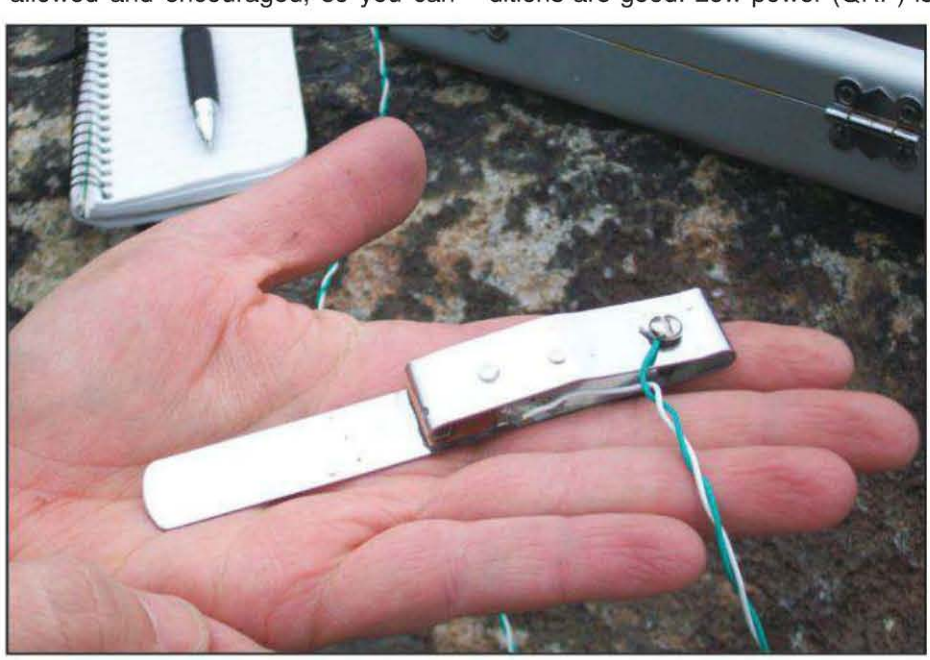

Photo C– A bent piece of junkbox metal makes a simple yet effective and rugged straight key for outdoor CW operation. (Photo by Eliza Good)

not a requirement for SOTA operation; however, the lightweight nature of QRP equipment and low-power-supply requirements make sense for activators. My antenna is a simple 40-meter dipole made of #18 stranded, insulated hookup wire and a 10-foot section of zip cord for transmission line, matched by a BLT tuner (Balanced Line Tuner, available from <www.qrpkits.com>).

People often put a lot of thought and effort into antennas, and rightfully so, as a station is only as good as its antenna. However, with backpack antennas and the limitations of what one can erect on the trail, physical considerations are more important than gain and directivity. On the HF bands, it's difficult to excel in either of these parameters with an antenna a few feet off the ground. If trees are available in your neck of the woods, use a homebrew wire antenna and avoid inefficient shortened loaded antennas or verticals with marginal radial systems on poor, rocky mountain soil. If you're above the treeline, rigid self-supporting shortened antennas are probably your best bet due to limited natural antenna support choices.

For CW sending I used to use a lightweight iambic paddle, but I found my cold fingers would often make mistakes. Thankfully, stations on the other end have always been patient with me when I would mess up, as I am with them. I switched to a "junkbox special" homebrew straight key made of a hand-bent piece of stainless steel (photo C) which is very easy to manipulate and forgiving of numb hands and can even be used wearing thick gloves. A single 4-amp-hour sealed gel-cell powers the station, although I'll take a second one when using the FT-817 due to its higher power consumption. My station, a lunch, a lightweight hiking cookstove for cooking and warmth, extra fuel, and emergency supplies all fit in an old frame backpack. I always take additional food and clothing for an unexpected overnight stay should something happen such as bad weather or an injury.

Hikes to SOTA summits in my area typically are a mile or two long. You have to get within 100 feet vertically of the summit for it to be considered a valid activation, and you have to use human power to get there. My area operating association offers bonus points for activating summits in the winter, so there's an extra incentive to brave the elements. (Check your area association's rules for bonus-point opportunities and other information specific to your area.)

Summits are intended to be publicly accessible. Often geocaches are located at summits, so you can sometimes get additional information about parking, trails, and local landmarks from <www.geocaching.com>. If you're a geocacher, it offers an opportunity to combine yet another hobby in your adventure.

Some summit activators erect tents to shield them from the wind in colder weather, but I find it's often more effort than it is worth for short expeditions. I tend to look for rock outcroppings that can provide natural shielding from the wind. In warmer weather, downed trees make nice benches to sit on when operating. I haven't done an overnight camp on a summit, but I hope to do one with some friends this summer.

Safety First!

Safety should be of utmost concern when hiking. When operating in wilderness areas on public lands, you should be familiar with hunting seasons in your locality and wear highly visible clothing, such as a fluorescent orange hat and vest (photo D). Hunters usually don't mind others in the woods, but be courteous and avoid setting up your station near hunters. Operating during hunting seasons is safe as long as you use common sense and dress appropriately.

Know what animals may be lurking about in your area. Here in Pennsylvania you don't want to get in between a mother bear and her cubs, and rattlesnakes are often out and about on mountains on sunny days. Make sure someone knows where you're going, what your plans are, and when you should be returning. Also, make sure you're physically capable of doing the hike you plan. No expedition is worth ending up on a Silent Key list.

The benefits of outdoor operation go beyond merely having an adventure that day or adding QSOs to your log or others'. In this age of sedentary lifestyles, the workout you get from carrying a 30-pound backpack up a mountain is quite beneficial. I hope to continue doing this and staying healthy well into retirement, when I'll have a lot more time to get on the air.

Photo D– During hunting season wear a fluorescent orange hat and vest for safety. (K3NG photo)

Dreams . . . and What is Now

I'll continue to dream about that once-in-a-lifetime DXpedition somewhere south of 60 degrees latitude, and maybe someday you'll see me on a DX video operating in a tent in a blizzard. But for now, I'll settle for my little weekend expeditions up to windy and sometimes snowy summits in the mountains, happily handing out contacts to summit chasers and anyone else who answers my call. I hope to work you from a summit soon!

Announcing:

The 2012 CQ World-Wide VHF Contest

Starts: 1800 UTC Saturday, July 21, 2012
Ends: 2100 UTC Sunday, July 22, 2012

Last year's rules reflected several significant changes, and we are repeating them here as a reminder. Please read them carefully. *Rationale:* Single-op stations now routinely use web- and packet-based clusters for spots to locate potential contacts. Further, VHF antennas are often of narrow beamwidths which must be pointed directly at each other to make the contact.

1. Thus, to facilitate making more QSOs, and to prevent stations from inadvertently falling into the multi-op category for using the cluster (as previously), *passive* QSO alerting assistance is now permitted in ALL categories. This means anyone can look at packet/web clusters.

2. Self-spotting is defined as *active* assistance and is *not permitted* with the following exception:

3. Accommodation is made for stations attempting digital EME or digital meteor-scatter contacts. Such stations calling CQ may self-spot callsign, frequency, and sequence **only** and no other information. "Chats" that potentially facilitate making or completeing a contest QSO are *not* permitted (*example:* I see your trace now"). *Caution:* Reflectors will be monitored for any violations that may result in punitive action.

I. Contest Period: 27 hours for all stations, all categories. Operate any portion of the contest period you wish. (*Note:* Exception for QRP Hilltopper.)

II. Objectives: The objectives of this contest are for amateurs around the world to contact as many amateurs as possible in the contest period, to promote VHF, to allow VHF operators the opportunity to experience the enhanced propagation available at this time of year, and for interested amateurs to collect VHF Maidenhead grid locators for awards credits.

III. Bands: All authorized amateur radio frequencies on 50 MHz (6 meters) and 144.00 MHz (2 meters) may be used as authorized by local law and license class.

IV. Categories of Competition:

For all categories: Transmitters and receivers must be located within a 500-meter diameter circle or within the property limits of the station licensee's address, whichever is greater.

Note the following regarding assistance. There are three types of QSO alerting assistance: **(1) Passive** is defined as any technology that provides callsign and frequency information of potential new contacts to the operator, *not* initiated by the entrant. It includes, but is not limited to: The DX Cluster, spotting nets, packet and web clusters, Skimmer, and the like. **(2) Active** involves the direct initiation of QSO alerting information by—and with the direct participation of—the entrant to benefit the entrant's score. It includes, but is not limited to, self-spotting or by stealth (such as asking other stations to spot you). **(3) Interactive** includes any two-way conversation (or variation thereof) between stations to effect a QSO. This includes use of the telephone, and website posts providing information *beyond* that of callsign, frequency, and sequence.

Passive QSO alerting assistance is **permitted** for ALL categories.

Active QSO alerting assistance is permitted *only* by stations attempting digital EME or digital meteor-scatter contacts. Stations calling CQ using such modes are limited to spotting callsign, frequency, and sequence **only.** *Caution: To ensure strict compliance with these rules,* the adjudication process will include review of real-time and archived transcripts from websites used to coordinate *active* alerting data during the contest period.

Interactive QSO alerting is **prohibited** for all categories.

1. Single Op—All Band. Only one signal allowed at any one time; the operator may change bands at any time.

2. Single Op—Single Band. Only one signal allowed at any one time.

3. Single-Op All-Band QRP. There are no location restrictions – home or portable – for stations running 10 watts output or less.

4. Hilltopper. This is a single-op QRP portable category for an all-band entry limited in time to a maximum of 6 continuous hours. Backpackers and portables who do not want to devote resources and time to the full contest period are encouraged to participate, especially to activate rare grids. Any power source is acceptable.

5. Rover. A Rover station is one manned by no more than two operators, travels to more than one grid location, and signs "Rover" or "/R" with no more than one callsign.

6. Multi-Op. A multi-op station is one with two or more operators and may operate 6 and 2 meters simultaneously with only one signal per band.

Stations in any category, except Rover and QRP Hilltopper, may operate from any single location, home or portable.

V. Exchange: Callsign and Maidenhead grid locator (4 digits, e.g., EM15). Signal reports are optional and should not be included in the log entry.

VI. Multipliers: The multiplier is the number of different grid locators worked per band. A "grid locator" is counted once per band. *Exception:* The rover who moves into a new grid locator may count the same grid locator more than once per band as long as the rover is himself or herself in a new grid locator location. Such change in location must be clearly indicated in the rover's log.

A. A rover station becomes a new QSO to the stations working him or her when that rover changes grid locator.

B. The grid locator is the Maidenhead grid locator to four digits (FM13).

VII. Scoring: One (1) point per QSO on 50 MHz and two (2) points per QSO on 144 MHz. Work stations once per band, regardless of mode. Multiply total QSO points times total number of grid locators (GL) worked.

Rovers: For each new grid locator visited, contacts and grid locators count as new. Final Rover score is the sum of contact points made from each grid locator times the sum of all grid locators worked from all grids visited.

Example 1. K1GX works stations as follows:

50 QSOs (50 × 1 = 50) and 25 GL's (25 multipliers) on 50 MHz

35 QSOs (35 × 2 = 70) and 8 GL's (8 multipliers) on 144 MHz

K1GX has 120 QSO points (50 + 70 = 120) × 33 multipliers (25 + 8 = 33) = 3,960 total points.

Example 2. W9FS/R works stations as follows:

From EN52: 50 QSOs (50 × 1 = 50) and 25 GL's (25 multipliers) on 50 MHz

From EN52: 40 QSOs (40 × 2 = 80) and 10 GL's (10 multipliers) on 144 MHz

From EN51: 60 QSOs (60 × 1 = 60) and 30 GL's (30 multipliers) on 50 MHz

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#1 Line of Autotuners!

- *5 to 1,000 Watts PEP*
- *RF Sensing*
- *Auto and Semi Tuning Modes*
- *Two-Position Antenna Switch*
- *2,000 Memories per Antenna*
- *1.8 to 54 MHz range*
- *6 to 800 ohm range (15 to 150 on 6M)*

M-1000 Meter sold separately

NEW! AT-1000Proll

Building on the success of the AT-1000Pro, LDG Electronics has refined and expanded its flagship 1KW tuner with optional external 4.5" analog meter. The new AT-1000Proll keeps many of the same features of the previous model, but simplifies the operation. With the two-position antenna switch, there are 2,000 memories that store tuning parameters for almost instantaneous memory recall whenever you transmit on or near a frequency you've used before. Includes six-foot DC power cable.

Suggested Price $539.99; Optional M-1000 external analog meter $129.99

AT-600Pro

The AT-600Pro handles up to 600 watts SSB and CW, 300 on RTTY (1.8–30 MHz), and 250 watts on 54 MHz. Matches virtually any kind of coax-fed antenna and will typically match a 10:1 SWR down to 1.5:1 in just a few seconds. You can also use it with longwires, random wires, and antennas fed with ladder line just by adding a balun. Two antenna ports with a front-panel indicator, and separate memory banks for each antenna. LED bar-graph meters shows RF power, SWR and tuner status, tactile feedback control buttons and an LED bypass indicator. Operates from 11–16 volts DC at 750 mA. Includes six-foot DC power cable. ***Suggested Price $359.99***

- *RF Sensing*
- *Tunes Automatically*
- *No Interface Cables Needed*

AT-100Proll

This desktop tuner covers all frequencies from 1.8–54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch with LEDs, allowing you to switch instantly between two antennas. The AT-100Proll requires just 1 watt for operation, but will handle up to 125 watts. Includes six-foot DC power cable.

Suggested Price $229.99

- *RF Sensing*
- *Tunes Automatically*
- *No Interface Cables Needed*

AT-200Proll

The AT-200Proll now includes LEDs to show antenna position and if the tuner is in bypass. A two-position antenna switch stores 2,000 memories per switch. Handles up to 250 watts SSB or CW on 1.8 to 30 MHz and 100 watts on 54 MHz. Rugged and easy to read LED bar graphs simultaneously show RF power and SWR. Includes a six-foot DC power cable.

Suggested Price $259.99

Your Favorite Dealer has LDG tuners in stock NOW!
Don't Miss Out — Call or visit them TODAY!

Z-100Plus

Small and simple to use, the Z-100Plus sports 2,000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. Includes six-foot DC power cable.

Suggested Price $159.99

Z-11Proll

Designed from the ground up for battery operation. Only 5" × 7.7" × 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 through 6 meters. The Z-11Proll uses LDG's state-of-the-art, processor-controlled, Switched-L tuning network. It will match dipoles, verticals, inverted-Vs, or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. Includes six-foot DC power cable. ***Suggested Price $179.99***

radio not included

Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). 2,000 memories cover 160 through 6 meters. Also functions as a general purpose antenna tuner with other QRP radios. Just transmit a carrier and press the Tune button on the tuner. Powered by four AA internal alkaline batteries (not included), so there are no additional cables required.

Suggested Price $129.99

IT-100

Matched in size to the IC-7000 and IC-706, for either manual or automatic tunes, and status LEDs. Control the IT-100 and its 2,000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. For your Icom radio that is AH3 or AH-4 compatible. ***Suggested Price $179.99***

radio not included

AT-897Plus for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897Plus Autotuner mounts on the side of your FT-897 just like the original equipment, takes power directly from the CAT port of the FT-897, and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier.

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W9FS/R has 230 QSO points (50 + 80 + 60 + 40) × 70 multipliers (25 + 10 + 30 + 5) = 16,100 total points

VIII. Awards: Certificates suitable for framing will be awarded to the top-scoring stations in each category in each country. Certificates may also be awarded to other top-scoring stations who show outstanding contest effort. Certificates will be awarded to top-scoring stations in each category in geographic areas where warranted.

Geographic areas include states (U.S.), provinces (Canada), and countries, and may also be extended to include other subdivisions as justified by competitive entries. U.S. rover certificates are issued on a regional basis.

Plaques again will be awarded to the highest scoring stations. They are offered in various categories on a sponsored basis. Clubs and individual plaque donors are sought and may find information on how to sponsor a CQ WW VHF Contest plaque at <http://www.cqww-vhf.com/plaques.htm>.

IX. Club Competition: Credit your club for aggregate club score. See <http:/ www.cqwww.com/clubnames. htm> for a list of registered clubs. Follow directions for resistering your club if not already registered.

X. Miscellaneous: An operator may sign only one callsign during the contest. This means that an operator cannot generate QSOs by first signing his callsign, then signing his daughter's callsign, even though both callsigns are assigned to the same location.

A station located exactly on a dividing line of a grid locator must choose only one grid locator from which to operate for exchange purposes.

A different multiplier cannot be given out without moving the complete station at least 100 meters.

Making or soliciting QSOs on the national simplex frequency, 146.52 MHz, or your country's designated national simplex frequency, or immediately adjacent guard frequencies, is prohibited. Use of commonly recognized repeater frequencies is prohibited. Recognized FM simplex frequencies such as 146.49, .55, and .58, and local-option simplex channels may be used for contest purposes.

Aeronautical mobile contacts do not count.

Contestants should respect use of the DX window, 50.100–50.125 MHz, for intercontinental QSOs only.

UTC is the required logging time.

XI. Declaration: Your submission of a log entry affirms that: (1) you have abided by all the rules of the contest as well as those of your country's licensing authority; (2) you accept any decisions made regarding your entry by the contest's adjudication process which are official and final.

XII. Log Submissions: Log entries must be submitted by September 1, 2012 to be eligible for awards. Submit your electronic log in the Cabrillo format created by all major logging programs. Send via e-mail attachment to <cqvhf@cqww-vhf.com>. Subject line: Callsign [used in the contest] only.

Entrants are reminded to be sure their log indicates their grid location. For USA/VE stations operating away from their home address, be sure to indicate the state or province location of operation.

It is strongly recommended that paper logs be entered on-line for automatic Cabrillo submission. Click on the "Web Form for Typing in Paper Logs" link on the contest website at <http://www.cqww-vhf.com>. Computer-generated logs must be e-submitted. Callsigns of electronic logs received are posted and updated regularly on the website.

For those without web access, paper logs may be mailed to: Paper Logs, P.O. Box 481, New Carlisle, OH 45344. Questions may be sent to <help@cqww-vhf.com>.

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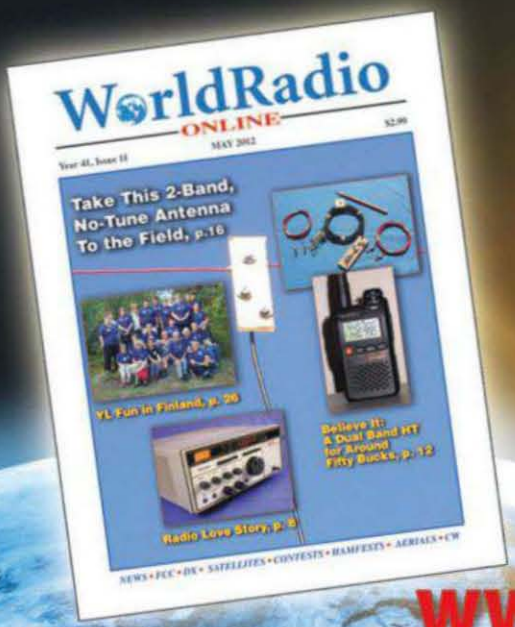

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math's notes

BY IRWIN MATH,* WA2NDM

Using Panel Meters

Recently, while building several test fixtures for the office we had the need to configure a couple of analog panel meters to read voltage and current. We needed the analog pointer to display trends, and a digital display would not be appropriate for this particular application. Not using or stocking these types of meter movements on a regular basis, all we had on hand was a couple of 0–1-mA devices. As a result, we thought it would be a good idea to review the methods to configure these devices for specific needs. For those of you who have a well-stocked junk box, I am sure this information will come in handy.

The first example is how to configure a basic milliampere or microampere panel meter to measure DC voltages of less than 100 volts or so. To do this there are two methods, the simple one and the more "sophisticated" one. The simple way requires an accurate meter for calibration (such as a DVM), a source of the voltage to be measured, and a 100K potentiometer for 0–1-mA meters or a 1-megohm pot for 0–100-µA movements. The method is simply to connect the potentiometer (set to full resistance) in series with the meter and test source as shown in fig. 1. Then slowly adjust the pot to the point where the meter pointer reads exactly where you want it to. If you plan to use the existing meter scale, choose a DC voltage source as a reference that is above the value you wish to measure. For example, if you want to measure 80 volts and the meter has a 0 to 1 scale, set the reference voltage to 100 volts with your DVM. Then adjust the pot until the meter reads exactly full scale. Now "1" will equal 100 volts (and ".8" will be 80 volts in this example). If you need 10 volts full scale, do the same but set the reference voltage to 10 volts. Now disconnect everything and carefully measure the value iof the pot. Replace it with a resistor of the same value and you are set. You may have to connect several resistors in series or series/ parallel to get the proper value.

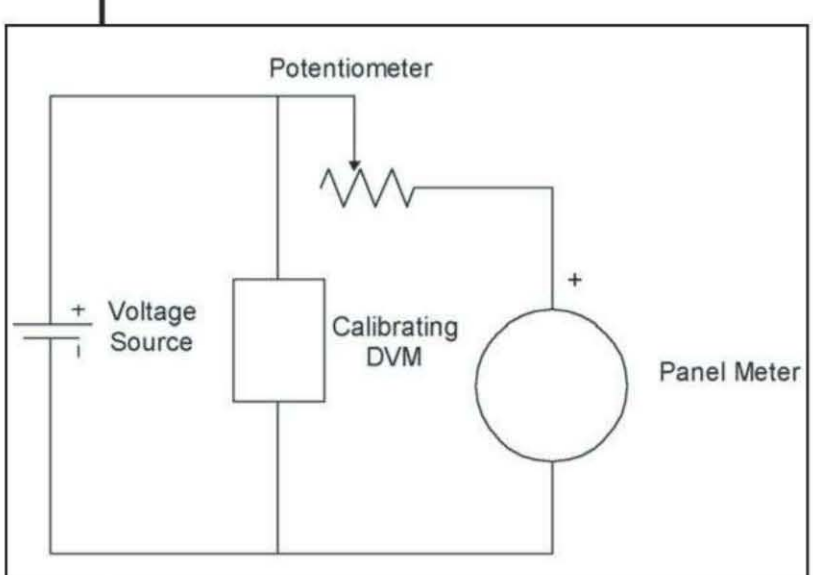

Fig. 1– Using a series resistor to configure a high-voltage panel meter.

The more sophisticated method is to first determine the internal resistance of the meter. Do this by connecting a 1K or 10K resistor in series with the meter, and then use your DVM set to the resistance range, carefully measuring the total resistance. If the meter "pins," use a higher series resistor. Assume, for example, that you have a 0–1-mA meter and your reading is 1200 ohms with a 1000-ohm series resistor. The meter resistance will be the sum of the reading less 1000 ohms, or in this case 200 ohms (a typical value, by the way, for a 0-1 mA meter). Once you know this you now have to calculate the resistance necessary to pass 1 milliampere of current when connected across 100 volts. Using Ohm's Law (R = E/I) divide 100 by 0.001 and you get 100K. Now subtract the internal resistance of the meter you just measured and you will wind up with 99.8K. To complete the meter conversion to 100 volts full scale you will need a 99.8K resistor. This can be made up of separate resistors or by selecting resistors from a batch of 100K 5% devices until you find one that is suitable.

If you do the above calculations for several types of meters, you will find that the more sensitive the basic meter movement the higher the value of dropping resistor that will be required, the higher the dropping resistor, and the less loading on the circuit for which you are going to use the meter. In addition, the tolerance of the resistors will determine the overall accuracy of your meter. Since mechanical panel meters are usually only 2–5 % accurate, common 1% resistors will be adequate for most applications.

Measuring current is similar in that the basic meter movement must never pass more current than it is designed for. As a result, to measure more current than the basic meter movement you have to "shunt" away the excess. To do this requires a resistor in parallel with the meter. Using the simple method, connect a 1K pot in parallel with the meter as per fig. 2. Set the pot to 0 ohms and apply a small current to the combination. Adjust the pot to get a reading on scale. Now slowly adjust the pot and the current until you get the final pointer position you wish. Now replace the pot with the equivalent resistance and you are finished. If you find that the 1K method is not good at higher currents, you can change to a 100-ohm or even 10-ohm pot. If you keep in mind that our 200-ohm meter needs an equivalent resistance of approximately 2 ohms to read 0–100 mA, you will quickly see how small the typical value of a shunt resistor can be.

The more sophisticated method is to first subtract the value of the current you wish to measure from the basic meter current. If we want a 0–1–ampere meter, for example, we subtract 1 mA from 1 ampere to get 0.999 amperes (or 999 milliamperes). This is 1/999 of the meter's internal resistance. Now by dividing 200 ohms by 999, we arrive at a value of 0.2 ohms. Such a low value can be obtained by a combination of parallel resistors or a length of small-gauge wire (such as #30). The length needed can be obtained from

*c/o CQ magazine

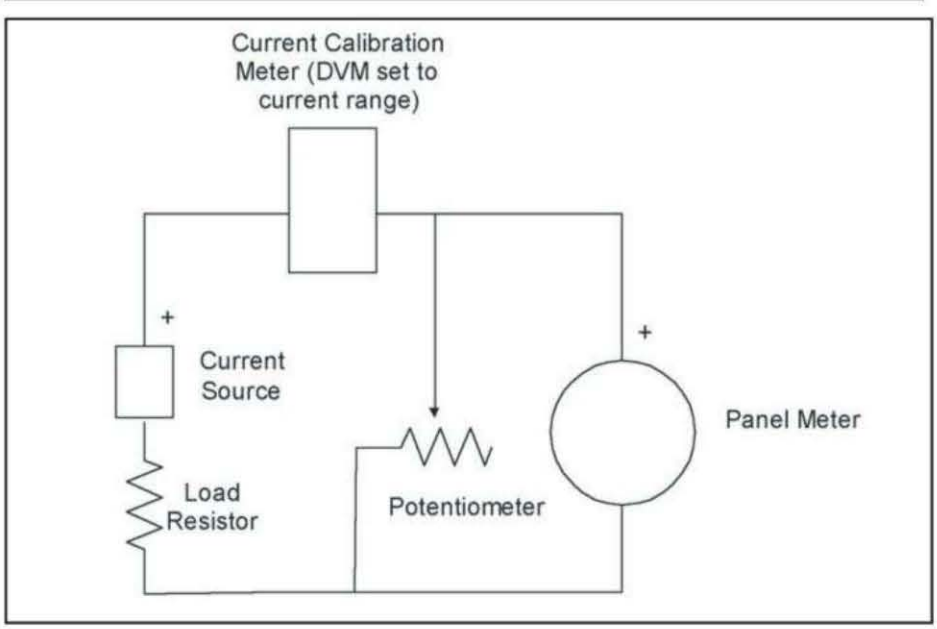

Fig. 2– Using a shunt resistor to configure a high-current panel meter.

standard wire tables in any technical reference such as the *ARRL Handbook*. The wire can then be cut to the proper length and wound on a small spool. As an alternative, commercial pre-made shunt resistors for specific meter movements are available from most of the common parts distributors. If you need high-current readings, however, you will need to be sure that the shunt resistors can dissipate the power produced across them.

I hope this information is of interest to you, and if so, please let me know and I will cover the procedures to measure AC voltage and currents in a future column.

73, Irwin, WA2NDM

BY RICHARD FISHER,* KI6SN

Take It to The Field Special

June: A Good Time to Show Your EmComm Colors

It's all well and good for radio amateurs to share the limelight with Mother Nature and a host of public service agencies when severe weather, wildfires, and earthquakes strike. However, once in a while wouldn't it be nice for the public to see us as a "one-man or one-woman show"?

Amateur radio has an annual opportunity to do just that in June when thousands of us take part in the ARRL's Field Day, this year on the weekend of June 22–24.

As individuals, groups, and organizations, it is so important for us to keep amateur radio's profile high, and each year the League awards 100 bonus points "for attempting to obtain publicity from the local media." *(**IN DEPTH:** Complete 2012 ARRL Field Day rules are at <http://bit.ly/ImbyTt>.—KI6SN)*

Now put yourself in the place of the local newspaper editor, TV station news director, or manager of the local online news site. It's June. It's hot. Most of the kids are out of school. People are on vacation. There's just not a lot of excitement in town. *Until they hear from you.*

In June 2011 on the Toledo, Ohio, Fox News affiliate, Jennifer Steck spent almost two-and-a-half minutes giving a report in advance of ARRL Field Day coming up that weekend.

Mike Kleinfelt, N8YAE, of Walbridge, is featured in the segment, which includes background on why EmComm is so important and a short demonstration of VHF repeater operation. The footage even shows the reporter behind the N8YAE microphone. *(*See photo A *and **WATCH:** Jennifer Steck's full interview with N8YAE at: <http://bit.ly/HYkUCL>.—KI6SN)*

When you have willing and capable news organizations ready to tell your EmComm readiness story, why not take advantage? It's a *win-win-win* for you and your group, the reporter and amateur radio.

Don't miss this month's opportunity. Contact your local news organizations as soon as possible so they can plan their coverage. You'll have the spotlight all to yourself, not to mention your community's thanks and those 100 bonus points in the Field Day competition.

*1940 Wetherly Way, Riverside, CA 92506
e-mail: <ki6sn@cq-amateur-radio.com>

Photo A– Jennifer Steck, with the Fox News affiliate in Toledo, Ohio, reports on ARRL Field Day in a June 2011 story featuring Mike Kleinfelt, N8YAE. It was great publicity showing radio amateurs' dedication to emergency communications. The footage even shows the reporter behind the N8YAE microphone. Watch the video at: <http://bit.ly/HYkUCL>. (Internet screen grab)

Realty Situation: Ohio, March 2, 2012

Of course, Field Day is an annual simulation of radio amateurs' ability to conduct communications while on emergency power from field locations. This year, though, we've had more than our share of the real thing.

In the aftermath of the deadly March 2 tornado outbreak that ripped through a broad area of the eastern United States (photo B**),** Steve Lewis, N8TFD, ARRL Ohio Section District 4 Emergency Coordinator, reports "amateur radio operators in (the Cincinnati area) were engaged with the National Weather Service and the American Red Cross."

It was Friday at about 1 PM when "the SKYWARN® network received notification from the National Weather Service office in Wilmington that a 'PDS' (*Particularly Dangerous Situation—KI6SN)* Tornado Watch was being issued for the Cincinnati region," Lewis said. The net was activated within the hour.

"The first indication of trouble wasn't a severe weather report, but numerous reports of debris—such as plastic foam and plywood—falling from the sky," N8TFD reported. "This was soon followed by a string of damage reports. The now-confirmed tornados seem to have been mostly rain-wrapped and were difficult to observe.

"By 6:30 PM it was clear from amateur radio and media reports that a disaster had occurred, and several members of the Queen City Emergency Net <http://bit.ly/HxBYpQ>, an amateur radio

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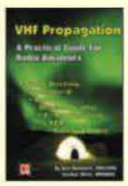

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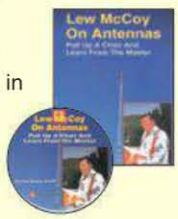
by Lew McCoy, W1ICP



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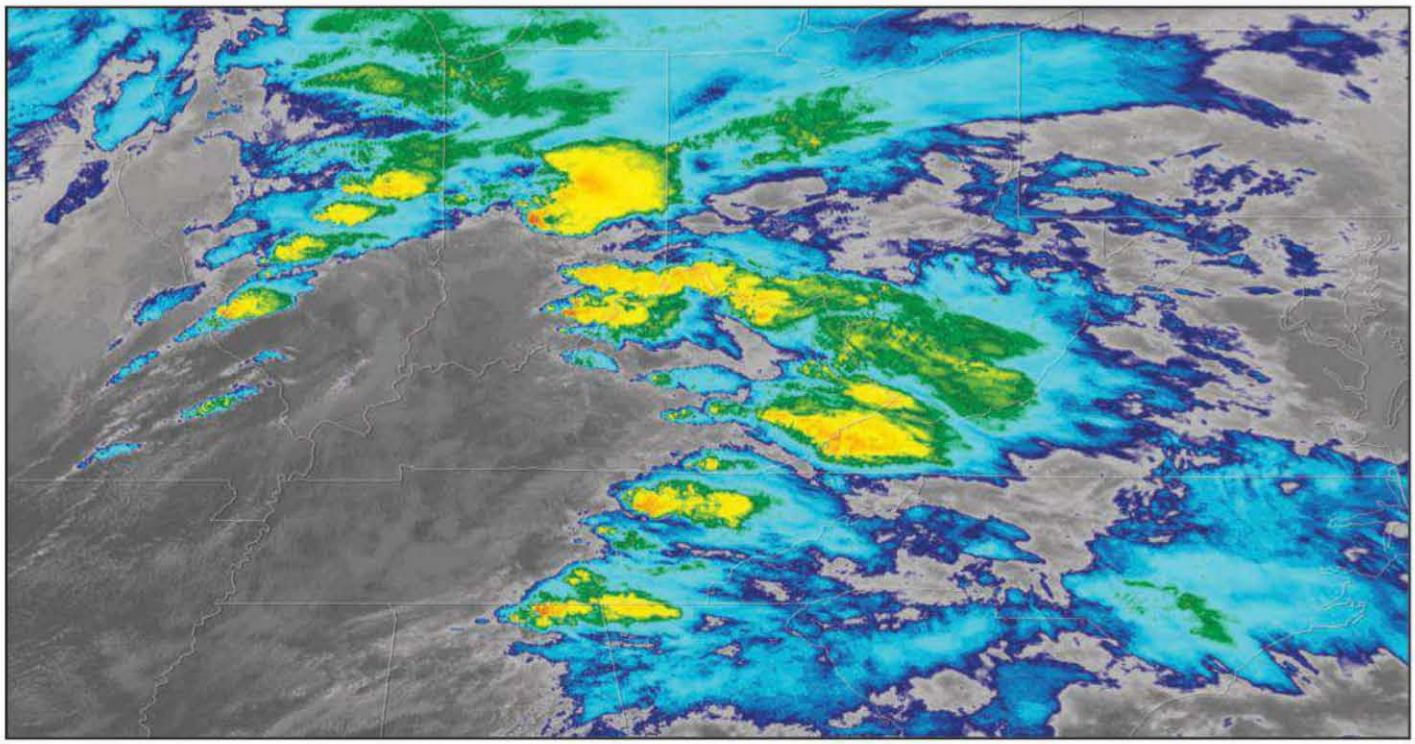

Photo B– A satellite view shows the extent of the severe weather system that brought multiple tornadoes to the eastern United States in March, some of which pummeled the Cincinnati, Ohio area. (Courtesy of the National Weather Service)

group attached to the Cincinnati-Dayton Region of the American Red Cross, reported to region headquarters to prepare for probable deployment."

Lewis said a resource net was conducted at 8 PM. "The tasks to be completed for the Red Cross were mainly related to disaster assessment, and amateur radio was to be used for coordination because cell-phone service and other public utilities were experiencing outages."

At 8 AM Saturday a group of 14 amateur radio operators assembled for EmComm duty assignments. "Two of them staffed the Red Cross radio room for coordination," N8TFD said, while "the other 12 deployed as 6 two-person teams into the tornado 'strike zones' in Clermont County, Ohio, and Kenton-Grant-Pendleton counties in Kentucky District 7. Other hams reported to the chapter as relief operators later in the day."

Clermont County RACES/ARES® staffed the radio room at the Clermont County Emergency Management office, Lewis reported. Those operators were providing updates and receiving information from amateur radio operators in the field to maintain "situational awareness" for hams involved in the EmComm effort. Operators in Clermont County heavily used the Clermont County RACES/ARES® repeater for coordination of efforts in Franklin, Tate, and Washington Townships—an area that includes the village of Moscow.

"The most interesting and productive aspect of the day's operation was a relatively new process for disaster assessment in Clermont County," N8TFD noted. "In Ohio, county EMAs *(Emergency Management Agencies—KI6SN)* traditionally have done their own damage assessment, and the Red Cross has done its own.

"Although Red Cross disaster assessors don't enter homes, the 'from the street' criteria are very similar between EMAs and the Red Cross, and reporting this data twice seems like some unnecessary work for both parties.

"To improve this process, amateur radio operators doing the disaster assessment were assigned to EMA-managed

task forces in Moscow, the Clermont County village sustaining the most damage and impact from the storms. Each team had members of fire and EMS, county engineering and building inspectors, and Red Cross volunteers. The team moved through town, determining damage (and talking to people) just once, instead of numerous times. All members of the task force were required to check in and out with Hamilton County's 'Command 400' (mobile command post), consistent with NIMS *(National Incident Management System—KI6SN)* accountability practices.

"The process was very effective, and the amateur radio operators working in the area had a particularly strong working relationship with the Washington Township Fire Department," Lewis reported.

"When the day was over, amateur radio operators ... were able to enter Red Cross information called 'street sheets' into WebEOC for consumption by Clermont County EMA, closing the loop on a great story of cooperation between amateur radio and public safety on this day."

On Sunday, March 4 "loose ends were tied up related to Saturday's effort, and we 'stood down' in Southern Ohio District 4," N8TFD said.

More Reality: Ohio, March 15, 2012

Severe thunderstorms tore across Sandusky County, Ohio from late evening Thursday, March 15 to the wee hours of Friday, prompting SKYWARN® net activation and causing road closures and school delays due to flooding," according to Owen Fritz, KD8GSI, ARRL Public Information Officer for the region.

"Several mobile and base-station hams from across the county reported hail the size of a quarter and five-inch-per-hour rain rates," he said. "Sandusky County SKYWARN® Coordinator and net operator Jeff Herman, KD8ERV, relayed the information to the National Weather Service Cleveland office. A flood warning was issued shortly thereafter.

"On Friday at 6:30 AM Sandusky County Emergency Management Agency (EMA) Director Chris Mock, KB8GSA, notified county Amateur Radio Emergency Service (ARES®) Coordinator David Gierhart, W8DAG, that four ARES members were needed to conduct damage assessment at a flooded, 40-residence apartment complex and the local YMCA."

Fritz said ARES members were briefed at 8 AM at the Emergency Operations Center (EOC) and then surveyed damage for the next three-and-a-half hours.

"After returning to the EOC, the ARES members called all apartment occupants to determine if they had renter's insurance, as they needed to complete the state damage reports within 12 hours of the event," KD8GSI said. "The team was instructed and led by Assistant EMA Director Lisa Heyman during the activation." The team photographed several dozen areas of damage to submit with the report.

The responding ARES members were Dale Farmer, N8OHK; David Englehart, W8DPE; Gene Schumacher, W8VMW; and David Gierhart, W8DAG. Several ARES members had completed EMA-provided State Disaster Assessment training just two months earlier.

Upcoming in Public Service

We'll have more reports of EmComm in action during March 2012's severe weather in subsequent editions of this column. In the meantime, please keep us posted on your, or your organization's, emergency preparedness and communications activities. We'll be more than happy to share your stories and photographs with *CQ* readers 73, Richard, KI6SN

THE HISTORY OF M2 ANTENNA SYSTEMS, INC.

M2 Antenna Systems, Inc is a woman owned business that started in 1984 as a small typesetting business. It was originally a partnership between Myrna, K6MYM and Mike, K6MYC (hence the M2 name). When "desktop publishing" came along, Myrna decided it was time to sell the antiquated photographic and word processing equipment. (good thing!). At that time Mike and other owners of KLM Electronics had sold KLM and Mike was consulting. Soon an opportunity came along to "get back into the antenna business". A 150 foot dish project launched the Staal team of Mike, Matt and Kenny back to what they do best. Soon a huge project came along to provide the Trucking industry with instantaneous communication and location data using Meteor scatter techniques. Rapid growth motivated the company to move from the high dollar Silicon Valley to business friendly Fresno California and M2 was off and running.

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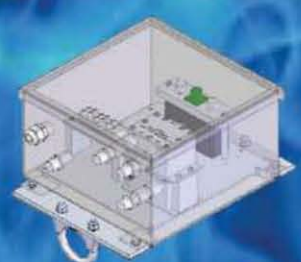

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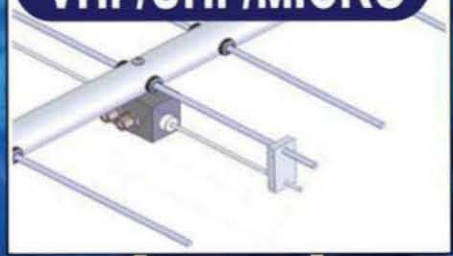

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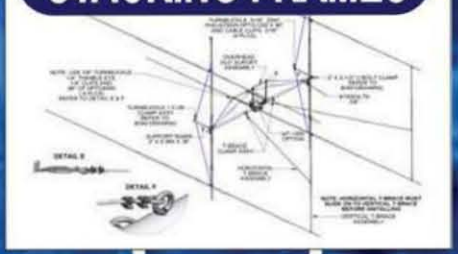

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learning curve

BY RICH ARLAND,* K7SZ

Take It to The Field Special
Get Out There and Join the Fun!

Wow! It's Field Day time again. Where does the time go? This column will be out well in advance of the annual ARRL Field Day, so I'd like to devote it to helping Field Day Virgins, or **FDV**s, (we all were there at one time!) get a better grasp on the event and why it is so important to us as ham radio operators to participate in this simulated emergency test of our communications capabilities.

First, a bit of history: Back when amateur radio was in its infancy, hams had no way to transmit messages over extremely long distances, even U.S. coast to coast. Due to limitations of the technology of the time, transmitters were not efficient, receivers were deaf, and no one, and I do mean *no one*, understood a thing about radio-wave propagation. Sometimes it was possible, due to the frequencies used in those early days, for hams to contact one another over only several miles. As technology caught up to the hobby, longer and longer distances were reached. However, during these early years, if someone wanted to send a message from the east coast to the opposite side of the country, this message had to be sent via relay stations. Enter a young automobile aficionado who had an idea.

This young man's father had invented the machine gun. Unable to interest the U.S. War Department in his reciprocating firearm, his father left the states and emigrated to England, where he struck a very lucrative deal with a British gun maker to develop and improve his rapid-fire device. Not one to live in his father's shadow, the son soon developed a silencer for firearms and car mufflers. His name: Hiram Percy Maxim, founder and first president of the American Radio Relay League (ARRL). His idea was to unite radio amateurs across the nation to form a backbone communications network to rapidly process and handle radio message traffic via the airwaves. The result was the founding of the ARRL in 1914, and, as they say, the rest was history.

The need for hams to *train* to handle message traffic during natural and manmade disasters became evident in the early days of the ARRL. In 1933, the annual ARRL Field Day was born. Once each year a great number of hams in both the U.S. and Canada "hit the bush," assembling HF, VHF, and satellite communications stations on a very large scale emergency communications (EmComm) training exercise called Field Day. The object is to contact as many other participating stations as possible in a 24-hour period. Field Day is always held over the last full weekend in June.

On the surface, Field Day seems pretty simple: Grab the radio gear, antennas, and coax, load up the family vehicle, and hit the bush! No problem. Enter Ed Murphy. You know him; he's the "If anything can go wrong, it will" guy. That Ed Murphy.

Ed and I are really, *really* good friends. Not that I am bragging, but it seems he's always hanging around my shack. I think I'll start setting a place for him at the dinner table!

Old Ed aside, Field Day is where you will find out just what kind of amateur radio operator you really are. If you can think outside the box and have the abilities of MacGyver, you'll do well. If not, Field Day is the place to practice your craft and work out the bugs. When the "balloon goes up," it will be a little late to practice your emergency operating skills. In short, Field Day is a learning experience for everyone, FDVs and Old Timers alike. We all learn something each time we participate in Field Day.

Field Day is also a great time to increase not only your operating skills, but your coping skills as well, when things don't go exactly as planned. One of my favorite Field Day/Murphy stories took place when I was stationed in Virginia at Langley Air Force Base. I was a member of the local club that had within its membership some *real* rocket scientists! No joke. NASA Langley was just across the runway from the Air Force side of the installation. It was cool to rub shoulders with these guys and gals.

On my last Field Day in Virginia we had secured permission to set up our gear, tents, campers, and antennas on a large patch of grass ringed with trees across from one of the major wind tunnels used by NASA. It was a great location. Some of the senior members of the club, several of whom were *real*

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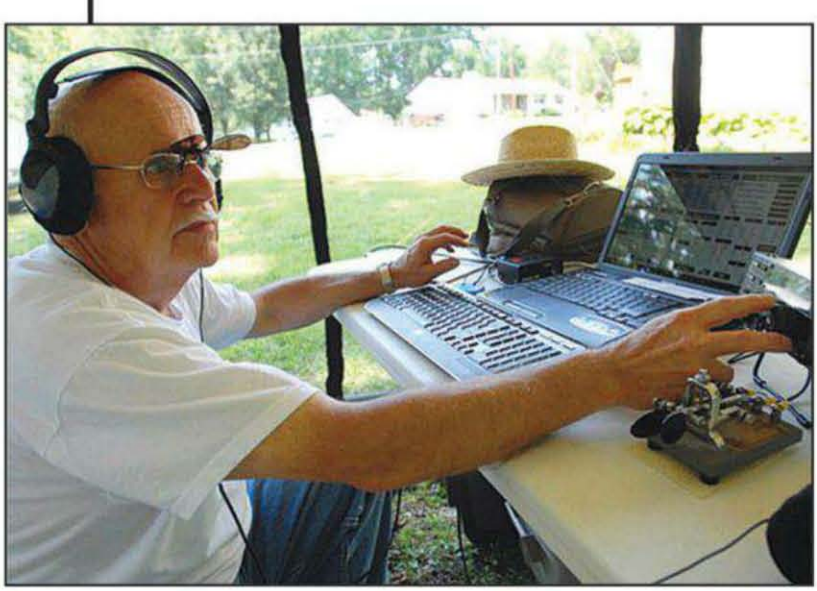
e-mail: <k7sz@live.com>



Mike Boatright, KO4WX, at the controls of one of the Field Day stations at the Bent Dipole Ranch in 2011. Mike is an avid QRPer and CW op. Notice that he is using computer logging (a must for Field Day to ensure accuracy). If the radio in use is set up for computer control, the computer can do double duty by logging and controlling the radio simultaneously. The radio in this instance is an Elecraft K2.

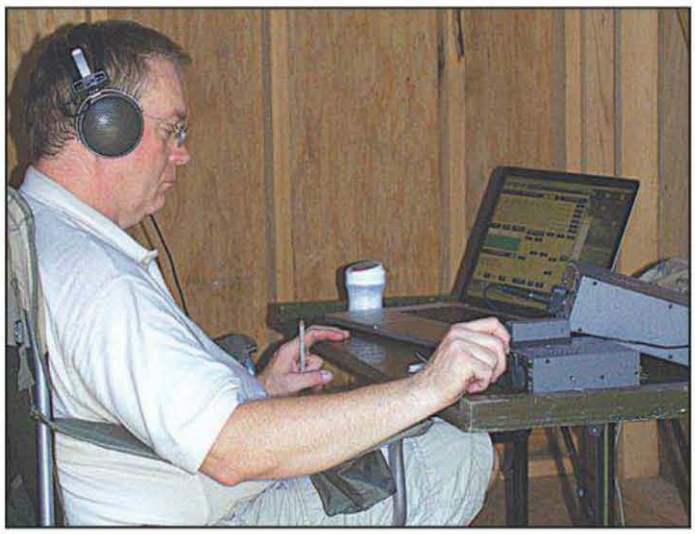
rocket scientists, had developed a killer "super-loop" antenna for use on 80 meters during Field Day. They erected it next to one of the pop-up campers and retired for food before the event kicked off.

During the night they were bemoaning the fact that their killer loop antenna wasn't working very well. As the night progressed, their QSO rate continued to be well below what they had anticipated—as in a whole *lot* lower! Later the next day I was on call to garner bonus QSOs using QRP. In addition, more bonus points were allocated if my station ran on non-generator power such as solar panels, batteries, or fuel cells. As I set up my QRP rig in the pop-up, I noticed several pieces of coaxial cable lying on the floor and went to find someone who could tell me which one to use on 40 meters CW, since no one had labeled them. One of the *real* rocket scientists came into the pop-up and traced the coax cabling. He let out a string of words that are not printable in this column, and ran out of the camper!

This is a close-up of the primary CW station, an Elecraft K2. The single-lever Vibroplex paddle set is an "oldie but goodie" and ultra-rugged, just the thing for taking into the bush for Field Day. The primary radio at the 2011 Field Day at the Bent Dipole Ranch was the Elecraft K2. We also had a K3 that was pressed into service at night on 160/80/40 meters.

After some trial and error I found the right coax and proceeded to start making the low-power QSOs. It wasn't until later that I found out that the 80 meter operators instead of using their "killer loop" had been transmitting into a 40-foot piece of unterminated cable! Talk about an interesting "antenna"! All night long these *real* rocket scientists had been making QSOs using only a 40-foot piece of RG-8 coax! I still smile about that incident, as it is a great example of what seems to happen during Field Day.

OK, now that we have a little history about Field Day and have introduced you to one of the premier players, namely Ed Murphy, let's go over some basics you can use to develop your own Field Day kit. Obviously, you'll need some radio gear. This is where owning an FT-817, FT-857, FT-897, K2, or TS-50 can be a real asset. These rigs are relatively small and designed to work directly from 12 VDC. Some QRPers will take home-brew gear into the field to further enhance the Field Day experience. For FDVs, I don't recommend this. The K2 is a great HF kit radio that is well represented on Field Day, as are rigs such as the Yaesu FT-817 and FT-857. The larger FT-897 is just as much at home in the field as in the shack, and it covers all of HF plus 6 and 2 meters along with 70 centimeters. Two years ago I saw my first Elecraft K3 at Field Day, which



Dick Bentley, K2UFT, is our North Georgia QRP (NoGA) "ringer." Dick is a world-class CW op and he can really cook when the bands are hot. Dick is using another Elecraft K2 as the primary CW station. He controls the radio and logs using the computer shown to the left of the rig. The small black box located to the left of the computer is a K1EL WinKeyer, a must-have accessory for contest-style CW. The large keyboard below the computer is an operator creature comfort, since many laptop computers with their reduced size keyboards are hard to use. The external keyboard reduces these chores.

might make a better choice than the K2, since the K3 has 6-meter coverage in addition to HF. There is also a 2-meter option for the K3 that will prove useful if you only want to take one radio into the bush and cover HF through 2 meters.

You could also opt for older HF radios such as the Kenwood TS-130S or 430S, or any of the 20-plus-year-old Icom or Yaesu rigs. These older rigs will work great, and you are not taking a multi-thousand-dollar rig out into the wilds, which, knowing Mr. Murphy the way I do, might not be a really good idea! If you want a presence on VHF/UHF, then the older Icom IC-225 or Yaesu FT-726 or 736 rigs would be a good choice. Antennas are smaller at these frequencies, so logistics are somewhat easier to arrange. Not only that, directional Yagi, Quagi, or log-periodic antennas are manageable in size, and a 30–40-foot push-up steel mast and rotator can be employed to give a decent directional signal on these high bands.

In many instances antennas for Field Day are of wire designs. The lowly half-wave dipole is always a good choice, as are off-center-fed (OCF) antennas such as Windoms. The 40- and 80-meter extended double Zepps (EDZs) are good choices as well, giving multi-band operation when fed with open-wire feedline via a tuner. Some groups/clubs take tower sections and rotators out into the bush and set up some rather impressive HF directional antennas. Wire beams in the form of multi-element Yagi designs and bob-tail curtains are favorites of many clubs when extremely tall trees are available at the Field Day site. They are easy to fabricate and not too much of a hassle to erect.

At the other end of the Field Day antenna spectrum are the end-fed half-wave (EFHW) antennas which have established quite a beachhead in the QRPers' portable antenna systems. Inexpensive to fabricate, simple to install, these EFHW antennas are good performers for one- or two-person QRP Field Day efforts.

While I have participated in large club Field Day exercis-

es, I really enjoy a much simpler and smaller one- or two-person Field Day outing. My personal philosophy is to enjoy the time in the great outdoors while participating in the emergency communications exercise.

I love to camp. I also love ham radio. Field Day is the chance to marry the two hobbies together for a fun weekend in the bush. Unfortunately, many large Field Day outings take on the tempo of a military training exercise. This is counterproductive to having some fun in the wilderness. It also has the effect of "pushing away" many newcomers to ham radio who have never turned out for Field Day. In my view, Field Day should be a time when new hams and new club members are encouraged to participate at whatever level they are comfortable with and not become part of "the machine."

Another problem I have seen first hand is that the club or emergency comm organization turning out for Field Day approaches this annual communications exercise as a contest. *No! No! No!* This is a real turn-off to new hams/club members/FDVs, most of whom are not the least bit interested in a "contest-style" operation. I have been to Field Days where all the "big gun contesters" in the club have monopolized the radios for the entire 24 hours of the event, to the exclusion of anyone who doesn't enjoy sitting at the radio doing 10 QSOs per minute! Field Day is *not* a contest. It is an EmComm exercise: Period. Approach it as such, please, for the sake of your club and the newer hams in attendance. Field Day should be a time for training newbies in the fine art of antenna erection, proper station assembly, enforcing good operating practices, etc. It's *not* the CQ WW DX Contest!

Field Day is many things to many people, but we cannot afford to lose focus. Field Day is and always should be, a time of training and expanding/refining our skills as emergency communicators. This is a chance for experienced Field Day hands to share their knowledge and skills with newer members of the club or EmComm group. It's a learning experience all the way around. Without a doubt, Field Day offers a tremendous opportunity to show off the amateur radio hobby at its very best to the rest of the world.

That's it for this column. Now grab your gear, hit the bush, and have some fun with Field Day. Next month, back to the workbench and some tall tales involving antennas! Until then . . .

Vy 73, Rich, K7SZ

BY CAM HARTFORD,* N6GA

Take It to The Field Special

To The Field or On The Trail: What Really Works?

Try to envision a skinny 18-year-old kid in the mid-1960s, high-water pants, white sox, black-rimmed nerd glasses and all, loaded down with his 20-pound portable radio station (!) attempting his first QRP/portable operation. He thought he could climb right up the side of the mountain to where the tall trees grew, set up his 40-meter dipole, and make a bunch of Qs. In the end, he learned that you can't climb straight up, and the dipole doesn't work well when lying on scrub bushes just four feet off the ground. And in the end, he was chased off the hillside by rattlesnakes.

I asked several well-known QRPers what works for them when they go out into the wild and their answers are in the following accounts. Sure wish I could have talked to these guys before I took that silly trip!

Steve Galchutt, WGØAT

*Many of us have seen the videos of Steve WGØAT (photo A) hiking up to the heights accompanied by his buddies Rooster and Peanut (**Watch:** <http://n0tu.blogspot.com/>). Steve usually starts his videos with some trail scenes during the ascent, and suddenly, as if by magic, he's on the air making contacts. I admit to more than just a little curiosity about what antennas he uses to make all those crystal-clear QSOs happen. Here is his response:*

Planning a trip into the woods with your radio gear takes a little thought if you want to be successful at making a few fun contacts. First I ask myself what kind of journey it is—a day hike, an overnighter, a week-long backpack, or maybe a car-camping weekend. Also how much time I will have to actually play radio and what other activities will take precedence? These all impact what to bring, from keeping it simple to maybe bringing an elaborate antenna such as a 2-elment 10-meter beam or a delta loop, etc. In the field the antenna is everything in my book! But this assumes your radio, power source, and accessories are in good operating order.

I have several favorite antennas. One is for when I know there are trees or supports available, and the other is for when there aren't. The first is a simple tuned dipole. No tuner necessary! Or what I call a "jumper dipole." I carry it with some lightweight coax in a quart-size plastic bag in my field go-kit as a backup antenna. It's a dipole cut and tuned for the highest band of operation with additional band segments added via an insulator and short jumper (photo B). I've used this antenna in straight flat top, inverted Vee, and sloper configurations, and from 15–40 feet off the ground with great success. It can be supported with a tree or push-up mast. I also carry a 22-foot telescoping fiberglass fishing pole that I use as a hiking stick when collapsed. It can serve as an antenna support or an aid in fishing wires in and out the trees,etc. It also serves as a camera boom.

Next is my End Fed Half Wave (EFHW) which, as the name implies, is a half wave of wire fed at one end. This antenna requires a tuner to transform the high impedance to 50 ohms. There are several good, small, lightweight tuner kits avail-

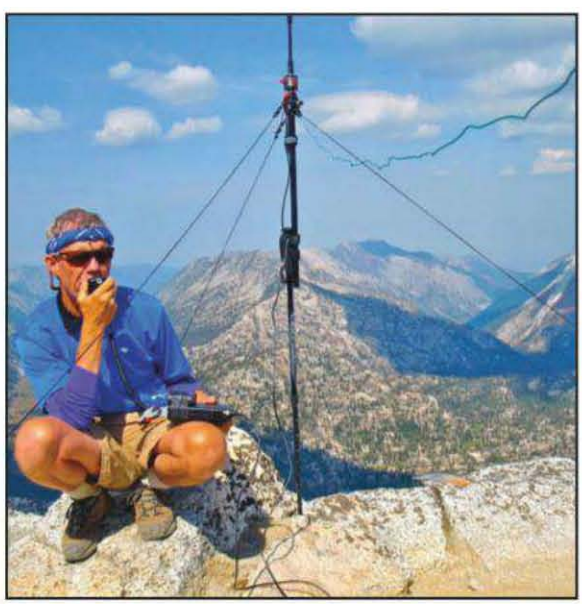


Photo A– Steve, WGØAT, on Eagle Cap in Oregon. His trekking pole holds up a bent vertical dipole.

Photo B– Steve's 20m/30m/40m jumper dipole.

*1959 Bridgeport Ave., Claremont, CA 91711
e-mail: <qrp@cq-amateur-radio.com>

Photo C– Ron, WB3AAL, QRV for Field Day

able, or you can roll your own. The EFHW is easiest to deploy by simply tossing a weight over a tree limb and hoisting it up.

Must be some of goats' influence, as I often I find myself on a mountaintop or high cliff location where antenna supports are either scarce or nonexistent. So it's the vertical/bent dipole to the rescue! Ground-mounted verticals can be great performers, but who has time to lay out a bunch of radials in the field? However, if you elevate a vertical you can get away with one or two radials and have a pretty efficient antenna system.

I begin my setup with using the bottom three sections of my hiking stick as a mast which telescopes up 11 feet to support a center-loaded whip and one elevated radial (the other half of the dipole.) This radial is tied off to a bush or stick to keep it off the ground. I support the mast either by using three guys or by using bungee cords to strap it to a stump, log, or whatever I can find that will help support the mast to free stand. I've also used a combination of all, such as a stick in a pile of rocks.

One big secret to success in the field is to set up your antenna and rig in your back yard first and make a few contacts with it. Pack it up and put in the car ready to hit the trail. Do not remove anything from the pack. This pretty much guarantees you'll have everything you need for field operations. I've been bitten too many times by forgetting a coax adapter or power cable that becomes a show stopper! Good luck and have fun!

Thanks for the good info, Steve. He doesn't mention it, but I suspect that being high in the Rockies might help a little in launching his signals. You can see more photos of Steve's antennas in action at the following website: <http://bit.ly/HvKZij>.

Ron Polityka, WB3AAL

Announcements of WB3AAL's QRP operations from the Appalachian Trail show up quite regularly on the QRP mail lists. When I see one of these

Photo D– WB3AAL's pared-down portable station

announcements I envision a guy with a lean, mean, portable QSO-making machine all packed up and ready to go. Ron's setup wasn't always so, but he's definitely a good learner! See photo C for Ron's Field Day setup.

One day back in February 2000 I wanted to do something different, since we had entered a new century. I decided to start going out to the Appalachian Trail in Pennsylvania with my QRP HF radio.

My first time out was in March 2000. I drove to a location near Hawk Mountain Sanctuary. The location was not the best, but I did have a blast. My first QSO was with a station in Virginia, and then I worked Lithuania, England, and Germany. I was hooked.

My station consisted of a Kenwood TS-50 turned down to 5 watts, a 100 amp-hour deep-cycle battery, and a doublet antenna with ladder line. Fortunately, the station setup was only around 50 feet from the parking lot. I knew I was hooked on operating portable on the Appalachian Trail (AT). Since the first time, I have tried all different types of radios, batteries, and antennas.

I went from using heavy HF rigs and batteries to lightweight systems due to the fact that I wanted to hike in farther on the AT. I used a number of different HF transceivers, including the Ten-Tec 515 Argonaut, Small Wonder Labs SW Plus series mono-band radios, and the Elecraft K2 and K1.

When I took the Ten-Tec Argonaut 515, I tried using SSB. I had two small problems. I needed to take two 7-AH SLA (sealed lead acid) batteries, which was a bad thing . . . especially when hiking three miles up the mountain. The second drawback was SSB. Don't get me wrong; it was fun using SSB and hearing the other person ask where I was and what power I was using. The unfortunate thing is that SSB draws people toward you and makes the wildlife stay away. So that is one reason why 98% of all my QSOs from the AT are in CW mode.

I purchased some of the Small Wonder Labs radios from Dave Benson (http://www.smallwonderlabs.com/). These radios are small and their power usage is low. Because of this I can take smaller batteries, one 7-AH SLA or a battery pack of AA batteries. I had a lot of fun with the small radios, but I did run into some problems. When you hike to a location on the AT in Pennsylvania, chances of having to share that location with a commercial communication tower is very good. Depending on what the towers were being used for, the SW radios would have some type of interference. I lost a few QSOs due to the interference, so I decided to use the SW rigs for long-distance hikes far away from any towers.

I then purchased an Elecraft K2. I had fun with it out on the AT using CW only. I got hooked on making QSOs around the world and hearing the signals in headphones and having deer, turkeys, and many other types of wildlife walk by not even noticing me because of my silent operation. When the K1 was introduced, I decided to purchase that radio with the four-band board for 40, 30, 20 and 10 meters. I had some close calls with my K2 and worried about slipping and falling on a $1000 radio. Since then I've been having a great time with the K1 out on the AT (photo D). I still take the SW radios out when I go to a location with no towers.

When you are on top of a mountain range, finding trees to hang an antenna can be difficult. I have tried everything from a G5RV to mono-band dipoles, loops, end-fed wires, and verticals. If I have trees that are far apart and the forest is not dense, I hang a G5RV or a dipole. If there are few trees in the area and they are not too tall, I use an end-fed or a vertical. I use a crappie fishing pole or a Jackite® pole (www.jackite.com)to hang a vertical. I made many QSOs with the vertical on top of the mountain. You could also try an inverted Vee with the poles. They work very nicely.

Powering up your station is the one thing you have to research. I first started out with a 100-AH deep cycle. I went to the 7-AH SLA, and now I am using the lithium polymer battery packs. They are the types that model-airplane hobbyists use for remote-control planes. You have to be very careful, because there is a risk using these batteries. Make sure you have some type of connector on them to prevent the wire from shorting. You need to keep them dry, so I use a small, collapsible lunch bag to carry the battery. This will keep it dry and warm in the winter. I like using rechargeable AA batteries for my SW radios. I can carry extra batteries and there is very little weight involved.

I have hiked on the Appalachian trail once a month from March 2000 until September 2011. I have made around 1390 QSOs from the AT and worked all states except Hawaii and about 45 countries. Recently I've been suffering from an arthritic knee, but I just cannot wait to get back out on the AT to call CQ!"

Ron, your knee will certainly feel better when you stop lugging around that 100-AH battery!

Jim Cluett, W1PID

I featured the portable ops of Jim Cluett, W1PID, in my June 2011 column (photo E). Jim's webpage chronicles something like 50 trailside adventures he's conducted, so I thought I'd ask him again what he uses to ensure in-the-field success. His answer:

I think the most important thing I could talk about is anten-

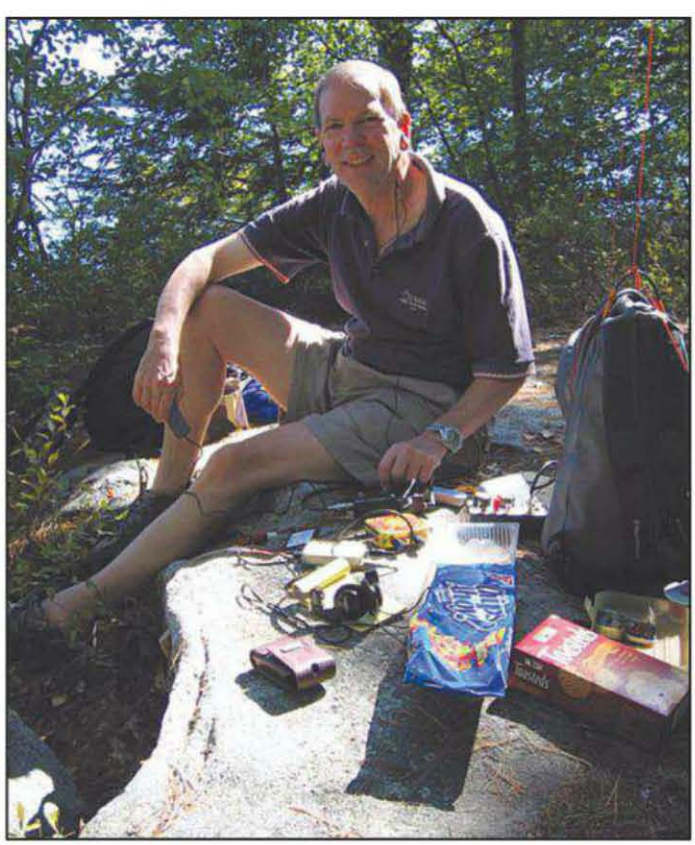


Photo E– Jim, W1PID, set up for a QRP/p session. Visible in this photo but not mentioned in his text are the all-important Chips Ahoy® cookies (QRPs Ahoy?).

nas. Right now I use a half-wave vertical almost exclusively on 20 meters. I chuck a line over a branch using a water bottle, and I pull up a wire. I tune it in several ways . . . T-1, Par matchbox, even a ZM-2. But the antenna is simple, quick to put up, and a guaranteed DXer. I have *never* failed to make a QSO with this setup, and I get out at least three times a week during the warm weather. It's one throw and not too high; 35 feet is plenty.

I have several different rigs that work fine: the ATS 3 or 4, the HB-1B, even an MFJ Cub. Batteries are the same: an 8-pack of AAs, lithium ion, doesn't matter. The stumbling block for beginners is usually the antenna.

Photo G– KI6J's entire /p station with carrying case, less support pole.

I thought it interesting that Jim uses fairly standard tuners to match the end-fed vertical. This antenna exhibits a high impedance and is most commonly fed with a tuner made specifically for the task. Jim responded:

Both the T-1 and the ZM-2 will tune a half-wave wire, and will tune nicely on 15. Add a counterpoise to the 10-meter wire (half wave on 20) and you can use it on 40. I don't use a counterpoise with a half-wave wire anymore. I always used to, but realized it doesn't improve the signal.

Stu Schreiber, KI6J

Stu is the Manager of the W6-USA SOTA Association. He spends quite a bit of time hiking the local mountains (photo F), and in so doing has had plenty of time to think about what needs to be in a portable station, and what doesn't!

The gear I use for activating SOTA summits has been assembled using the "process of deduction." I have taken away everything I can do without, until I can't take away any more. Doing more with less is especially attractive when I'm carrying my station in a backpack for several miles. *Stu's entire station, except for antenna, is in photo G.*

My radio is either an ATS3 or ATS3B. These are miraculous little radios, inspired by and designed for backpack portable operation. I have them in unpainted, shiny metal enclosures to help keep them from baking in the sun. For most activations, where I will be on a summit for a few hours at most, I carry one or maybe two band modules, properly chosen for the day.

The antenna is a half wavelength long piece of Teflon® insulated, #24 stranded wire, tied to an end insulator made from a slice of PVC pipe. I pack the wire for the band(s) I will be operating on. I feed it from the end, using a small, tunable impedance matcher with a built-in SWR bridge. The feedline is an 18-inch piece of coax terminated with RCA plugs. I carry a male-male RCA coupler as a coax substitute in case I experience any connection problems.

For summits above tree-line, or if I'm not sure there is some structure from which to hang an antenna, I carry a 31 foot Jackite® pole. It is sturdy and has held up quite well to a lot of abuse. It does a fine job holding up end-fed wires during strong wind gusts, which are common during summit activations. I've used the shorter Jackite® poles, and they also do well.

Since I often don't know what the terrain will provide for supporting my antenna and mast, and the setup has to be improvised on the spot, I carry a few small pieces of rigging gear. An adjustable, 36-inch backpack strap does well to lash the mast to whatever I can find to secure it. A small spool of **1/16**-inch, round braided rope can make a set of mast guys in a pinch. A few foot-long loop lanyards, each terminated with a fishing snap-swivel, and a couple of plastic rings help orient and secure the antenna wire. It is essential to tie the radio end of the feedline to something secure; a good gust of wind can turn an antenna mast into a catapult, throwing an entire QRP station an incredible distance.

The paddle is a crude but functional homebrew unit. The base is made from a piece of "unbreakable" Lexan®, and the lever sare spring steel. My paddle tends to get dropped and kicked around during summit activations, and nothing is truly unbreakable, so I often carry a backup, usually my Tiny Iambic Paddle made by NØSA.

I use earbud-type headphones in the field. This is the only piece of gear that makes me feel I am making a compromise for weight and size; I would much prefer a nice set of over-the-ear headphones. Since the earbuds are so tiny and weigh nearly nothing, they are perfect for backpack portable stations. I carry two sets stuffed in a little metal chocolate tin. Wind noise can be a real problem on the summits, and I always have a hat with ear flaps, ear muffs, or a jacket with a padded hood. This can make a huge difference in being able to copy callers.

Photo F– Stu, KI6J, rockin' the Qs from a rocky mount.

Logging is done in a spiral-bound "Write in the Rain" notepad. Yes, you really can write in the rain. I use a golf pencil, sharpened at both ends. If I get a good pile-up going, I don't have time to sharpen a broken pencil. For timekeeping, I use an old wristwatch with the band removed.

I carry an 8-cell AA battery pack for power. I have two packs, one with rechargeable cells and one with alkaline cells. I have been surprised by the NiCad cells too many times, mostly due to my lack of diligent care; and I find the alkaline cells to always perform as predicted. I also carry two AA dummy cells, since my ATS rigs prefer to be tuned up at 9 volts.

A compass and a pocket knife finish the kit. The whole station fits in a 5-by-7-inch "hip pack" with belt loops on the back, and weighs a bit under two pounds, not including the Jackite® pole. It is minimalist, but effective. I get consistently good reports from East Coast SOTA chasers, and work European chasers regularly from California summits.

Going QRT to Hit the Trail

After reading the preceding accounts I have a bad case of the itchies to get out and hit the trail with my QRP/p rig. My thanks to WGØAT, WB3AAL, W1PID, and KI6J for their generous input. I've gleaned some good ideas from these guys and am anxious to try them out. I hope to be working you from the trail! 72/73, Cam, N6GA

Take It to The Field Special

A Portable Antenna Launcher and Field Day Potpourri

BY JOE EISENBERG,* KØNEB

In keeping with the theme of taking it to the field, here is a useful kit for use outdoors that requires no soldering, drilling, or cutting! If you are like me, you don't have the major league throwing arm needed to toss a rope far up into a tree for hanging wire antennas for Field Day or other portable operations. I have seen many products designed for this purpose, mostly revolving around a modified slingshot. However, at a recent hamfest, seeing this new kit made me want to look further into the problem of launching antennas.

What I discovered is a kit that indeed lets you launch wire antennas higher and easier than other methods and does not require a pitcher's arm! The Joplin Amateur Radio Club offers a low-cost launcher kit to effectively get those wire antennas into a tree. The JARC had been pressed into service for a long period of time a year ago, following the horrific destruction of a good part of the club's home city from a massive EF-5 tornado. Now these dedicated club members are selling the JARC Antenna Launcher.

The JARC Antenna Launcher

The JARC Antenna Launcher comes as a kit primarily consisting of high-pressure-rated precut pieces of PVC pipe and connectors. A PVC valve and PVC projectiles are supplied as well. The supplied instructions are quite clear and should be read completely before you begin assembly. There are four things you also will need before beginning assembly.

You need an enclosed fishing reel, such as a Zebco, Shakespeare, etc., available at most sporting goods stores or Wal-Mart, usually at a very low cost. Most of these inexpensive fishing reels come already pre-loaded with enough monofilament fishing line. You also need to get two 2-inch hose clamps. The kit is supplied with two wire ties, but the hose clamps seem to hold the fishing reel to the barrel a lot more securely. A tire pump, such as a standard floor-standing bicycle pump with a built-in tire pressure gauge, is preferred for pressurization. Finally, a small can of PVC cement is needed. These often come with the applicator built into the lid, so it is easy to apply the cement. If you have never worked with PVC cement, keep in mind that it sticks extremely rapidly. If you know somebody with PVC pipe experience, have him/her assist you in the assembly process, which takes less than one hour.

The projectile caps come already drilled and fitted with an eyelet to attach the fishing line. The projectiles are also made from PVC material and glue together in the same manner as the main launcher. Don't be stingy with the glue, as the launcher does need to be airtight, but don't make it sloppy. A tire fill valve comes already installed on its PVC piece, so there is no need to drill. After giving plenty of time for the PVC glue to cure, it is ready to test. Follow the directions carefully!

Photo A– The Joplin Amateur Radio Club Antenna Launcher along with appropriate tire pump (tire pump not included with kit). (Photos courtesy of JARC)

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Photo B– Closeup of air fill valve on the JARC Antenna Launcher and the large hand valve used to launch the projectile (see text for details). A video demo of the launcher can be viewed at <http://bit.ly/Hsxcco>.

Photo C– Closeup view of fishing reel (not included with antenna launcher kit) and projectile.

SUCH A HAM

But this is the portable model, Mavis.
It comes with back straps for our picnic trips.

I tested mine with lower pressure at first with 30 lbs of air, and I saw the projectile go up about 25 feet. Pressurized to 50 lbs, it went over the tops of the trees near my house, quite sufficient for most Field Day applications. I would recommend first using a wad of paper instead of the PVC projectiles during the testing phase as I saw demonstrated at the hamfest. The normal projectiles can be quite hazardous if the launcher is not carefully aimed. This same caution applies if you are using any other type of antenna launcher. Using paper wads made from a single sheet of paper can help you get acquainted with the launcher's characteristics with less chance of a problem. This is a kit that needs to be used cautiously, but with an adequate amount of open-field practice, accuracy can be increased. Once the projectile is launched, it can be detached from the fishing line and a rope tied to the snap swivel on the fishing line. The line is then reeled back and the rope to attach your wire is ready to go.

The JARC Antenna Launcher kit is available online at <http://www.joplinarc.org/pages/antennalauncher.html> for $40 including shipping ($35 if you're local and can pick it up). ***WATCH:*** A video demo of the kit in action can be found at <http://bit.ly/Hsxcco>. Hats off to the Joplin Amateur Radio Club for a great kit!

Kits for Field Day Use

A great kit to take along on Field Day is the Elecraft KX-1. This outstanding 40- and 20-meter CW transceiver kit comes with digital display and has options to add 30- and 80-meter coverage, as well as an internal antenna tuner option. Allow about 11–14 hours to build it and be sure to follow the directions carefully. The components are densely packed on the board to get the most out of the limited space. There are a handful of surface-mount components that come already mounted to the board, so you need only work with standard through-hole components. The supplied manual is well-illustrated and easy to follow.

I have found my KX-1 to be a very reliable performer and very frugal on battery draw, especially on receive. I use Energizer Lithium AA batteries for maximum battery life when not connected to an external power source. The built-in tiny white LED logging light works great for copying CW and logging your contacts at night. Powering your KX-1 from larger portable batteries or a solar panel will provide for many hours of enjoyment in the field.

If you plan on doing some CW training during Field Day or giving your Field Day site visitors something to try out, consider building the AMECO Code Practice Oscillator kit. This simple kit can be assembled in a short time and used to give the general public a try at CW. You can find it at <http://www.mtechnologies.com/ameco/oscs.htm>.

Update

An update to a previous column comes from Small Wonder Labs. In addition to the Retro-75 75M AM transceiver kit, SWL now offers a 40M band version of the same kit. Look for it online at <http://www.smallwonderlabs.com> .

Remember that Field Day is a great time to show off your kit-built radios and put them to the test on the air. Be sure to have the correct power supply and antennas to match, and have fun! Also, bringing a gas-powered soldering iron can be a great help should you need to repair or modify any of your kit radios or wire antennas in the field.

Look for me on Field Day on 20 meters SSB at the mic of KØKKV or demonstrating my kit radios on CW.

73 de Joe, KØNEB

BY MATT STULTZ,* KB3TAN

Take It to The Field Special

Maker Faires: Science, Art, and Ham Radio

Summer is upon us and our winter hibernations are ending. The warm weather draws us out of our shacks and beckons for us to operate in new and fun locations. Our antennas are wound, batteries are charged, and generators are primed. Many of us are making our plans for Field Day, and the hilltops we will be working from this summer. Before you go unpacking your "go bag" this year, though, consider another great out-in-the-field operating opportunity: Maker Faires (see photo A).

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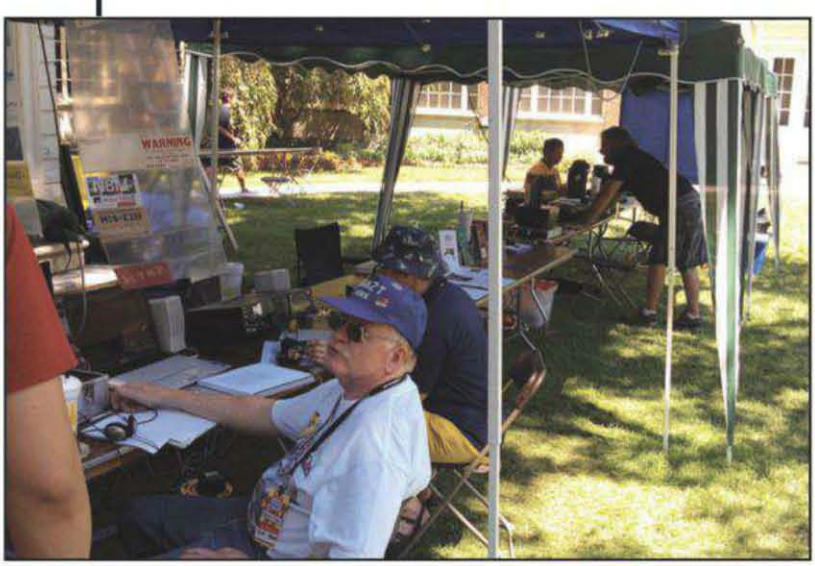

Photo A– Memebers of the Arrow Communications Association showing off ham radio at Maker Faire Detroit.

Photo B– Eli Richter pushes his modified power wheels to the limit during the race at Maker Faire Detroit. (Photo courtesy of Alex Thomson)

Maker Faires are amazing, eclectic events that can be very difficult to define. I often have called them science fairs for adults, and then an artist friend would gripe at me that they have as much to do with art as they do with science, and parents would quickly remind me that there are plenty of kids participating, too. At a Maker Faire you may see useful inventions and crazy contraptions, as well as traditional crafts beside quilted monsters. Science and education always play a major role in the festivities, but the performance art will keep you entertained (photos B, C, and D).

The "Make" Empire

Maker Faire was created by and is organized by *Make* magazine. *Make* has cformed an empire to help inspire and empower the maker community. The magazine is a quarterly publication that details how-tos for projects submitted by readers, as well as profiling prolific makers and reviewing tools to help create the projects of our dreams. To complement the magazine, *Make* runs the Make Blog (http://blog.makezine.com). This site is updated throughout each day with new and interesting projects found around the web. The site often features projects related to amateur radio and has included numerous tutorial articles and videos by Diana Eng, KC2UHB. Of course, makers also need kits and parts, and *Make* is on top of this with the Maker Shed (www.makershed.com). This web store offers kits that have been featured in *Make*, along with numerous other gadgets and gizmos to keep busy makers of all ages. The shining star in all of this, though, is the Maker Faires.

Starting in Silicon Valley

The first Maker Faire took place in 2006 at the San Mateo Fairgrounds in California. It was a huge success, and a year and a half later the second faire was held in Austin, Texas. San Mateo has continued to be a home for the west coast Maker Faire, and Detroit and New York City soon gained their own faires. In 2012, *Make* will present two major faires, in San Mateo and in New York, along with two featured smaller faires in Detroit and Kansas City. All faires draw makers from around the world to both show and experience many of the best projects created the specific year.

Not wanting to be left out of the fun, groups from many other cities began putting on their own Mini Maker Faires. These events are not sponsored or

organized by *Make*, but are put on independently with *Make*'s blessing. This year, cities across the country and around the world will be playing host to their own Mini Maker Faires. These smaller faires bring a taste of the Maker Faire experience to those who are unable to make it to the larger events. They are also a great chance for members of their local maker communities to showcase the projects into which they have poured their hearts for their friends and neighbors.

The Detroit Experience

To give an example of what you can expect at a Maker Faire, here is a brief recap of the 2011 Maker Faire in Detroit, based on HackPittsburgh's experiences:

HackPittsburgh (the hackerspace I help found and run) had a large showing that included some amateur radio technology. Our booth, rather than being housed in a standard rented tent, instead was located in a 20-foot diameter *yurt* (a traditional Mongolian round, tent-like structure; photo E). Yurts support all of their roof weight on their outer walls without the need for any central supports. Logan Stack, one of the members of HackPittsburgh, built the yurt from scratch. He wanted a portable structure he could take to events and festivals where he might spend time camping and entertaining. The yurt was a perfect solution. This large, open space gave us plenty of room to show off some our members' projects, as well as being a project in itself to show off.

We brought a variety of projects that members had created. Eli Richter brought his speedy line-following robot

Photo C– Riders pedal around a flame-shooting 4-wheel bike at Maker Faire Detroit. (Photo courtesy of Matthew Beckler, KB3VDJ)

Photo D– A fire-breathing dragon sculpture made from scrap metal and auto parts at Maker Faire New York.

Photo E– HackPittsburgh's Yurt at Maker Faire Detroit. (Photo courtesy of Matthew Beckler, KB3VDJ)

which he developed to take on Carnegie Mellon University's Mobot competition. (Eli's bot now holds the record as the second fastest bot ever to compete in the competition.). My wife Mandy brought along her Little Birds Project. This consists of hand-made miniature North American wild-bird sculptures made using wool and a process called *needle felting*. I showed my *Cheesebot*—a 3D printer that I designed—which instead of printing in ink or plastic, actually extrudes cheese onto crackers in words and shapes (sometimes Maker Faire projects need to be more whimsical than practical; photo F). In total we had about ten different projects on display in the yurt, giving visitors to our space a good demonstration of some of the things in which HackPittsburgh is involved.

One of the highlights among these was a demonstration of our high-altitude ballooning project. We hung our parachute and payload from the ceiling of the yurt, allowing visitors to see how the system looks as it travels up into the atmosphere. On a nearby table, we placed a monitor looping through a slide show of photos from previous launches. Of course, nearly every visitor would ask how we were able to track our balloon and recover it. This was our opportunity to introduce him or her to amateur radio. During the event, we kept a low-power APRS tracker running inside of our display payload. On the desk beside the slide show, we kept an HT on, softly squawking out the tones of packets being sent out to the world. Visitors were amazed that these short bursts of noise could be relaying so much information and could be received at such great distances from the launched balloon.

Photo F– The Cheesebot doodling in Detroit. (Photo courtesy of Matthew Beckler, KB3VDJ)

Being a part of this great event and putting on such a large show as we did in Detroit was an amazing experience. We all went home worn out and with sore throats from sharing our projects and stories with the hundreds of guests who stopped by our tent. We also came home inspired with new ideas and heaps of support and acknowledgement for the projects we had shown. Everyone on our team was excited to come back the following year with new and exciting projects.

We didn't have to wait long to wait for our next big Maker Faire experience. In October 2011 HackPittsburgh teamed up with the Children's Museum of Pittsburgh to host our own Mini Maker Faire. We called on makers and crafters from around western Pennsylvania and Ohio to come and show their work. They responded in droves, with nearly a hundred different projects on display, and a day packed with fun and excitement for the community. The event was a huge success.

The Ham Connection

These events, with their inquisitive crowds and their celebration of science and technology, provide a fertile environment for amateur radio operators to display their hobby and potentially attract new blood to the field. Arrow Communications Association (http://www.w8pgw.org/) did a fantastic job of showing off some of the aspects of our hobby last year at Maker Faire Detroit. In a small courtyard at the Henry Ford Museum they set up tents and an operating station that would rival many Field Day setups (photo A). They demonstrated HF communications, APRS tracking, and communicating with amateur satellites. The open and friendly pre-

sentation of ham radio operation drew groups of spectators all turning their ears to pull the faint signals from the air. This exceptional effort garnered the team an Editors Choice Award at the faire.

At the Maker Faire in New York, The Hall of Science Amateur Radio Club demonstrated how to build your own antennas and how to use those antennas to communicate with amateur satellites. They posted regular time intervals when workable satellites would fly over. This allowed attendees to roam around the faire and still make it back to the Hall of Science ARC booth in time to see how amateurs communicate with our orbital repeaters. Passing by the booth during one of the demos, you could see crowds of anxious onlookers hoping to hear the call of the distant satellites as handheld antennas tracked them through the sky.

Both of these groups presented aspects of our hobby to attendees at two of the larger events, but many of the Mini Maker Faires could still use amateurs to come out and operate. These smaller faires are always looking for more presenters and varied content to help build their shows. Creating and operating a special event station from a faire would not only provide a great demonstration, but would also give fellow hams a chance to work a new and special station.

A small group of two or three operators can easily work a booth for the day, trading off between manning the radio and answering questions from the crowd. A standard Field Day kit of a portable radio and simple wire antenna is more than enough to provide a great introduction to the public. With a few more resources and a little extra effort, even more can be accomplished.

Providing attendees with information describing the basics of radio theory will help plant the seeds of inspiration in their minds—in the already fertile grounds that Maker Faires create. It can also provide resources to help them find out how they can study for their amateur radio licensing exams and find a local testing site that will help lead them on the way to becoming a ham radio operator.

Summary

With so many Maker Faires taking place around the world, the amateur radio community has a great opportunity to show off our hobby to a perfect target audience. Too often our hobby is hidden away in our shacks and homes. The times we do get out often are for our own hamfests, which usually don't bring those people unfamiliar with amateur radio to see what it's all about. It is important to bring new faces and the younger generation into the world of ham radio to create the growth of our hobby for generations to come, and Maker Faires are the perfect place to do it.

If you would like to get involved with or attend a Maker Faire in your area, go to <www.makerfaire.com> for a full list of upcoming faires. Here are a few I would recommend that you check out. I hope to see you there!

- Maker Faire North Carolina (Raleigh): June 16, 2012
- Maker Faire Kansas City (MO): June 23 & 24, 2012
- Maker Faire Detroit (MI): July 28 & 29, 2012
- Pittsburgh Mini Maker Faire (PA): September 22, 2012
- World Maker Faire New York (NYC): September 29 & 30, 2012

Maker Book Review

DIY Satellite Platforms. A new book that recently was published by *Make* and O'Reilly Press might have slipped past the radar of the amateur radio community. I think it might be of interest to hams. *DIY Satellite Platforms* is a step-by-step guide to building your own pico satellite, prepped to be sent into orbit. Written by Sandy Antunes, this is the first in a series of four books.

The book will guide you through the process of selecting a microcontroller platform for your pico satellite and teach you how interface it with onboard sensors and a radio for transmitting data back to Earth. Other sections explain how to use solar power for your electronics and how to make sure your satellite is strong enough to withstand the forces of the launch and the harsh environment in space.

I particularly enjoyed that Sandy included a planning section that will help walk any would-be satellite builder through the timeframe needed to complete this project. It's no simple task building something that you intend to send into space. Making sure you have planned everything, and haven't forgotten anything, is the key to saving yourself from a costly mistake.

If you have any interest in building or working amateur satellites, or even just find them fascinating, then this book is a must-have. The Maker Shed will sell you a pdf copy of the book for instant download for $4.99, making picking up this book a no-brainer.

73, Matt, KB3TAN

BY DON ROTOLO,* N2IRZ

IRLP Topic Channels

Despite living in one of the richest television markets in the world, the New York City conurbation, I subscribe to cable TV. I do this mostly for the fast internet connection it comes with, but I can say that I also enjoy the tremendous selection of different channels. Unlike my family, I don't watch much TV (I have too much to do—such as researching and writing this column, for example—to spend my time that way), but when I do, I get to see things that are simply not available over the air.

The point is that there are so many channels, many of them catering to very specific audiences: We have the Science Channel, the History Channel, and the Weather Channel, all of which have a somewhat wide appeal, as well as the Neo Cricket, Jewelry TV, and Big Ten Conference channels, arguably catering to much smaller audiences. There's even the Antenna Channel, which sadly has nothing to do with our skyborne aluminum farms. My local cable company lists over 500 video channels to keep me entertained, so no matter what time of day it is, there's usually something on that I'd find worth watching.

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By the time you read this, the Dayton Hamvention® 2012 will be under way (if you're getting this issue there) or history. The last time I was there, AMSAT and TAPR hosted their usual "birds of a feather" get-together, where folks having common interests can meet, greet, and discuss various technical topics. I suppose in these days of the internet these face-to-face meetings take on a reduced importance, but in-person meetings are still superior to virtual meetings by almost every measure.

Then there are the various online forums, for instance those on Yahoo, like the ones I wrote about last year that cater to my ancient Atlas MFC milling machine and 10F metal lathe. If you've read my April column, you know how I feel about people being able to fabricate their own things, so having those Yahoo forums available to me for when I need advice is very valuable. It is really nice to have dozens of knowledgeable people off whom to bounce ideas and problems just about any time of day or night.

Which brings us, in a roundabout way, to this month's topic: IRLP Topic Channels.

About 15 years ago, our esteemed Editor Rich Moseson, W2VU, wrote in *CQ VHF* about an idea he had involving the linking of repeaters in a given geographic area—say, the New York City metro

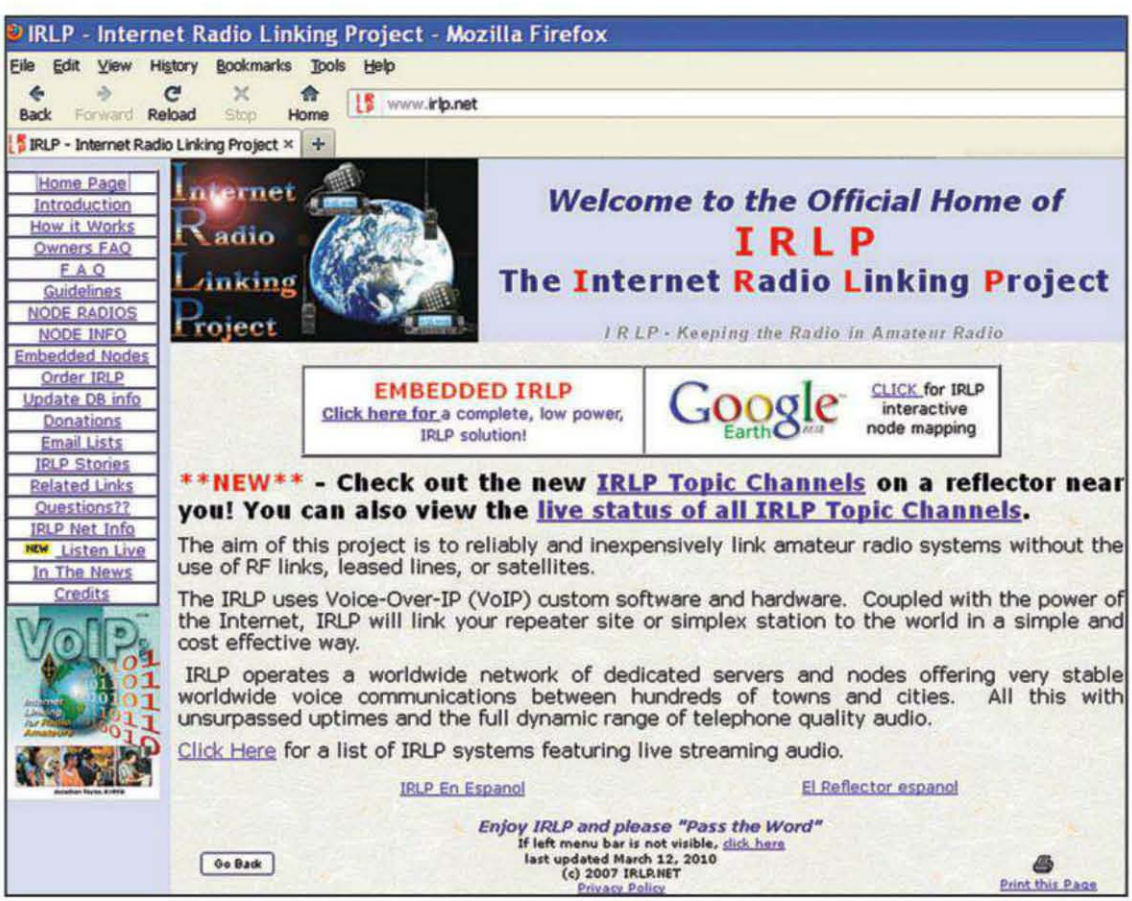

Fig. 1– The IRLP home page. From here you can find out everything you need to know about IRLP. While much of the information is geared toward node owners, the live status displays can be fascinating.

area. To quote Rich: "The idea was that, say a whole bunch of repeaters in the NY metro area adopted trunking technology and then talkgroup numbers were assigned for any area of interest. You would then program into your rig the code numbers for whatever groups were of interest to you (e.g., satellites, moonbounce, emcomm, etc.) and whenever someone with a matching group number keyed up on any of the trunked repeaters ... anyone else on the system with matching group numbers would hear the call."

According to Rich, he did receive the requisite amount of ridicule for suggesting such a far-fetched idea. Well, that was then, and this is now, and instead of thousands of trunked repeaters (which, if I may say so, is still a cool idea) we have the ubiquitous internet.

The Internet Repeater Linking Project (IRLP) has used that internet, along with its network of linkable repeaters and reflectors, to create IRLP Topic Channels. Just like with an HF net, a Yahoo group, or any other "birds-of-a-feather" gathering (flocking?), to get into a discussion with other folks interested in (name the topic) at the specified date and time you just connect to a specified IRLP Reflector Node and chew the rag with other like-minded souls.

IRLP you say? What's that? According to its website (www.irlp.net), the Internet Repeater Linking Project (IRLP) started in 1997 in an attempt to use the internet to link radio systems across Canada. David Cameron, VE7LTD, later used Linux to redevelop the system into something more stable and usable. Now, nearly 15 years later, there are a few thousand IRLP nodes in around 30 different countries, although the lion's share is in the United States.

Anyone able to reach a node by radio can have his or her signal pop out of virtually any other node in the system. If you want to join in a roundtable discussion (one-to-many), you just have everyone link in to one of the several reflectors available; otherwise you are in "one-to-one" mode, in a direct city-to-city QSO with another station.

Getting back to IRLP Topic Channels, what you're actually connecting to is a reflector, not another node. The IRLP Topic Channels website (http://www.irlptopics.net/) has a list of the several channels currently in operation, along with their usual meeting times and, of course, reflector number. When I looked, there were about a dozen different Topic Channels, covering diverse areas such as DX, sports, stamp collecting, and the meaning of life.

Instead of leaving the ability to communicate with folks from a wide geographic area up to the vagaries of HF propagation (although as we near the top of the sunspot cycle, activity is booming) you can get armchair FM audio from the comfort of your shack, or even mobile so long as you can hit the local IRLP Node. Since these are repeaters—with their usually good coverage areas—most of us shouldn't have any difficulty at all joining in, especially those with severe antenna challenges.

Before we get into the nuts and bolts of joining an IRLP conversation, there are four important topics I'd like to share.

First, IRLP Topic Channels didn't come out of the blue. They are the result of considerable effort on the part of the Oregon Internet Radio Group (OIRG) and its founder, Michael Bloom, W7RAT, in gathering node owners worldwide to devote resources to the project. It is only through the labors of love that groups like this put in that the rest of us get to enjoy such fascinating advances in technology.

Second, although there are only a few topics "seeded" at the moment, there is no limit to the different Topic Channels that might be created. OIRG is actively seeking new ideas for Topic Channels: Send your ideas by e-mail to <topics @IRLPtopics.net> for consideration.

Third, although this has been said many, many times before, the internet is not the natural enemy of radio operators. While carrying Voice over Internet Protocol (VoIP) is not radio, hams are not necessarily about transmitting on their aluminum trees. I submit that hams are about communications, and if we can leverage wired connections to make this happen, it's in everyone's best interest. Even in emergency communications (EmComm) situations, where we often find that things such as electricity and Internet are hard to find, linking out of the disaster area (via HF, for example) to an internet spigot is often practical and worthwhile.

Last, but most important, is the topic of *who pays*. Hams often take the infra-

IRLP Nodes By Country

Country	Nodes	In Use	Idle	Offline	Down
	96	2	9	1	84
Antarctica	1	0	1	0	0
Antigua & Barbuda	1	0	1	0	0
Australia	151	7	76	1	67
Austria	1	0	1	0	0
Belgium	2	0	1	0	1
Bermuda	2	0	0	1	1
Canada	315	11	182	0	122
Canary Islands	2	1	1	0	0
Dominican Republic	7	7	0	0	0
England	94	2	31	9	52
Germany	14	1	8	0	5
Ireland	6	0	4	0	2
Italy	5	0	2	0	3
Jamaica	1	0	1	0	0
Japan	22	3	8	0	11
Mexico	36	11	11	1	13
Netherlands	5	0	2	0	3
Netherlands Antilles	2	0	1	0	1
New Zealand	23	0	14	2	7
Norway	13	2	9	0	2
Philippines	1	0	0	0	1
Puerto Rico	17	6	2	0	9
Saint Kitts & Nevis	1	0	1	0	0
Saint Vincent & the Grenadines	1	1	0	0	0
Scotland	14	0	5	2	7
South Africa	15	0	6	0	9
Spain	3	1	1	0	1
Sweden	12	1	7	0	4
Switzerland	2	0	2	0	0
Trinidad and Tobago	5	0	2	0	3
USA	1982	283	871	25	803
Virgin Islands, United States	3	0	2	0	1

Fig. 2– Over 30 countries have IRLP nodes, although the majority of them are in the United States. Search for a node near you at <http://status.irlp.net>.

structure for granted, from the local repeater to things as common as a website, but (as I have said many times before) there ain't no such thing as a free lunch (TANSTAAFL). Someone, somewhere, is paying for what we enjoy. If there is something you use and enjoy, consider making a contribution to help offset the inevitable expenses. By the way, this isn't limited to IRLP, nor to ham radio.

OK, you're convinced. IRLP seems like it might be interesting, and you'd like to get started. To get started, first locate a local repeater that's an IRLP node. The IRLP website has a listing of all nodes, and you can search for one at <http://status.irlp.net> using one of the options at the top. For me, the nearest node (by ZIP® Code) is W2MSK, which happens to be a simplex node (most nodes are half-duplex repeaters) on 223.600 with a sub-audible tone (PL) of 141.3, located about seven miles from my house as the crow flies. Luckily I happen to have an old 220 mobile rig, so I built a simple ground plane, tossed it onto the roof, and was able to hear activity on the channel.

The next step was to phone Mitch Kosofsky, W2MSK, and ask him about the node operation: What did I need to do to activate the IRLP stuff, and so on. He had some info up on his website (http://www.w2msk.com), but I wanted to speak with him to make sure it was OK for me to use his system. He was very gracious and generous with his time, but the short version was to just come up on frequency and transmit the node number I wanted to connect to using DTMF tones.

One thing Mitch emphasized was the need to wait and listen. As with any ham transmission, you need to listen carefully to verify that there is nobody in QSO, and then ask if the frequency is in use, again waiting for responses. I then stated what I was doing—"N2IRZ on IRLP for the Buehl, Germany Node"—and typed in the IRLP node number I wanted to contact. I speak fluent German, so I tried the node at DBØBH in the Black Forest of Germany. After entering the node number, I first heard W2MSK confirm that it was trying the other node, and after a brief pause, DBØBH confirmed that I was connected. I listened again for a short while to make sure I wasn't interrupting a QSO at the far end.

I asked if the channel was free, listened again, and (hearing nothing) then I sent a CQ. Yes, it's normal to send a CQ on IRLP as opposed to "N2IRZ Listening" like you might on a repeater. Something simple such as "This is N2IRZ calling CQ, is anyone available for a contact?" is best; it gets the point across without being annoying. Oh, yes, also make sure you key up and then pause for several seconds before speaking, otherwise the first few words might get cut off. If there's no response to a CQ after a minute or two, the IRLP website suggests that you find a different node and try again, the point being if nobody responded, nobody is available at that moment. It's bad form to call CQ more than once or twice on an IRLP node.

If there's anything you should get from these simplified instructions, it is that the top three things you need to do when using IRLP are *pause, pause,* and *pause*. The internet is very nearly real time, but give the data a chance to get processed and squirted out the other end (as well as all those tone-squelch radios to come up on frequency), all of which generally takes a few seconds.

The short version of my first try with IRLP was that I need to remember that Germany is six hours ahead of New York City. Very few Germans are on the air at 2 AM, so what I heard was silence. Or maybe it was my semi-mangled German? In any case, I sent "73" via DTMF and disconnected the node from the system. (*Note:* Your local node may operate differently. Always check with the control operator to be sure.) The IRLP web page has some guidelines that will help you understand the subtle but important differences when operating via IRLP. Go to: <http://www.irlp.net/guidelines.html>, and I urge you to read it.

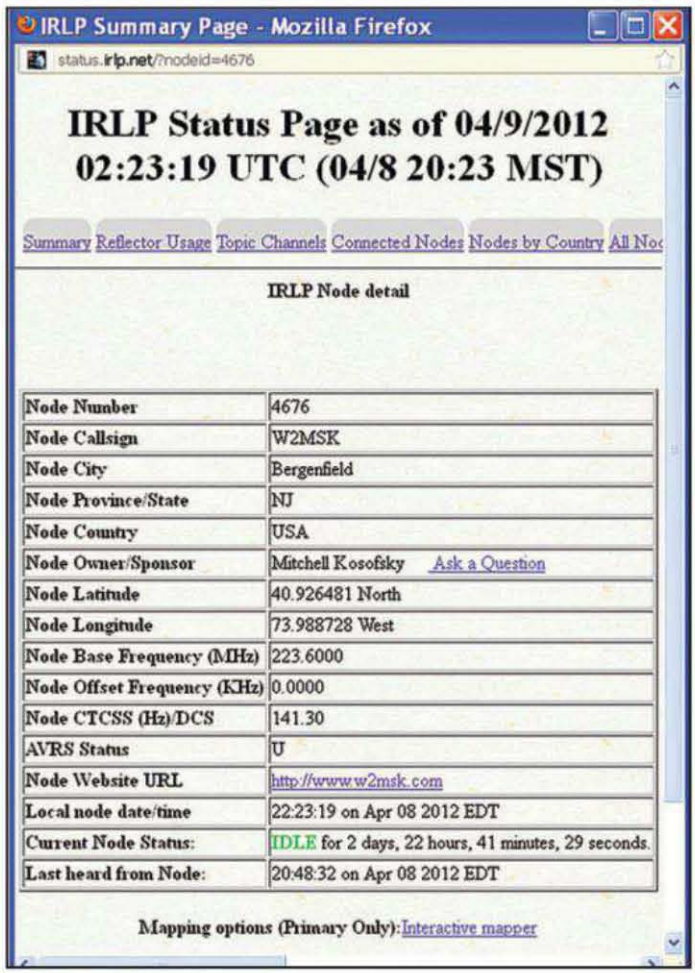

Fig. 3– The IRLP Node Detail page for my local IRLP Node. Most nodes are attached to repeaters, although this one is a simplex node on the under-utilized 220 band. If you're not sure how a particular node operates, it's easy to contact the control operator.

The procedure for connecting to a reflector—which is where groups such as the Topic Channels meet—is the same, but of course you enter the node number of the reflector. Other than asking Mitch for advice, for me at least it really was as easy as it sounds: Just come up on frequency, enter your destination node, and go (all the while observing proper procedure, of course).

I hope you found this basic primer on IRLP and the new Topics Channels worthwhile reading. If you did, do me a small favor: Try it yourself. I'm not asking you to embrace it or love it, just try it. The way I see it, you get a new skill, and you never know when it might come in handy.

That's about all the space I have this month. I'm always looking for new topics, so drop me a line if there's something you'd like to read about. Are there areas related to digital communications in ham radio that I haven't covered? Or topics that need to be revisited? After 16+ years of writing this column, it's sometimes hard to come up with new topics on my own, so I'm depending on you, my readers, to point me in new directions. I'm always glad to hear from everyone. Until next time . . . 73, Don, N2IRZ

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Putting the Lights on Software

BY JOHN WOOD,* WV5J

I suppose you could say I'm taking a light approach to writing "What's New" this month as we begin by mentioning some bright new products from the folks at Larson Electronics' Magnalight.com and from our old friends at MFJ Enterprises before we turn the spotlight on some of the new or revised software that is making its first appearance in the electronics market.

Larson Electronics Magnalight LED Tower

Larson Electronics' Magnalight.com has announced the addition of a powerful LED light tower designed to provide a powerful yet easily transported and deployed lighting solution for operators in construction, utility, and emergency services industries. This height-adjustable, four-leg light tower is lightweight and produces 3440 lumens of light in a wide flood pattern that is ideal for work areas and DOT/construction flaggers.

The WAL-QP-P10W-40X2E-25 quad-pod-mounted LED work-area light from Magnalight.com produces intense white light in a wide flood pattern and can operate with standard 120–277 VAC. This LED light tower is adjustable from 5 to 14 feet in height and is constructed of heavy-gauge aluminum for light weight and high strength. The tower assembly is a four-leg, quad-pod design that provides better stability than three-leg tripods, yet can quickly and easily be broken down without tools due to a removable center support and folding legs. Operators can simply loosen the T-handle screws to remove the center support and lamp head from the base assembly and the four legs then fold up, which results in a compact and lightweight package that can easily be stowed in the back of a pickup or even a car for easy transport.

*1870 Alder Branch Lane, Germantown, TN 38139
e-mail: <wv5j@cq-amateur-radio.com>

Photo A– The MFJ-4230MV switching power supply lives up to its promotion as the world's most compact switching power supply which also has a meter and adjustable voltage control. It can be yours for $89.95.

Photo B– There is also the MFJ-4128 switching power supply at $84.95. It weighs in at four pounds but can provide outputs of 28 amps maximum and 25 amps continuously at 13.8 VDC, more than enough to power your average HF, VHF, or UHF transceiver.

The LED light head on this tower is a rugged design that has been built to resist damage from rough handling and the elements with a thick aluminum housing, shatterproof LEXAN lens, and an IP68 waterproof to three meters rating. These LED light heads contain Cree LEDs for maximum performance, and each LED is paired with high-efficiency optics to produce a light beam that is both powerful as well as uniform and well distributed, resulting in even and effective illumination of the work space.

Magnalight.com equips these LED light towers with a heavy-duty, waterproof transformer, which allows these units to operate on the standard 120–277 VAC voltages commonly used on jobsites and in work areas. The heavy-duty construction and high output of these towers, combined with their portability and light weight, make them ideal for use on job sites as flagger lights as well as for emergency lighting and general construction lighting where powerful lighting that can be set up quickly is desirable.

Larson Electronics' Magnalight produces a wide range of LED work lights, work area lights, Led light towers, LED floodlights, and LED equipment lights. The entire line of Magnalight lighting products can be viewed by visiting <www.Magnalight.com> or you can call 1-800-369-6671 to learn more about custom ordering options. For international inquiries call 1-214-616-6180.

MFJ MightyLite™ 30A Metered Switching Power Supply

With a size of 5 inches wide, $2\frac{1}{2}$ inches high, and 6 inches inches deep, and weighing only 3 pounds, it's no wonder MFJ is marketing its MFJ-4230MV ($89.95) power supply as "the world's most compact switching power supply that also has a meter and adjustable voltage control." (See photo A.)

That being said, it is also described in the MFJ press release as "the perfect pack-n-go power supply for Field Day, DXpeditions, camping, hiking, or to pack for your next business trip or vacation to some faraway place."

The MFJ-4230MV gives you 25 amps continuously or 30 amps surge at 13.8 VDC. The voltage is front-panel adjustable from 4 to 16 volts. The MFJ-4230MV also has a selectable input voltage; choose from 120 or 240 VAC at 47–63 Hz. A simple front-panel, push-button switch lets you choose to read either the amps or volts.

MFJ-4230MV offers 75% efficiency and extra low ripple and noise below100 mV. A whisper-quiet fan cools by convection and forced air cooling. Normal air-flow around the power supply is continuous, and a heat sensor increases the fan speed when the temperature rises above 70 degrees Celsius. DC output is accomplished through five-way binding posts on the back of the MFJ-4230MV so you can power your dedicated HF, VHF, or UHF transceiver with ease.

For a few dollars less, MFJ is also talking about its MFJ-4128 MightyLite™ 28-amp switching power supply for $84.95 (photo B). The MFJ-4128 can power your HF, VHF, or UHF mobile or base transceiver with an output of 28 amps maximum and 25 amps continuously at 13.8 VDC. This basic power supply has all of the output connectors you will ever need. It features a five-way binding post for high current rigs and quick connectors for low-current accessories. It also has a low 7-ampere cigarette-lighter plug, perfect for powering small accessories. It is super lightweight (only 4 lbs.) and super-compact, 7"W × 2 1/4"H × 7 1/2"D, so it can still be carried on your business and vacation trips to faraway and exotic locations. The MFJ-4128 features over-voltage and over-current protection systems and has a quiet internal cooling fan with "fan on" LED. The MFJ-4128 features a selectable AC input voltage from 85–135 VAC or from 170–260 VAC, so it can be taken it around the world.

MFJ Feather-Lite™ 80–6 Meter Vertical Antenna

MFJ is saying "No trees, no problem!" thanks to its new 31-foot self-supporting vertical antenna that sets up in minutes and collapses to only 3.8 feet. MFJ recommends the MFJ-2982 (photo C) as perfect for RVs, vacations, Field Day, or as part of your grab-and-go kit. It is more than a simple "flagpole." It's a complete antenna system including the adjustable base-loading coil, Guanella balun, and counterpoise.

Priced at $149.95, a stout 1 3/4-inch base supports twist-lock fiberglass sections and telescopes to 31 feet in seconds. Despite its length, MFJ says it's so light one person can raise or lower it easily, even in the wind. Special lightweight wire reduces weight distributed in top sections for improved rigidity and reduced sway.

This antenna's air-wound high-efficiency loading coil is continuously tapped to provide full coverage 3.5–7 MHz. On 17 meters, the inductor configures as a 5/8-wave for added gain. On 20 meters, adding inductance improves the load presented to your tuner. The base tuning unit is RF isolated and can be attached to any supporting structure. No tuner is needed for 80/75/60/40/17 meters, because the radiator length is fixed at 31 feet. Operation on 30/20/15/12/10/6 meters requires an ATU. Power rating for the MFJ-2982 components are safety rated for 600 watts PEP on SSB/CW.

Also available is the new MFJ-2980 (photo D). Priced at $99.95, the MFJ-2980 is like MFJ-2982, but covers 40 meters through 6 meters.

The optional tripod mounting, the MFJ-1919, priced at $89.95, is a portable heavy-duty tripod that is specially set up for supporting and mounting the

Feather-Lite™ vertical antenna and base loading unit. MFJ-1919 has an extra-wide base that gives a full and steady support.

The MFJ-4230MV, MFJ-4128, MFJ-2982, and the MFJ-2980 are protected by MFJ's famous NoMatterWhat™ one-year limited warranty. MFJ will repair or replace (at its option) your MFJ products mentioned here, no matter what, for one complete year.

To order, receive a free catalog, or for your nearest dealer, call 1-800-647-1800; write to MFJ, 300 Industrial Park Rd., Starkville, MS 39759; go to <http://www.mfjenterprises.com>; or fax to 1-662-323-6551.

DX Engineering Clamps

DX Engineering can become your Clamp Central now that it is providing a wide variety of saddle, block, and band clamps for dozens of amateur radio applications. (See photo E.)

DXE U-bolt saddle clamps are designed to fit tubing. All U-bolts are formed from premium 18-8 stainless, and all saddles are cast from 535 aluminum. DXE's V-bolt saddle clamps are long enough to fit a range of tubing sizes. Saddle material is cast 535 or 319 aluminum, depending on size. U-bolts are fabricated using premium 18-8 stainless.

Super-duty saddle clamps are designed for applications where maximum clamping capability is needed. These clamp kits are made from two corrosion-resistant A356-T cast aluminum saddles with a cast stainless reinforcement plate. Accessory bolt and nut sets (sold separately) allow for a customized fit.

The DXE resin block support clamp is ideal for securing mounting brackets or plates to tubing while also providing electrical insulation. Optional stainless -teel reinforcing plates provide additional stiffness and act as hole-drilling templates.

Marine-grade stainless band clamps secure telescoping tubing in place for antenna applications. The ECLS series adds threaded studs for electrical connections, mechanical assembly of components, or attachment of brackets.

Prices range from $2.65 to $49.90 depending on size, composition, and configuration. For more information or to order, visit <www.dxengineering. com>.

RFMW, Ltd. and MAST Technologies Announce Agreement

Have you been wondering what has been happening lately at RFMW, Ltd. and MAST Technologies? Well, maybe not, but they've

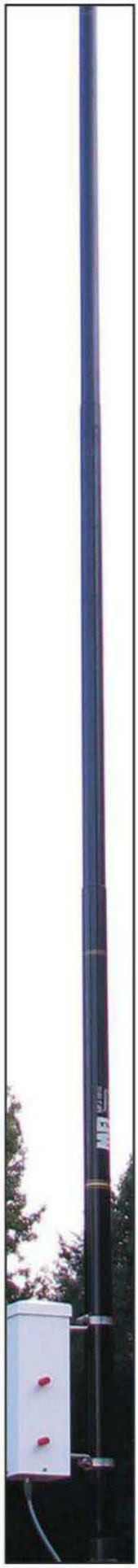


Photo C– The MFJ-2982 is a 31-foot self-supporting vertical antenna now available from MFJ Enterprises. This antenna sets up in minutes and collapses to only 3.8 feet, which makes it perfect for RVs, vacations, Field Day, or as part of your grab-and-go kit.

announced a worldwide distribution agreement. MAST Technologies is a leading designer and manufacturer of RF absorbing materials, while RFMW Ltd. is a specialized distributor providing customers and suppliers with focused distribution of RF and microwave components as well as specialized component-engineering support.

For those of you who use RFMW products, RFMW will now distribute MAST Technologies' broad portfolio of RF absorber material including cavity resonance and EMI absorbing elastomers, lossy and reticulated foam absorbers, as well as conductive and absorptive caulks and coatings that reduce EMI/EMC and RFI emissions.

"Our products are engineered to reduce or eliminate RF and microwave noise associated with electronic circuits by capturing the electromagnetic waves and converting them to heat," said Andrew Sundsmo, president of MAST Technologies. "Leveraging RFMW's account base and expertise in RF component support will make it easier for customers to find RF absorbing solutions that are tailored to their specific requirements."

New Features in WXWarn version 1.7

Not familiar with WXWarn software? Well, it runs on your PC and constantly monitors National Weather Service updates for warnings, watches, tornadoes, severe thunderstorms, forecasts, etc., and alerts you whenever new information is issued. You can monitor the entire U.S., your state, or just your county. You can also screen for specific alerts if you like. WXWarn can be set to run minimized on startup, so put WXWarn in your Windows® Startup folder and you will always be monitoring for the latest weather developments as they unfold, whenever your PC is running.

Some of the new features of version 1.7 include display of up to 12 weather images on the main form in various sizes; just click Settings > Image URLs & Settings to configure to your taste. You can enter any images you like, including those from your local area.

Other features include user customizable font size, the NOAA discussions form can remain on top and be placed wherever you like, and the discussions form can be accessed directly from the main form.

WXWarn is completely free and fully functional for permanent use with a small banner ad, or you can register it for only

Photo D– If you like to operate on higher frequencies, you might consider the MFJ-2980, which is like the MFJ-2982 but operates on 40 meters through 6 meters and is priced at $99.95.

$7 to remove the banner ad, free up screen space, and encourage continued development of the software. You can download WXWarn at <http://www.wxspots.com/wxwarn.htm>.

Now There's AC Log 3.2

Have you upgraded from AC Log 3.1 to AC Log 3.2? Author of the Amateur Contact Log programs, G. Scott Davis, N3FJP, says he's made a number of improvements, including having all of his programs (with the exception of the state QSO party software) capable of displaying any splash screen of your choosing on startup. To download AC Log 3.2 or for more information, visit <www.N3FJP.com>.

Scanner Radio Deluxe

Scanner Radio Deluxe, developed by Gordon Edwards, allows any iPhone/iPad user to listen to thousands of police and fire scanners, weather radios, air-traffic communications, and amateur radio repeaters from around the world using nothing more than the free app. Using the app, people can listen in on their local police and fire departments as well as listen to major newsworthy events (mass casualty incidents, major fires, hostage situations, etc.) occurring in other areas of the country (and the world).

Users of the app can easily select what

Photo E– DX Engineering can now be considered as a prime source for saddle, block, and band clamps for dozens of amateur radio applications, priced from $2.65 to $49.90.

they would like to listen to by selecting from a list of scanners located near them, from a list showing the Top 50 scanners with the most listeners, or they can browse the directory by area or genre. Users can listen to scanner audio in the background while using other apps. Users can also designate scanners to which they listen as favorites for quick and easy access to them.

A unique feature of the app, not offered by other similar apps, is the ability to have the app display a notification anytime a scanner has more than a certain number of listeners. This feature is useful in having the app alert the user when something major is going on that might be interesting to listen to (such as a SWAT incident or hostage situation, firefighters battling a large wildfire, public safety personnel dealing with tornado aftermath, etc.).

Users of the Android version of the app (named "Scanner Radio") have found the app to be invaluable during severe weather containing tornado outbreaks, when living near major wildfires, and when hurricanes are making landfall. Gordon Edwards developed Scanner Radio Deluxe after receiving numerous requests for an iPhone/iPad version and after first creating the immensely popular Android version named "Scanner Radio."

Scanner Radio requires an iPhone 3GS, iPhone 4, iPhone 4S, 3/4G iPod touch or an iPad, iOS 5.0 or later, and 4.1 MB of ROM. Scanner Radio Deluxe 1.1 is free and available worldwide exclusively through the App Store in the News category.

Well, that's the wrap-up for another "What's New" for *CQ*. I hope you enjoyed the column and that you have also enjoyed the start of the hamfest season. If you notice a hamfest is going to be held in your area, you might attend just to see why hams are attracted to these area events, and maybe learn more about the hobby that has been described by one ham friend of mine as "The greatest hobby ever."

I just happen to agree with him.

73, John, WV5J

Note: *Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.*

BY JOE LYNCH,* N6CL

Graphene: It's Everywhere

In my April column I somewhat tongue-in-cheek asked the question: Will the transistor be replaced by a spoonful of sugar? Now I ask a similar question: Will a battery be replaced by a spoonful of sugar?

It is all in the graphene. As I explained in my April column, graphene has a connection to graphite, which is an allotrope of carbon. What makes graphene unique from graphite is that it is defined as a one-atom-thick planar of bonded carbon atoms that are packed in a honeycomb crystal lattice.

In April I focused on graphene being used in semiconductors. This month I focus on graphene being used as an electrochemical capacitor (EC). In the *Science* magazine 16 March 2012 issue is the article entitled "Laser Scribing of High-Performance and Flexible Graphene-Based Electrochemical Capacitors," written by Maher F. El-Kady, Veronica Strong, Sergey Dubin, and Richard B. Kaner. In their article they describe the development of a laser scribed EC. From their abstract is the following:

Although electrochemical capacitors (ECs), also known as supercapacitors or ultracapacitors, charge and discharge faster than batteries, they are still limited by low energy densities and slow rate capabilities. We used a standard LightScribe DVD optical drive to do the direct laser reduction of graphite oxide films to graphene. The produced films are mechanically robust, show high electrical conductivity (1738 siemens per meter) and specific surface area (1520 square meters per gram), and can thus be used directly as EC electrodes without the need for binders or current collectors, as is the case for conventional ECs. Devices made with these electrodes exhibit ultrahigh energy density values in different electrolytes while maintaining the high power density and excellent cycle stability of ECs. Moreover, these ECs maintain excellent electrochemical attributes under high mechanical stress and thus hold promise for high-power, flexible electronics.

Here is the practical application (from page 1330): The authors constructed a set of tandem LSG-EC and evaluated them for possibly replacing the lithium ion batteries in a laptop computer. There tests showed positive potential, as stated on page 1329: "When used in tandem, the LSG-ECs undergo minimal energy losses." They conclude their article with the following:

LSG-ECs can deliver a power density of ~20 W/cm3, which is 20 times higher than that of the AC-EC and *three-orders of magnitude higher than that of the 500-μAh thin-film lithium battery* (my emphasis). Although the electrolytic capacitor delivers ultrahigh power, it has an energy density that is three orders of magnitude lower than the LSG-EC. Because of the simplicity of the device architecture and the availability of the graphite oxide precursor, which is already manufactured on the ton scale, these LSG-ECs hold promise for commercial applications.

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

June 3	Moon perigee
June 4	Full Moon
June 4	Lunar eclipse
June 9–10	ARRL June VHF QSO Party
June 11	Last quarter Moon
June 16	Moon apogee
June 19	New Moon
June 23–24	Fifth Weekend of DUBUS EME Contest
June 27	First quarter Moon.
June 27	The June *Boötids* meteor shower peak

—EME conditions courtesy W5LUU

I can think of a most practical application for the LSG-EC: CubeSats. Weight is always a concern for a CubeSat. These capacitors might be the storage power source needed for satellite construction. Certainly, they can be tested in a balloonsat for practicality. For more information, see: *Science*, 16 March 2012, Vol. 335 no. 6074 pp. 1326–1330.

ARTSAT Project

Speaking of CubeSats, here is a story of a very creative satellite that will be launched next year:

ARTSAT PROJECT-1: INVADER will be launched as a piggyback micro-satellite of H-IIA.

ARTSAT PROJECT-1: INVADER (INteractiVe satellite for Art and Design Experimental Research), which is a 1U CubeSat under development, was selected as one of the piggyback micro-satellites of the JAXA (Japan Aerospace Exploration Agency) H-IIA rocket which will be launched in 2013 from the Tanegashima Space Center.

ARTSAT PROJECT-1: INVADER is the world's first "Art Satellite" currently developed as a part of the "ARTSAT: Art and Satellite Project" which aims at practical use of a satellite for art and design.

ARTSAT: What is the ARTSAT project? ARTSAT project investigates a new kind of media art and interaction design to create various forms of art works and design products by considering a satellite as the media which connects everyday life to the universe. The core of the

Some of the students involved in the ARTSAT Project. (Photo courtesy ARTSAT Project)

project is the collaboration of Tama Art University and the University of Tokyo.

The University of Tokyo team mainly takes charge of the development of satellite bus system. Tama Art University team is taking charge of the ground station system and data processing/sharing system. In Tama Art University, the missions and culture of the "Satellite art" are widely fostered through the PBL (Project-Based Learning) class beyond the frame of the faculty, department and/or grade.

ARTSAT Concept: The three concepts of the ARTSAT project are as follows:

- Open satellite for everyone,
- Emotive satellite to stimulate our feelings,
- Beautiful satellite in its total design.

We are going to create new satellite culture which can change a satellite from the special object to familiar events.

ARTSAT Objective: The main two objectives of the project are:

- Creating artworks and related products which utilized the telemetry data obtained from satellites,
- Launching exclusive satellite for art and design.

ARTSAT PROJECT-1: INVADER is the first satellite for art and design according to the latter objective.

ARTSAT Mission: The selected INVADER satellite is planning to perform the following missions for the purpose of utilizing the minimum function of CubeSat satellite to the utmost.

(1) Utilization of satellite data for art and design: Designing various kinds of daily products such as furniture, lights, accessories, gadgets, music, movies, games and entertainment works by accessing the telemetry data sent through the Internet from the satellite. These products will interact with position, movement, state and surrounding environment of the satellite, which enables to connect our everyday life to the universe.

(2)vDesigning interface and platform for utilizing satellite data: We will develop and implement ARTSAT API (Application Programming Interface) for supporting the creation of above-mentioned satellite products, music, applications etc. which will utilize satellite data.

(3) Making interactive artworks which uses the satellite as media: Not only receiving data from the satellite on the ground, the OBC (On Board Computer) which will be installed in the satellite are reprogrammable after launched. This function enables to make further dynamic interaction between ground and space.

(4) Outreach activities through the work of satellite art and design: The possibility of using the satellite for art and design is widely proposed into society through the development of various applications, events and workshops.

ARTSAT Future: From now on, the development of the satellite bus, installation of the ground station, and designing related software and products will progress energetically towards the launch of the satellite. All members feel great thanks to having selected our project. The project will be advance by thoroughgoing organization in order to success various operations and missions.

ARTSAT web page [http://artsat.jp] reports the process of the project at any time. Please give us our innovative ARTSAT project much more support and cooperation. Thank you very much in advance.

Respectfully: Tama Art University and The University of Tokyo: ARTSAT project team.

From its website is this page <http://artsat.tumblr.com/> which shows the progression of the development of the satellite, from storyboard to printed circuit board.

Current Contests

Six Meters Marathon: OH3AG invites you to participate into the Seventh Global Six Meters Marathon. The objective of the Marathon is to work as many DXCC countries as possible between Saturday May 5, 2012 at 0000 UTC and Sunday August 5, 2012 at 2400 UTC on the 6-meter band. You can follow this contest online at <http://6m.dy.fi>. Go to the Six Meters Marathon 2012 rules link on the website.

ARRL June VHF QSO Party: The dates for this contest are June 9–10. Complete rules are in the May issue of *QST*. Rules can also be found on the ARRL website (http://www.arrl.org). Many are making plans to activate rare grids. For the latest information on grid expeditions, check the VHF reflector (vhf@w6yx.stanford.edu) on the internet. This is by far the most popular VHF contest. For weeks in the run-up to the contest postings are made on the VHF reflector announcing Rover operations and grid expeditions. It is a contest that will create for you plenty of opportunities to introduce the hobby to your friends who are not presently working the VHF plus bands or are not hams.

SMIRK Contest: The Six Meter International Radio Klub (SMIRK) will hold its annual contest from 0000 UT Saturday June 16 until 2359 UT June 17. Contacts must be made on the 50 MHz (6-meter) band. Any licensed amateur in any country may participate Exchange is Grid square and SMIRK Number for operators who have one. Points are 1 for contacts with stations not having SMIRK Numbers and 2 points for contacts with stations having SMIRK numbers. Logs should go to the Secretary, Paul (Mick) McBride, W3FJ 10 Longview Dr., Williamsport, PA 17701, or via e-mail to mickpdm@hotmail.com. They must be received by August 1, 2012. More information can be found at: http://www.smirk.org.

Field Day: ARRL's classic, Field Day, will be held on June 23–24. Complete rules for this contest can also be found in *QST* and on the website <http:// www.arrl.org>. In years past tremendous European openings have occurred on 6 meters. Also, as happened in 1998, tremendous sporadic-*E* openings can occur. Certainly, this is one of the best club-related events to involve new people in the hobby.

Current Hamfest

The annual **Ham-Com Hamfest** will be held June 8–9, 2012, in Plano, TX. As always, the North Texas Microwave Society will present a microwave forum. For more information, see the Ham-Com website at <http://www.hamcom.org/>.

Meteor Showers

June minor showers include the following and their possible radio peaks: June *Arietids*, June 7*; *zeta-Perseids*, June 9*; June *Boötids*, June 27; and β-*Taurids*, June 28. An asterisk (*) indicates that the shower may have multiple peaks.

For more information on the above meteor shower predictions see Tomas Hood, NW7US's "Propagation" column. Also visit the International Meteor Organization's website: <http://www.imo.net/calendar/2012>.

And Finally . . .

By the time you read this column, summer sporadic-*E* will be well under way. Hopefully, you will be able to participate in the ARRL VHF contest this month as well as the CQ WW VHF Contest in July. If you have an exciting story to tell about your summertime VHF-plus endeavors, please send an e-mail to: <n6cl@sbcglobal.net>.

Until next month . . .

73 de Joe, N6CL

BY TED MELINOSKY,* K1BV

Award Certificates of Distinct Design

This month I've tried to choose some very colorful (and some are "ornate") award certificates that would certainly gain you some bragging rights when displaying them in your shack. While many awards are designed with modern simplicity, others go beytond to demonstrate the talent of the designer. Enjoy.

Czech Radio Club Praha Award

Last summer my wife and I walked across the beautiful Charles Bridge in downtown Prague, the Czech Republic. I remembered seeing the image of this award certificate, and the place was even more beautiful in person. From the bridge you can see the Hradcany Castle, St. Vitus Cathedral, and governmental buildings on the hill in the background. Every hundred feet is a statue of a medieval knight, a saint, and more. The picture on the award captures the beauty of the spot. If you have worked the OK DX Contest each year for a few years you've probably already have the Prague district QSLs in your collection.

To earn the Praha Award contact at least eight of the ten official regions of Praha (Prague), Czech Repubic using any band or mode.

For the Praha Award contact at least 8 of the 10 official regions of Praha (Prague) since January 1, 1993 using any band or mode. Endorsement stickers for CW, Phone, and VHF/UHF contacts. On VHF/UHF only 5 regions are needed. Special class for all 10 regions. The regions are noted as APA (Praha 1) to APJ (Praha 10) as sent during the OK/OM Contest. Send GCR list and fee of 10 IRCs, $US8, or 5 Euros. Apply to: Czech Radio Club, Awards Manager, PO Box 69, 113 27 Praha 1, Czech Republic. Internet: <http://www.crk.cz/ENG/AWARDE.HTM>.

Diplome des Forts et Chateaux de France (DFCF)

With the summer season now under way, you will see notices in various DX bulletins mentioning operations by mobile or portable stations from cas-

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

USA-CA Special Honor Roll

Gary Beam, K4EXT
USA-CA All Counties #1222
March 14, 2012

Bennie Hall, WY4D
USA-CA All Counties #1223,
March 17, 2012

USA-CA Honor Roll

500
KB7CSV.....3565
K4EXT.....3566
WY4D.....3567
DL8ZBA 3568

1000
K4EXT.....1825
WY4D.....1826
N3RC 1827

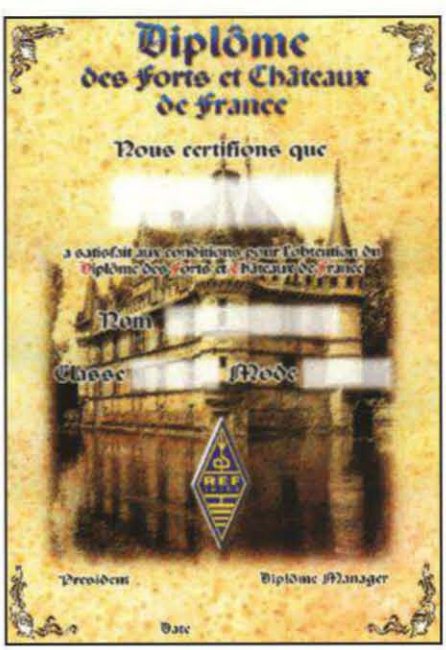
1500
K4EXT.....1535
WY4D.....1536
N3RC 1537

2000
K4EXT.....1421
WY4D.....1422

2500
K4EXT.....1337
WY4D.....1338

3000
K4EXT.....1248
WY4D.....1249

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is $6.00. For nonsubscribers it is $12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for $2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.



Work at least 30 different castles after January 1, 1997 to apply for the Diplome des Forts et Chateaux de France (DFCF) award.

tles all over Europe, some probably from the 5711 official castle locations in France. The rules for the Diplome des Forts et Chateaux de France (DFCF) award allow contacts made from stations located not more than 100 meters from the actual structure.

Work at least 30 different castles after January 1, 1997. Stickers are available for each extra 100 castles worked. The DFCF Excellence is available when you contacted at least one fortress in each of the 95 French Departments.

On valid QSLs, you will encounter a reference such as DFCF 59001, DFCF 68018, etc. The first two numbers indicate the French Department, while the last three have the castle number.

Honor roll is available when you worked 1500 castles. SWL OK. Send GCR list plus fee of $12 to: REF-UNION, Service Demande de Diplôme, 32 rue de Suède, B.P. 7429, F-37074 TOURS Cedex 2,France. Endorsement stickers are free and may be applied for at the following address: Lehembre Jean-Pierre, F6FNA, 8, rue de Verdun, F-77270 Villeparisis, France. Internet: <http://f6fna.perso.sfr.fr/WEB/dfcfa2.html>. List of all French castles: <http://f6fna.perso.sfr.fr/WEB/listedfcf.html> (French language site).

Awards from Germany

Pirna Diploma. There is no shortage of handsome, historical, and colorful awards from Germany. A recent one I discovered features a 1700s marketplace scene.

Pirna is located very close to the Czech border near Dresden on the Elbe River. This is one of the many German awards whose rules make reference to "DOKs." DOK is the letter and number combination used by the DARC (Duetscher Amateur Radio Club) to identify regional radio clubs. The first letter is the district, and the next two numbers identify the respective club in the district. German stations are excellent at including this identifier on their QSLs. (See: <http://qrzcq.com/page/doklist>).

The German-Amateur Radio Club eV Ortsverband Liebstadt, DOK SØ3, sponsors the Pirna award, which may be earned by all amateur radio opera-

The Pirna Diploma features a 1700s marketplace scene. This is one of the many German awards whose rules make reference and require working "DOKs."

CQ Award Policy for Remote Base Operations

After lengthy discussion, the CQ Awards Committee has adopted the following policy regarding remotely-controlled stations:

Contacts *with* a remote base station are valid for all CQ contest and award purposes. Award applications *by* a remote base operator are permitted only if both the station (transmitters, receivers, and antennas) and the operator are located in the same country (entity).

This rule applies to all CQ award programs, effective immediately, and will be integrated into the rules for each award over the coming months.

tors and SWLs. Contact stations in Pirna, Germany, as well as nearby areas including the clubs of DOKs SØ3, S1Ø, S15, and S26 on or after 1 January 1992.

Points needed for the award:

DL stations need 75 points; it is necessary to work at least one station from the DOK SØ3.

European stations need 50 points

DX stations need 25 points

Point Values:

SSB and FM contacts = 5 points each.

Contacts with club stations DLØLIE, DLØSTO, DLØUPC, DLØPIR = 10 points each.

On CW, all contact values are doubled.

All bands and modes are allowed; only connections on packet radio and Echolink are not allowed. Send the award application with GCR list and fee of 5 Euros or $7 to: Bernd Scholze, DF3MA, Borna 8, D-01819 Bahretal, Germany. Funds may be transferred by bank transfer. Contact sponsor for details. PayPal for EU and DX (request info by e-mail to the Award Manager) is possible. Internet: <http://www.darc.de/distrikte/s/diplome/stadt-pirna-diplom/>.

Romantic Road Award. "The Romantic Road" is the term for a theme route coined by travel agents in the 1950s to describe the 350 kilometres (220 miles) of highway in southern Germany (in Bavaria and Baden-Württemberg), between Würzburg and Füssen. In medieval times it used to be a trade route, connecting the center of Germany with the south. Today this region is thought by many international travelers

The First Station from Finland to complete USA-CA All Counties:

Heikki Tamminen, OH3JF
USA-CA All Counties #1221, February 23, 2012

"24 Years of County Hunting"

Everything started the moment I made my first trip to the USA, in 1979. During that trip I met two young boys with the Finnish surname Hietala. They lived in northern Minnesota in the village Embarrass, located near the Canadian border. This area is known as the coldest place in the United States; for many years the lowest temperatures in the country have been recorded there.

The Hietala brothers were avid ham radio operators, and several 2-meter repeaters were built by them in the area known as the Iron Range. Their backyard had two big 4-meter parabolic antennas used for tracking satellites. My mother's cousin introduced me to her neighbors (the Hietalas), and about three years later I became a ham radio operator.

The early 1980s were a time of big changes in technology, especially in communications. Telephone calls to foreign countries were very expensive, but a ham could talk all over the world for free. This was great, because on the air I often met hams from Minnesota who were happy to pass regards to my relatives in Finland.

In the very beginning of my ham career, I realized the advantages of a beam antenna to make DX contacts, so I built a 4-element quad. Since then this antenna and I have been inseparable. I soon worked several new DX entities and US states. During my 1987 trip to the US, I met Bud, WØUBT, in Minneapolis, who introduced me to USA County Hunting. He said that my signal was strong enough for the mobile stations in southern Minnesota. I did not have to think twice when I saw CQ Communications's *United States of America Counties Award Record Book*. I turned my VFO to 14066 kHz and started to listen. It took me several days to figure out the "protocol" on the County Hunters Net (CHN) frequency. I had to learn several new Q-signals and other abreviations to understand the philosophy of the net.

My first county QSO was on August 15, 1987 with W2MTA/M in Ontario, New York. The next day I worked K4MF/M in Colleton, South Carolina, and then on August 21 I worked WØHKF/M in Corson, South Dakota, followed by W1TEE/M in Logan, West Virginia. At first I had to concentrate 100% on listening, because even the slightest QRM could ruin the contact. At that time some problems were caused by QRP stations. They used the same frequency as the CHN calling frequency. Bad band propagation and a CW net running on the same frequency often left "white" spots in my logbook. I often had the callsign and report OK, but the county and state were buried under interference. Therefore, it was very important for me to note the net control's callsign to be able to check with him later for the missing information.

In 1991, RTTY and other digital modes reclaimed more band space, so the CHN and QRP operators had to move to another frequency. My last QSO on the old CHN frequency was on January 28, 1991 with W3IIF/M in Garbon, Pennsylvania. It took me roughly six months to realize that there was life on 14056.5 kHz, where the CHN had moved, and where it is still running.

At the end of the '90s, the internet provided new possibilities, so

Heikki Tamminen, OH3JF, USA-CA All Counties #1221, the first station from Finland to complete USA-CA All Counties.

I started my own home page. This experiment was very short-lived, because Risto, W6RK, started a cluster for the county hunters. In the 21st century, county hunting had become more popular than ever, as it became possible to follow county hunting cluster spots in real time. Another helpful aid was the K3IMC site, which provided information about future "county expeditions."

My logbook contains several great county expeditioners. This list is far from complete, but shows a few of them: KA1HB, NW1O, W1TEE, N2CWG, W2PDM, W3DYA, W3XE, KA4IFF, KB4XK, N4CD, AI5P, WA6VJP, KK7X, K8ZZ, W9MSE, W9OP, WA9QNI, KCØJG, NØCYB, and WØGXQ.

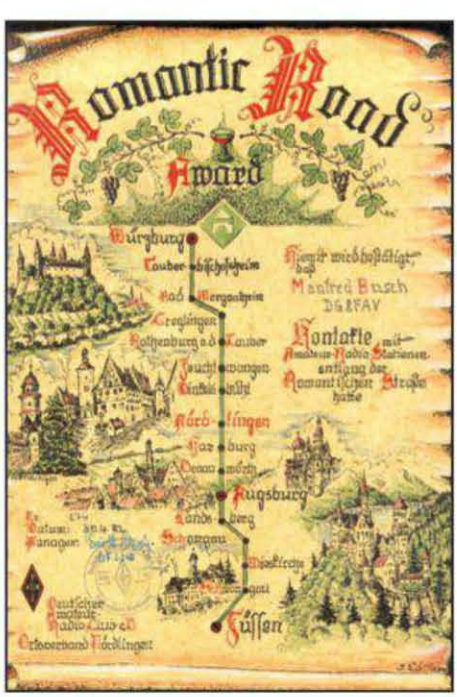
My three last counties were KA9JAC/M in Marin, Kentucky (8 October 2011), N9JF/M in Polk, Nebraska (12 October 2011), and NX4C/M in Grundy, Tennessee (18 October 2011).

It took me 24 years, 2 months, and 3 days to work all 3077 US counties on CW. This was not an easy task from northern Europe. In winter time our days are short, and the bands close early. Aurora can also mess up the bands.

My humble and warm thanks to everyone who helped me make my dream come true. I feel like the CHN is my second family.

My earlier county awards:
USA-CA 500 #2339 (16.6.1989)
USA-CA 1000 #1070 (16.6.1989)
USA-CA 1500 #1083 (25.10.1993)
USA-CA 2000 #993 (25.10.1993)
USA-CA 2500 #1086 (2.8.1996)
USA-CA 3000 #1189 (11.2.2008)

There are still other goals to achieve, so next I will focus on 20 meters CW, mobile stations only, or maybe I'll just start a second round for another "whole ball of wax" ... *73, Henry, OH3JF*



The Romantic Road Award from Germany also requires working a certain number of DOKs along the theme route (see text).

to possess "quintessentially" German scenery and culture, specifically in towns and cities such as Nördlingen, Dinkelsbühl, and Rothenburg ob der Tauber. The route is also known for passing many lovely castles, such as Burg Harburg and the famous Neuschwanstein Castle. *(Thanks to Wikipedia.)*

This one requires working specific DOKs (see the Pirna Diploma mentioned in this column). DK4SY uses DOK P05. P is the District of Wüertemberg and 05 identifies the Radio Club of Heilbronn. DOK P40 is another radio club in the same town. To gain access to literally hundreds of German awards, you might want to consider creating a database of your German QSLs which show the DOK number and the callsigns of stations in your QSL collection which are marked as being in one of the designated DOKs. It may take a few hours to prepare, but this is time well spent

The diploma Romantic Road award is available to all amateurs and SWLs by contacting amateurs in cities along the "Romantic Road." For DL and Europe, 50 points must be earned. For all others and on VHF, 25 points are needed. HF and VHF are separate awards.

Phone QSOs = 1 point, CW = 2, other modes = 3 points each.

Contacts with stations in DOK T09 count double. The cities along the Romantic Road are Würzburg, Tauberbischofsheim, Bad Mergentheim, Rotenburg o.T., Feuchtwangen, Dinkelsbühl, Nördlingen, Harburg, Donauwörth, Augsburg, Landsberg, Schongau and Fussen. The following DOKs count: A23, A46, B02, B17, B18, B22, C20, C21, C36, P25, T01, T06, T09, T11, T17, T21, Z30 ,and Z52.

Send GCR list and fee of 5 Euros to: Thomas Kalmeier, DG5MPQ, Ostenstrasse 1, D-86756 Reimlingen, Germany. Internet: <dg9mdr@darc.de>.

We are always interested in learning of new awards for publication in this column. Please contact me with details and a sample of the certificate.

73, Ted, K1BV

dx

BY CARL SMITH,* N4AA

DX and Awards News for DXers

The 2012 Dayton Hamvention® should be in full swing by the time you read this, so I can't give you any details of what occurred at that event in this column. Hopefully, many of you were able to make the trip this year and enjoy the activities both at the Hara Arena and in the hotels that host many events and hospitality suites. DX will certainly be a large part of the weekend, and perhaps you will meet and greet some of those DXpeditioners you worked from some rare spot in the last year or so. It has been a pretty active year for DXpeditions, and it will be interesting to see who gets the awards for being the "best of the best."

DX Operations

Following the operation by Darko, J28AA/E76A, as 6O3A from Somalia, the Intrepid DX Group has scheduled a major operation from there for November 6 to 14. Twelve ops are on board to make the trip, and it is essentially the same group that most recently brought us ST0R from South Sudan. More about this as it draws near.

The Hellenic Amateur Radio Association of Australia (HARAOA) announced that it is trying to put together a team for an operation from Campbell Island (ZL9) for November 17–30. Tommy, VK2IR, the team leader, and John, VK2YP, the co-leader, were inviting experienced operators to join them. Contact Tommy by e-mail: <vk2ir@vk2ir.com>.

Hrane, YT1AD, spends a lot of time traveling and operating from DX spots around the world. In April he was scheduled to visit American Samoa and operate from the QTH of Larry, AH8LG. Then he was to move over to Samoa as 5W7A, and finally to Rotuma as 3D2R. All of this was in preparation for a full-scale operation from Conway Reef in September.

Marion Island (ZS8) is still pretty high on the Most Wanted list. Pierre, ZS1HF, spent a year on the island and did all he could in the time available outside his work duties, but the need is still there. Pierre has been working behind the scenes to try to obtain permission for a group to go to the island, perhaps in 2014. This is not an easy process, with many governmental obstacles to overcome. Many of these islands are "protected" due to wildlife and conservation groups guarding them closely. I wish Pierre good luck in his negotiations and urge the DX community to be patient and not pressure him or anyone in the chain of command, as it could jeopardize the entire effort.

Rumors Abound

Another round of false reporting was reported in early April. Rumors were floated about operations from Europa, Navassa, and even North Korea. Then we had pirate operations on the air signing all manner of rare and exotic calls.

Left to right: N2WB (Wild Bill, as his friend affectionately call him) really gets around helping people all over the country, in addition to all of his DXpedition trips. Here he is with Don, W2ZI, who he helped get a new Alpha 8410 installed in his shack.(Photo courtesy of Don, W2ZI)

Folks, I've said it repeatedly: If anything is going to happen in the way of activity from these really rare and unusual places, such as North Korea, we will know about it well in advance and let you know via well-known and credible reporting sources. Please give us credit for having the resources to know what is going to happen and when. Rumors don't do anyone any good, and they just raise unrealizable expectations.

Diamond DXCC Award

The Diamond DXCC Award has generated a lot of interest from DXers. It is an interesting challenge, and there are some very nice features. No

The ARRL Diamond DXCC Challenge Award.

*P.O. Box DX, Leicester, NC 28748-0249
e-mail: <n4aa@cq-amateur-radio.com>

QSL cards are required, being one of the best. From the ARRL website I found the following:

"2012 is the 75th anniversary of the ARRL's DXCC Award. The world's pre-eminent DXing award continues to be DXCC, so reaching the 'Diamond milestone' is an event that we all want to celebrate. Going back to the roots of the award, and specifically reading the 1937 DXCC List (January 1937 *QST* pages 52-3), we can learn what countries were counted at the onset and led us to create the Diamond DXCC Challenge.

5 Band WAZ

As of April 1, 2012, 879 stations have attained the 200 zone level and 1769 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:

N5UR DL5XJ R6YY I1WXY

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

N7US, 199 (18)
N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40)
IK1AOD, 199 (1)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
RU3FM, 199 (1)
N3UN, 199 (18)
W1FZ, 199 (26)
SM7BIP, 199 (31)
N4NX, 199 (26)
EA7GF, 199 (1)
JA5IU, 199 (2)
RU3DX, 199 (6)
N4XR, 199 (27)
HA5AGS, 199 (1)
N5AW, 199 (17)
JH7CFX, 199 (2)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10)
RX4HZ, 199 (13)
S58Q, 199 (31)
K8PT, 199 (26)
N8AA, 199 (23)
IZ1ANU, 199 (1)
IN3ZNR, 199 (1)
IK4CIE, 199 (1)
JK1BSM, 199 (2)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
G3KMQ, 198 (1, 27)
N2QT, 198 (23, 24)
OK1DWC, 198 (6, 31)
W4UM, 198 (18, 23)
US7MM,198 (2, 6)
K2TK, 198 (23, 24)
K3JGJ, 198 (24, 26)
W4DC, 198 (24, 26)
F5NBU, 198 (19, 31)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W9RN, 198 (26, 19on 40)
W5CWQ,198 (17, 18)
UA4LY, 198 (6&2 on 10)
JA7XBG, 198 (2 on 80&10)
JA3GN, 198 (2 on 80&40)

The following have qualified for the basic 5 Band WAZ Award:

N5XZ (190 zones)
KH6/N2NL (197 zones)
E74SD (159 zones)
IT9CKD (164 zones)

5 Band WAZ updates:

WC5M (200 zones)
VE3LYC (200 zones)
G3NKC (200 zones)
AB4IQ (193 zones)
N3RC (175 zones)
TF4M (181 zones)

***Please note: Cost of the 5 Band WAZ Plaque is $100 shipped within the U.S.; $120 all foreign (sent airmail).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for the 5BWAZ award is $10.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $15.00 for nonsubscribers. An endorsement fee of $2.00 for subscribers and $5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

CQ Award Policy for Remote Base Operations

After lengthy discussion, the CQ Awards Committee has adopted the following policy regarding remotely-controlled stations:

Contacts *with* a remote base station are valid for all CQ contest and award purposes. Award applications *by* a remote base operator are permitted only if both the station (transmitters, receivers, and antennas) and the operator are located in the same country (entity).

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The WPX Program

CW

3276 .....LY5W
3277 .....KB8VCV
3278 .....JF2MVI
3279 .....RW4WZ
3280 .....W2DEN
3281 .....JA5NSR

SSB

3119 .....EI3GAB
3120 .....LY5W
3121 .....IZ0PUE
3122 .....RW4WZ
3123 .....K6HRT
3124 .....FG4NO

Mixed

2189 .....RN3FT
2190 .....LY5W
2191 .....K4JC
2192 .....KU1T
2193 .....F4GTB
2194 .....YV5OIE
2195 .....K5HGX
2196 .....RW4WZ
2197 .....IZ8FTW
2198 .....K6HRT

Digital

76 .....KJ4IZW
77 .....RW4WZ

CW: 550 LA5UJ. 700 RW4WZ. 750 W2DEN, JA5NSR. 2050 N3XX. 3700 WA5VGI.
SSB: 350 EI3GAB. 400 IZ0PUE. 500 KU1T. 750 RW4WZ. 1350 N3XX. 2800 WA5VGI.
Mixed: 450 LY5W, K4JC. 500 K5HGX. 600 IZ8FTW, K6HRT. 800 N3ALN. 1050 YV5OIE. 1100 RW4WZ. 1350 KU1T. 2450 N3XX. 4300 WA5VGI.
Digital: 400 K9OHI. 550 KJ4IZW. 1000 RW4WZ. 1150 KU1T.

160 Meters: KJ4IZW, LY5W
80 Meters: KJ4IZW, LY5W, RW4WZ
40 Meters: KJ4IZW, LY5W, RW4WZ
20 Meters: KJ4IZW, LY5W, RW4WZ
15 Meters: LY5W, RW4WZ
10 Meters: LY5W, RW4WZ

Asia: LY5W, JF2MVI, RW4WZ
Africa: LY5W, RW4WZ
Europe: KJ4IWZ, LY5W, RW4WZ
Oceania: LY5W, RW4WZ
North America: KJ4IZW, LY5W, RW4WZ
South America: LY5W, RW4WZ

Award of Excellence: LY5W, RW4WZ
160 Meter Bar: LY5W

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, I0JX, WA1JMP, K0JN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SM0DJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SM0AJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, N3XX, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, 9A2NA, W4UW, NX0I, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DE0DAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, NN1N, HB9AUT, KC6X, N6IBF, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, W0ULU, K9XR, JA0SU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, CT4UW, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KU0A, VE2UW, 9A9R, UA0FZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RA0FU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, K0KG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, K0DEQ, DK0PM, SV1EOS, UA0FAI, N4GG, UA4RZ, 7K3QPL, EW1CQ., UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK, K9UQN, UR5FEO, LY2MM, N3RC, OH3MKH, RA3CQ, UT3IZ, S55SL, RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, TF8GX, S58MU, UX1AA, AB1J, DM3FZN, AG4W, UA3QNS, RX3AGD, WB5JID, LY3W.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SM0DJZ, DK5AD, W3ARK, LA7JO, SM0AJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, N3XX, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, NN1N, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JA0SU, I5ZJK, I2EOW, KS4S, KA1CLV, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KU0A, VR2UW, UA0FZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RA0FU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, K0DEQ, DK0PM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UR5FEO, N3RC, UT3IZ RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, S58MU, UX1AA, DM3FZN, AG4W, UA3QNS, RX3AGD, LY3W.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage for airmail) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will now accept prefixes/calls which have been confirmed by eQSL.cc. Other electronic QSL confirmation means are not accepted.

*Please Note: The price of the 160, 30, 17, 12, 6, and Digital bars for the Award of Excellence are $6.50 each.

CQ DX Awards Program

SSB

2583 .....ISØEBO 2584.....MUØGSY

CW

1131 .....JA6CBG

RTTY

58 .....JA6CBG

Endorsements

N3RC 3.5/7MHz JA6CGB .....1.8 MHz .....& 28 MHz

The basic award fee for subscribers to *CQ* is $6. For nonsubscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Please make checks payable to the Award Manager, Keith Gilbertson. Mail all updates to Keith Gilbertson, KØKG, 21688 Sandy Beach Lane, Rochert, MN 56578-9604. We recognize 342 active countries. Please make all checks payable to the award manager. Photocopies of documentation issued by recognized national Amateur Radio associations that sponsor international awards may be acceptable for CQ DX award credit in lieu of having QSL cards checked. Documentation must list (itemize) countries that have been credited to an applicant. Screen printouts from eQSL.cc that list countries confirmed through their system are also acceptable. Screen printouts listing countries credited to an applicant through an electronic logging system offered by a national Amateur Radio organization also may be acceptable. Contact the CQ DX Award Manager for specific details.

The WAZ Program

17 Meters SSB

51 .....K6YUI

40 Meters SSB

113 .....K6YUI

10 Meters CW

203 .....HA5WA

12 Meters CW

63 .....WK3N 65 .....VE7IG
64 .....SM3NXS 66.....HA5WA

15 Meters CW

346 .....HA5WA

17 Meters CW

85 .....WK3N 86.....HA5WA

20 Meters CW

610 .....W2CVW 611.....HA5WA

30 Meters CW

107 .....W9OP 108.....HA5WA

40 Meters CW

93 .....HA5WA

80 Meters CW

93 .....HA5WA

160 Meters

401.....OE6IMD (40 zones) 402 .....HA9RE (40 zones)

160 Meter Updates

KH2/N2NL.....(35 zones) WB6RSE .....(35 zones, correction)

All Band WAZ

Mixed

8891 .....JH1GUO 8896 .....JR7GBL
8892 .....JO1VRV 8897 .....K4MWB
8893 .....KD5YUK 8898 .....W5DQ
8894 .....NØPFE 8899 .....YO9BPX
8895 .....IK2RGT 8900 .....GM3MZX

SSB

5206 .....W8LRO 5210 .....7J2OZY
5207 .....IT9ABN 5211 .....I1YHU
5208 .....NN4K 5212 .....N8DUY
5209 .....KE9L

CW

674.....EA2MK 678 .....JK1TCV
675 .....JI1LAT 679.....JH1KIM
676.....JH8NQV 680 .....JRØEQQ
677 .....W2DEN 681 .....K1KX

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. The processing fee for all *CQ* awards is $6.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

"The intent of this 75th anniversary award is to capture the essence and spirit of the first DXCC List with a fun operating activity that allows us to look back and appreciate the wonderful geography of Amateur Radio. We don't intend to try to fit every existing scrap of land into one of the 1937 entities. Some stations we work today will not count toward any entity from 1937, nor do some of the places we have chosen to represent a certain entity fully match what existed in 1937. The Diamond DXCC awards are not numbered, so relax and enjoy the chase, for this is a year-long operating event. We will continue to roll-out improvements in the web tools and information provided."

For all the details go to <http://www.arrl.org/diamond-dxcc>. There are lots of "helpers" online to make it easy to keep up with what you work and then apply for the award.

CQ and LoTW

Speaking of awards, the ARRL's LoTW and the CQ awards are starting to "merge" in that you will be able to apply for CQ awards (such as WPX) using your LoTW account. The first one (WPX) was delayed briefly in early April when the ARRL announced its new DXCC fee structure and a new "ON-LINE DXCC Application." It was to be released for operation early May.

The CQ WPX Award is the first, but other CQ awards are expected to be available using LoTW in the near future.

The WUST Award

I want to mention just one more award, this one being offered by the Metro DX Club of South Suburban Chicago— the "WUST AWARD." From its website <http://www.metrodxclub.com/wust_award.htm>:

"Contact a minimum of fourteen (14) of the current sixteen (16) IARU-recognized U.S. territories (as of 1 January, 2011). The sixteen WUST territories are: KG4 (Guantanamo Bay), KHØ (Mariana Islands), KH1 (Baker &

Society of Midwest Contesters (SMC) dinner get-together to view the videos of Jerry, WB9Z, and pictures of the HKØNA DXpedition and a talk about Craig's (K9CT) next DXpedition to Swain's Island. Left to right: Gary, AB9M; Craig, KØCT; Larry, N9LR; Jerry, WB9Z; Bill, K3WA; Mike N7MB; Chuck, KG9N; and Ralph K9ZO. (Photo courtesy of Gary, AB9M)

This "young" man tuning a Hallicrafters S38 back in the early 1950s turns out to be a pretty famous guy. It is Bill Smith, W9VA, ofrom the Chicago area. (Photo courtesy of David, N4PZT)

Howland Islands), KH2 (Guam), KH3 (Johnston Island), KH4 (Midway Island), KH5 (Palmyra & Jarvis Islands), KH5K (Kingman Reef), KH7K (Kure Island), KH8 (American Samoa), KH8S (Swains Island), KH9 (Wake Island), KP1 (Navassa Island), KP2 (US Virgin Islands), KP4 (Puerto Rico), and KP5 (Desecheo Island). Mixed bands and modes OK. No date restriction. Send GCR list certified by two licensed amateurs showing the callsign of the station worked, date, time, frequency/band, and mode.

If you are at the top of the ARRL DXCC Honor Roll as printed in the most recent *QST* (normally the August edition), you automatically qualify for the award without having to send copies of QSL cards. You must write "Top of the ARRL DXCC Honor Roll in *QST* August 2010" (or the most current year of

CQ DX Honor Roll

The CQ DX Honor Roll recognizes those DXers who have submitted proof of confirmation with 275 or more ACTIVE countries. With few exceptions, the ARRL DXCC Countries List is used as the country standard. The CQ DX Award currently recognizes 342 countries. Honor Roll listing is automatic when an application is received and approved for 275 or more active countries. Deleted countries do not count and all totals are adjusted as deletions occur. To remain on the CQ DX Honor Roll, annual updates are required. All updates must be accompanied by an SASE if confirmation of total is required. The fee for endorsement stickers is $1.00 each plus SASE. (Stickers for the 340 level are available.) Please make checks payable to the Award Manager, Keith Gilbertson. Mail all updates to Keith Gilbertson, KØKG, 21688 Sandy Beach Lane, Rochret, MN 56578-99604.

CW

NØFW	341	N7FU	341	DL3DXX	341	KA7T	339	W4MPY	334	JA7XBG	330	326		ON4CAS	312	K7CU	283
K2TQC	341	K4IQJ	341	N4NX	340	K3JGJ	339	K5UO	334	K6YK	330	OZ5UR	323	WD9DZV	310	N2VW	281
WB4UBD	341	K4MQG	341	K4JLD	340	K7LAY	338	N6AW	334	K8SIX	329	W6YQ	320	KT2C	307	K4EQ	279
K3UA	341	W8XD	341	K9BWQ	340	WØJLC	340	HB9DDZ	334	KE3A	327	W9IL	319	HA5LQ	302	4Z5SG	277
N4JF	341	N7RO	341	W7CNL	340	YU1AB	340	W7IIT	334	K6CU	327	CT1YH	318	N2LM	311	WA2VQV	277
K2FL	341	N5FG	341	N5ZM	340	PY2YP	335	G3KMQ	332	W1DF	332	KØKG	318	K4IE	296		
WK3N	341	K4CN	341	K9IW	340	K9OW	335	K6LEB	332	KA3S	326	EA3ALV	317	HB9DAX/QRPp			
K9MM	341	OK1MP	341	W7OM	340	K1FK	335	N7WO	332	IKØADY	326	RA1AOB	315		284		
W4OEL	341	N4AH	341	N4MM	340	W6OUL	335	F6HMJ	331	EA5BY	326	WA4DOU	314	N3RC	292		
EA2IA	341	F3TH	341	K8LJG	339	K2OWE	334	K5RT	330	WG5G/QRPp		YO9HP	314	K8ME	324		

SSB

XE1AE	342	K4IQJ	342	VE3XN	341	W7FP	340	VK4LC	336	K8SIX	334	W9GD	327	RA1AOB	310	K2HJB	296
NØFW	342	N5FG	342	K5TVC	341	W4UNP	340	WS9V	336	KE3A	334	W6OUL	327	G3KMQ	310	W9ACE	292
K6YRA	342	K4CN	342	W6BCQ	341	K9IW	340	VE3MR	336	N2VW	334	VE7SMP	327	XE1MEX	310	W6MAC	290
IK1GPG	342	OZ3SK	342	VE2GHZ	341	N7WR	340	VE3MRS	336	JA7XBG	334	SV3AQR	332	IØYKN	308	N3KV	290
K2TQC	342	OK1MP	342	K2FL	341	W2FKF	340	AA4S	336	N5YY	334	VE7EDZ	326	XE1MW	307	K7CU	288
K4MZU	342	N4CH	342	K9BWQ	341	W7BJN	339	PY2YP	336	K5UO	333	WØROB	325	AA1VX	306	WD8EOL	282
DJ9ZB	342	DL3DXX	342	W6DPD	341	W2CC	339	K9OW	336	K5RT	332	W4MPY	323	W5GT	306	VE6MRT	280
WB4UBD	342	K5OVC	341	W7OM	341	K3LC	338	EA5BY	336	WØYDB	332	TI8II	322	K4IE	306	WA2VQV	279
N4JF	342	OZ5EV	342	W8ILC	341	VK2HV	337	XE1J	336	WA4WTG	332	YO9HP	322	AD7J	310	N3RC	296
WK3N	342	K3UA	341	W9SS	341	W4WX	337	OE3WWB	335	ZL1BOQ	332	KW3W	322	K4ZZR	306	IWØHOU	278
K4JLD	342	VE2PJ	341	K9HQM	341	IØZV	337	N6AW	335	W9IL	332	XE1RBV	319	HB9DQD	305	WA5UA	276
N7BK	342	N4NX	341	KØKG	341	OE2EGL	337	IK8CNT	335	CT1AHU	330	ON4CAS	317	4Z5FL/M	304		
EA2IA	342	IN3DEI	341	KZ2P	341	W4ABW	337	EA4DO	335	N1ALR	330	N8SHZ	314	K7SAM	303		
K4MQG	342	DU9RG	342	K7LAY	340	VE1YX	337	CT3BM	335	K7HG	329	IV3GOW	314	I3ZSX	302		
K9MM	342	N4MM	342	K8LJG	340	EA3BMT	337	K8LJG	335	W1DF	328	W6NW	312	AE9DX	305		
K3JGJ	342	KE5K	342	YU3AA	340	IKØAZG	337	W3AZD	340	KE4SCY	328	KU4BP	312	4X6DK	299		
N5ZM	342	I8KCI	341	AB4IQ	340	YU1AB	341	K1UO	335	K6GFJ	328	N2LM	321	WD9DZV	299		
N7RO	342	K8ME	333	4Z4DX	340	W8AXI	336	HB9DDZ	335	KD5ZD	328	KA1LMR	310	K7ZM	298		

RTTY

WB4UBD	340	NI4H	340	N5FG	338	N5ZM	336	OK1MP	335	K3UA	333	WK3N	328	K4CN	326	K8SIX	298

QST) on the Award Application in the "QSO Data" section. This applies *only* to those who are at the *very top* (Number 1) on the ARRL DXCC Honor Roll."

For details please see the website.

Summary

With all of the DXpeditions and all of these awards to "shoot for" there is plenty of activity to go around. While we're waiting for North Korea to really come on the air, we can work on some of the awards just for fun. Then there are other on-the-air activities, too, such as state QSO Parties and how about the annual ARRL Field Day the last weekend of June. Also, there's always a hamfest somewhere close by to which you can go and browse through the flea market or twist the knobs on a new piece of equipment.

Until next time, enjoy the chase, but above all else, Have Fun!

73, Carl, N4AA

QSL Information

4KSØNG via RU3SD
4O8A via via S50A
9A203XM via 9A3XM
9M2/R6AF/P via R6AF
A35XG via JA1XGI
C91KHN via ZS6ALB
CO6YAC via KJ4QHL
CT8/DL1CW via DL1CW
CT8/DL5AXX via DL5AXX
CT8/KØRUI via KØRUI
DF6ØJFA via DJ1TO
DPØGVN via DL5EBE
EA8/DL3ASM via DL3ASM
EM1ØØN via UT8NT
F8ATS/6W via F8ATS
FK8GX via W3HNK
FO8WBB via N6JA
GB1OOC via MWØDHF
GB4T via MØDOL
KP4EIT via EA5GL
LZ1437MGS via LZ1KCP
N3C via W3DQ
OR1ØØMGY via ON6KNH
OZ/DF9TM via DF9TM
PH1ØØMGY via PA3CAL
SV1OAA/8 via SV1OAA
T88RA via JH1RMH
V44KAI via W5TFW
VP9HE via W2AF
XV3W via F6BUM
YR1ØXF via YO4KAK

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>.)

BY GEORGE RANOS,* N2GA

Station Accessories for Contesting

Spirited contesters need both hardware and software to achieve great results. Ronald Litt, K5HM, of Houston, Texas asks, "I know a competitive contester needs good basic antennas and transceivers, but what other accessory equipment and software make a difference in the effort?" Good question, Ron! I asked contesters from around the world to chime in on this query. The results show different levels of complexity depending upon the station. They run the gamut from simple, single-operator setups with one radio and antenna to those with multiple towers, radios, and operators. A common thread in adding complexity in station setup is simplifying operating. Let's take a look at how different hams address filtering, switching, and station-accessory schemes.

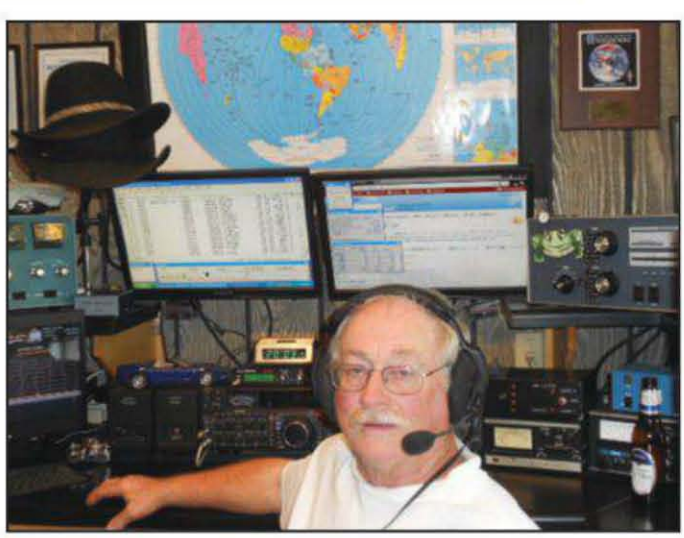
Courtney Judd, K4WI, from Uniontown, Alabama, considers himself a "full blown" contester. Judd has been a ham since 1959 as KN8OPP, then K8OPP, K4JYO, and currently K4WI. For switching, he utilizes "only StackMaster, StackMatch, several RCS-4 antenna switches, and a home-made box to switch six rotators with one control box." He has no filtering devices. Accessories K4WI deems essential include "a MicroKeyer 2, because it greatly simplifies the rig-to-computer control interface." He uses Writelog for contest logging and claims that it's the "greatest thing since sliced bread! I've been using it since it came out and have tried several others but Writelog is the best! There have been no problems and great updates." He uses "DX4WIN for my general logging because it's so easy to import from Writelog after the contest!" He feels that what's so unique about his setup is "it is easy to set up for a contest."

Pete Smith, N4ZR, from Kearneysville, West Virginia, said that for filtering his "Skimmer radio (QS1R) has a broadcast band high-pass filter." For switching, N4ZR said, "I use a homebrew interface to switch my Ameritron RCS-10 from my computer's LPT port. The LPT port is set by N1MM Logger's Antenna tab to make sure I always have the right antenna connected. A homebrew relay box opens the DC power to my active RX antenna (also for the QS1R), and another switches my much-modified Heathkit SB-220 to transmit, both from the Elecraft K3's PTT out. A homebrew relay box switches up to eight RX antennas at a remote hub. Finally, a homebrew relay box switches my 80-meter array in the desired direction." Another

*P.O. Box 657, Copaigue, NY 11726
e-mail: <n2ga@cq-amateur-radio.com>

Calendar of Events

All year	**CQ DX Marathon** (http://bit.ly/vEKMWD)
May 26–27	**CQ WW WPX CW Contest** (http://www.cqwpx.com/rules.htm)
June 2–3	10-10 PSK Contest (http://www.ten-ten.org/oseason/oseason.html)
June 2–3	Alabama QSO Party (http://bit.ly/AhHgus)
June 2–3	SEANET Contest (http://2012sea.net/mambo/content/view/5/10/)
June 2–3	Six Club 6 Meter Contest (http://www.6mt.com/contests.htm)
June 9–10	Portugal Day Contest (http://www.rep.pt/portugal_day_contest/rules.html)
June 9	Asia-Pacific SSB Sprint (http://jsfc.org/apsprint/aprule.txt)
June 9-10	VK Shires Contest (http://www.wia.org.au/members/contests/wavks/)
June 9–10	GACW WWSA CW DX Contest (http://gacw.no-ip.org/contest.html)
June 9–10	DRCG Long Distance Contest (RTTY) (http://bit.ly/A3XDWC)
June 9–10	ARRL June VHF QSO Party (http://www.arrl.org/june-vhf-qso-party)
June 16–17	All Asian CW DX Contest (http://bit.ly/As5VzH)
June 16–17	Six Meter Int'l Radio Klub (SMIRK) (http://www.smirk.org)
June 23–24	ARRL Field Day (http://www.arrl.org/field-day)
June 23-24	King of Spain SSB Contest (http://bit.ly/xez0um)
June 23-24	Marconi Memorial HF Contest (http://bit.ly/AsRF5u)
July 1	RAC Canada Day Contest (http://bit.ly/zdQ8DM)
July 7–8	Venezuelan Ind. Day Contest (http://bit.ly/xZqZWf)
July 7-8	DL-DX RTTY Contest (http://bit.ly/xTMWHL)
July 14–15	IARU HF Contest (http://www.arrl.org/iaru-hf-championship)
July 21–22	**CQ WW VHF Contest** (http://bit.ly/yM7W0M)



Courtney Judd, K4WI, from Uniontown, Alabama, at his contest station. He uses a StackMaster, StackMatch, several RCS-4 ant switches, and a homemade box to switch six rotators with one control box. (All photos courtesy of the contributors to this column, respectively)

accessory that Smith deems essential to contesting endeavors is good, lightweight headset: "The Yamaha CM-500 is a delight." In addition, Smith says, "My Winkeyer USB also has excellent integration with N1MM Logger." N4ZR uses N1MM Logger for contest logging software and has been a user and N1MM team member since shortly after he switched from TRLog (about eight years ago). He said, "N1MM's commitment to rapid evolution and very strong support makes all the difference. Twelve years after the first version, the development team is still innovating with weekly releases." Other software Smith uses include "DX4WIN for general logging; MultiNEC, HFTA, and TLW for antenna modeling; and the DXAtlas suite of programs, especially CW Skimmer and Ionoprobe." He feels his station is unique and noteworthy for its "integration and automaticity, plus the Reverse Beacon Network."

Torsten Clay, N4OGW, from Starkville, Mississippi, has been a ham since 1986. Clay said, "A few years ago I realized that no current logging software was going to do what I wanted, so I decided to write my own (see: <http://code.google.com/p/so2sdr/>) It is rather different in that it combines real-time band scopes with a conventional band map. But unlike CW Skimmer it is designed for unassisted contesting. I now do all my contesting using Linux. I color-code signals directly on the band map. This makes new (unidentified) signals on the band stand out immediately." For filtering, N4OGW uses "ICE 419 bandpass filters, coax stubs, and homebrew bandpass filters for receiving antennas. I use an Array Solutions Six-pack switch to switch antennas between two radios for SO2R operation."

Jim George, N3BB, from Austin, Texas, at his well-equipped station. Note the Stack Match boxes and SO2R radio controller on his left near his hand.

Jim George, N3BB, from Austin, Texas, has been a ham for 53 years. N3BB said, "I mainly do SO2R *(single operator, two radios—ed.)*. Both transceivers use a Dune Star 6-Pak between the radio and the amps. These are bandpass filters, allowing the desired band to go in and out, with minimal loss, and the harmonics on any other band to be reduced greatly. In addition, I use two quarter-wave filters for 40 meters, which reduces the effect of transmitting on 40 meters on 20 meters and all other bands. The radios (Yaesu FT1000MPs) both have roofing filters to improve unwanted signals." George said that he uses "Top Ten band decoders on both MPs. In my station, to switch bands simply put the radio on that band. It's entirely automatic. One amp is an Alpha 87A, so it switches automatically with one dit. The other amp is an Alpha 76PA, so that must be manually tuned." Other accessories of note in his station include "Array Solutions Stack Match units on 80 through 10 meters so I can switch between the stacks (40 through 10) and the three slopers (80). I can select any combination of antennas on any band with this easy-to-use method within arm's reach." For contest logging software N3BB uses "TR Log. My favorite contest is the NA Sprint, and TR is essential to true two-radio operation in the unique Sprint format. I use the same software for all other contests. It's the best." The thing that George feels is unique about his setup is its "true SO2R capability in every contest as a single operator."

Rick Dougherty, NQ4I, from Griffin, Georgia, has been a ham for 51 years. Dougherty said, "The NQ4I station consists of 11 Ten-Tec Orions and various Henry and Alpha amps and is used strictly as a multi-multi station in major DX contesting. Interstation interference is to be avoided like the plague. We decided on the Orions because of the Sherwood Engineering reports on receiver selectivity. The Orions were rated at number five overall. Each Orion has an ICE bandpass filter between the exciter and the amps. The filters add roughly 50 dB of out-of-band isolation/rejection—in other words, the signals on 20 meters are mostly affected by 40 and 80 meters—so the ICEs provide the first level of rejection out of band. After each amp is a Chesterfield Laboratories transmitting band pass fil-

Scott Dickson, W5WZ, from Calhoun, Ouachita Parish, Louisiana, with his SO2R station. He utilizes a pair of ICE 419B bandpass filters, as well as a full complement of coax stub filters. The ICE filters are between the transceivers and the legal-limit amplifiers. The coax stub filters are installed on the output side of the WXØB SixPack.

ter. They were custom made for Hazzard Reeves, K2GL, in the early 1970s at a cost of $1900 per filter, and I have six of them in my station. They provide approximately 80 dB of rejection. With the combination of filters, the second harmonic of the 20-meter station when it gets to 10 meters is less than S4; that is a lot of rejection. The antennas at NQ4I are spaced as far apart as possible on the same bands. Each band has approximately 500–700 feet of spacing between antennas on the same bands. Spacing also contributes a lot to rejection. It is inversely proportional to the square of the distance; double the distance and the rejection goes down by a quarter. The next phase will be to construct crystal receiver filters that are band specific. They will have a bandpass of only 20 kHz, so a filter designed for 14.020 will work from 14.010 to 14.030. Very steep rejection is available this way also. We are in the process of building the first filter and testing it soon. This will allow the mult stations to work on other 20-meter frequencies and not interfere with the run station's performance. If these filters are successful, then we will investigate a filter around 14.050 or 14.060 for use in the mult receiver to allow the op to hear better also." For contest logging software, NQ4I uses WinTest and said, "It is one of the most important improvements to my station in 10 years. It's easy to network, easy to use (like the old CT)." He also said, "I use HFTA to model my antennas and their performance. Also reverse beacon is used to analyze my performance in a contest."

Scott Dickson, W5WZ, from Calhoun, Ouachita Parish, Louisiana, has been a ham since August 1997. Dickson said, "My station is primarily set up for SO2R. The ICE filters are between the transceivers and the legal-limit amplifiers. The coax stub filters are installed on the output side of the WXØB SixPack on antenna ports. Coax is a mix of RG-213 and JefaTech LL400. I use an MK2R+ to switch all microphones, keys, and audio inputs, and outputs to the pair of FT-1000MPs. I use a TopTen BandDecoder for each FT-1000MP, the band decoder switches, the ICE bandpass filters, and the SixPack antenna selector. I do this to be able to concentrate on operating rather than switching stuff." W5WZ also said that his most essential accessories were a "Beverage receive antenna system, manually switched and shared by both transceivers. I use them to dig out weak signals, and sometimes to simply null strong signals from an undesired direction. They are necessary to hear the next layer of DX stations." For logging software, Dickson uses N1MM. He said that he "upgraded to it from NA by K8CC in 2009 after a lightning strike killed my last DOS computer. I chose N1MM because it seemed to have the largest following of operators and it was free. I had tried Writelog previously. After paying for Writelog, the learning curve was very steep, the support was middle of the road, and I didn't know anyone near-

by who was using it." W5WZ uses "the LP-VCP for my LP-100A Digital Vector RF Wattmeter with dual coupler option. It is nice to have the power and SWR right on the screen to instantly alert me of any problems." As far as being unique, he said that he did "nothing someone else hasn't thought of first. I've only stood on the shoulders of giants and looked a little bit further. Having had the opportunity to attend Contest University 2007 and 2009 prior to building my station, I did have ample time to ask the experts about my design and strategies. I think that in itself can be an edge—that is, not to have to scale the learning curve wall alone and make many mistakes along the way."

Katsuhiro "Don" Kondou, JH5GHM, from Tokyo, Japan, said Don is his nickname for amateur radio. He often uses JR1AIB as a guest operator and is also one of the team members of JE1CKA. Kondou has been a ham for 34 years, but was off the air for almost 20 years until his return in 2010. He doesn't use any specific filters, but for switching he said he has a "control panel and switch box. I switch radios and antennas. These help me to avoid manual cable reconnection." For contest logging, JH5GHM uses "SkookumLogger. This runs only on OS X (Mac). I don't like Windows® software, since I was a Unix software engineer for over 15 years. After a long hibernation, I was trying to search for good logging software which runs on OS X, which is actually true Unix. But I could not find one at that time. So I decided to write a new logging software by myself, and asked W7AY to control microHAM devices to get the detailed software interface. He told me to just wait before writing by myself and K1GQ was writing a good logging program for OS X. Then I also found that it was the real one for me. Standard OS X interface provides natural cursor-control behavior like CT had. This behavior follows emacs, which is one of Unix editors and many Unix engineers love it for development. I believe CT followed this. Anyway, I don't want to use arrow keys or the delete key for cursor movement, while most of Japanese hams do not care about that. Using these keys needs hand movement from the home position at the keyboard, and I strongly dislike it. The location of the CTRL key on the keyboard needs to be just to the left side of 'A' key, while PC keyboard locates the CTRL key on the left bottom of the keyboard. For me, using a PC keyboard is just like writing with your non-dominant hand. So for multi-operator environments where I cannot use my favorite one, I use two software programs. One is for key assignment change and is called 'altime.' It swaps the CTRL and CAPS Lock keys. Another one is to enable cursor movement with CTRL key is called 'xkeymacs.' Don also said he uses the programs CueMix FX and GarageBand. He added, "Most contesters use HEIL headsets, but I cannot use this since I get strong pressure from the headset on my ears and cannot use one for over a few hours, so I decided to use a BOSE QC-15, which is very comfortable for me even for a consecutive 48 hours. But I needed to prepare a microphone to attach to QC-15 and decided to use a SHURE WH20XLR, which is a headset microphone. The sound of this mic is not for contesting, and I decided to use an equalizer, which is a MOTU MICROBOOK. This equalizer, which is actually a mixer but also has the functionality of equalizer, is very compact, but needs computer control. CueMix FX is the software for it, and also I use GarageBand to enable noise gate to reduce back noise. I'm sure my sound with these is better than D104, HC-4/5, or W2IHY devices."

The scene at PJ4T during the 2012 CQ WW DX SSB Contest. It shows Katsuhiro "Don" Kondou, JH5GHM, from Tokyo, Japan (center); LU1FAM (left); and K2NG (right).

Special keyboard and remote VFO knob used by JH5GHM, from Tokyo, Japan.

Joe Hypnarowski, W6VNR, operates as ZF2AH from the Cayman Islands. He has been a ham for 50 years. Hypnarowski said he uses stock Kenwood filters in his radios. For switching, he uses WXØB antenna switches. W6VNR said the most important accessory he has is "multiple antennas." For logging software, he uses CT, as "it is simple and does not break." He also

Kazunori Watanabe, JK3GAD, operating at GJ3DVC on the Isle of Jersey. Note the microHAM MK2R+ above the left transceiver to accommodate smooth SO2R operation.

added, "I do not use special devices and think they should be outlawed."

Kazunori Watanabe, JK3GAD, MØCFW, currently resides in London, England, and has been a ham for 30 years. He typically operates at MJØCFW on the Isle of Jersey. For filtering, "Kaz" uses "6-band pass filter (W3NQN type, 5B4AGN design) x2 for SO2R operation to protect the radio's front end." He also utilizes "for antenna, Array Solutions Six Pack for audio, keyer, etc., and microHAM MK2R+ in order to accommodate smooth SO2R operation." Important accessories for him include "an SDR connected to the K3's IF output. Even if operating in the unassisted category, you can use it for making sure your running frequency is clear, no key-click signal nearby, to check for band openings, and if you are capable of decoding CW visually then you can S&P in band." For logging, JK3GAD uses "Win-Test—it is easy to use, easy to migrate from CT, very stable, stable on networking." He also said that "for SDR use, panadapter software is necessary and for more fun, use realtime score update software."

Mark Aaker, K6UFO, has been a ham for 40 years and typically operates at NN7SS in Vashon, Washington. Aaker said, "I use coax stubs to reduce harmonics between two radios. For example, the 40 Yagi feedline includes a coax stub that passes 40 but attenuates on 20 or 80 meters. I use the designs from the book distributed by INRAD, *Managing Interstation Interference,* by George Cutsogeorge, W2VJN. "I have a two-radio switch (the microHAM micro2r) and two antennas switches that switch six antennas to either of two radios; both are the microHAM micro Double Six Switch. One antenna switch selects the antennas on the far tower to one of two hardline feedlines. The second antenna switch selects from those feedlines and the feedlines from the two other close towers. So any antenna can be switched to either radio. The micro2r controller switches the headphones, mic, and paddle between two radios." For logging, K6UFO is another Writelog user. He said, "I use it for RTTY, CW, and Phone. I primarily contest, but I also use it for logging DX contacts. Around 2003 to 2005 I tried various logging software programs, and selected it for the best RTTY support and good multi-op support (i.e., networking support) on the Windows® operating system. It continues to provide excellent RTTY and

On The Cover

Taking it to the field in style … For most of the past decade, the Buffalo Light House Crew—part of the Western New York DX Association—has activated the historic Buffalo Light on Field Day. The lighthouse, built in 1833, is the oldest standing building in Buffalo, according to Crew member Bill Klesper, WB2AIV. No longer operational, it sits on the shore of Lake Erie at the mouth of the Buffalo River. Another member of the group is on the board of the Lighthouse Historical Association, which maintains the lighthouse, and arranged operating permission. The lighthouse is currently undergoing renovations and has not been available for the past couple of years. In 2008, when this photo was taken, the Crew placed second nationwide in the 2A category in Field Day.

The station pictured here was broken up into two operating locations, one inside the base of the lighthouse and the other in a tent outside. In addition to the Moseley Classic 33 Yagi being set up on the 35-foot lift by Dick Stein, K2ZR (on the lift) and Tom Williams, N2CU (on the ground), the group hung three wire antennas from the top of the lighthouse (you can see a run of ladder line going up from the right side of the lighthouse) — an 80-meter dipole used on all bands with a tuner, a 40-meter dipole and a 40-meter double extended Zepp. The 80-meter and one of the 40-meter antennas were hung east-west, while the second 40-meter antenna was hung north-south. The beam was used for 20-10 meters. The Buffalo Light House Crew consists of roughly eight operators, all of whom are also members of larger Western New York DX Association. *(Cover photo by Larry Mulvehill, WB2ZPI)*

The NN7SS contest station, typically operated by Mark Aaker, K6UFO. It is shown with an additional laptop and Kenwood TS-480s in place in front of the "left" Yaesu FT-1000MP radio. On the shelves top to bottom are: top shelf—all antenna rotator controls, paddle, and micro2r controller; middle shelf—power meter, two 2x6 antenna switches (with large diagram above them), and Steppir antenna controller; bottom shelf: Beverage antenna control, Yaesu FT-1000MP. Not visible to the far right is the second "right" Yaesu FT-1000MP radio.

networking operation. The MMTTY software for RTTY provides excellent performance. I use my 'contest' setup and software even during DX or casual use to stay in practice." He said that the most unique aspect of his setup is that his "computer is used exclusively for ham shack operations, not other e-mail, web surfing, or video watching. This keeps the 'contest' configuration in place and ready to go."

Ethan Miller, K8GU, from Silver Spring, Maryland, has been a ham for 18 years and considers himself a "mostly casual contester, occasionally somewhat serious." For filtering, Miller said, "On the RF side, I use homebrew versions of the 200-watt W3NQN transmitting filters in my common TX/RX paths on the six contest bands. I also use W3LPL filters on the low bands with my RX antennas. These allow me to operate SO2R on adjacent and harmonically-related bands with close-spaced antennas. On the audio side, I use a Timewave DSP-59+ on one of my radios, since my TS-930 transceivers don't have DSP. Of course, both TS-930 transceivers are loaded with optional filters, and one has the INRAD roofing filter. I use a homebrew 6×2 switch I got from W9RE at the center of my HF station switching. I also have a couple of homebrew 2×1 relays that I use for switching my WARC band antennas when I'm not contesting. The 6×2 switch is driven by a KK1L band-decoder/controller for automatic band changes using the data output from the Piexx upgrade boards in the radios. I never understood why you would want automatic band switching until I tried it. It helps you focus on making contacts, especially if you're moving someone from band to band like in the NAQP or a DX contest. My SO2R audio is handled by a HEIL HCS and my keying by a K1EL WinKey USB. Nothing fancy. SO2R audio routing is probably the next thing to automate. For VHF+, I'm in the process of modifying some Hewlett-Packard low-level RF-routing relay boxes to automate transverter switching for the 28- and 144-MHz IFs." As for accessories, K8GU thinks, "No one accessory is more essential than the others. The only things I can think of are ergonomic accessories. For

example, adding a keyboard tray probably increased my butt-in-chair (BIC) time 25% or more because it was less fatiguing." For contest logging, K8GU uses "TR4W, because I used TR-Log DOS before and it just makes sense. I use N1MM for RTTY and VHF, but it's really hard to beat TR4W. TR pioneered ESM (enter sends message) and I still think he did it best. I also like the CQ/S&P mode dichotomy and the NA Sprint features." As for other computer software, he uses "MorseRunner by VE3NEA to warm up. I haven't done this in a while, but it has definitely helped in the past and I know a few guys who train with it. The grayline program with N1MM is also handy to keep track of the sun. Of course, antenna and propagation modeling software is useful. I've used EZNEC, 4nec2, cocoaNEC, HFTA, VOACAP, and RadioMobile, to name a few. As far as operational propagation, though, I mostly plan my strategy for individual contests by being on the air during the weeks prior to the contest and leveraging the second radio to watch for activity. W3LPL and K3ZO usually post helpful propagation notes, hints, and observations to the PVRC reflector before contest weekends. The only exception is that I use the Hepburn tropo maps and NGØE's APRS reporter to get an idea of tropo outlook before VHF contests." The most unusual aspect of his operation is "I have a second monitor on an arm that I can use to display an SDR waterfall, IRC channel, packet spots, etc., if I want."

Summary

It is readily apparent that various people have unique solutions to station accessories. What works for one may not work for another, but overall it is a good idea to be aware of all the possibilities so that you can make your own choice. Switching and filtering become more important as the number of devices in your shack multiply. Someone with a huge antenna farm who runs a multi-operator or a single-operator two-radio setup may have a much more complex scheme than someone operating with one radio and antenna. Other "must have" accessories also run the gamut from digital on-screen wattmeters to panadapters, keyboard drawers, and special logging software. One size definitely does not fit all. Reading about, seeing, and operating at different stations can also help you determine what works for you and what other accessories you should put on your "most wanted list." A basic antenna and radio are important, but as K5HM suggested, the accessories are what help make the station function as a cohesive whole. 73, George, N2GA

CQ Contest Hall of Famer
W1BIH, Silent Key

John Thompson, W1BIH/PJ9JT, became a Silent Key in March at age 97. A ham since 1931, Thompson was a contester and DXer for over 70 years, competing—and often winning—from either his home QTH in Connecticut or from Curacao. He regularly hosted guest operators at his island home in Coral Cliffs, Curacao, which became one of the world's best-known and most successful contesting locations, despite an "antenna farm" that consisted only of a tribander and wire antennas. On the DX side of the ham radio ledger, John had an astounding total of 390 countries confirmed. He was inducted into the CQ Contest Hall of Fame in 1994. *(Tnx W1RM)*

BY TOMAS HOOD,* NW7US

Take It to The Field Special
Propagation Conditions for Field Day

A Quick Look at Current Cycle 24 Conditions
(Data rounded to nearest whole number)

Sunspots
Observed Monthly, March 2012: 64
Twelve-month smoothed, September 2011: 60

10.7 cm Flux
Observed Monthly, March 2012: 115
Twelve-month smoothed, September 2011: 118

***Ap* Index**
Observed Monthly, March 2012: 14
Twelve-month smoothed, September 2011: 8

One Year Ago: A Quick Look at Solar Cycle Conditions
(Data rounded to nearest whole number)

Sunspots
Observed Monthly, March 2011: 56
Twelve-month smoothed, September 2010: 20

10.7 cm Flux
Observed Monthly, March 2011: 115
Twelve-month smoothed, September 2010: 82

***Ap* Index**
Observed Monthly, March 2011: 7
Twelve-month smoothed, September 2010: 6

Field Day is always the fourth full weekend of June, beginning at 1800 UTC Saturday and running through 2059 UTC Sunday. Field Day 2012 will be held June 23–24, 2012. The Field Day objective is to work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less than optimal conditions.

This year we're expecting fair conditions for the entire weekend. Expect the annual sporadic-*E* openings on 10 and 6 meters, with a slight chance for *F*-region longer-range propagation on 10 meters due to the rising sunspot activity. For good *F*-region propagation the forecast on 15 meters is significantly better than the forecast for 10 meters,. Especially with digital modes, the *F*-layer mode propagation model on 15 meters indicates strong openings.

One of the best available methods to predict HF propagation conditions in advance is the 27-day recurrence tendencies of geomagnetic, solar, and ionospheric conditions. It is not an absolute method, but it does give a very good indication of what is expected. This column is being written in mid-April, about three 27-day solar rotation cycles from the start of the Field Day weekend. Based on a study of the patterns expected during the next three rotational periods of the Sun, it looks like conditions for Field Day, June 23–24, will be fair.

Predictions for one 27-day rotational period are far more accurate than for three 27-day rotational periods. Be sure to carefully check conditions on May 26 and 27, since this would be one rotational period before the Field Day weekend. There is better than a 90-percent chance that conditions observed on those days will recur during the event weekend. Also remember that short-skip propagation often via the sporadic-*E* (*Es*) mode is a big part of Field Day on-air activity, especially on the higher HF bands and even on low VHF bands.

As I've been preaching this each year: The digital modes, such as PSK-31, are very efficient and work well on marginal propagation paths. Using the same power level as a single-sideband station, your PSK-31 digital or CW Morse code signal will "make it" farther than that SSB signal. Most Field Day operations center either on voice or on Morse code (SSB and CW, respectively). Try something new! Dedicate time to PSK-31 or even a mode such as Olivia or JT65A. Remember: You get double points for digital contacts.

If you wish to maximize your on-air efforts, you'll want to check out the Last-Minute Forecast on the first page of this column. Use these charts, as well as a good forecasting and analysis software tool such as ACE-HF <http://hfradio. org/ace-hf/ > to help you prepare operating guides for your Field

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for June 2012

Propagation Index	Expected Signal Quality (4)	(3)	(2)	(1)
Above Normal: 3, 16, 19, 27, 30	A	A	B	C
High Normal: 2, 4-5, 9-13, 15, 20-25, 29	A	B	C	C-D
Low Normal: 1, 8, 14, 28	B	C-B	C-D	D-E
Below Normal: 6, 17-18, 26	C	C-D	D-E	E
Disturbed: 7	C-D	D	E	E

Where expected signal quality is:
A—Excellent opening, exceptionally strong, steady signals greater than S9.
B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 3 will be poor to fair (D-C) on June 1st, fair (C) on the 2nd, good (B) on the 3rd, etc.

3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be more reliable on a given path, when the path is ionospherically supported.

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Day operations. For thevery latest update on conditions, take a look online at my up-to-the-day Last-Minute Forecast chart, available onmy Space Weather and Radio Propagation Center at: <http://sunspotwatch.com>.

The Ångström and the Sun

The Sun is always emitting electromagnetic radiation, as well as spewing out vast amounts of plasma. The Sun's electromagnetic radiation occurs at many wavelengths, a number of which ionize particular regions of the Earth's atmosphere (the group of regions known as the ionosphere). Hard X-rays (1–10 Ångströms in wavelength) ionize the *D*-region, the lowest (or closest to the Earth) region of the ionosphere. Soft X-rays (10–100 Ångströms in wavelength) ionize the *E*-region (where sporadic-*E* and aurora-*E* propagation occur), while ultraviolet light (100–1000 Ångströms) ionizes the *F*-regions (these regions are most useful for worldwide propagation of shortwave frequencies).

An Ångström (Å) is the unit of measurement used by astronomers to measure wavelength (typically of electromagnetic radiation and light). The length of an electromagnetic wave (a wavelength) is the distance between its peaks.

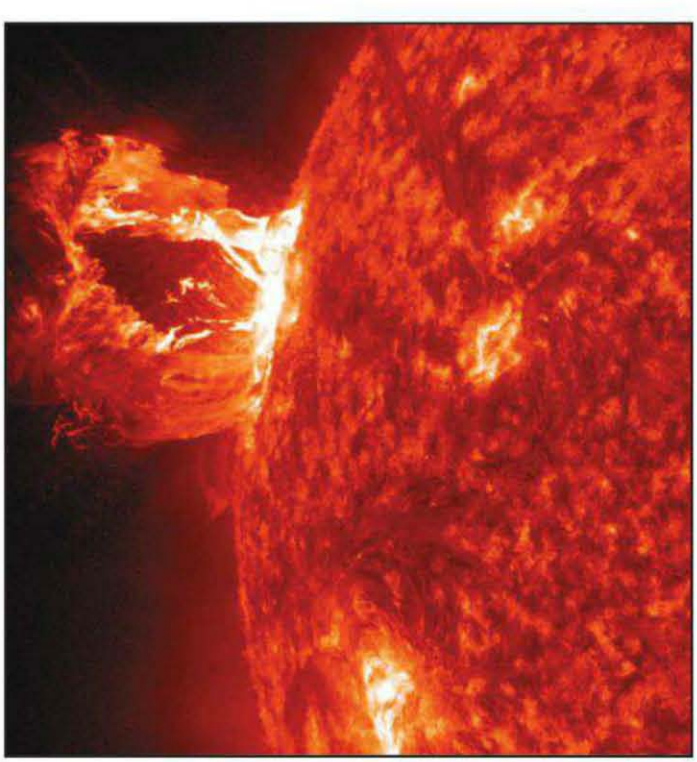

Fig. 1– The Solar Dynamics Observatory (SDO) observed a beautiful prominence eruption shot off the east limb (left side) of the Sun (April 16, 2012). Such eruptions are often associated with solar flares, and in this case an M1.7 class (medium-sized) flare did occur at the same time, though it was not aimed toward Earth. A movie (in extreme ultraviolet light) covering four hours of activity can be viewed at <http://g.nw7us.us/HPSaxs>. As we have observed in some other events, some of the charged particles do not have enough force behind them to break away and they can be seen streaming back into the Sun. We are witnessing an increase in these events as the Sun moves toward the solar Cycle 24's peak in activity, sometime between 2013 and 2016. (Credit: NASA/SDO) ⟶

We use this wavelength to define the energy of the radiation.

An Ångström is a unit of measurement equal to one hundred-millionths of a centimeter. Using such units makes it easier for us to refer to measurements of light radiation, because it allows us to avoid using lots of zeroes.

Visible light covers the range from 4000 to 8000 Ångströms. By comparison, a page from this magazine is approximately 1,000,000 Ångströms thick.

When electromagnetic radiation from the Sun strips an electron off a neutral constituent in our atmosphere, the resulting electron can spiral along a magnetic field line. Thus, the condition of the ionosphere depends on the state of Earth's magnetic field. This is important, because Earth's magnetic field plays a big part in the propagation of radio signals around our planet. Generally, an *A*-index at or below 15, or a *K*-index at or below 3, is best for propagation.

When the Sun is becoming more active, as it is right now at the beginning of solar Cycle 24, a meager amount of solar radiation is produced by the Sun. This results in the ionosphere being energized at a much lower level than during the peak years of a solar cycle. During the peak solar activity, the steady occurrence of X-ray flares, erupting back-to-back, can over-energize the ionosphere and cause radio blackouts on the entire shortwave radio spectrum for many hours. Of course, that's the most intense possibility during the peak of a solar cycle. Most of the time during this solar maximum, the radio spectrum is useful for worldwide communications because of the high level of energy delivered to the ionosphere.

We'll continue diving into the science of the ionosphere and space weather, as well as using computer software tools that aid in understanding, analyzing, and predicting radio signal propagation. Stay tuned to this column each month!

June Propagation

It is this month when we see a change from the yearly spring equinoctial propagation patterns to the summertime propagation conditions in the high-frequency (HF) spectrum. The ionospheric absorption levels are expected to be at seasonally high levels (primarily by the *D*-region), resulting in generally weaker signals during the hours of daylight when compared to reception during the winter and spring months.

Ten-Meter propagation to DX locations far to the east and west are a rare event during the peak of summer. With the low solar activity finally on the rise, we will see short, yet strong *F*-region openings mostly on north/south paths. We also expect sporadic-*E* (*Es*) short-skip propagation. For 10-meter DX, the maximum usable frequency (MUF) on most east/west *F*-region DX paths will remain elusive; the overall solar energy is just not high enough, long enough.

However, this year the 17- and 15-meter bands will be significantly more reliable than 10 meters, holding great promise. Look for excellent conditions around sunrise and sunset.

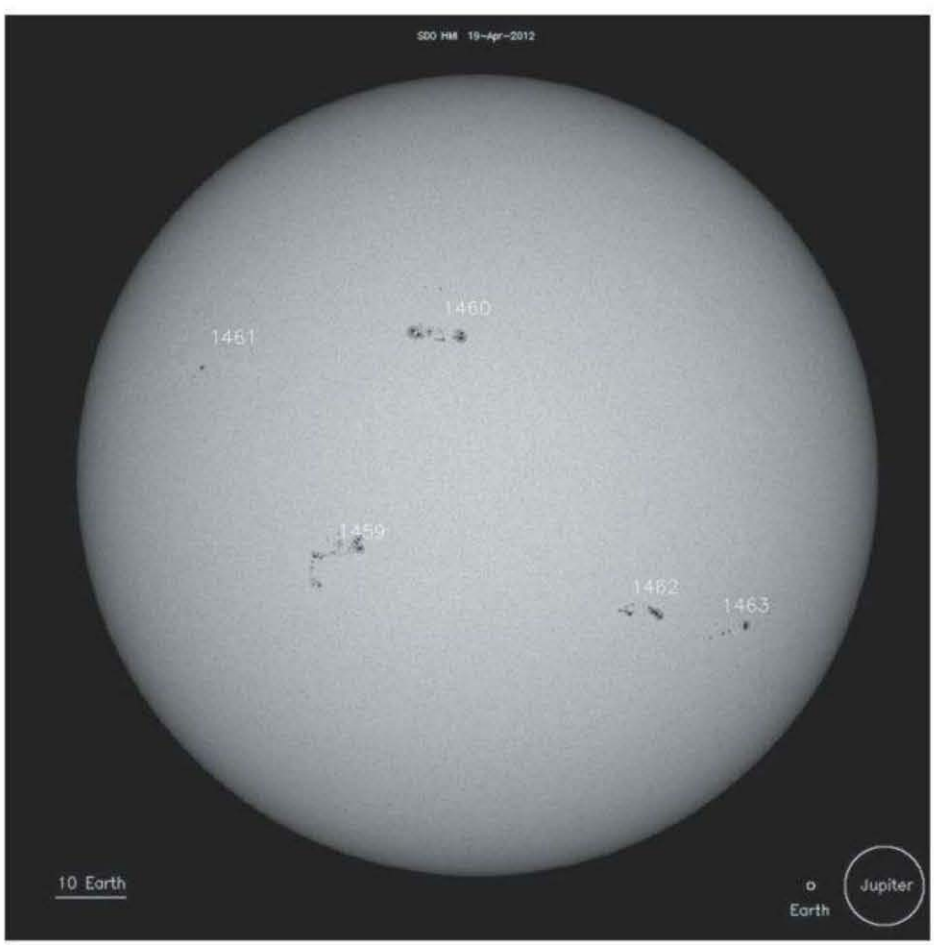

Fig. 2– Sunspot activity began to pick up, again, in March and April 2012. This black-and-white image of the Sun reveals the active sunspot regions on April 19, 2012, and ends a period of few sunspots. It is normal for the Sun to wax and wane in sunspot activity during the course of a sunspot cycle. The numbers next to the active regions are the official "sunspot region numbers" used to identify each region. (Credit: NASA/SDO)

Twenty meters is fair during the hours of darkness, and is good to excellent during daylight hours,now that sunspot activity is rising. As we see on 15 meters, the best openings on 20 will be the hours around sunrise and sunset.

The 30- and 40-meter bands should offer good DX conditions during the early morning, late evening, and nighttime hours despite higher static. Look for Europe and Africa as early as sunset. After midnight, start looking south and west for the Pacific, South America, and Asia. Short-skip should be possible out to about 750 miles during the daylight hours.

Expect some openings on 80 meters, similar to how 40 will be acting. Fairly frequent short-skip openings up to 1000 miles are possible during darkness, but expect very few daytime openings with all the static and absorption.

Recurring coronal holes will cause occasional periods of geomagnetic storminess during June, degrading higher latitude signal paths more than middle- and low- latitude paths. Coronal holes and the associated high-speed solar winds containing clouds of plasma released by the coronal holes are the bane of propagation during the solar minimum. These geomagnetic storms will play rough on HF propagation. In addition, noise from electrical storms increases considerably during June and the summer months. These higher static levels will make DXing on 40, 80, and 160 more of a challenge.

Remember, too, that we have a Sun that is now increasing in activity. We expect an increase in the number of X-ray flares as we get closer to the peak of Cycle 24. These flares not only cause instant radio blackouts on the sunlit side of the Earth, facing those flares, but the flares may be associated with coronal mass ejection (CME) events. The arrival of a CME may cause the same kind of propagation degradation as we see from the solar wind affects from recurring coronal holes.

Sporadic-*E* propagation starts to peak during June. Expect an increase in the number of short-skip openings on HF, and often on 6 and 2 meters, with paths open between 50 and 2300 miles.

Sporadic-E Season is in Full Swing

In past issues we've looked into the radio propagation mode known as sporadic-*E* (*Es*). Sporadic-*E* is mostly a summertime phenomenon, when it tends to occur in two peaks during the daylight hours centered on either side of noon. Sporadic-*E* occurrence during the year seems to follow a similar trend, with the main peak in the late summer, and a second but weaker peak occurring in the winter. During the winter, peak *Es* is most common just after sunset.

The summer daytime peak is in the morning between 7 AM and 12 noon, local time. A secondary peak occurs between 8 and 10 PM. However, observations over many decades show a slightly stronger likelihood of *Es* in the morning than in the afternoon or evening. Despite the apparent greater likelihood of *Es* in the morning hours, however, this diurnal characteristic is much less noticeable in the day-to-day casual observation of DXers.

In addition, check for *Es* after dark! I remember many summertime *Es* openings around midnight between Washington state and California on 10 meters. Many still remember an opening that occurred after midnight on June 19, 1992 that resulted in propagation of 144 MHz and higher signals.

While there are various contributing factors and influences that are known, or at least are thought to create, sporadic-*E*, one strong theory (supported by good science and observational data) suggests that *Es* is correlated with the presence of an excess of meteor dust in the *E*-region. This dust is pushed into dense patches on the outside of jet stream wind eddies. Several studies over the past 30 years have confirmed the presence in *Es* clouds of dense patches of meteoric comet dust. This idea is further supported by looking at the seasonal nature of *Es* and how it coincides directly with those times of year when the Earth passes through the dense tracks of comet dust.

How to Know When Es is Beginning

DX enthusiasts know that during the summer months television channels between 45 and 108 MHz, and also FM radio stations between 88 and 108 MHz, regularly are propagated long distances via *Es* propagation.

What? You say that there are no analog TV stations on VHF? Actually, there are. Mexico and Canada both have not made the transition away from analog VHF television broadcasting. Keeping a keen eye and ear for these stations outside of the United States of America is a useful method for detecting widespread openings in the VHF spectrum.

The first sign that a sporadic-*E* event is starting is by observing "rolling" black bars across TV channel 2, or even hearing the audio from such a broadcasting

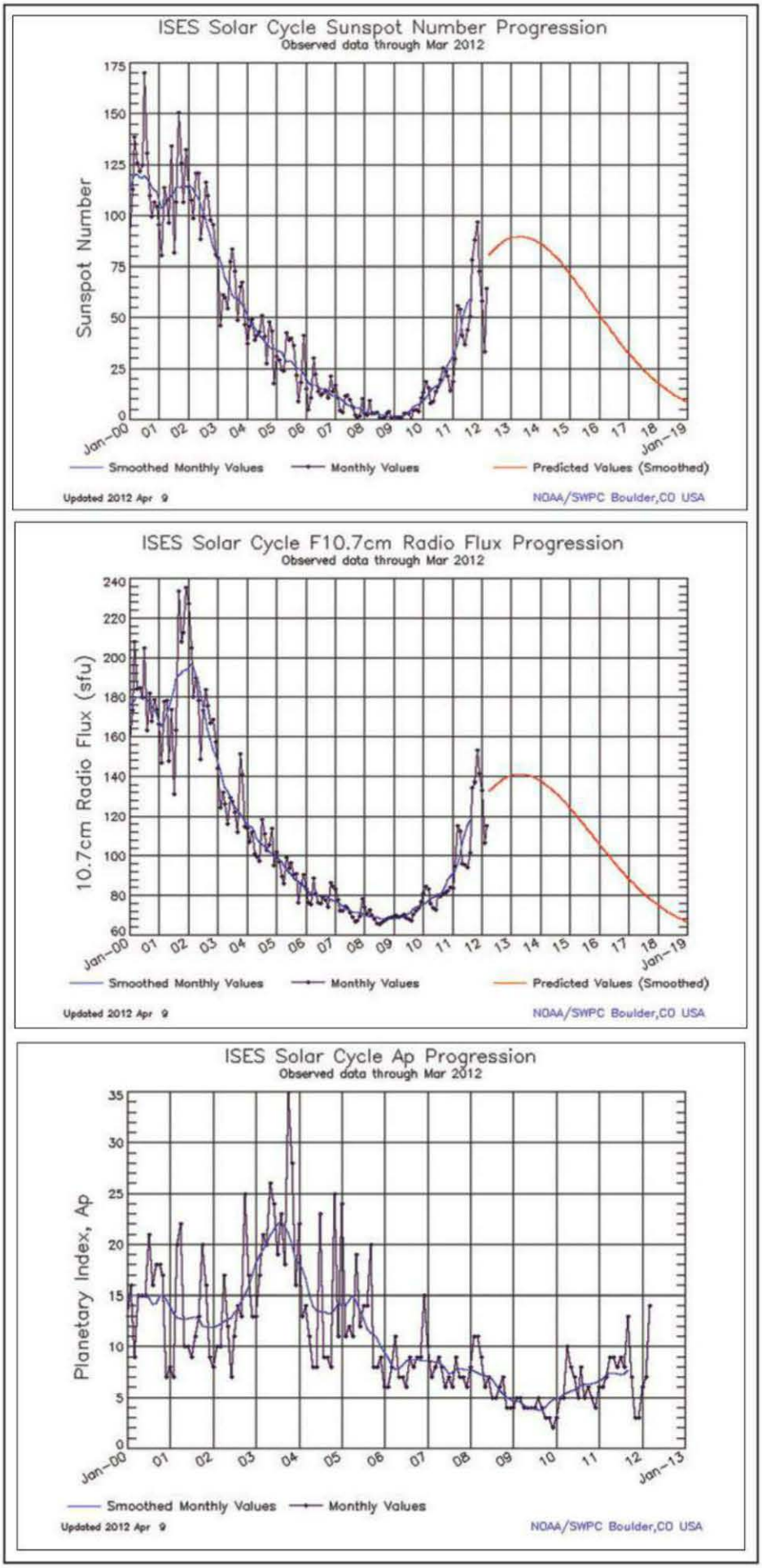

Fig. 3– Sunspot Cycle 24 progression charts showing the huge, sharp decline and then rise during the first months of 2012. We will continue to see variable monthly numbers. As can be seen by the geomagnetic progression chart (Ap), conditions are beginning to pick up as the Sun moves toward the sunspot activity peak. (Source: Space Weather Prediction Center [SWPC]/ The National Oceanic and Atmospheric Administration {NOAA}) ←

station, on 87.7 MHz. As the ionization level increases, higher frequencies will "open up" to the DX, and the FM band become filled with signals from stations far from your local area.

During *Es* propagation signals can abruptly appear or disappear. Signals are usually very strong during *Es*. Ordinary "rabbit ears" become adequate for *Es* reception when the openings are strong, and these antennas are preferred by some DXers because these "ears" can be sharply directional.

Is it possible that *Es* can support DX of signals in the higher VHF frequency band—say, 175 to 226 MHz? Doubling the frequency reduces the probability to one tenth. This means if you are receiving a signal of 50 MHz via *Es*, then a signal at, say, 100 MHz will be propagated one tenth of the time period of the 50-MHz signal. A 200-MHz signal will be propagated one hundredth of the time. Since many high-MUF propagation paths are multi-cloud, the probability could be higher than these figures.

The MUF of a single cloud can be lower than the frequency propagated by a two-cloud path. In practice, it is difficult to know of a possible propagation path for the highest frequency because of the geometric restrictions imposed, and unless the DXer and the transmitter are in precise relative positions, the DX station will not be heard.

Since *Es* reception above 138 MHz often involves high path losses, it is important that you use equipment with the highest gain and lowest noise possible. A directional Yagi antenna—with at least 8 dB of gain, mounted 15–20 feet above ground level, with low-loss matched coax cable, low-noise receiver, and a low-noise MOSFET pre-amplifier—isideal for receiving weak signals.

VHF Conditions

Expect low-VHF (6-meter) propagation to be "red-hot!" There might even be openings on 2 meters. All month you can expect to see 20 to 24 days with some *Es* activity. Usually these openings are

single-hop events with paths up to 1000 miles, but June's *Es* openings are often double-hop. Europe can generally be worked from the East Coast throughout June.

During the daylight hours, monitor 6 meters for transcontinental openings, as well as between Hawaii and the western states, and the Caribbean and Central and South America. The best time to look for these is during the afternoon hours, especially when conditions are High Normal or better.

Don't forget to check out *CQ VHF* magazine for more details on VHF propagation and conditions. If you use Twitter.com you can follow @hfradiospacewx for hourly updates that include the *K*-index numbers. You can also check the numbers at <http://sunspotwatch.com>.

Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for March 2012 is 64.2, up significantly from February's 33.1. The lowest daily sunspot value of 18 was recorded for March 1. The highest daily sunspot count was 86 on March 11 and 12. The 12-month running smoothed sunspot number centered on September 2011 is 59.5, slightly up from the previous month's 59.0. A smoothed sunspot count of 76, give or take about 9 points, is expected for June 2012.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 115.1, up from February's 106.7. The 12-month smoothed 10.7-cm flux centered on September 2011 is 118.4, slightly up from 117.9 for August. The predicted smoothed 10.7-cm solar flux for June 2012 is 134, give or take about 9 points.

The observed monthly mean planetary *A*-index (*Ap*) for March 2012 is 14, double February's 7, showing that the Sun is becoming more active. The 12-month smoothed *Ap* index centered on September 2011 is 7.7. Expect the overall geomagnetic activity to vary greatly between quiet to stormy during June, much like the months prior, because we're seeing the Sun become ever more active as we move toward the cycle maximum. Refer to the Last-Minute Forecast for the outlook on conditions during this month.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF amateur bands. Please come and participate in my online propagation discussion forum at <http://forums.hfradio.org/>.

Remember, *CQ* magazine is on Facebook at <http://www.facebook.com/CQMag>. For space weather and radio propagation information on Facebook, please join my dedicated page at <http://www.facebook.com/spacewx.hfradio>.

Also, be sure to follow this columnist's Facebook as well as Twitter accounts. This will allow you to interact with mew and directly ask about space weather and radio propagation. You can find the links to each account on my main web page at <http://NW7US.us>. Additionally, you can follow @hfradiospacewx for hourly "tweets" of space weather and radio propagation data such as the 10.7-cm radio flux and so on. Until next month . . .

73, Tomas, NW7US

our readers say

"Doo-Dad" ... Our Bad ...

Several readers took "Magic in the Sky" columnist Jeff Reinhardt, AA6JR, to task for his April column titled "It's Doo-Dad Season: Dayton Hamvention® Next Month," in which he lightheartedly (we thought) teased the City of Dayton. Following is one of the printable letters ...

Hi Jeff,

I just wanted to know under what assumed identity you will be visiting Dayton this year? I think the Dayton Chamber of Commerce and DARA might be looking for you! Ha! I promise I won't disclose your assumed identity but maybe I can say hello in-person when I visit the CQ booth. I am driving in from Boston with my son, Kevin, KB1EAN.

I am a native Bostonian but I do like a lot about Dayton when I visit. All the local folks I have met there on my business trips to Wright-Patterson AFB or just in local restaurants while attending Hamvention have been very welcoming (as many from the Midwest are seemingly inclined to be friendly—I throw Californians in the "usually friendly" category as well, by the way). Third Fifth Baseball Field is a great place to see a ball game. I don't know where else in America you can see twin dragons on a scoreboard light up their red eyes and have smoke come out of their nostrils when the home team gets a run. The seventh inning show can't be missed either. Honestly, it beats Boston's Fenway Park in many ways for fan and family-friendliness. I will even gloss over how cheap it was to see the game (and really up-close too). Like some other sports facilities across the country, they have local charity groups man the concession stands and the charity gets a good cut of the profits (I am told by the locals). I don't know the origins of the bank's strange name, but it is a great stadium!

Dayton after dark? Yes, it is not "the big city," but I have enjoyed the Packard museum downtown, the Air Force aviation museum, the carillon and water show along the river. Food? I hope you have tried the Pine Club and the Hickory Barbeque, both on Brown Street. For the Pine Club, bring a lot of cash (really, a lot)—no credit cards. Rumor has it President Reagan had to wait for a table there (they wanted to be fair to all patrons). There will be no room for dessert, and not just because they don't offer dessert. On the other end of the price and atmosphere spectrum is the Hickory Barbeque. Great food at very reasonable prices. Oddly enough, they are well-known for the best shrimp cocktail sauce in the free world (in my opinion). There is so much horseradish in it that I don't know how it remains red in color. It will bring tears to your eyes and clear out your sinuses for at least a week.

Breakfast food? I agree—skip the motel and hit Bob Evans (we don't have that chain out East). Lunch? Of course, the finely grilled bratwurst with mustard from the vendors out in the fleamarket area. That really has staying power for trudging through the fleamarket and the exhibit halls. Dayton does have its warts, but it grows on you over the years! I hope to see you there!

73, Dick Bean, K1HC

AA6JR replies:
Dick,

Thanks for the note. The spoof on Dayton was just that— kind of an insider's parody on what we observe as part of the annual pilgrimage to Ohio. Yet we go, and return again and again. Like the last paragraph of the article says, "Fun? Heck yeah it's fun. I can't wait 'til this year!"

I have driven to Dayton from L.A. several times, flown in several more and yes, visited some of the local attractions. The real attraction is the convention, of course; after that, Dayton is Dayton. And I know from home-town jokes; I'm originally from Buffalo. So with its foibles and all, yeah, I highly recommend it. And remember, the piece ran in the APRIL issue.

Sadly, I won't be able to attend this year. I may miss the AA6JR pie-throwing contest. But give my regards to the DARA folks. They really do a good job and I did not say a bad word about them. 73.

W2VU adds:

In my family, a certain amount of teasing is a sign of acceptance, affection and comfort with each other. When people are too polite too frequently, then watch out. There's probably something wrong. To us at *CQ*, "Dayton" (the city, the people and especially the Hamvention) is like that family member with whom we are totally at ease, and feel comfortable enough to tease here and there. We apologize to anyone who was offended and assure everyone that it's only because we love you that we felt comfortable enough to tease you.

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N3ZN Keys, LLC	113	www.n3znkeys.com
NH7QH Radio Supplies LLC	86	www.hawaiiradiosales.com
National RF, Inc.	113	www.NationalRF.com
New Super Antennas	63	www.newsuperantenna.com
Palstar	111	www.palstar.com
PowerPort	108	www.powerportstore.com
QCWA	86	www.qcwa.org
QSLs by W4MPY	101	www.qslman.com
R.F. Concepts, LLC/Alpha	5	www.rfconcepts.com
R.F. Connection	88	www.therfc.com
RF Parts Company	25	www.rfparts.com
Radio Club of J.H.S. 22	109	www.wb2jkj.org
RadioWavz	93	www.radiowavz.com
Sierra Radio	47	www.sierraradio.net
SteppIR Antennas Inc.	28,29	www.steppir.com
TEN-TEC, Inc.	33	www.tentec.com
Ten-Ten International Net, Inc.	71	www.ten-ten.org
XTAL SET SOCIETY	113	www.midnightscience.com
Timewave Technology, Inc.	81	www.timewave.com
TOKYO HY-POWER LABS, INC.	Cov III	www.tokyohypower.com
TransWorld Antennas	105	www.vibroplex.com
Universal Radio	101	www.universal-radio.com
VIS	88	www.visradio.com
Vibroplex	79	www.vibroplex.com
W2IHY Technologies	63	www.w2ihy.com
W4RT Electronics	53	www.w4rt.com
W5YI Group	23	www.w5yi.org
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August 18-19, 2012
At the Von Braun Center in Huntsville, Alabama

Program Highlights

- **Huntsville Hamfest -** Featuring a huge new equipment dealer show, many major manufacturers, giant flea market, and more!
- **International DX, contest, technical, and public service forums.**
- **HAYLARC YL Breakfast** Huntsville Young Ladies Amateur Radio Club invites all YLs attending the Huntsville Hamfest to join them for breakfast Sunday at 7am at Mullins Drive-In.
- **DXCC Card Checking**
- **DX Banquet** - Saturday evening sponsored by the North Alabama DX Club, featuring Bob Allphin, K4UEE, speaking on the 2012 HKØNA DX-pedition to Malpelo Island. The DX Banquet is held at the Holiday Inn across the street from the Von Braun Center. Ticket info: contact Bob DePierre, K8KI at K8KI@comcast.net. .
- **Hospitality Suites -** Huntsville Hamfest will host hospitality rooms at the Holiday Inn across from the Von Braun Center on Friday and Saturday evenings.
- **ARRL Program Representatives**
- **Youth Activities**
- **2012 YHOTY** (Young Ham of the Year) Award Presentation.

Hotels

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www.holidayinn.com/huntsvilleal

Embassy Suites Hotels
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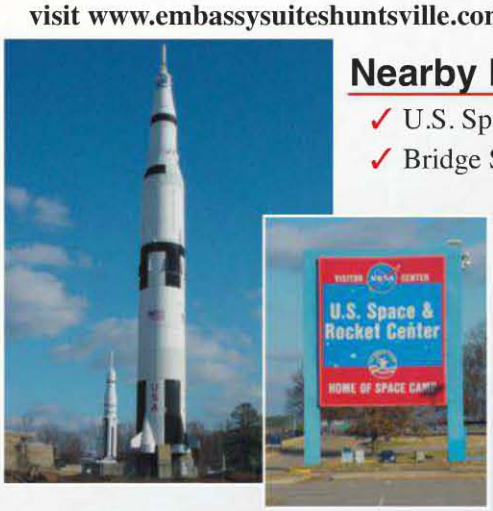

Nearby Points of Interest

- ✓ U.S. Space & Rocket Center and U.S. Space Camp
- ✓ Bridge Street Centre – Upscale Shopping Mall
- ✓ Huntsville Botanical Garden
- ✓ Huntsville Museum of Art
- ✓ Cathedral Caverns State Park
- ✓ Historic Huntsville Depot Museum and Alabama's Constitution Village

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