

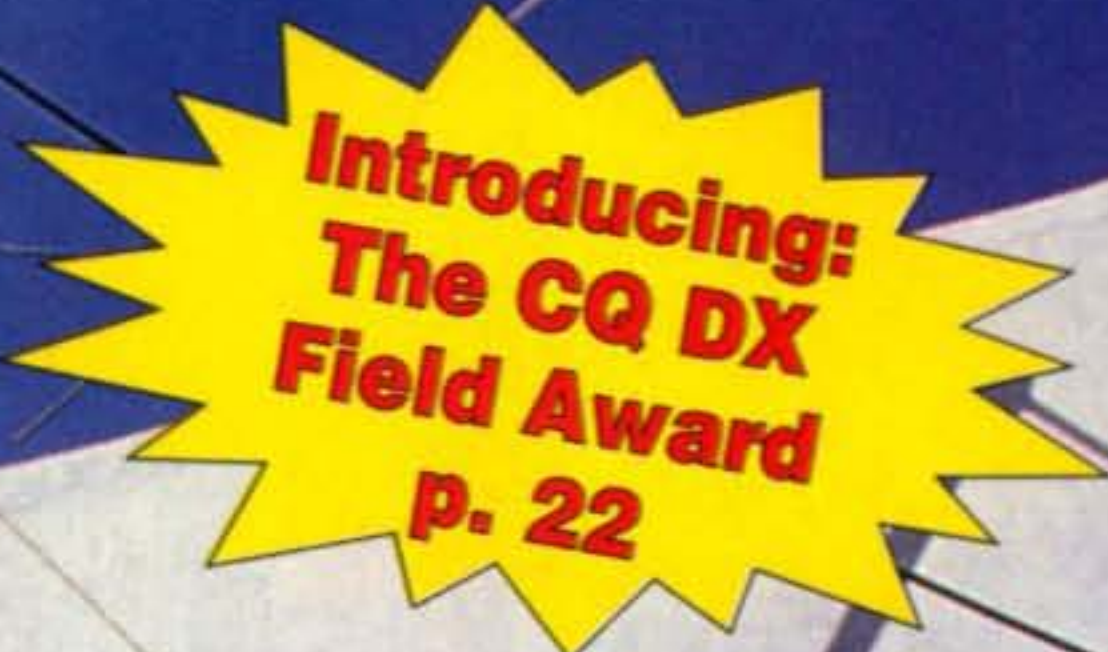
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Amateur Radio

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COMMUNICATIONS & TECHNOLOGY

APRIL 2005

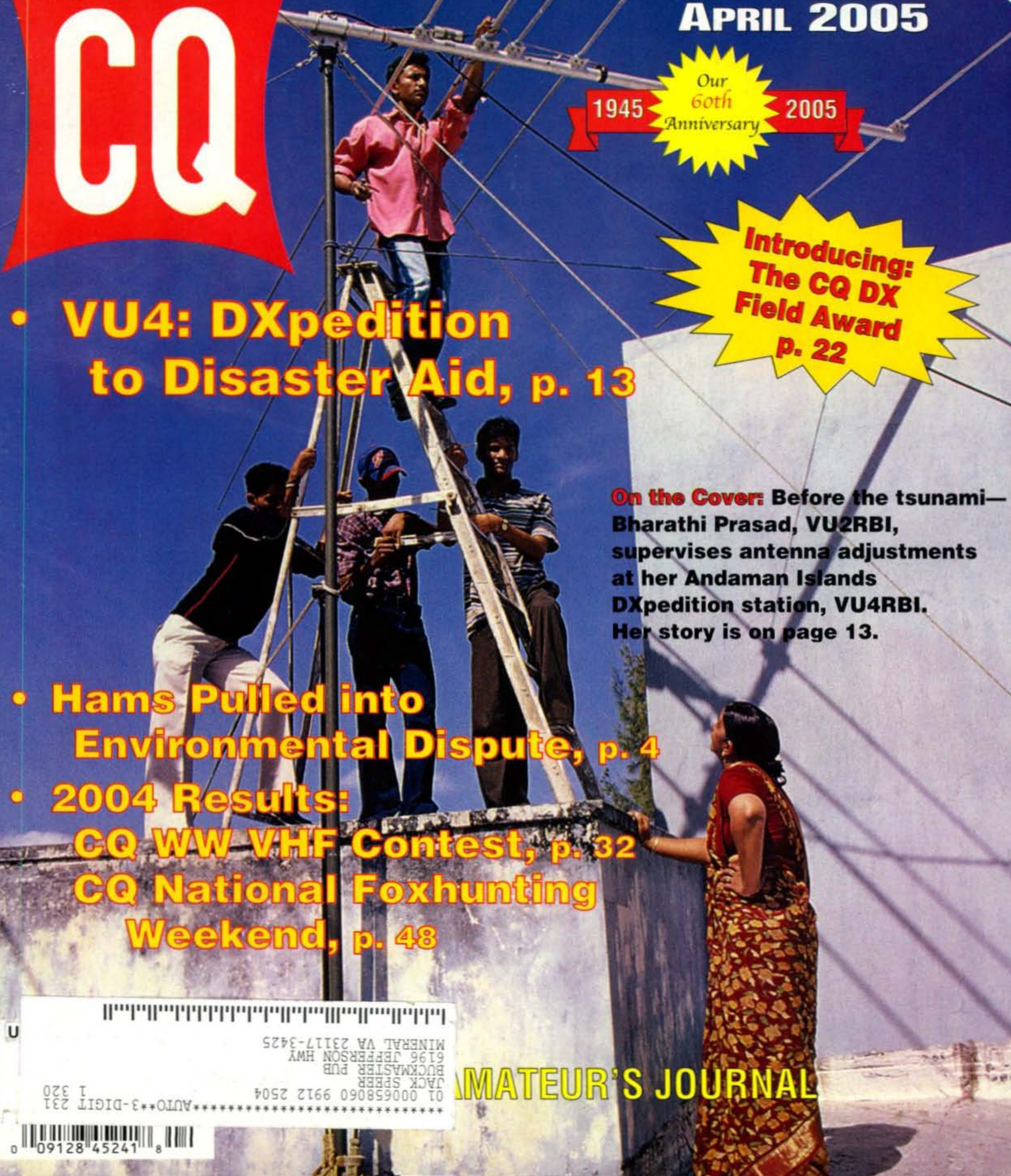


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On the Cover: Before the tsunami—Bharathi Prasad, VU2RBI, supervises antenna adjustments at her Andaman Islands DXpedition station, VU4RBI. Her story is on page 13.



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10, 12, 15, 17, 20 Meters

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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 recommended.

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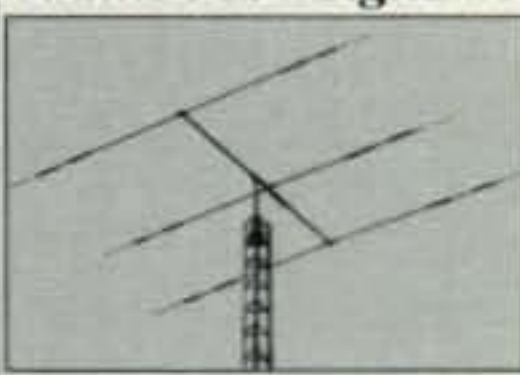
BetaMATCH™ provides DC ground to eliminate static. Includes BN-86 balun. Easily assembled.

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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 Hy-Gain catalog Call toll-free 800-973-6572		1500	10, 15, 20	7.4	100	19	31.5	18.42	57	1.5-2.5	HAM-IV	\$759.95
TH-3MK4	3			1500	10, 15, 20	4.6	95	14	27.42	15.33	35	1.9-2.5	CD-45II	\$469.95
TH-3JRS	3			600	10, 15, 20	3.35	80	12	27.25	14.75	21	1.25-2.0	CD-45II	\$359.95
TH-2MK3	2			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 ^{30/40}	7.5	100	14	31.5	17.25	45	1.9-2.5	HAM IV	\$599.95

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1. Hy-Gain's famous super strong tooled die cast Boom-to-Mast Clamp



2. Tooled Boom-to-Element Clamp



3. Thick-wall swaged aluminum tubing



Tooled manufacturing is the difference between Hy-Gain antennas and the others -- they just don't have it (it's expensive!).

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Durable precision injection molded parts. Hy-Gain antennas are stronger, lighter, have less wind surface area, better wind survival, need no adjustments, look professional and last years longer.

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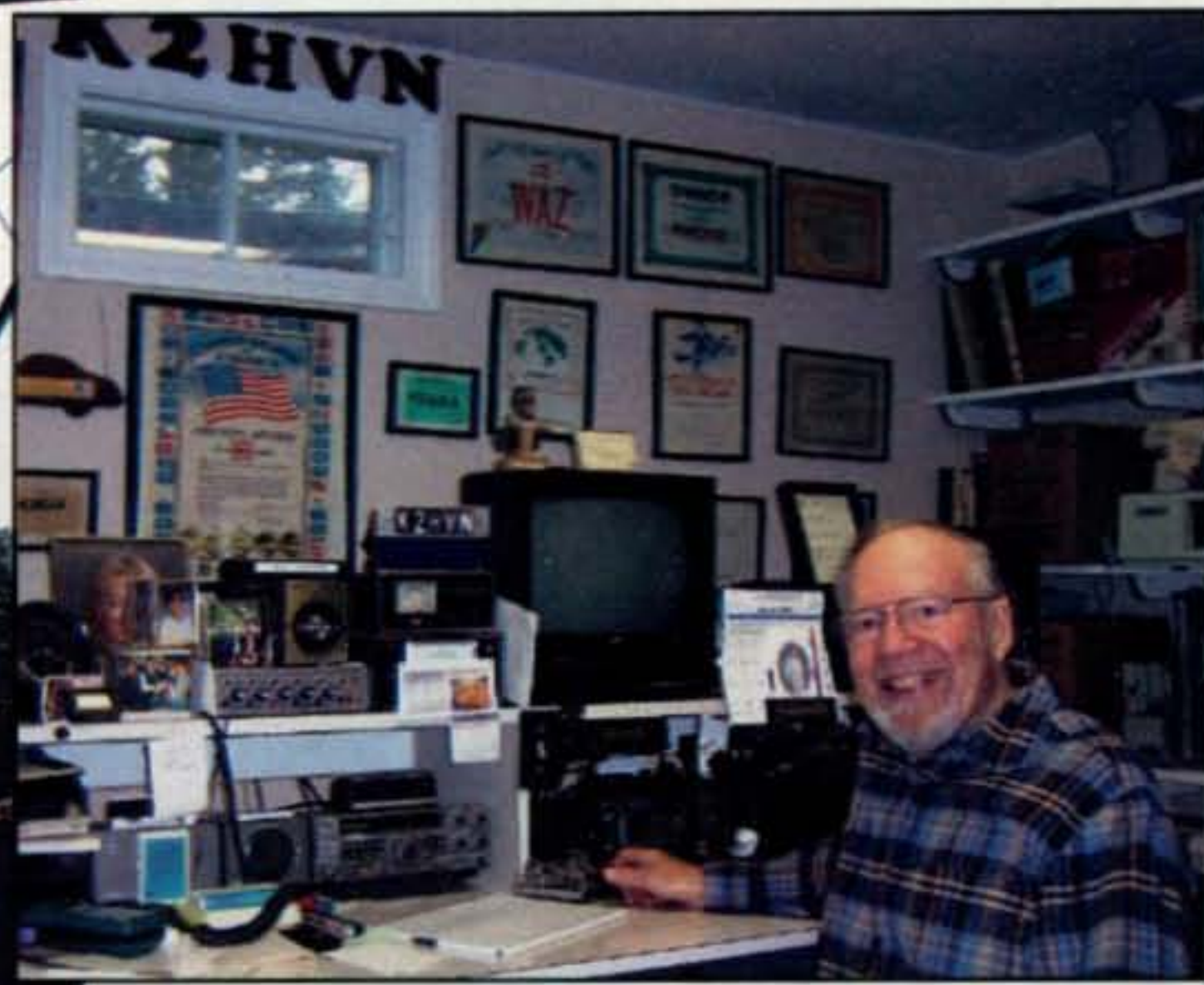
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On the Cover: Bharathi Prasad, VU2RBI, supervises students from the Port Blair Polytechnic College in the Andaman Islands as they make adjustments to the Yagi antenna used by her DXpedition team at Hotel Sinclairs before the December 26 tsunami turned the VU4 operation into the islands' only link with the outside world. Bharathi's story and two other first-hand reports begin on page 13. (Cover photo by Charles Harpole, K4VUD/VU3CHE)

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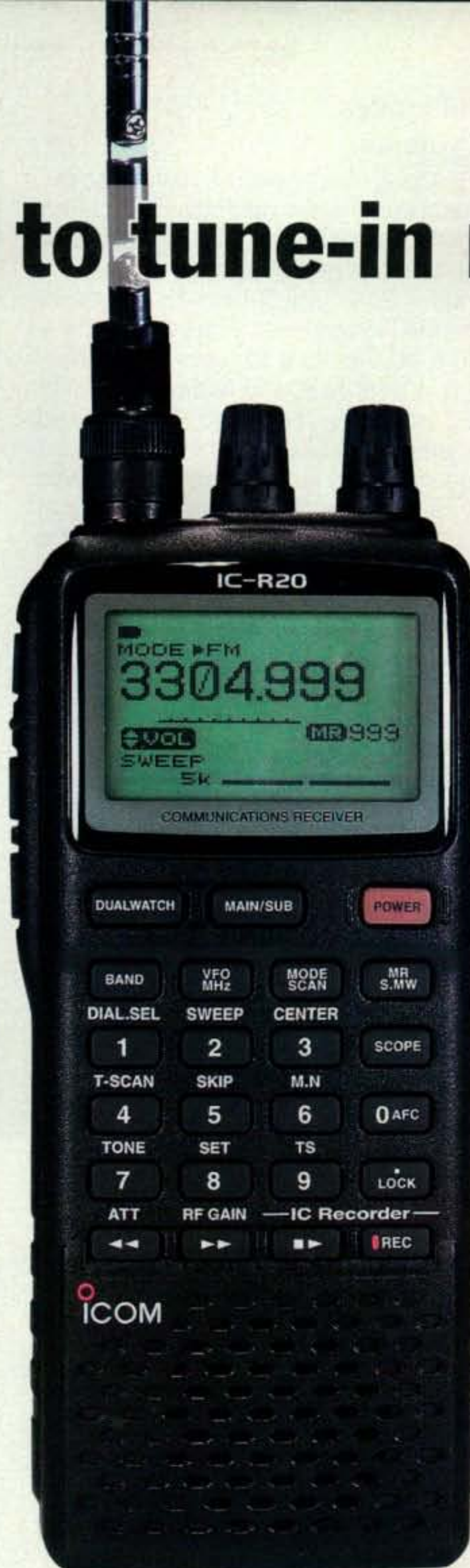
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Island Access Bill Ignites Environmental Protests

A bill introduced in Congress to permit hams access to certain islands that are normally off limits has ignited a firestorm of environmental protests, including a major newspaper editorial, and the prime sponsor has abandoned the bill as written. Rep. Nick Rahall, D-W.Va, the ranking Democrat on the House Resources Committee, originally introduced a bill last year to permit occasional public access to two remote island National Wildlife Refuges in the Caribbean, Navassa (KP1) and Desecheo (KP5). Committee Chairman Rep. Richard Pombo, R-CA, co-sponsored that bill, and when it was re-introduced this year, the Farallones Islands—about 30 miles off the California coast—had been added to the bill at Pombo's request.

According to the *San Francisco Chronicle*, which editorialized against the bill, "a ham radio operator who lives in Pombo's district had been lobbying to open up the Farallones as well, so the powerful Republican chairman of the committee persuaded Rahall to add the islands off the San Francisco coast to the bill."

The problem is that the Farallones are home to the largest seabird breeding colony on the Pacific coast south of Alaska, according to the U.S. Fish & Wildlife Service website, hosting more than 300,000 birds each summer, as well as large colonies of seals and sea lions. The Associated Press reported that scientists were concerned that the breeding colonies would be harmed by public access to the islands, which the bill would require. Rep. Tom Lantos, D-CA, whose district includes the islands, strongly opposes public access and persuaded Rep. Rahall to abandon the bill. "Congressman Rahall's concern is with Navassa and Desecheo," a spokeswoman for the West Virginia Democrat told the *Chronicle*, "and we regret causing any consternation over the inclusion of the Farallones." However, the *Chronicle* reports that Rep. Pombo's office indicated that he would continue to push the bill.

Navassa and Desecheo are high up on DXers' "most wanted" lists, and repeated efforts to get permission for brief visits from the Fish & Wildlife Service have failed. Navassa is also home to large seabird colonies and has no beaches; Desecheo was used in the past as a bombing range and officials fear injury from unexploded ordnance. DXers campaigning for access believe it is possible to operate safely from Desecheo. The Farallones had not been part of their original request.

Peter I DXpedition Cancelled

A variety of transportation problems has forced cancellation of the planned 3YØX DXpedition to Peter I Island off the coast of Antarctica. The ship originally booked was not ready in time, nor was a second ship. In addition, the helicopter company at the last minute substituted a smaller chopper which was determined by the team to be inadequate for its needs. Team leaders say they'll try again next year.

FCC Sends out More Retest Notices

Fifty California amateurs were notified by the FCC in January and February that they would need to be retested. This is a result of an ongoing investigation into W5YI-VEC exam sessions given in Yucaipa, California between 1999 and 2001. Some two dozen retest letters were sent out late last year. The FCC has said it expects to require retests by as many as 200 hams licensed at these sessions. However, it has not released details on whatever irregularities it found that justify the retests.

CC&Rs Top ARRL Legislative Agenda

The ARRL's top legislative priority for 2005 is to bring private land use regulations, commonly known as Covenants, Conditions and Restrictions, or CC&Rs, under the umbrella of FCC rules that currently require state and local governments to "reasonably accommodate" amateur radio communications. The FCC has declined to interfere with private contracts without express direction from Congress, and Rep. Steve Israel, D-NY, has sponsored legislation to do that. According to the *ARRL Letter*, the League's Board of Directors decided that encouraging "consistent application" of the FCC rules to "all types of land use regulations" was its number-one priority for the 109th Congress.

ARRL Calls on FCC to Roll Back BPL Rules

The ARRL has told the FCC its rules on the deployment of Broadband over Power Lines, or BPL, are "a gross policy mistake" and called on the Commission in a Petition for Reconsideration of its October 2004 decision to "reconsider, rescind and restudy" the rules. According to the *ARRL Letter*, the League said it was apparent that the Commission's decision represented "a classic case of prejudgment" and that evidence of "fundamental incompatibility" between BPL and licensed HF radio services was "suppressed, ignored or discredited."

Ups and Downs on BPL

Australia has issued guidelines for deployment of BPL that are much stricter than those imposed by the FCC, according to *Newsline*, including a requirement that operators notify aeronautical and maritime licensees of their plans in order to alert them to the possibility of interference. *Newsline* also reports that an Australian market research firm is taking a very cautious stand regarding investment in BPL. It says Caslon Analytics reported that "some observers have characterized BPL as a marketing phenomenon, and not a technology that will gain global acceptance." The report noted that a BPL trial in New Zealand determined that the technology was not "commercially viable."

Back in the U.S., the *Detroit Free Press* reported a task force of the National Association of Regulatory Utility Commissioners concluded that BPL will serve the public interest by expanding efficient broadband access. However, the group also cautioned that a maze of state regulatory issues would likely complicate widespread deployment. The article also acknowledged the interference problems cited by hams, who it says have "fiercely opposed" BPL.

Global Emergency Comm Conference Set

The first Global Amateur Radio Emergency Communications Conference has been scheduled for June 13 and 14 in Tampere, Finland. *Newsline* reports that any amateurs with an interest in emergency communications are invited to attend. The focus will be on the growing importance of amateur radio communications in emergencies and disasters. Tampere was the site of an international conference on emergency communications in June, 1998 that resulted in the adoption of a treaty known as the "Tampere Convention," which eliminates many roadblocks to moving communications equipment across international borders to help with disaster relief. While the treaty was adopted nearly seven years ago, it only took effect this past January, after approval by the minimum required number of countries.

(Continued on page 63)

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The most popular rotator in the world! **\$559⁹⁵**

For medium communications arrays up to 15 square feet wind load area. New 5-second brake delay! New Test/Calibrate function. New low temperature grease permits normal operation down to -30 degrees F. New alloy ring gear gives extra strength up to 100,000 PSI for maximum readability. New indicator potentiometer. New ferrite beads reduce RF susceptibility. New Cinch plug plus 8-pin plug at control box. Dual 98 ball bearing race for load bearing strength and electric locking steel wedge brake prevents wind induced antenna movement. North or South center of rotation scale on meter, low voltage control, max mast size of 2 1/16 inches.



TAILTWISTER SERIES II

For large medium antenna arrays up to 20 sq. ft. wind load. Available with DCU-1 Pathfinder digital control (T2XD) or standard analog control box (T2X) with new 5-second brake delay and new Test/Calibrate function. Low temperature grease, alloy ring gear, indicator potentiometer, ferrite beads on potentiometer wires, new weather-proof AMP connectors plus 8-pin plug at control box, triple bearing race with 138 ball bearings for large load bearing strength, electric locking steel wedge brake, North or South center of rotation scale on meter, low voltage control, 2 1/16 inch max. mast.



T-2X **\$649⁹⁵**

T-2XD **\$1029⁹⁵**
with DCU-1

CD-45II

For antenna arrays up to 8.5 sq. feet mounted inside tower or 5 sq. ft. with mast adapter. Low temperature grease good to -30 F degrees. New Test/Calibrate function. Bell rotator design gives total weather protection, dual 58 ball bearing race gives proven support. Die-cast ring gear, stamped steel gear drive, heavy duty, trouble free gear train, North center scale, lighted directional indicator, 8-pin plug/socket on control unit, snap-action control switches, low voltage control, safe operation, takes maximum mast size to 2 1/16 inches. MSLD light duty lower mast support included.



CD-45II **\$389⁹⁵**

Wind Load capacity (inside tower)	15 square feet
Wind Load (w/ mast adapter)	7.5 square feet
Turning Power (in lbs.)	800
Brake Power (in lbs.)	5000
Brake Construction	Electric Wedge
Bearing Assembly	dual race/96 ball bearings
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	26
Effective Moment (in tower)	2800 ft/lbs.

Wind load capacity (inside tower)	20 square feet
Wind Load (w/ mast adapter)	10 square feet
Turning Power (in lbs.)	1000
Brake Power (in lbs.)	9000
Brake Construction	Electric Wedge
Bearing Assembly	Triple race/138 ball brngs
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	31
Effective Moment (in tower)	3400 ft/lbs.

Wind load capacity (inside tower)	8.5 square feet
Wind Load (w/ mast adapter)	5.0 square feet
Turning Power (in lbs.)	600
Brake Power (in lbs.)	800
Brake Construction	Disc Brake
Bearing Assembly	Dual race/48 ball brings
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight (lbs.)	22
Effective Moment (in tower)	1200 ft/lbs.

HAM-V

For medium antenna arrays up to 15 square feet wind load area. Similar to the HAM IV, but includes DCU-1 Pathfinder digital control unit with gas plasma display. Provides automatic operation of brake and rotor, compatible with many logging/contest programs, 6 presets for beam headings, 1 degree accuracy, auto 8-second brake delay, 360 degree choice for center location, more!



\$949⁹⁵
with DCU-1

ROTATOR OPTIONS

MSHD, \$99.95. Heavy duty mast support for T2X, HAM-IV and HAM-V.

MSLD, \$39.95. Light duty mast support for CD-45II and AR-40.

TSP-1, \$34.95. Lower spacer plate for HAM-IV and HAM-V.

Digital Automatic Controller

Automatically controls T2X, HAM-IV, V rotators. 6 presets for favorite headings, 1 degree accuracy, 8-sec. brake delay, choice for center of rotation, crisp plasma display. Computer controlled with many logging/contest programs.



DCU-1 **\$649⁹⁵**

AR-35 Rotator/Controller

For UHF, VHF, 6-Meter, TV/FM antennas. Includes automatic controller, rotator, mounting clamps, mounting hardware. 110 VAC. One Year Warranty.



AR-35 **\$69⁹⁵**

RBD-5 **\$29⁹⁵**

NEW! Automatic Rotator Brake Delay
Provides automatic 5-second brake delay -- insures your rotator is fully stopped before brake is engaged. Prevents accidentally engaging brake while rotator is moving. Use with HAM II, III, IV, V, T2Xs. Easy-to-install. Includes pre-assembled PCB, hardware.



AR-40

For compact antenna arrays and large FM/TV up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Fully automatic control -- just dial and touch for any desired location. Solid state, low voltage control, safe and silent operation. 2 1/16 inch maximum mast size. MSLD light duty lower mast support included.



\$289⁹⁵

AR-40

For king-sized antenna arrays up to 25 sq.ft. wind load area. Control cable connector, new hardened stainless steel output shaft, new North or South centered calibration, new ferrite beads on potentiometer wires reduce RF susceptibility, new longer output shaft keyway adds reliability. Heavy-duty self-centering steel clamp and hardware. Display accurate to 1°. Machined steel output.



HDR-300A **\$1379⁹⁵**

HDR-300A

Wind load capacity (inside tower)	3.0 square feet
Wind Load (w/ mast adapter)	1.5 square feet
Turning Power (in lbs.)	350
Brake Power (in lbs.)	450
Brake Construction	Disc Brake
Bearing Assembly	Dual race/12 ball bearings
Mounting Hardware	Clamp plate/steel bolts
Control Cable Conductors	5
Shipping Weight (lbs.)	14
Effective Moment (in tower)	300 ft/lbs.

Wind load capacity (inside tower)	25 square feet
Wind Load (w/ mast adapter)	not applicable
Turning Power (in lbs.)	5000
Brake Power (in lbs.)	7500
Brake Construction	solenoid operated locking
Bearing Assembly	bronze sleeve w/rollers
Mounting Hardware	stainless steel bolts
Control Cable Conductors	7
Shipping Weight (lbs.)	61
Effective Moment (in tower)	5000 ft/lbs.

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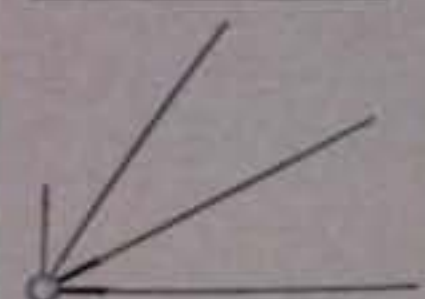
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- High Stability TCXO Built In (0.5 ppm @ 77° F/25° C) for rock-solid PSK31, SSTV, or other data modes.
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ATAS-120
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ATAS-120
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HF/50/144/430 MHz
100 W All Mode Transceiver
(144 MHz 50 W/430 MHz 20 W)

DSP 60 m Band

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- Improved 1st IF Roofing Filter for enhanced operation in crowded bands.
- Optional MH-59AaJ Remote Control Microphone.
- 32-Color Liquid Crystal Display.
- Optional ATAS-120 Auto-Tune and ATAS-25 Manual-Tune Antennas.
- Optional YF-122CN 300 Hz Collins® Mechanical CW Filter.

Automatic Matching for FT-897/857 Series Transceivers



NEW

FC-40

Automatic-Matching 200-Memory
Antenna Tuner

WATER PROOF



- Compatible with all versions of FT-897/857, and requires only two supplied cables (RF and Control) for interconnection to transceiver!
- Required Drive Power: 4 ~ 60 Watts. Maximum TX Power: 100 Watts.
- Typical Matching Time: Less than 8 seconds.
- During Matching, less than 0.25 Watts will be radiated to reduce QRM.
- 200 Match-Data Memories for instant "refresh" when returning to previously-used frequencies.
- Operational on 1.8 ~ 54 MHz when used with 66' (or longer) wire, or 7~ 54 MHz with standard 8.2' whip antenna (wire/whip antenna not supplied).
- Compact Size (9" x 6.9" x 2.2" WHD) and Light Weight (2.65 lb.).

ATAS MICRO Manually-Tuned High-Performance Portable Antenna ATAS-25



Add or remove
aluminum elements
for different bands.

- Slide resonating tube up and down for coarse tuning, then rotate tube for precise matching on your operating frequency.
- Mounts on standard camera tripod screw for quick, sturdy portable installation (tripod not included).
- Breaks down to less than 2' lengths, and weighs 2.1 pounds (plus tripod)-ideal for portable use!
- Attach supplied 144/430 MHz radials and use base section for 144/430 MHz operation.
- Capable of full 100 W operation with FT-857D/FT-897D.

Frequency Range: Amateur Bands 7 ~ 430 MHz.
Power Capability (50% duty cycle, 1 min. TX/1 min. RX): HF/50 MHz CW/SSB 100 W
AM 50 W
144/430 MHz 50 W

Size: 7.2' (2.2m) maximum, 2' (0.6 m) collapsed for packing.
Weight: 33 oz. (930 g)
Included Accessories: HF wire radials, 144/430 MHz radials, Allen wrench. Not included: coaxial cable, camera tripod, QSL cards!

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The FT DX 9000D brings you the highest total system performance available today. Its ultra-quiet 400 MHz High-Resolution Direct Digital Synthesizer teams up with its 3 kHz Roofing Filter and high-level receiver design to yield the best receiver you can own and use in a high-power, multi-signal operating environment.



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FT DX 9000MP

No other Amateur transceiver offers you 400 Watts of transmitter power, for the biggest, cleanest voice on the bands. And switching to Class-A operation at 100 Watts of output, you enjoy the benefits of ultra-low distortion others can't match at 100 Watts!

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- Dual Metering + LCD Display
- Memory Card Unit and Flash Memory Slot
- External Switching Power Supply (50V @ 25 A)
- Main/Sub Receiver VRF (Preselector)
- Full Dual Receive
- Internal Speaker with Audio Filter

The Masterpiece

FT DX 9000D

This "Fully loaded" model represents the total FT DX 9000 experience. Included are the large TFT display, along with the 1.8-14 MHz high-Q "μ" front-end RF tuning circuit, utilizing a large-diameter 1.1" (28 mm) ferrite core and precision motor drive. Its Q of over 300 provides razor-sharp RF tuning-ideal for today's crowded bands!

- 200-Watt Fully-equipped Version
- Large, Bright TFT Display
- Memory Card Unit and Flash Memory Slot
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- Full Dual Receive
- Three "μ" RF Tuning Modules, covering 160 – 20 m Band
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* Specifications depend on country of sale.



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To request a copy of the FT DX 9000 Technical Overview, please call (714) 827-7600, Ext. 2272

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"The Way School Should Be"

Standing in the hallway as groups of fifth-graders filtered into the school gym at the end of the final session of this year's "Enrichment Clusters," host school Principal Lou Clerico watched the kids' faces, turned to me and commented, "This is the way school should be, not 'Let's turn to page 27.'"

Intrigued by his remark, I later sat down with him to discuss his views on making education work in the 21st century, and particularly how members of the community with some special talent or interest to share (that's us, folks) can participate. I'd like to share some of his comments with you, but first, some background.

What's a Cluster?

For the past four years, the public schools in my hometown of Bloomfield, New Jersey have been running a program called "Enrichment Clusters," during which, over four days in January, fifth and sixth graders from all of the town's eight elementary schools (this year, it was only 5th graders) spend their mornings with adults from the community who have volunteered to introduce them to various hobbies, activities, and professions. Topics have ranged from arts and crafts, cooking, and the basics of acting to sign language, newspaper reporting, and hobby radio.

I got started because my daughter was in the first cluster group, but I keep coming back even though she is now in high school. Each group of kids has a great time, I have a great time, and it's hard to say no even though there's a large amount of preparation involved. Also, I am continually impressed by the great groups of kids I've had the privilege to meet and by the other volunteers, who bring an amazing array of skills and interests into the schools.

Educational Experience

As usual, the cluster turned out to be an educational experience for both the kids and me. They learned—among other things—some geography by talking to people in different places, some earth science by learning about the ionosphere, some space science by having a solar flare interfere with our initial attempt to contact Antarctica, some physics by learning about radio waves and light waves, and quite a bit about life in Antarctica when we finally did get through on the second try. I learned once again how little I knew (see box,

"Wrong Again"); got additional practice in quick tear-down, pack-up, set-up, tear-down of my station, a very useful skill for emergencies; and that I *have* to get a lighter-weight radio for these programs in the future!

A Believer in Teachers and Kids

This year's clusters were held at Watsessing School, which both of my kids attended. Lou Clerico has been Principal there since 2001. Before coming to Bloomfield, an ethnically and economically diverse suburb of New York City, he spent most of his career working in inner-city schools. So he brings a different perspective to his job than other principals who have worked exclusively in suburban schools.

Clerico says he's a big believer in the abilities and creativity of teachers, but that today's state and federal mandates often stymie efforts to teach in a non-traditional way. "It's very rare that teachers are given the opportunity to do what they were trained to do or what they naturally know how to do," he says. "Teachers come into a school and are given a curriculum guide and a textbook, and are rated on how many pages they've covered." His approach, by contrast, is to "give teachers the opportunity to do what they can do" and remind them that "the textbook is not the curriculum."

"It's a mindset," he explains. "Everything boils down to a collaborative effort between the classroom teachers, the special teachers, and the principal; and the principal becomes a facilitator." The teachers at Watsessing, he says, "can do whatever they want that's educationally sound as long as they pass it by me."

Clerico also believes strongly in kids. "Kids want to learn. Kids want to succeed. Kids want to excel," he says, but notes that all too often, "We shut 'em down." One key to success, he notes, is "getting kids to do things they like to do and teach them at the same time. Instead of saying 'we're going to do vowel sounds today,' say we're going to do such-and-such an activity today—an activity that you know will include vowel sounds. By the end of the activity, you've achieved your goal and they've had fun."

Bringing Ham Radio into the Picture

This approach to what some might call "teaching while they're not looking" is where ham radio can play a role. Clerico gave an example of something similar last year,

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

(Continued on page 62)

CQ Editor Rich Moseson, W2VU, with this year's participants in his "Hobby Radio" group in the Bloomfield NJ public schools' "Enrichment Clusters" program.



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The following special event stations are scheduled for April:

NC4ZO, from the spring celebration at the North Carolina Zoo, Asheboro, North Carolina; Randolph ARC; 1400-2000Z April 23 on 7.275, 14.260, 21.350, 28.400 MHz. Send QSL to Butch Simpson, 6747 King Mountain Rd., Asheboro, NC 27205.

WA4UQC, from the Scootworks Open House & American Cancer Society Relay for Life fundraiser, Youngsville, North Carolina; Triangle East ARA; 1400-2000 GMT April 2 on (approximately) 7.275, 14.275, 2.275, 147.39+ PL 88.5. For certificate send QSL and 8 1/2 x 11 (for unfolded) or 6 x 9 (folded) SASE to Dave Hockaday, WB4IUY, 7804 River Dare Ave., Youngsville, NC 27596 (<http://www.scootworks.com/scootworks/advertising/2005spring/index.html>).

KA7EOC, from Gig Harbor Health & Safety Expo; Gig Harbor, Washington; Peninsula Amateur Radio Emergency Team; 1600-2300Z April 2 (no frequencies given). For certificate send QSL and SASE to Mark Yordy, W7BBO, 8914 149th St. NW, Gig Harbor, WA 98329.

N9BQV, from memorial submarine radio reactivation weekend aboard the WW II memorial submarine *USS Cobia* AGSS-245; USS Cobia Radio Club and Mancorad Radio Club of Manitowoc, Wisconsin; 1400Z April 30 to 2100Z May 1 on 7.243, 7.043, 14.243, 14.043 (±25 kHz). For QSL send QSL and #10 SASE to Fred Neuenfeldt, W6BSF, 4932 So. 10th St., Manitowoc, WI 54220-9121.

VE3XR, from Peel/Mississauga ARC's Ham-Ex hamfest, Brampton, Ontario, Canada; 1300-1600Z April 9 on 7.240 and 14.265. For QSL send QSL to J. Richardson, VA3QSL, 36 Crawley Dr., Brampton, ON, Canada L6T 2S1 or via the bureau.

The following hamfests, etc., are slated for April and early May:

April 2, **LARCFEST**, Exhibition Building, Boulder County Fairgrounds, Longmont, Colorado. For more information go to: <http://www.qsl.net/larc>. (Talk-in 147.270, 100 Hz PL; exams 10 AM)

April 2, **Columbus ARC Hamfest**, Community Building, Bartholomew County 4H Fairgrounds, SW of Columbus, Indiana. Contact Marion Winterberg, WD9HTN, 812-342-4670, e-mail: carc_in@yahoo.com. (Talk-in 146.790/146.190, PL 100.0; exams 11 AM)

April 2, **Antique Radio Fleamarket & Auction**, Holiday Inn, Beaver Falls, Pennsylvania. Call Regis Flaherty, 724-969-0643; <http://www.pittantiqueradios.org/specialevents.html>.

April 3, **Lake County ARA Hamfest/Computerfest**, Madison High School, Madison, Ohio. Contact Rocky at rocky@lcarc.org, <http://www.lcarc.org>. (Exams)

April 9, **Inland Northwest Hamfest & Computer Show**, St. Anns Parish Hall, Spokane, Washington. For information call 509-534-6264 or e-mail: w7coz@earthlink.net. (Talk-in 145.210; exams April 8th at 7 PM, info call Betsey Ashelman, 509-448-5821)

April 10, **Contoocook Valley RC Hamfest**, Henniker Community School, Henniker, New Hampshire. Contact Jim McElroy, NS1E, 603-428-7436. (Talk-in 146.895; exams 9 AM, preregistration requested, contact Al Bardwell, NS1O, 603-228-1407)

April 16, **Arizona ARC Hamfest**, Devry University, Phoenix, Arizona. Contact George, KQ7C, 602-274-6212, or Gary, K7GH, 602-996-8148. (Talk-in 147.280+)

April 16, **Catawba Valley Hamfest**, Burke County Fairgrounds, Morganton, North Carolina. Contact Don Beam, KK4NI, 828-652-3102, e-mail: kk4ni@arrl.net; dealer info Michael Fox, KF4MWX, 828-437-2787, e-mail: kf4mwx@bellsouth.net; www.cvhamfest.org. (Talk-in 147.150; exams)

April 16, **Red River Radio Amateurs Spring Hamfest**, Red River Valley Fairgrounds, West Fargo, North Dakota. Contact Brian Dresser, 218-233-4447 or 701-361-8802. (Talk-in 147.255 PL 82.5)

April 17, **Raleigh ARS Hamfest & NCS ARRL Convention**, Jim Graham Building, NCS Fairgrounds, Raleigh, North Carolina. Contact Jeff Wittich, AC4ZO, 919-362-4787, e-mail: ac4zo@arrl.net. (Exams, contact WA4GIR, 919-387-9152)

April 17, **Madison Area Repeater Assn. Hamfest and Computer Fair**, Mandt Community Center, Stoughton, Wisconsin. Contact Paul Toussaint, W9HSY, e-mail: w9hsy@hotmail.com; 608-245-8890. (Talk-in 147.15, PL 123.0-; exams)

April 23, **Eastern Shore Hamfest K3EMD**, Talbot Agricultural Center, Easton, Maryland. Contact Tinsley Meekins, K3RUQ, 410-228-8888, e-mail: tinsley@comcast.net; www.k3emd.com. (Talk-in 147.045+, PL 156.7, 146.052 simplex; exams at noon, preregistration required, contact n3oue@fastol.com)

April 23, **Valley of the Moon ARC (W6AJF) Hamfest**, Sonoma Valley Veterans' Memorial Building, Sonoma, California. Contact Darrel, WD6BOR, 707-996-4494, e-mail: wd6bor@vom.com. (Talk-in 145.35, -600, PL 88.5; exams 10 AM)

April 24, **Athens County ARA Hamfest**, Athens Community Recreation Center, Athens, Ohio. Contact Drew McDaniel, W8MHV, 740-592-2106, e-mail: mcdaniel@ohio.edu. (Talk-in 145.15, -600; exams)

April 29, **Baton Rouge ARC Hamfest**, Baker Civic Auditorium, Baton Rouge/Baker, Louisiana. Contact Ed Laughery, AD5JV, 225-686-1450, e-mail: ad5j@arrl.net; www.brarc.org. (Talk-in 146.79-; exams)

April 30, **Ham Expo**, Bell County Expo Center, Belton, Texas. Contact Mike LeFan, WA5EQQ, 254-773-3590 (10 AM - 9 PM Central Time, Mon. - Sat.), e-mail: expo@tarc.org, www.tarc.org. (Talk-in 146.820-, PL 123.0; exams 1 PM)

May 1, **Antietam Radio Assn. Hamfest**, Washington County Agriculture Center, south of Hagerstown, Maryland. Contact Karin Christensen, 301-432-2358, e-mail: dilbert3@earthlink.net; <http://www.w3cwc.org>. (Talk-in 149.09; exams)

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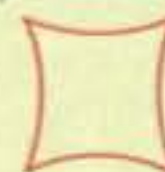
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A publication of



CQ Communications, Inc.
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Hicksville, NY 11801 USA.

Offices: 25 Newbridge Rd., Hicksville, NY 11801. Telephone 516-681-2922; Fax 516-681-2926. E-mail: cq@cq-amateur-radio.com. Web site: www.cq-amateur-radio.com. CQ (ISSN 0007-893X) is published monthly by CQ Communications, Inc. Periodical postage paid at Hicksville, NY 11801 and additional offices. Subscription prices (all in U.S. dollars): Domestic-one year \$31.95, two years \$57.95, three years \$83.95; Canada/Mexico-one year \$44.95, two years \$83.95, three years \$122.95; Foreign Air Post-one year \$56.95, two years \$107.95, three years \$158.95. 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 by CQ Communications, Inc. 2004. CQ does not assume responsibility for unsolicited manuscripts. Allow six weeks for change of address.

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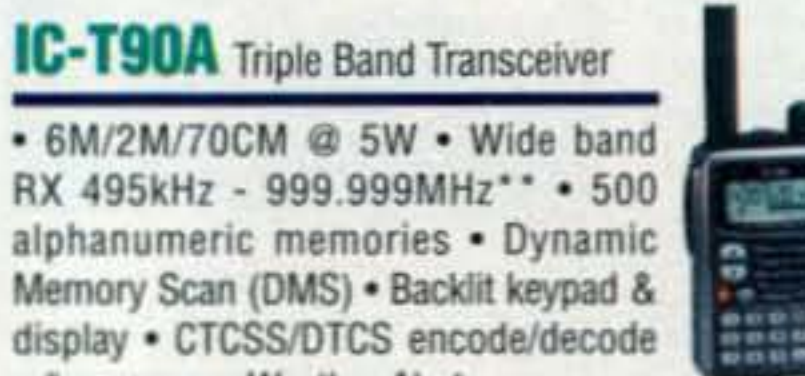
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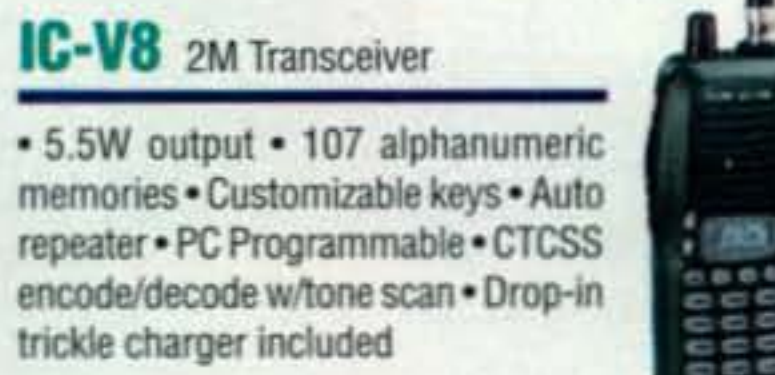
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Talk about being in the right place at the right time. . . . After a 17-year effort to get permission to operate from India's Andaman and Nicobar Islands, Bharathi Prasad, VU2RBI, and her team of hams were set up and on the air when December's massive earthquake and tsunami struck. Their DXpedition immediately turned into a three-week-long emergency communications mission. Here is VU2RBI's story. . . .

From DXpedition to Disaster Aid: Ham Radio on the Andaman & Nicobar Islands

BY BHARATHI PRASAD,* VU2RBI/VU4RBI

How do you explain a DXpedition to someone who is not familiar with amateur radio? That was one of our early challenges in planning last year's trip to operate from the Andaman & Nicobar Islands, a chain of islands in the Bay of Bengal that are part of India but actually closer to Indonesia and Burma than to the Indian mainland.

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Access to these islands is restricted for a variety of reasons.

When we approached government officials seeking permission to operate amateur radio there, we explained that a DXpedition is a radio sport activity for ham radio operators worldwide that involve hams traveling to a remote location with the aim to contact more distant countries. One favorite type of expedition is to various islands around the world. These expeditions generally fea-

ture continuous operations, which help in studying propagation conditions and conducting research work in wireless activity with state-of-the-art equipment privately owned by hams. The VU4RBI and VU4NRO trip to the Andaman Islands sought to prove the capabilities of Indian hams to reach out to millions of people across the globe by establishing direct radio contact with as many people as possible, which in turn promotes international understanding and tourism.

A Team of Five

The Department of Telecommunications in the Indian Ministry of Information and Technology permitted a team of five amateur radio operators under the leadership of the undersigned, Mrs. D. Bharathi Prasad, VU2RBI, to proceed to Andaman & Nicobar Islands on a DXpedition from 3 to 31 December 2004 with the special callsigns VU4RBI and VU4NRO. The other hams in the group included D. N. Prasad, VU2DBP; S. Ram Mohan, VU2MYH; R. Sarath Babu, VU3RSB; and D. S. Varun Sastry, VU3DVS, age 15 years and the youngest of all.

The expedition was sponsored by the National Institute of Amateur Radio (NIAR)—a non-governmental organization with its headquarters in Hyderabad, India, which promotes amateur radio communication in the country and has a track record of more than 25 years in disaster management—the Indian government's Ministry of Information Technology, and hundreds of individual



The NIAR DXpedition group (from left to right): R. Sarath Babu, VU3RSB; D. S. Varun Sastry, VU3DVS, the author's 15-year-old son; the author, VU2RBI; her husband, D. N. Prasad, VU2DBP; and S. Ram Mohan, VU2MYH. (Photos courtesy of the author)



VU2DBP gets help assembling a Yagi antenna from two members of the Indian Army Signals Unit, Mr. Mishra (left) and Mr. Sridharan (right).

VU3RSB works the pile-ups as author VU2RBI looks on. Five operators made approximately 35,000 QSOs before the earthquake and tsunami struck.

hams around the globe. In addition, Mr. Charles Harpole, K4VUD, had visited me and encouraged me for years to get a VU4 license and also gave me a beam antenna for my home station. That antenna went instead to Andaman and gave us many good contacts.

The DXpedition was formally inaugurated by the Governor of Andhra Pradesh (a province of India) on 25 November 2004. Team members met at the headquarters of NIAR before proceeding to Port Blair, Andaman's capital city, to select the equipment needed for the communications from NIAR's inventory and arrange for packing of the same for safe transport to Port Blair. The equipment consisted of high-frequency transceivers; several antennas, including Yagis, verticals, and dipoles; masts; amplifiers, etc. We also decided on the frequencies and modes of operation for communication (see Table I).

To the Islands

Three members, including myself, proceeded by air and reached Port Blair on 1 December 2004. The rest of the team members and other technical assistants from NIAR—and the radios—came by ship from Chennai on 2 December. On reaching Port Blair, we met the local authorities—including the Chief Secretary of the Government of Andaman & Nicobar, the Secretary of General Administration, and other officials, including the Principal of the Government Polytechnic College—and explained to them about the expedition. They extended their complete support to the team.

The Chief Secretary desired that a station should be established in the Science Centre, where students would

have opportunity to learn about amateur radio communication, in addition to a station at the Polytechnic College. If possible, he also wanted us to go to some other islands as well. One station was erected in a dorm room at the Polytechnic College, the second at Hotel Sinclair's, where some members were accommodated, and the third in the Science Centre. All three stations were separated by at least two miles, resulting in little inter-station interference on most bands.

In addition to the support extended by the local administration, the officers of the India Army Signals Unit of Port Blair also extended their cooperation to the team by providing the technical manpower to help erect the antennas and also for some local logistics. Erection of Yagi and dipole antennas was very interesting. It took almost two days to assemble and erect the seven-element triband Yagi. Dipole antenna erection was comparatively easier. Many of the dipoles were of the fan configuration, giving multi-band performance.

We also had some visitors during the course of the DXpedition, all arriving

after 15 December. Mr. Suri, VU2MY, the chairman of NIAR, stayed until the 25th; Mr. Charles Harpole, K4VUD, joined us until the 27th; and Mr. Henryk Kotowski, SMØJHF, stayed until the 25th. They all inspired us with their experiences and helped with some ham demonstrations for local people at the Science Centre in Port Blair. Also, the SteppIR antennas shipped by the German DX Foundation arrived in Port Blair around 15 December and were useful, especially for the WARC bands.

On the Air

Propagation on 7 MHz was open from about 3 AM to 8 AM (local time) for distant contacts, and from 9 AM onward 14, 18, 21, 24, and 28 MHz were active for SSB/CW. The propagation was observed starting in the east, covering all the eastern countries including Japan, and moving back to the west, covering European countries as the day went on. After 6 PM North American stations were prominent on these frequencies.

Different types of antennas—i.e., Yagi, SteppIR, dipole, vertical, and

Mode: Band	PSK (Computer modem)	CW (Morse code)	SSB (Phone)
80 m	—	3.510	3.795
40 m	7.030	7.010	7.060
30 m	—	10.060	—
20 m	14.071	14.010	14.190/14.285
17 m	—	—	18.130/18.160
15 m	21.071	21.010	21.285
12 m	—	24.070	24.930/24.960
10 m	—	—	28.530/28.560
2 m	—	—	145.500 (local contacts)

Table I—The frequencies and modes above were operated by the team members, per the Indian rules and regulations.

Putting VU4 On the Air: The Story Behind the Story

By Charles Harpole,[†] K4VUD

"I've waited 57 years for VU4," a ham declared in his letter to me, which included a nice donation to the DXpedition. Others exclaimed, "This is my last one for working 'em all." "My grandson asks me on every visit, 'Did you get your DX stuff, Grandpa?' and now maybe I can tell him, 'yes!'"

Scores of letters from all over the globe came to me with these kinds of stories, all including anything from a single dollar bill to nice, fat checks. Letters and e-mails pleading with the Indian authorities to grant the VU4 permit also poured in, thankfully. The warmth and faith of all these hams, sending money and support with no real proof of an operation yet, made me know that this ham radio endeavor is much more than a hobby.

Their faith was well-founded: VU4 came up as promised with nearly a month of delightful stalking of VU4RBI and VU4NRO. Over 35,000 QSOs got into the logs before the tragic earthquake and tsunami struck.

For over four years I had pleaded with VU2RBI, Bharathi of New Delhi, to seek VU4 operating permission. After all, she had led the 1987 Andaman DXpedition and knew Sonia Gandhi, VU2SON, a leader of a major political party in India. When I met Bharathi in her family's modest apartment during my first visit, I saw a remarkable woman. I saw not just the gentle mother, the careful homemaker, and the supportive wife. I saw an inspired, resourceful, determined ham radio operator. I saw that her persistence and patience were equaled by her profound joy of life. I knew this was the person to get the permit, and get it she did! During the DXpedition phase of the VU4 operations, Bharathi led with quiet strength, spending impossible hours awake and on the air.

Getting the Job Done

Several times I saw Bharathi fall asleep at the mic, but every time she roused, drank



VU4 DXpedition leader Bharathi Prasad, VU2RBI/VU4RBI, operates a makeshift outdoor station soon after the earthquake and tsunami. While she was soon able to return to her main station inside the hotel using generator power and a Yagi antenna, everyone there slept outside for several days due to cracks in the building and continuing tremors.

some tea, and forged on, piling up the filled log books. The other team members soon learned what it is to "be the DX" and regularized their operations. This unique DXpedition, lacking as it did any of the usual "crack operators," nevertheless showed hamdom they could do the job. There was no teeth-clenched operation; these folks were having great fun. Of course, they and I know there is still strong demand for a VU4 contact, especially on the "other" bands and modes, but the team demonstrated they could activate quickly and then be effective. What other rare DXpedition was put together in about two weeks? What other rare one was launched with a bare minimum of

money and just the gear on hand? What other was totally a "developing nation's" effort? The operators met their goal of offering "an all-time new one" to as many callers as possible.

I know many of you reading these words enjoyed the chase, and the pile-ups were colossal. However, all hams should be congratulated in that once the DXpedition turned to emergency communications, *not one station called to try to sneak in a VU4 contact.* That fact is remarkable in itself and should make us all proud of this hobby that is also a vital public service.

Now every contact wants that VU4 QSL card, of course. The National Institute of Amateur Radio in Hyderabad is the exclusive QSL address. See the NIAR website at <http://www.niar.org/qs1.html> for all needed data.

In closing, I must say how much fun I had watching this great operation unfold. How often does one get to go to a paradise island, help a super DXpedition, pal around with some wonderful ham friends, survive a 9.0 earthquake, dodge a killer tsunami, relay emergency traffic, and come back to tell about it—and have eager listeners? This is ham radio!

P.S.: Please help me spread the idea that "HAM" stands for "Helping All Mankind." That puts the emphasis where it really rests—the ham as a helper, a "first responder," a person who can get messages through when all else has failed. The VU4 total effort did just that and gave us renewed pride in our great "HAM" endeavor!

[†]e-mail: <k4vud@hotmail.com> or <harpole@pegasus.cc.ucf.edu>

Charles Harpole has operated from many locations in southern Asia and holds calls from India (VU3CHE), Thailand (HS0ZCW), Nepal (9N7UD), and Bhutan (A52UD).

mobile antennas—were used for communication purposes at different points of time. It was possible to contact long-distance stations even with a simple dipole antenna, perhaps due to the nearness to the seacoast.

It was a pleasure to talk to hundreds and hundreds of radio amateurs around the globe and to control the pile-ups each day of the expedition. Sometimes it was difficult to catch up with low-power operators, as high-power operators tried to "hijack" the situation. However, I took every care to exchange reports with such low-power operators, including mobile operators. We communicated mostly on SSB, CW, and PSK, as well as having a few test contacts on SSTV (slow-scan television) and RTTY (radioteletype).

I operated the radio for the DXpedition from the early hours of 3 December to the early hours of 26 December with only three to four hours of sleep a day and made about 23,000 contacts individually with almost all the countries. Altogether, the team made a total of about 35,000 contacts before the

earthquake and the associated tsunami struck our location in the wee hours of 26 December, which was terrible.

Disaster Strikes

In the early hours of 26 December, while the other guests in the hotel were fast asleep, I was continuing with my DXing with the usual spirit and was talking to an Indonesian ham. All of a sudden, I felt tremors at around 6:29 AM. I realized it to be an earthquake and shouted "tremors" into the microphone, and then rushed out of the room, raising the alarm to alert the others. All the occupants of the rooms rushed out and gathered on the lawn of the hotel building. I was concerned about Charles, K4VUD, who had a room nearby but who did not immediately appear outside the hotel. I discovered that he rode out the tremors in his room and then came out to find everyone on the hotel lawn.

Immediately after the tremors, my team members rushed from the other shacks to my hotel and joined me, and by



The author's son, 15-year-old D. S. Varun Sastry, VU3DVS, was the youngest member of the DXpedition team.

God's grace, we all were safe. After about half an hour, I went back to the hotel radio shack and checked on the antenna on the rooftop, which had been disturbed by the tremors, and quickly re-erected it. There was no electric power, so the hotel management put on the generator. Immediately I went on the air and contacted hams from Thailand (HSØZAA, Mr. John) and the mainland of India (VU2UU, Mr. Shanker from Chennai, and VU2MYL, Mrs. Rama from Hyderabad), who confirmed the tremors in their locations as well. I could guess the magnitude of the damage due to the earthquake and decided to suspend the DXpedition operations and started emergency communication with the Indian mainland and other people from then on, first from a table on the lawn with a mobile whip, and later (as the aftershocks seemed mild) back in my hotel room with the Yagi to help.

The telephone lines went out of order, and within a few hours we came to know the extent of damage in Port Blair through local people. While the news of death and devastation caused by the tsunami/earthquake in other parts of India was quickly transmitted around the world, the situation in the Andaman & Nicobar Islands was not known. I went on transmitting information to anyone who could hear my signals. Simultaneously, I sent my team members to the office of the Chief Secretary of the Government of Andaman & Nicobar Islands to express our willingness to extend our support for establishing emergency communication to help the administration.

The Deputy Commissioner (DC) requested for our services on 27 December, and we immediately established a radio station in the control room of the DC's office, operated by Sara, VU3RSB, and me. At the additional request of the DC, two of our team members (VU2MYH and VU2DVO) proceeded to Car Nicobar Island in a military aircraft on the morning of 28 December and established communication between Port Blair and Nicobar.

Ham Radio—The Islands' Only Link

We were to handle hundreds and hundreds of messages each day from the mainland and the affected areas due to the collapsed communication infrastructure. Ours was the only link for thousands of Indians and people from other countries who were worried about their friends and families in the islands. Also, our station in the control room became the center of messages between Port Blair and Nicobar Island. Survivors in Car Nicobar were communicating with their relatives in Port Blair through our stations. Other VU hams located in the mainland helped us in relaying the messages when-

ever propagation prevented direct contact between our stations in the islands. Amateur radio stations in Thailand (HSØZAA, HSØZDY, HSØZCW, and others) and elsewhere also did relays from time to time.

When some of the telephone lines were restored on Tuesday, 28 December, the information received via radio about the survivors from Car Nicobar was conveyed to their anxious relatives on the mainland. We also helped about 15 foreign tourists, including several from the USA, to send news to their families. At the request of the DC, one of our newly arrived team members (Jose, VU2JOS) was sent to Highbay Island along with other government officials for relief activity. The common man was totally happy in utilizing our service and the magnitude of their satisfaction on receiving the information about the welfare of their kith and kin is beyond one's imagination.

Sleeping Outside

We did not dare sleep inside the hotel rooms during the nighttime and instead slept in the open air on cots on the lawns of the hotel. Tremors continued all during the six days of my stay. Charles, K4VUD, observed our handling of emergency traffic on 26 December and left for Thailand on the 27th to be with his wife and her family; he did relay work from there.

Members of the team had gone to points in Port Blair and photographed the still-swirling waters and sea wall damage. Fortunately, Port Blair is on the north side of the island, and with the tsunami having come from the south, it sustained relatively little damage, with only four lives lost there.

I continued emergency communication till the forenoon of 1 January 2005, the day of my return to Delhi. However, my team members stayed on in Port Blair, Nicobar, and Highbay Islands, and a few more VUs from NIAR joined them on 2 January, proceeding to other islands which had no other means of communication (see Table II). All visiting hams were back home on the mainland by mid-January.

Helping All Mankind

Although we went to Andaman & Nicobar Islands for a DXpedition, the circumstances led us to conduct emergency communication, which was a sheer coincidence. Representatives of different media agencies—including the Associated Press, Washington Post, Zee News, CNN, MSNBC, and many others—witnessed our service to society through amateur radio in an hour of need and acknowl-

Station Callsign	Location
VU2LIC	DC's office, Port Blair
VU2LFA	APWD office, Port Blair
VU3RSB.....	Nehru Yuvak Kendra, Port Blair
VU2MYH.....	Port Office, Nicobar Islands
VU2DVU	Andaman
VU2DSV.....	DC's office, Nicobar Islands
VU2MCK.....	Andaman
VU2JOS.....	Highbay Islands
VU2CPV & others	Cambel Bay Islands
VU3VCC	Naval Base, Cambel Bay

Many other stations outside the affected areas assisted the above stations on the islands, including: VU2RBI, after arrival in New Delhi; VU2HFR in Kolkata, VU2PEB in Kerala, and VU2HIT in Mumbai.

Table II— The above stations operated in Andaman & Nicobar Islands as of 7 January 2005.

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After the earthquake and tsunami struck, the DXpedition turned into an emergency communications operation. Here, VU4RBI is on the air soon afterward from the lawn of her hotel, operating with a whip antenna and power from batteries provided by the Indian Army Signals Unit.



The emergency communications operation soon moved to the office of the Deputy Commissioner of the Andaman & Nicobar Islands government. Pictured here, from left, are the author, operating as VU4RBI; Mr. Brahma, a senior official from the Indian Ministry of Home Affairs sent from New Delhi to Port Blair on a special relief visit; and Mr. Mishra of the Army Signals Unit.

edged the same. I am thankful to them for spreading amongst the public the awareness of amateur radio emergency communication. The potential of amateur radio communication in bringing people together has thus been established once again. Truly, "HAM" stands for "Helping All Mankind."

I am proud of my team members, who extended all of their support for the operations during the period of my stay in Port Blair. However, I left Port Blair with a heavy heart for the many departed souls.

I am thankful to the government of India for permitting me

to conduct the DXpedition, particularly the authorities of the Ministry of Information and Technology, and to the National Institute of Amateur Radio for sponsoring the DXpedition. I am also thankful to the Indian Army Signals Unit for its help with technicians and batteries, to K4VUD and the Disaster Preparedness and Emergency Response Association (DERA, <<http://www.disasters.org>>) for collecting donations, and especially to the many, many fellow hams worldwide who made the DXpedition successful through their individual efforts and to those who helped in conducting emergency traffic. ■

Globe-trotting contributor SMØJHF happened to be in India last December when the region was struck by the devastating earthquake and tsunami. Here is his report on what he saw, heard, thought, and felt—before, during, and after the disaster.

My Indian Adventure

Observations and Impressions

BY HENRYK KOTOWSKI,* SMØJHF/VU3HKE



Photo 1—Gopal, VU2GMN, in Chennai, Tamil Nadu state, with some of his antennas. (All photos by the author)

My first visit to India was back in December 2002. I spent two weeks there, mostly in the small state of Goa on the western coast, and met a few local amateur radio operators. I also traveled to Manipal and Mangalore in the state of Karnataka and discovered that there actually are many more hams in India than can be heard in Europe. My fascination with India and my desire to see more of it grew. With my next visit in mind, I applied for a Wireless Telegraph Station Licence and received it from New Delhi in August 2004.

India is so huge and diversified in landscapes, languages, climate, culture, and colors that one can travel there many times and still face new impressions. My second trip targeted the Tamil Nadu and Kerala states in the far south of the subcontinent. Upon arrival in Chennai in Tamil Nadu on the east coast, one of the larger cities of India, I contacted a few local hams. Chennai might be better known outside of India as Madras; it was renamed some ten years ago.

I learned that there are hundreds of ham operators in Chennai and dozens of them are regularly on the air, both on the HF and VHF bands. I paid a visit to Gopal, VU2GMN, who is considered one of the most advanced hams in this area (see photo 1). Gopal is equipped for HF, VHF, and satellites, and even operates an Echolink node. Many of his items are homemade, and he finds time to sit in on the board of the

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e-mail: <sm.jhf@chello.se>



Photo 2—A partial view of the antennas used by Bharathi, VU4RBI, from Sinclair's Hotel, near Port Blair, Andaman Islands.

Amateur Radio Society of India. The ARSI, which represents India in the IARU (International Amateur Radio Union), is far from the only amateur radio organization in this huge country. I know of more than ten large organizations and nearly 100 local clubs.



Photo 3—Charles Harpole, K4VUD, acted as official photographer of the DXpedition, here taking a picture of part of the group. Left to right: Mohan, VU2MYH, Bharathi, VU2RBI, Suri, VU2MY, and Babu, VU3RSB, being photographed while Jose, VU2JOS (in dark-red shirt), and two other members of the team watch.

Photo 4— A demonstration of a practical radio contact by Bharathi, VU4RBI, at the Science Center in Port Blair, Andaman Islands.



Photo 5— The author (using a self-timer) saying goodbye to Port Blair on December 25, 2004. It would be the end of the "pleasure" part of his trip.

The NIAR

One such organization is The National Institute for Amateur Radio (NIAR) in Hyderabad, in the state of Andhra Pradesh. This is a commercial enterprise subsidized by the government of India with an ambitious program for making amateur radio popular and available. It was a coincidence that my visit to India took place at about the same time as this organization conducted a combined DXpedition and amateur radio road show in the Territory of Andaman and Nicobar Islands. Gopal, VU2GMN, in Chennai told me that he had just met Bharathi, VU2RBI, from Delhi who was en route to Port Blair in the Andamans. Chennai is one of two Indian cities that are connected to Port Blair by regular flights. In Chennai I could easily copy both Bharathi signing VU4RBI and the multi-op station VU4NRO in Port Blair while using my ICOM IC-706 and a random-length wire as an antenna. I was puzzled by the apparently low QSO rate, since

VU4 is one of the most wanted DXCC entities, but it seemed that the global demand was muted.

In reality, the islands are the summits of a submerged mountain range between Myanmar (Burma) and Sumatra, and they lie about 1000 miles across the Gulf of Bengal from Chennai. A few aboriginal tribes of different descent still live on the islands. The first European settlement there was established by Danish missionaries. England took over the islands some 150 years ago and created an ill-famed penal colony. Today some 400,000 people who migrated from the mainland live there.

A Visit to Port Blair

On Monday, December 20, 2004 I managed to get aboard a Boeing 737 departing for a two-hour eastward flight to Port Blair. The end of December is a holiday season in India, and Andaman and Nicobar Islands are popular among domestic vacationers. At the Port Blair airport I was granted a restricted permit to visit the territory for five days and given assistance from the tourist information desk in finding accommodations.

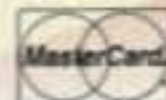
Later on I found Sinclair's Hotel, where part of the radio group was staying. Bharathi, VU4RBI, was transmitting from the top floor with one multiband Yagi and assorted wire antennas on the roof of the hotel (see photo 2). Next door to Bharathi was Charles, K4VUD/VU3CHE, who has had long-lasting close connections with Asia. In the past, Charles has operated from Nepal, Bhutan, Myanmar, and most recently Thailand, where he has a permanent station at his father-in-law's house. In the Andamans Charles was the "official photographer of the DXpedition" without the right to be on the air (photo 3).

Apart from Bharathi, VU2RBI, only four other members of the group were authorized to touch the radios in this military-controlled zone. They were Bharathi's husband, Prasad, VU2DBP;

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Photo 6— After the earthquake and tsunami, Gopal, VU2GMN, became one of the main emergency traffic coordinators in Chennai.



Photo 8— Nearly a week after the earthquake, Chennai hams at a lively meeting discussed emergency communications capabilities and future needs.



Photo 7— Devadas, VU2DH, driving and talking on the 2-meter band in Chennai, coordinating emergency assistance by local hams.

Babu, VU3RSB; Mohan, VU2MYH; and Sastry, VU3DVS. The "guru" of the group was Mr. Suri, VU2MY, the creator of the National Institute for Amateur Radio. He was busy meeting local authorities in his pursuit of establishing radio clubs in the islands, lobbying for removal of the red tape for operating permission, and demonstrating the advantages of amateur radio for society.

I witnessed one such demonstration at the Science Center outside Port Blair. It included a lecture by Mr. Suri and a short movie, as well as an impromptu talk by K4VUD, for an audience of at least 100 young persons, all potential hams. Later Bharathi gave a practical demonstration of a radio contact by using a temporary setup at the center (photo 4). I wish every DXpedition would have such activities included in their programs. I recall, for example, how Karl Erik, OH0NA, became a ham after the first DXpedition to Market Reef (located between Sweden and Finland), where he was an assigned lighthouse keeper.

My Bed was Swaying

I left the Andamans on December 25, 2004 (photo 5). I didn't know it at the time, but the "fun" part of my trip was at an end.

The next morning, at exactly at sunrise, my hotel bed in Chennai was swaying. Minutes earlier NIAR's DXpedition on the Andamans became a real-life emergency-communications acid test. The earthquake near Sumatra, which I distinctly felt 1000 miles away, fiercely hit the Andaman and Nicobar

territory. Bharathi, VU4RBI, was on the air when the quake and following tsunami struck (see Bharathi's article elsewhere in this issue—ed). The power went off, but half an hour later Bharathi was back on the air using generator power and a vertical antenna placed outside Sinclair's Hotel. She later was able to return to the hotel room and the Yagi antenna.

The DX pile-up chapter of this DXpedition was closed, and from that point on only third-party traffic related to the natural disaster in the islands was handled. Soon a couple of VU4NRO's operators and one HF station were flown to Car Nicobar island and could pass messages to and from local authorities and survivors. Twenty-four hours a day, a network of stations from mainland India monitored the frequencies used by Bharathi in Port Blair and VU4NRO in Car Nicobar. I again visited Gopal, VU2GMN, who was spending up to 12 hours a day by his radio (photo 6). There was substantial tsunami damage in Tamil Nadu state, south of Chennai, and a few local ham groups went there to assist with communications (photo 7).

I had to abandon my initial plan of traveling southward along the Tamil Nadu coast and stayed a week in Chennai. On Saturday I was invited to attend a meeting of a group of Chennai hams (photo 8). Improvement of their present capacity and routines was discussed. This included the need for better mobility of their HF stations, for a mobile VHF repeater, for stand-by rigs, and for better ways of informing the authorities and agencies about the existence of amateur radio emergency communication groups. It felt good to see this initiative taken on a local level, without waiting for recommendations and instructions from somewhere above.

A Better Future for Ham Radio?

As I am writing this, I have just seen information that all members of the Andaman DXpedition returned safely to their homes by January 15, 2005. It is expected that Indian legislation controlling the Amateur Radio Service will soon be reviewed and hopefully modified, modernized, and simplified.

I also hope that foreign visitors to India will be able to receive temporary licenses much more easily. Six-million tourists visit this captivating country each year, many of them hams. The entire Indian ham radio community can benefit from increased personal contacts with foreign amateurs, and I am sure there is much we can learn from them. Maybe the next activity from some "rare" Indian territory can be made by an international team that includes some world-class DXers, combining their skills and state-of-the-art technology with the unique Indian flavor. ■

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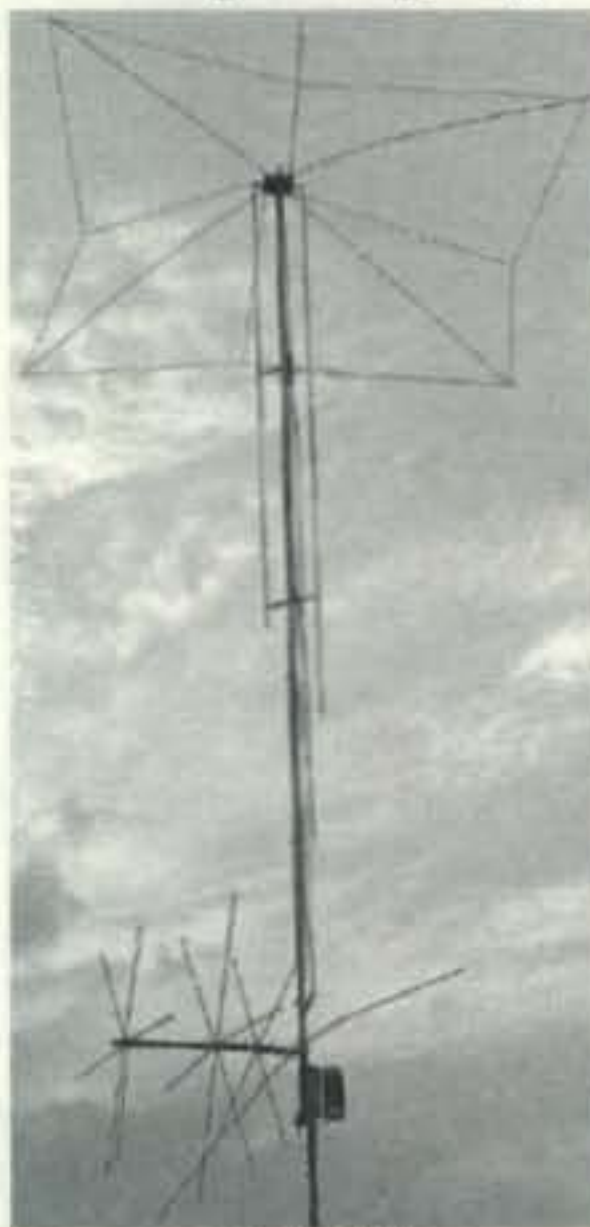
It's easy to tune because adjusting one band has minimum effect on the resonant frequencies of other bands.

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On 30, 40, 75/80 Meters, end loading -- the most efficient form of loading -- gives you highly efficient performance, excellent bandwidth, low angle radiation and automatic bandswitching.

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Fast/slow tune buttons and built-in two range Cross-Needle SWR/Wattmeter lets you quickly tune to your exact frequency.

All welded construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter round radiator -- not a lossy thin flat-strip -- *gives you highest possible efficiency.*

Each plate in MFJ's tuning capacitor is welded for low loss and polished to prevent high voltage arcing, welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches, continuous no-step DC motor -- gives smooth precision tuning.

Heavy duty thick ABS plastic housing

has ultraviolet inhibitor protection.

MFJ-1788, \$429.95. Same as MFJ-1786 but covers 40 Meters-15 Meters continuous. Includes super remote control.

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MFJ's G5RV Antenna



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Covers all bands, 160-10 Meters with antenna tuner. 102 feet long, shorter than 80 Meter dipole. Use as inverted

vee or sloper to be more compact. Use on 160 Meters as Marconi with tuner and ground. Handles full legal limit power. Add coax feedline and some rope or other nonconductor and you're *on the air!*

MFJ halfwave vertical

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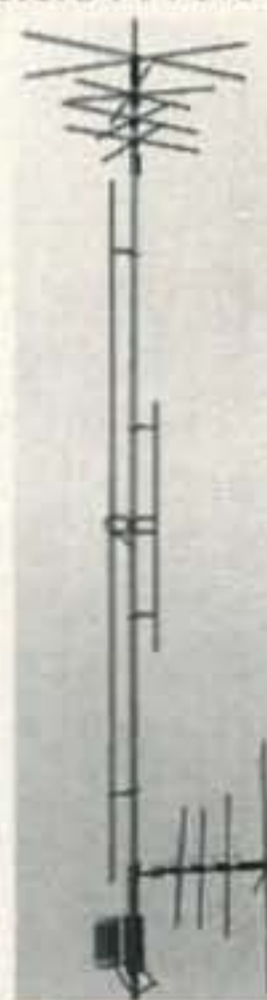
Only 12 feet high and has a tiny **\$209⁹⁵** 24 inch footprint!

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Sunspots got you down? Are you in the DX doldrums?

Well, as we've been promising you over the past few months, we're *Waking Up DXing*—starting right now—with the first of three brand-new programs aimed at bringing back the excitement of chasing after DX in rare (and not-so-rare) locations.

Announcing:

The CQ DX Field Award

BY RICH MOSESON,* W2VU, AND BILLY WILLIAMS,† N4UF



There's something strange happening on the HF ham bands . . . we have record numbers of logs being turned in for our contests, but outside of contests and big-time DXpeditions, the general "sport" of DXing, or chasing after contacts with faraway places, seems to be in a slump.

Well, in our view here at CQ, DXing is the icing on the cake we call ham radio—the excitement of talking to someone on the other side of the world, of making new friends in other countries—and if DXing is in a slump, then we need to do something about it . . . which is why we're introducing three new programs over the next three months with the goal of **Waking Up DXing!**

Why the Slump?

We've given this a lot of thought and come up with a couple of likely culprits. One of the likely reasons is that so many long-time hams have "worked 'em all," whether "em" is countries (sorry, entities) or zones, the traditional "gold standard"

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for achieving "top DXer" status. Another is that mixed blessing called the DX Cluster®. While it's great for alerting us to DX stations we need, too many of us have gotten just plain lazy, keeping the radio off until a place we "need" comes up on the computer screen. Then we power up the rig, work the station, and shut down again until the next good spot comes along. What we've lost is people tuning the bands in anticipation of an opening, listening for that weak signal from some remote location, working the station, then listening some more . . . or even calling CQ and having DX stations come back to them. Now far too many of us sit and wait for someone else to make the first move, and to post the "spot." Of course, deteriorating propagation conditions aren't helping much either, but the active operator who's actually on the air will generally find some band that's open to someplace, even in the depths of the sunspot cycle.

So we've decided to pose a new challenge to get you back on the air and to give you a new DXing goal to chase.

Grid Fields

Back in 1980, a group of VHF enthusiasts in Europe met in Maidenhead, England to adopt a standardized plan for designating "grid locators" around the world. This came about as a result of long-standing practice in the International Amateur Radio Union's Region I (Europe and Africa) of determining scoring in VHF contests on a distance-worked basis. Rather than separately calculating the distance between every two stations that made contact, a system was devised—as far back as the 1950s—to divide Europe into a series of "grid locators" based on latitude and longitude which would make distance calculation easier . . . particularly so with the advent of the personal computer.

Interest in the system began to grow in the rest of the world, but the original QTH Locator system (first called the QRA Locator system) wouldn't work worldwide because the grids would start repeating. According to the IARU Region I *VHF Managers Handbook* and a paper written by SM5AGM, one of the developers of the current grid system, more than 20 different proposals for a worldwide standard were submitted. The group that met in Maidenhead, England in 1980 came away with the basics of today's "grid square" or "grid locator" system—in which the world is divided up into 324 blocks, each

measuring 10 degrees latitude by 20 degrees longitude, and given a two-capital-letter designator between AA and RR. These blocks are known as "fields." Each field is then broken up into 100 "squares," each measuring 1 degree latitude by 2 degrees longitude and identified by two digits between 00 and 99. Each square is then broken up into subsquares measuring 2.5 minutes of latitude by 5 minutes of longitude. Each subsquare is given a designator of two lower case letters between aa and xx. CQ's offices, for example, are located in FN30fs. Today there are many computer programs, including some contest logging programs, that can automatically calculate the distance between any two subsquares, thus solving the distance-scoring dilemma.

Within a few years of the 1980 conference, the so-called Maidenhead Grid Locator system was adopted worldwide by the IARU, for use primarily by VHF operators. It is the basis of the ARRL's VHF-UHF Century Club (VUCC) award, for confirmed contacts with at least 100 1-degree by 2-degree grid squares.

The interest in using grid locators has continued to spread, not so much geographically (how far beyond worldwide can you go at the moment?) as spectrum-wise, with many HF active hams using them as well, particularly in Europe. The same calculators that can determine distances for contest scoring on VHF can also be used to help QRP operators determine their "miles per watt" accomplishments.

A Grid-Based HF Award

Now there's not much challenge in working one hundred 1-degree by 2-degree grid squares on HF. You can probably do it with about 300 contacts. On the other hand, there is quite a challenge in working large numbers of 10-degree by 20-degree *fields*, particularly since many of the 324 are either completely water or located in the polar regions. SM5AGM, who's also the author of the *ARRL World Grid Locator Atlas*, estimates that 262 fields contain some sort of land, while 54 are entirely water and eight consist of ice with no land underneath. CQ DX Awards Manager N4UF has calculated that there are 177 fields with which the active ham stands a pretty good chance of making a contact. Both agree that the only way to work all 324 is with the help of shipboard stations and polar expeditions, so it won't be easy.

Here's the challenge: The new CQ DX Field Award will recognize the accomplishments of any amateur who has

confirmed contacts with stations in at least 50 10x20-degree Maidenhead "fields," made on or after January 1, 1980 (the year in which the current system was developed). If you've worked DXCC or the traditional CQ DX Award, chances are pretty good that you already qualify for the basic CQ DX Field Award, or are very close.

As with any other DX award, the real challenge begins *after* you've reached the initial level. Our endorsements will be for each 50 additional fields worked, up to 150, and then in increments of 25 up to 300, with a final endorsement for

working all 324. We'll also have an Honor Roll for anyone with 175 or more fields confirmed—remember, they get *really* challenging beyond 177. So you can dig through your QSL collection for the first 50 or even 100 fields, but to reach the top in this award, you're going to have to put in a good deal of on-air time, and that, of course, is the whole idea.

Determining Fields

Each verification from the same station and location may be counted for only one field. Information on the card must

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Smartuners may provide a satisfactory match with a poor RF ground system, but antenna efficiency will be low and operation will be subject to RF problems. Ground conductivity alone makes a very poor return path for RF currents. This increases the ground losses and reduces antenna efficiency. Radials can improve ground conductivity and provide a counterbalance for the feed point of the antenna, reducing RF radiation feedback.

Here are some general RF grounding tips for use with an SGC Smartuner:

■ Balanced antennas, such as center-fed dipoles and loops, do not require an RF ground.

■ Unbalanced antennas (verticals, whips, longwires, random wires or inverted L's) should have enough additional grounding to carry most of the RF current that might otherwise be returned by the lossy ground paths, so put down as much as you have room for.

■ If the grounding system will be mounted above the ground, a ground plane can be created with chicken wire or other grid material.

■ Unbalanced antennas mounted high in the air require a radial system or ground plane mounted below the antenna and connected to the Smartuner RF ground. A good place to mount the Smartuner is just below the ground plane.

■ Indoors, ground wires can be run under carpets, along walls or out of windows. But be very careful to isolate these elements due to the potential high voltages.

■ We recommend a minimum of six to eight radials, but efficiency will increase with more. Remember to arrange them symmetrically to keep them from radiating.

■ You can eliminate noise from a polluted ground (industrial areas, etc.) by creating your own grounding system using the guidelines above.

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be specific enough to make a determination of the proper field. If information is ambiguous or lacks sufficient detail, that card may not be used for the CQ DX Field Award.

There are several ways of determining a station's grid field if the information is not printed on the card. If latitude and longitude coordinates are known, software programs are readily available for converting your verification to the proper field. A hard copy publication, *The ARRL World Grid Locator Atlas*, also may be of some assistance.

Around 180 current CQ DX countries and territories lie totally within a single field. Any contact from Switzerland, for example, translates to field JN. Such cards may be submitted without additional research. Single field countries may also be credited without submitting cards if these are shown on an applicant's itemized ARRL DXCC listing or paperwork from other similar awards (check with the Award Manager to see if the award listing you have is acceptable). A photocopy of the document, itemized by country/territory, must be submitted in hard copy form to the Award Manager with the CQ DX Field Award application form filled out.

Those active in the traditional CQ DX Awards program may also claim credit

for single field countries if these cards already have been checked and if records are still on file. Records are maintained by the Award Manager for two years following an applicant's latest update. If licensed before 1980, an applicant must include a statement that contacts being claimed using paperwork from another award were made after January 1, 1980.

Multi-Field Entities

Another 85 or so entities have segments in two fields while 25 have parts in three fields. Just a handful of entities are spread over 10 or more fields. If a grid locator or exact coordinates are not printed on the card, detailed maps, such as those published by National Geographic, can assist. Use the city or district of the station as printed on the card when researching maps. In addition, listings on at least one online callsign database, <www.hamcall.net>, include coordinates and grid locator information where available. Also, a cross-reference guide will be available on the CQ website to assist applicants and checkpoints. Access this guide through <www.cq-amateur-radio.com> by clicking on the appropriate link.

Finally, the Award Manager maintains maps and is glad to assist if the correct

field for a contact cannot be determined. Use e-mail to <n4uf@cq-amateur-radio.com> for making an inquiry.

The Original CQ DX Award

The CQ DX Field Award is a new award in addition to the original CQ DX Award, not a replacement for it. We encourage all hams who have confirmed 100 or more countries to apply for the original CQ DX Award. Complete rules for the new CQ DX Field Award follow. Application forms may be downloaded from our website at <<http://www.cq-amateur-radio.com>> or mailed to you from the CQ office if you send in a request and a self-addressed stamped envelope (SASE). Have fun and good hunting!

What's Next?

This is the first of three new programs we're introducing in an effort to "wake up DXing." The second program will be introduced next month, and all we can say right now is that it will be a cross between a contest and an award program, and that what's old is new again. The third program, to be announced in the June issue of *CQ*, will be an introductory award aimed at encouraging newer hams to discover the joys of DXing. Stay tuned . . .

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SS-12	10	12	1 1/2 x 6 x 9	3.4
SS-18	15	18	1 1/2 x 6 x 9	3.6
SS-25	20	25	2 1/4 x 7 x 9 1/2	4.2
SS-30	25	30	3 1/4 x 7 x 9 1/2	5.0

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MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
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RACKMOUNT SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3 1/2 x 19 x 9 1/2	6.5
SRM-30	25	30	3 1/2 x 19 x 9 1/2	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3 1/2 x 19 x 9 1/2	6.5
SRM-30M	25	30	3 1/2 x 19 x 9 1/2	7.0

2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3 1/2 x 19 x 9 1/2	10.5
SRM-30-2	25	30	3 1/2 x 19 x 9 1/2	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3 1/2 x 19 x 9 1/2	10.5
SRM-30M-2	25	30	3 1/2 x 19 x 9 1/2	11.0

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- EF JOHNSON GT-ML81
- EF JOHNSON GT-ML83
- EF JOHNSON 9800 SERIES
- GE MARC SERIES
- GE MONOGRAM SERIES & MAXON SM-4000 SERIES
- ICOM IC-F11020 & IC-F2020
- KENWOOD TK760, 762, 840, 860, 940, 941
- KENWOOD TK760H, 762H
- MOTOROLA LOW POWER SM50, SM120, & GTX
- MOTOROLA HIGH POWER SM50, SM120, & GTX
- MOTOROLA RADIUS & GM 300
- MOTOROLA RADIUS & GM 300
- MOTOROLA RADIUS & GM 300
- UNIDEN SMH1525, SMU4525
- VERTEX — FTL-1011, FT-1011, FT-2011, FT-7011

NEW SWITCHING MODELS

- SS-10GX, SS-12GX
- SS-18GX
- SS-12EFJ
- SS-18EFJ
- SS-10-EFJ-98, SS-12-EFJ-98, SS-18-EFJ-98
- SS-12MC
- SS-10MG, SS-12MG
- SS-101F, SS-121F
- SS-10TK
- SS-12TK OR SS-18TK
- SS-10SM/GTX
- SS-10SM/GTX, SS-12SM/GTX, SS-18SM/GTX
- SS-10RA
- SS-12RA
- SS-18RA
- SS-10SMU, SS-12SMU, SS-18SMU
- SS-10V, SS-12V, SS-18V

CIRCLE 134 ON READER SERVICE CARD

*ICS - Intermittent Communication Service

Rules:

The CQ DX Field Award

1. The CQ DX Field Award is issued in four categories—Mixed, CW, SSB, and Digital—for confirmed two-way contacts with 50 or more Grid Fields, based on the Maidenhead grid system. There are 324 Grid Fields, 10-degree latitude by 20-degree longitude rectangles lettered AA through RR, covering the entire world. Applications should be submitted on the official CQ DX Field Award application (form 2504). Reasonable facsimiles or computer printouts are also acceptable.

2. All contacts must be two-way in the mode(s) for which the application is made. Cross-mode or one-way contacts are not valid. QSLs must be listed in alphabetical order by grid field (AA-RR). All contacts must have been made on or after **January 1, 1980**.

3. QSL cards must be verified by one of the authorized check points for the CQ DX Awards, or must be included with the application. Return postage must be included. Electronic verifications from sources approved by CQ are acceptable. See the CQ website for acceptable online sources.

4. Grid Field endorsement stickers are issued for increments of 50 additional fields, between 50 and 150, then in increments of 25 fields between 150 and 300, with a final endorsement for confirming all 324 grid fields. A fee of \$1.00 per sticker (where stickers are issued) is charged. An SASE must be enclosed with all endorsement applications. Stations outside the United States must include an SAE with two IRCs for airmail return.

5. Special endorsements to the basic award, as follows, are available for a fee of \$1.00 each:

(a) 28 MHz endorsement—for 50 or more grid fields confirmed on the 10-meter band.

(b) 3.5/7 MHz endorsement—for 50 or more grid fields confirmed using any combination of the 40 and 80 meter bands.

(c) 1.8 MHz endorsement—for 25 or

more grid fields confirmed using the 160-meter band.

(d) 50 MHz endorsement—for 25 or more grid fields confirmed using the 6-meter band.

(e) QRPp endorsement—for 25 or more grid fields confirmed using 5 watts output or less.

(f) Mobile endorsement—for 25 or more grid fields confirmed with the applicant operating mobile.

(g) Slow Scan TV endorsement—for 25 or more grid fields confirmed using two-way SSTV.

(h) OSCAR endorsement—for 25 or more grid fields confirmed via amateur satellite.

6. Any altered or forged confirmations will result in permanent disqualification of the applicant.

7. Fair play and good sportsmanship in operating are required for all amateurs working toward CQ DX Awards. Continued use of poor ethics will result in disqualification of the applicant.

8. A fee of \$6.00 is required for CQ subscribers applying for a CQ DX Field Award certificate. The latest CQ mailing label must be attached for the subscriber discount. For non-subscribers the certificate fee is \$12.00. IRCs are acceptable in lieu of check or cash.

9. All contacts must be with land-based or shipboard amateur stations working within authorized amateur bands. Contacts with aircraft are not acceptable.

10. Credit for fields activated by virtue of a DXpedition is dependent on the approval of said DXpedition for traditional CQ DX Award/ARRL DXCC credit. QSLs from mobile or shipboard stations must show grid locator or approximate latitude and longitude (sufficient to determine grid field) at time of contact. Only one grid field may be claimed for each contact. Stations located at exactly 90 degrees south latitude represent grid field AA; 90 degrees north latitude represents grid field RR.

11. For QSLs from fixed stations that do not indicate a grid field or grid locator, determination of the grid field will be based on the licensed location of the station as shown in online call sign databases. In these cases, the field may be added, *in pencil only*, on the address side of the card, or on the electronic confirmation printout. If locator information is not available online or from the station contacted, the contact may not be used for credit toward this award. It is the responsibility of the applicant to collect this information, subject to verification by the card checker and/or CQ DX Awards Manager.

12. In the event of any disputes or disagreements, decisions of the CQ DX Awards Manager shall be final.

CQ DX Grid Field Honor Roll

13. The CQ DX Grid Field Honor Roll is maintained for each of the four CQ DX Field Awards. At least 175 confirmed grid fields are required for a station to appear on the CQ DX Grid Field Honor Roll.

14. To remain listed on CQ DX Honor Roll, an operator must update his or her totals at least once per year. Updates indicating "no change" are acceptable. If confirmation of total is requested, an SASE must be included.

15. An audit sheet is available from the CQ DX Awards Manager. The audit sheet shows grid fields credited to a station. Cost is \$3.00 plus an SASE for each mode.

16. Grid field totals may be adjusted as additional input regarding specific operations is received. Acceptance may be revoked or modified with Honor Roll totals adjusted accordingly. Decisions of the CQ DX Award Manager are final.

17. All checks must be made payable to B. F. Williams. Applications should be sent to Billy Williams, N4UF; P.O. Box 9673; Jacksonville, Florida 32208-0673. Do not send applications to CQ.

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What can you do when you've "done it all" in ham radio? Well, you can fold your tents and take down your antennas as some hams do, you can wait for some magazine to come up with a new award program (as we are this month), or you can be like K2HVN and invent a new challenge for yourself.

A Personal Challenge: Working All USA Prefixes

BY WILLIAM JANSEN,* K2HVN

I have been a ham radio operator for 50 years. Have I been bored? Never. Have I been inactive? Never. There is always a challenge, always something new to maintain my interest in the hobby. Being retired and addicted to keeping records, I asked myself the question "what next?" in ham radio. The answer for me was to contact all active USA callsign prefixes. Why? It was the challenge, of course.

Since I had achieved DXCC Honor Roll status (lacking only three countries), 8-band DXCC, 5-Band Worked All States, and USA-CA All Counties on SSB and CW, I knew I must already have worked many USA prefixes over the years. Thus, in February 2002 I started checking old logs and began working new prefixes. The first thing I needed to do was determine how many USA prefixes I needed to contact. I calculated a total of 866 USA prefixes within the USA using the method shown in Table I.

Getting Organized

Once I determined the number of prefixes I needed to contact, I looked through 46 years of logs, including contests, for various prefixes worked. I then used a computer to alphabetize a running list of all prefixes contacted.

To find prefixes I hadn't worked yet, I checked the DX Summit website to see who was active, past and present. Then I looked for an e-mail address using the QRZ.com and Buckmaster (HamCall) websites. If I wasn't able to find an e-mail address for a prefix on the web-



The author in his shack. Meeting all the challenges represented by the certificates on the wall didn't stop him from creating a new operating challenge for himself—working all active U.S. callsign prefixes. (Photos courtesy of the author)

USA 0-9 call areas plus Alaska and Hawaii

AA-AK less AH and AL: 10 prefixes × 10 call areas = 100 prefixes

K plus KA-KZ less KH, KL and KP: 24 prefixes × 10 call areas = 240 prefixes

N plus NA-NZ less NH, NL and NP: 24 prefixes × 10 call areas = 240 prefixes

W plus WA-WZ less WH, WL and WP: 24 prefixes × 10 call areas = 240 prefixes

Vanity and transferred calls = 46*

Alaska: AL0, AL1, AL2, AL4, AL6, AL7, AL9, KL0, KLI, KL2, KL3, KL4, KL5, KL6, KL7, KL8, KL9, NL7, WL7

Hawaii: AH0, AH2, AH6, AH7, AH8, AH9, KH3, KH4, KH6, KH7, KH8, KH9, NH2, NH6, NH7, WH2, WH6, WH7

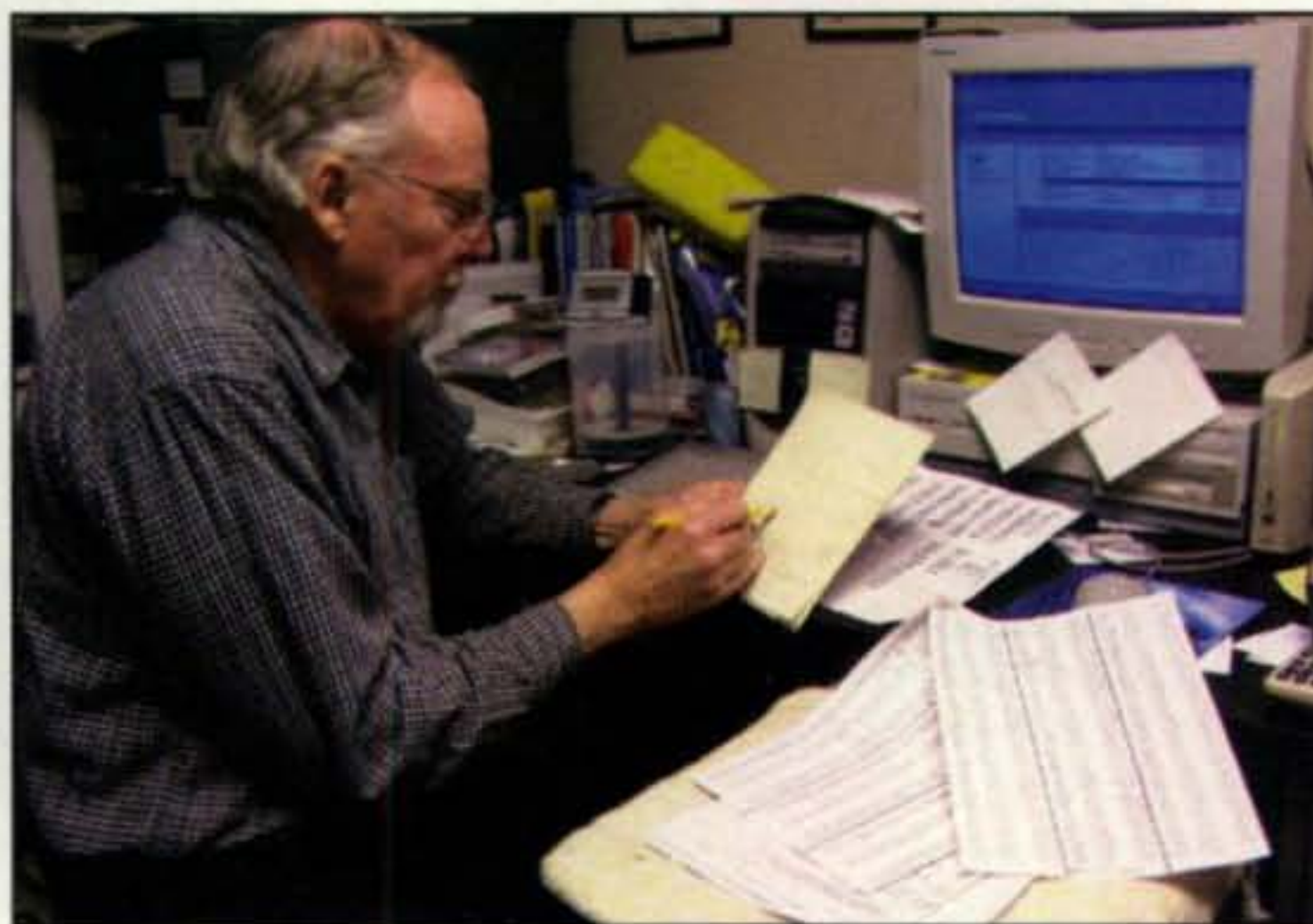
Others: AH3, KH2, KP2, KP3, NP2, NP3, NP4, WP3, WP4

* To arrive at this number of vanity callsigns, I searched various callsign websites. For example, I checked all KL3a-z callsigns to determine if one was a current valid call with the station operator living in one of the 50 states. This technique of counting prefixes is not without fault. For example, vanity calls could change at any time, therefore adding more prefixes for me to contact.

*10 Pest House Road, Littleton, NH 03561

e-mail: <jansens@adelphia.net>

Table I—USA prefixes.



No monster antenna farm here . . . just a couple of dipoles, a trapped multibander, plus a single-bander for 30 meters.

While K2HVN obviously has and uses a computer, he found it more efficient in this case to track and update his prefix list by hand.

sites, I checked into nets and asked net participants to send me e-mail addresses for those callsigns if they knew them. I also checked into various nets and listened for new prefixes that I hadn't yet contacted.

ule. The challenge was to send an e-mail request for a schedule similar to the following:

E-mail Requests

"Hi, my name is Bill, K2HVN, in northern NH. I am trying to work all the USA prefixes. No QSLs needed. No awards, just for the challenge. I have found it impossible to just search the airwaves for new ones, as I already have over 800, so I am using e-mail to set up skeds. All I need is to exchange signal reports. Should take no longer than two minutes. Are you active? Can I make a sked with you? I can be on almost

The internet was a great asset for me to make initial "non-radio" contact with a station to try to establish a radio sched-

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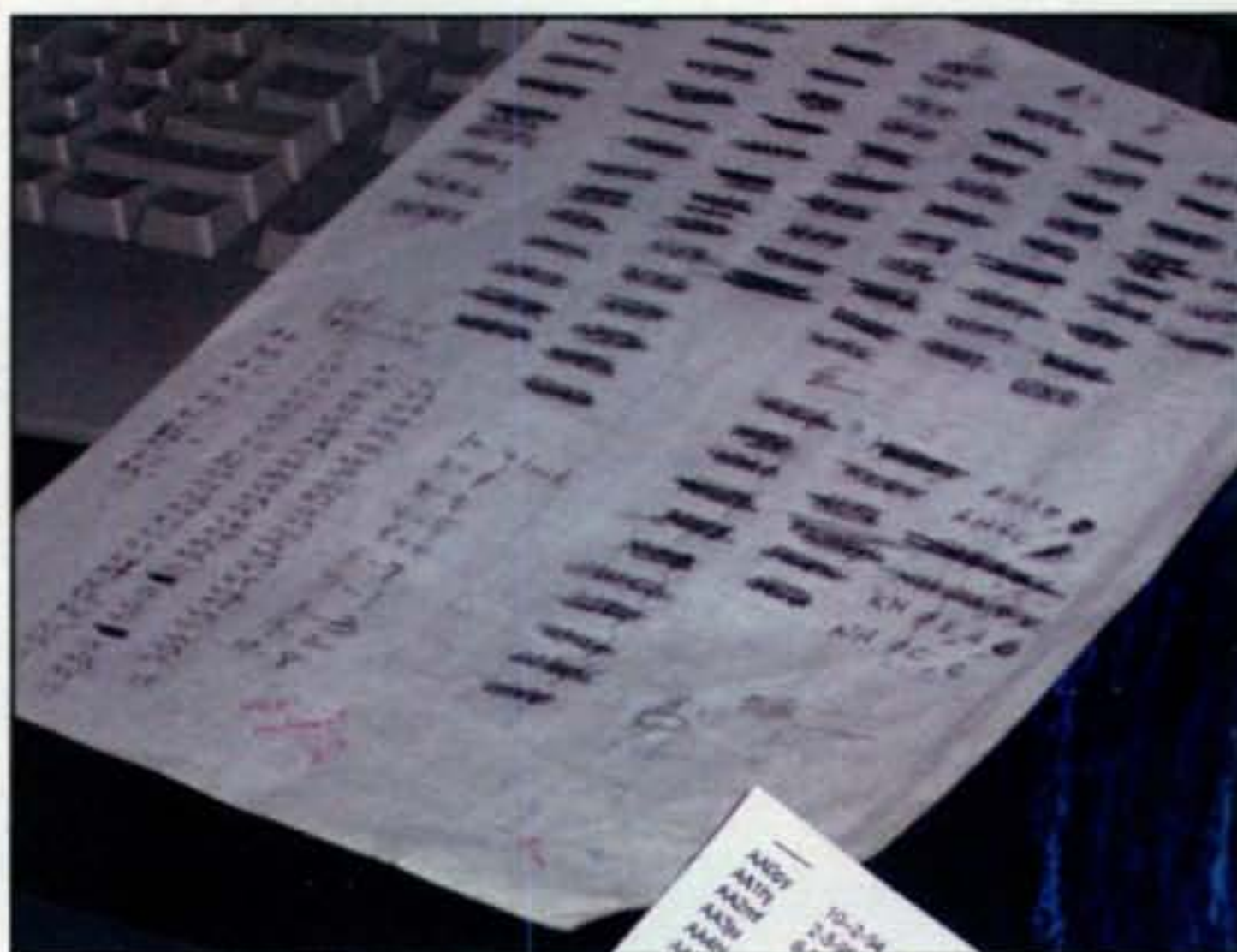
I figured it was a simple request for a short contact to exchange signal reports. Many e-mails were returned as unable to find addressee. Many never responded. Many were not active, some were Silent Keys, one "did not want to get involved with my silly request" (so much for helping a fellow ham), and another two thought searching at random would be the only fair way to do this. However, about 50% of those amateurs to whom I sent e-mails responded with sked information.

Keeping skeds proved a challenge in itself. In order to remember sked times I used a wristwatch with an alarm on it. I also wrote all information about the sked on pieces of paper and scattered them around the house, along with one in my pocket.

More Than Just Contacts

As you might expect, there are some interesting stories from my e-mail exchanges. My fastest time from e-mail request to actual contact was with NW8F, who took approximately four minutes to make radio contact with me. Because my computer is upstairs, I had to run down into the basement to the radio room to make contacts. This up and down stairs proved physically beneficial. One station e-mailed me from Korea that he would be in the states for business and arranged a sked. Another

Closeup of K2HVN's prefix list, on which he crossed off prefixes as he worked them. His complete list of prefixes worked is nearly five pages long, single-spaced, in three columns. The contacts cover a range of 50 years, from 2004 back to some WNs and KNs worked in 1954.



e-mailed me from Antarctica that he was not currently in the states. One ham had no station, so I was trying to arrange a mobile station in his area to go to his house so he could get on the air and give me a signal report with his call. Fortunately, he ended up buying a station and remembered to e-mail me and set up a sked.

The internet just amazed me. I did, however, have some problems. People would return e-mails with information and give me their name but not their call letters, so I had to spend time figuring out what the call was. Sometimes the propagation was poor. Sometimes people, including myself, forgot or could not be on sked time. My biggest problem

was those stations with vanity calls from Alaska, Hawaii, and other places.

Bookkeeping

After I worked a station, I would erase all the e-mails of that particular prefix from my notebook, thereby keeping my list up to date. I also kept a list of prefixes needed for each call area and crossed off each prefix as I worked it. If I hadn't worked a prefix and hadn't heard from the station I e-mailed, I sent an additional e-mail request.

I worked a KH2 in the Florida QSO Party contest, which was a complete surprise. I also tried to listen to as many contests as possible in hopes of working new prefixes. This was at times fruitful. Some of the vanity calls are one of a kind, such as KL9A or KH2D. Working these stations required persistence in sending e-mails, checking contests, sending requests via snail mail, and using contest websites—and last, some luck.

The first call area finished was the 4th on September 5, 2002; the last was the 8th on March 21, 2004. I am still trying to work KH4, KH9, KH0, KP3, WP3, and WP4 to complete my list.

Being retired and available at any time has proven to be a definite advantage, although anyone could accomplish working all prefixes over time. It is not impossible to accomplish, but I don't recommend this challenge for everyone. For me, this has proven to be a very difficult one.

Now that I'm almost finished this challenge, I find myself once again asking, "What next?" I don't know. Got any ideas? (Of course we have ideas. Why not try for our brand-new CQ DX Field Award announced in this issue? — ed.)

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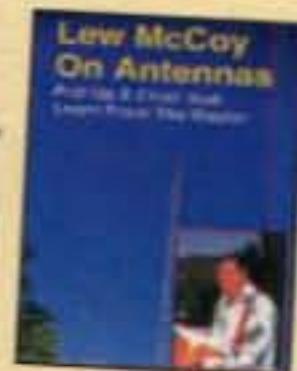
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Results of the 2004 CQ WW VHF Contest

BY JOHN LINDHOLM,* W1XX

Czech Airlines Flight 73 left the Normandy coast, climbed to 30,000 feet, and headed out over the blue Atlantic for America. Jiri's eyelids grew heavy as he dozed off into a deep sleep. (*Jiri is known to us as OK1RI.—ed.*) The next thing he knew he was at the Galactic VHF Conference held at the Quagamaug Tribal Nation Casino, the new home for regular meetings of the Contest Quahogs of Rhode Island (CQRI). The tribal chairman, a newly licensed KB1 and a big fan of the CQ WW VHF Contest, had invited all the contestants to attend the conference with all expenses paid. What a guy! After the contestants settled in to their first-class accommodations at the Cherrystones Hotel, all gathered at the Block Island Ballroom for a discussion of the 2004 CQ WW VHF Contest held July 17-18 and the awarding of plaques and certificates. What a scene to see all these great VHF testers assembled in one room!

Topic One: Propagation

First to speak was N8PVT, who observed, "the contest started out great with the east coast and Canadian maritimes pounding in, but alas conditions quickly eroded." New England's W1RZF added, "Only had E-skip on 6 for the first 30 minutes and the last 15 minutes, but local activity was up from last year." K5QE summed up USA propagation with "sporadic-E on 6 meters was very sporadic . . . but worked some nice DX on 2 meters mid-afternoon both days. Highlight was XE2ORA in DL95 at about 600 miles. Had a great time."

On the European continent, Team OK1KIM experienced the same 6-meter difficulties: "We tried 6 meters this year for the first time in the contest, but the propagation just wasn't there. Two meters did as expected, with better activity this year in EU with over 500 Qs and 87 grid locators. This still doesn't compare to standard Region I VHF contests, but it's getting better."

The consensus surfaced that in a 6- and 2-meter-only contest such as this, for big scores we rely on 6-meter *Es* from the propagation gods. In recent years we've had alternating years of good and flat conditions on 50 MHz, but 2 meters can and should be a bread-and-butter band for contacts, even with no tropo. Certainly, in Europe and Asia big scores can be run up by sheer volume



on 2-meters, but less so in North America. In the USA and Canada the solution is simply more so-called weak-signal activity on the 2-meter band.

Top Scorers Recognized

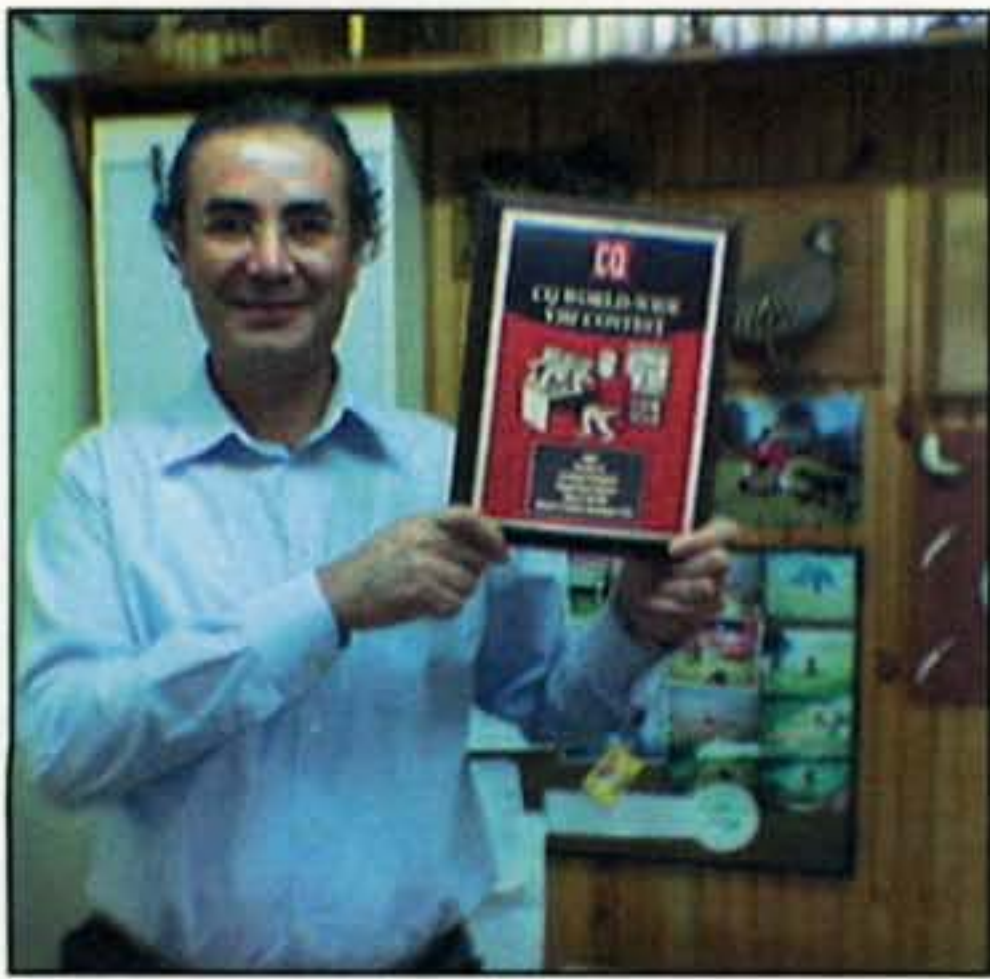
The highlight of the conference was the recognition of the high-scoring stations.

From parts of the world far and wide, most plaque and certificate winners were present. From the USA, Bob, K2DRH, once again trounced the opposition with a dedicated all-band effort of 75K points, gladly accepting his plaque from the contest director. The entire W3SO contest team accepted the multi-op USA trophy, hoisting it ether-ward in Red-Sox-like celebration. They racked up



OK1HGN and OK1RI of Radioklub OK1KIM putting up the 6-meter Yagi just a few hours before the contest. Note the double H-frame 2-meter hardware in the background.

*48 Shannock Road, South Kingstown, RI 02879
e-mail: <w1xx@cqww.com>



TA2RC proudly displays the "production model" CQ WW VHF Contest plaque from the 2003 contest, taking top world 6-meter honors. Ozer, whose 2004 efforts were blanked by "no propagation," vows to be back in the 2005 contest.

67K points from their FN00 mountaintop clubhouse.

On the world scene, the conference was treated to a slide-show presentation of the unbelievable OK1KIM antenna array. The Czech team obliterated all multi-op competition with 156K points, copping the world trophy. This was followed by a power-point presentation on CQ WW VHF contesting in Thailand by Champ, E21EIC, coordinator. It culminated in the plaque presentation to Pranee, E21DKD, top Asia 2-meter single-op scorer for the second consecutive year. The other 2-meter plaque went to DK5DQ, also a repeat winner, with a top world score of 37K points.

All of the certificate winners were called to the stage by CQ Editor W2VU for the presentations.

Golden Galaxy Awards

To commemorate the first Galactic VHF Conference, a new feature for the CQ WW VHF contest was introduced: the awarding of the Golden Galaxy Awards for excellence in various VHF contesting categories. The following contestants were honored for exhibiting the:

Skill of Picasso: Bob, K2DRH, who scored big during "a terrific widespread opening on 6 meters to the northeast in the first hour. Then the band died and never really came back except for short bursts, so I just pounded out contacts and kept moving stations from one band to the other as much as I could." Result? Top single-op all band USA score.

Strategy of Bobby Fischer: Jeff, K1TEO, who, to maximize his effort under less-than-optimum conditions, "focused operating when 6 meters was open for about two hours right at the beginning with another two hours or so at the end. In between I operated in 5- to 15-minute spurts just checking out the bands and making a few local QSOs."

Engineering of John Roebing: The OK1KIM multi-op team, who utilized an

TECH TALK

SSB EXCITEMENT ON VHF AND UHF

There is a lot more going on above 50 MHz than just FM and repeaters. Icom gear like the IC-756PROII and IC-703 Plus add 6-Meters multimode to the extraordinary HF capabilities.

Icom equipment like the IC-746PRO gives you BOTH 6-Meters and 2-Meters in addition to HF, and the IC-706MKIIG gives you high frequency PLUS 6-Meters, 2-Meters, and 70-Centimeters MULTIMODE. The Icom IC-910H is DEDICATED for multimode VHF and UHF capabilities, including the optional 1240-1300 MHz band, too.

"Multimode" for the VHF and UHF bands means added excitement for CW, data, and single sideband DX. This may allow on air practice for a no-code technician class operator on the VHF and UHF bands for CW.



IC-910H

But it is single sideband on VHF and UHF that may offer instant excitement! Try 50.125, upper sideband, and maybe catch some 1,500-mile skywave "skip" in the early morning and early evening hours. Once you make contact, move up the band to around 50.150 to clear the calling channel.

On 2-Meters, you'll find single-sideband, long-range nets around 144.180 through 144.250 MHz. 144.200 MHz, upper sideband, is the call and shift-up frequency. Antenna polarization is normally horizontal, but some sideband nets switch to vertical every few minutes so no one gets left out. Tropospheric ducting could lead to contacts up to 300 miles away!

432.100 MHz upper sideband is where you'll find weak signal calling. Many nets are also found on this frequency; and while horizontal polarization of your antenna is recommended, you should still be able to hear some pretty good DX with a mobile or base vertical.

With the Icom IC-910H, you have full capabilities for satellite communications, all of the weak signal activities on the calling frequencies, and 1296.100 MHz.

VHF and UHF weak signal operators normally run with squelch turned off. "CQ" calls are encouraged on the calling frequency, upper sideband, adding an announcement if you are vertically polarized. Hot times with your Icom multi-mode equipment to get onto a weak signal net is around 6:00 to 8:00 p.m. most evenings.

Icom equipment puts you right on frequency to the hot upper sideband calling channels:

1296.1 MHz, 432.1 MHz, 144.200 MHz, 50.125 MHz

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W3BTX, W3TEF, W3YOZ, and W3SF (left to right) operating the CQ WW VHF at the FN00 mountaintop QTH of well-known multi-op station W3SO.

"experimental" 6-meter antenna on a 13.5-meter (44-foot) boom with front-to-back of over 35 dB, all necessary to negate a 1.5-megawatt TV station "in band" only 80 km distant. Oh, yes . . . There are also seven 2-meter systems with a total of 387 elements!

Determination of Lance Armstrong: Julio, NP3CW, who hung in there on 6 meters "until I made my first 'off island' QSO with K9MS in EM59."

Luck of Texas Hold 'Em's Fossilman: Bob, VE1YX, who took full advantage of the early 6-meter E-skip footprint to Nova Scotia, making 103 QSOs in the first hour and a half of the contest.

Wanderlust of an Airstream: W4VHF/R (+K4LVV), Ted and Itice, once again the champs of the rover set.

The Old Timer

After a 15-minute break for refreshments, the "Old Timer" took possession of the meet-

ing as someone in the back was heard to whisper, "Who is that old codger anyway?" Undeterred (his hearing aid was turned up to the S9 level), the OT launched into his sometimes unsettling views on VHF contesting. However, this time he came loaded for bear, prevailing upon one of the younger newbies to distribute mimeographed (gad, he is old) copies of his "Fifteen Undeniable Truths of VHF Contesting."

Enumerated one by one, some brought cheers from the crowd, while others evoked outrage, nearly causing a melee. By a majority show of hands, it was voted to reproduce the list here for CQ readers to see.

Fifteen Undeniable Truths of VHF Contesting by "The Old Timer"

1. VHF contesting is not obsolete.
2. We have no control over propagation conditions.

2004 PLAQUE WINNERS

Single Operator

USA All Band: Bob Striegl, K2DRH. Donor: Ted & Itice Goldthorpe, W4VHF & K4LVV
USA 6 Meters: Chuck Dietz, W5PR. Donor: Todd Dravland, WD0T
USA QRP: Eugene Gabry, N9TF. Donor: Bob Witte, K0NR
World 6 Meters: Jody Millspaugh, VP5JM. Donor: Dennis Motschenbacher, K7BV/1
World 2 Meters: Nicholas Exner, DK5DQ. Donor: Contest Quahogs of RI
Asia 2 Meters: Pranee Netrattana, E21DKD. Donor: Golden Kilowatt Council In Memory of Hans D. Hollstein, HS0/KA3TDZ

Multi-Operator

USA: Wopsononock Mountaintop Operators, W3SO. Donor: KC1XX M/M Team
World: Radioklub OK1KIM. Donor: Grid Pirates, K8GP

Rover

USA: Ted & Itice Goldthorpe, W4VHF (+K4LVV). Donor: W3SO, Wopsononock Mountaintop Operators

3. The savvy operator remains ever vigilant to make the most of propagation enhancement.

4. Big stations tend to "run." Small stations "search and pounce."

5. Cheating is wrong.

6. Mountaintops make great locations.

7. QRP portable from a mountaintop trumps high power from a lousy home QTH.

8. Rovers are NASCAR enthusiasts.

9. Rovers who grid circle should take a course in linear geometry and have their GPS receivers implode.

10. Calling "CQ Contest" on 50.110 is bad, unless you are 3Y0X.

11. More and more HF operators are discovering the 6- and 2-meter capabilities previously hidden in their transceivers.

12. Especially when conditions are poor, "moving" stations is a necessity.

13. Competition is a good thing.

14. Enjoyment of the contest is the ultimate goal.

15. There *will* be another VHF contest to enter.

Statistics

Last to render his report was Dave, NC1C, chief log-checking programmer and master of VHFSCAPE (VHF Scores for Contest Adjudication—Post Entry). Dave reported that log entries were down 10.5% from last year's number during a time of fantastic conditions. Of 24,480 claimed QSOs, 100% were cross checked for accuracy. Error rates were as follows: Invalid or "not in log" 1.5%; Dupes 0.2%; Busted calls 0.7%; Overall error rate 2.3%. 8028 different stations were reported worked in 531 different grid locators. Many thanks to Bruce, WA7BNM, who made CabForms available to those entering their paper logs on line, thus making log verification much easier.

2005 CQ VHF Contest

Before the CQRI contingent led the masses to the casino portion of the conference venue, all were reminded of the upcoming 2005 CQ WW VHF Contest, July 16–17, with the full announcement to appear in the June issue of CQ and on the CQ website.

Just as the meeting was about to break up, an S9 voice came over the intercom: "This is your captain speaking. Czech Airlines flight 73 will be landing in New York in just a few minutes. Thank you for flying with us. Have a pleasant stay in New York."

The flight attendant gently spoke to Jiri as he rubbed his eyes open: "Welcome to New York, Mr. Sanda. You've been asleep the whole trip."

The entire Galactic VHF Conference had been a pleasant dream . . . but it seemed so real!

73, John, W1XX

QRM

First time I tried operating the contest with another operator. We had to share the computer, but

TECH TALK

IC-746PRO - How to tweak your DSP

Ready for new radio thrills and excitement? Gear up with Icom's new IC-746PRO and experience a totally new dimension in amateur radio enjoyment!

This new generation transceiver delivers unsurpassed DSP performance on all bands and modes, it is affordably priced, and it can also be tweaked to fit your particular operating needs or band conditions at the time. This Tech Talk overviews that concept.

Receive DSP Tweaks. First, you can select a built-in filter bandwidth that is fully adjustable from 3.0kHz to 50Hz for superb sounding SSB audio, copying weaker stations and dodging QRM or



IC-746PRO

Supercharged Performance!

working CW in high style, as desired. Second, you can use the Twin PassBand Tuning controls to further tweak a selected filter's center frequency and width. By adjusting the concentric controls together, a received station's bass, mid range or treble tones can be emphasized. By adjusting them separately (one up, one down), a chosen filter's bandwidth can be sharpened to eliminate "side QRM" lower and/or higher in frequency. You can also menu-adjust the upper edges or shoulders of a filter's response curve and tweak the receiver's bass/treble equalization to mate with your hearing preference. Add in multiple AGC loops which, combined with the IC-746PRO's excellent DSP system, prevent strong adjacent frequency interference from reducing receiver sensitivity or causing "pumping" of receive audio, and you have new millennium performance supreme!

As Ray Novak, Icom's National Amateur Sales Manager, discovered during DXpedition operations from A52RN/Bhutan, copying a weak (S3) signal only 200Hz from a strong (S9+) signal is a cinch with the IC-756PROII... which uses the same DSP engine as the IC-746PRO. Now that is impressive!

SSB Transmit Tweaks. Three choices of transmit filter bandwidths, 2.8, 2.4 and 2.2 kHz plus adjustable microphone equalization let you custom-tailor the IC-746PRO's transmit audio to match your particular voice characteristics. By selecting a wide filter and boosting bass, mid range and/or high tones in that chosen bandwidth, your voice can sound extra-rich and full-bodied — even better on the air than "in person." By selecting a narrow filter and emphasizing upper range/treble tones, you can produce a remarkably strong signal with maximum "talk power" for DXing or communicating under adverse band conditions. Additionally, all filter and equalizer settings are easily changed so the IC-746PRO "has a different face to fit every need."

The Digital Difference. Some amateurs may understandably question how the IC-746PRO's performance is superior to other transceivers of similar power and bandwidth. The answer is using IF level DSP plus ultra-steep skirted filters. Combined, they ensure you hear good and sound great yet stop interference and "splatter" like a brick wall. That is the PRO's advantage and it is terrific! Test-tune an IC-746PRO at your favorite dealer and see for yourself!

Why not? You deserve it!

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QSO LEADERS BY BAND WORLD

Single-Op 50 MHz	Multi-Op 50 MHz
VP5JM.....177	OK1KIM.....86
VE1YX.....138	I2AZ.....48

144 MHz	144 MHz
E21DKD.....592	E20HWD.....531
E20YGG.....499	OK1KIM.....527
HS6RMY.....467	HS1LLT.....495
	E29AQ.....493
	E21TOY.....476

USA

Single-Op 50 MHz	Multi-Op 50 MHz
W5PR.....304	W3SO.....293
N3HBX.....281	W3ACH.....234
W2MMD.....251	K5QE.....228
K2DRH.....241	
NW5E.....232	

144 MHz	144 MHz
K2DRH.....180	W3SO.....167
W4GRW.....163	W3ACH.....160
N3HBX.....113	KB1DFB.....140
K1TEO.....102	

things were slow, so it was no problem . . . **AD4F**. Slow going but it was still fun . . . **AG2A**. This was my first VHF contest. Happy to QSO many stations. See you next year . . . **E29YLM**. Congratulations to E29AQ special event callsign for the 2004 CQWW VHF. This contest is very popular for Thai hams, where we can only use FM mode . . . **E21EIC**. Best DX was OK1KIM at 846 km . . . **F6IFR**. First time in the contest. Enjoyed it but not enough stations worked . . . **I2AZ**. Hoped for some aurora and more Es. Heard NW5E and KC4PS on 6 meters several times but no other skip activity . . . **KØIO**. Conditions not quite the same as last year . . . **KØJJM**. Best 6-meter DX QSOs were VP5KE and WQ5W, both at about 970 miles from me . . . **K3IXD**. Poor conditions but worked some new grids . . . **K9DXR**. Even though I've been a ham for 25 years, this is the first contest I have ever entered. Band conditions didn't seem great, but had fun nevertheless. Ran just 5 watts and operated only three hours of the six allowed in the single-op, portable, time-limited class . . . **KA3EJV**. Great Midwest opening at the start of the contest . . . **KB1DFB**. Had fun trying out the new rig during nice band openings on 6 meters both days . . . **KB8JVH**. With no enhancement on 6 meters in southern California, did much better on 2 meters than on 6. Heartfelt thanks to the larger than usual number of portable and QRP stations giving out extra points by visiting additional grid squares . . . **KG6IYN**.

Six meters finally opened up the last two hours of the contest. It was great! . . . **KJ5RC**. Only half of last year's score with no openings, but just as much fun even with the usual lightning storms up there at 14,000 feet which kept me off the air for over an hour of the six-hour time limit. Thanks to the rovers' efforts for the score boosts . . . **NØLX**. My QRP plans all went south when my 6-meter transceiver died. So fired up the 8877 on 2 and pair of 500Zs on 6, along with my Yaesu FT-847, to a brand-new 2-meter array for a good test of my big-gun station. At the contest start we got just a wink from the propagation gods on 6 meters into FN-land . . . **NØURW**. New to 6 meters. Just tun-

GRID MULTIPLIER LEADERS BY BAND WORLD

Single-Op 50 MHz	Multi-Op 50 MHz
VP5JM.....54	OK1KIM.....50
EH6VQ.....43	I2AZ.....19

144 MHz	144 MHz
DK5DQ.....66	OK1KIM.....87
HS6RMY.....22	F6IFR.....76
OM5MX.....20	I2AZ.....34
E21DKD.....19	

USA

Single-Op 50 MHz	Multi-Op 50 MHz
NW5E.....107	K5QE.....86
W5PR.....93	W3SO.....67
K1TOL.....87	W3ACH.....56
K2DRH.....77	W3DOG/4.....50
NL7AU.....71	W1QK.....46

144 MHz	144 MHz
K2DRH.....48	W3ACH.....43
K4QI.....36	W3SO.....41
N3HBX.....31	K5QE.....35
K1TEO.....27	KB1DFB.....31
KB8U.....27	

ing around and heard the activity, so I figured I'd give out a few contacts. Had fun. Next time I'll really participate . . . **N2NZD**. Apart from the first couple of hours when there was some sporadic-E, rates were slow . . . **N3HBX**. Six was open to EL29, EM31, and EM42 for more than an hour starting around 1900Z, but worked only one station in each of those grids and heard no others in those or adjacent grids at any time during the opening. Get on the air, people! . . . **N3UM**. Only DX was VP9 on 6. Few small openings to FL, LA, TX, and New England . . . **N4MM**. Did catch VP9/WA4PGM in a short burst on 6 meters . . . **N8IE**. Generally the conditions were pretty bad for July, but the local competition amongst Florida stations was fairly intense . . . **NW5E**.

Best DX was CT1BXT in IM59xx at 1707 km . . . **PAØJNH**. As usual, one of the best contests of the year. The 6-meter band opened up twice for me, so I pounced on it with my low-power station . . . **VE1SKY**. We operated from a ridge in the middle of nowhere (Colorado). Heavy rain delayed our set up and we had to shut down for several hours because of lightning. For the first time we tried meteor scatter using WSJT. It worked like a charm and we put four additional multipliers in the 2-meter log, the farthest at 1250 miles! Can't wait 'til next time! . . . **VO1NO/WØ**. At the end of the test, it was fun to hear K2DRH, KØHA, and NØURW rise out of the noise floor, then fade when the band went flat. Thanks to all the well-known HF contesters for showing up on 50 MHz . . . **W2MMD**. Now have 20 states and VE, C6, VP5, and HI worked . . . **W3QY**. The best 6-meter DX was EL94 to the south, EM03 to the west, and FN74 to the north. The best 2-meter DX was EM79 to the west, FN04 to the north, and FM05 to the south. Where were the rovers? Only 23 rover Qs out of over 400 total. From the start until 0300Z we were very busy, followed by a steady pace until 0600Z, and didn't pick up again until 1015Z . . . **W3SO**. Had lots of fun. Can't wait 'til 2005 contest . . . **W4GRW**. Two meters saved the day . . . **W6KA**.

Biggest thrill was working W4VHF/R in EM96 in Virginia from EM74 in Alabama . . . **WB4WXE**.

First time to participate in a VHF Contest . . . **WK4Y**. I was in DM12km QTH. Little propagation but had great fun in the contest . . . **XE2ORA**. Worked K2DRH Sunday morning on 2-meter WSJT after setting up a sked during a 6-meter Q on Saturday. This is a fun contest when the band is open. Let's hope for better conditions next year . . . **K1TEO**. I never worked any station west of 100 degrees except one XE. I had no problem to the east, working several VE1's and the VP9 called in also. Managed a 70 hour just before the end of the contest to finish with a flourish . . . **W5PR**. Made two WSJT skeds with K7BV/1 and K1TEO and both went very fast since we were all running high power. Six meters opened near the end of the contest to the extreme northeast FN grids, but I soon worked all dozen or so stations that were on from there. I did have a moment of pure joy looking for an opening to the south when I heard Neal, K4EA, calling me. But it was just scatter and Neal's skill in operating allowed us to make the QSO. This ended the contest with a much lower score than last year . . . **K2DRH**.

TOP SCORES WORLD

All Band	HS6RMY.....20,548
OM5MX.....3,151	E20YGG.....12,974
SQ6ELV.....2,006	

6 Meters	Rover
VP5JM.....9,558	HS6MYW.....4,466
VE1YX.....8,418	HS9LPV.....1,632
EH6VQ.....2,924	

2 Meters	Multi-op
DK5DQ.....37,356	OK1KIM.....156,180
E21DKD.....22,496	F6IFR.....59,128
	HS7ZUW.....16,644
	E20HWD.....15,930
	I2AZ.....14,310

USA

All Band	N5ITO.....1,568
K2DRH.....75,125	N5KDA.....1,334
N3HBX.....49,686	
K1TEO.....33,532	
NW5E.....31,320	
W4GRW.....24,695	
KB8U.....22,126	
K4QI.....21,120	
K4EA.....15,836	
NØURW.....15,768	
N4MM.....13,384	

6 Meters	QRP
W5PR.....28,272	N9TF.....5,580
K1TOL.....18,357	K9AKS.....5,472
W2MMD.....14,307	
NL7AU.....14,271	
N4BP.....7,040	

2 Meters	Rover
W6AXX.....1,900	W4VHF.....24,806
	K9JK.....12,768
	WB8BZK.....9,752
	K3UHF.....9,306
	W6KA.....8,745

6 Meters	Multi-Op
W5PR.....28,272	W3SO.....67,716
K1TOL.....18,357	W3ACH.....54,846
W2MMD.....14,307	K5QE.....45,254
NL7AU.....14,271	KB1DFB.....31,974
N4BP.....7,040	W1QK.....13,224

Expanded CQ WW VHF Results

For a listing of the ops and grids activated by the rover stations in the 2004 contest, plus the operators of the multi stations, go to <www.cq-amateur-radio.com>, to the Contests section, to "Expanded Results of the 2004 CQ WW VHF Contest."

Optical FM

Frequency modulation (FM) is easy to achieve at "normal" radio frequencies by a number of methods. One can employ variable-capacitance diodes (varicaps) driven by audio voltages across an oscillator tuned circuit or use the same audio signal to vary the bias of the transistor used as the actual oscillator. This causes variations in the internal capacitance of the transistor and varies the oscillator frequency as well. In short, FM is a well-known (and commonly used) technique and has been for many years.

When one tries to do this at optical frequencies (in the THz region), however, the task is not quite so simple or straightforward. Keep in mind that an FM-modulated optical signal (when in the visible range) is in reality a color-modulated signal. As a result of the difficulties for the average experimenter to achieve "conventional" optical FM, we would like to present a technique this month that, to my knowledge, has not been tried before. Because it is so simple, however, any experimenter with moderate skills should be able to easily duplicate it. The technique we are about to describe makes use of the Doppler effect.

For those not familiar with the Doppler effect, it simply means that as one moves toward a source of RF, the frequency of the RF tends to increase. Conversely, as one moves away from a source of RF, the frequency tends to decrease. In addition, the amount of frequency shift is a function of the speed of movement of the observer.

If we use sound as an analogy, the Doppler effect is the reason why as one approaches a railroad crossing the pitch of the warning bells at the crossing rises, and as one leaves a crossing, the pitch decreases. In the optical domain, astronomers use this same effect to measure the speed of stars. Here it is called the "red shift" and relates to the color of a star, but in reality it is the same.

*c/o CQ magazine

Remember that color is simply the result of certain optical frequencies (in the THz region) acting on our sense of sight, but these frequencies still are truly electromagnetic in nature. Therefore, by carefully analyzing the degree of red shift, astronomers can tell whether a star is moving toward us or away from us and at what speed. All of this is of course proven technology and is in use every day.

Those who track amateur satellites are also well aware of the Doppler shift, since it requires that one constantly retune one's receiver as the "bird" passes overhead from horizon to horizon.

Now consider what would happen if we were to take a beam of light at one single color (wavelength or frequency, as you prefer) such as might be produced by a laser and move it toward or away from an optical receiver. Doppler theory indicates that as the beam moves toward the receiver its frequency should increase, and as it moves away it should decrease. Furthermore, if the speed of movement is in step with an audio signal, the frequency variation will also be in step with the audio. The result is clearly optical FM and is the technique that we will employ.

Fig. 1 is a diagram of the proposed FM optical modulator. An inexpensive laser diode is used as our optical source and is arranged so that its output beam shines directly on a small mirror cemented to the center of the voice coil of a small loudspeaker. The speaker is in turn connected to a simple audio amplifier and microphone. When one speaks into the microphone, the speaker vibrates and the mirror moves toward or away from the laser. This causes the beam of light from the laser to be "pushed" or "pulled" as it leaves the mirror. Because of the Doppler effect (or red shift, if you prefer), the color of the light changes slightly but in complete step with the audio. Since the amplitude of the beam does not vary, there is no significant AM component in the resulting signal, only pure FM. It is important to note that the mirror must be

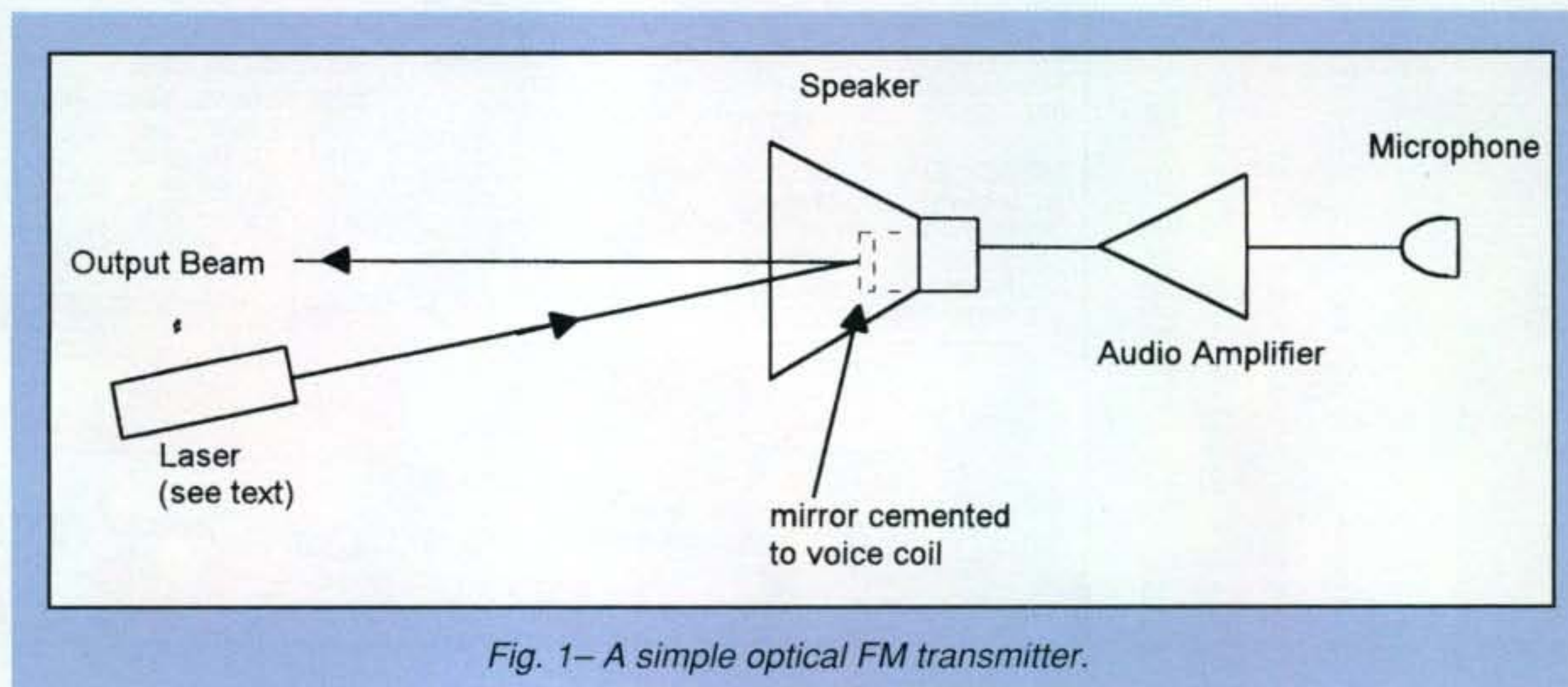


Fig. 1—A simple optical FM transmitter.

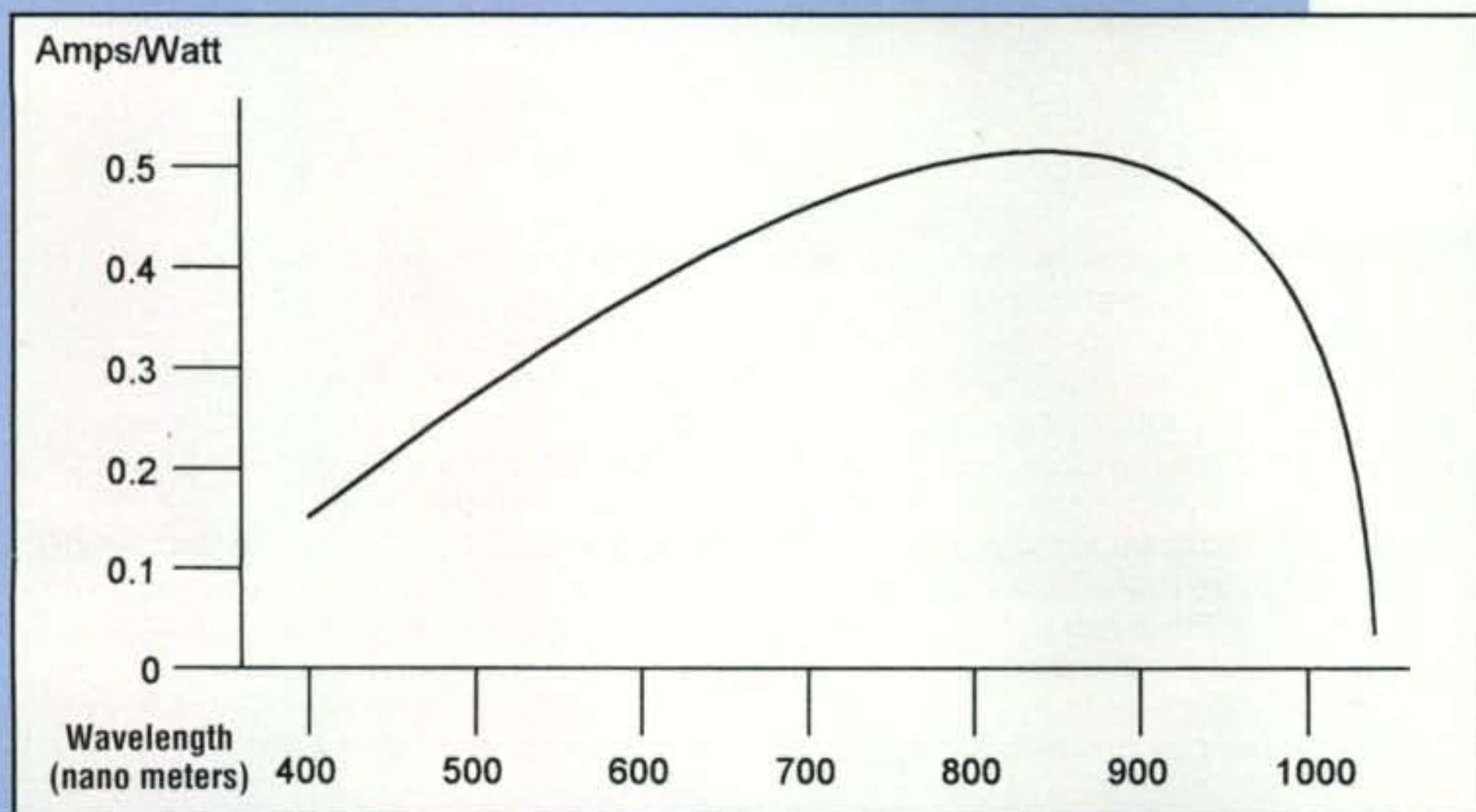


Fig. 2— Approximate response curve for silicon photo diodes.

moving constantly for the Doppler effect to take place. If you tried to transmit CW this way, as soon as the mirror stopped (between a dot or dash, for example) the frequency shift would be lost. This is truly an AC-coupled system without capacitors! Pretty simple, huh?

Now to detect the FM signal. Fig. 2 is a diagram of the spectral response of a common silicon photodiode. You will notice that the current produced by the photodiode is a function of the wavelength of the light applied to the diode. This is why the sensitivity of such devices is always given in terms of "amperes-per-watt" at a particular wavelength (usually the most sensitive

point). You will also notice that the response curve is not a straight line, but has a varying slope throughout its entire sensitive region. Certain areas such the one between 900 nm and 1000 nm (1 micron) are quite steep, while other areas, such as the one around 660 nm (the wavelength of laser diodes used in many inexpensive pointers), are not very steep. If light striking this photodiode were to vary in frequency (wavelength) at a point on the response curve where the slope was steep, the current produced by the diode would also vary significantly. This is called *slope detection*, and is the method we will use to detect the FM-modulated audio signal.

Fig. 3 is the schematic diagram of the optical FM receiver. For this example we have used a silicon photodiode coupled to an operational amplifier configured as a current-to-voltage converter. The output of the op-amp is a voltage that varies in accordance with the variation of current produced by the photodiode. The voltage is then applied to an LM386 audio amplifier, which in turn drives a speaker or headphones. If the frequency of the light is chosen to be in an area where the output slope is steep, enough recovered audio should result to allow clear communications.

When building such a system you must be very careful to assure that there is no mechanical vibration and that the laser-to-mirror distance is ultra-stable. You want to be sure that only the moving mirror is acting on the light beam. You should also be careful that the resulting beam of light is not varied in position (scanned) by the action of the mirror. It must be absolutely on-axis so that the only variation in the output beam is the "pushing and pulling" of the mirror. If this is not done, some AM will creep into the system.

Well, there you have it. By the proper choice of laser and photodiode you too should be able to implement a true optical FM system (or maybe velocity modulation would be a better description). We would love to hear from those of you who try this and will be sure to publish all reasonable accomplishments next April! 73, Irwin, WA2NDM

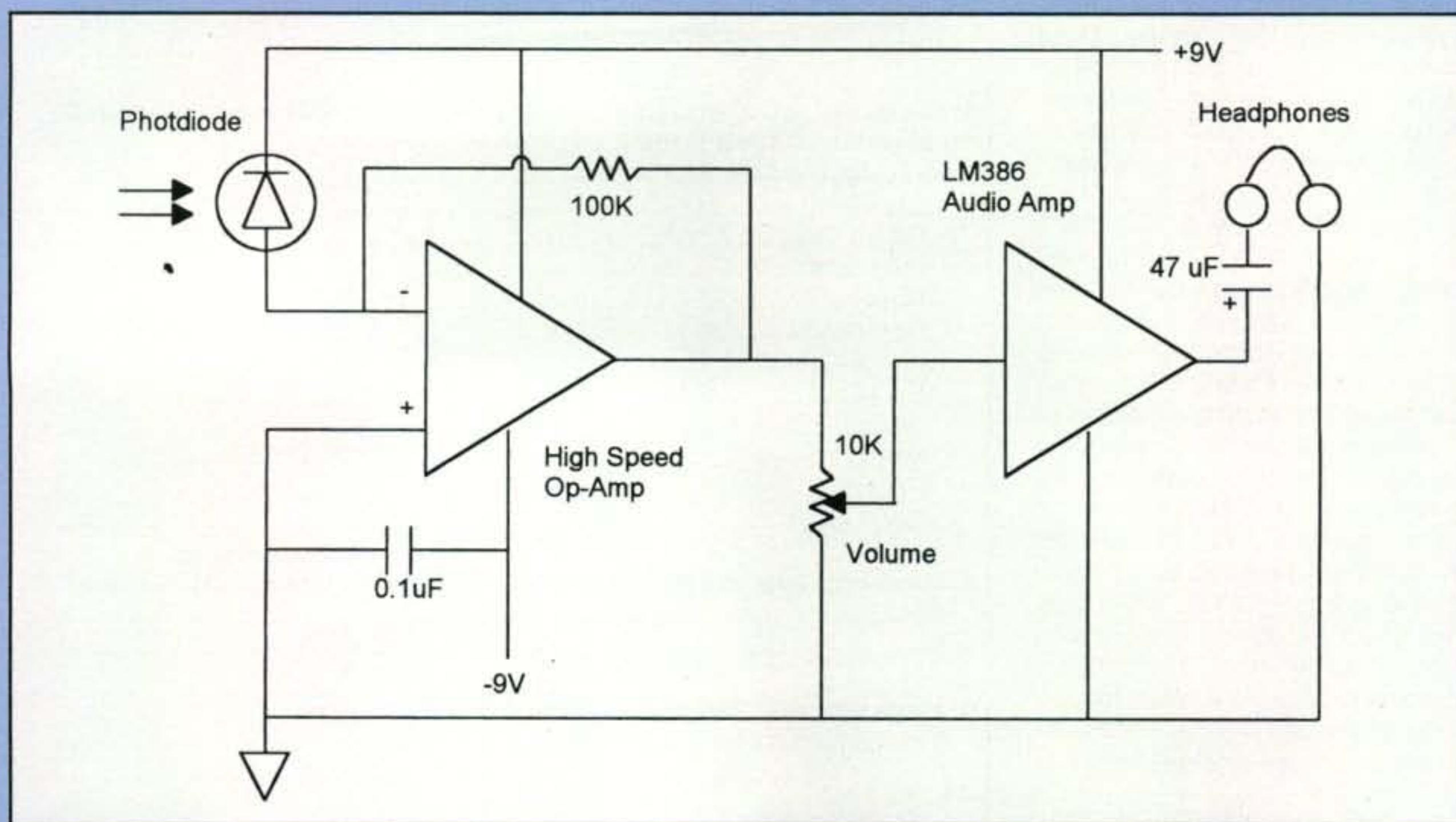


Fig. 3— An optical FM slope detection receiver.



What You've Told Us...

Our January survey asked how you feel about ham radio's future, and most of you are quite optimistic. A majority, 56%, believe amateur radio will still be here 60 years from now, and 76% of you believe it will still be here 30 years from now. The next biggest groups were "unsure"—24% about 2065 and 14% about 2035—followed by 20% who feel there will be no ham radio in 60 years and 7% who believe we'll all be off the air within 30 years.

We next asked what would be the most likely culprit if ham radio ceased to exist within the next 30–60 years. The largest number of you, 28%, said you're certain ham radio will still be here; followed by 24% who think lack of interest will kill off our hobby; 22% who feel our frequencies will be lost to commercial interests; 12% who are fearful of interference from competing spectrum users, such as BPL; 11% who think it will be something as yet unforeseen; 6% who think the government is likely to shut us down for security or other reasons, and 2% who say they don't know.

The next group of questions assumed that amateur radio will still exist in 30 years ... and 76% of you believe there will be no code test requirement for any ham license in 2035 (interestingly, 14% of you think there still will be); 58% feel code will still be used on the air, but only by very few hams, while 33% believe a significant number of hams will still be using CW, 4% say code will be gone, and 2% are unsure. Looking at voice modes, 46% of you think today's major analog modes—SSB and FM—will still be used by a significant number of hams in 2035; another 39% say yes, but by very few hams (kind of like AM today); 4% say no and 6% aren't sure. On the other hand, two-thirds of you (66%) think the majority of amateur communications 30 years from now will be digital (including digital voice), while 18% are unsure and 16% say no.

Nearly three-quarters (74%) of you think the HF bands will still be used by a significant number of hams in 2035, while only 11% say no and 13% are unsure. Finally, on the question of whether a significant number of hams will have migrated to digital networks on the microwave bands 30 years from now, 40% are unsure, 36% say no, and 27% say yes.

Thank you for your responses. This month's free subscription winner is Craig Malik, N2CWM, of Staten Island, NY.

Reader Survey April 2005

We'd like to know more about you—about who you are, where you live, what kind(s) of work you do, and of course, what kinds of amateur radio activities you enjoy. Why? To help us serve you better.

Each time we run one of these surveys, we'll ask a few different questions and ask you to indicate your answers by circling numbers on the Survey Card and returning it to us. As a bit of an incentive, we'll pick one respondent each month and give that person a complimentary one-year subscription (or subscription extension) to *CQ*.

This month, as we introduce our first of three new programs designed to encourage more DXing, we'd like to pick up where February's DXing survey left off and ask some questions specifically about DXpeditions, or trips for the purpose of generating ham activity from remote locations.

Please answer by circling the appropriate numbers on the reply card.

1. Have you ever contacted a DXpedition station?

Yes	33
No	34
Not sure	35

2. Thinking back to your most recent attempt to contact a DXpedition station ...

a) ... were you successful?

Yes	36
No	37

b) ... approximately how much time did you spend trying to make your contact?

No wait, got right through	38
Less than a minute	39
1–5 minutes	40
5–15 minutes	41
More than 15 minutes	42

3. Thinking back to the most recent DXpedition you contacted successfully, did you attempt to make additional contacts with the station on ...

a) ... additional bands?

Yes	43
No	44

b) ... additional modes?

Yes	45
No	46

4. Generally speaking, how would you rate the QSLing practices of most recent DXpeditions...

a) ... via the QSL Manager?

Excellent	47
Good	48
Mediocre	49
Poor	50
Don't know	51

b) ... via the QSL Bureau system?

Excellent	52
Good	53
Mediocre	54
Poor	55
Don't know	56

5. Have you ever made a financial contribution to support a DXpedition?

Yes	57
No	58

6. Have you ever been ON a DXpedition?

Yes	59
No	60

Thank you very much for your replies. We'll be back with more questions next month.

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The FCC is in the process of developing rules that will mandate the administration of psychological tests to new amateur radio applicants as well as to operators applying for the renewal of their licenses.

A CQ Exclusive:

Psychological Testing of Amateur Radio Applicants... The Cure for Spectrum Rage

BY PROFESSOR EMIL HEISSELUFT*

Lauton Institute, Grossmaul-an der Donau, Austria

<heisseluft.emil@mashuga.orf.ar>

Many have long suspected that there are a few among us—perhaps more than a few—who, for whatever reasons, seem unable to restrain themselves from deliberately interfering with the on-the-air activities of their fellow hams. Now in this exclusive article prepared for CQ, Professor Heisseluft reports that the FCC is in the process of writing rules that will require applicants for new amateur licenses, as well as current licensees seeking to renew their licenses, to undergo psychological exams. The test results will be used for the purpose of determining a person's psychological profile and fitness for accessing the airwaves. New applicants who fail the psychological exam will have to wait a year before reapplying. Operators already licensed but who fail the exam will be required to surrender their licenses for a year, and then to retake the psychological exam and all elements of their licensing exam before being allowed to return to the air. The majority of radio amateurs are pleased that relief finally is on the way from those operators who have long displayed the effects of "spectrum rage." Given the urgency of the matter, the new rules will take effect without the usual issuance of a Notice of Proposed Rule Making (NPRM).— W2VU



The Lauton Institute's Directorate for the Study of Human Abnormalities is housed in the old castle near Schloss Schonbuhel.

We all have heard them! They are the so-called "operators" who deliberately tune up on top of an ongoing exchange (or, as you say, a "QSO"), interfere with the on-the-air operations of an expedition to a distant land, act as "policemen" during major DX operations, pirate call signs, jam a net, and simply appear to have no other purpose in life other than to inflict their immaturity, lack of self control, and psychological problems on the law-abiding oper-

* Professor Heisseluft is in Austria, where he is working with the Lauton Institute's Directorate for the Study of Human Abnormalities to develop psychological tests for the U.S. Federal Communications Commission (FCC). Mail may conveniently be sent to the professor c/o CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801.

Characteristics of a Personality in Distress	Characteristics of a Well-Adjusted Personality
Undisciplined	Self-disciplined
Dominant	Not assertive
Cold	Affable
Self-doubting	Self-assured
Angry	Calm
Tense	Relaxed
Driven	Paced
Impatient	Patient
Suspicious	Trusting

Table I—Distressed individuals exhibit at least three of the characteristics shown in the left-hand column.

ators of your nation. For lack of a better term, we at the Lauton Institute have come to call this behavior *spectrum rage*. So serious is the matter that at the request of the U.S. Government, we are assisting in the development of psychological tests that will be used to evaluate new applicants for amateur licenses as well as all radio amateurs applying for renewals.

Stress and Various Forms of Rage

The debilitating, stressful effects of modern society can be found everywhere today. Consider, for example, that the capabilities of roadways in many urban areas have been stretched to the limit, with major thoroughfares often carrying up to four times the amount of traffic for which they were designed. Trips that may have taken 15 minutes even three years ago now can take 30 minutes or more, and once you have arrived at your destination, there is no assurance you even will be able to find a parking space. Public transportation in some cases offers no relief, with buses, subways, and trains overloaded to the point that would-be passengers literally are left at the curb or trackside, forced to wait for the next conveyance. Is it no wonder that civility is rapidly becoming a fond memory of those times when people showed each other the little courtesies that are so important to defining a society!

So, too, have the airwaves become overcrowded. Amateur radio's greatest strength—its diversity—also may be a root-cause of the service's often-seen descent into on-the-air anarchy. Long gone are the days of tolerance among operators having different license classes and using different modes (*although some claim that it never existed!—ed.*). Just the mention of no-code licenses, CW, and the like is enough to trigger an argument, oftentimes violent. Worse, on-the-air activities that result in significant levels of high-power operations—including, notably, contests and expeditions—produce crowding of epic proportions, with such activities often taking up entire bands. No wonder, then, that those among us who are unable to control their destructive impulses turn to deliberate interference as a means of venting their anger... anger that we now have come to call *spectrum rage*.

Psychological Traits

The Lauton Institute's Directorate for the Study of Human Abnormalities (see figure) has long studied the human

manifestations of stress and the characteristics of the human personality that make a person more likely to exhibit negative behavior.

Based on tests performed over the last ten years on people in all walks of life and with varying degrees of both formal and informal education, we have come to identify personalities in distress as displaying the characteristics shown in the left-hand column of the accompanying table. Better-adjusted members of society exhibit the characteristics on the right-hand side of the table. The key to identifying those with per-

sonalities in distress—and hence, those more likely to evidence spectrum rage on the air—is to develop and test an appropriate psychological test based on these findings. This is exactly what the Lauton Institute's Dr. Jerzy Ostermond-Tor¹ did in the early 1980s.

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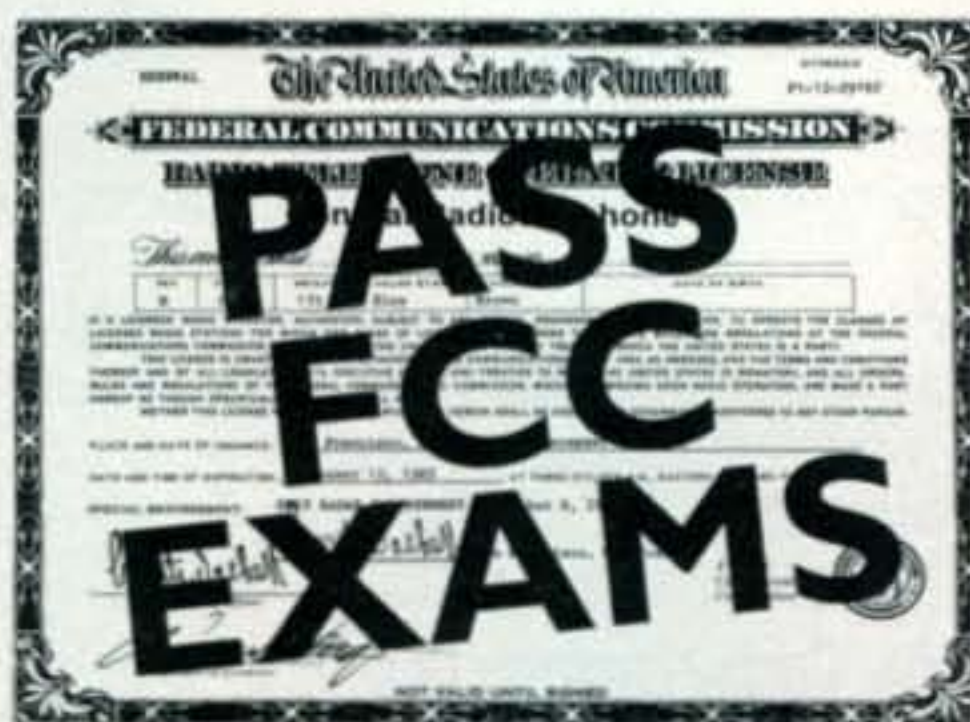
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Whip Length- 34"

Total Length of Antenna in 6mt position- 50"
Total Length of Antenna in 80mt position- 56"
Freq. Coverage Continuous- 6mt thru 80mt
Power Rating- 200 watts P.E.P.
Typical SWR- 1.5 or less
Weight- 1.9 lbs.



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at the Lauton Institute in the early 1980s. The test has been optimized over the last 24 years by administering it to more than 20,000 individuals worldwide. Here is how Dr. Ostermond-Tor described his test at a recent symposium in Zurich latelast year:

Diese Prüfung ist unter das komplizierteste noch ausgeprägt entwickelt. Es vereinigt Kenntnis psychologischer Anomalien geentwickelt, raffiniert, und hat durch einige von den Hauptforschern im Feld, einschließlich Breuer, Freud, Charcot, Nietzsche, und Skinner kodifiziert. Das Max Planck Institut für Menschlich Kognitiv und Gehirnwissenschaften (Max-Planck-Institut für Kognitions- und Neurowissenschaften Arbeitsbereich Psychologie, München) haben die Prüfung durch die Abschätzung von mehr als 20.000 Themen bestätigt. Die Prüfung wird unbedingt garantiert, das "Looney Toons" unter der allgemeinen Bevölkerung zu identifizieren, erleichternd dadurch die frühe Anerkennung der Persönlichkeiten in Not.²

ADA Will Not Apply

The new licensing requirements described here, as currently being developed by the Commission, are *not* subject to the terms of the Americans with Disabilities Act, Public Law 336 of the 101st Congress, enacted July 26, 1990. Those familiar with the act will recall that if emotional competencies ("behavioral attributes") for a given activity or position are specified, as they now will be for holders of an amateur radio license, no special treatment is required. Basically, under the new rules, when enacted, requests for accommodation based on emotional disability will be considered inconsistent with licensing requirements in the Amateur and Amateur-Satellite services, and therefore, no accommodation will be forthcoming. New applicants for amateur licenses who fail the test must wait a year to reapply. Those operators who fail the new psychological test at the time they apply for renewal will be required to surrender their licenses and wait a year before reapplying. At that time, too, these operators will have to retake the psychological exam, and if they pass, then they will be required to achieve passing scores on all exam elements for the amateur class of license sought.

Summary

The Federal Communications Commission, justly concerned about spectrum usage on the amateur bands, will enact new rules that require license applicants and currently licensed operators to pass a psychological exam at the time they

seek new licenses or renewals of their existing licenses, respectively. For those currently licensed, failure to pass this exam will automatically result in the suspension of all privileges. It will be possible to retake the psychological test in a year, and those passing it at that time then must pass all written elements and the code test (if applicable) for the licenses they seek. Those operators previously licensed who wait more than two years to retake their psychological and license exams risk losing their former call signs. Terms of the Americans with Disabilities Act, Public Law 336, do not apply. The rules will take effect immediately upon approval of the Commission, with no public comment possible. This is but one action being taken by the Commission to rid the bands of those who have no respect for the privileges granted them.

Notes

1. Dr. Jerzy Ostermond-Tor (ex-YM4XR) was my teacher and mentor for many years at the Lauton Institute, and today he holds the title of Professor Emeritus. He is much respected around the world for his many contributions in a variety of fields, including biotechnology, nanotechnology, and digital communications. In this regard, and despite the claims of former U.S. Vice President Gore and others, it is Dr. Ostermond-Tor who is recognized universally as the Father of the Internet. In his seminal article "Special Subscriber Service: The Telephone Company's Answer to Amateur Radio" (CQ, April, 1967, pp. 24-26), Professor Ostermond-Tor described a future system in which telephones replaced transmitters, receivers, and antennas; licenses would no longer be required; and there would be no more inter-station interference or frequency congestion problems.

2. *Translation:* This test is among the most complicated yet incisive ever developed. It incorporates knowledge of psychological abnormalities developed, refined, and codified by some of the major researchers in the field, including Breuer, Freud, Charcot, Nietzsche, and Skinner. The Max Planck Institute for Human Cognitive and Brain Sciences (Max-Planck-Institut für Kognitions- und Neurowissenschaften Arbeitsbereich Psychologie, München) has validated the test through the evaluation of more than 20,000 subjects. The test is absolutely guaranteed to identify the more distressed individuals among the general population, thereby facilitating the early recognition of personalities in distress.

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Announcing:

The Eighth Annual CQ National Foxhunting Weekend May 7-8, 2005

plus

Results of the 2004 NFW

BY JOE MOELL,* KØOV

“A foxhunt is a chess game in the field!” That’s how Steve Gingo, KB2RMS, describes an activity that continues to gain in popularity with hams around the world. No, it’s not the ancient hare-and-hounds sport that’s being banned in the UK; it’s a game of hide-and-seek with radios that is equally exciting in vehicles and on foot.

Steve continues, “Not only do you have to get the bearings, translate them to the map, and go, you also have to have some idea of the roads, terrain, and possible locations where the fox could be hidden. Can it be frustrating? You bet, especially the first time.” He’s right, but it’s the same as learning any new skill. It’s a downer when it doesn’t go well, but it’s a big thrill when you succeed.

The CQ National Foxhunting Weekend (NFW) is an opportunity to experience the thrill of tracking hidden transmitters for yourself. Get together with other members of your local radio club and give it a go. First, though, read the stories from last year’s NFW that follow. They will give you some good ideas for your own NFW adventures.

As I searched through the 2004 reports, it was clear that not one of them

was completely representative of them all. The only thing that they all had in common was a search for the source of one or more signals using radio direction-finding (RDF) techniques. Some hunts were all mobile, some all on foot. Some were a combination, and one wasn’t even on the ham bands! Many included non-hams and would-be hams.

Calling All Cars!

Mobile transmitter hunting first became a form of ham radio contesting about a half-century ago. First it was on 75 meters, then 10 meters, and later on the 2-meter band, where most hunts take place nowadays. In its simplest form one ham drives to an “interesting” location and puts a signal on the air. It may be continuous or intermittent, on a repeater input or a simplex frequency. Starting from a common location or from their favorite high spots in accordance with the rules, the hunters head out and try to be first to locate the hidden “fox.”

Portable receiver and transmitter technology has made great advances since the mid-20th century days of tubes, dynamotors, and vibrator power supplies, but many mobile hunts still use the same basic format. An example was the rural Indiana event put on by Michiana Amateur Radio Club of South Bend.

“I was hidden in western St. Joseph County,” wrote hunt master Bob Kasa,



Billie Kerouac, K9QT, is a regular at Kankakee, Illinois mobile foxhunts with her OM Don, K9NR. Many of the Kankakee hunters use two-element quads lashed to the vehicle like this. (Photo by Clay Melhorn, N9IO)

W9OGZ. “The little laid-back hamlet of Lydick is a pleasant area, without massive numbers of cars, stores, and angry people. I was next to Quince Road behind a big overgrown pile of dirt in the parking lot of a grade school that is long

*ARRL ARDF Coordinator, P.O. Box 2508, Fullerton, CA 92837
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gone. You could drive right up to me but not be seen from the road."

The format was similar for the Kankakee Area Radio Society (KARS) in Illinois. As he has for many years, Clay Melhorn, N9IO, sent a NFW report with several photos. This hunt also ended up out in the country.

Clay wrote, "When Cindy, N9IOQ, and I reached the fox's lair, a floral scent was very apparent from the moment I exited my vehicle. We were downwind from a large group of old lilac bushes. Words can't express how strong the aroma was. It reminded me of my home as a boy."

Rather than score the hunt by order of arrival as in the past, KARS now gives the prize to the team that puts the fewest miles on the odometer. According to N9IO, "The driving factor for the change (no pun intended) was the safety of the young hunters, including our son and daughter.

"The seasoned veterans of KARS all agree that scoring by mileage has actually made the hunts more challenging in terms of accuracy required in the decisions you make each and every step of the way. The added safety is tremendous. The hunts are much more laid back and relaxed. I've been able to stop at a fast-food restaurant to use the facilities during a hunt. There is no time loss to contend with, only the mileage to enter and leave the parking lot."

Mileage scoring is also preferred by mobile RDFers in the Los Angeles area, who prefer to call the sport "T-hunting." There is a T-hunt on the first, second, and third Saturday night of each month and an "All Day" hunt on the fourth Saturday, all scored by mileage. Sometimes the hidden T is in someone's vehicle, plainly visible when you get close. However, as often as not, it's necessary to go on foot and "sniff out" an unattended T beyond the end of the road.

More Foxes = More Fun

On first- and third-Saturday evening hunts in Los Angeles there are usually several transmitters to find. During NFW 2004, David Lee, WA6DWL, and Mike Lee, K6MJU, put out five in the San Pedro and Rancho Palos Verdes areas. Only three of the hunting teams found all of them before calling it a night. They drove from 65 to 100 miles.

Southern California transmitter hunts are notorious for long distances and weak signals. Hunters prefer Yagi and quad directional antennas over Doppler RDF sets because gain antennas allow them to track the weakest signals over

the greatest range. Many of them employ low-noise RF preamplifiers for the best system sensitivity. Three of WA6DWL's transmitters were miniature foxboxes running only 50 milliwatts and stashed in cactus patches and along fences.

Perhaps the most unusual location for a mini-fox was chosen by John Munsey, KB3GK, and Bill Thomas, KE4HIX, of Daytona Beach, Florida. "Generally, our hunters are ground-feeders," John wrote. "Anything above their heads is invisible. Based on the

theory that they would not look up, we hoisted a 200-milliwatt Alinco 'credit-card' radio and controller to the top of a 40-foot flag pole at Daytona Beach Community College. The pole was in a 250- by 75-foot courtyard, surrounded on all four sides by buildings."

Just in case that wasn't enough, John and Bill had a second mini-T on top of a metal umbrella over the picnic table where they were passing out cold drinks. John continued, "A third transmitter was 10 to 15 miles north of the first two, depending on the route. It was

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Here's the hidden transmitter for the NFW mobile/sniff hunt in Albuquerque. It's inside a "discarded" cup along a pedestrian overpass. I wonder how the metal cage affected the signal. (Photo courtesy of Mike Pendley, K5ATM)

running 30 watts into a 4.5-dB gain antenna up about 10 feet."

Camouflage is a popular way to spice up transmitter hunts in Albuquerque, New Mexico. For NFW 2003, Mike Pendley, K5ATM, put a tiny emitter inside a stop sign at a construction zone. In 2004 he and his son Steve, KD5TBX, used that little rig again. "It was in an old styrofoam coffee cup with a 'sippy' lid that we left on the pedestrian overpass at Copper and Tramway," Mike wrote. "The antenna was a rubber

duck attached to a piece of coax and hung over the edge of the overpass just low enough to clear the underside."

A decoy ammo box with antenna was at ground level, right below the real antenna in a bush on the median of Tramway. All but one of the hunting teams were fooled by the decoy, at least for a few minutes.

Steve Gingo's analogy of chess is especially true of multiple-fox hunts. You are at the starting point and hear three signals, each in a different direc-

tion. Do you automatically go after the strongest one first? That was the dilemma facing participants in the annual "Tour of the County" hunt of the Quinte Amateur Radio Club in Belleville, Ontario, Canada. They had three hours to find them all before they went off the air.

"The weather was cool but the competition was hot, hot, hot," wrote Peter Lower, VE3KWM. "Organized by the cunning trio of Dave Ward, VE3BIP, Peter Hodgson, VE3UR, and Tim Pekkonen, VE3UO, the hunt sent 15 intrepid searchers riding off in all directions. After VE3BIP's dummy (decoy) transmitter stunt last year, we were on high alert for some kind of diabolical deception.

VE3KWM continued, "Don't these guys realize that driving the car, reading the map, listening for the beeps, watching the S-meter, flipping the attenuator switches, rotating the antenna into an 80-km/h headwind, and looking out the window while trying to eat your lunch is hard enough without throwing us curve balls as well?"

"The first fox to be heard as we drove out of the parking lot was #3. It was loud! Must be close, we thought. Sure enough, after five or six wasted kilometers, multiple stops, and the better part of 40 minutes later, we were back in the starting lot running through the daisies to the base of the Bell cellular tower, not more than 200 feet from where we started!

"It was downhill from there as Al Law, VE3LAW, and I sped cross-county towards Big Island and ate up another hour and a bit until we found Dave

Win Foxhunting Medals At ARDF Championships

For many transmitter hunters, National Foxhunting Weekend is the kickoff for a season of events that includes competitions against hunters from other states and other countries. The on-foot sport of radio-orienting (also called foxhunting and ARDF) is popular in over two dozen countries. Most of these countries hold annual ARDF championships to determine who is best in the nation. Winners are invited to compete at the ARDF World Championships, which take place in even-numbered years.

Beginning in the 1970s, hams in Europe developed a standard set of rules for all-on-foot foxhunting in large areas of woodland or farmland. The sport was soon recognized by the International Amateur Radio Union (IARU), which now sanctions the international competitions. USA first attended the World Championships in 1998.

At formal events there are separate hunts on separate days on the 80-meter and 2-meter bands. Each day five transmitters are placed in an area of 500 to 10,000 acres. Hunters are individually timed as they attempt to find all of them and get to the finish line before time expires. Fox transmissions are 60 seconds each, in rotating sequence. There are nine age/gender categories. Those who find the most foxes in the least time win the gold, silver, and bronze medals in these categories.

The 2004 USA national championships of foxhunting were in southern California during June, with participants from as far away as Boston and New York. On 2 meters hunters braved 90-degree

temperatures at Vasquez Rocks Park, a famous location for filming westerns such as *Bonanza*, as well as other projects such as *Star Trek* and *The Flintstones*. The next day they hunted 80-meter transmitters at Mount Pinos, starting at 8300 feet elevation. Sam Vigil, WA6NGH, detailed his experience as a beginner at these championships in the November 2004 issue of *CQ*.

Winners of the 2003 and 2004 USA Championships received invitations to be members of ARDF Team USA for a trip to the 2004 ARDF World Championships in the Czech Republic. USA's delegation included 14 competitors ranging in age from 19 to 62 and representing ten states.

This summer the USA Championships return to Albuquerque, site of our first one in 2001. These national championships are being combined with the IARU Region 2 (North and South America) Championships from August 1 through 6. Besides separate on-foot direction-finding competitions on the 2-meter and 80-meter bands, there will be opening ceremonies, practice sessions, a sightseeing day, and a closing banquet with awards presentations.

Although most participants will be licensed hams, the championship courses are open to anyone of any age, with or without an amateur radio license. Visiting competitors from outside the USA and IARU Region 2 are welcome. Stateside winners will be considered for positions on ARDF Team USA to the 2006 World Championships in Bulgaria. More information and registration forms are at <www.ardf.us>.

parked by the calm waters of the bay next to #2. By then we were down to 40 minutes or so on the clock and watched helplessly as it ran out while we sped back and forth on Highway 49, close but not close enough to find #1."

Exercise and Eat

A niece's graduation took me back to my home state during NFW 2004. Fortunately, the cap-and-gown ceremony was on Sunday, so Saturday was free to visit the hunt in Lincoln, Nebraska. The ham club that I attended in my college years is heavily into radiosports these days, spearheaded by Matt Hodges, KØTEA. In addition to their regular mobile hunts, Matt is eager to get the locals to try all-on-foot hunts under International Amateur Radio Union (IARU) rules (see sidebar).

To give them a taste of what it's like to hunt multiple cycling foxes on the same frequency, Matt put three such foxboxes with attached orienteering flags in parks around the capital city on 146.565 MHz. After finding them and punching their control cards, hunters were instructed to tune to 147.520 MHz and go after a final "homing" fox. It was in Matt's truck in a different park, where he had barbecued wieners and bratwursts for them.

I received NFW reports of four all-on-foot hunts using variations of IARU rules. In Albuquerque, the hams who will host USA's ARDF Championships this summer had a 2-meter event on a full-size course in a new area of woods that they had just mapped. They also tested three QRP 80-meter foxboxes.

A "Mothers Day Special" radio-orienteering event on 80 meters took place at Christmas Hills near Melbourne, Australia. The foxtailers down under are "very keen," as they say. They have been close friends with and tough competi-



Corey Campbell, KCØPOC, and an unidentified co-hunter accept first prize from Matt Hodges, KØTEA (right), at the NFW event in Lincoln, Nebraska. They drove and "sniffed" their way to three hidden transmitters plus the finish beacon in 4 hours and 20 minutes. (Photo by Joe Moell, KØOV)

tors against ARDF Team USA members at the World Championships since 2000.

The annual "Antennas In the Park" mini-hamfest and barbecue pig-out at Tri-City Park in Placentia, California included an ARDF event as in years past. Since the park itself is only 60 acres, I expanded the hunt area to include almost 1400 acres in residential areas of three surrounding cities.



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It's not easy to tell from the photo, but these folks had a muddy day at the NFW Fox-O near Cincinnati. Left to right they are Bob Frey, WA6EZV; Matthew Robbins, AA9YH; Dick Arnett, WB4SUV; Brian DeYoung, K4BRI; and Emily DeYoung, K4MLE. (Photo courtesy of WA6EZV)

My five sequential 2-meter transmitters were in local green spaces. Shortest course length from start to each one and then back was 4.8 miles. That's quite a challenge, but two intrepid runners found them all and Jay Hennigan, WB6RDV, the winner, did it in less than 2½ hours.

Rather than a standard ARDF event, the foxhunters of the Cincinnati area tried a variation called Fox-Oring. Matthew Robbins, AA9YH, organized it and wrote, "Fox-O uses low-powered transmitters placed somewhere in circles on the map of an otherwise regular orienteering course. The competitors navigate to each circle, then use their directional receivers to locate the transmitter and an orange punch next to it, which acts as a tiny control flag.

"There was steady rain for at least 7 hours from Friday morning to Saturday morning," Matt continued. "By the afternoon of the hunt it was beautiful in the park, as long as you didn't mind being covered in mud from the knees down. Of course, one cool thing about it is that you pass through a stream before the last climb to the finish, which takes care of a lot of the mud."

Prepare to Save Lives

There is a serious side to transmitter hunting. RDF skills and the ability to use them quickly are important when a source of unintentional or malicious interference must be found. When an aircraft goes down in the wilderness,

minutes count when tracking its Emergency Locator Transmitter (ELT).

Hams in the Portland, Oregon area spent a day of the NFW on a difficult ELT-tracking exercise in the Coast Range Mountains. The participants—a mix of ARES, search/rescue, and Civil Air Patrol members—were assigned to hilltops, as they would be following an actual satellite ELT "hit."

Dale Hunt, WB6BYU, was Operations Manager for the event and picks up the story: "Our Command Post operated out of the Emergency Operations Center of the Spirit Mountain Casino near Grand Ronde, Oregon. One of the ELT training beacons was in the tribal reservation nearby. As teams got to their initial assignments on the higher peaks and started taking bearings, they ended up tracking two signals about 17 miles apart.

"Our beacons were on the ELT practice frequency of 121.775 MHz. Bearings were plotted in the Command Post and assignments were relayed back out to the teams until they were close enough so that they could hear for themselves. In the end each beacon was located on the ground by two of the teams."

Having participated in a mobile T-hunt at SEA-PAC in western Oregon some years ago, I empathized with Dale when he wrote, "The hills are covered with a maze of logging roads. Not all of them are on any one map. Hunters often had difficulty knowing which road they



First-timer Danny White, W6DDW, leaves the Vasquez Rocks starting point of the 2004 USA ARDF Championships in southern California. You are invited to participate in the 2005 USA Championships this August in Albuquerque. (Photo by Joe Moell KØOV)

were on. The best approach seemed to be to have a designated navigator in each vehicle to keep track of the position on the map with the point of a pencil, watching all the curves, hills, creeks, and other landmarks along the way. With this approach, it was usually possible to tell which side roads were marked on the map and which were not.

"In rough terrain even bearings from high points can be way off. Errors of 30 degrees were not uncommon. None of the Command Post bearings came within 2 miles of one of the beacons. Signals on the ground were audible only for a mile or less from the actual beacon location."

Afterwards, Dale wrote a thorough analysis of the event. His excellent list of lessons learned will help everyone prepare for next time. Dale concluded, "A common comment was, 'When is the next one?' But first, folks need more frequent, simpler practice hunts to develop and learn to use their equipment."

I was pleased to learn that at least one group holds "come out when you can" hunts, as I suggested last year. After NFW 2004, Stan Pozerski, KD1LE, wrote from the Nashoba Valley Amateur Radio Club of Groton, Massachusetts: "Our 145.63-MHz foxbox is in the field continuously and gets moved each time the batteries are replaced, about three times a week."

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Why have an age limit for on-foot foxhunting? Byon Garrabrant, N6BG, has competed in the USA ARDF Championships. He's showing his 6-year-old daughter how to get a bearing at the NFW hunt in Las Vegas, Nevada. (Photo courtesy of N6BG)

Foxhunting Fun at Dayton

If you're going to the Dayton Hamvention® this year, be sure to attend the annual Foxhunt Forum, organized by Bob Frey, WA6EZV, and Dick Arnett, WB4SUV. Experienced in both mobile and on-foot hunting, Bob and Dick organized the 2003 USA ARDF Championships and have competed in three ARDF World Championships. As of this writing, the Foxhunt Forum is scheduled for Saturday at 0815 in Room 4 at the Hara Arena. An on-foot foxhunt may also take place. For updates, check <www.homingin.com>.

"Currently it is being kept on the 595-acre Cowdrey Nature Center to encourage new hunters with an on-foot challenge. At other times it is placed in different towns within our club's area for one-week periods. The fox transmits a voice ID, temperature, number of transmissions, and battery voltage every 5 minutes from 8 AM to 9 PM and goes to sleep overnight. A DTMF tone received immediately after a transmission caus-

es it to transmit every 2 1/2 minutes for ten transmissions."

Summary

By now you should be inspired to plan a transmitter hunting adventure for your local club. The CQ NFW has no formal rules, so let your creativity run free. Talk it up around your club and in repeater ragchews. For maximum fun, your hunt

should be appropriate for the skill level of the members, be they experts or complete beginners. Make sure it's well promoted, fun and fair for all. Above all, make it as safe for everyone as possible.

In 2004 I received three advance announcements of NFW hunts that were not followed up with results. As the old adage goes, the job isn't finished until the paperwork is done. Be sure to write up the hunt story and send it to me so I can share with CQ readers. Tell me the date of the hunt, what kind of hunt (mobile or on foot), number and frequency of transmitters, how the hunt was scored to determine the winners, plus the callsigns of the hidiers and the winners. Don't forget to include the name of your club and the city or area it serves. Readers also want to know what was unique about your hunt and what lessons (positive and negative) you learned from it.

The list of items to report is posted at my website <www.homingin.com>, so you can copy it into your word processor and insert the information. Or if the report in your club's newsletter includes all the information, just send me a copy by electronic or postal mail. Photos (JPGs or prints) are welcome and should be of as high resolution as possible.

If your group has more than one NFW event, please send a separate report for each one. Add other facts if they are important, such as the distance of each fox from the start, whether the transmitters were continuous or intermittent, attended or unattended, and other technical features. I also welcome first-person reports from both the hidiers' and the hunters' perspectives.

NFW grows every year, and 2005 promises to be a record-breaker. Spread the word and encourage other clubs in your area to try it. I'll be waiting for your report. Happy hunting!

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These 15 month calendars (January '05 through March '06) include dates of important Ham Radio events such as major contests and other operating events, meteor showers, phases of the moon, and other astronomical information, plus important and popular holidays. Great to look at, and truly useful!



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International Assistance in Times of Disaster

Amateur Radio, according to international regulations, is a *service*. In countless disasters around the world amateur radio has shown its value in serving in the public interest. Hans Zimmermann, F/HB9AQS, the International Amateur Radio Union (IARU) International Coordinator for Emergency Communications, says, "Its role has not diminished with the introduction of new technologies." This month we'll take a look at international amateur radio emergency communications and some of the people who helped in the aftermath of the December tsunami.

Ham Presence Needed

Disasters kill one million people each decade and leave millions more homeless worldwide, according to the United Nations. When relief workers arrive on the scene of a disaster, the UN says, they often find a complete or partial breakdown in communications—communications that are essential for finding out where the victims are, how many people have been killed or injured, and how many need medical help or transportation to medical facilities.

"While the role of the many stations and ad-hoc networks has not yet been fully analyzed, we know that in some cases amateur radio was the only connection to the outside world," Zimmermann told *CQ* in February. "The use of this service depends, of course, on the existence of stations in an affected region; in the case of the tsunami, this was demonstrated by the coincidental presence of a DXpedition in the Andaman Islands, a location that does not normally have any ham presence. Without this station, the islands would have had no communication at all. These experiences will hopefully encourage national administrations to quickly and completely implement the new or revised international regulations, in particular Article 25 of the Radio Regulations." Article 25 states in part that "(a)ministrations are encouraged to take the necessary steps to allow amateur stations to prepare for and meet communication needs in support of disaster relief."

Zimmerman, licensed since 1967, recently retired from the United Nations, where he was responsible for the coordination of emergency telecommunications. He chaired the Working Group on Emergency Telecommunications for the past ten years and coordinated the work on an international treaty on disaster telecommunications, the "Tampere Convention," which was adopted in 1998 but which took effect only this past January after ratification by 30 of the 75 countries involved in the conference.

"Existing international links over public networks remained mostly intact, as the physical impact of



Hans Zimmermann, F/HB9AQS, IARU International Coordinator for Emergency Communications, says amateur radio's "role has not diminished with the introduction of new technologies." (Photo courtesy of Y. Karakawa)

the tsunami was by the very nature of the event limited to coastal areas, leaving in most cases the capital or other major hubs unaffected," said Zimmermann. However, all public communication networks were overloaded. "The amateur radio service was once more the most valuable (and for many people the only affordable) means of long-distance health and welfare traffic." He pointed out that "this direct assistance by a voluntary service depends, however, on the facilitation of third-party traffic by the national authorities concerned. The framework for this has been created through the regulations revised by the ITU (International Telecommunications Union) World Radiocommunication Conference (WRC-2003). It is now up to the national IARU member societies to raise this matter in all their contacts with their government counterparts."

The United States does not have third-party traffic agreements with any of the countries that were affected by the disaster. However, the FCC staff—guided by the revised ITU rules—told the ARRL, "If the government agencies responsible for the Amateur Service in affected countries do not object to their amateur stations receiving messages from US amateur stations on behalf of third parties, the US has no objection to its amateur stations transmitting international communications in support of the disaster."

Amateur Radio Becoming More Important

Zimmerman says amateur radio will become even more important in emergency communications in the future, "particularly because of the increasing complexity of emergency telecommunications networks. More than ever, there is a need not only for the Amateur Radio Service as an independent net-

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work, but for skilled communicators." He explains that what "the providers of humanitarian assistance as users of emergency telecommunications need most are people who know how to get everything to work. Nobody is better qualified for this than hams. It is not surprising that amateur radio operators are found in many international and national humanitarian organizations as radio operators, telecommunications technicians, trainers, and even in most senior positions in the telecommunication and IT services of several UN agencies, including UNICEF and the World Food Program."

Two Major Support Functions

Ham radio has two major applications in support of emergency and disaster response. They are the network of stations and the skilled operators behind them. "The network of stations, many of which are particularly disaster-resistant thanks to independent power sources, has in many cases provided the first and, often for some time, only link between a location or area affected by a disaster and the 'outside world,'" says Zimmerman. "Advanced technologies provide real-time connectivity for an ever-increasing part of the world, but at the same time their networks are increasingly vulnerable. Amateur radio communications do not depend on any infrastructure other than the equipment under the direct control of the operators, thus having the best chance to remain operational even in the aftermath of a catastrophic event."

In addition, according to Zimmerman, skilled operators are in demand more than ever to install, maintain, and operate the emergency telecommunication networks of the providers of emergency and disaster response. In addition to those amateurs who are working professionally as telecommunications officers for international organizations as noted above, he says many more are volunteers in national disaster relief organizations that have agreements with national and local amateur radio societies and clubs. He continues, "When it comes to establishing communications under the adverse and often also dangerous conditions in the aftermath of a disaster, nobody is more able than a ham to make the best from whatever is available."

Amateurs Respond To the Tsunami (continued)

Many amateur radio operators traveled around the world to help provide emergency communications in the aftermath

of last December's earthquake and tsunami in South Asia. Operations in India were described in last month's CQ and we have first-person reports in this issue (see pages 13 and 18). We also have a story this month about two ham radio operators from Great Britain who answered the call to serve in Sri Lanka.

Sri Lanka suffered over 31,000 casualties in the tsunami, thousands are still missing, and over 800,000 people were left homeless along the southern and eastern coastlines. Victor Goonetilleke, 4S7VK, President of the Radio Society of Sri Lanka, made an appeal for more

HF and VHF radios to help set up vital communication links following the tsunami earthquake disaster. He e-mailed Malcolm Harwood, MØXAT, in Cumbria, Great Britain:

Today (officials) pleaded for our services in the massive disaster relief distribution programme, (but we) are dreadfully short of equipment now. They wanted us to help in the east but we haven't enough HF and VHF equipment. This is going to be a round the clock operation. So Malcolm, we need whatever HF and VHF equipment that you can get including any HF mobile and VHF mobile antennas. Thanks for all what you are doing.

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969, Antenna Tuner	\$169
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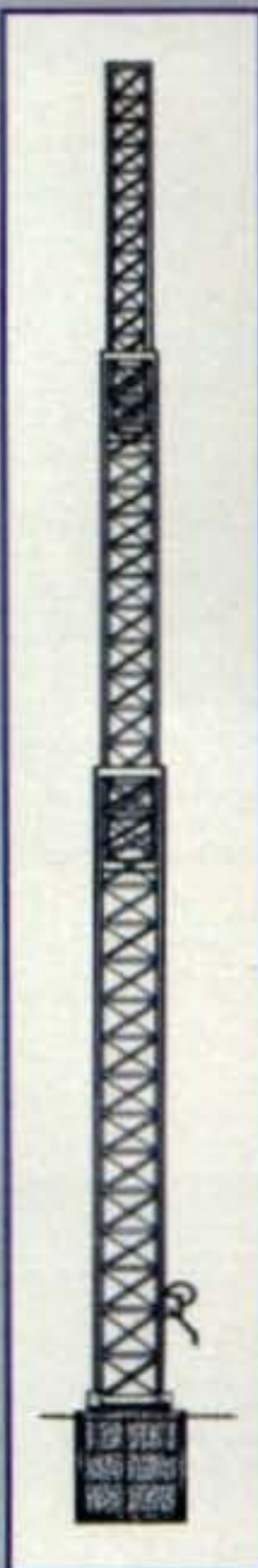
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TX-472	72'	22'8"	1040	\$3,462	\$3,139
TX-472MDP	72'	22'8"	1210	\$5,571	\$5,049
TX-489MDPL	89'	23'4"	1800	\$9,034	\$8,239

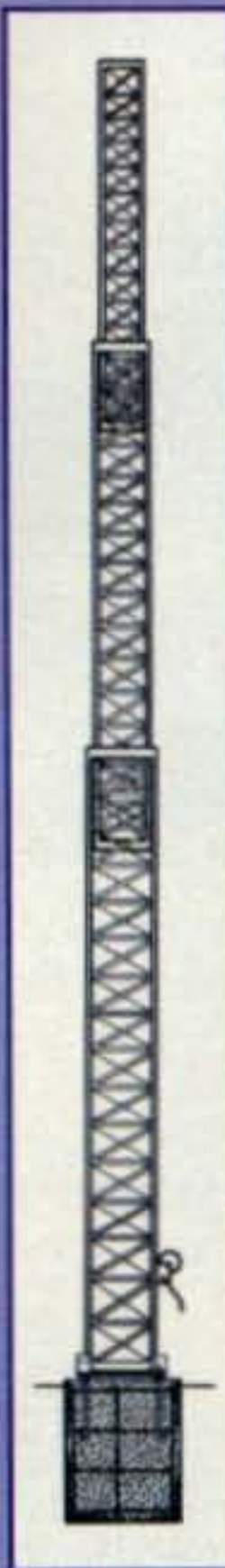


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HDX-555	55'	22'	870	\$3,162	\$2,889
HDX-572MDPL	72'	22'8"	1600	\$8,281	\$7,549
HDX-589MDPL	89'	23'8"	2440	\$10,841	\$9,899
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MA-550	55'	22'1"	435	22	9	\$1,875	\$1,699
MA-550MDP	55'	22'1"	620	22	9	\$3,584	\$3,249
MA-770	71'	22'10"	645	15.5	5.5	\$3,091	\$2,799
MA-770MDP	71'	22'10"	830	15.5	5.5	\$4,890	\$4,449
MA-850MDP	85'	23'6"	1128	15.3	6.3	\$6,591	\$5,999



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- Handles 20 square feet of antenna load at 50 MPH, 8 square feet at 70 MPH.
- Compact design is great for areas with tower restrictions, or where a less intrusive installation is desirable.
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- Options include coax arms, raising fixtures, motor drives, thrust bearing, remote control panel, and more!

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TMM-433HD	33'	11'4"	400	\$1,970	\$1,789
TMM-541SS	41'	12'	430	\$2,135	\$1,939



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Damika Fernando, 4S7DF, makes the first HF mobile contact from Sri Lanka while on the way to the disaster area. (Photo courtesy of M0XAT)



Malcolm Harwood, M0XAT, will remember the derailed train hit by the tsunami and the smell of death. (Photo courtesy of M0XAT)

Goonetilleke, who was operating from the prime minister's official house, also indicated that portable generators were needed.

Prepare for Flight

Harwood had already found several HF radios. Thanks to the efforts of Southgate Amateur Radio Club Chairman Nick Earl, G8DWF, a large number of VHF transceivers were also collected. Their biggest obstacle was to get the equipment shipped by air as quickly as possible. According to Harwood, the air freight charges would be beyond the means of most individuals and radio clubs. Therefore, Harwood and John Baker, G0MTQ, traveled to Sri Lanka at their own expense to bring the ham radio equipment and some urgently needed medical supplies, which were donated by the company for which Harwood's wife works. Qatar Airlines generously agreed to waive any excess baggage fees in this case. Upon arriving in Colombo, both met up with Victor to assist with emergency communications.

Harwood had been to Sri Lanka several times before the tsunami struck. After getting settled in at a hotel in Mount Lavinia, he and Baker presented the radio equipment to members of the RSSL. The next day they traveled for over nine hours to the eastern side of the island. During the trip Damika



Gary Grant, K7VY, managed to stay in communication with emergency response agencies during a New Year's blizzard in Nevada, even though he could barely leave his house. (Photo courtesy of Gary Grant, K7VY)



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Fernando, 4S7DF, made the first-ever HF mobile contact in Sri Lanka. They heard stories from some soldiers that they had climbed the palm trees to escape the tsunami. At some of the refugee camps they learned that people will have to live there for up to two years.

They dropped off the medical equipment at a hospital in Portovil. The hospital doctor told them he was desperate for medical assistance. Harwood told CQ that the sight of a derailed train and the smell of death are something he will never forget. They ran several radio tests in the devastated area. In most cases the mobile telephone did not work, but HF radio did. In fact, in one case Damika whistled Morse code into the mic to establish contact, since they didn't have a telegraph key.

Satellites and the Internet

Seeing that Morse code was useful during this disaster, we asked Zimmerman if he saw the Amateur Satellite Service or VoIP (Echolink/IRLP) playing a more important role in international amateur radio emergency communications in the future. He responded, "In an emergency situation, everything that is available is useful and can save lives. Infrastructure-dependent systems (such as Echolink) are in some cases less disaster-resistant and overload-proof than direct point-to-point connections (such as links between individual stations), but here again, the skilled operators of the amateur radio services are in the best position to 'make things work' under adverse conditions."

After the Tsunami Relief Net that was held on many Echolink systems around the world, the organizers began to take the net to the next level. The Amateur Radio International Communications Coalition was formed. According to the group's website, <<http://www.aricc.org>>

, "This coalition of amateurs is dedicated to international emergency communications throughout the world. Anyone involved in ham radio in any country can join the team. The ARICC team has coordinated with countries from the United States, Canada, England, Italy, Belgium, and India to many others for emergency communications."

Winter Weather Keeps Skywarn Active

While everyone seemed to be focused on the tsunami disaster, amateur radio operators from around the United States were responding locally to calls for assistance from the National Weather Service. As we entered the new year, heavy snow, ice, and blizzard conditions made traveling difficult. Amateur radio operators began reporting record snow accumulation via the Skywarn Network, and in some areas, as conditions deteriorated, there was a need to supplement communications for local emergency management agencies and the Red Cross.

Nevada Hams Welcome the New Year

Everyone in the Reno area was making plans to welcome the new year, but Gary Grant, K7VY, kept looking out his front window on New Year's Eve, watching heavy snow come down. He said, "This isn't supposed to happen in Reno, where we normally only get just a dusting and the next day the sun comes out to dry everything up. Even Lucy, my 90-pound Rottweiler, won't go outside in the snow. That is not a good sign."

Grant turned on his radio, put a magnet-mount antenna on a piece of metal, and started listening to the local 146.61 W7TA repeater. Calls were coming in from mobiles around town reporting cars

sliding around and going into ditches. He went to the front door and measured 9 inches of fresh snow. He called in his observation to the local office of the National Weather Service. After giving his snow report, he asked if anyone could get on the 2-meter radio up there. "Sorry, we're too busy," the reply came, "but we will monitor reports on the repeater." There were a couple of amateur radio operators on the staff there. Grant asked about driving up to the weather service. "Sorry the roads are too dangerous, stay home," was the reply.

As the snow continued to fall in the early morning hours, Grant reported that he lost electrical power and heat. He was able to check into the local Skywarn net on battery power until he could get his generator running. Many amateurs were reporting up to two feet of snow. The crippling snowstorm continued for a week, hitting northern Nevada with winds approaching 100 mph.

Electric power came and went. As long as power was available, Skywarn members monitored the NWS website to check out the movement of the storm on radar. They also monitored local radio and TV stations as well as police scanners. As the storm continued, at least one local television station transmitter was knocked off the air, and several amateur radio repeaters that were on battery backup went silent.

The net continued in operation for 70 hours. Reports were sent to the National Weather Service in Reno, the Nevada Highway Patrol, and the Red Cross. Joe Consolo, KD7QDL, in a Reno mobile-home park, requested assistance for several mobile-home owners who are dependent on oxygen. Due to a power failure, their lives were at risk. The Emergency Operations Center north of Reno and the Sierra Chapter (Reno) Red Cross were called and responded with help.

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"This was not only amateur radio operators helping each other, but also amateurs helping our community," said Grant. "Appreciation also goes out to the people who maintain our mountain-top repeating systems so they are ready for emergency and priority uses." Many neighbors were helping to shovel each other out. It was a great time to tell the neighbors that the local ham radio operator down the street had contact with the National Weather Service and others who could help. Andy Munoz, KD7ZEV, said the information "was very reassuring, as most neighbors never had considered keeping their antiquated phones, and some were quickly realizing how batteries go flat when using cell phones connected in analog mode." He suggests that hams know who and where your amateur radio community is and which stations are a simple simplex hop. Practice your radio arts and be prepared so that when the "Big One" hits, you can go into full station operation with the knowledge, background, and assurance that this great hobby and associated license privileges have provided us!

After the storm was over, Meteorologist Rhett Milne at the Reno National Weather Service Office sent a message to the Skywarn members: "We have been monitoring the radios on shift and appreciate everyone who has been relaying weather reports. . . . The focus will now turn to monitoring for any warm, wet systems that could pose flood problems. None are on the horizon, but stay tuned; we may need your assistance sometime down the road." As the winter storms moved east, similar words of thanks were heard in Wisconsin and Pennsylvania, and north through New England.

Looking Ahead . . .

Can you believe that it's already time for hams to start providing communications for the various spring walk-a-thons, cycling events, and fun runs? We'll be following amateur radio operators in action as always, but we'll also be keeping up on the latest from Tampere, Finland, as plans are made for the first Global Amateur Radio Emergency Communications Conference, scheduled to be held there in June.

This month I want to thank Hans Zimmermann, F/HB9AQS, Malcolm Harwood, MØXAT, and Gary Grant, K7VY, for their assistance. Do you have a story to tell? Drop us a note. Until next time . . .

73, Bob, WA3PZO

Zero Bias (from page 6)

when his teachers decided to have their classes build a rain forest in the halls of the school. "We taught latitude and longitude, science and other stuff . . . and the kids got excited by it." Ham radio, of course, can teach similar skills while the kids think they're just having a good time on the radio.

Clerico suggests a good way to try to introduce something non-traditional such as ham radio into a school program is by starting slowly, perhaps with an after-school program, like a club. Once it's successful, he says, approach the school about doing something during the school day. "Is there some time of day when we can come in and talk about this?" he suggests asking, "Or maybe setting up a station in the school as a base."

"We need to enhance interaction between kids and the outside world," Clerico concludes. "The more contact they have with what's real and what's tangible, the more well-rounded they'll be and the better-educated they'll be."

Boris Meshevtsev, RV3IZ

Just before this month's deadline, we learned that Boris Meshevtsev, RV3IZ, whose article "Still Chasing the Invisible Wave" led off our February issue, became a Silent Key last September (we'd had the article in our "queue" for several months before it ran). I'd become concerned after I sent him an e-mail when the issue went to press in December and got no response. The news about Boris's passing came from reader Pierre Beauregard, VE2IC1, who passed along a letter from Boris's best friend, Vic Usov, RW3IF, containing even more information about the life of this fascinating ham.

In addition to his ham radio activities, Vic says Boris was also a deeply religious man (despite living most of his life in the officially-atheistic Soviet Union); a voracious reader of English literature (provided in Braille by the U.S. Library of Congress's National Library for the Blind) even in the depths of the Cold War; and a professional musician (you may recall from Boris's article that despite his musical talents, he was denied admission to the local university because of his blindness—yet another obstacle that he saw as a challenge to overcome). Soon after he moved to Emmaus from Kirghizia in 1999, Vic says, Boris organized a folk music ensemble that quickly became the best such group in the entire region. Vic says Boris had been healthy and died suddenly while putting up a new antenna.

By the way, Vic was also a student of Boris's teacher, Nikolai Shelpyakov, and says that ham radio led directly to his own career in electronic engineering and space



Boris Meshvtsev, RV3IZ, whose extraordinary life in ham radio was chronicled in our February issue, became a Silent Key just a couple of months before that issue went to press.

science. Vic says he has worked on building various research satellites as well as probes sent to Venus, Mars, and Halley's Comet. Some of these satellites, he says, are still in orbit and sending scientific information back to Earth.

Ironically, the early editing on Boris's article was done by our Technical Consultant, Lew Ozimek, N2OZ, who now is also a Silent Key. It was the last article Lew worked on. So even though both Boris and Lew are no longer "chasing the invisible wave," we hope that Boris's article will serve as a memorial to both of these extraordinary hams, and as a testament to the amazing power of amateur radio to shape lives and careers, and to bring together people from around the world.

73, Rich W2VU

Wrong Again

If you read this column last month, aptly titled, "Learning How Little We Know," you may recall my explaining how the solar flares that nixed our first attempt at making IRLP contact with Antarctica had likely touched off auroral activity that may have helped VHF DXers, but essentially put "a radio blanket" over the heads of stations within the auroral zones. Wrong. When we finally did make contact a week later, Bill, KD7CWA, explained that aurora generally has no effect on their satellite link because they point their dishes toward the equator—above which the satellites orbit—and above which there is no aurora (duh). The whole problem, he said, was co-channel interference on the satellite making it difficult to pull in downlink signals and impossible to maintain a solid uplink. So with thanks to KD7CWA for the facts (and the great contact with the kids), I repeat, pointing at myself, "the more we learn, the more we learn how little we know."—W2VU

ham radio news

(from page 4)

Vanity License Fee Likely to Remain at \$20.80

The FCC's proposed fee schedule for fiscal year 2005 contains no changes in the vanity callsign application fee, currently \$20.80 for a ten-year license term. The fee was increased from \$16.30 last year. Since the vanity program was introduced, the fee has bounced up and down.



Endangered Indiana bats are being outfitted with tiny VHF transmitters to help track their movements after they leave their winter homes. (Photo courtesy Joe Moell, K0OV)

Going to Bat for Bats

Hams and scanner listeners in the Northeast are invited to help track the movements of endangered Indiana bats after they leave their winter homes. According to CQ VHF Contributing Editor Joe Moell, K0OV, the bats spend their winters in two caves in New York State, but no one knows where they go in the summer. Moell says the New York State Department of Environmental Conservation is outfitting the bats with tiny VHF transmitters and is seeking help in tracking them when they leave their caves in late April and early May. For more information, go to K0OV's website at <www.homingin.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.

BPL from a Power Company's Perspective

Editor, CQ:

Your article about BPL (December 2004 CQ) raised some thoughts. ... I work for a communications company involved with internet and data communications. I was working for a power company and did not reveal I was a ham, ... I acted like I was in favor of cheaper high-speed internet for all (and had a) conversation with one executive who made a few realistic comments...

1. Some people think that the BPL will take the data into the homes on the power line itself. Because of the transformers it would make it harder and some safety issues would be involved, so it would be easier to transport it to the area on the power lines then switch to a WiFi-like signal to the homes in area pods. (I am not versed in all the technology to know what other power companies are testing.)

2. This is a money thing and they will win in the long run. With the number of power companies, employees (voters), that there are, ham radio is vastly outnumbered. Some power companies have already allocated large funds to fight this legally if it is determined to be the money maker that it is thought to be.

3. (This one really gripes me) Unlike some government officials have indicated, the power companies are *not* really interested in getting faster internet to Grandma out on the farm or to a remote site in the western U.S. This is money and they want to be able to cover 100 or so homes or more from each pod they set up. They want the metro or suburban home developments. It is the most bang for the buck, and if they can use the facilities that are in place already, that would mean better income and higher stock prices for their investors. Their advantage is the plant is already in place and they do not need to spend big bucks burying cable (fiber, copper) that the competition has to.

I am not trying to be a doomsayer, but we hams try to fight this on a technical platform. Hams also have the instinct to be the gentlemen and play nice. I don't know what the answer is, but I sure hope the people in the higher places will come up with good rules to play by.

L. Davis, KE0LR
<ke0lr@hotmail.com>

W2VU responds:

Len, your points are all well-taken. We have argued in our FCC comments and elsewhere that there's just as little profit potential in rural areas for power companies running BPL as there is for phone companies running DSL or cable companies. Different companies are using different means to deliver the signals to the homes, Wi-Fi from the pole among them. Our question has always been, if you're going to run Wi-Fi from the pole, why not go wireless from the source, especially with the advent of the WiMax metropolitan area wireless networking standard?

Looking Twice

Editor, CQ:

I had to look twice when I saw the photos of students at Trinity High School in Camp Hill, PA, in Sean Barnes's very astute article ("Magic in the Sky," CQ, January 2005) on the amateur radio side of his physics classes. Am I seeing things, or is virtually every young man in these pictures wearing a shirt and tie? Are all the young ladies dressed nicely in skirts and sweaters? Am I missing the spiked hair, bare midriffs, disheveled clothing, and droopy looks to be found in most high schools? Whatever Sean Barnes is mixing into the drinking water has resulted in an absolutely remarkable assemblage of young men and women who look like tomorrow's leaders instead of a bunch of bums.

My highest regards go to this gifted teacher for his novel syllabus and his apparent insistence on high standards in every facet of each student's learning experience. None of them appear destined to disgrace ham radio as I once saw depicted in one of the major radio journals. ... President Bush was visiting some ham operators in Florida and was pictured shaking hands with a ham who was dressed in a sloppy T-shirt and dirty pants. You'd think he could have dressed up a little for a meeting with the President of the United States. I remember wondering what the President thought of that man and of the rest of us by inference.

As young amateurs, Barnes's classy students are off to a good start in representing our hobby and its participants to the public in a far superior manner. Barnes is making a great contribution to amateur radio and to the lives of students fortunate enough to be in his classes. He and his first-rate program deserve supreme praise.

Stan Avery, WM3D
Canandaigua, NY

W2VU responds:

Stan—It's a Catholic high school and the kids wear uniforms. There are pluses and minuses to school uniforms and I'm certainly not going to get into the issue in the pages of CQ. We have enough debate over code without adding in school uniforms!

our readers say

FCC Chairman Resigns After Rocky Tenure ARRL to Seek Regulation of Amateur Subbands by Bandwidth Rather than by Mode

FCC Chairman Michael Powell announced that he will be leaving the Commission in mid-March. At press time a new chairman had yet to be nominated by President Bush. Powell's departure not only means that a new chairman must be named, but also that only four commissioners remain of the five-member panel. This could create a situation in which no business can be transacted due to the possibility of a tie vote.

Over the past 35 years the importance of the FCC could be demonstrated by the amount of money Congress has allocated to run the agency. In 1970 Congress appropriated nearly \$25 million to finance the FCC's budget. It passed \$50 million in 1976, \$75 million in 1980, \$100 million in 1990, \$125 million in 1992, \$150 million in 1994, \$175 million in 1995, \$200 million in 1999, and \$250 million in 2002. The agency's budget for 2005 is nearly \$300 million! Today, nearly all of the FCC's funding is paid back to the U.S. Department of the Treasury in the way of regulatory fees assessed on communications providers and users.

Powell, a 41-year-old Republican, is the son of former Secretary of State Colin Powell. He was appointed to the FCC by former President Bill Clinton in November 1997, and named chairman by President George W. Bush in January 2001. His term was to have run until 2007. By law, no more than three FCC members may be from the same political party, and the chairman historically comes from the same political party as the president.

Two current commissioners are Republicans: Kathleen Abernathy and Kevin Martin. Either could be appointed chairman. Bush could also nominate a new commissioner and name him/her chairman. This would, however, require Senate confirmation. There are many names being bantered about.

According to several sources inside and outside of the FCC, however, Commissioner Kevin Martin is the leading candidate for FCC Chairman. Martin is highly regarded and well connected to the White House, having served the Bush campaign as Deputy General Counsel long before Bush won the nomination in 2000. He would be an "easy" choice, because he could move quickly into the new spot and could be designated as chairman without having to be confirmed (a new commissioner to fill the vacancy created by Powell's departure from the Commission would still be subject to Senate confirmation).

Powell's Legacy

Michael Powell will be remembered for implementing a national "do-not-call" registry for avoiding calls from telemarketers, for adopting regula-

tions allowing cell-phone users keep their numbers when switching carriers, and for his crusade against indecent radio and television programming after singer Justin Timberlake bared Janet Jackson's breast during the 2004 Super Bowl halftime show. The \$550,000 fine remains unpaid.

Now that Powell has signaled that he is resigning, the FCC has dismissed some three dozen pending indecency complaints. Conjecture is that the dismissals are somehow related to his leaving. In any event, the media are confused as to what is and is not appropriate programming content, and the FCC won't say. The standard answer from staff is that they only react to complaints.

Different rules apply to free over-the-air programming and cable/satellite transmissions which are only available by paid subscription. The rationale here is that the public must want indecent programming when they must pay for it, and that viewing is limited to those who have paid for it, as opposed to an over-the-air broadcast, which is accessible to anyone with a television.

Thanks to a 1978 Supreme Court decision, indecency standards extend only to free broadcasts and not to the free print media. To put it a different way, indecency is always okay if it is written but may not be if it is uttered by a broadcaster. Critics accuse Powell of trying to stifle free speech and intimidate broadcasters into following a more conservative agenda.

Powell also will be remembered for getting the Republican-dominated FCC to loosen restrictions governing media ownership. The new rules were partially reversed by Congress and later rejected by a federal appeals court because fewer outlets would have too much control over what people see, hear, and read.

The federally-mandated transition to digital TV is still bogged down. No one knows for sure when local broadcasters will have to turn off their analog signals and surrender their old channels. The government wants to auction off the old analog TV spectrum, which could generate more than \$500 billion for the U.S. Treasury.

Congress established a ten-year transition to digital television in 1997. Supposedly, all analog broadcast TV was to stop at the end of 2006—that is, providing at least 85% of all homes could receive digital TV. However, at the rate we are going, this could take many decades.

Powell Media Bureau appointee Ken Ferree came up with a plan whereby cable TV viewers could be included in the 85% threshold, even if they don't own a DTV set or subscribe to a digital programming tier. A viewer would be considered as "digitally served" if the signal had ever been digital at any point. This new DTV plan sets a deadline of 2009 for return of analog spectrum to the government.

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e-mail: <w5yi@cq-amateur-radio.com>

This has not gone over well with broadcasters who contend that digital cable is not digital television. Ferree now has also announced his resignation and reportedly will leave a week before Powell. He is also one of the architects of the FCC's controversial plan to loosen media ownership rules.

Amateur Radio Matters

From an amateur radio standpoint, little has been accomplished during Powell's tenure as chairman. There was a Notice of Proposed Rulemaking concerning "refarming" Novice spectrum, but it merely rubber-stamped an ARRL request seeking to redistribute some CW subband spectrum to phone users.

The last major FCC Order impacting amateur radio came out more than five years ago, before Powell was installed as chairman. This was when, in late 1999, the Commission restructured ham licensing by reducing the number of amateur radio operator license classes from six to three and the number of license examination elements from eight to four.

Meanwhile dozens of Petitions for Rulemaking seeking further amateur radio changes are wasting away at the Commission awaiting action—some for several years. This includes many that seek changes or an end to Morse code testing as permitted by the last World Radio Conference.

As if ignoring amateur radio rulemaking was not bad enough, Powell even promoted new technology that has a detrimental impact on ham radio and other users of the spectrum. Broadband over Power Lines (BPL) was one of Powell's pet projects. He was convinced by the electric power industry that the internet could be effectively distributed over residential electric wiring, and new Part 15 rules were adopted facilitating this concept. The big problem is that not only is the internet distributed, but so is RF interference to users of the HF bands. Powell's view was that the likely public benefit outweighed BPL's relatively minor interference potential. The ARRL said it wasn't minor. We will find out just how big a problem BPL turns out to be when and if it is ever deployed on a widescale basis.

Still Another ARRL Petition Is on the Way

At its January 2005 annual meeting, the League's Board agreed to file a Petition for Rulemaking seeking to regulate amateur radio spectrum use by bandwidth rather than by mode. This pro-

posal supposedly will be filed with the FCC after the July 2005 board meeting. This concept has been under active consideration since 2002, when the ARRL Board of Directors officially adopted the "subband regulation by bandwidth" principle.

According to the ARRL CEO Dave Sumner, K1ZZ, "The main objective is to make appropriate provision for digital modes in the HF amateur bands, while preserving amateurs' prerogatives to use the traditional modes." Sumner covered the bandwidth scheme in a QST editorial last September, and ARRL members have been commenting on the concept for some time now. Most are in favor.

The petition will propose band segmentation by bandwidth rather than by specific modes to allow "...the flexibility to experiment with new digital transmission methods and types." At present, the rules limit the various emission types that can be deployed in the Amateur Service. The League believes a bandwidth rather than mode concept will "...make it easier for new types of emissions to be introduced compatibly among incumbent emission types...."

"Established amateur practice, current rules, and accepted band plans generally provide for narrow-bandwidth signals at the lower frequency range of each band with wider bandwidth emission types at the top. In order to implement digital technologies, there appears to be a need for an intermediate bandwidth in the middle of certain bands," the ARRL said.

The ARRL's petition will propose to limit CW bandwidth in the telegraphy subbands to 200 Hz, which the League contends is not only adequate bandwidth for Morse code but also for other data modes such as PSK31. Bandwidth in the existing "RTTY/data subbands" would be either 500 Hz or 3 kHz, with voice emissions specifically prohibited in those subbands where 3 kHz would be permitted. This would include 3650–3725, 7100–7125, 14,100–14,150, and 21,150–21,200 kHz. This provision is intended to prevent these subbands from merely becoming expanded phone bands.

Bandwidth limitations would be eliminated in the 222–225 MHz and higher frequency bands. The only guideline would be that all emissions must be retained within the band. Amateurs would not be required to be able to measure the bandwidth of their signals.

The new bandwidth regulation proposal takes into account the League's "Novice refarming" petition, which

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160 m	Entire band	3 kHz
80 m	3.50-3.58 MHz	200 Hz
80 m	3.58-3.65 MHz	500 Hz
80 m	3.65-3.725 MHz	3 kHz (non-phone)
75 m	3.725-4.00 MHz	3 kHz
60 m	5.1675 MHz	2.8 kHz (see §97.401(c))
60 m	5.332, 5.348, 5.368, 5.373, and 5.405 MHz	2.8 kHz (see §97.301(s))
40 m	7.00-7.035 MHz	200 Hz
40 m	7.035-7.10 MHz	500 Hz
40 m	7.10-7.125 MHz	3 kHz (non-phone)
40 m	7.125-7.30 MHz	3 kHz
30 m	10.10-10.12 MHz	200 Hz
30 m	10.12-10.15 MHz	500 Hz
30 m	10.135-10.15 MHz	3 kHz (non-phone)
20 m	14.00-14.065 MHz	200 Hz
20 m	14.065-14.10 MHz	500 Hz
20 m	14.10-14.15 MHz	3 kHz (non-phone)
20 m	14.15-14.35 MHz	3 kHz
17 m	18.068-18.10 MHz	200 Hz
17 m	18.10-18.11 MHz	500 Hz
17 m	18.11-18.168 MHz	3 kHz
15 m	21.00-21.08 MHz	200 Hz
15 m	21.08-21.15 MHz	500 Hz
15 m	21.15-21.20 MHz	3 kHz (non-phone)
15 m	21.20-21.45 MHz	3 kHz
12 m	24.89-24.92 MHz	200 Hz
12 m	24.92-24.93 MHz	500 Hz
12 m	24.93-24.99 MHz	3 kHz
10 m	28.00-28.05 MHz	200 Hz
10 m	28.05-28.3 MHz	500 Hz
10 m	28.3-29.0 MHz	3 kHz
10 m	29.0-29.7 MHz	16 kHz
6 m	50.0-50.1 MHz	200 Hz
6 m	50.1-50.3 MHz	3 kHz
6 m	50.3-54 MHz	100 kHz
2 m	144.0-144.1 MHz	200 Hz
2 m	144.1-144.3 MHz	3 kHz
2 m	144.3-148.0 MHz	100 kHz
1.25 m	219-220 MHz	100 kHz
1.25 m	222-225 MHz	Not specified
All bands	70 cm and higher	Not specified

Table 1. Proposed bandwidths by amateur band.

seeks to expand some HF phone bands and would not be filed until the FCC rules on that issue.

The League did acknowledge that limiting bandwidth is not the only option: "Many countries do not segment their amateur bands by bandwidth or mode in their domestic regulations." Instead, band planning is accomplished on a voluntary basis with the rules merely requiring that amateur signals be kept within an allocated band.

The League does not believe this to be a suitable option in the United States, but fails to give a good reason. "Having a narrow bandwidth segment and a wide bandwidth segment would tend to keep signals of roughly the same bandwidth in their own spectrum..." and would "...protect incumbent analog services to a reasonable extent..." the ARRL said.

New Proposed Bandwidths

According to the draft petition (which is still subject to further amendment):

- 200 Hz is intended to be the narrowest bandwidth to permit Morse telegraphy at all speeds that human operators can decode. The necessary bandwidth depends on speed and whether the circuit is fading or non-fading. An analysis by the ARRL in the 1980s showed that 150 Hz is adequate and is based on rise and fall times of 5 ms. A bandwidth of 200 Hz

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will permit data modes such as PSK31 as well.

• 500 Hz is meant to provide for RTTY and data modes, and possibly new image modes, but the bandwidth is not adequate for conventional telephony. This is not, however, to exclude experimentation with highly compressed or synthesized telephony designed to fit in a 500-Hz bandwidth at sacrifice of natural-sounding voice.

• 3 kHz would accommodate SSB and

digital telephony, image, high-speed data, and multi-media (that is, a combination of these modes). However, 3 kHz is not wide enough for DSB-AM or independent sideband (ISB), so a separate sub-paragraph is proposed.

• 16 kHz is a reasonable compromise bandwidth to permit analog FM voice, data, digital voice, and multi-media in the 29.0–29.7 MHz segment.

• 100 kHz is presently permitted (for RTTY and data) in bands above 420

MHz. It is reasonable to extend this maximum bandwidth starting at 50 MHz (avoiding 50–50.3 MHz and 144–144.3 MHz), so as to allow both digital multi-media and high-speed meteor-scatter (burst) communications.

Again, the ARRL is planning to wait to submit this petition until after the FCC has acted on its "refarming" proposal, which has been gathering dust for several years.

73, Fred, W5YI

South Africa Adopts Novel Amateur Radio Regulations

Instead of only demonstrating Morse ability, upgrading one's ham ticket in South Africa will now be based on achieving one of six "assessments."

The South African Radio League (SARL) based in Johannesburg, South Africa, has announced that effective February 4, 2005, the Republic of South Africa Amateur Radio Regulations have been amended to eliminate demonstrated Morse code proficiency in order to access HF spectrum.

In a novel licensing system, Morse code proficiency "may" be used, however, as one method in order to upgrade. These methods—called assessments—are administered by the SARL.

There are currently two license classes in South Africa, Class A and Class B. Class A licensees (prefix "ZS") previously had to pass a Morse code test at 12 words per minute in order to have full (unrestricted) HF privileges, while Class B licensees (prefix "ZU") had to attain 5 words-per-minute code but certain bands and output power were restricted.

Previously, a person who had passed the written Radio Amateur's Examination (RAE), but had not yet passed a code test, was granted a restricted (prefix "ZR") license, which entitled him or her to operate only at frequencies 50 MHz and higher. Under the old system, the only way to upgrade from a "ZR" to a "ZS" or "ZU" callsign was for South African radio amateurs to pass either a 5 or 12 words-per-minute Morse code examination.

New "ZS" Licensing Standards

The new South African licensing standards no longer use Morse code speed as the sole requirement to upgrade from Class B (5 wpm or Restricted) to Class A (12 wpm). Instead, a Class B (prefix "ZU") or Restricted (prefix "ZR") licensee will be upgraded to Class "A" (prefix "ZS") upon completion of an SARL-approved "assessment" which stresses ability.

The new regulations now provide that a (unrestricted) "ZS" license may be issued to a person who passes a written examination, can correctly set up and operate an amateur HF transceiver, and is in possession of a certificate issued by the SARL attesting that the applicant has satisfactorily completed a prescribed assessment "... that demonstrates advanced knowledge of theoretical or practical aspects of amateur radio."

The new assessments (which must be documented) required for upgrade to Class A "ZS" license are:

Operating Achievement

The candidate must have confirmed contacts (QSL cards) with 100 separate stations on any combination of bands or modes. Each station may only be counted once, even if it is contacted on many bands or modes. Contacts through terrestrial repeaters do not count.

QSL cards must be verified by two ham club members who are appointed by the SARL as card checkers. The checkers must sign a certificate attesting to the fact that the cards have been found valid; the certificate is submitted to the SARL.

Since the new regulations include HF privileges for "ZR" (no code) licensees, a "ZR" may also qualify for "ZS" on the basis of HF contacts.

Electronics Construction

The candidate must satisfactorily construct and demonstrate either:

1. A working **amateur radio receiver** that can receive and demodulate transmissions on any amateur frequency. The sensitivity and selectivity of the receiver must be sufficient to be able to receive typical amateur signals.

2. A working **crystal-controlled amateur radio transmitter** that can transmit modulated signals with a power of at least 1 watt.

The project may be constructed from a kit. Although the candidate may receive advice from other amateurs, all physical construction work (soldering, etc.) must have been performed by the applicant. The candidate must present the project to two assessors nominated by a club and appointed by the SARL.

Public Service and Emergency Communications

The candidate must provide proof that he/she has spent at least 50 hours providing communications services for sports events, disaster-preparedness exercises, actual assistance rendered during a real emergency or disaster, or the operation of an educational amateur radio station (such as JOT) registered with SARL. Log sheets, signed by the event organizer, are submitted to the SARL.

Recognition of Professional Qualifications

The candidate must provide proof that he/she has been awarded a nationally recognized degree, diploma, or trade certificate in electronics or radio that would ordinarily require at least two years of study to complete or a certificate qualifying the candidate as a marine radio officer. Candidates must present a certified copy of their qualification directly to the SARL.

Morse Code Proficiency

A candidate who demonstrates the ability to send by hand and receive by ear Morse code at a speed of not less than 5 words per minute also qualifies for upgrade under this assessment. Morse tests will be administered by Morse examiners nominated by a club and appointed by the SARL.

Recognition of Prior Achievements

A candidate who has already fulfilled the requirements for any of the assessments, and who can provide the necessary proof of having fulfilled the requirement, shall qualify for a ZS license. This basically means that all previous Class B (5 wpm) licensees may apply for "ZS" status.

The new South African Amateur Radio Regulations can be found on the World Wide Web at: <<http://www.sarl.org.za/public/icasa/1-27258-4-2.pdf>>.

Yet More "Try HF" Notes for Newcomers

Nearly 22,000 new hams joined our ranks last year, and a fair percentage of new amateurs are also expressing interest in HF-band operations. Jolly good show! As I have stated in several previous columns, our famous "low bands" of 160 through 10 meters are the real heartbeat and globe-spanning aspect of amateur radio everyone should experience first hand. It's terrific! As I have also pointed out, life on HF is quite different from VHF and/or 2-meter FM, and some helpful "getting started" notes are always beneficial.

Such guidance was the focus of our January and September 2004 "World of Ideas" columns, and it is also the subject of this month's column. Last time we discussed the three most important factors of HF success—namely, station equipment, antenna system, and operating expertise. This time we'll look at the all-time favorite pursuits of contesting and DXing.

Incidentally, if you have not previously tried HF and/or feel hesitant in making those very first HF contacts, I heartily suggest operating 20 meters during weekdays when the band is not crowded and the atmosphere is more casual. A few days of operation should help you feel more comfortable and ready (anxious!) to join big-time weekend action. Would 40, 15, or 10 meters be better for starting out? Not really. Everyone gets on 40 meters; it is overrun with shortwave interference and folks dinking with problem gear. What about 15 and 10 meters? They are good, but they are not too active at this low point in the sunspot cycle. Twenty meters, however, is the all-time, anytime center of HF action. You'll love it!

The Contest Scene

Whether proving a new rig's ability to "reach out" or adding to your Worked All States or DX country total, nothing does it better than contesting. The contacts are brief, you can "jump in and out" of a contest as your time permits, and you can tune and pick the stations you wish to work rather than taking random luck on someone answering your CQs.

For maximum success and greatest results right from the start, consider what I call the "can't miss," or "everyone wins," contests offering a certificate, lapel pin, or T-shirt for making a few quick con-



Fig. 1— Like some cool wallpaper for making only six select contacts during a DX contest? This Worked All Continents certificate may be the perfect answer. The award is also available for special operations/modes such as OSCAR satellites and SSTV, as shown here.

tacts. The ARRL's Sweepstakes and Field Day are two familiar examples here. Some folks have even qualified for a DXCC or CQ DX certificate by contacting 100 countries during a single-weekend DX contest. It is a formidable challenge, but it can be done—even with a basic rig and antenna. An easier goal you might like is qualifying for the League's Worked All Continents certificate. That requires only six good contacts. During almost any DX contest you can contact Europe, Africa, and North America on 20 meters, and Asia (Japan, for example) and Oceania (e.g., Hawaii), and South America on 10 or 15 meters—all within an hour at around dusk. I do it in every DX contest—just by switching between 10 and 20 meters—and while using no more than 100 watts and a vertical antenna. You can do it, too. Just keep on tuning, listening, and calling and avoiding being drawn into big pile-ups.

Additional contest-related pursuits that blend with busy lifestyles include individual state QSO parties (nearly every state holds one) and four-hour Sprints. Even if you do not qualify for a certificate, the activities are great for fine-tuning your operating skills and proving how well your rig will reach out. Although not contests per se, contacting special-event stations is another good way to enjoy limited on-the-air time during weekends. Usually just one or two quick contacts can be re-

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e-mail: <k4twj@cq-amateur-radio.com>

warded with a unique QSL or certificate (photo A). Check the "Announcements" section and the "Contesting" column here in *CQ* each month for more details on monthly happenings of interest.

DXing Reigns Supreme

Contacting faraway places is more than a mild interest among many radio amateurs. It is an infatuation. It has been compared to flexing one's electronic muscles, and is considered by some to be more fun than drag racing and just as challenging (and rewarding!) as making a golf hole-in-one from 100 yards away. In light of this and also realizing the benefits of helping Elmer guidance when first DXing, I offer the following collection of notes to help ensure your DXing success.

There are two prime times for DXing every day: the hours around sunrise and the hours around sunset (your local time). Typically, 40 meters "opens" toward areas of darkness (the west) an hour before sunrise, and then 20 meters opens an hour or two later. If sunspots are favorable, 17, 12, and then 10 meters open (towards the east) soon afterwards. The pattern reverses around sun-



Photo A— Contacting special-event operations from ships, submarines, lighthouses, air shows, etc., is a terrific way to enjoy spare moments on weekends, and only one or two QSOs qualifies for a neat certificate or QSL card. Listen between 14.250 and 14.270 MHz on weekends to spot special-event activities.

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set, with 10, 12, and 15 meters "closing" first, and 20 and 17 meters staying "open" until later in the evening.

That is the usual pattern, but there are always variations that result in unexpected treats—such as 10 or 12 meters opening to the Far East during early evening hours, or 20 meters opening long path (that's over Europe, etc.) into the South Pacific at around 3 PM (again, your local time). Stay alert to both the usual and unusual times for good DXing. Vary your operating times (as much as you are comfortable with) to catch "surprise openings." If you always get on the same band at the same time, your DXing results will always be the same. Try to get on the air—even if just briefly—at your least opportune time. It sounds nutty, but this reverse logic always works.

Spend a fair amount of time listening to and studying the operating habits of DX stations. Learn to think like they think, and sense how they tune and exactly how they listen for callers. Note how quickly or slowly they respond to stations (some are overwhelmed by pile-ups) and also the geographic area(s) of stations "getting through" to the DX. If propagation favors your area and if your call is well-timed, your odds for success are high even with low power.

If the DX station replies to other stations before you finish calling, shorten your calls and/or call faster (especially when operating CW; that step really works!). Expect and anticipate success. Be prepared to copy an immediate reply while others are still blasting the frequency with their calls (many stations lose their well-deserved DX contact here). If you do not "get through" within two or three calls, stop calling and reassess the situation. Listen for that exact moment when all the callers QRM one another, the DX station is saying QRZ, and then both the callers and the DX return to receive at the same time. Use earphones, crank up your receiver's gain, and listen closely for that opening. Then quickly insert your call only one time, and be ready to copy your reply amidst a mob of screaming eagles (now that's cooking!).

If you are still unable to break through the pile-up, consider the DX station may habitually return to the same frequency around the same time each day. The next day be there waiting and listening to hopefully catch the DX station's first CQ. Make your call as exact and precise as Luke Skywalker's famed torpedo run in *Star Wars*, and you can make a contact before the mob descends on the frequency. Then sit back, listen to the howls, congratulate yourself, and grin. That's half the fun of DXing.

Bear in mind that some DX pile-ups can be self-escalating, especially if the DX station becomes listed on a DX packet cluster. In this case, the pile-up flourishes and others hearing the action join the scene until the situation gets completely out of control. Soon everyone is calling (some don't even know who the DX is), while at the same time there is an even more exotic DX station calling CQ a bit further up the band and that station goes unnoticed.

Finally, remember every DX contact is a special achievement in itself, and every country you have not contacted is a "new one" regardless of the pile-up. Maintain patience and persistence, project a congenial and professional attitude, and never give up. Good, savvy operating tactics always win out over high power.

Try CW

We understand you may have apprehension about using CW, but you can contact more DX in more rare locations more easily and while using less power on CW than any other mode.



Photo B— Like to contact some really exotic DX working CW almost exclusively? Try an MFJ-464 combination Morse code reader and programmable keyer. It displays both incoming and outgoing code on its front readout and makes a neat CW aid.

That is not hype; it is a fact. Many amateurs throughout the world cannot afford a fancy SSB setup and big antenna, so they go for maximum returns by using CW and a simple wire antenna. There are more amateurs in foreign lands operating CW than SSB, while there are more amateurs in the U.S. operating SSB than CW, so competition for CW contacts is less. Quite often while operating CW, I will be one of the few (if any) U.S. stations in a DX pile-up. Also, by using full-break-in operation to listen in between my transmitted dots and dashes, I can time my calls and put them exactly on the DX station's frequency so I am heard regardless of my power level.

A few recently worked (on CW) stations include 3B9C (the Rodriguez Island expedition), FK8GJ in New Caledonia, JT1CO in Mongolia, and the OH2BH/ZA operation from Albania. You say you have heard comparable DX on SSB? Could you contact them in only a couple of minutes while using only 50 watts and a vertical antenna?

Need more encouragement? Most rare DX QSOs (and contest exchanges) follow a brief and similar format of your call/reply and signal report (usually 599 in a busy pile-up). If you hear a large pile-up and copy only one letter per QSO, you can decipher the DX station's call within four or five minutes. With a little practice, you also will learn to recognize your own call letters and a 599 signal report at any speed. As a backup plan, add an MFJ-464 combination Morse code reader and programmable memory keyer to your setup. It will display both incoming and outgoing Morse on its front readout, and you can even use it for "pushbutton CW QSOs."

Summary

On that (CW) note we must again bow out for another month (so many tips to share, so little space). That's why I wrote *Your Guide to HF Fun*. The book is a helping Elmer guide for newcomers, and it is \$16 plus \$2.50 regular mail or \$3.85 Priority Mail direct to you from me (Dave Ingram, K4TWJ, 4100 S. Oates Street, #906, Dothan, AL 36301).

Finally, listen for my own special-event operation—complete with certificates and souvenirs—from south Alabama's secret UFO base in area 33 on April 1 on 20 meters. It will be a blast!

73, Dave, K4TWJ

60 Great Things About Ham Radio



In celebration of CQ's 60th anniversary in 2005, we've come up with 60 great things about ham radio, which we'll bring you each month, five at a time. We're sure you'll have more great things that we haven't thought of, so when we're all done, we'd love to compare our list with yours.—W2VU

This month, we'll focus on some of the opportunities ham radio offers that might not be found in other hobbies:

16. The opportunity to help neighbors by providing public service and emergency communications— This is the main reason ham radio continues to exist and our frequencies haven't yet been auctioned off to the highest bidder. We're not the technical innovators we used to be; the government trains its own communicators and technicians, and the State Department doesn't really put much stock in personal diplomacy. But the simple fact remains that when disaster strikes and our ultramodern, ultrasophisticated telecommunications network crumbles, hams still know how to get through. And we do.

17. The opportunity to go interesting places you might not otherwise go to— My ham radio activities, and particularly my public service activities, have taken me out on a luxury yacht in Long Island Sound to do communications for a sailing race; to the middle of New York's Verrazano Narrows Bridge at the lead of a sea of runners in the New York City Marathon; to a VHF conference in Germany; to the Outer Banks of North Carolina to join an attempt at making a transatlantic QSO on 2 meters; and of course, to Dayton, Ohio (I mean, with all due respect, why *else* would I go there?).

On the more serious side, ham radio has also taken me in a Red Cross vehicle through the deserted streets of lower Manhattan in the aftermath of the 9/11 attacks, en route to a shelter where I'd be providing communications. But how else would I have been able to help?

18. The opportunity to do interesting things you might not otherwise get to do— Ham radio has opened the door to being part of the activities I described above, from sailing races to disaster assistance. It has also let me put kids in touch with Antarctica and put me on my town's Local Emergency Planning Council. And it's introduced me to all sorts of fascinating people, but that's another topic.

19. The opportunity to expand your knowledge of geography— How many people knew where the Andaman Islands were when last December's tsunami struck? Very few... except for hams. Ham radio brings a world map to life, providing us the opportunity to actually talk to people in faraway places—and then try to see just where it is they're located in relation to ourselves. Ham radio can be the geography teacher's best friend.

20. The opportunity to expand your knowledge of earth and space science— What other hobby requires an understanding of the ionosphere and the sun's 27-day and 11-year cycles? In addition, many VHFers learn to read weather maps to look for conditions that lead to tropo openings or ducts, or rain scatter on microwaves. Even greater knowledge of earth and space science are required for activities such as meteor scatter, aurora, moonbounce, and satellite communications.

We'll be back next month with another installment...

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Can HSMM Find a Real Home in Ham Radio? A Commercial Alternative, plus more on RSQ

High Speed Multimedia (HSMM) has gone commercial, in a big way. All that is keeping you from deploying a large, carrier-quality HSMM network is money, and not much of it, at that.

After my brief mention of the SkyPilot system in February's column, I did some research on the current state of HSMM in amateur radio. My finding is that people are interested, but nobody has really put together a network *a la* packet. A group down in San Antonio, Texas has a map of just over a dozen stations posted on its web page (<http://home.satx.rr.com/wdubose/>), the largest I've found. The ARRL HSMM pages (<http://www.arrl.org/hsmm/>) don't list any active networks, and a search page off the ARRL site showed only 20 stations registered as HSMM stations. In the heyday of packet, there were a few hundred stations in the NEDA (North East Digital Association) network alone.

What's the Roadblock?

The equipment is there, as are the software building blocks—routing, access control, DAMA. It just seems as if no one in amateur radio has put them all together and on the air.

My first thought is that the "Hinternet" (the ARRL's name for a ham radio internet) and packet share at least one important trait: The internet is better/faster/cheaper. My cable connection to the internet might cost \$45 a month, but it is plenty fast at 3 Mb/s, is reliable, has no Part 97 content restrictions, and required no new equipment on my part. A wireless equivalent under Part 97 might end up costing me only a few hundred dollars, with no monthly cost, but what can I do with it? To be honest, the local hams don't have a lot of data that I might find interesting to download or share.

I'll admit that HSMM is a great idea and has its uses, especially for ad-hoc get-togethers and emergency operations, but the world is content-driven, and without a lot of very interesting and/or useful content, the local support just won't be there. This is also part of the reason why packet is where it is today, at least in North America.

On a side note, the packet network in Germany remains viable and useful, arguably because there is useful content available and good performance. Both of these exist for the same reason: If you want to get into packet networking in Germany, you have to be serious about it—very serious. You see, every packet network facility oper-



A SkyExtender installed at the top of a tower. The SkyExtender is the white tube near the tower worker's head. Its relatively compact size, simple interface requirements (Ethernet UTP for power and data), and relatively high power (44.5 dBi) using unlicensed 802.11a spectrum and equipment (with proprietary software and protocols) make it an attractive alternative to Cable and DSL for internet access. (Photo courtesy SkyPilot Network Inc.)

ating unattended needs the equivalent of a Special Temporary Authority (STA) from the RegTP (like the FCC), and to get the STA you need to show to whom you're linking, how you're making the link (band, mode, data rate, etc.), and a signed frequency coordination. In the U.S. you can put up a network facility at will.

The forced cooperation and forethought imposed by Germany led to all resources being focused on the single goal, rather than diluted across protocols, competing groups, and poor technical implementations, as we have in the U.S. Since the same situation exists with HSMM, the same issues will no doubt arise. We're not necessarily doomed to failure, but we'd best remember history!

Can We Make Something of HSMM?

Looking at the issue from a different angle, though, reveals some different possibilities. If the main issue is content (which, in my opinion, it is), then how can we address that? One way would be to mirror existing internet content that is deemed "OK" for Part 97 operations. Another way would be to abandon Part 97 in favor of Part 15. Heresy, you say? Perhaps. However, I didn't create the

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issue, I'm not the only one with this opinion, and there is really no advantage to Part 97 operations with HSMM anyway, as you'll soon see. I'm ahead of myself here, though.

Think of an HSMM system that can be deployed over an area such as, say, New York City or Los Angeles, easily a few hundred square miles. Any ham who wants in gets in—you just have to get the right radio and antenna—while outsiders can be (and are) excluded. Data rates normally are way above DSL, in the 3 Mb/s range like my cable modem. Connected to the internet, no restrictions on content, just like my cable modem. Maybe it will slow down a bit when there are a lot of users, but cable does that, too. It would be polite, but not mandatory, to donate time, talent, or treasure to keep the network running, kind of like the way a repeater often is funded. You can do that today. It's under \$10k for the network, maybe \$300/month for a commercial T1 line to the internet, and each user needs to spend about \$350 for his/her own equipment.

The SkyPilot Approach

The clever folks at SkyPilot (<http://www.skypilot.com>) are selling an integrated

system to folks who want to compete with the cable and DSL networks. Note that this leaves BPL in the dust, economics-wise, and is currently far ahead of WiMax, although that might change.

The key to the system is the "SkyGateway." This is the central hub of the network and the gateway to the internet. If you need the capacity you can add more gateways, but each one is \$2500 and can handle at least a thousand users, so maybe we'll wait on that for a while. The Gateway controls the network, and nothing runs without it.

The Gateway's range is extended using a "SkyExtender." Think of this \$500 item as an intelligent digipeater. Both the Gateway and the Extender look the same—an 18-inch diameter radome about two feet high (see photo). Both have the same effective isotropic radiated power (EIRP)—about 44.5 dBm, or just about 30 watts.

I'll bet that EIRP figure raised some eyebrows. Yes, it is well within Part 15 limits for a point-to-point link on 5.8 GHz, using off-the-shelf chipsets designed for 802.11a networking, along with proprietary protocols and signaling. Because of that, you can't use standard 802.11a gear on a SkyPilot network, but the savings from the company's innovative

leveraging of off-the-shelf hardware are passed on to the buyer.

Here's the secret behind the power levels: The Gateway and Extender are omnidirectional, but only 45 degrees at a time. They each have eight directional antennas and a clever switching system, so they really are communicating point-to-point with relatively tight antenna beams, while being able to move the signal around a circle. The user's equipment (known as a SkyConnector, \$350, both indoor and outdoor versions) has a directional patch antenna, a radio, and a single RJ45 connector for 10/100BaseT and power, making it easy to install.

The entire network is synchronized, using GPS, to tightly control data flow, allowing latency-sensitive applications such as VoIP (Voice over Internet Protocol) to perform smoothly. Every user station is dynamically allocated bandwidth (time on an antenna), so there are no collisions and no hidden transmitters, and all users get what they need when they need it. The routing algorithm is very good, always using the path between stations measured as the "lowest cost." The on-air data rate is up to 54 Mb/s, and there are four non-overlapping channels, so even with overhead, you end up with each Gateway or Extender being

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able to support more than 30 direct users at full data rate, and a hundred or more with a typical usage pattern. Running backhaul links on another band, on dedicated channels, or even over wire or fiber, dramatically increases network capacity when needed.

Of course, RF at 5.8 GHz is still RF. The same propagation issues that hams face also apply here. At the least, Near Line of Sight (NLOS) paths are required. For a commercial installation, excellent sites are necessary and comprise a significant expense. For an Amateur HSMM network, given the money involved, it would require some effort to secure good sites, but this is nothing new. The promise of emergency operations capabilities, even if internet access is down, might open some doors with the local authorities. Hams are quite resourceful in this area, but there's no magic formula.

SkyPilot also requires system operators to use its SkyProvision software (\$500/1k users). This is how you configure and control the entire network, even allowing for remote firmware upgrades (such as the ROSE packet network used to have). You can also get the optional SkyControl software (\$2500/1k users), which gives you a real-time view of the network's performance and usage, as well as powerful network management tools.

Do-It-Yourself?

When I began writing this column, I was going to suggest that amateurs study the SkyPilot system to replicate the functionality at a lower cost, but in retrospect I think that the equipment probably represents an excellent value as it is. The equipment is available today, and the whole package is very nicely integrated, with guarantees and warranties, at a price point that many larger clubs could afford.

On the other hand, one of the definitions of a hobby is any activity in which you can do something yourself that is available cheaper and better commercially. The whole point—at least for some people—is not to buy gear, but to have the fun and educational experience of making it yourself. Thus, the approach that best fits the interests of you and your club is the one worth considering.

More on RSQ

February's column on RSQ (www.psb-info.net) must have hit a nerve, if incoming mail is any indicator. I received quite a few e-mails on the topic, all of them agreeing that maladjusted

PSK31 operations were a bane of the mode. Unfortunately, the folks who need to know this probably are not the ones reading this column.

During my first stint as WW2CQ/62 in early January, I was exclusively on PSK31, and exclusively on 40 meters, mainly because that's the only antenna I have operating at this time. There wasn't a night when at least one station wasn't on the air with a beautiful set of vertical stripes caused by tremendous overmodulation.

One fellow was taking up over 700 Hz of bandwidth on this 31-Hz wide mode. I spent a bit of time and contacted him, and tried to explain that his signal was too wide and how to correct it. You'd have thought I was typing in Swahili for all he acknowledged it. I got back his brag list, QTH, and other canned data, but it was as if I never sent anything. Days later, the same lousy signal was on the air, wiping out the fun for the rest of us. Why is it that these folks also tend to have very loud signals?

The moral of the story is persistence. I will tell this fellow the same message every time I work him, and continue to do so until there's no need. If every single contact this fellow had, or even a fair percentage of them, mentioned the same point—kind of like telling a CW op of his key clicks—I'd have to think that eventually it would sink into his brain.

The other side is much nicer. One fellow was a long-time QRP CW op trying PSK31 for the first time at about 5 watts. He thanked me profusely for the help in adjusting his transmit audio level and found that he could work more stations after the adjustment. Now that he wasn't wasting any of those precious watts on useless sidebands, of course he had a better signal. Now there's a happy ending for you.

Summary

This month's column is a little short. I said what I had to say, and there's no good reason to fluff it up with useless words, so I'll sign off a little early. I've been very busy helping a local high school team build a robot for the FIRST competition (www.usfirst.com). There's no real involvement with amateur radio, but building robots is just as much fun, and the kids really appreciate having someone experienced to bounce ideas off and to help explain the science behind their actions—not to mention a ready supply of aluminum. So instead of researching the next CQ column, I've been building robot arms and explaining how to calculate torque.

Until next time . . . 73, Don, N2IRZ

IC-756PROIII, FlexRadio SDR-1000, Heil Mics, MFJ Window Mount, and more

This month we'll focus on some noteworthy radio gear and accessories, what's new on the internet and on the bookshelf, portable and mobile goodies, and other items of timely interest to our readers. Let's dig right in.

Radio Gear

ICOM Introduces the IC-756PROIII. The new ICOM PROIII (photo A) is a state-of-the-art HF transceiver designed for high performance in demanding conditions, as in contesting and DXing. Receiver technology from the IC-7800 has been combined with the familiar and powerful ergonomics of the IC-756PROII. The PROIII uses 32-bit Digital Signal Processing (DSP) technology and fully customizable filters in both receiver and transmitter, requiring no additional filters or options.

"The number one reason for upgrading to a PROIII is the improved receiver performance," says Ray Novak, N9JA, ICOM's National Sales Manager. "The lower distortion at all stages of the receiver means better handling of strong signals and a quieter band. Worldwide, better receiver performance is the number one desire of HF operators. The biggest improvement was increasing strong-signal linearity, followed by the improved bandpass filters and roofing filter. If you have nearby amateur or shortwave-broadcast transmitters, you'll really notice the difference."

The Real-Time Spectrum Scope on the bright, high-contrast TFT color LCD screen continues to be one of the 756PRO family's unique features. The PROIII now offers a "miniscope," an inset spectrum display visible even while using other functions or configuring features. In addition, the PROIII's transmitter has been upgraded with adjustable SSB transmit filter bandwidth and more than 100 different audio equalization settings. Further, 60-meter band transmit coverage is now

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Photo A—ICOM is proud of its new IC-756PROIII HF transceiver, the latest enhancement to the popular 756PRO family. The radio is an upgrade of the IC-756PROII, with a number of significant new features. (Photo courtesy ICOM America)



Photo B—FlexRadio Systems now offers a fully assembled, 100-watt HF version of its SDR-1000 Software Defined Radio Transceiver. The SDR-1000 reportedly is the first open-source-software HF through 6-meter transceiver for the amateur market. (Photo courtesy Flex-Radio Systems)

available with performance equivalent to that achieved on all other amateur bands.

The PROIII inherits the PROII's feature set, including 32-bit floating-point DSP, 24-bit audio, powerful notch and noise-reduction capabilities, and various special features to make digital mode operating a breeze. The computer-control interface is also compatible with that of the PROII, so existing logging software will work. The IC-756PROIII is \$3676 retail.

For more information, contact ICOM America, Inc., 2380 116th Ave. N.E., Bellevue, WA 98004 (425-454-8155; web: <<http://www.icomamerica.com>>). You can download the IC756PROIII brochure from the website; select "Downloads" and "Brochures."

SDR-1000 Software Defined Radio Transceiver Now Fully Assembled With 100 Watts of Power. FlexRadio Systems now offers a fully assembled, 100-watt HF version of its SDR-1000 Software Defined Radio Transceiver. The SDR-1000 (photos B and C), which began shipping in 2003, reportedly is the first open-source-software HF through 6-meter amateur transceiver. The SDR-1000 also provides general-coverage reception from 11 kHz to 65 MHz.

Originally offered as a semi-kit, the SDR-1000 can now be purchased fully assembled in a custom enclosure that provides for a number of expansion options. One of these options is the new integrated 100-watt PEP output HF linear amplifier.

The SDR-1000 connects to a PC sound card to provide RF up and down conversion. The sound card then digitizes a 48-kHz wide spectrum of I and Q (in-phase and quadrature) signals from the RF front end, which are then processed by DSP software on the PC. Of special note, given I and Q signals, all past, present, and future modulation methods reportedly are technically possible.

user requests, Heil also brings to market the new Traveler Dual (not shown), a Traveler with two earphones with all of the same features and using the same adapter cables.

Three new adapter cables now are available for the Traveler, which will allow it to be used on many popular HTs. The price for the Traveler and one adapter cable is \$89. Each additional adapter cable is \$20.

Next up is the new Heil Handi Mic (photo F). According to Bob, Heil's engineers have solved the problem of the hollow, clamshell sound that has plagued stock hand microphones for decades. When you place a microphone element inside a shell, the result typically becomes very hollow sounding, especially on SSB. By mounting the high-performance Heil microphone elements in an open Sorbothane® shock mount, the result is said to be spectacular. Low handling noise and exceptional lack of bass boosting proximity effect make the Handi Mic ideal for mobile and portable use. The resultant mic is only 4 inches tall.

There are five models of the Handi Mic. Each is intended for specific transmitters or uses. They include the popular Model HM4, which has the HC4 Heil DX element; the HM5 has an HC5 full-range communications element; the HM-iC has the high-performance Heil "iC" condenser element for use with all ICOM rigs; while the HM PRO model has a wide-range broadcast dynamic element and is said to be excellent for many VHF FM transceivers.

All of the Handi Mics are ergonomically designed for ease of handling, and the PTT button is a tactile soft switch. SRP for each model is \$80, while the special CH-1 shielded coil cable (especially suitable for portable and mobile use) is \$20.

Bob is particularly proud that Kenwood is packing a Handi Mic with all of its TS-480 transceivers (photo G). Kenwood selected the HM-5 mic, which comes equipped with the dash mount, mic stand and boom adapter, windscreen, and shielded coil cable.

Contact Heil Sound, Ltd., 5800 North Illinois, Fairview Heights, IL 62208 (618-257-3000; e-mail: <info@heil.com>; on the web: <http://www.heilsound.com>).

Portable and Mobile Goodies

MFJ-301S SMA Mount Rubber-Duck Window Mount with Coax. MFJ Enterprises has introduced the MFJ-310S (photo H), a window mount with a

quality SMA connector so you can screw your flexible rubber-duck antenna right into it. With the new device, you can get your handheld antenna out in the elements, into the air, and thus avoid the shielding effect of the inside of your automobile.

Said to be perfect for new handheld radios using SMA connectors, the MFJ-310S has a male SMA connector on the mount for your handheld radio antenna and a female SMA connector on the coaxial end, so it easily goes right onto your handheld radio. The mount is designed particularly for 144/440-MHz handhelds, and it comes with 10 ft. of mini RG-58 coaxial cable. The mount safely rolls up inside your automobile's window cavity.

The MFJ-310S is priced at \$14.95, as is the similar MFJ310, which is the same mount but has BNC connectors on each end. For more information or a free catalog, contact MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759 (1-800-647-1800; e-mail: <mfj@mfjenterprises.com>; on the web: <http://www.mfjenterprises.com>).

New on the Net

"Circuit Tidbits" Free Monthly Newsletter. Phil Anderson, WØXI, proprietor of Alden McDuffie, Inc., has initiated a free monthly e-newsletter, "Circuit Tidbits." Its goals are to encourage radio amateurs to homebrew—to once again design, build, experiment, and learn about circuits. Newsletter issues vary in content, but each issue normally will include at least one tutorial on DC, AC, or RF basics, as well as a project or two to build. The newsletter is furnished in the popular .pdf format.

To subscribe to the newsletter, send an e-mail to <WØXI@aldenmcduffie.com> with the subject "subscribe" and "name and callsign" in the text area. Contact Alden McDuffie, Inc., P.O. Box 3636, Lawrence, KS 66046 (785-766-0404; e-mail: <info@aldenmcduffie.com>; and on the web: <http://www.aldenmcduffie.com>).

Tube Performance Computer is On-Line. The Eimac division of Communications & Power Industries (CPI) is a leading producer of power grid tubes and IOTs (induction output tubes) for radio and television broadcasting, as well as for semiconductor wafer processing, industrial heating, radar, medical, and scientific applications. All products are manufactured in the company's San Carlos, California facility. In fact, most radio amateurs who are "into" high-power RF equipment are well aware of Eimac and what it does.

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Photo F— There are five models of the new Heil Handi Mic; each is intended for specific transmitters or uses. All of the mics are designed for ease of handling, and the PTT button is a tactile soft switch. (Photo courtesy Heil Sound)

Photo G— Kenwood is packing a Heil Handi Mic with all of their TS-480 transceivers. They selected the Heil HM-5, which comes with the dash mount, mic stand a boom adapter, windscreen, and innovative new shielded (and very user-friendly) coil cable. (Photo courtesy Heil Sound) →



The Eimac division of CPI has made its Tube Performance Computer available in .pdf format under the Applications section on its website, <<http://www.eimac.com>>. Included as part of Eimac Applications Bulletin #5, which explains how to use the characteristic curves for triodes and tetrodes, the performance computer can be printed on a transparency for use with curves which are available in Eimac's detailed data sheets.

"The Tube Performance Computer allows engineers to calculate the performance of a tube at selected operating conditions," says Harry Schneider, Eimac's Broadcast Manager. "The example of the 4CX20,000A/8990 that is included in Applications Bulletin #5 walks the user through the necessary steps and explains the theory behind using the curves. The individual curves are available in the specific detailed data sheets, which can be requested at <powergrid@cpii.com>."

Just in case you're not aware, Eimac's parent, Communications & Power Industries (CPI), is a leader in advanced transmission technology for satellite and terrestrial communications, radar, electronic warfare, industrial processing, medical diagnostics, and scientific research. The company is headquartered in Palo Alto, California. You can view the corporate profile at <<http://www.cpii.com>>.

From the Bookshelf

New TS-480HX and TS-480SAT Quick Reference Mini-Manual. Bernie Lafreniere, N6FN, let us know of yet

another addition to his quick reference guides, which he issues under the Nifty! Ham Accessories imprint. Recently, he added the TS480HX/TS-480SAT Mini-Manual (photo I), providing complete coverage for one of Kenwood's newest HF transceivers.

Simplified step-by-step programming and operating instructions for the TS-480's many features are concisely covered in this short-form manual. All controls and setup menus are fully described. Interspersed with operating hints and organized for quick access, the Mini-Manual is a convenient memory jogger for instantly recalling how to set up and operate your transceiver.

Laminated and printed in color, the compact, 14-page, 4.5" x 8" Mini-Manual is designed as a ready reference to be kept with the radio, so it's there when you need it. It's \$18.85 plus s/h.

For more information, contact Nifty! Ham Accessories, 1601 Donalor Drive, Escondido, CA 92027; (760-781-5522; e-mail: <berniel@niftyaccessories.com>; and on the web: <<http://www.niftyaccessories.com>>).

More Useful Stuff

Ham Radio Operator Identity Badge. The very attractive, custom-engraved Ham Radio Operator Identity Badge now is available from Maxsell Corporation (photo J). Constructed of solid brass and available in gold or silver plating, it measures 2" x 3" with five panels for engraving your name, callsign, and other pertinent information or operator ratings. Transceivers, towers, and a microphone are shown on the badge in deep relief.

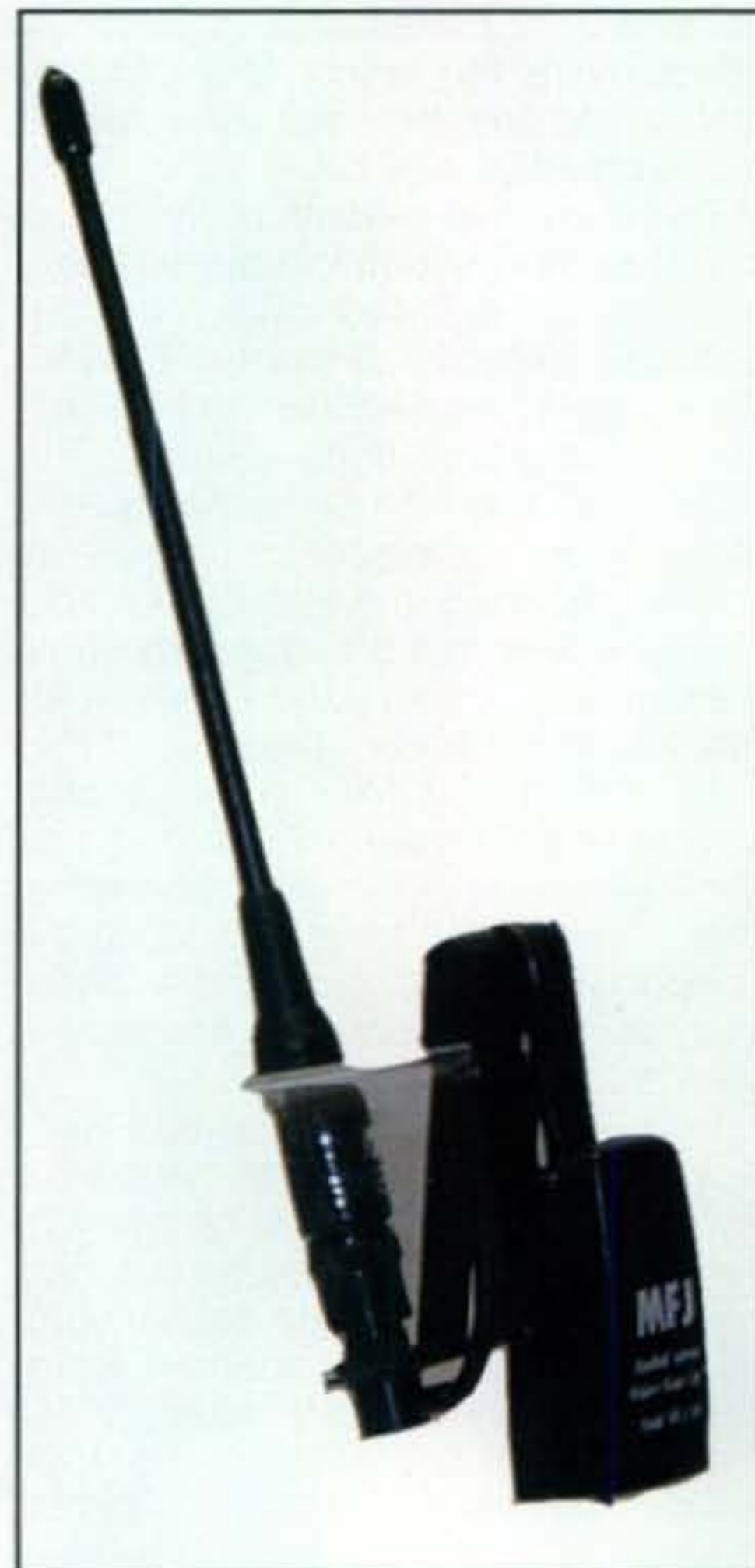


Photo H— MFJ Enterprises has introduced the MFJ-310S, a window mount with an SMA connector so you can screw your flexible rubber-duck antenna right into it. In this photo, the mount is shown with the MFJ-1716S High-Gain Dual-Band Flexible Duck Antenna. (Photo courtesy MFJ Enterprises)

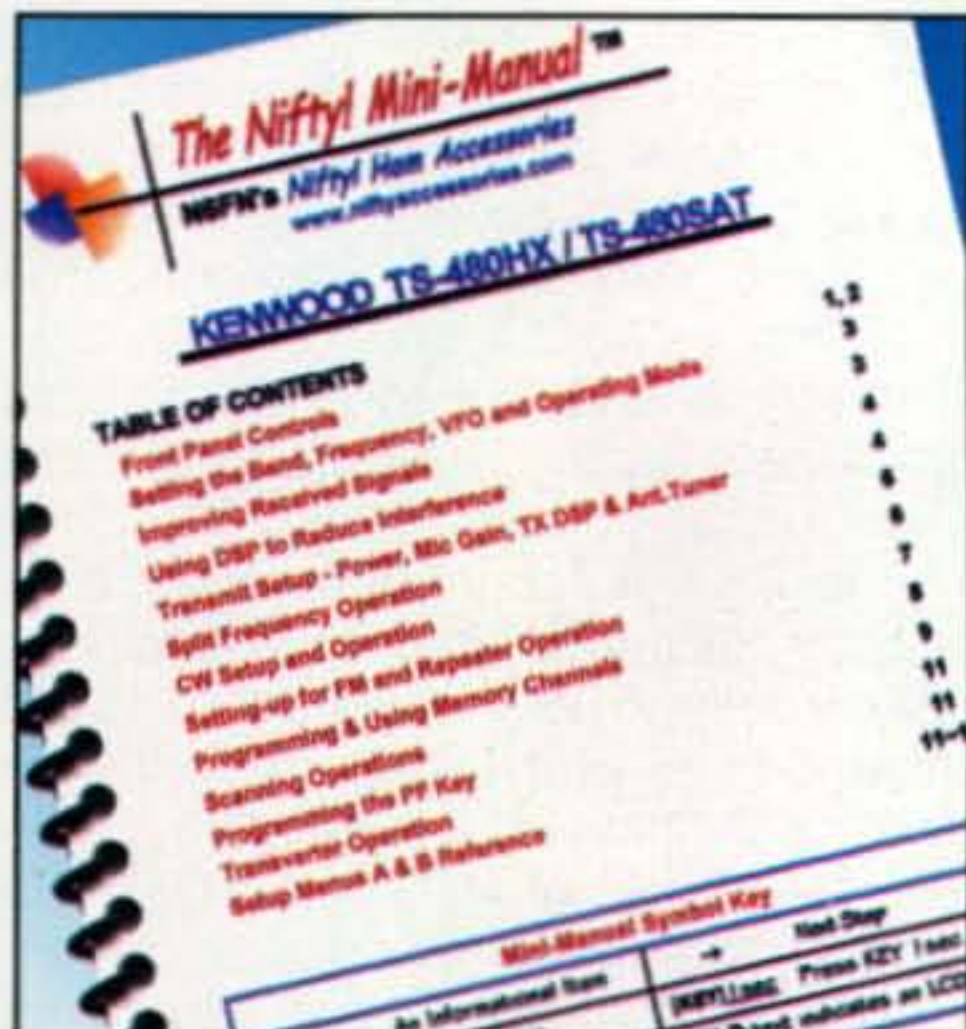


Photo I— Nifty! Ham Accessories has added the TS-480HX/TS-480SAT Mini-Manual to its product line, providing complete coverage for one of Kenwood's newest HF transceivers. Simplified step-by-step instructions for the TS-480's many features are covered. (Photo courtesy Nifty! Ham Accessories)

Considered by the manufacturer to be a professional and credible way to identify one's self at field days, hamfests, and trade shows, or enroute as a first responder, it's an attractive badge that offers instant visual identification. Re-

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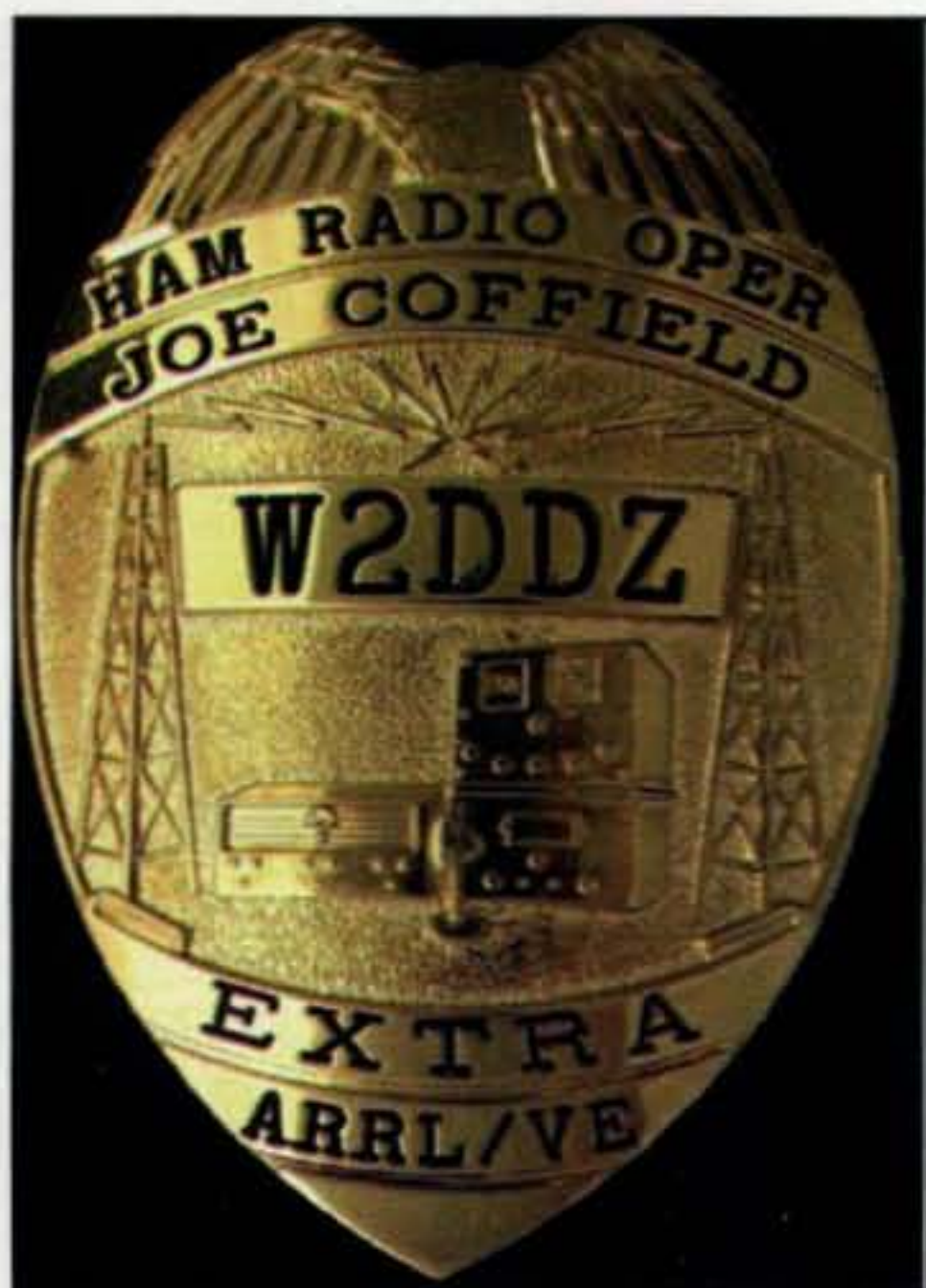


Photo J— An attractive, custom-engraved Ham Radio Operator Identity Badge is available from Maxsell Corporation. Constructed of solid brass and available in gold or silver plating, it measures 2" x 3" with five panels for engraving your name, callsign, and other pertinent information or operator ratings. (Photo courtesy Maxsell Corporation)

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Photo K- The U.S. Army has selected the ICOM F43G series portable transceiver for in-the-field soldier communications. The radios are part of a package known collectively as the Military Bundle, but the F43G radios are the core of the bundle. See the text of the column for more details. (Photo courtesy ICOM America)



of a package known collectively as the Military Bundle. Other elements of the bundle include a headset, an encryption module, and the accessories needed to complete the custom package. The F43G radios are the core of the bundle. The radios were tested extensively by the Army's Battle Lab before a purchase recommendation was made.

The GSA purchase deal is for over 20,000 Military Bundles and represents the largest government order in ICOM America's 25-year history. This order follows on the heels of an earlier, high-profile U.S. Army order from ICOM, the Soldier Intercom. The new order includes ICOM's new, next-generation F43G series portable radios. These radios offer more power for today's urban-patrolling soldiers. The extra power helps radio signals wiggle around buildings, vehicles, and other obstacles.

We have over five years of experience supplying radios to first-line Army units," said Chris Lougee, Vice President of ICOM America. "The ICOM Soldier Intercom was the first use of two-way radios at the squad level. It proved the viability of radios to replace hand and arm signals for coordinating squad actions on an objective. These new models increase transmission security, reduce size and weight, and supply improved battery performance," he added.

The largest previous government order was in 2000, for the U.S. Army's Soldier Intercom portable radio. This new radio differs from the Soldier Intercom in numerous ways. The previous Soldier Intercom was ordered by the Army with specifications for lowering the power level to one-tenth watt.

ICOM America's headquarters are in Bellevue, Washington, and they're on the web at: <http://www.icomamerica.com>.

Wrap-Up

That's all for this time, gang. Next time more "What's New." See you then.

Overheard: Some would say that there's no greater mistake you can make than claiming to always be right.

73, Karl, W8FX

portedly, reception by the amateur radio community has been overwhelming.

For more information, including pricing and shipping details, contact Maxsell Corporation, 4400 W. Hillsboro Blvd., Suite 2, Coconut Creek, FL 33073 (1-877-332-2343; e-mail: <sales@maxsell.com>; on the web: <<http://www.maxsell.com>>). You can view, configure, and order the badge on the website.

Note: Be sure to view the disclaimer regarding badge use shown on the website before ordering, and take care to use common sense in presenting or displaying any type of badge. Impersonating a police officer is a felony in most states.

Short Bursts

ICOM America Wins Large U.S. Army Order for New Radios. The U.S. Army has selected the ICOM F43G series portable transceiver for in-the-field soldier communications. "We are honored by the U.S. Army's selection of ICOM's two-way radios for soldiers in the field," says Hiro Nakaoka, President of ICOM America Inc. The F43G radios are part

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.

Low-Power Contesting; QRP Rigs and Antennas

BY DAVE INGRAM, *K4TWJ

qrp

Once again our column is overflowing with tidbits of good news and helpful notes for all QRPers—especially newcomers—and we begin with a good horizon-expanding question for all to ponder:

Have you ever considered operating QRP in a major contest such as the CQ World-Wide DX Contest, not necessarily to compete or win, but just to prove you can really work the world while running only 5 watts? You will not get a reply to every call and you may get walked over by the big guns, but when you do get through and make a special contact, it is a big-time achievement, especially when the contact is exotic DX. Simply stated, there is nothing comparable to QRP DXing.

How to do it? When? As I explain in this month's "World of Ideas" column elsewhere in this issue of CQ, signal paths to numerous DX areas worldwide generally peak at around dusk on most of our HF bands—and there is a dusk every day. Be there, on the air, operate skillfully, keep a positive attitude, and you will reel in the QSOs!

What kind of DXing results can you expect with very low power? That will vary with the day and band, etc., but as an example, during the last DX contest I had contacts with 5U7, JA, VK, IØ, HK, and KP4 (that's Worked All Continents!) in less than an hour while using 5 watts and a vertical antenna with its base only 5 feet above ground. You can probably do even better. Try it and see!

New QRP Club

From Larry Makoski, W2LJ, comes word of a new and rapidly growing group called the NAQCC, or North American QRP CW Club, and everyone is invited to join (fig. 1). This club, incidentally, is not affiliated with the recently formed American QRP Club, which evolved from the merging of NorCal and the New Jersey QRP Club. NAQCC presently has no membership fees and a simple mission/philosophy of just having fun operating QRP with simple wire antennas. Supporting that fact, they have held several Sprint-type contests and are presently sponsoring a unique "QSO-A-Day" award (fig. 2) you can earn by making only one contact per day during any four-month period of 2005. More details on NAQCC and its events are posted at <www.qsl.net/kb3lfc>. Check it out!

I recall another QRP club that started out small and simple with only a brief magazine announcement like this during the early '60s—the QRP ARCI. I joined as member #1289. Today membership is over 11,000. It is possible NAQCC will do as well.



Fig. 1—Logo of the recently formed North American QRP CW Club discussed in text.

MFJ 90s Revisited

In our continuing quest to bring newcomers up to speed, our last few columns revisited several of today's popular QRP rigs from Yaesu, ICOM, Elecraft, etc. This month we cover three of the more well-known and economically priced transceivers in QRP circles: MFJ's 90-series of monobanders. These mini-rigs have been around for several years (time proven, you might say). They work well, recently have been upgraded for even better performance, and are sold fully assembled and ready for operation. If you are looking for

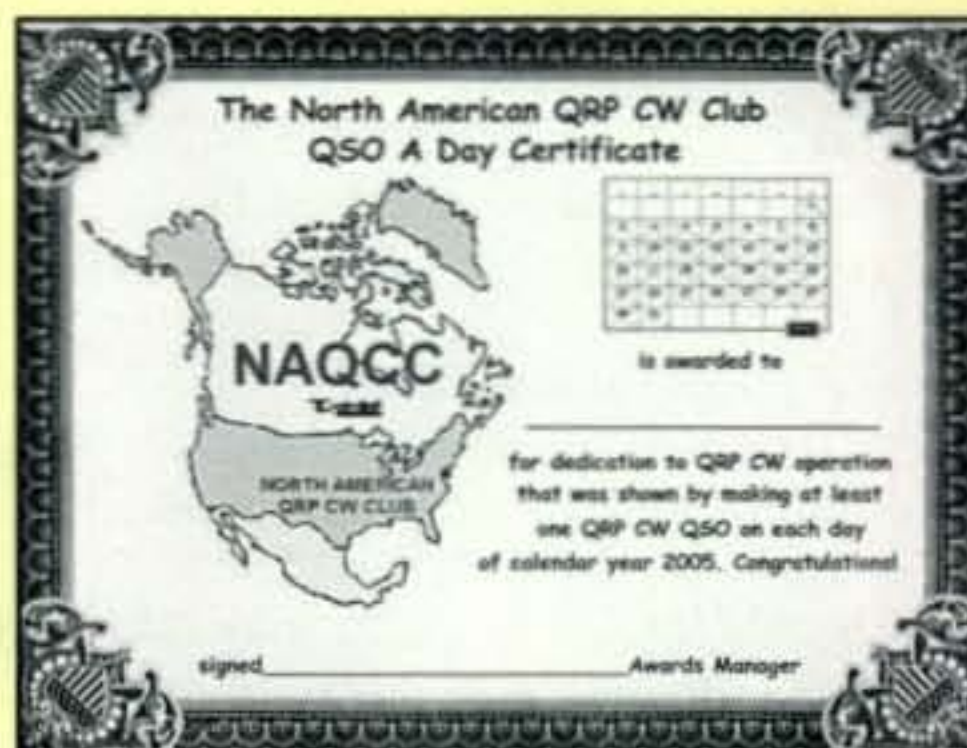


Fig. 2—The new NAQCC offers this neat QSO-A-Day certificate as encouragement to get on the air and have fun with low power and simple antennas. It is available for making one QSO a day during any four months of 2005 (approximately 120 QSOs). Details at <www.qsl.net/kb3lfc>.

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e-mail: <k4twj@cq-amateur-radio.com>



Photo A— The MFJ 90-series 5-watt transceivers are time-proven monobanders that are economically priced and work well. The units sport crystal filters, semi or full QSK, RIT, and sidetone and cover approximately 150 kHz in the CW portion of their particular band. (Photo courtesy MFJ Enterprises)

a low-budget way to join QRP action anywhere and anytime, MFJ's 90s may well be your answer.

First in MFJ's 90-series are the 5-watt CW transceivers, such as the 20-meter rig shown in photo A. These little 6" x 6" x 2" rigs are available in 15-, 17-, 20-, 30-, and 40-meter versions and include vernier tuning, RIT, a built-in speaker, and semi-break-in operation that is adjustable all the way to full break-in operation. They are designed for easy, no-fumble use and sport a sensitive and quite selective receiver, smooth AGC, CW sidetone, and a stout-hearted transmitter that is pleasantly tolerant of mild SWR. Each transceiver is enclosed in a rugged, all-metal case and draws around 50 ma on receive and 1.2 amps on transmit so is well suited for battery operation. A small 13-volt/1.2-amp AC power supply is also available as an option.

If impromptu portable operations capture your interest, MFJ's 5-watt transceiver is also available in a fully integrated CW station as shown in photo B. This strap-together package includes a transceiver and dipole antenna for your selected band, antenna tuner with cross-needle SWR meter, plus a power pack for holding and charging batteries or operating the rig.

I have used the 30- and 20-meter MFJ CW transceivers on several occasions, even while mobile, and always found they work quite well. I even contacted some good DX while using them along with a Hy-Gain AV640 vertical antenna. In direct "A-B" comparisons, I found the rigs could receive anything my "big rig" received, and with accurately timed and well-placed calls I could wrangle an approximate 75-percent return rate to calls.

If SSB is your preference, take a look at the 12-watt MFJ-9420 "travel radio" for 20 meters (photo C). It, too, has a sensitive and selective receiver, speech processor, and rugged transmitter that can handle SWR up to 3:1 without "meltdown." This little transceiver is good not only for QRP, it also makes an affordable mobile rig. SSB travel radios are also available for 40 and 75 meters, plus similar MFJ SSB transceivers are produced for 10, 6, and 2 meters. Energy requirements for all the SSB transceivers are 13.8 volts at 50 to 100 ma on receive and 1.2 amps on transmit, just like the CW rigs.

Finally, MFJ also offers the little coat-pocket-size "Cub" 2-watt CW transceiver highlighted a few months back in this column. I mention the Cub again here because it is available in kit form or preassembled and ready to operate. The Cub is produced in 15-, 17-, 20-, 30-, 40-, and 80-meter versions.

All of the MFJ transceivers we mentioned are available



Photo B— This triple-stack MFJ CW station can be assembled for your preferred band of choice and includes a 5-watt transceiver, antenna tuner with crossneedle SWR meter, battery case with AC power supply/charger, and dipole antenna. It is a complete, ready-for-action package. (Photo courtesy MFJ Enterprises)

from amateur radio dealers nationwide or direct from MFJ Enterprises at 1-800-647-1800 or via <www.mfjenterprises.com>. Be sure to check them out!

The EDZ for QRP

Would you like to improve your odds for success when running low power? Consider installing a mild-gain-type wire antenna such as a delta loop or extended double Zepp (EDZ).



Photo C— MFJ's 12-watt SSB "Travel Radio" for 20, 40, or 10 meters includes an edge-reading S-meter, high-level speech compressor, and sensitive receiver with crystal filter. It works great at home, portable, or even mobile. (Photo courtesy MFJ Enterprises)

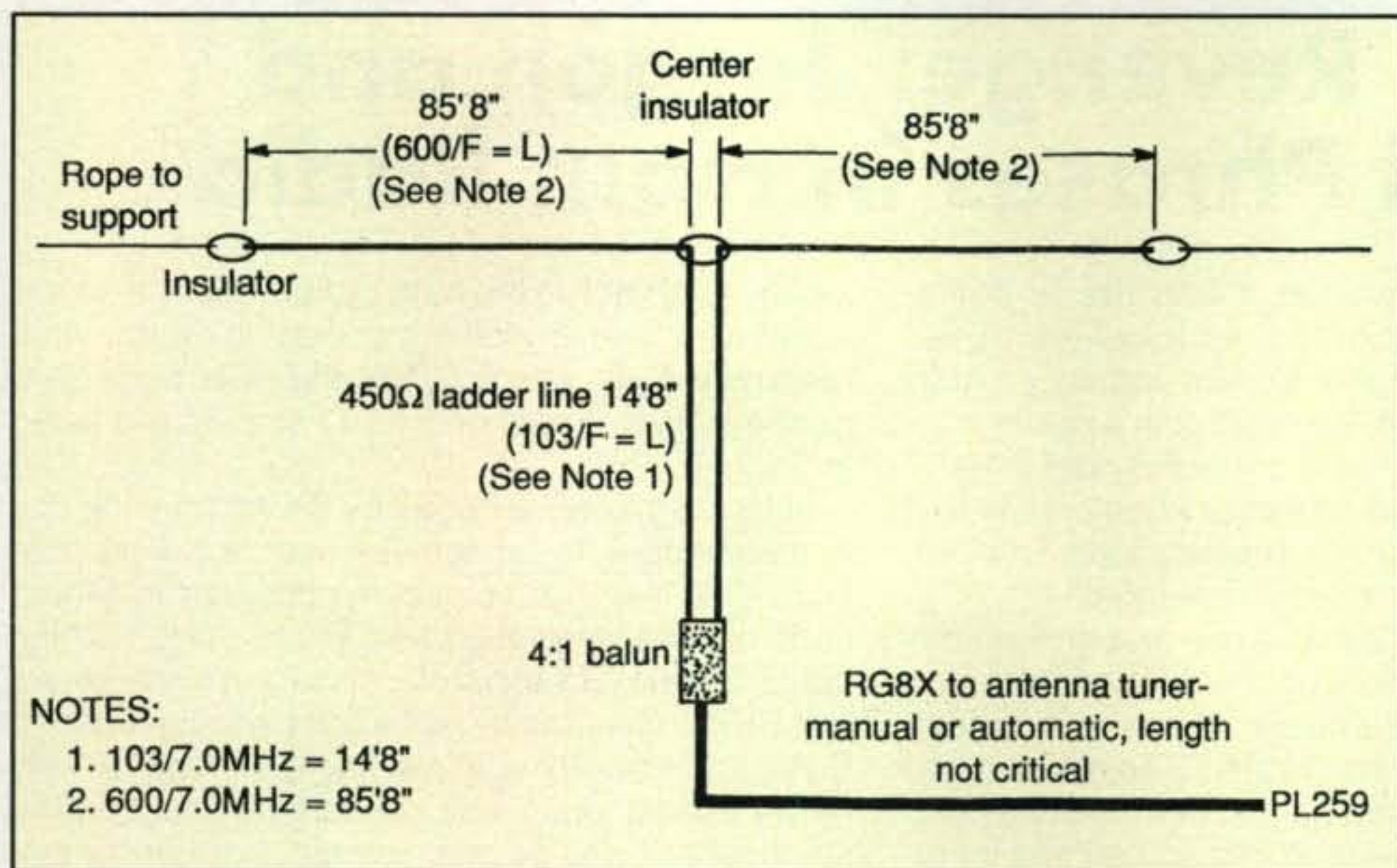


Fig. 3— Outline of the "balun and coax" version of the extended double Zepp. The arrangement works well with a rig's built-in automatic antenna tuner. Use insulated wire with a color to match the background, paint ladder line to blend with the foliage, and the antenna becomes almost invisible.

Both types are inexpensive, low-profile, and boast well-established track records of above-average performance. Complement either one with a liberal amount of good operating savvy, and you are set for a romping good time with QRP. We discussed the full-wave delta loop a few months ago in this column, so this month let's look at the ever-popular extended double Zepp (figs. 3 and 4).

From reading various notes, books, and magazine articles, we see folks have assembled extended double Zepps in

two generally similar yet slightly different ways, and both ways worked like a champ. Thus, we will present details of both versions and let you pick the one that best fits your needs and location.

First, the length of each horizontal wire is calculated using the formula $600/\text{freq. (in MHz)} = \text{Length (in feet)}$. As an example, $600/7.040 \text{ MHz} = 85 \text{ ft. } 2 \text{ in.}$ per side. Assuming the use of a regular 3- or 4-inch center insulator, that equates to an overall length of approximately 170 ft. 7 in. for 40 meters. In one

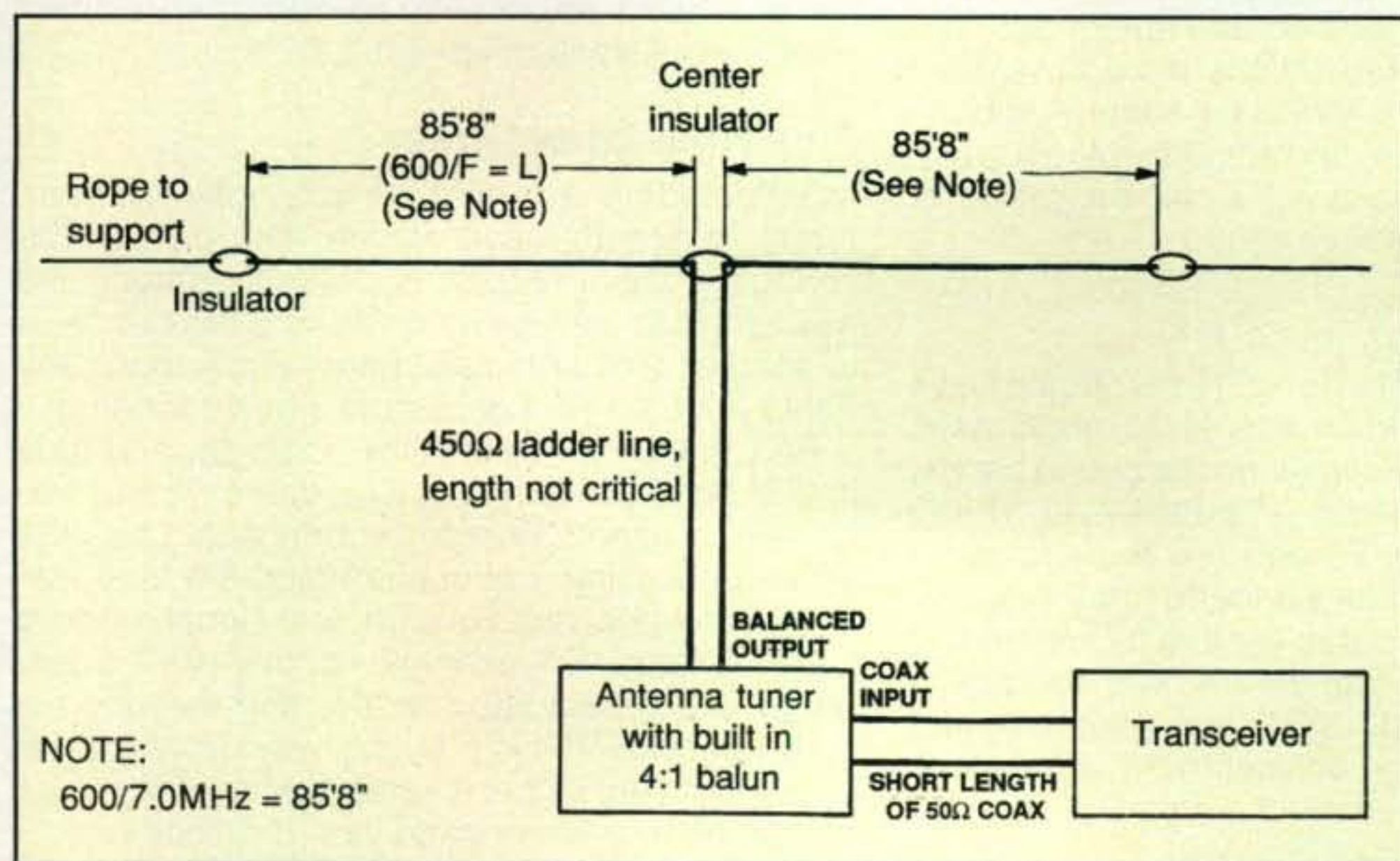


Fig. 4— Outline of the straight "ladder line-fed" version of the extended double Zepp. Using a tuner with a built-in balun and balanced output directly matches ladder-line feedline and eliminates the need for coax feedline.

version of the EDZ, a precise length of 450-ohm ladder line is connected between the top feedpoint and a 4:1 balun, which then connects to the station transceiver via a random length of 50-ohm coaxial cable such as RG-8X. The length of ladder line used is calculated using the formula $103/\text{freq. (in MHz)} = \text{Length (in feet)}$. Again using 40 meters as an example, $103/7.040 = 14 \text{ ft. } 9 \text{ in.}$ I might also mention that some folks like to be really precise here. They use an antenna bridge with clip leads on the input and tap down the ladder line until they arrive at the exact 200-ohm point and then connect the balun at that point.

In the other version of the extended double Zepp, a non-specific length of 450-ohm ladder line connects between the top feedpoint and the balanced output terminals of an antenna tuner (which then connects to the station transceiver). Our good friend and CQ columnist Karl Thurber, W8FX, discussed the EDZ quite extensively a few years back when he was writing the "Antennas" column. As he concluded, and I agree, that the straight ladder-line-fed EDZ represents the best balance between easy assembly and superb performance.

Which version of the EDZ fits your needs? If you prefer a coax-fed antenna and an outdoor balun, maybe to minimize in-shack RF or to permit using your rig's automatic antenna tuner, the "balun version" may look most attractive. If you have an antenna tuner with a built-in balun for balanced output, the "straight ladder-line version" may be more appealing. A random length of ladder line probably will not exhibit exactly 200 ohms at its feedpoint, but that's the purpose of an antenna tuner—matching an odd impedance to your transceiver—and it serves that purpose very well. A simple longwire may be easier to install than an EDZ (just toss it over a few tree limbs and connect it to your tuner), but I am sure you will find the EDZ's big-signal results well worth its extra installation effort.

Conclusion

That wraps up this month's column, but stay tuned for another very special and totally unique homebrew project guaranteed to capture your fancy in a future "QRP" column. I have already perfected the design, so obtaining PC boards and lining up kits are the only remaining steps. Meanwhile, continue making at least one QRP QSO every day and may the force of good signals be with you!

73, Dave, K4TWJ

Nerds' Revenge: Jargon and Special Phrases in Ham Radio

Recently a co-worker asked me to define ORing, a specialized technical term used in the power electronics industry. After explaining what an ORing rectifier in a power supply does, she asked, "How come they call it that?"

Unfortunately, I had no explanation of why that term is used. I could only tell her what it is. I replied, somewhat cynically, "Nerds' Revenge."

The look on her face told me that she understood and appreciated what I said. I added, "You know, these terms are made up by the high-tech engineering people who create these devices and circuits. They are made up just because they can be, sometimes for a reason, but sometimes for no reason at all. It's sort of like that most-strange, virtual button on your Windows®-based computer—the "start" button. Why would someone make users press a start button for shutting down? (That is a rhetorical question, because there is no answer. That's Nerds' Revenge.)"

Just about all specialized professions and endeavors have their own special vocabulary, which sounds like gibberish to others not involved in whatever it is. Ham radio is no exception, and many terms have been developed over the years. A simple example of this is the term *coax*. Most non-radio people believe this to be a single-syllable word, but our most popular cable type is a two-syllable word.

Hams use buzz words and phrases to save time and increase accuracy on the radio. Remember that the earliest form of radio communications took place using Morse code, which we now abbreviate as CW.¹ Communicating with CW means spelling out each word, letter by letter, very much like typing text into your computer, one letter at a time. Thus, in order to increase speed and efficiency, standard abbreviations were developed for common phrases and even some numbers. There are lots of them, and some of them are listed in the tables in this month's column, with links to more in the References section.

Q Signals

Among the first set of jargon all hams should know about is the group of International Q Signals, used on CW and, yes, sometimes on the phone bands, too (*and even sometimes in print!*—ed.). The Q signals are amazing. When I first learned about them, I discovered how wonderful they are, and even more amazing is the fact that by just adding a question mark, a "statement" can become a "question." Conversely, a Q signal without a question mark becomes an answer in the affirmative. There is no question about the meaning of any Q

signal; everyone in the ham radio world will understand what you are talking about, no matter what language they speak. Talk about a huge language-barrier-smasher! The Q signals are listed in Table I.

In fact, if you were to do any DXing (making distant contacts with foreign stations), it is very possible that many of your conversations in Morse code or on phone could take place using nothing but Q signals. For example, I had a very short and fast SSB conversation with a ham in some eastern European country a while back. He had a very heavy accent, and I was not sure he could understand what I was saying. We did, however, manage to exchange some very precise information using Q signals and signal reports. Since there were many stations waiting to take a turn to work the DX station, I ended the QSO quickly. Okay, so maybe I did not get a chance to get to know the other ham, but others were waiting, and the information exchange is good enough to be in the other station's logbook. Hopefully, I will get a return QSL card to confirm the contact someday soon.

Too Much of a Good Thing

Okay, after saying all of this, we have to remember that too much of a good thing usually turns out to be a bad thing, and Q signals are no exception. It is okay to throw in some Q signals during a casual conversation on the repeater, but if you overdo it, people (including other hams on the radio) may not understand you. Even worse, some people will think you are too weird to talk to on the radio. You do not want to be one of those folks. Use plain-language whenever possible, and save the Q signals for the DX pile-ups and contest efforts while working foreign stations.

Five-Nine-Zero-Three

I mentioned signal reports and pile-ups—two more terms frequently used on the ham bands. Exchanging signal reports is probably among the most important things hams do, and this brings us to another group of useful ham radio jargon. See Table II for the RST system of signal reporting.

RST stands for readability, strength, and tone in CW operation. An easily readable, strong signal with a good CW note or tone would be 599. When describing a phone contact, the tone element is deleted, and the complete signal report is just two digits. For example, a "five-nine" signal report is the best you can do, and the poorest report possible (which, by the way, is very rare, because if your signal is really bad no one will be able to hear or understand you) is a "one-one." I suppose a "zero-zero" would be possible, but that would mean that nothing is coming out of your transmitter, or at least nothing is being heard at a receiving station.

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QRA	What is the name of your station?
QRG	What is my exact frequency?
QRH	Does my frequency vary?
QRI	How is my tone? (1-3)
QRK	What is my signal intelligibility? (1-5)
QRL	Are you busy?
QRM	Is my transmission being interfered with?
QRN	Are you troubled by static?
QRO	Shall I increase transmitter power?
QRP	Shall I decrease transmitter power?
QRQ	Shall I send faster?
QRS	Shall I send slower?
QRT	Shall I stop sending?
QRU	Have you anything for me? (Answer in negative)
QRV	Are you ready?
QRW	Shall I tell _____ you're calling him?
QRX	When will you call again?
QRZ	Who is calling me?
QSA	What is my signal strength? (1-5)
QSB	Are my signals fading?
QSD	Is my keying defective?
QSG	Shall I send _____ messages at a time?
QSK	Can you work break-in?
QSL	Can you acknowledge receipt?
QSM	Shall I repeat the last message sent?
QSO	Can you communicate with _____ direct?
QSP	Will you relay to _____?
QSV	Shall I send a series of Vs?
QSW	Will you transmit on _____?
QSX	Will you listen for _____ on _____?
QSY	Shall I change frequency?
QSZ	Shall I send each word/group more than once? (Answer, send twice or _____)
QTA	Shall I cancel number _____?
QTB	Do you agree with my word count? (Answer negative)
QTC	How many messages have you to send?
QTH	What is your location?
QTR	What is your time?
QTV	Shall I stand guard for you _____?
QTX	Will you keep your station open for further communication with me?
QUA	Have you news of _____?

Table I—A Q signal followed by a question mark asks a question. A Q signal without the question mark answers the question affirmatively, unless otherwise indicated.

In many radio contests, each QSO must include an exchange of some specific data, such as signal report and location. A typical information exchange for the CQ World-Wide DX Contest during the SSB weekend would sound like the following:

Me: CQ contest, CQ contest, this is Kilo Hotel Six Whiskey Zulu. (Standard phonetics are also important to learn.)
 Kaz: KH6WZ, this is Japan Hotel One Yankee Kilo X-ray.
 Me: JH1YKX, Five-Nine Zero Three.
 Kaz: Roger, Five-Nine, Two-Five.
 Me: QSL. QRZed contest from KH6WZ.

Notice in this international contest the Q signal is used to save time and to ensure accurate copy with foreign (in many cases, non-English-speaking) stations. Thus, Kaz, JH1YKX, in Japan may or may not be able to speak English well, but the necessary information is successfully exchanged for valid contest points. Also, most hams prefer the British pronunciation of the letter Z ("Zed") when talking on the radio.

On CW, the same QSO would go like this:

Me: CQ TEST, CQ TEST DE KH6WZ KH6WZ KH6WZ K
 Kaz: KH6WZ DE JH1YKX

Readability

- 1 Unreadable
- 2 Barely readable, occasional words distinguishable
- 3 Readable with considerable difficulty
- 4 Readable with practically no difficulty
- 5 Perfectly readable

Signal Strength

- 1 Faint signals, barely perceptible
- 2 Very weak signals
- 3 Weak signals
- 4 Fair signals
- 5 Fairly good signals
- 6 Good signals
- 7 Moderately strong signals
- 8 Strong signals
- 9 Extremely strong signals

Tone

- 1 Sixty Hz AC or less, very rough and broad
- 2 Very rough AC, very harsh and broad
- 3 Rough AC tone, rectified but not filtered
- 4 Rough note, some trace of filtering
- 5 Filtered rectified AC, but strongly ripple-modulated
- 6 Filtered tone, definite trace of ripple modulation
- 7 Near pure tone, trace of ripple modulation
- 8 Near perfect tone, slight trace of modulation
- 9 Perfect tone, no trace of ripple or modulation of any kind

If the signal sounds "rock steady" (under crystal control), add the letter X to the RST report. If there is a chirp, the letter C may be added. Similarly for a click, add K. The RST system is used on both CW and voice. (Tone is deleted when reporting voice.)

Table II—The RST signal reporting system for amateur radio.

Me: JH1YKX 599 T3 BK
 Kaz: BK QSL 5NN 25 73
 Me: R TU QRZ? DE KH6WZ

Notice that it is usually not necessary to spell out every single word on CW. In the example above, the word "test" is used instead of "contest." Can you see how much time can be saved by not sending the entire word? Okay, many hams use a computer or some other electronic device ("keyer") to send Morse code. However, the guy on the other end still must listen to it all before moving on, and the emphasis on CW operating is accuracy and efficiency.

By the same token, other word substitutes have been created over many years, and almost everyone using CW will understand one another. In the CW exchange above I sent Kaz my signal report of his signals, and my location, in this case, my CQ Zone. The "T" means the number "zero," and the "3" is just "three" or CQ Zone 03. "BK" is shorthand for "break," meaning I'm turning the conversation back over to him.

Kaz starts by sending "BK" so I know it's him returning to me, replies with a QSL, or confirmation that he understood, and returns his signal report of my signals. Notice that Kaz sends "5NN" to save time. The "N" (dah-dit) is shorthand for the number "9" (dah-dah-dah-dah-dit).

Finally, I finish the exchange with Kaz, using "R" for "received" and "TU" for "thank you." In the same sentence, I end by asking for other stations to answer my call by using "QRZ?" or "who is calling me?"

If this sounds confusing, don't worry. With a little bit of on-the-air practice, these buzz words and phrases will become part of your normal vocabulary, and you will find yourself conversing with "Hams Revenge." Just remember to have the

wisdom to know when to use these new buzz-phrases, and when not to use them.

Back to ORing

Oh by the way, an ORing diode is a very low-loss and usually high-current switching rectifier in redundant (sometimes called "N-plus one") power systems, in which a primary power supply is connected to "N" number of backup power supplies. The ORing diode will route power from a power supply that failed to another, working backup power supply without having to turn anything off. The system is either working with the normal supply, "or" it switches to the backup system. Such power systems are used in telecommunications networks and other applications that must not fail.

TU ES VY 73, Wayne, KH6WZ

Note

1. Why is Morse code abbreviated CW instead of MC? It goes back to the early, but not the earliest, days of radio. The first radio transmitters were "spark gap" transmitters, in which a spark generated across a gap between electrodes produced radio waves onto which you could superimpose Morse code. But like the ripples that form in a pond when you drop in a rock, they started out

strong and slowly weakened. They were called "quenched" waves or "damped" waves. One of the first major improvements in radio technology was the introduction of the "Continuous Amplitude Wave," which was sent out at a uniform strength level, or amplitude. This soon was shortened to "Continuous Wave" and abbreviated as

"CW." Within a few years, CW had overtaken spark as the preferred method of sending Morse code on the radio, and spark was later outlawed because of its spectrum inefficiency. The abbreviation stuck, though, and has morphed into the accepted although illogical abbreviation for Morse code.

—W2VU

References

The CQ website has a "Beginner's Corner" forum, among other things. Go take a look and post a comment or ask a question:

<<http://www.cq-amateur-radio.com/cgi-bin/Ultimate.cgi>>

Information on the CQ Zones and the CQ Worked All Zones Award:

<<http://www.cq-amateur-radio.com/wazrules.html>>

The ARRL website has a complete listing of traffic-handling and other pro-signs and CW abbreviations, such as "ES" for "and" and the use of "T" for "zero":

<<http://www.arrl.org/FandES/field/forms/fsd218.html>>

<<http://www.arrl.org/FandES/field/nts-mpg/pdf/MPG304A.pdf>>

Or, search for ARRL Form FSD-220, Communications Procedures

One of the largest collection of ham radio-related links is at AC6V's site:

<<http://www.ac6v.com/jargon.htm>>

<<http://www.ac6v.com/morseaids.htm>>

ICOM America's website has a pretty good information page on abbreviations and even a pretty interesting on-line comic book featuring "Zack & Max":

<<http://www.icomamerica.com/amateur>>

Clear communications and operating style:

"Say What You Mean; Mean What You Say," March 2004 "Beginner's Corner"

Good ham radio glossaries can be found at:

A Quick Refresher Course on CW, by Rod Vlach, NNØTT

<<http://www.arrl.org/news/features/2002/03/17/1>>

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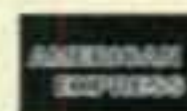


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Ham Radio Swap Meets: Bargains and More

Depending on where you are in the country, it might be called a flea market, a swap meet, a tag sale, or something else. One or more of those terms is likely to get the adrenaline flowing in those gifted with the "bargain hunting gene" found in a talented sub-group of the homo sapiens species.

I enjoy a bargain as much as the next person, but quite frankly, I'm not as gifted as some others when it comes to digging bargains out of a swap meet. However, bargain hunting is not the only motivation for hitting a flea market. It's also a great place to seek out a rare collectible or perhaps that rare part that's needed for an out-of-production product that you just can't part with. Also, for better or worse, most "ham" swap meets have broadened their offerings to a wide array of computer goodies, tools, and other items.

Money Talks!

Swap meets are often a part of hamfests, and they draw hams from near and far—some to buy, some to sell, some just to "kick the tires." If you come prepared with some cash, you just may end up going home with a treasure you hadn't anticipated finding. One never knows what will turn up. At one small-town gathering I found a Kenwood TM-742A in mint condition with the original box and manual at a few hundred dollars below list price. Other times I go to large meets just looking to buy something and come home with nothing but the cash I left with.

I am also among those who go to a swap just to see what is there but don't bring along much money. Forget credit cards and checks (would you take either from a total stranger?). Heartbreak is seeing that long-sought item of your dreams at an amazing price, only to lose out to someone who came armed with enough green to swing the deal. If you're a serious bargain hunter, bring cash and lots of it. You can always take it home or back to the bank. Waving the green in front of an anxious seller just might seal the deal at a lower price.

On the other hand, as a seller I have had some folks literally beg me to trust them with the object; they'll send a check, etc. Sorry. Then, amazingly, within a few minutes they're back with the cash. Don't ask me where they got it! (I want to think it was a nearby ATM.)

The Big One

Perhaps the best-known ham swap meet is at the Dayton gathering each May. There you will find an incredible array of almost anything that has ever moved electrons around. From trash to treasure,



One ham's dust collector may be another ham's treasure!

classic Collins to homebrew "whatizit," Dayton never ceases to amaze. One year there were some guys selling a replica (I hope) World War II ocean-going mine (the big round one with the spikes on it). In those pre-9/11 days it raised some smiles. I can just imagine the interesting law-enforcement reaction you'd get today tooling along I-70 with that thing in your trailer. Suffice to say, the annual Dayton swap is in a class by itself, but pray it doesn't rain!

The Longevity Award

On the west coast we've been gifted with a monthly ham swap meet in Los Angeles for more years than most folks can remember. It's still referred to as "The TRW Swap Meet," even though TRW has since been swallowed up by another mega-defense contracting conglomerate. Run by the TRW Radio Club, the last Saturday of each month



A sad radio that was looking to be adopted into a new home.

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e-mail: <aa6jr@cq-amateur-radio.com>



Swap meets can be fun for collectors even if you collect more than old ham gear!

(rain or shine, but hey, this is California) sees scores of sellers offering their wares to hundreds of potential buyers in the parking lot of what used to be TRW. For about \$15 you can get a 10 ft. x 10 ft. space and try to sell those dust collectors you've been promising your spouse you'd dispose of. Or, you can just park your car in the free parking area, walk around and see what you can see. If you know any hams in southern California, sooner or later you are likely to bump into them at TRW. It's a great gathering place, and our ARRL officials have been known to set up a space and just casually converse with those who have something on their mind.

The W6TRW radio club (<http://www.w6trw.com/>) has tried to maintain the intent of the swap, requiring some relationship to the radio hobby, and a ham license is required of vendors. I believe this has been an important element in keeping TRW enjoyable to the ham community, even though non-ham gear is offered at the event.

Let's Make A Deal

I have seen everything from rare vacuum tubes and entire towers sold; vintage collectible radios and stuff that could only be called junk find a home. That doesn't mean everything finds a new owner. As a sometime seller at TRW, I can attest to the fact that some of the stuff you thought would sell doesn't, and some of the stuff you thought was junk had value to at least one person. Alas, one of the fun elements of swap-meet transactions seems to be going away—that is, the art of haggling. When buying or selling, I'm not afraid to entertain the



Make an offer!



A Slenderizer? Must have been for really narrowband signals! Perhaps Dr. Heisseluft can explain the theory. . .

thought of an alternate price, or combining two or more items into a "one price" deal. I'm not sure why fewer folks are bargaining; perhaps they're just conditioned by the fixed-price retailing venues so prevalent today.

Over a period of time you get to know who the "regular" reliable vendors are, and in my case it's been a pleasure to build relationships with some of them. My friend Grace, aka "The NiCad Lady," treks some 80 miles one way to the TRW swap each month. Besides selling all kinds of batteries, she'll also rebuild a NiCad pack for you, which she recently did for me because the obsolete radio it fits is no longer supported by the manufacturer. Grace not only did a great job on the pack (you can't tell it was opened), but her batteries have more capacity than the originals and they also cost less than what the manufacturer charged back when the replacement packs were available. To me, the beauty of this was that I placed my order with Grace, gave her cash and the dead battery pack, and never once had to worry about whether or not I'd get the battery shipped to me, which it was a few days later.

Caveat Emptor

Whew, I knew high school Latin would prove valuable! Caveat Emptor is a Latin and legal phrase that translates to "Let the buyer beware!" It would be a wonderful world if every vendor was honest and all the equipment worked perfectly. Let's get real, though. There's risk, which is one reason why swap-meet prices are usually lower than retail. Smart vendors allow



I'm sure there's a bargain in there somewhere.

you to test a radio, or even make a provision to allow it to be powered up on the spot. As any seasoned swap-meet "pro" will tell you, make sure your eyes are wide open on any deal you consider. Ask questions. Was the radio modified? How old is the battery pack? Be sure of what you're buying, because once you walk away from the vendor with your treasure, you're generally on your own.

If you are a seller, my best advice is be honest. It doesn't take long to destroy your reputation by selling stuff that's broken but saying it's not. If I know something doesn't work, I always say so and set the price accordingly. What works best is having working merchandise and the ability to demonstrate that it functions as designed. That means bringing a power source and antenna if necessary. It also helps to clean things up a bit, adding to the perceived value in their eyes of a buyer.

It's also good to apply some basic marketing principles to your sales efforts. Hey, it may be an old crystal-controlled 2-meter transceiver without CTCSS tones, but look, it's also a great radio for APRS at a fraction of the cost of a new one! There may be all kinds of new uses for old stuff.

Look and Learn

One of my favorite swap-meet stories is one I saw first-hand. A young man about nine years old was looking at an electric typewriter that had some paper in the carriage to demonstrate that the machine worked. The youngster looked at it and said to his dad, "Wow, a keyboard integrated with a printer. Who thought of that?"

If you see something that captures your attention, ask questions! There might be a terrific story behind that piece of gear. The internet age has yet another advantage: Many out-of-print operating manuals can now be found on various websites, making the purchase of used gear a bit easier if the manuals are missing.

If you have a chance to visit L.A. on the last Saturday of the month, the TRW swap meet is a "must do." It's just south of LAX (*Los Angeles International Airport to the uninitiated—ed.*) and it's a lot of fun. However, if L.A. is not in your future, enjoy the swap at Dayton, Rochester, Indianapolis, Miami, or wherever. It's not only part of the fun of being a ham, it just may see you taking some old boat anchor and generating some "Magic In The Sky."

73, Jeff, AA6JR

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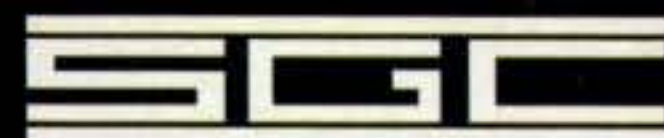
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They're Not Your Father's VHF+ Ham Bands—Part I: Then

This month I begin a two-part series on the then and now of VHF+ operating. Much has changed over my history of being a ham radio operator. For this first part I will focus on the years just before and just after I was first licensed.

I have been writing this column for nearly 14 years. My July 2005 column will complete the 14th year. In addition, I have been active on the VHF+ ham bands for 44 years. It was December 28, 1960 when I was first licensed as a Novice; my call was WV6PDE. In those days Novices had a slice of the 2-meter ham band, from 145–147 MHz. We could operate AM or CW under 75 watts with a crystal-controlled transmitter.

In those days there were basically two types of VHF+ ham band operators—ragchewers and experimenters. Both operated on AM, since FM had yet to take hold on 2 meters and SSB had yet to take hold on *any* of the ham bands. The experimenters also operated on CW.

Above 2 meters, the higher bands were almost exclusively reserved for the experimenters. Equipment was almost always homebuilt or modified military-surplus radios. Each major community had its dedicated group of experimenters. For me in San Diego, California, one of the principal experimenters was Bert Adams, K6BTO, the father of my junior high school buddy Frank, WA6OAC (later AE6L). Both Bert and Frank are now Silent Keys. In the introduction to my book, *The VHF "How To" Book*, I wrote the following about Bert:

My exposure to the VHF+ frequencies goes back to my early days in ham radio, when I spent many nights hanging around the shack of Bert Adams, K6BTO, in Bonita, California. Bert had every imaginable piece of equipment from every radio surplus store in San Diego County. I remember how much it meant to him to be able to modify a piece of gear so he could talk clear across town. I remember the smell of that surplus equipment as the components baked from the heat of those tubes. I remember the constant hiss of the 1296-MHz receiver (an old APX-6) with its gain kept wide open so as not to miss a call (and the high-pitched buzz of the Navy shipboard radars as they swept across the front end of the receiver). I also remember Bert's dreams of being able to talk just a little bit farther on those incredibly high frequencies.

I asked him why he bothered operating on the high frequencies when he could get on the low bands any time he wanted and talk anywhere in the world. Bert replied that wasn't always the case. He said that in ham radio's early days, radio operators couldn't talk very far because they didn't know how. Eventually they found a way to increase their range, and now it was up to him and other radio pioneers to discover how to use these higher frequencies effectively. I told him it seemed an incredible amount of work just to find out how to communicate across town, and that maybe there just wasn't any way to work anyone much farther away. Bert brushed off my negative comments.

Instead he regaled me with tales of bouncing signals off the moon, or talking to other stations on 2-meter meteor scatter, or seeing a fellow ham on amateur television. As a newly licensed amateur, I could never quite understand the intrigue that such ethereal forms of ham radio communication held for him.

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

Apr. 2	Last Quarter Moon
Apr. 3	Moderate EME conditions
Apr. 4	Moon Perigee. 144 MHz Spring Sprints
Apr. 8	New Moon
Apr. 10	Moderate EME conditions
Apr. 12	222 MHz Spring Sprints
Apr. 16	First Quarter Moon and Moon Apogee
Apr. 16–17	First weekend European Worldwide EME contest
Apr. 17	Moderate EME conditions
Apr. 20	432 MHz Spring Sprints
Apr. 22	<i>Lyrids</i> meteor shower predicted peak
Apr. 24	Full Moon. Moderate EME conditions
Apr. 29	Moon Perigee
Apr. 29–30	Southeast VHF Society Conference
May 1	Last Quarter Moon. Moderate EME conditions
May 7	West Coast Space Symposium. Microwave Spring Sprints.
May 8	New Moon. Moderate EME conditions.

*EME conditions courtesy W5LUU.

Early on, I found that the 6-meter ham band held a fascination for some amateur radio operators. When a ham got a Technician class license, he or she would invariably get on 6 meters. In those days, Technicians didn't have Novice HF privileges unless they held a Novice license simultaneously (similar to today's Technician class licensee who hasn't taken the code test), so 6 meters was the only band that provided long-distance communications with any regularity for this license class.

I also noticed something rather peculiar about the Technicians active on 6 meters. They actually enjoyed it there! Then I noticed something else. Some Technicians who upgraded to the General class license stayed on 6 meters. It seemed there was some mystical charm to communications on that band.

Finally, I observed the excitement of 2-meter operators who found they could hear Los Angeles and sometimes Santa Barbara stations very clearly in San Diego on certain nights at certain times of the year. I would marvel to myself about my feelings of indifference toward such seemingly trivial forms of communications.

However, over the years I've discovered that there is, indeed, something almost mystical about communications on those higher frequencies. There's something unique about being able to capture snatches of communications with distant stations on frequencies that normally aren't conducive to long-distance propagation. I guess, for me, it's a way of cheating nature momentarily. It's a challenge to lure that bit of a signal down my antenna and coax and into my receiver long enough to obtain the vital information needed for a QSO, and to reverse the process by sending my signal back into that finicky atmosphere with the hopes that the operator on the other end will be able to receive it and transcribe the information necessary for a complete contact.

On the bottom rung of the VHF ham bands was (and still is) the 6-meter band. A lot of those Technician class guys operated this band with their mobiles and halos. Sometimes, when the band opened via sporadic-E, even they got in on the DX. DX, however, was mostly limited to stateside and Canada, as the 6-meter ham band was not only unpopular in many other countries, it was also not even authorized as a ham band in most of the rest of the world. Again, the

primary modes were AM and CW, with the casual operator using AM and the serious DXer adding CW.

For those few serious 6-meter DXers, the 1957-1958 International Geophysical Year(s) provided rare opportunities to work DX in foreign countries that had given temporary permission to their hams to operate on the 6-meter band for at least part of those two years. It was coincidental that the highest peak in the sunspot cycles happened to occur during these years of experimental activity. Ask any long-time 6-meter operator of those days and he will regale you with tales of stations in Africa coming in for hours at a time with solid S-9 signals.

With the admissions of Alaska and Hawaii as states into the union, on January 3, 1959 and August 21, 1959, respectively, they took on the dual status of countries for DX purposes and states for the WAS (Worked All states) award as that award's requirements were increased from 48 to 50 to accommodate them. In that 1960 decade, slowly but surely 6-meter operators were qualifying for the revamped WAS award, with Alaska proving to be the elusive catch due to lack of activity in that state on that band. DXCC was unheard of on 6 meters, with most serious DXers doubting if it ever would be achievable due to the lack of authorized countries. Acknowledging this seemingly impossible goal, the Six Meter International Radio Klub (SMIRK) authorized a One Half DXCC award for any 6-meter DXer who worked 50 countries.

The now extremely popular VUCC award was not even heard of in those days. It was in the 1950s that a system of grid locators was introduced in Germany as a way of spurring activity on the VHF+ ham bands. These locators were assigned two-letter designators. Initially, the system worked well enough for the areas it covered in Europe and North Africa. However, worldwide expansion of the system necessitated replication of the same two-letter designators in other geographic areas, causing obvious confusion.

However, it would be 1979 before what we now know as *grid locators* (or grid squares, as they are incorrectly called because they are not square) were developed by two hams, working independently of one another to alleviate this problem, developed nearly identical designator systems. The first was created by Folke Rosvall, SM5AGM, in October 1979. The system started at the principal dateline and involved 20-degree by 10-degree large units, 2-degree by 1-degree middle units, and 6-minute by 3-minute small units.

The second, developed by Dr. John Morris, G4ANB, in December 1979, also involved 20-degree by 10-degree large units and 2-degree by 1-degree middle units. However, the small units were 5-

minutes by 2.5-minutes. The proposed starting location for his system was the Greenwich longitude.

In April of the following year a group of European VHFers met in Maidenhead, England. Among the 20 or so proposals presented, Rosvall's and Morris's surfaced as the front-runners. The group determined that the best solution would be to modify Morris's system to start at the principal dateline.

Meanwhile, the activity stimulated by use of the grid locator system in Europe prompted hams in the United States to take a look at developing a system for North America. At the 1981 Central States VHF Society conference held in Sioux Falls, South Dakota, the Committee on Society Awards (headed by Lance Collister, WA1JXN, now W7GJ) proposed a series of three awards. The first was for making 100 contacts on VHF, the second was for making contacts in one hundred 1-degree by 1-degree grid locators, and the third was for scoring 1,000 points by working stations at increasing distances from one's home QTH. Distances were measured on the basis of 1-degree by 1-degree grid locators. The proposal was adopted, and the awards were put in place and publicized. In the months that followed, activity on VHF+ increased and a few awards were issued.

However, back in Europe plans were being implemented to adopt the modified Morris plan—now called the Maidenhead Grid Locator system. Officials in the three International Amateur Radio Union (IARU) regions were contacted about adopting the plan within their respective regions. Region 3 was the first to adopt the plan, in 1982. Region 2 followed in 1983. Then finally, in April 1984, Region 1 adopted the Maidenhead Grid Locator system, with an implementation date of January 1, 1985.

With interest in the CSVHF Society awards program increasing, the American Radio Relay League (ARRL) formed an Ad Hoc committee to study the adoption of a League-sponsored awards program as a possible replacement for the CSVHF Society awards. During 1982 the committee, working closely with members of the board of the CSVHF Society, developed the VHF/UHF Century Club (VUCC), which incorporated the 100-grid concept. Seeing that the future lay in the Maidenhead locator system, the committee designed the program around it.

In January 1983, an article in *QST* by then Communications Manager John Lindholm, W1XX, announced the implementation of the awards program. Although the rules weren't spelled out entirely in the article (the rules for the higher microwave frequency awards were still being developed), a starting date of January 1, 1983 was set. Hundreds of

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these awards have been issued for all of the VHF+ ham bands, with the latest application for a first VUCC award on the (questionable) 122-GHz ham band by Brian Justin, WA1ZMS/4, and Pete Lascell, W4WWQ (for more information on their application, see last month's column).

Amateur satellite activity began in that 1960-decade. In 1960-61 the first satellite built by amateur radio operators was tested and readied for launch (December 12, 1961). For 22 days the little 10-pound satellite transmitted the Morse code characters to form "HI" ten times a minute by way of its mercury-battery-powered 140-mw transmitter operating on 145 MHz. The signal was first picked up by KC4USB at Byrd Station in Antarctica shortly after deployment, and then an hour later by KL7EBM in Kodiak, Alaska. As the battery deteriorated, so did the HI characters, gradually being reduced to a sputtering of dits and then finally disappearing altogether after January 3, 1962. After 312 orbits, on January 31, 1962 the satellite re-entered the atmosphere and was destroyed during that reentry. (The primary source for this information is <<http://www.projectoscar.net/about.php>>.)

Speaking of bouncing signals off the moon, it was during that 1960 decade that the first earth-moon-earth (EME) QSO took place. Former *CQ* and *QST* magazines VHF columnist Sam Harris, W1FZJ, participated in the east coast end of the first EME QSO between the Rhododendron Swamp VHF Society, W1BU, and the EIMAC Radio Club, W6HB, this contact taking place on 1296 MHz on July 21, 1960.

DXing on 144 and 220 MHz was given a giant boost in the late 1950s, when on July 8, 1957 John Chambers, W6NLZ, and Tommy Thomas, KH6UK, made contact on 2 meters. They again made contact on 220 MHz on June 22, 1959. Incidentally, there are two bits of trivia worth noting during those experimental years. First, W6NLZ

heard KH6UK on 432 MHz but KH6UK heard nothing. It was later determined that a receiver problem on the Hawaii end probably prevented a two-way QSO.

It wasn't until July 18, 1979 that a contact was made on 70 cm. Louis Anciaux, then WB6NMT, now KG6UH and HL9UH, who lived on a ridge of Point Loma, in San Diego, had an excellent view of the Pacific Ocean. When he heard the 70-cm beacon located on the side of the Mauna Loa volcano, he called Paul Lieb, KH6HME, on the phone. He then had to wait five hours for Paul to get off work and up to the site in order to complete the first contact.

The second bit of trivia is that the 220-MHz QSO continues to be the terrestrial DX record for that band, making it simultaneously the first terrestrial QSO on that band between Hawaii and the mainland and the longest held DX record to date.

Going back to Tommy Thomas, he held the call W2UK when he and Paul Wilson, W4HHK, made the first 2-meter meteor-scatter contact on October 22, 1953. Tommy later reclaimed that call when he moved to New Jersey.

Next month I will cover the "now" of the VHF+ frequencies. This two-part column will be the basis for my talk at the Dayton Hamvention in May.

New Ham On Board the ISS This Month

The February 2, 2005 licensing of U.S. Astronaut John Phillips, KE5DRY, will put two radio amateurs aboard the International Space Station (ISS) this month. The following is from the *ARRL Letter* (February 10, 2005):

Heading the Expedition 11 crew will be space veteran and Russian cosmonaut Sergei Krikalev, U5MIR, who will be doing his second tour of duty aboard the ISS. Phillips' licensing eliminates complications for Amateur Radio on the International Space Station (ARISS) school group contacts. . . . Krikalev served as flight

engineer on the Expedition 1 ISS crew. Phillips, also a seasoned space traveler, will serve as flight engineer and as NASA ISS science officer during Expedition 11. Phillips flew to the ISS on the STS-100 shuttle mission in 2001, when the crew installed the Canadarm2 robotic arm. Krikalev, who also served duty tours aboard the Russian Mir space station in the late 1980s and early 1990s, has accumulated 625 days in space. By the time his Expedition 11 stay is over, he'll have spent more time in space than any other human.

AMSAT-DL Reviews P3E Satellite Design

The following is from the *ARRL Letter* (February 15, 2005) via Rick Hambly, W2GPS, and the AMSAT News Service:

An international team gathered in Marburg, Germany in late January to review progress on the Phase 3 Express (P3E) Amateur Radio satellite—essentially a scaled-down and less-complex version of the now-defunct AO-40. The meeting focused on the design of the integrated housekeeping unit (IHU-3) computer and the so-called "CAN-Do interface." AMSAT-NA is a partner in the P3E high-altitude, elliptical-orbit satellite, a prelude to the ambitious Mars-orbiting P5A spacecraft, and AMSAT-NA President Rick Hambly, W2GPS, was among those attending the gathering January 26-30. Being developed under AMSAT-DL leadership, P3E will provide a test bench for technology under development for the subsequent Mars mission. A launch is planned sometime before the end of 2006. The P3E satellite will be a 150-kg class spacecraft on the order of AO-10 and AO-13, offering both analog and digital communication on VHF through microwave. Also on hand for the Marburg gathering from AMSAT-NA were Bob McGwier, N4HY; Bdale Garbee, KBØG; Stephen Moraco, KCØFTQ; Lyle Johnson, KK7P, and Chuck Green, NØADI. Representing AMSAT-DL were President Peter Gülzow, DB2OS; Karl Meinzer, DJ4ZC; Hartmut Paesler, DL1YDD; Gerhart Metz, DG2CV, and P3-E Project Manager Heike Straube. Attendees wrapped up preparation of a detailed task and schedule list to complete IHU-3 and related tasks over the next several months. Gülzow outlined plans for P3E during the 2004 AMSAT-NA Symposium and Annual Meeting last September.

Silent Keys

Bill Troetschel, W7LVO: The following is from the *ARRL Letter* (January 20, 2005):

William O. "Bill" Troetschel, W7LVO (ex-K6UQH), of Saratoga, California, died January 18. He was 82. An ARRL Life Member, Troetschel was inducted last September into the Air Force Space and Missile Pioneers Hall of Fame and received the Air Force Space and Missile Pioneers Award. Troetschel also contributed articles on VHF and UHF topics to *QST*, a chapter to the *ARRL UHF/Microwave Experimenters Manual* during the 1960s and 1970s, and more recently, papers to various VHF/UHF conferences. A graduate of the Air Force Institute of Technology, Troetschel was a member of the Air Force satellite team in the 1950s and oversaw the development of communica-

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tion, command and control, and electronic reconnaissance satellite subsystems. After leaving the Air Force, Troetschel went to work for Lockheed Corporation, focusing on issues involving satellite tracking, communication, and command and control. (Some information contributed by Kevin Hague, N5XSA/6.)

Ted Mathewson, W4FJ: The following is from the *ARRL Letter* (February 11, 2005):

Virginia ham radio pioneer Ted Mathewson, W4FJ, of Richmond died January 31. He was 100. An ARRL member, Mathews founded the Richmond Amateur Radio Club and served for many years as Virginia Army MARS director. He also was well-known within the amateur satellite and VHF/UHF communities and was a member and former officer of the Central States VHF Society. John Fox, WØLER, adds: "As a side note, Ted was one of the original founders of the CSVHF Society, serving as Secretary/Treasurer for many of the early years of the society. Ted was a great gentleman and will be missed by all of us."

Current Contests

The **European Worldwide EME Contest 2005:** Sponsored by DUBUS and REF, the EU WW EME contest is intended to encourage worldwide activity on moon-bounce. Multipliers are DXCC countries plus all W/VK/VE states. This gives equal chance for stations from North America, Europe, and Oceania. The rules reward random QSOs, but do not penalize skeds on 2.3 GHz or above. Winners (first places) receive free subscriptions to *DUBUS* magazine. The contest dates and bands are as follows:

First weekend: 50 MHz, 1.3 GHz, 10 GHz, 24 GHz and up, 16–17 April, 0000 to 2400 UTC.

Second weekend: 144 MHz, 2.3 GHz and 3.4 GHz, 14–15 May, 0000 to 2400 UTC.

Third weekend: 432 MHz and 5.7 GHz, 11–12 June, 0000 to 2400 UTC.

Sections and awards include the following: QRP 144 MHz <100 kW EIRP, 432 MHz <400 kW EIRP, 1296 MHz <600 kW EIRP, and \geq 2300 MHz no separate QRP/QRO categories. The QRO category on 144, 432, and 1296 MHz, stations with EIRP equal to or greater than stated above. The PRO category includes non-amateur equipment or antenna. PRO stations will have scores listed separately. There are no separate multi-operator classes. Multi-operator and QRO stations will be highlighted in the general classifications. All QRP/QRO band winners and QRP/QRO multiband winners will receive a year's free subscription to *DUBUS* magazine. In each band/section, certificates will be sent to the top ten entries and to the highest scoring station in the southern hemisphere.

For a valid QSO both stations must transmit and receive both callsigns + TMO/RST + R. During a QSO, on any

band, liaison by any other means (e.g., DXcluster, internet, telephone) is forbidden. There is no restriction on modes, but entrants must not cause intermode QRM.

Contest entries *must* be sent no later than 28 days after the end of the third weekend (i.e., in the mail or e-mail by 10 July 2005). Mail address: Patrick Magnin, F6HYE, Marcovens, F-74140 Ballaison, France. You can also e-mail your contest entry in ASCII format to: <f6hye@ref-union.org>. All e-mail entries will be acknowledged within one week. For additional rules and general questions contact <info@dubus.de>. Complete rules can be found at: <<http://www.marsport.demon.co.uk/EMECont2005.pdf>>.

Spring Sprints: These short-duration (usually four hours) VHF+ contests are held on various dates (for each band) during the months of April and May. This year's dates and times are as follows:

144 MHz, April 4, 7–11 PM local time.

222 MHz, April 12, 7–11 PM local time.

432 MHz, April 20, 7–11 PM local time.

Microwave, May 7, 6 AM to 1 PM local time.

50 MHz, May 14–15, 2300 UTC Saturday to 0300 UTC Sunday.

Logs and summary sheets should be e-mailed or snail mailed to the below addresses. Logs should be submitted within 30 days of the end of each contest. Contact information: Jeff Baker, WU4O, 2012 Hinds Creek Road, Heiskell, Tennessee 37754; e-mail: <springsprints@etdxa.org>. Sponsored by the East Tennessee Valley DX Association, further information on these contests can be found at <<http://www.etdxa.org>>. At this URL, click on the VHF/UHF link to get to the contest information.

Current Meteor Showers

The *Lyrids* meteor shower will be active during April 19–25. It is predicted to peak around 1030 UTC on April 22. This is a north-south shower, producing at its peak around 10–15 meteors per hour, with the possibility of upwards of 90 per hour.

A minor shower and its predicted peak is *pi-Puppids* (peak around 1530 UTC on April 23). Other April and May minor showers include the following and their possible radio peaks: April *Piscids*, April 20, 0900 UTC; δ -*Piscids*, April 24, 0900 UTC; ϵ -*Arietids*, May 9, 0700 UTC; May *Arietids*, May 16, 0800 UTC; and *o-Cetids*, May 20, 0700 UTC. This information courtesy the International Meteor Organization and its website: <<http://www.imo.net>>.

Current Conferences

Southeastern VHF Society: The society's ninth annual conference will be hosted in Charlotte, North Carolina, April 29 and 30, 2005. Information on registration

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for the conference can be found at <http://www.svhfs.org/registration_05.htm>. The location will be the Hilton Charlotte Executive Park, 5624 Westpark Drive, Charlotte, NC 28217 (phone 704-527-8000, fax 704-529-5963). Group rate is \$75 per night. It is best to call the hotel directly, and be sure to mention the Southeastern VHF Society Conference to get the discount rate. For more information about the hotel go to: <<http://www.hilton.com/en/hi/hotels/index.jhtml?ctyhocn=CLTEPHF>>.

West Coast Space Symposium: The 2005 West Coast Space Symposium will be presented by Project OSCAR and The

College of San Mateo on May 7, 2005 in San Mateo, California. Topics include: Satellite Basics, Software Defined Radio, Digital Modes on Amateur Satellites, Satellite Tracking, Dish Feed Designs, 10 GHz and Above, Amateur Radio on the ISS, Orbital Debris Mitigation, Satellite Launch Options, and Youth and Amateur Satellites. Additional information: <<http://www.ProjectOSCAR.net>>.

Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be

published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, e-mail, etc., contact the person listed with the announcement. To date this year the following organizations or conference organizers have announced calls for papers for their forthcoming conferences.

Central States VHF Society Conference: The 39th annual Central States VHF Society Conference will be held July 28-31, 2005 at the Sheraton Hotel, Colorado Springs. The deadline for submitting final papers is around May 1, 2005. Submit your papers as soon as possible to Technical Program Chair Joe Lynch, N6CL, at <n6cl@sbcglobal.net>.

TAPR/ARRL Digital Communications Conference: Technical papers are solicited for presentation at the 24th Annual ARRL and TAPR Digital Communications Conference to be held September 23-25, 2005 in Santa Ana, California, and for publication in the conference *Proceedings*. Presentation at the conference is *not* required for publication. Papers should be submitted by August 9, 2005 to: Maty Weinberg, ARRL, 225 Main Street, Newington, CT 06111; or via e-mail to: <maty@arrl.org>.

Microwave UpDate: The following is from Chip Angle, N6CA:

The 2005 Microwave UpDate will be held this year in the Los Angeles area on October 27-31. As the Technical Program Chairman this year, I would like to invite interested authors to present a paper(s) for the 2005 conference.

Microwave Update is the premiere microwave amateur radio conference on the planet. Many people around the world collect the *Proceedings* from this conference, since it represents the current state of the art in microwave amateur radio. This is a great opportunity to get your ideas and papers published! You don't have to give a talk to get your paper included in the *Proceedings*.

Electronic submissions in Word, WordPerfect, or text format accepted by e-mail or on CD. Usual drawing formats also accepted with your paper(s). Cutoff date for inclusion in the proceedings is September 5, 2005. If you are interested in writing and/or presenting a paper for the 2005 conference, please send me an e-mail or write to: Chip Angle, N6CA, P.O. Box 35, Lomita, CA 90717-0035; or via e-mail: <n6ca@ham-radio.com>.

Please contact me as soon as possible with an abstract or even a general idea. This will help the conference team with its planning activities. For more information about Microwave UpDate 2005 see: <<http://www.microwaveupdate.org>>.

And Finally . . .

Lots of nostalgia and lots of information this month leave little space for anything more, so please continue to keep me informed of your activities on the VHF+ ham bands. Until next month . . .

73, Joe, N6CL

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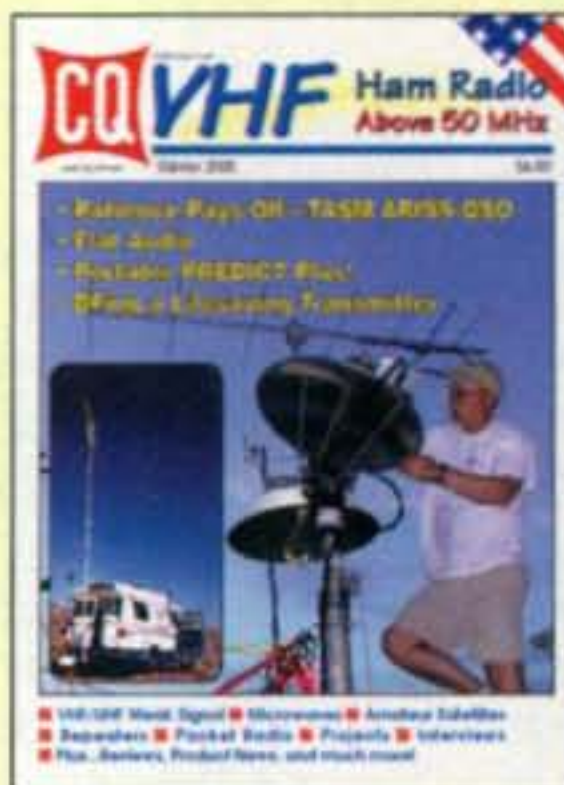
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On the Alert for a Needed Contact

The award hunter has a definite "goal" in his or her on-the-air activity. Very similar to coin or stamp collecting, the award hunter is always on the alert to make a contact that will fulfill a secondary purpose, in addition to the usual enjoyment of making a contact or discovering an interesting person on the other side of the QSO. As the bands are scanned, the hunter is forever on the lookout for those interesting stations whose callsigns indicate something unusual—generally an odd prefix that might represent an anniversary or special event that may count for an award. Last month's column covered the special calls used by Belgian amateurs. ON4UN was workable as OO4UN. Perhaps you have an index card near the rig to show that you need one more "OO" prefix to apply for the 175 Years Belgium Award.

As I scan the bands, or sort through incoming bureau cards, I'm always on the alert for a card that can be used to complete an award requirement—for example, an island with a new IOTA (Islands On The Air) number, a new Japanese "city" or "gun," a new French province (the first two digits of the zip code is the province code), any Belgian QSL for that country's Post Code award (the values of the postal codes are added up to meet the required 1,000,000 point minimum), or a new Russian "RDA" number (this is Russia's USA-CA, but even bigger).

DX Awards

England's Marconi Day Award. International Marconi Day (IMD) is a 24-hour amateur radio event held annually to celebrate the birth of Guglielmo Marconi on the April 25, 1874. The IMD event is not a contest; it is an opportunity for amateurs around the world to contact stations operating on or near historic Marconi sites using HF communications techniques similar to those used by Marconi, and to gain an attractive award for working a group of Marconi stations. This year the event will take place 0000–2359Z on Saturday, April 23. It's an event which provides some competition and a good dash of history (our history as radio communicators) and offers a unique certificate at a modest cost. The certificates are based on an original 1901 Marconi stock certificate.

The Cornish Amateur Radio Club offers two special award certificates for working authorized International Marconi Day Award stations; one is for transmitting stations and the other for short-wave listeners. Operation will take place throughout the 24 hours of April 23 on all HF bands, the main mode of operation being SSB. However, all modes are permitted (except communication via the internet) and activity is encouraged. Operation on the VHF/UHF bands will not count towards the award. Provide a full log extract certified by at least one other amateur.

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

USA-CA Special Honor Roll

Robert A. Craft, W6FAH
 USA-CA All Counties #1108
 January 20, 2005

USA-CA Honor Roll

500		2000	
KD5OMJ.....	3331	W6FAH.....	1230
W6FAH.....	3332		
		2500	
1000		HB9BYZ.....	1220
W6FAH.....	1681	W6FAH.....	1221
		AD1B.....	1222
1500		3000	
W6FAH.....	1403	ND9M.....	1131
		W6FAH.....	1132

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.

Contact 15 different Marconi commemorative stations during this time period. Only one HF radio contact with each IMD Special Event Station (participating station) will count towards the award. Send the list with the fee of \$US10, 4 Euros, or 12 IRCs to: IMD Awards Manager, Cornish Amateur Radio Club, P.O. Box 100, Truro, Cornwall, TR1 1XP, England; <<http://www.users.globalnet.co.uk/~straff/imdaward.htm>>.

Poland's Jubilee Award. Recall my comments on the purposeful search of the award hunter at the beginning of this column? Here's an example.



The Jubilee Award commemorates the 75th anniversary of Poland's national amateur radio organization, Polski Związek Krótkofalowców (PZK), 80 years since the creation of the IARU, and 10 years of the existence of the amateur radio magazine Swiat Radio.

Whenever you hear the prefix HF75, you know something's up. The HF prefix belongs to Poland, and it isn't used very much. The 75 signifies an anniversary. This following award is a "triple header" in that it commemorates the 75th anniversary of Poland's national amateur radio organization, Polski Związek Krótkofalowców (PZK), 80 years since the creation of the IARU (International Amateur Radio Union), and 10

years of the existence of the amateur radio magazine *Swiat Radio*. You have all of calendar year 2005 to earn the needed points, and since Polish stations are active in most contests, including their own, this should be an easy one.

The Jubilee Award is available to licensed amateurs and shortwave listeners. All radio contacts held between January 1 and December 31, 2005 count for the award. All bands and

Steve Bogyo, HA0DU
USA-CA All Counties #1101, July 23, 2004

This is not going to be an ordinary story of how I worked them all. In fact, by the time I received my number, I decided not to write anything about it. But then on the last day of 2004, I sat down and went through what I had achieved in the year, and I changed my mind. I am the very first HA station to get this award. I wanted to celebrate 30 years of my license with an All Counties endorsement on my award, and I sure did.

It started in 1976, when I read a copy of *CQ* magazine from cover to cover 20 times. (Note that at the time *CQ* was not available here on newsstands.) I read this very nice article by Dorothy Johnson, WB9RCY, then USA-CA custodian, and I said to myself, "Hey, this is something—all counties from a distance like mine!" Very soon I sent a few dollars to Dorothy and I received a USA-CA Record Book. Even this was a bit risky, as we were not even allowed to possess any hard currency!

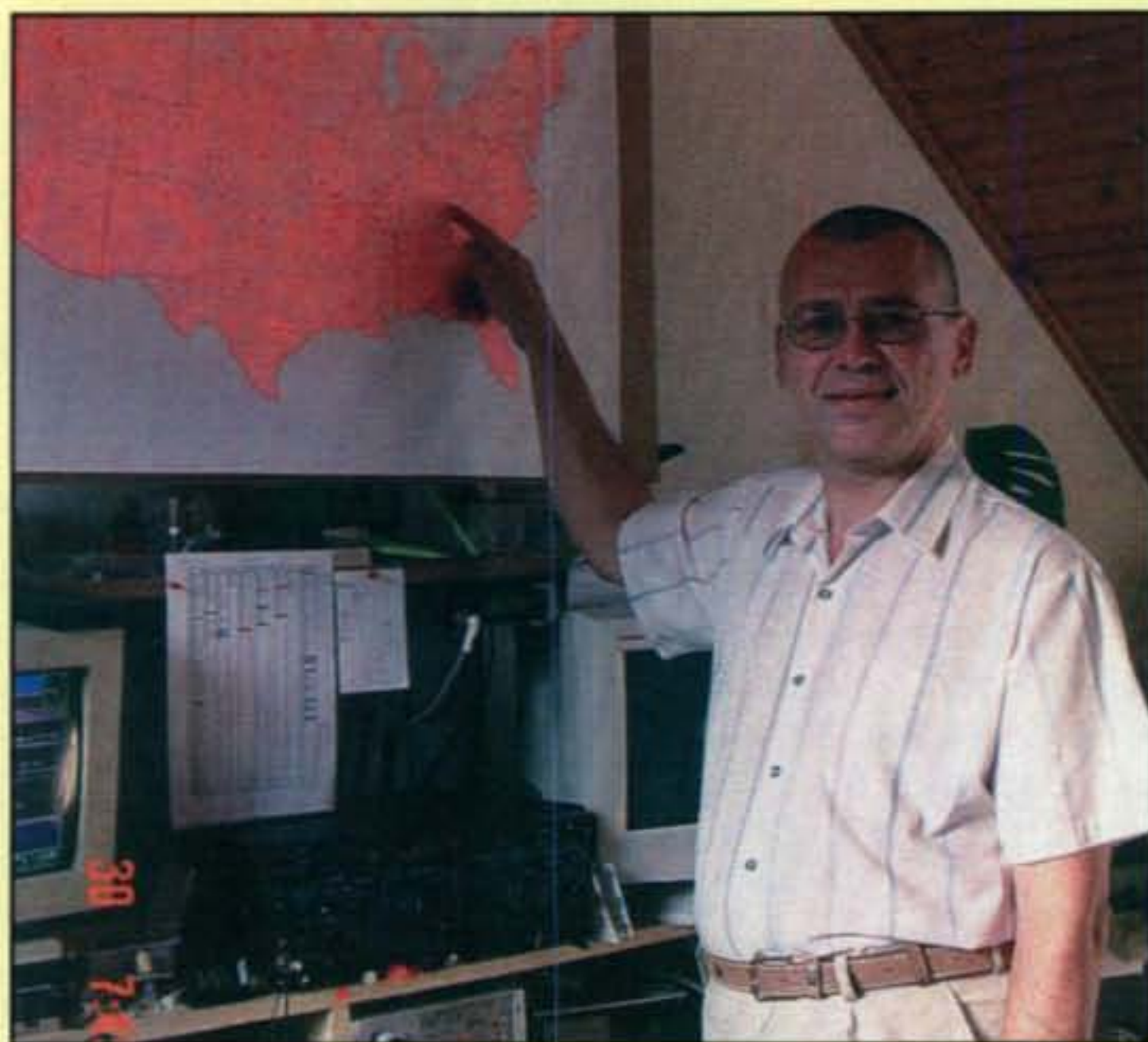
In 1977 I started collecting counties. My first appearance on the 14336 net was not quite successful. I did not quite understand what was going on, and when the voice asked, "Who else needs Sandoval, New Mexico," I screamed into the microphone of the Tempo One, "I do!" The net control told me to give a report, and I gave him 59 (thinking *he* was in Sandoval), but of course the real mobile did not copy me and I was left alone in frustration.

1979 and 1980 brought some very good conditions on 10 meters, and I worked hundreds of counties, putting them nicely in the record book, which started to fill up. Every quarter a package of incoming QSLs arrived at the local radio club, and I eagerly sorted them to see how many cards had arrived. By 1984 I had over 500 counties confirmed, and then came the problem: How to get the award? In Hungary—and I think most of the socialist countries—the amateur radio societies controlled the award applications, so letters sent to the central bureau had been opened and the IRCs went to a "central inventory." The hams then could apply for the necessary amount of IRCs if they wanted to apply for awards such as DXCC, etc. Of course, USA-CA was not a priority to be supported, so I had to again take the risk of buying IRCs on the black market and sending them to WB9RCY. Anyway, the very first USA-CA-500 to HA arrived, and I proudly showed it to a lot of people (most of them—even hams—thought I was stupid, hi).

In the mid-'80s the conditions were poor, and I was busy with other things, such as marriage, divorce, jobs, etc. In 1988, legal regulations changed and I could buy my first radio, a used Drake TR7! From 1989–1992 I worked over 50,000 U.S. stations, most of them on 10 meters SSB. I also studied the '336 net, and when 10 died out, I went to 20 SSB and worked mobiles sometimes until 2 AM local time. I also realized I needed someone in the U.S. to help me with MRCs (*mobile reply coupons—ed.*). Dennis, NQ9E (now W9DM), offered his help, and confirmations started to arrive in large quantities. About half of the states were completed, and the 1000, 1500, and 2000 stickers were attached to the award.

In April 1991 I visited Burt, N0FYR, and we went to the Dayton Hamvention® (if you are a believer, you have to go to Mecca . . .). On our way to Dayton, Burt let me (illegally?) operate under his callsign, N0FYR/M, from a few counties. On the way back from Dayton to Minneapolis, we stopped to see NQ9E, so I could meet him in person. I passed the Extra Class tests in Minneapolis, so soon after I returned to Hungary, I became AA0EY (a couple of years later I changed it to N9DU).

Then in the mid-'90s I lost interest again, largely because of poor conditions. But in 1996 I was invited to take part in the World Radiosport Team Championships in San Francisco as a competi-



Steve Bogyo, HA0DU, USA-CA All Counties #1101, July 23, 2004.

tor. My best friend, Gyozo, HA0MM, was my teammate. When preparing for the trip with my wife Ildiko, HA0UZ, I found out that the County Hunter's Convention was being held in Phoenix, Arizona just a week before the WRTC event. Since we wanted to combine the "official" radio trip with sightseeing, the decision was made to attend the convention, see the Grand Canyon, and then drive to Los Angeles to see some old friends, and then on to San Francisco.

We had fun in Phoenix! (At least I had fun, and Ildiko generously let me talk and talk and talk with other county hunters for many hours.) Then after WRTC, we flew to Chicago and drove to Toronto and Niagara Falls.

In Phoenix I met good old Al, KG5J, who offered to help me with the MRCs. But it took me another three years before I picked up county hunting again. In 1999 I decided I should finish the "project," and I really took it seriously this time. I started working mobiles on the CW net and started reading the internet forums and organizing skeds with mobiles. It went very well, and most mobiles were very helpful. Sometimes I was not happy about net policies (in the older days, in between runs you could work a last, or next-to-last), but in fact it was quite easy to listen to Jim, K2JG, as he is best in picking up and putting through Europeans.

I promised myself I would not mention any callsigns, but there is one fine gentleman with whom I have not missed a single sked over the years: Jerry, W0GXQ, gave me at least 200 new ones. There are many, many others who helped me a lot, but this write-up would be too long if I listed them all.

By early May 2004 I had them all, except for Hancock, TN. On May 10th I finally put this very last one in the log. Twenty-seven years of hard work! No, I'm not going to do it again, but I will be adding more entities to my DXCC totals, work some new IOTA (Islands On The Air) islands, and even start to chase Russian Districts.

—73, Steve, HA0DU

modes may be used. To qualify, applicants need 75 points for the basic award and 750 points for the trophy award. Polish stations have to contact members of PZK for these contacts; foreign amateurs can communicate with any Polish stations. Scoring is as follows:

1. Each QSO with a Polish station = 2 points.
2. Each QSO with special callsign stations (75 years of PZK) with prefixes SP75, SQ75, SPØ = 5 points.
3. Each QSO with a special callsign station ((75 years of PZK and 80 years of IARU) with an IARU suffix = 10 points.
4. A QSO with HF75PZK = 15 points.

European stations outside of Poland may multiply these point values by 2; DX stations outside Europe multiply these points by 3.

For the basic award, each Polish station may only be contacted once. For the trophy award, you can count one QSO with the same Polish station using CW, one on phone, and one using any digital mode on each band. Endorsements are available for all RTTY, PSK, and SSTV modes.

The cost of the award for foreign stations is 5 Euros, \$US5, or 5 (new) IRCs. The award will be issued until the end of 2009. Applications for the Jubilee Award should be sent to: PZK Award Manager Augustyn Wawrzynek, SP6BOW, P.O. Box 54, 85-613 Bydgoszcz 13, Poland.

Slovakia's Castles Award (Diplom Slovenske hrady a zamky). This is the first of two awards that focus on castles featured in this month's column. The rules for this one are somewhat lenient, as all you need to do is work the city where the castle or fort is located. The impressive list of valid cities and towns is available on the radio club's website noted below. The list can also be used as an application. Someone has done significant homework here!



Slovakia's Castles Award is issued by Radioklub Stupava OM3KFY for contact with hams from at least 25 cities or towns where burgs, castles, forts, and other fortifications exist.

The award is issued by Radioklub Stupava OM3KFY to all licensed amateurs and SWLs for contact with hams from at least 25 cities or towns where burgs, castles, forts, and other fortifications exist. Each locality has a reference number and the application should include this number. The locality list can be obtained from the award manager upon request, accompanied by an SAE plus IRC, or via e-mail: <daras@minv.sk>. Contacts on or after January 1, 1993 on all amateur bands and modes with the exception of repeaters count for the award. QSLs are not required.

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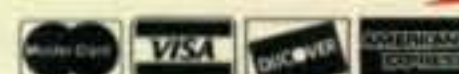
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To earn Spain's Diploma Castells de Catalunya, work castles in the Catalunya province. The award is sponsored by the U.R.E.-Montsi and Radio Club 3AA.

The CQ DX Field Award

Look elsewhere in this issue for the rules of "The CQ DX Field Award" just announced by CQ. Contacts made as long ago as 1980 count for this award, which requires confirmation from at least 50 of the 324 grid fields covering every part of our planet. These fields include ocean and polar regions, which should lead to some interesting expeditions in the future. There will be no wrangling over "entities," dead countries," and other delightful geo-political dog-fights.

Basic award is issued for 25 localities.

Endorsement stickers for 50, 75, 100, 110, up to 190 localities.

Plaque is awarded for contact with 200 localities.

Stickers for the plaque for 210 to 290 localities are available.

Fees: Basic award 10 Euros, \$US10, or 10 IRCs; plaque 20 Euros, \$US20, or 20 IRCs.

Sticker: 2 Euros, \$US2, or 2 IRCs. GCR list (including castle reference number) and fee should be sent to: Award Manager OM2FY, Ing. Branislav Daras, Ruzova 16, SK-900 31 Stupava, Slovakia; <<http://www.hamradio.sk>> (use the "diplomacy" link).

Spain's Diploma Castells de Catalunya (DCC). Another European country well known for its castles is Spain. In fact, in September last year I had a great time climbing though a twelfth century castle overlooking the town of Consuegra in historic Spanish La Mancha country. It is a wonderful loca-

Oops...

In the sidebar "A Heart-Healthy Crystal Set," in February's "World of Ideas" column (p. 65, Feb. 2005 CQ), there is an error in the schematic. There is no connection to ground in the line between the galena crystal and the antenna (this would connect the antenna directly to ground, short out the coil, and nothing would work).

On page 92 of the same issue, we correctly identified Tom Harrell, N4XP, three times in two photo captions, but on the fourth effort, accidentally changed his first name to Tim. Sorry, Tim, Tom, Joe, Bob...

Tnx to Paul, K5RT, for making both catches.

County Hunters Come to the Aid of Fellow County Hunter

By Mike Fatchett, W0MU

On January 4, 2005, N2OCW reported on the K3IMC County Hunter forum that the van of long-time county hunter Silver, KC0JG, had been broken into and all of his radio gear and his antenna were stolen. Dennis, N6PDB, responded, "Let's all help. In the spirit of ham radio, let's all contribute to the replacement of his gear." Dennis indicated that he was in for the first \$50. A number of other people indicated that they would also like to contribute. Jim, KZ2P, and Chuck, K9IA, offered to loan Silver a radio until he could get a replacement.

John, W5UGD, suggested that I create a website to collect donations over the internet using Amazon.com's honor system. Using the honor system would allow people to donate to the cause easily using a credit card. The site was quickly set up and donations started to come in. Some people preferred to pay by check, and those were sent directly to me.

Being a former employee of HRO (Ham Radio Outlet), I was able to get a new ICOM IC-706MkII, mast, and resonators shipped overnight to Silver. Thanks to John, N5EHP, Manager, HRO-Denver, for making sure everything was shipped properly. Ray, WG6X, generously offered his expertise, the use of his garage, and various antenna masts and parts. Ray and Silver were able to get a new antenna mounted and the cables fixed for the arrival of the radio the next day. Silver installed the radio and was back on the road handing out counties on his way home.

I received a total of \$795 in donations. This will cover the deductible for Silver's insurance and a few of the items the insurance company would not cover, plus a few extra dollars for gas for his next county hunting adventure. I know Silver has been greatly touched by everyone's generosity and assistance. Thanks to all the contributors for helping out a long-time county hunter in need. The Spirit of Ham Radio is alive and well with county hunters!

tion for an antenna, since like so many other castles, it was built on the highest ground in the vicinity. The following award is available for contacting castle stations located in northeast Spain, in those provinces facing the Mediterranean.

The award is sponsored by the U.R.E.-Montsi and Radio Club 3AA. SWL okay. Work castles in Catalunya province on or after January 1, 1994. All bands and modes except cross-band QSOs okay.

EA stations need 35 castles with at least three castles in each of the four Catalan provinces. Other stations: 25 castles with at least one of the four Catalan provinces. In all cases, it is obligatory to contact with five castles of the province of Tarragona. The provinces are: Barcelona, Tarragona, Lleida, and Girona. Endorsements are available for each additional ten castles. For the trophy, you must have earned the Castillos de Catalunya diploma and endorsements for 200 castles.

Fee for the diploma: for EA stations 3 Euros or 5 IRCs; others 4 Euros or 7 IRCs. Endorsements for SASE. Trophy costs 30 Euros.

Send GCR list to: Ure Montsia Radio Club 3AA, Apartado 146 c.p. 43540, Sant Carles Rapita Tgna, Spain; <<http://www.diplomadcc.com/>>.

You are invited to submit the rules and a sample copy of your club or group's awards for a future column. Publicity is the key for a successful awards program. CQ can provide a forum for the publicity.

73, Ted, K1BV

Checking Those Logs

April's Contest Tip

Spares anyone? We aren't talking about bowling this time either. Planning is one of contesting's greatest skills, and that includes ensuring against disaster as well. Before you get ready for the next serious contest effort, make sure you've tried to line up some spare gear in case that at some point inevitable equipment failure comes to visit your operation. Having access to an extra transceiver, laptop, amplifier, or keyer is just common sense. It would be a shame to give up on a contest while a willing, helpful ham neighbor has an extra TS-850 sitting on the shelf. Remember that this strategy is a two-way street. If you have extra gear sitting around, make some arrangements with a local buddy as well. If we have the potential to share our resources in time of need, all of our scores can go up!

Log checking and reporting have been with us as long as contesting itself. Contest adjudication is a natural part of the contesting process. A question often asked by hams as well as non-hams is "How do 'they' know you've actually talked to all those people?" Much has been written about today's modern log-checking techniques, but the history of earlier methods is often a mystery. This month let me take a crack at the early days of log checking and share some of my personal experiences.

I have to admit right up front that I have little insight into the log-checking techniques that were used in the very early days of contesting (there may be other "old timers" who will want to share their knowledge with me after reading this). That being said, we fortunately have some access to the process which began about 50 years ago. One source is the description provided in the July 1959 *CQ* contest column written by Frank Anzalone, W1WY. My, how times have changed. Frank wrote:

Since there is no contest activity for the next couple of months, this would be a good time to answer a request made by many readers: "How do you fellows go about judging a DX contest?"

Naturally, right after a contest has taken place, the logs start rolling in, first from the nearby US districts and a little later from the foreign countries. Rather than wait for a supply to pile up, they are immediately sorted, first into continents and later into countries and districts. As this is being done, a tally sheet is also attached to each log and the claimed score and other pertinent information are noted.

As they are being filed we also check the score, tabulation, etc. An experienced contest checker can tell at a glance if everything is in order or if the log needs closer checking. If the score is way out of line, it usually indicates that the guy has been multiplying everything in sight, instead of Zones plus Countries multiplied by the QSO points. However, we don't get many of these, as most everybody has been educated. They are also now familiar with the rule of a completed contact counting 3 points, but only 1 point when it's from the same continent.

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Calendar of Events

Mar. 19-20	BARTG RTTY Contest
Mar. 19-20	Russian DX Contest
Mar. 19-20	CLARA and Family HF Contest
Mar. 19-21	Virginia QSO Party
Mar. 27-28	CQ WW WPX SSB Contest
Apr. 2-3	SP DX Contest
Apr. 2-3	EA RTTY Contest
Apr. 2-3	Missouri QSO Party
Apr. 2-3	QCWA Spring QSO Party
Apr. 9-10	JIDX CW Contest
Apr. 9-10	Georgia QSO Party
Apr. 10	UBA Spring SSB Contest
Apr. 16	Holyland DX Contest
Apr. 16-17	YU DX Contest
Apr. 16-17	Michigan QSO Party
Apr. 23-24	DX Colombia Int'l Contest
Apr. 23-24	SP DX RTTY Contest
Apr. 23-24	Helvetia Contest
Apr. 23-24	Florida QSO Party
Apr. 23-24	Nebraska QSO Party
May 28-29	CQ WW WPX CW Contest

By this time we start to get a pretty good idea of who's at the top of the totem pole and the entries are filed according to band classification.

Now comes the real work, cross-checking. Of necessity, because of the great number of logs, only spot checking in most cases. But if your score is in the top grouping you'll get more than that and if only one cross-check does not jibe, you're going to get a real going over. So, if the percentages have been working for you, don't press your advantage too far. Your luck might be running out and you and it could prove embarrassing.

Usually, we deduct these phantom contacts, as well as duplicates, and let it go at that, but it's becoming a bit irritating and we are strongly considering the creation of a disqualification list. Certain errors are understandable and ignorance of the rules can be forgiven, but it is a contest for two-way transmission, not SWLs.

Each year we receive a certain number of unscored logs. "I do not understand the rules; please check my log" is the usual plea. If Ben happens to get his hands on it first, it's sure to end up in the check-log folder. But, I usually rescue it and Mac or Andy will do the scoring. It's no fun when there are 500 or more contacts and no separation is made from band to band. Unscored logs from distant points are understandable, but when the call is a W/K—well, Ben's right, and next year our check-log list is going to get bigger.

There are many other time-consuming details—checking the operating time on borderline cases, making sure it's properly classified as to single or multi-operator, compiling the club scores, etc. Some contestants are still sending us their phone and CW logs in the same mailing, and you have to see some of the foreign logs to appreciate the difficulty we have in trying to decipher the information.

Finally, everything has been checked and the winners determined. Now there is still the big job ahead of us preparing the material for the printer, and when that's put to bed there is still a list of over 550 certificates that we have to prepare. Making out the certificates is Wayne's secretary's job, and does Kathie dread that tedious assignment, for it's not only making out the certificates but the mailing labels as well and some of the foreign addresses are confusing.

I hope that in some small way this explanation will make you fellows realize the tremendous job we on the contest committee are confronted with each year. So, before you send in that contest log next fall, make sure everything is in order. It will be greatly appreciated.

73 for now, Frank, W1WY

Unlike the world of five decades ago, today's environment of e-mail robots, Cabrillo files, and UBN reports certainly points to massive changes that mirror the very sport itself. However, before we jump right to today's world, let me take you back to a period of time between the 1950s and today—the log-checking world of the early 1980s.

At that point in time there were still no computers, yet the demand and need to effectively check contest logs was still there. I was a new member of the CQ WW Contest Committee and was amazed at the volume of logs (and work!) that had to be manually processed by the committee. Since at that time there were no computer logs, huge batches of paper logs that reached up to the ceiling needed to be sorted out. After being received at CQ headquarters, they were then forwarded to Bob Cox, K3EST, who logged the raw en-

Dayton Hamvention® Contest Dinner

The North Coast Contesters group has announced the 13th annual Dayton Contest Dinner to be held Saturday, May 21, 2005 at 6:30 PM (cash bar opens at 5:30 PM) at the Crowne Plaza Hotel, downtown Dayton, Ohio. Master of Ceremonies will be John Dorr, K1AR.

Price is \$33.00 per person. Seating is limited to 300, so order your tickets early. Deadline for orders is May 7. There will be no tickets available at the door. Orders are handled exclusively by Craig Clark, K1QX, at: Radioware and Radio Bookstore, P.O. Box 209, Rindge, NH 03461 <<http://www.radio-ware.com>>. Call 1-800-457-7373 (1-603-899-6957 for international) Mon.–Fri., 10 AM to 6 PM eastern USA time (fax 1-603-899-6826, 24 hours). You can also e-mail orders to: <cjclark@worldpath.net> (Visa, Mastercard, American Express okay; no COD orders). E-mails must include charge card + number, call sign, and return address information. Tickets will be sent via First Class mail no later than May 10. Please allow plenty of time for your dinner tickets to arrive before you leave for Dayton. Radioware and Radio Bookstore is not responsible for dinner tickets lost in the mail.

Special thanks to Craig Clark, K1QX, for again handling the dinner tickets, and to DX Engineering for sponsoring the tickets this year.

tries and subsequently distributed them to committee members. Each committee member had an assigned geographic area or operating category—in my case, USSR logs.

Many of the Soviet logs, particularly the multi-operator entries, were a work of art. They were hand copied from the original logs and in some cases bound into booklets for submission. I still have a few of them in my basement, including famous old calls such as UK9AAN, UK2BBB, UK2BAS, RG6G, etc. I can't even imagine the work involved in cre-

ating these masterpieces, written in perfect script, not to mention the manual duping and scoring process. Remember, gang, no computers were involved!

Given that there were indeed no computers on either end of the process, the CQ Contest Committee had to perform its duties manually as well. Checking in those days began with a visual inspection of the large logs (the smaller scores did not receive equal treatment for obvious reasons). Some of the areas that received particular focus were time violations, duplicates (yes, we actually had to check to make sure dupes were not left in the logs, intentionally or otherwise), bad calls, etc. Even in those days, it was rare to see a QSO removed from a log without tangible evidence. As a result, impressive initiative was employed to produce long lists of cross-checking requests between committee members (without e-mail assistance!) to either spot-check a log or verify suspicious QSOs. Given the incredible logistic limitations, it was a process that fundamentally worked.

Upon completion of the adjudication process, we then had to compile the final results by hand-writing the call sign and scoring information on large "blue sheets," which were ultimately consolidated by K3EST and submitted to CQ along with operator lists, soapbox comments, summary tables, and "the story." CQ staff would then manually enter the "blue sheet" data into their typographical systems and ready the information for the printer. To this day, I still find it miraculous that a log entry from Uzbekistan actually made it into print, given all of the opportunities for human error.

Fast Forward to Today

Well, somehow between 1980 and today we've launched the NASA Space Shuttle, deployed the PC to nearly

2004 CQ WW WPX CW Contest Results Correction

In the WPX CW scores listings published in the March issue, the U.S. QRP participants were inadvertently left out. The following is the QRP listing in its entirety.

Number groups after call letters denote following: Band (A = all), Final Score, Number of QSOs, and Prefixes. Certificate winners are listed in boldface.

QRP/p													
OT4A	A	1,161,126	1070	514	DL1RNN	95,309	252	191	RW3AI	14	211,888	434	323
OL4W	A	875,805	1055	439	WA4PGM	94,518	234	178	SP9NSV	14	163,305	369	285
SM3C	A	809,952	1051	472	DL3KVR	90,943	256	199	OK1DSA	14	149,668	367	284
G3YMC	A	600,544	856	392	SQ9QR	65,567	209	173	G3LHJ	14	137,550	331	262
DF3AX	A	592,644	777	393	OK1FRY	63,674	192	158	DF5SF	14	74,538	249	202
UA4ARL	A	567,424	758	416	HG8F	63,336	220	182	W6YJ	14	72,726	224	186
LA5EKA	A	453,222	691	378	ON7CC	54,776	228	164	K4RDU	14	47,610	157	138
LY2004E	A	446,886	786	366	DL1LAW	52,824	241	142	NU4B	"	46,018	139	133
N7IR	A	439,005	571	339	IT9VDQ	51,150	240	165	SM5T	14	19,376	123	112
GW4ALG	A	435,897	716	357	UT7GX	47,610	165	138	RU3RQ	"	13,950	106	93
OL3M	"	431,550	699	350	RK1NA	46,008	200	142	I1/IT9LNH	14	10,492	94	86
KE4R	A	430,605	547	315	G0WHO	44,829	198	153	IK2AIT/1	"	6,916	85	76
UU4J	A	413,829	617	351	RV3DBK	44,700	224	149	HA5DI	14	5,700	63	60
AN7AAW	A	408,336	606	362	RV3GM	42,186	194	158	RV3YR	"	3,542	53	46
G0DCK	"	390,942	662	333	K4AQ	41,920	189	131	F/N7XY	14	725	25	25
F6FTB	A	384,498	612	369	PA1B	37,922	182	134	N00A	14	273	14	13
ES6PZ	A	336,644	618	308	N8IE	25,338	113	103	OK1IR	7	442,848	508	336
WBVE	A	334,458	467	306	DL9FHF	23,868	111	102	LY5G	7	402,880	524	320
M00	"	312,325	608	325	DF5RF	23,005	126	107	T93W	7	293,150	406	286
LZ2BE	A	237,726	466	281	DJ5QK	21,909	201	109	SP4FGF	7	280,224	410	278
SM6CRM	"	202,356	373	308	WQ2RP	17,860	113	94	OH3BU	7	259,272	378	277
KA1LMR	A	186,440	343	236	OH6NPV	17,384	125	106	SM6EQO	7	252,450	394	270
7S3J	"	174,000	386	250	PADRBO	11,880	108	88	OZ7BQ	7	218,025	360	255
H1BAY	A	170,478	332	246	K9GY	10,872	79	72	YO6CFB	7	156,450	317	210
RU2FM	"	152,328	415	264	UT5ERP	9,514	83	71	IK3VIA	7	154,451	251	209
S56C	A	148,092	361	246	SM5DQ	7,749	72	63	ON6TJ	7	105,776	297	176
HB9DAQ	A	145,130	330	230	K2EKM	7,650	52	50	SM7/	"	71,725	217	151
G4DBW	"	140,490	352	223	SM6AHU	6,798	75	66	DL1BBO	"	52,716	171	138
OZ6XR	A	123,552	347	234	KG4HTT	5,341	63	49	ON4BHP	"	28,531	112	103
UR8DX	"	122,550	338	215	HB9AYZ	3,600	55	48	N2JNZ	7	15,192	77	72
YO2CJX	A	114,332	313	202	US0YA	3,264	35	32	KO1H	7	8,950	56	60
WA8REI	"	113,078	314	197	DL3BVA	2,046	40	33	W8TM	7	5,671	57	53
					EA4OR	748	22	22	OH2BEC	"	3,567	44	41
					N6XI/2	99	9	9	OK2NA	"	1,431	28	27
					LA1PHA	16	4	4	RA3XAR	3.5	45,000	161	120
					EA7FNJ	28	592	23	UA3LIZ	"	28,408	123	106
					SP9H	21	152,048	365	OK1NJC	3.5	1,980	35	30
					EW6CU	21	111,230	314	SP9RQH	3.5	1,711	32	29
					HA0GK	21	34,300	155	ON4AEB	1.8	23,552	129	92
					OK1AJJ	21	18,920	126	RZ3VA	1.8	13,832	90	76
					W1CVE	21	12,960	89	LY1BA	1.8	11,270	83	70
					WA6FGV	21	6,720	75	S06A	1.8	5,450	57	50
					SM5ARR	21	1,452	36					
					RA3XEV	21	800	20					
					YT1CS	14	503,010	683					
					EU8RZ	14	420,210	619					
					HB9DAX	14	335,232	505					

every home in the modern world, rolled out the internet, and created RAP music. It's been a busy 25 years. Such is the case for contest log checking, too. For most of today's contests, e-mailing your log to a contest robot for processing is the standard mode of operation. The CQ WW, for example, now receives only a few hundred paper logs, with over 98% being submitted electronically.

As I wrap up with an ever-so-brief view of today's log-checking universe, it may be most useful to frame the thinking in terms in active use today. Here we go:

The Robot: Contest robots are not the mechanical variety we see at science fairs and in Hollywood movies, but rather a software program that simply provides a means to accept a submitted contest log, examine its format, send it along to the log checkers for processing, and provide notification services to the entrant. Not all robots are created equal, as many of you have learned from experience. One day the software developers who have helped us get to this point, combined with incredibly generous contributions of their own personal time, will achieve their dream of a more universal robot system that will make life easier for everyone. Until that happens, continue to give your applause for what they've already provided. They deserve every minute of your gratitude.

Cabrillo: In addition to being a nice seaside road in California, Cabrillo is a specification that has become the standard for most contest log formats. Its intent is simply to assist log checkers by ensuring that a consistent file format is utilized by everyone, making the task of adjudicating logs geometrically easier. The good news is that for the most part the world has figured it out. If you're still struggling, trial and error is the best method to get there yourself. It wouldn't hurt to check out <http://www.cqww.com/cbr_info.htm>. In addition, be sure to benefit from the fact that nearly every modern logging program is now Cabrillo enabled.

UBN Reports: I could write an entire column on this subject (and perhaps should at some point). Suffice it to say that the tracking of QSOs that are unique to just your log and the resultant bad/not-in-log analysis that follows is a key metric in the log-checking process. Contesting has benefitted enormously from the availability of this data—not only in the checking process, but as a useful tool to help us improve our long-term logging accuracy. In days past, you really had no quantitative data to measure how accu-

rate your logging was in a contest. With the availability of UBN reports and good old-fashioned peer pressure, we have really improved in recent years. If you want more information on the subject, I suggest you read <<http://www.cqww.com/cqwwubn.htm>> for a complete tutorial on UBN reporting.

The Final Results: Last, there are the final published contest results. The economics of the publishing world have had an impact on available space for contest reporting. Fortunately, the internet is increasingly picking up the slack. At the end of the day, with all of the changes that have taken place in the log-checking business, a set of final results is still produced, and for the most

part this is largely the same as it has been for decades. Of course, we have new categories and additional analysis, but contesting is ultimately about stack-ranking results, one competitor against another. That's the part of contesting that is ultimately most rewarding and one which will never change. The benefits from improved adjudication are the icing on an already tasty cake!

Final Comments

That does it for this month. Thankfully, the winter is nearly behind us and we can look forward to warm weather and new antennas. Until next month, see you in the contest! 73, John, K1AR

Looking Ahead in CQ

Here's a look at articles we're working on for upcoming issues of CQ:

- * Another new CQ program to "Wake Up DXing"
- * 2004 Results, CQ World-Wide RTTY DX Contest
- * "US Hams in Iraq," by AB3AC/YI9AC
- * "Assault on Mount Mitchell," by KA2CLX

Do you have a ham radio story to tell? See our writers' guidelines on the CQ website at <<http://www.cq-amateur-radio.com/guide.html>>

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Keeping Up the Interest

I've talked about doing "other things" to keep up your interest during lulls in DX activity. I probably even mentioned RTTY and PSK. Although I dabbled in RTTY many years ago, I just had not made a serious effort using that mode until recently. Actually, RTTY came up in a conversation a friend and I had about the Peter I DXpedition. He's one of those guys who has "worked 'em all" and has been experimenting with QRP and other things to maintain his interest in DXing and the hobby in general.

We decided we would try to work 3YØX on RTTY. We each acquired one of those computer-to-radio interface devices and started checking out this "new" mode. My friend became interested in PSK and has been enjoying the fascination of that mode, while I took the RTTY approach.

The first weekend I got on the air with the above in mind I discovered a RTTY contest and proceeded to make between 50 and 60 contacts. Now I've been contesting for a long time, but this was something totally different. I wasn't bold enough to try calling CQ, so I just went the search-and-pounce route, seeking out those signals I could copy pretty well. It was *fun*, and I had a good time figuring out how to tune the receiver and all the other things that go along with RTTY. Those of you who have been doing this for awhile are probably chuckling. Well, I hadn't, and it was fun to learn something new.

Since that first experience, I've tried a few other RTTY contests and gained more knowledge in the process. Also, in between the contests I found that I could work a lot of good DX with this mode. I haven't been brave enough to try running my amplifier on RTTY yet, so I just loaf along at 50–75 watts output and still have managed to work 50 or so countries. No, it's not a big deal, but I've learned a lot and have managed to have some fun along the way.

The point here is that even an old dog like me, with 50 years of DXing and contesting under my belt, found something worthwhile to occupy my time between DXpeditions. RTTY is a totally different experience, and you actually have to work at it a bit. It's not like SSB, where you just tune in a signal and speak into the microphone to make a contact. With the digital modes you have to spend some time learning the ropes, but once you do, you can have fun and start building the totals on those modes.

I recall a commercial sometime back that said, "Try it. You'll like it." The digital modes are like that commercial. Give them a try. You just might like them.

Peter I DXpedition Postponed

After all the hard work and expense of getting everything and everyone to Argentina, the Peter

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Wendy, BV2RS, lives in Taipei, Taiwan and operates from this impressive ham shack. (Photo courtesy of Franz, DJ9ZB)

I DXpedition team reluctantly released the following information on February 17, just as they thought they would be boarding the ship headed for Peter I:

I am afraid we have bad news. At 1 AM local time today we learned that our charter vessel, the *Cavendish Sea*, had not yet sailed from the port of Comodoro Rivadavia. The *Cavendish Sea* was to sail to Ushuaia, Argentina to pick up the DXpedition team and their equipment on Friday, February 18th. We were to sail before noon.

Because they have delayed their arrival until Sunday, and with a projected Monday departure, we have simply run out of time. This latest delay on top of numerous previous delays simply makes it impossible for us to



John Shelton, K1XN, of the GoList/GoWin conducted a worldwide survey for the Top QSL Manager for 2004. Over 2000 responses were received and the top five nominees were Phil Whitechurch, G3SWH; Roger Western, G3SXW; Nigel Cawthorne, G3TXF; Antonio Cannataro, IZ8CCW; and Joe Arcure, W3HNK. Each of them will receive one of these handsome plaques. (Photo courtesy of John, K1XN)

The WPX Program

CW

3148.....S53MJ

SSB

2924.....N2KH 2925.....S53MJ

CW: 800 F5JIW, 1250 S53MJ, 1500 F5YJ, 2300 S51NR.
SSB: 650 S53MJ, 700 AE9DX, 4250 I2PJA.
MIXED: 900 N1HOQ, 1000 G3OCA, 1350 S53MJ, 2000 JA6GWU, 4250 I2PJA, 5000 WA2HZR.

10 Meters: JH8WGT

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BOY, 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, H18LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, KB0G, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, 9A2NA, W4UW, NX0I, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWP, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DE0DAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, WX3N, HB9AUT, KC6X, N6IBF, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, W8ULU, 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.

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, H18LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TOH, N6JV, ONL-4003, W5AWT, KB0G, F6BVB, YU7SF, DF1SD, K7CU, I1POR, YB0TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, 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.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage if airmail desired) to "CQ WPX Awards," P.O. Box 593, Clovis, NM 88101 USA. Note: WPX will not accept prefixes/calls which have been confirmed by computer-generated electronic means.

**Please Note: As of February 2004, the price of the 160 meter bar for the Award of Excellence is now \$6.50.*

spend a sufficient amount of time on Peter I to justify the DXpedition this year. So, we have no choice but to postpone the DXpedition until 2006. We believe it is essential to allow enough time on Peter I to justify the monetary investment made by the team members, our sponsors, individual contributors, DX clubs, and DX Foundations.

After having the first vessel, the *Antarctic Dream*, default on their contract with us, then the helicopter company default on their contract, and then after putting everything back together with a new boat and helicopter on this past Tuesday, the team has been on quite an emotional rollercoaster. Our sincerest thanks to everyone for the encouragement and support you offered us during this time.—*Bob Allphin, K4UEE, and Ralph Fedor, K0IR*

Truly a disappointment to DXers around the world. However, we all should be grateful for the super-human effort these folks put forth in doing everything possible to make it happen. Our collective thanks to all of the team members for all they have done, and plan to do next year, to bring Peter I to the deserving.

DXCC Listings

The annual *DXCC Yearbook* is out, and those listings are available on the ARRL website (www.arrl.org). The website now features up-to-date listings of DXCC awards earned. The new system shows every issued DXCC award

known to the ARRL's computerized DXCC system, with the exception of individual standings for 5 Band DXCC. ARRL Membership Services Manager Wayne Mills, N7NG, says the website listing is more complete than the *DXCC Yearbook* ever was, since the printed list did not list inactive band-accounts for the previous year.

CQ DX Awards Program

CW

1064.....EA3ALV

SSB Endorsements

320.....CT1EEB/335 310.....KE4SCY/319
 320.....W2CC/333 300.....KK4TR/305
 320.....SV3AQR/320 300.....W4PGC/302

CW Endorsements

320.....W2VJN/334 200.....W4PGC/242
 320.....N7WO/321 200.....K6UXO/234
 300.....EA3ALV/306

The basic award fee for subscribers to CQ is \$6. For non-subscribers, 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, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 335 active countries. Please make all checks payable to the award manager.

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"This will list everything and everybody," Mills emphasized. "The new system makes available a separate listing for each DXCC award type—band or mode." Even more important, Mills noted, is that it essentially renders obsolete the manually generated monthly and yearly reports. "Under the new system, DXCC listings will be updated daily," he emphasized. The DXCC standings of all ARRL members will remain in dark type. Callsigns of non-members who have not submitted credits for ten years or more are in grayed-out type.

Each listing by band or mode is complete in a separate Adobe PDF file. The largest listing (DXCC Mixed) now runs to more than 50 pages, but the size of the PDF file is only about 150 kbytes because of file compression. Printing format options include U.S. letter-size or ISO A4 paper. The DXCC listings can be found at: <http://www.arrl.org/awards/dxcc/#listings>.

Tsunami/Andaman Presentations

Charles Harpole, K4VUD, was on Andaman when the tsunami hit on December 26th. The following is a quote from him: "The extensive interest

Tsunami Emergency Communications: Bharathi, VU2RBI, shown here handling emergency traffic during the aftermath of the tsunami that struck the Andamans. (Photo courtesy of Bharathi, VU2RBI, and Franz, DJ9ZB)



in VU4 has resulted in my accepting invitations to speak about the DXpedition and the following emergency activities (note that Bharathi, VU2RBI, or other Indian hams may also appear at these and other events). Here are the events/dates that I have accepted: April 15–17, Visalia (California) International DX Convention; May 20–22, Dayton Hamvention®; June 3–5, HamCom in Arlington, Texas; August 6, Austin (Texas) Hamfest; and September 16–18, W9DXCC Convention in Chicago. I look

5 Band WAZ

As of February 1, 2005, 669 stations have attained the 200 zone level and 1426 stations have attained the 150 zone level.

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

UT3UY K5BG

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

N4WW, 199 (26)	N4MM, 199 (26)
W4LI, 199 (26)	EA7GF, 199 (1)
K7UR, 199 (34)	N4PQX, 199 (26)
W8PGL, 199 (26)	JA5IU, 199 (2)
W2YY, 199 (26)	N6HR/7, 199 (37)
VE7AHA, 199 (34)	CT3DL, 199 (26)
IK8BQE, 199 (31)	EA5BCX, 198 (27, 39)
JA2IVK, 199 (34 on 40m)	G3KDB, 198 (1, 12)
IK1AOD, 199 (1)	KG9N, 198 (18, 22)
DF3CB, 199 (1)	JA1DM, 198 (2, 40)
GM3YOR, 199 (31)	9A5I, 198 (1, 16)
VO1FB, 199 (19)	K5PC, 198 (18, 23)
KZ4V, 199 (26)	K4CN, 198 (23, 26)
W6DN, 199 (17)	G3KMQ, 198 (1, 27)
W6SR, 199 (37)	N2QT, 198 (23, 24)
W3NO, 199 (26)	OK1DWC, 198 (6, 31)
HB9DDZ, 199 (31)	W4UM, 198 (18, 23)
RU3FM, 199 (1)	US7MM, 198 (2, 6)
HB9BGV, 199 (31)	K2TK, 198 (23, 24)
N3UN, 199 (18)	K3JGJ, 198 (24, 26)
OH2VZ, 199 (31)	W4DC, 198 (24, 26)
K5MC, 199 (22)	N4XR, 198 (22, 27)
W1JZ, 199 (24)	RU3DX, 198 (1, 6)
W1FZ, 199 (26)	OE2LCM, 198 (1, 31)
SM7BIP, 199 (31)	W7SX, 198 (18, 23)
PY5EG, 199 (23)	HA1RW, 198 (1, 31)
SP5DVP, 199 (31 on 40)	WK3N, 198 (23, 24)
W8AEF, 199 (40)	HA9RT, 198 (1, 31)
K8RR, 199 (26)	W9XY, 198 (22, 26)
UU5JR, 199 (4)	KZ2I, 198 (24, 26)
W8GF, 199 (22)	N0IJ, 198 (21, & 15 on 15m)
N4NX, 199 (26)	

Endorsements:

UT3UY (200 zones)	KE9U (197 zones)
K5BG (200 zones)	JH1EEB (170 zones)
HA8IH (170 zones)	OZ1HPS (167 zones)
SM0KRN (200 zones)	

****Please note: Cost of the 5 Band WAZ Plaque is \$80 (\$100 if airmail shipping is requested).**

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, 17 Green Hollow Rd., Wiggins, MS 39577. 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.

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AN779L (20W)	AR313 (300W)
AN762 (140W)	EB27A (300W)
EB63 (140W)	EB104 (600W)
AR305 (300W)	AR347 (1000W)



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THE WPX HONOR ROLL

The WPX Honor Roll is based on the current confirmed prefixes which are submitted by separate application in strict conformance with the CQ Master Prefix list. Scores are based on the current prefix total, regardless of an operator's all-time count. Honor Roll must be updated annually by addition to, or confirmation of, present total. If no up-date, files will be made inactive.

MIXED

5264.....9A2AA	3808.....N6JV	3332..WB2YQH	2987.....HA0IT	2550.....W7OM	2175..WB3DNA	1772.....VE9FX	1487.....WT3W	825.....KL7FAP
4792.....W2FXA	3768.....YU1AB	3325.....K0DEQ	2944.....IT9QDS	2518...OZ1ACB	2142.....I2EAY	1741.....AB5C	1472..OK1DWC	803.....VE3NQG
4257.....W1CU	3668.....N4MM	3291.....KF2O	2824.....W2ME	2510...K9UQN	2100...VE6BF	1705.....W2EZ	1369..KW5USA	742.....K5JC
4241.....EA2IA	3589.....N5JR	3234...JH8BOE	2795.....9A4W	2457...JN3SAC	2018...HA9PP	1697.....Z35N	1245...K6UXO	738.....AK6I
4211.....9A2NA	3548.....N9AF	3191.....IK2ILH	2790...W9OP	2426...W6OUL	1976...DJ1YH	1674...YB0AI	1226..EA2BNU	710.....K0CF
4111.....F2YT	3489.....N5JR	3166.....K9BG	2772..YU7GMN	2422...W8UMR	1958...CT1EEB	1561...N1KC	1130..PY1NEW	648.....KW0H
4038.....N4NO	3489..SM3EVR	3140...I2EOW	2720...K2XF	2385...K5UR	1837...AA1KS	1560...KX1A	1090...W2OO	
3900...VE3XN	3395...S53EO	3121..PA0SNG	2705...W9IL	2212..PY2DBU	1804...K0KG	1535...A6Z	933...SM7GXR	
3890...I2PJA	3379...I2MQP	3011...W2WC	2701..WA1JMP	2203...W4UW	1773...W7CB	1521...NG9L	865...N5DD	

SSB

4583.....I0ZV	3234...N4MM	2741..PA0SNG	2259...K5RPC	1973...I3ZSX	1704...IT9SVJ	1458...JN3SAC	1162..EA5DCL	822.....K1BYE
4027...ZL3NS	3215...I2MQP	2711...LU8ESU	2209..IK2OPR	1969...CT1EEB	1701...K08D	1386...IK4HPU	1148...AG4W	822...W8UMR
4018...VE1YX	3160...N4NO	2618...OE2EGL	2143...W2WC	1954...CT1EEN	1701...K8NDU	1384...LU3HBO	1143...EA3EQT	812...KU6J
3867...I2PJA	3084..CT1AHU	2588...EA1JG	2094...LU5DK	1942...W7OM	1615...K17AO	1310...I2EAY	1078...EA3KB	776...YB0AI
3765...F6DZU	3049...F2VX	2594...I8KCI	2045...N6FX	1937...I8LEL	1562...W2ME	1256...VE7SMP	1043...A6Z	755...VE6BF
3373...9A2NA	3004...N5JR	2563...KF7RU	2028...K5UR	1862...EA7TV	1562...SV3AQR	1238...LU4DA	990...HA9PP	737...IK8OZP
3353..EA8AKN	3000...I4CSP	2509...EA5AT	2027...N03A	1830...K3IXD	1538...VE9FX	1218...WT3W	978...EA7HY	733...AK6I
3307...OZ5EV	2830...4X6DK	2432...IN3QCI	2014...K2XF	1721...DK5WQ	1520...DF7HX	1215...W3LL	934...KX1A	674...K7SAM
3292...EA2IA	2817...I2EOW	2325...CX6BZ	1994...W4UW	1716...W6OUL	1480...AB5C	1194...N1KC	903...N9DI	
3260...CT4NH	2782...KF2O	2289...HA0IT	1993...W9IL	1716...W2FKF	1460...NG9L	1190...K4CN	851...KU4BP	

CW

4413..WA2HZR	2959...9A2NA	2437...EA7AZA	2149...K9UQN	1958...VE6BF	1863...W6OUL	1520...4X6DK	1227...K6UXO	953...PY4WS
3655...K9QVB	2948...LZ1XL	2380...KF2O	2120...JN3SAC	1939...K5UR	1767...I2EAY	1430...EA2CIN	1171..WA2VQV	898...WT3W
3610...N4NO	2694...N5JR	2348...I7PXV	2112...OZ5UR	1907...W9IL	1712...I2MQP	1362...AC5K	1158...YU1TR	767...VE9FX
3361...VE7DP	2476...W2WC	2268...W8UMR	2043...K2XF	1893...EA5YU	1584...IK2ECP	1352...WO3Z	1048...KX1A	642...PP6CW
3294...EA2IA	2447...KA7T	2167...N6FX	2036...IK3GER	1882...W7OM	1531...I2EOW	1235...A6Z	998...T94GB	624...W9IND

forward to seeing a lot of you DXers at one or more of these events."

Upcoming DX Events

56th Annual Visalia International DX Convention. This event will be held April 15-17 at the Visalia Holiday Inn Hotel & Conference Center, 9000 W. Airport Drive, Visalia, California. It will be hosted this year by the Northern

California DX Club with help from the Central Arizona DX Association and the Mother Lode DX & Contest Club. See the following website for more information: <<http://www.ncdxc.org/Ncdxc/Convention/index.htm>>.

Dayton Hamvention® DX Dinner. Jay, K4ZLE, tells us that The South-West Ohio DX Association will be sponsoring the 20th annual DX Dinner to be held in conjunction with the 2005 Dayton Hamvention®. The dinner will be Friday evening, May 20th, at the Crowne Plaza Hotel, located in Dayton city center, the same venue as in years past. Tickets are \$32 each, payable in U.S. funds, and may be ordered from Jay Slough, K4ZLE, at his *Callbook* address. They will attempt to honor group seating requests when tickets are

ordered together. There are eight seats per table and seating is limited. Program details will be announced as soon as they are finalized. This is an excellent opportunity to meet/renew acquaintance with some of the ops you work and compete against, away from the hustle and bustle of the Hamvention® itself. Further information may be obtained from Jay at <k4zle@arrl.net>.

Dayton Hamvention® Contest Dinner. The 13th annual Dayton Contest Dinner will be held Saturday, May 21 at 6:30 PM at the Crowne Plaza Hotel. For details, see K1AR's "Contesting" column in this issue of *CQ*.

Until next time, enjoy the chase and have fun!
73, Carl, N4AA

The WAZ Program

17 Meter SSB

38.....K0DEQ

20 Meter SSB

1134.....KW3W

40 Meter CW

240.....K1FK 241.....W7LGG

All Band WAZ SSB

4950.....4Z4TL 4952.....KA5EYH
4951.....JA3ETD 4953.....KK5MI

Mixed

8344.....OK2VK 8345.....W6ZPL

All CW

451.....SM6YIN

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, 17 Green Hollow Rd., Wiggins, MS 39577. 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>.

QSL Information

3A/DL3OCH via DL3OCH
3B8/HA7TM via HA7TM
3D2/HA8IB via HA8IB
3D2/HA9RE via HA9RE
3D2RE/R via HA8IB
3G0YM via LA6EIA
3G0YP via LA6EIA
3V8BB via YT1AD
3V8SM via DL1BDF
3V8SQ via DL2OBF
3Y2SNA via LA2SNA
3Z0IU via SP2IU
3Z1IARU via SP3MGM
3Z20YLJ via SP8ZIV
3Z35PEF via SP8PEF
3Z4IARU via SP4JWD
3Z75GFI via SP9GFI
3Z75IWA via SP7IWA

3Z75Z via SP8AJC
3Z8IARU via SP8AQA
3Z8PHG via SP8YED
3Z9IARU via SP9PRO
4C2M via EA5KB
4T750 via DL5WM
5B4AGM via W3HNC
5N8NDP via IK5JAN
5T5SN via IZ1BZV
6G1KK via W5UE
7S5LH via SM5RN
8P5A via NN1N
8P9JG via NN1N
8R1/AH8DX via AH8DX
9G5OO via DL4WK
9H2NCC via 9H4DX
9H3CT via G0WKJ
9H3RW via G4IPE

9K2/DB1JAW via DB1JAW
9L1MS via IZ0EGA
9L1MS/P via IZ0EGA
9M2/G4ZFE via G4ZFE
9M2CNC via G4ZFE
9Y4/YL2GM via YL2GM
9Y4/YL2KL via YL2KL
9Y4/YL2LY via YL2LY
9Y4DLH via DJ3FK
9Y4W via YL2KL
9Y4W via W3HNC

(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>.)

Update on the January Solar Activity Events

A Quick Look at Current Cycle 23 Conditions

(Data is rounded to nearest whole number)

Sunspots

Observed Monthly, January 2005: 31
Twelve-month smoothed, July 2004: 40

10.7 cm Flux

Observed Monthly, January 2005: 102
Twelve-month smoothed, July 2004: 106

Ap Index

Observed Monthly, January 2005: 22
Twelve-month smoothed, July 2004: 14

Can you believe it? X-rays from the X7.1 flare of January 20, 2005 began to arrive at 0636 UTC, while enhanced energetic ion levels began at 0650 UTC. This means that the fastest ions traveled the distance between the Earth and the sun (150 million kilometers, or 93 million miles, apart) in approximately 22 minutes, indicating a speed approximately 40 percent that of light!

A very strong proton shock wave hit on January 20. This was the start of the fifth proton shock to hit during this period. However, based on the flux level of the highest energy protons (those greater than 100 MeV), this radiation storm was the strongest since October 1989, according to NOAA SEC. A rare, strong ground-level event (GLE) was also observed. GLEs are increases in the ground-level neutrons detected by neutron monitors and are generally associated with very-high-energy protons (those greater than 500 MeV). Elevated neutrons at ground level means there are high fluxes of energetic protons near Earth. High-energy radiation storms can be particularly hazardous to spacecraft and to communication, navigation, and aviation operations at high latitudes.

The last flare from the active solar region 10720 (the one reported about in last month's column) was the third largest of solar Cycle 23. It released a coronal mass ejection (CME) directed straight toward Earth. The shock wave driven by the CME arrived at Earth around 1700 UTC on January 21, causing a severe geomagnetic storm ($Kp = 8$).

HF Propagation in April

April is one of the most interesting months for propagation. The seasonal change plays out on HF with activity moving up from 40 meters and down from 10 meters.

Ten- and 15-meter propagation suffers during April and the summer months due to lower maximum usable frequencies (MUFs) in the Northern Hemisphere. MUFs peak very late in the day during summer. Summertime MUFs are lower due to solar heating, which causes the ionosphere to expand. An expanded ionosphere produces lower ion

*P.O. Box 213, Brinnon, WA 98320-0213
e-mail: <cq-prop-man@hfradio.org>

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for April 2005

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 1-2, 8-11, 16-20, 24-29	A	A	B	C
High Normal: 6-7, 12, 15, 21-23	A	B	C	C-D
Low Normal: 3, 5, 14, 30	B	C-B	C-D	D-E
Below Normal: 4	C	C-D	D-E	E
Disturbed: 13	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 on the following pages.
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 excellent (A) on April 1-2, fair to good (C-B) on the 3rd, poor to fair (D-C) on the 4th, etc.

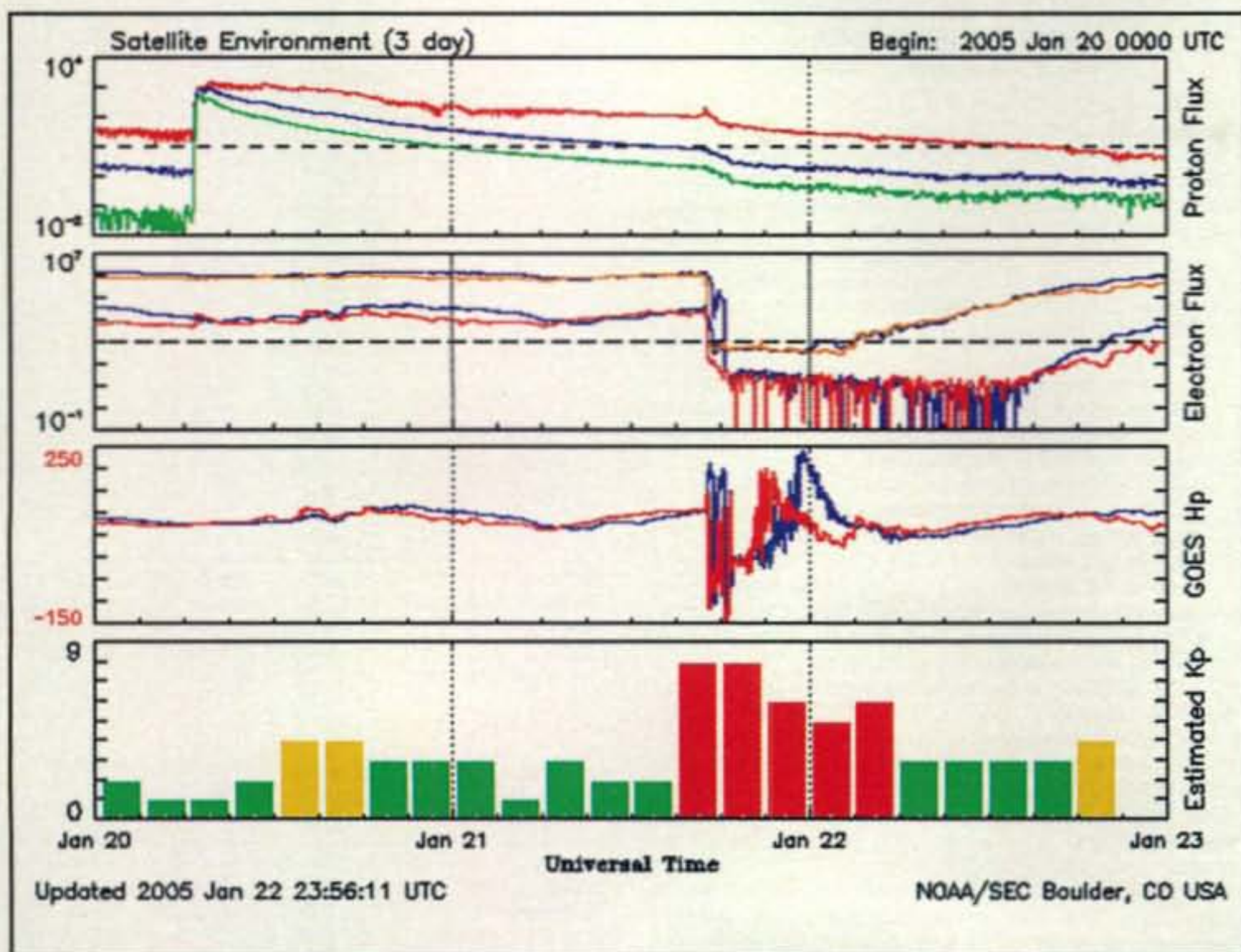
density, which results in lower MUFs. Short-path propagation between countries in the Northern Hemisphere will drop out entirely. Ten-meter propagation peaks in the fall. April and May are fall months in the Southern Hemisphere, making long-path DX possible. Short-path propagation to South America, the South Pacific, and other areas south of the equator will be strong and reliable when open. However, with the decline of the current solar cycle, solar activity is not supporting the higher HF band propagation, so don't expect a lot from 10, 12, and 15 meters.

From April to June fair to good propagation occurs on both daytime and nighttime paths on the middle high-frequency bands. The strongest propagation occurs on paths that span areas of both day and night, following the MUF. During April, peaking in May, and continuing in June, the 17- and 20-meter bands may offer occasional 24-hour DX to all parts of the world. If you hear a lot of echo on a signal, you might be beamed in the wrong direction. Try the opposite azimuth. Twenty meters is more stable as a nighttime band, with propagation following grayline and nighttime paths.

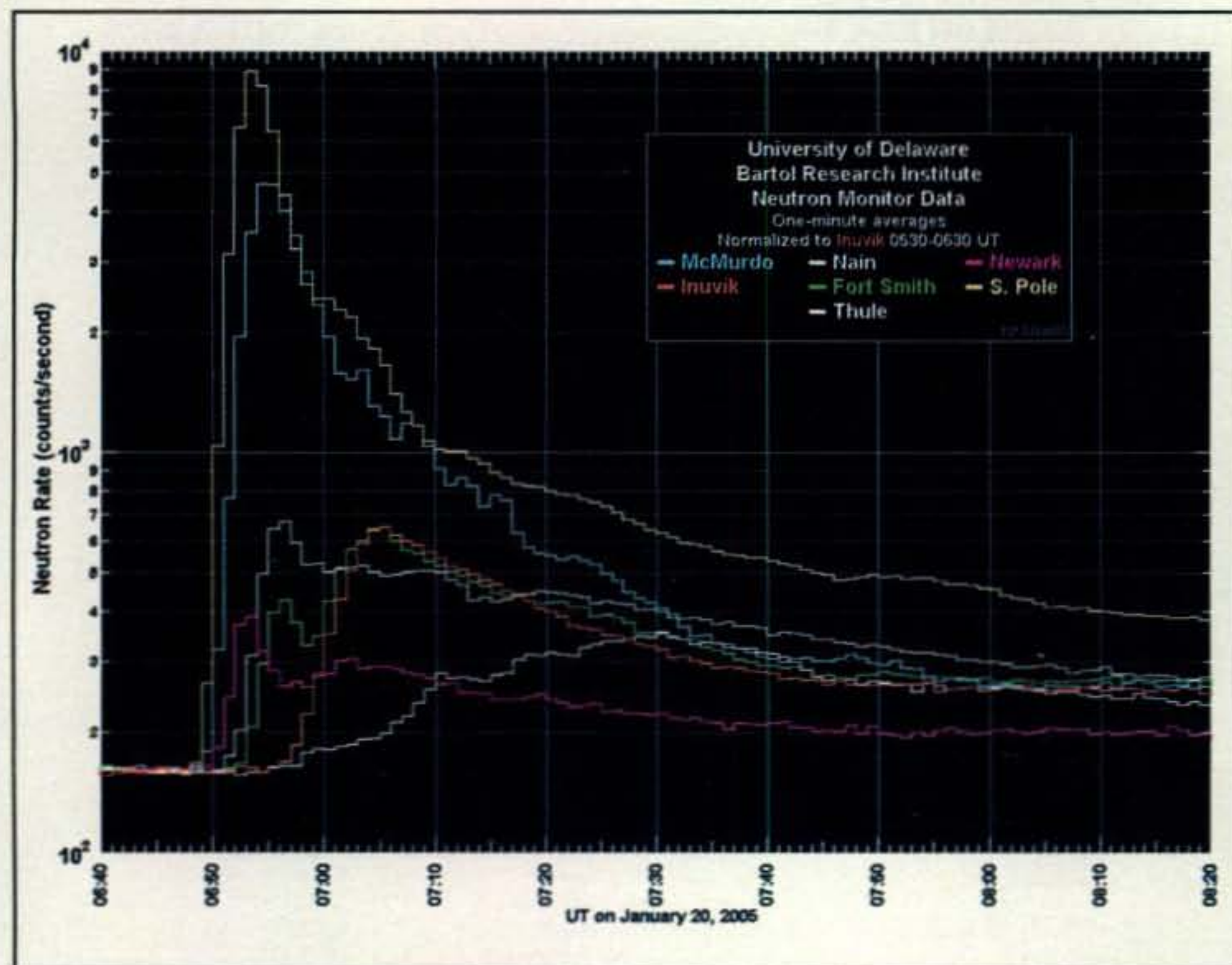
Low-band propagation is still hot on 40 meters, with Europe in the evening and Asia in the mornings. Occasional DX openings will occur on 80 meters around sunrise. However, these bands are quickly being degraded by the seasonal increase in noise.

VHF Propagation

The April *Lyrids* meteor shower occurs from April 16 to 25, peaking on the UTC night of April 22 at



This graph shows various space-weather measurements. The top graph is a record of the proton flux arriving at the Earth. Note that a very strong shock hit on January 20, 2005. This was the start of the fifth proton shock to hit during this period. Based on the flux level of the highest energy protons (> 100 MeV), this radiation storm was the strongest since October 1989, according to NOAA SEC. Also note that a shock driven by the coronal mass ejection arrived at Earth around at 17 UT on January 21, causing a severe geomagnetic storm (Kp = 8). (Source: NASA/SOHO)



The Ground Level Enhancement (GLE) of January 20, 2005. The level observed at the South Pole was the highest since 1956, which was the largest ever recorded. This GLE recording shows the very intense levels at both the South Pole and McMurdo stations in Antarctica. (Source: University of Delaware, Bartol Research Institute, Neutron Monitor Program <<http://neutronm.bartol.udel.edu>>)

0630 and 1223 UTC. The hourly visual meteor rate is expected to be about 15, with average meteor velocities of about 48 kilometers per second with broad outbursts. While this shower peaks at about 10 to 15 visual meteors per hour (possibly up to 100), or about one per every five minutes on average, radio bursts due to smaller meteors occur more often.

The debris expelled by comet Thatcher as it moves through its orbit causes the *Lyrids*. It is a long-period comet that visits the inner solar system every 415 years or so. Despite this long period, there is activity every year at this time, so it is theorized that the comet must have been visiting the solar system for quite a long time. Over this long period, the debris left with each pass into the inner solar system has been pretty evenly distributed along the path of its orbit.

This material isn't quite evenly distributed, however, as there have been some years with outbursts of higher than usual meteor activity. The most recent of these outbursts occurred in 1982, with others occurring in 1803, 1922, and 1945. These outbursts are unpredictable and one could even occur this year. The best time to work this shower should be from midnight to early morning.

The unpredictability of the shower in any given year always makes the *Lyrids* worth watching, since we cannot say when the next unusual return may occur. If this year's event is average or better (30 to 60 good-size meteors entering the Earth's atmosphere every hour), it should make possible meteor-scatter-type openings on the VHF bands. Check out <<http://www.meteorscatter.net/metshw.htm>> for a very useful resource covering meteor scatter and upcoming showers.

A seasonal increase in sporadic-E ionization usually begins during April and continues through the spring and summer months. Expect an increase in short-skip openings on both 15 and 10 meters during April, as well as a possible occasional opening on 6 meters. While sporadic-E openings may occur at any time, they tend to peak between 8 AM and noon, and again between 5 and 9 PM local time.

Widespread auroral displays can occur during April, bringing with them unusual ionospheric short-skip openings on the VHF bands. The best times for these to occur are during periods of radio storminess on the HF bands. See the "Last-Minute Forecast" at the beginning of this column for the days in April that are expected to be Below Normal

or Disturbed. Don't forget to check out the *CQ VHF* magazine for more details on VHF propagation and conditions.

Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for January 2005 is 31.3, a nice jump up from December's 17.9, yet still down from November's 43.7. The lowest daily sunspot value of the month, which was 10, was recorded on January 8. The highest daily sunspot count was 65 on January 16. The 12-month running smoothed sunspot number centered on July is 40.2, down from June's 41.7 (adjusted). A smoothed sunspot count of 28 to 33 is expected for April 2005 by the SIDC. The SEC predicts the sunspot count to be 21, give or take about 12 points.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 102.4 for January 2005, up from 94.6 for December 2004. The 12-month smoothed 10.7-cm flux centered on July 2004 is 105.9, just down from June's 107.2. The predicted smoothed 10.7-cm solar flux for April 2005 is about 84, give or take about 16 points.

The observed monthly mean planetary A-index (*A_p*) for January 2005 is 22, quite a jump from December's 11. The 12-month smoothed *A_p*-index centered on July 2004 is 13.8, about the same as for June. Expect the overall geomagnetic activity to be quiet to active during most days in April, with some isolated periods of storm-level activity, since we are in the equinoctial season. Refer to the "Last-Minute Forecast" the days on which this might occur.

Summary

Please come and participate in my online propagation discussion forum at <<http://hfradio.org/forums/>>. I've also enhanced my Space Weather and Radio Propagation center at <<http://prop.hfradio.org>>, so take a look. These resources may also be viewed on a cell-phone or other wireless device that has WAP/WML features by browsing to <<http://wap.hfradio.org>>.

Drop me an e-mail or send me a letter if you have questions or topics you would like to see me explore in this column. I'd also love to hear any feedback you might have on what I have written. Until next month . . .

73, de Tomas, NW7US/AAAØWA

HOW TO USE THE DX PROPAGATION CHARTS

1. Use chart appropriate to your transmitter location. The Eastern USA Chart can be used in the 1, 2, 3, 4, 8, KP4, KG4, and KV4 areas in the USA and adjacent call areas in Canada; the Central USA Chart in the 5, 9, and Ø areas; the Western USA Chart in the 6 and 7 areas; and with somewhat less accuracy in the KH6 and KL7 areas.

2. The predicted times of openings are found under the appropriate meter band column (10 through 80 meters) for a particular DX region, as shown in the left-hand column of the charts. An * indicates the best time to listen for 160 meter openings.

3. The propagation index is the number that appears in () after the time of each predicted opening. The index indicates the number of days during the month on which the opening is expected to take place as follows:

- (4) Opening should occur on more than 22 days
- (3) Opening should occur between 14 and 22 days
- (2) Opening should occur between 7 and 13 days
- (1) Opening should occur on less than 7 days

Refer to the "Last Minute Forecast" at the beginning of this column for the actual dates on which an opening with a specific propagation index is likely to occur, and the signal quality that can be expected.

4. Times shown in the charts are in the 24-hour system, where 00 is midnight; 12 is noon; 01 is 1 A.M.; 13 is 1 P.M., etc. Appropriate daylight time is used, not GMT. To convert to GMT, add to the times shown in the appropriate chart 7 hours in PDT Zone, 6 hours in MDT Zone, 5 hours in CDT Zone, and 4 hours in EDT Zone. For example, 14 hours in Washington, D.C. is 18 GMT. When it is 20 hours in Los Angeles, it is 03 GMT, etc.

5. The charts are based upon a transmitted power of 250 watts CW, or 1 kw, PEP on sideband, into a dipole antenna a quarter-wavelength above ground on 160 and 80 meters, and a half-wavelength above ground on 40 and 20 meters, and a wavelength above ground on 15 and 10 meters. For each 10 dB gain above these reference levels, the propagation index will increase by one level; for each 10 dB loss, it will lower by one level.

6. Propagation data contained in the charts has been prepared from basic data published by the Institute for Telecommunication Sciences of the U.S. Dept of Commerce, Boulder, Colorado 80302.

April 15 - June 15, 2005 Time Zone: EDT (24-Hour Time) EASTERN USA To:

Reception Area	10/15 Meters	20 Meters	40 Meters	80 Meters
Western & Central Europe & North Africa	12-17 (1)	05-07 (1)	18-19 (1)	20-22 (1)
		07-10 (2)	19-21 (2)	22-01 (3)
		10-11 (1)	21-01 (3)	01-02 (2)
		11-13 (2)	01-03 (2)	02-03 (1)
		13-14 (3)	03-04 (1)	22-00 (1)*
		14-16 (4)		00-02 (2)*
		16-18 (3)		02-03 (1)*
		18-19 (2)		
		19-20 (1)		
Northern Europe & European CIS	11-16 (1)	06-07 (1)	19-20 (1)	20-00 (1)
		07-09 (2)	20-23 (2)	
		09-13 (1)	23-01 (1)	
		13-16 (2)		
		16-18 (1)		
Eastern Mediterranean & Middle East	14-16 (1)	12-14 (1)	19-21 (1)	21-23 (1)
		14-16 (2)	21-23 (2)	
		16-18 (3)	23-00 (1)	
		18-19 (1)		
		22-00 (1)		
Western Africa	12-14 (1)**	06-07 (1)	20-22 (1)	00-02 (1)
	10-12 (1)	07-09 (2)	22-02 (2)	
	12-15 (2)	09-13 (1)	02-03 (1)	
	15-16 (1)	13-15 (2)		
		15-17 (3)		
		17-19 (2)		
		19-20 (1)		
Eastern & Central Africa	10-13 (1)	07-09 (1)	21-01 (1)	22-00 (1)
	13-14 (2)	13-15 (1)		
	14-15 (1)	15-16 (2)		
		16-17 (3)		
		17-18 (2)		
		18-19 (1)		
Southern Africa	12-14 (2)	16-17 (2)	22-02 (2)	Nil
	14-15 (1)	17-18 (3)	00-02 (1)	
		18-20 (1)		
		23-01 (1)		
Central & South Asia	17-19 (1)	07-10 (1)	05-07 (1)	Nil
		14-16 (1)	19-21 (1)	
		19-21 (1)		
Southeast Asia	Nil	08-10 (1)	Nil	Nil
		18-20 (1)		

Far East	17-19 (1)	08-10 (1)	04-06 (1)	Nil
		18-19 (1)		
		19-21 (2)		
		21-23 (1)		
South Pacific & New Zealand	15-18 (1)**	07-08 (1)	02-03 (1)	02-03 (1)
	09-11 (1)	08-09 (2)	03-04 (2)	03-05 (2)
	15-17 (1)	09-10 (3)	04-06 (3)	05-06 (1)
	17-19 (2)	10-12 (2)	06-07 (1)	03-05 (1)*
	19-20 (1)	12-16 (1)		
		16-18 (2)		
		18-20 (1)		
		20-23 (2)		
		23-02 (1)		
Australasia	17-20 (1)	07-08 (1)	03-05 (1)	04-07 (1)
		08-10 (2)	05-07 (2)	04-06 (1)*
		10-11 (1)	07-08 (1)	
		15-16 (1)		
		16-18 (2)		
		18-21 (1)		
		21-23 (2)		
		23-01 (1)		
Caribbean, Central America & Northern Countries of South America	11-14 (1)**	04-06 (1)	19-20 (1)	21-02 (1)
	14-16 (2)**	06-07 (2)	20-21 (2)	02-05 (2)
	16-17 (1)**	07-08 (3)	21-04 (3)	05-07 (1)
	10-11 (1)	08-10 (4)	04-06 (2)	03-06 (1)*
	11-13 (2)	10-11 (3)	06-07 (1)	
	13-14 (3)	11-15 (2)		
	14-16 (4)	15-17 (3)		
	16-17 (3)	17-19 (4)		
	17-18 (2)	19-20 (3)		
	18-19 (1)	20-22 (2)		
		22-00 (1)		
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	12-15 (1)**	06-07 (1)	20-21 (1)	23-03 (1)
	15-16 (2)**	07-09 (2)	21-04 (2)	03-05 (2)
	16-17 (1)**	09-15 (1)	04-06 (1)	05-06 (1)
	08-09 (1)	15-17 (2)		03-05 (1)*
	09-11 (2)	17-18 (3)		
	11-14 (1)	18-19 (4)		
	14-15 (2)	19-20 (3)		
	15-17 (3)	20-22 (2)		
	17-18 (2)	22-00 (3)		
	18-19 (1)	00-01 (2)		
		01-03 (1)		
McMurdo Sound, Antarctica	Nil	07-08 (1)	01-05 (1)	Nil
		08-09 (2)		
		09-10 (1)		
		16-20 (1)		
		20-23 (2)		
		23-00 (1)		

Time Zones: CDT & MDT (24-Hour Time) CENTRAL USA To:

Reception Area	10/15 Meters	20 Meters	40 Meters	80 Meters
Western & Southern Europe & North Africa	14-16 (1)	07-08 (1)	19-21 (1)	21-00 (1)
		08-10 (2)	21-23 (2)	
		10-13 (1)	23-01 (1)	
		13-15 (2)		
		15-16 (3)		
		16-17 (2)		
		17-19 (1)		
Northern Europe & European CIS	Nil	07-08 (1)	20-00 (1)	21-22 (1)
		08-10 (2)		
		10-14 (1)		
		14-16 (2)		
		16-18 (1)		
		20-22 (1)		
Eastern Mediterranean & Middle East	Nil	07-09 (1)	20-00 (1)	Nil
		13-15 (1)		
		15-17 (2)		
		17-18 (2)		
		22-00 (1)		
Western Africa	12-14 (1)	07-09 (1)	20-01 (1)	Nil
	14-15 (2)	12-15 (1)		
	15-16 (1)	15-17 (2)		
		17-19 (3)		
		19-20 (2)		
		20-21 (1)		
Eastern & Central Africa	13-15 (1)	07-09 (1)	21-00 (1)	Nil
		13-16 (1)		
		16-19 (2)		
		18-19 (1)		
Southern Africa	09-11 (1)	14-16 (1)	20-22 (1)	22-00 (1)
	11-13 (2)	16-18 (2)	22-00 (2)	
	13-14 (1)	18-21 (1)	00-01 (1)	
Central & South Asia	17-19 (1)	08-10 (1)	05-07 (1)	Nil
		17-19 (1)	19-21 (1)	
		19-21 (2)		
		21-22 (1)		
Southeast Asia	Nil	08-10 (1)	05-07 (1)	Nil
		19-22 (1)	19-21 (1)	

Far East	18-20 (1)	07-08 (1) 08-10 (2) 10-12 (1) 18-20 (1) 20-22 (2) 22-23 (1)	03-05 (1) 05-06 (2) 06-07 (1)	05-06 (1)
South Pacific & New Zealand	15-17 (1)** 11-15 (1) 15-17 (2) 17-18 (3) 18-19 (2) 19-20 (1)	16-19 (1) 19-21 (2) 21-23 (3) 23-03 (2) 03-07 (1) 07-08 (2) 08-10 (3) 10-11 (2) 11-13 (1)	00-02 (1) 02-04 (2) 04-05 (3) 05-06 (2) 06-07 (1)	02-04 (1) 04-05 (2) 05-06 (1) 04-05 (1)*
Austral-Asia	16-18 (1) 18-20 (2) 20-21 (1)	06-08 (1) 08-09 (2) 09-11 (3) 11-12 (2) 12-16 (1) 16-18 (2) 18-21 (1) 21-00 (2) 00-02 (1)	02-04 (1) 04-06 (2) 06-07 (1)	04-06 (1)
Caribbean, Central America & Northern Countries of South America	11-13 (1)** 13-16 (2)** 16-17 (1)** 09-11 (1) 11-12 (2) 12-14 (3) 14-15 (4) 15-16 (3) 16-17 (2) 17-19 (1)	00-07 (1) 07-08 (2) 08-10 (4) 10-12 (3) 12-15 (2) 15-17 (3) 17-19 (4) 19-21 (3) 21-23 (2) 23-00 (1)	19-21 (1) 21-22 (2) 22-03 (3) 03-05 (2) 05-07 (1)	21-23 (1) 23-04 (2) 04-06 (1) 00-05 (1)*
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	12-15 (1)** 15-16 (2)** 16-17 (1)** 08-10 (1) 10-12 (2) 12-14 (1) 14-15 (2) 15-17 (3) 17-18 (2) 18-19 (1)	06-08 (1) 08-09 (2) 09-10 (3) 10-16 (1) 16-18 (2) 18-19 (3) 19-20 (4) 20-21 (3) 21-23 (2) 23-01 (3) 01-02 (2) 02-04 (1)	21-22 (1) 22-00 (2) 00-02 (1) 02-04 (2) 04-05 (1)	00-04 (1) 01-03 (1)*
McMurdo Sound, Antarctica	15-17 (1)	08-10 (1) 16-18 (1) 18-22 (2) 22-00 (1)	00-06 (1)	Nil

**Time Zone: PDT
(24-Hour Time)
WESTERN USA To:**

Reception Area	10/15 Meters	20 Meters	40 Meters	80 Meters
Western & Southern Europe & North Africa	Nil	07-09 (1) 09-11 (2) 11-13 (1) 13-15 (2) 15-18 (1) 22-00 (1)	20-21 (1) 21-23 (2) 23-00 (1)	21-23 (1)
Northern Europe & European CIS	Nil	07-08 (1) 08-10 (2) 10-12 (1) 12-14 (2) 14-16 (1) 22-00 (1)	20-23 (1)	21-22 (1)
Eastern Mediterranean & Middle East	Nil	07-10 (1) 10-12 (2) 12-13 (1) 22-00 (1)	20-23 (1)	Nil
Western Africa	10-14 (1)	07-09 (1) 12-15 (1) 15-17 (2) 17-19 (1)	20-23 (1)	Nil
Eastern & Central Africa	10-12 (1)	07-09 (1) 12-14 (1) 14-15 (2) 15-17 (1)	20-22 (1)	Nil
Southern Africa	10-13 (1)	07-09 (1) 13-14 (1) 14-16 (2) 16-17 (1) 22-00 (1)	19-22 (1)	20-22 (1)
Central & South Asia	19-21 (1)	08-09 (1) 09-11 (2) 11-12 (1)	04-07 (1)	Nil

South East Asia	19-21 (1)	07-08 (1) 08-10 (2) 10-11 (1) 21-22 (1) 22-23 (2) 23-01 (1)	04-07 (1)	05-06 (1)
Far East	19-21 (1)	07-08 (1) 08-10 (2) 10-12 (1) 12-14 (2) 14-16 (1) 18-21 (1) 21-23 (2) 23-01 (1)	02-03 (1) 03-06 (2) 06-08 (1)	03-07 (1)
South Pacific & New Zealand	15-18 (1)** 11-13 (1) 13-16 (2) 16-19 (3) 19-20 (2) 20-22 (1)	06-08 (1) 08-11 (2) 11-17 (1) 17-20 (2) 20-21 (3) 21-23 (4) 23-00 (3) 00-02 (2) 02-04 (1)	23-01 (1) 01-02 (2) 02-06 (3) 06-07 (2) 07-08 (1)	01-02 (1) 02-05 (2) 05-06 (1) 02-05 (1)*
Austral-Asia	16-18 (1)** 13-16 (1) 16-17 (2) 17-19 (3) 19-20 (2) 20-22 (1)	06-08 (1) 08-10 (2) 10-12 (1) 18-20 (1) 20-22 (2) 22-02 (3) 02-03 (2) 03-04 (1)	01-02 (1) 02-04 (2) 04-06 (3) 06-07 (2) 07-08 (1)	02-03 (1) 03-05 (2) 05-06 (1) 03-05 (1)*
Caribbean, Central	11-14 (1)** 14-16 (2)**	00-06 (1) 06-08 (2)	19-20 (1) 20-21 (2)	21-00 (1) 00-03 (2)

America & Northern Countries of South America	16-17 (1)** 09-10 (1) 10-12 (2) 12-14 (3) 14-16 (4) 16-17 (2) 17-18 (1)	08-10 (4) 10-12 (3) 12-15 (3) 15-17 (3) 17-19 (4) 19-21 (3) 21-00 (2)	21-02 (3) 02-04 (2) 04-06 (1)	03-05 (1)* 01-04 (1)*
Peru, Bolivia, Paraguay, Brazil, Chile, Argentina & Uruguay	13-16 (1)** 09-10 (1) 10-12 (2) 12-14 (1) 14-15 (2) 15-16 (3) 16-17 (2) 17-18 (1)	06-08 (1) 08-10 (2) 10-15 (1) 15-17 (2) 17-18 (3) 18-20 (4) 20-21 (3) 21-23 (2) 23-01 (1)	20-22 (1) 22-02 (2) 02-04 (1)	21-03 (1) 00-03 (1)*
McMurdo Sound, Antarctica	16-19 (1)	07-09 (1) 16-18 (1) 18-19 (2) 19-21 (3) 21-22 (2) 22-00 (1)	03-06 (1)	Nil

*Indicates best times to listen for 80 meter openings. Openings on 160 meters are also likely to occur during those times when 80 meter openings are shown with a propagation index of (2) or higher.

**Indicates best time for 10 meter openings.

For 12 meter openings interpolate between 10 and 15 meter openings.

For 17 meter openings interpolate between 15 and 20 meter openings.

For 30 meter openings interpolate between 40 and 20 meter openings.

Propagation charts prepared by George Jacobs, W3ASK.

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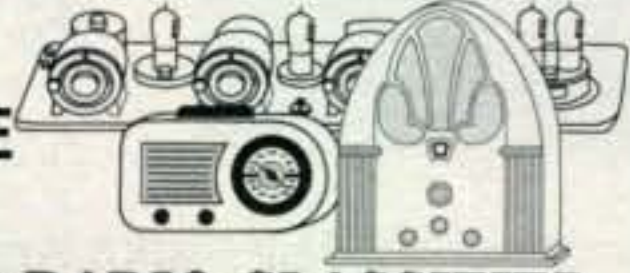


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VX-6R

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DUAL RECEIVE

5 W

Field-ready, compact, and easy to use



VX-6R

144/430 MHz
FM DUAL BAND

EAI
5 W

Ultra-Rugged

Rugged Dual-Band HT with EAI



FT-60R

144/430 MHz
FM DUAL BAND

EAI
5 W

Ultra Compact

Tiny yet tough, and feature-packed



VX-2R

144/430 MHz
FM DUAL BAND

1.5 W

[EAI] : Emergency Automatic ID

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QST, Product Review, July 2000

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