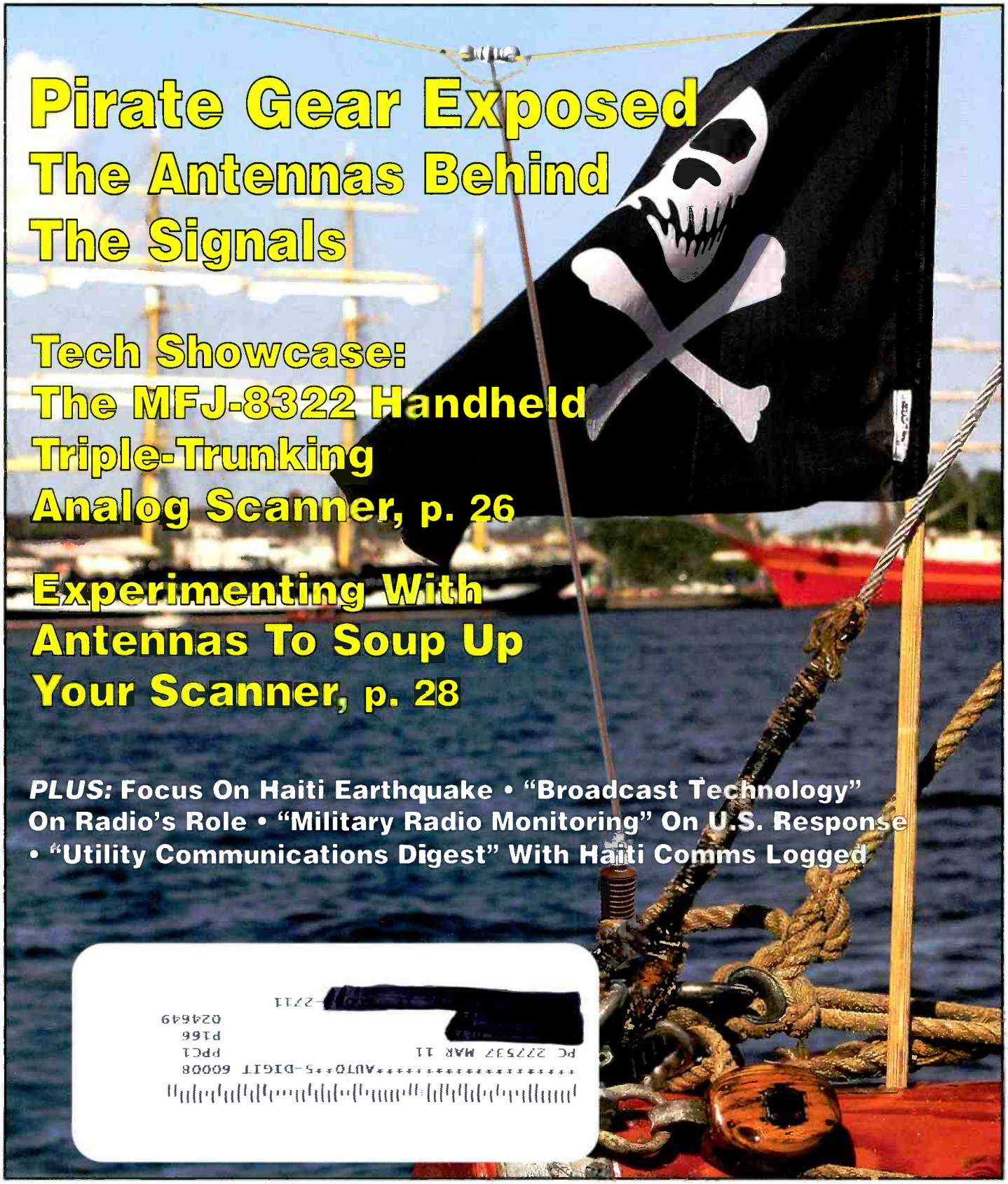
APRIL 2010

POPULAR COMMUNICATIONS

Shortwave Listening • Scanning • AM & FM • Radio History



Pirate Gear Exposed

The Antennas Behind The Signals

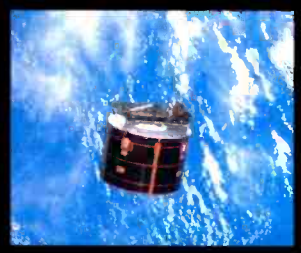
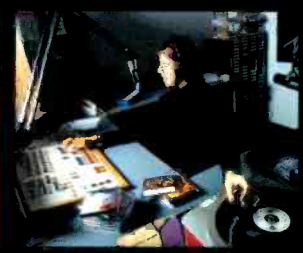
Tech Showcase: The MFJ-8322 Handheld Triple-Trunking Analog Scanner, p. 26

Experimenting With Antennas To Soup Up Your Scanner, p. 28

PLUS: Focus On Haiti Earthquake • "Broadcast Technology" On Radio's Role • "Military Radio Monitoring" On U.S. Response • "Utility Communications Digest" With Haiti Comms Logged

THE PROFESSIONAL STANDARD



- Continuous Frequency Coverage: 100 kHz ~ 2.6 GHz / LSB, USB, CW, AM-Narrow, AM, Wide AM, FM-Narrow, and Wide FM (cellular frequencies are blocked)
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Enjoy exciting international radio reception with the **Icom R75**. 12 communications receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step and tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional **UT-106 DSP board** is now included and factory installed! Free Icom ball cap. *Order #0012* **$599.95**

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The **Icom R5** covers 150 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. Enjoy local VHF-UHF coverage plus international shortwave broadcast. 1200 memories store: frequency, mode, step size, duplex, CTCSS, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. You can put the world in your pocket for under $170.00. **Call or visit website for price.**

R20

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The **Icom R9500** raises the bar for professional receivers. Visit the Universal website for full details on this state-of-the-art instrument.

ICOM

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Plenty of room for your IC-RX7, batteries, accessories, directories and more. With carry strap and open front pocket.

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Icom IC-RX7, Go Bag & *Race Scanning* *Order #5007* **$199.95**

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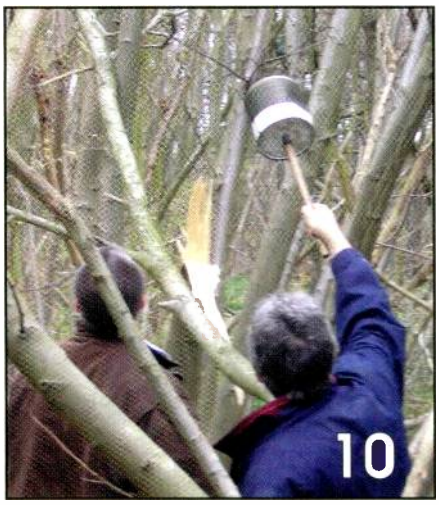
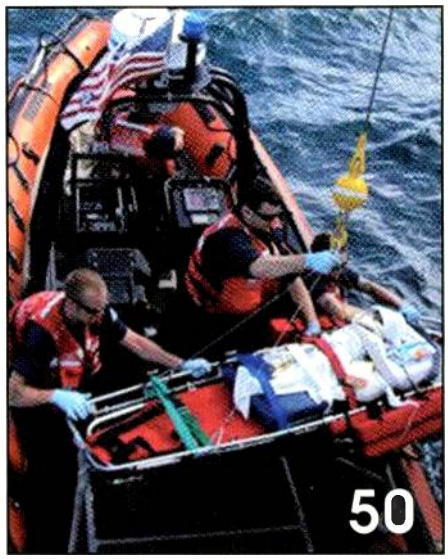
POPULAR COMMUNICATIONS

CONTENTS

APRIL 2010
VOLUME 28, NUMBER 8





FEATURES

FEATURED COLUMNS

ON THE COVER

It takes an eagle eye (or maybe that of a federal agent) to spot them, but pirate antennas are out there—somewhere—maybe even hiding in plain sight. See the final installment of Andrew Yoder's look at pirate radio equipment, "Making Radio—Pirate Style, Part 3: Antennas," starting on page 10, for favorite antenna techniques of radio's renegades. (Cover design by Larry Mulvehill, WB2ZPI; photo credit: Malene Thyssen, http://commons.wikimedia.org/wiki/User:Malene)

COLUMNS

DEPARTMENTS

Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

MFJ-462B **$199.95**

Plug this self-contained MFJ *MultiReader*™ into your shortwave receiver's earphone jack.

Then *watch* mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

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Eavesdrop on the World

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Listen to maritime users, diplomats and amateurs send and receive *error-free* messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- all over the world -- Australia, Russia, Japan, etc.

Monitor any station 24 hours a day by printing transmissions. Printer cable, **MFJ-5412, $11.95.**

Save several pages of text in memory for later reading or review.

High Performance Modem

MFJ's high performance *PhaseLockLoop*™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

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Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, $15.95. 5¼Wx2½Hx5¼D inches.

WiFi Yagi Antenna -- 15 dBi 16-elements extends range

MFJ-1800 **$29.95**

16-element, 15 dBi WiFi Yagi antenna greatly extends range of 802.11b/g, 2.4 GHz WiFi signals. 32 times stronger than isotopic radiator. Turns slow/no connection WiFi into fast, solid connection. Highly directional -- minimizes interference.

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2¾Hx1¼D inches. 2.9 ounces.

MFJ-5606SR, $24.95. Cable connects MFJ-1800/WiFi antennas to computer. Reverse-SMA male to N-male, 6 ft. RG-174.

MFJ-5606TR, $24.95. Same as MFJ-5606SR but Reverse-TNC male to N-male.

Super Active Antenna

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"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."* Mount it outdoors away from elec- trical noise for maximum signal, mini- mum noise. Covers 50 KHz-30 MHz. Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $15.95.

Indoor Active Antenna

MFJ-1020C **$99.95**

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020C is a *"fine value... fair price... best offering to date... performs very well indeed."*

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Compact Active Antenna

MFJ-1022 **$69.95**

Plug this *compact* MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, $15.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$199.95**

Completely eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959C **$119.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, $15.95.

High-Gain Preselector

MFJ-1045C **$89.95**

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MFJ Shortwave Headphones

MFJ-392B **$24.95**

Perfect for shortwave radio listening for all modes -- SSB, FM, AM, data and CW. Superb padded headband and *ear cushioned* design makes listening extremely comfortable as you listen to stations all over the world! High-performance driver unit reproduces enhanced communication sound. Weighs 8 ounces, 9 ft. cord. Handles 450 mW. Frequency response is 100-24,000 Hz.

High-Q Passive Preselector

MFJ-956 **$69.95**

High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 in.

Super Passive Preselector

MFJ-1046 **$119.95**

Improves any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

MFJ Shortwave Speaker

MFJ-281 **$12.95**

This MFJ *ClearTone*™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.

MFJ All Band Doublet

MFJ-1777 **$59.95**

102 ft. all band doublet covers .5 to 60 MHz. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft.). Authentic *glazed ceramic* end insulators and heavy duty 14 gauge 7-strand copper wire.

MFJ Antenna Switches

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EDITORIAL
Tuning In

Maintaining The Connection

by Edith Lennon, N2ZRW
editor@popular-communications.com

As I write this, it's just shy of three weeks since the Earth lurched below the brittle concrete of Port-au-Prince, Haiti. And while the rebuilding of the physical infrastructure will be barely underway as you read this, the efforts to fill the communications void created by the most powerful earthquake to strike the region in over 200 years was nearly instantaneous.

From large entities such as NAB, which proclaimed February 1 "Broadcasters for Haiti Day" and urged radio and TV stations to devote airtime to fundraising for disaster relief, to individual amateur operators who manned transceivers for days on end to provide a communications life-line, we witnessed stark examples of radio's unique capabilities to connect people during a crisis.

Amateur radio provided some of the first links to the region after the traditional communications infrastructure was largely destroyed. Hams monitored the situation non-stop, collecting and relaying initial reports. They activated emergency nets for message trafficking, dedicating time, equipment, and spectrum resources to the relief efforts.

Local broadcasters performed feats of endurance to help their communities. The few Haitian stations that could do so streamed live audio or posted information about the rescue efforts, the location of food and water, and requests for help, laboring to assist a terribly dislocated populace. Stations outside the country serving the Haitian diaspora did their best to provide news of loved ones and comfort distraught listeners.

The Voice of America Creole Service immediately ramped up the strength and frequency of its emergency broadcasts to Haiti, providing news and information via a combination of shortwave, AM, and satellite broadcasts. And the U.S. Air Force delivered tens of thousands of solar energy/hand-crank handheld radios as part of an overall effort to reach the struggling survivors via FM/AM broadcasting of VOA programming and CJTF (Combined Joint Task Force) Haiti public service announcements.

It's not surprising to us that getting radio equipment into the country was a priority. In response, a flood of donations in support of restoring communications poured forth—from individuals, corporations, professional and charitable organizations, and governments.

Shortly after the quake struck, I contacted Thomas Witherspoon, founder and executive director of the non-profit humanitarian organization Ears To Our World. Thomas had written our December 2009 cover story on ETOW's work in getting shortwave radios to impoverished regions around the world, including Haiti, and I was eager for an update. Thomas described ETOW's expanded efforts in that regard, dubbed "Radios to Haiti" (see http://earstoourworld.org). This initiative distributed over 400 Eton-donated radios to Haiti within days of the quake.

I questioned how ETOW was able to get them into the country when points of entry were so stressed, and he told me it was through a new partner, Operation USA, a logistical support charity. ETOW had discovered Operation USA through a State Department contact, who had learned of Thomas' organization through his *Pop'Comm* article. That's our own radio connection, I guess.

ETOW's initiative is ongoing, as is the wider effort to rebuild communications. According to a January 28 posting by Mindel DeLaTorre, chief of the International Bureau, to the Reboot.FCC.gov blog, a team led by FCC staffers was dispatched to Haiti to evaluate the communications infrastructure and services after the earthquake. "The team is assessing the status of the country's communications infrastructure and services following the earthquake. We hope to expedite identification, coordination and prioritization of communications issues, requirements and possible ways forward for restoration of communications services in Haiti," DeLaTorre wrote.

In this issue, "Broadcast Technology," "Military Radio Monitoring," and "Utility Communications Digest" all turn an eye toward Haiti in the immediate aftermath. The communications links with Port-au-Price have improved significantly since, with broadcasting outlets, satellite systems, portable cell sites, and other resources being reestablished. Haiti is reconnecting.

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Bearcat® BCT8 Trunk Tracker III

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The Weirder Side Of Wireless

by Staff

UK Ends Fake "Bomb Detector" Exports

Britain has banned the export of a handheld machine marketed as a bomb-detection device in Iraq and Afghanistan because of allegations that it does not work, according to the Associated Press. The news agency said Jim McCormick, Director of ATSC, the UK company that makes and sells the device, was arrested in the UK on suspicion of fraud by misrepresentation. The arrest came after the popular BBC *Newsnight* television program aired an expose that analyzed and disassembled ATSC's ADE-651 device—which resembles a plastic pistol-grip with a loose telescopic antenna—and found it devoid of functional components. On the program, McCormick explained the "programmed substance detection cards" inserted in the ADE-651 are "designed to tune into" the "frequency band" of a particular explosive or other substance printed on the card. He claimed that under ideal conditions explosives can be detected up to 1 km away. BBC's *Newsnight* reported the ADE-651 training manual says it "can even, with the right card, detect elephants, humans and $100 bills." (Bet your scanner's frequency-finder can't do that!)

ATSC reportedly sold about $85 million of the bogus devices—at a cost of $40,000 to $60,000 each—to the Iraqi government as bomb detectors for its 400 checkpoints, and Iraqis suffered a marked increase in bombing fatalities at those checkpoints where the devices were being used. U.S. taxpayer dollars funding Iraqi security and reconstruction paid for them. Your tax dollars at work—or not.

Broadcaster Paul Harvey Had Close Ties To FBI

USA Today reported that Paul Harvey, the much-loved radio broadcasting legend who died last year at 90 after a broadcasting career spanning seven decades, had a long relationship with the FBI. "Paul Harvey's FBI file, released to USA TODAY under a Freedom of Information Act request, shows how his relationship with the bureau evolved from perp to pen pal," the report stated. "The 1,375 pages also illuminate how the FBI cultivated one of the nation's most popular media figures by not only providing flattery from its most prominent officials but also by secretly putting words in his mouth."

According to *USA Today*, "The federal files show that Harvey frequently gave the FBI advance copies of his scripts and columns, seeking information and advice. The FBI obliged, even writing portions of Harvey's commentaries for him, the records show. A 1986 commentary, for example, contained an FBI-written section about the bureau's 'highly regarded' services to other law enforcement agencies."

Paul Harvey famously signed off his broadcasts with, "the rest of the story." It appears his may be a more complicated one.

AT&T Wireless' Network Flaw Puts Facebook Users In Other's Accounts

The Associated Press reported that a Georgia mother and her two daughters logged onto Facebook from their mobile phones and "wound up in a startling place: strangers' accounts with full access to troves of private information." The routing problem at AT&T Wireless exposed a serious, but obscure, security flaw with major implications for its mobile Internet users. Several security experts said they'd not seen a case where the wrong person was taken to an account for which the username and password had already been entered by the correct user.

According to AP, "Candace Sawyer, 26, says she immediately suspected something was wrong when she tried to visit her Facebook page with her mobile phone. Instead, she was taken to the site without being asked for her username or password. She found herself inside a Facebook account that didn't look like hers. 'He's white — I'm not,' she said with a laugh.'" She logged off and asked her sister and mother to see if they had the same problem. Her sister ended up on another woman's Facebook page, and her mother ended up on the page of a young woman from Indiana.

The problem is related to how AT&T Wireless sometimes routes all its mobile Internet traffic for a particular area through the same piece of networking equipment. If it's broken or misconfigured, weird things can happen when computers down line receive that data. Not a comforting thought, but perhaps a new way to make new friends on Facebook.

News, Trends, And Short Takes

by D. Prabakaran

U.S. Military Delivers Radios To Haiti Quake Survivors

The U.S. military is delivering 50,000 handheld radios to Haiti for survivors of the recent earthquakes. The joint task force will distribute the radios to the public. The military said survivors can use the radios to receive news and important information concerning international relief efforts. It also says its forces are working closely with the Haitian government to broadcast public safety messages for survivors on FM frequencies of 92.4 MHz and 104.1 MHz and the AM radio frequency of 1030 kHz. The radios are powered by solar energy and hand cranks instead of batteries, a potentially helpful asset in a nation short on basic supplies.

(Source: Voice of America)

Spain To Shut Down Up To 3,000 Illegal Radio Stations

Spain's planned State Radio Communications Agency has been tasked with evaluating and closing down up to 3,000 illegal radio stations throughout the country. In some regions of Spain pirate stations outnumber the legal ones by two, sometimes three, to one. The agency was created following pressure by the Spanish Association of Commercial Radio, which has presented a list of broadcasters it considers outside the law. The Central Government said it will draw up a map of Spanish radio, which will allow a cleaning up of the FM band, followed by the quick and firm closure of broadcasters who lack the correct permission. The illegal operators have complained that no new concessions for licensees have been made available and that many of have submitted applications for licenses but have not heard back from the commission.

(Source: Media Network, SpanishNews.es)

RFI Adds Two English Broadcasts To Its Live Stream

Radio France International (RFI) in English has expanded its live stream to include its evening broadcasts to Africa at 1600 and at 1700 UTC. All broadcasts are also available after the show on demand. This means that seven of the eight RFI English broadcasts—at 0400, 0500, 0600, 0700, 1400, 1600, and 1700 UTC—are available live. Only the 1200 UTC program is not yet on the live stream.

(Source: RFI)

Deutsche Welle Latest Target Of Iranian Jamming

Following deliberate interference to Farsi broadcasts of the BBC, VOA, and Radio Farda, Deutsche Welle (DW) is the latest international broadcaster to report deliberate jamming of its satellite signal in Iran, according to a report in news magazine *Der Spiegel*. The report says that the French national radio regulatory agency Agence Nationale des Fréquences wrote to the Iranian Ministry of Communication saying that on December 7 and December 8 signals had been detected that looked like "deliberate interference" with the satellite used by DW. The origin of the disturbance was traced to the area of Tehran. Similar disturbances coming from Iran were already detected by the French authority in May and June 2009.

(Source: *The Local*)

RFE/RL Launches Radio Station In Pakistan's Pashtun Heartland

Radio Free Europe/Radio Liberty (RFE/RL) launched broadcasting in the local Pashto dialects to Pakistan and the border regions between Afghanistan and Pakistan. The new station, called Radio Mashaal ("Torch" in Pashto), will offer an alternative to the growing number of Islamic extremist radio stations in the region. Radio Mashaal will operate out of a new bureau in Pakistan and broadcast from RFE/RL's Prague headquarters. The station will share a frequency with VOA's Radio Deewa and transmit via FM and shortwave. Online, Radio Mashaal's website will provide a live stream of its broadcasts. The schedule is 1030–1230 UTC on 9395, 11605 and 13700 kHz + 100.5 FM.

(Source: RFE/RL)

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

Congressional Panel OKs Bill Calling For Inventory Of Communications Spectrum

A panel in the U.S. House of Representatives approved legislation in January that would require the FCC and National Telecommunications and Information Administration to conduct a sweeping inventory of the United States' communications spectrum. Spectrum inventory legislation has become part of a broader policy tug-of-war over whether the Commission should allocate digital TV frequencies to wireless carriers "to help the agency meet the goals of its national broadband plan," according to a report in *Congress Daily* by David Hatch and posted on its website. Following amendments by House Energy and Commerce Communications Subcommittee Chairman Rick Boucher (D-VA), the legislation was passed by voice vote. In addition, the *Congress Daily* story said a bill designed to smooth the process of "shifting spectrum from the federal government to the commercial sector"—sponsored by Rep. Jay Inslee (D-WA)—was also passed by voice vote. The two pieces of legislation now move to the full House Energy and Commerce panel for consideration.

FCC: Wireless Microphones No Longer Authorized On 700 MHz

In a move to free-up frequencies for commercial and public safety wireless systems, the FCC in January mandated use of devices in the 700-MHz band must end by June 12, 2010. The ruling impacts a large number of wireless microphones, which operate on 700 MHz, a frequency range that in 2008 had been auctioned to mobile voice and broadband carriers.

FCC Wireless Telecommunications Bureau Chief of Staff Matthew Nodine said that since the 2008 spectrum auction, many wireless microphone manufacturers and users have anticipated the ruling. In an FCC press release, Nodine said the Commission is reaching out to users through an education program to help with the transition to other wireless microphones. He said users may also want to contact their systems' manufacturer for assistance.

FCC Chairman Julius Genachowski said that in order to complete the digital television transition, which used 700 MHz, the Commission's ban on wireless microphones in the spectrum was "a necessary and essential action." "

Bronx Broadcaster Fined $10,000 For Illegal FM Transmission

A Bronx, New York, man has received an FCC Notice of Apparent Liability for "apparently willfully and repeatedly" broadcasting illegally an FM signal on 107.3 MHz and is being fined $10,000, the Commission announced. Following an investigation that began late in 2009, the FCC found Ronald Reid allegedly operated an FM radio station from his apartment in a building he owned on Bronx Boulevard. The Commission was acting on an interference complaint from the Federal Aviation Administration. It found that "Reid is responsible for the unlicensed station operation on 107.3 MHz...and that his actions amounted to willful and repeated violations" of Section 301 of the Communications Act of 1934.

Commission Seeks Assessment Of Impact Of Rules And Regulations

An FCC internal task force has been directed by the Commission to assess the impact on consumers of present and upcoming rules and regulations, according to published reports. The study will be led by Joel Gurin, chief of the FCC Consumer and Governmental Affairs Bureau. The Commission directive was made in January and is indicative of a more consumer-oriented Commission and its Democratic majority, said John Poirier in a piece carried by the Reuters news service. However, the two Republicans also supported the Consumer Task Force, he said.

"In August, the FCC launched a broader consumer protection inquiry into the disclosure of fees and charges associated with advertisements, point-of-sale and bundling of various products," Poirier wrote. "The FCC also launched a series of inquiries into a range of consumer issues ranging from early termination fees on some Verizon Wireless handsets and why the Google Voice application is not on Apple Inc.'s popular iPhone."

Media And Generational Change

by Rob de Santos
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"[My daughter's] experience is of a 'time and place disconnected' media world. Broadcast schedules are mostly irrelevant; where you are on the planet doesn't matter if you can get an Internet connection."

I'm the proud father of an 11-year-old daughter, and, like other parents, one of the challenges I face is dealing with generational differences, some of which are products of changes in our culture and—most importantly for this column—changes in communications. So I've been giving thought lately to the impact of generational change in communications and what it means.

I'm a fully accredited member of the "almost-too-old-to-understand-anything" generation, and my daughter regularly reminds me of how "out of touch" I am with the ways of the world in 2010. Fortunately, the research department here at "Horizons" headquarters is highly competent and has kept me up to speed enough to pose a question: Are we on the verge of a fundamental shift in how we use media?

We've explored this question from numerous angles already in past columns, but this time let's look at the question from a different direction. The recent controversy over the NBC late night talk show lineup and the move by several cable companies to launch a TV over-the-Internet service called TV Everywhere adds to the sense that we're on the edge of a fundamentally different media world. The development poses some interesting questions. Does it matter when a TV or radio program is originally broadcast? Does it even matter how?

Let's consider some possibilities. When I was 11 years old, if you wanted to watch a TV program, you had to be in front of the TV at the time your local network affiliate aired the program. You were busy? Forgot what time it was? Out of luck. The program aired a second time only rarely. Radio wasn't much better. There were repeats of some radio programming but not many, and if your local station or stations didn't carry that program, you could only hope to hear it by DXing an out-of-town station. The newspaper was the primary news source. It arrived once a day when the local delivery boy (me!) picked up the already dated news from the drop off point and bicycled through the neighborhood heaving it onto your porch (unless it was a bad day and my aim was off, in which case it probably landed in your flowerbed).

In 2010, things are very different. I can, with a few clicks of a remote, record any program that's available through my several-hundred-channel cable system and watch it whenever I want. And if I forget to set the DVR, there's still no problem: it may well be available either via the cable on-demand service or the Internet. This stands to become even easier with every passing day. Broadcast schedules mean less and less. Television ratings suggest that for some TV series, as much as 40 percent of all viewing is now "delayed." Does it matter when NBC airs the *Tonight Show*? Today, or should I say tonight, it probably doesn't to most of us.

Radio has undergone a transformation, too, and the opportunities are immense. While sitting here at the "Horizons" controls, I can listen to radio from anywhere in the world in 128k bps digital quality. Say I missed a program—no problem, I can download the podcast or listen online. Perhaps I don't like the music or programming of the local station, well there are more than 20,000 stations available via the Internet. I can even create my own station on Pandora. I'm not at home and want to listen to my music collection? I have my MP3 player, or I can listen to the music on my smartphone via MP3tunes.com. It goes on.

Recently, I obtained a small pocket-size HD radio that was distributed as part of an industry promotion. My daughter was a bit intrigued that you could listen to radio on it, but still pronounced it "boring." It's no wonder that she does. Her experience is of a "time and place disconnected" media world. Broadcast schedules are mostly irrelevant; where you are on the planet doesn't matter if you can get an Internet connection.

For more than six decades, we've lived by one set of rules when evaluating whether a program has an audience and if it is a "success." For those of my daughter's generation, those rules are now meaningless. She'll never see the world in those terms. If you're a program director or producer, it's time to get a new playbook. The old guidelines to determine the size of your audience and whether your financial supporters (whether advertisers, donors, or governments) are getting their money's worth no longer work. The game has changed.

Is most of your media consumption "time and place disconnected"? Is it different for your generation than other family members? Use the medium of your choice and let me know.

Making Radio—Pirate Style, Part 3: Antennas

Stealthily Slinging Lengths Of Wire High Into Trees, Pirate Radio Operators Regularly Install Broadcast Antennas Across The Wilds Of North America And Europe

by Andrew Yoder

Radio is not the first thing most people think of when they hear the phrase "back to nature," but the great outdoors is very important to some radio operators. The aspect of getting back to nature with radio can be a refreshing retreat, even a life-saver, for campers or hikers. Scanner monitors may simply enjoy exchanging their shack confines for a sunny spot near a railroad track. For licensed hams, visibly operating outdoors can be a big public-relations boon and events such as Field Day are widely publicized. But for pirates, who shun such publicity, getting back to nature is usually both a necessity, for erecting antennas, and fraught with a bit of danger. Unlike hams setting up for Field Day, pirates must install their antennas surreptitiously.

Andrew Yoder has heard hundreds of pirates over the past 28 years of shortwave listening. He is the author of *Pirate Radio Stations* and *Pirate Radio Operations*, among other books.

"Commander Bunny from WBNY shoots lines into trees with a bow and arrow. 'We have become very adept with a bow and arrow and 30-lb. test line in getting antennas very high into trees…'"

For the uninitiated, Field Day is amateur radio's emergency preparedness day. Licensed hams venture out into fields and forests, tents and campers, beaches and boats with the intention of using temporary locations, makeshift equipment arrangements, and portable antennas to communicate with other hams. Although the American Radio Relay League and many amateur operators would adamantly disagree, for pirate radio operators, every day is Field Day. Pirates lug equipment into vehicles, parks, forests, onto the water—wherever—every weekend. The motivation behind amateurs and pirates operat-

Photo A. Here's a great example of an inverted V antenna mounted on a mast. This antenna broadcasts Radio Lowland.

ing from the wilds might differ considerably, but both groups are nonetheless in remote areas, stringing antennas through trees and pulling up temporary masts.

This final installment of our look at pirate radio equipment covers antennas—the one component of pirate gear that is both technical and can place an operator in close contact with both nature and, possibly, the general public.

A Couple Of Quick Notes

The topic of antennas is huge, complicated, and has filled many books. This article is by no means a comprehensive examination of antennas, even just those used by pirates. Instead, it's intended to show what's behind some of those mysterious signals on the shortwave bands. (For more technical information on these shortwave antennas, and for other types of antennas, see the *ARRL Antenna Handbook*.)

Also, this article emphasizes antennas that are difficult to see, which doesn't exactly make for good magazine photos. In addition, many North American pirates consider antenna photos to be a breach of security. Therefore, many of the antennas shown in this article are at Dutch locations, where enforcement has a reputation for being laxer, so they're often more visible than the typical North American antenna.

Choosing A Site

Before getting into the types of antennas that stations use, it's worth mentioning the types of sites that many pirates choose for broadcasting; this might help you envision how the antenna is erected. In terms of security, the best sites are those that the public has enough access so that the operator won't look suspicious just being in the area. This could be a true public-access area or a "no man's land" (such as land that is owned, but not policed, by a large corporation).

Most operators also take care to avoid areas posted with "No Trespassing" signs as this is a civil law violation (as opposed to unlicensed broadcasting, which is a violation of administrative rules).

Some examples of locations where I've heard of pirates broadcasting include state hunting grounds, campgrounds, parks of all types, school lands, around sports fields and playgrounds, abandoned quarries, unfinished housing developments, old mining land, highway rest stops, railroad land, forests adjacent to malls or fast-food restaurants, offshore islands, etc.

The next order of business is typically finding an area with tall trees to use as masts to get the antennas up in the air and yet provide enough cover (tall grass, brush, or bushes) to hide the transmitter and most of the antenna. Better yet, if a location can be found on a hill or higher ground, less signal will be absorbed by the surrounding land. Of course, this effect can be balanced out if the operator launches an antenna into the top of an old sycamore tree, for example, possibly the best antenna tree in North America. (Sycamores are excellent because of their great height, smooth, spreading limbs, and open areas in the canopy, free of branches, limbs, etc.)

Wire Antenna Types

Radio amateurs and commercial operators use dozens of different antenna types, but the standard pirate antenna is the dipole (and its little brother, the inverted V). The dipole is so prevalent because it's easy and inexpensive to build and install, and often unobtrusive.

The standard dipole consists of two quarter-wavelength wires aligned into a straight line, one fed to the ground side of the transmission line (generally coaxial cable), the other to the "hot" side. Often, a balun is used between the antenna elements and the coax to match the impedance of the antenna (600 ohm) to the transmitter (50 ohm).

One of the most important advantages of the inverted V is that the only required "pull-up" support is the center (and both of the ends can be tied off to trees or other objects at the ground level). With true dipoles, both ends of the antenna must be

Pirate Antennas And The Public

Of the three topics covered by the articles in this series, only installing antennas has the potential to draw contact with the public. Unless the operator broadcasts from his own land and has no neighbors or uses a stealth antenna (such as a long-wire to a box kite), someone will eventually notice an antenna being strung up. This article's about antennas, not how pirates and the public interact, but here's one example of a deep-woods run-in, shared by Northwoods Radio.

Just after 9-11, I was stringing an inverted V from a tree along a two-track out in the woods, when a pair of rednecks came along in a beat-up camo and rust pick-up truck. I waved them down and told them to be careful not to hit the antenna on the trail ahead. They looked at me suspiciously and one of them asked me, "That ain't, like, terrorist related, is it?" I assured them I was just a ham radio geek and watched them as they drove on past. I feel oddly comforted knowing our rednecks are patrolling the backwoods with 12 packs, looking for Bin Laden.

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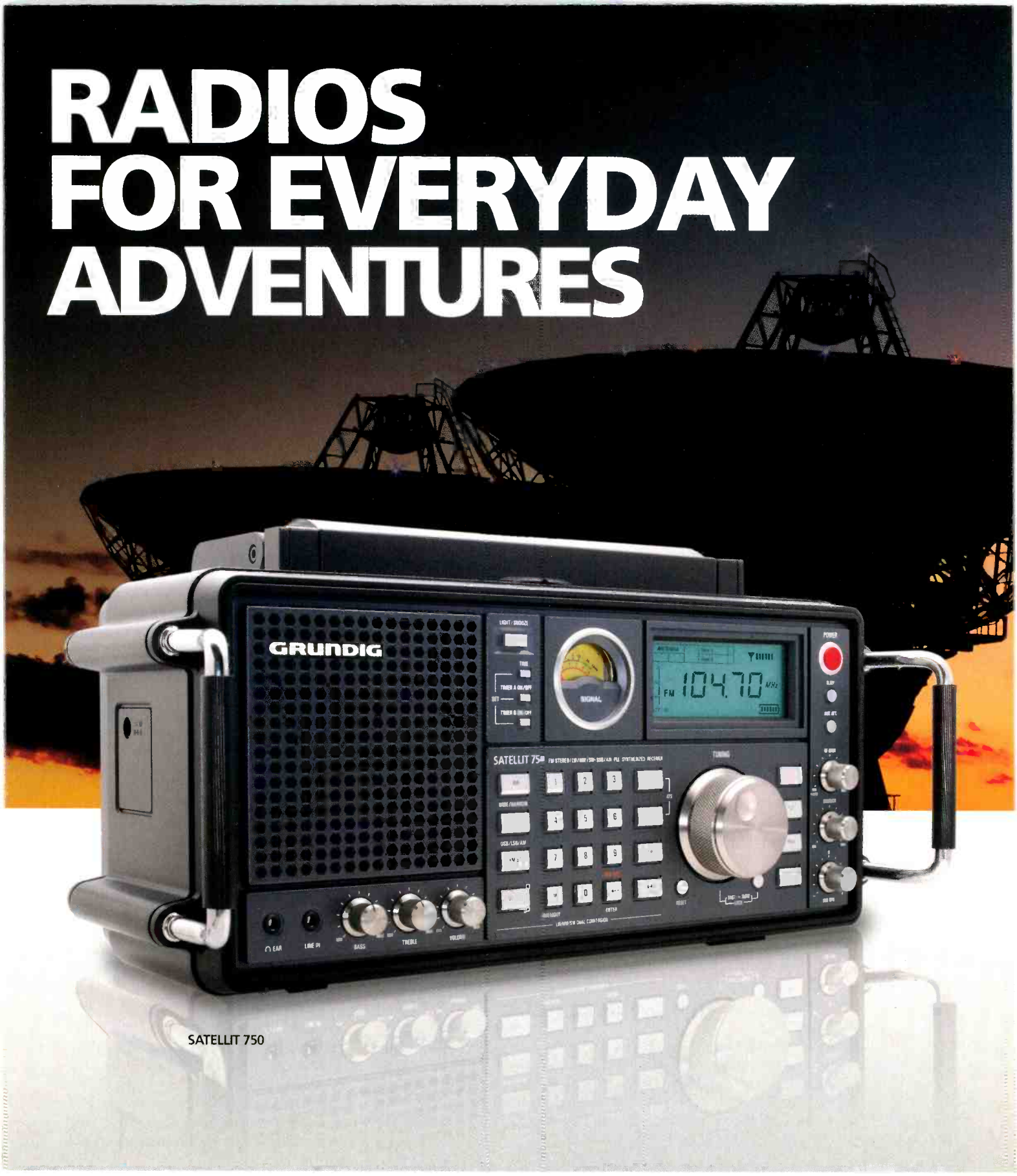

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To install the typical inverted V, the operator will string a line (often light-duty Weed Eater cord) around a rock, baseball, or other small weight and either throw or slingshot it up into the top of a tree. Then, from the ground, the leg of the antenna can be pulled down, which raises the center of the antenna to the top of the tree. Using this technique, antennas can often be raised to 50 to 70 feet above the ground.

Commander Bunny from WBNY shoots lines into trees with a bow and arrow. "We have become very adept with a bow and arrow and 30-lb. test line in getting antennas very high into trees, Robin Hood monkey would be envious," says Commander Bunny using one of his favorite simian monikers.

But raising antennas can be challenging. The feedline can twist around an antenna element. The weight that's thrown into the tree can either miss or become stuck. The elements can separate and fall to the ground. In at least one case, the end weight became a projectile: "I threw a softball-sized rock into a tree and hit a limb directly," says one pirate who prefers not to be identified. "The rock boomeranged toward my head and I instinctively caught it with my bare hand. I still have the scars between my fingers."

Once the feedline of the antenna has been pulled up into the tree or mast, the ends can be pulled down and tied off. The operator will just grab the weight that's tied to the Weed Eater cord and pull it until the center of the antenna has been pulled up to the top of the limb, then tie it off to a tree or branch. Next, the first element is pulled out in a straight line from the second element, away from the center feedline, and set at about the same angle as the first, with approximately 100 degrees between the two elements (see **Photos A** and **B**).

A variation of this method is used by WNKR. "We use a home made 'firing can' [see **Photo C**] which is an old paint tin with a handle and a roll of fishing line wrapped around it. The line is attached to a weight, which is fired over the tree. The firing can helps the line fly off the can with ease. Thin string is tied to the fishing line, which then is pulled back over the tree. We then attach the steel-core washing line to the thin string, which is pulled back over the tree. Once both ends are done in this way, the aerial is attached to the washing line and pulled up."

But inverted Vs are forgiving antennas and 100 degrees is only an approximate figure. The angles don't need to be perfect. In fact, some operators abuse the V configuration and still get solid results. Orion Radio, one of the best-heard pirates in Europe said, "For 76mb, I use the inverted V folded as triangle...because I don't have so much space for antennas."

Verticals

The vertical antenna is one of the most popular types for licensed radio amateurs.

Photo B. The vertical antenna of Radio Quintas mounted against a steel shed.

Photo C. Andy Walker and Steve Underground of WNKR (shown with the antenna firing can) prepare to install an antenna in the woods.

Free Radio Nova (Holland) Fishing Pole Antenna Mast

It's one thing to cast a wire into a tree with a fishing pole and it's something else entirely to mount your antenna on top of a fishing pole. Nonetheless, Free Radio Nova from Holland placed a video on YouTube showing its fishing pole antenna mast. It's very elegant and, along with a set of guy wires, perfect for the job. But the text claims that the mast is 30 meters tall. A 90-foot-long fishing pole seems a bit hard to believe, but maybe the Dutch like to fish off the beach from farther inland. Unfortunately, the longest fishing pole that I could find on eBay was a bit less than 12 feet long. Still, this seems like one of the easiest to install antenna masts I've ever seen. If only longer fishing poles could be found…

See it for yourself at www.youtube.com/watch?v=BfmCgyhdTqE.

But aside from the inverted V and dipole variations, they're difficult for pirates to use because of the prohibitively tall masts or supports required. A vertical dipole for 6900 kHz should be taller than 68 feet, for example, a height difficult to reach by throwing, slinging, or shooting.

A shorter version of the same antenna is a standard vertical, which also uses a quarterwave section of wire connected to the center conductor of the coax. But instead of another quarterwave piece of wire connected to the ground braid of the coax, a minimum of eight quarterwave wires are connected and evenly spaced in a radial configuration. The problems here don't lie so much in the height, complexity of design, or performance, but permanence. Most pirates want to exit the scene of a transmission immediately, not spend an extra hour rolling up all those wire radials. As a result, verticals are generally scrapped by pirates (see **Photos D** and **E**).

Of course, there are always exceptions. WNKR uses several semi-permanent antenna locations. At one site, they use a T antenna resonant for 1476 kHz (see **Photo F**). This semi vertical requires a good ground system, like the standard vertical, so WNKR has installed six to eight ground rods and 25 to 30 ground radials. The extensive ground means that the system works well and the station has a large coverage area, but too much time would be required to remove it all. The staff leaves it in place between broadcasts, and if the site is raided, it's considered lost.

Commercial Mobile Antennas

Although a number of vertical whip antennas are in the marketplace, they have never been popular with the pirates. Especially on the lower frequencies, where most pirates operate, the perfor-

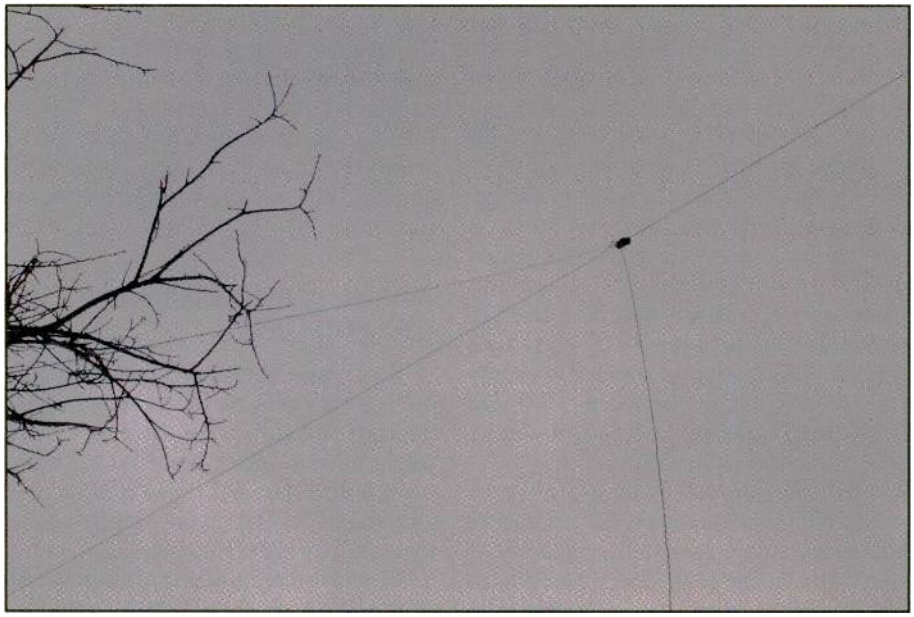

Photo D. The center of the WNKR antenna.

Photo E. The masts of DRP.

Photo F. The DRP inverted V on a mast.

mance is lacking. Many pirates prefer to build and experiment with their own equipment. Finally, few operators want to risk getting caught with a transmitter in the car; given the wide leeway in the interpretation of administrative law over the past decade, there's a very real possibility that the vehicle from which a station was operating could be confiscated as well as the transmitter.

One exception to the whip antenna rule is stations that broadcast from the regions in the Midwest and West that are devoid of trees. Without trees, either a whip antenna or an easy-up mast are sufficient. An example of a North American station using a vertical antenna is KMUD, which has made several well-publicized broadcasts from Death Valley, California, not the most treed area in the world.

Antenna Tuners And A Variation In Feedline

A variation used by those with old amateur transmitters or homebrew equipment is open feedline (aka ladder line). Instead of shielding the components of the transmission line, the ground wire and the hot wire are bare, running from the transmitter to the antenna elements. To prevent shorting, the two wires are separated with ceramic spacers. Ladder line is popular with experimenters, but not with most pirates (or amateurs) because it requires more work (or money), is bulky, and can cause RF burns if those bare wires are touched while transmitting—a very real possibility if a pirate is broadcasting with more than a few watts from a makeshift outdoor location.

One of the few pirates using open feedline is the widely heard Crystal Ship. Station operator The Poet says, "I definitely swear by the use of parallel feedlines with a tuner now because of the frequency-agile abilities of that system, as well as lower feedline and SWR power losses." Unlike nearly all North American pirates, which currently broadcast on or near 6925 kHz, The Crystal Ship bounces between a variety of odd frequencies between 3000 and 7000 kHz, making a frequency-agile antenna system essential.

An antenna tuner is simple piece of equipment used to match the antenna to the transmitter, essentially making it "see" an antenna of the correct length for the frequency being used. The operator just needs to adjust the tuner until it is properly matched. Although essential for transmitting into longwires (such as the box kite antenna mentioned earlier) or miscut antennas, antenna tuners are unnecessary when using wire antennas cut for the frequency being operated on. In this case, adding an antenna tuner between the transmitter and the correctly cut antenna will only cause a bit of signal loss to occur.

As much as some operators love their antenna tuners, others avoid them. As succinctly put by Channel Z, "I don't own an antenna tuner, nor do I want to spend the money on one; I only build antennas that are resonant at the operating frequency."

Antenna Materials And Construction

The main components of an antenna are connectors, coaxial cable, wire, and possibly insulators or baluns. Pirates might have differing opinions regarding most everything, but they seem to be in agreement about using high-quality materials for their antennas.

"I tend to overbuild," said Northwoods Radio, "using higher-grade materials than what is called for in a hope that this may compensate for lack of skill."

According to WBNY, "We use only the best materials...The last link in the RF chain is the antenna and feedline. If you skimp there, the monkeys don't get the full benefit of your RF or our excellent audio processing."

Below is a rundown of the components most frequently used in pirate antenna installations:

Connectors: Male PL-239 connectors fit into the outputs of nearly all amateur radio transceivers. The flimsy chromed PL-259s that are used for cable TV applications are not acceptable for transmitting. Gold-plated connectors aren't necessary, but a number of stations do use the heavy-duty silver-plated connectors. For connecting into baluns, antenna tuners, etc., the female match is the SO-239.

Coaxial Cable: Possibly the most important component of an antenna, the coaxial cable must pass as much signal as possible from the transmitter to the antenna elements. Any loss through the shielding of the cable will be magnified as the length to the antenna increases. The best amateur-use coaxial cable uses copper braided wire shielding (not a wrap of foil), as does TV-grade cable. RG-58U cable is used for everything from TV to amateur radio applications, so its quality ranges widely. Cable appropriate for transmitting has a single or double braided shield with nearly 100-percent coverage. Some people choose RG-8U or RG-8X because it's always appropriate for transmitting applications, but most pirates avoid RG-8U because it's so thick that a long run of it is heavy and more difficult to quickly install.

Wire: Pirates pick up wire anywhere, and most will work to some extent. However, solid wire isn't tolerant to bending and some wire, such as aluminum electric fence wire, is susceptible to stretching. The best antenna wire is stranded copper wire between 12 and 16 gauge.

Insulators: Insulators are used at the ends of antennas to prevent the wire from conducting into any other material. They're typically plastic or ceramic and somewhat egg-shaped. But not all pirates use insulators; for the sake of simplicity, some stations tie the end of the antenna back, creating a loop for plastic cord to be tied through. WKND used diamond-shaped pieces of recycled blank circuit board on the ends.

Baluns: A balun is a contraction of *balanced-unbalanced*. It is a can-shaped impedance-altering device that matches the antenna to the impedance of the coaxial cable and the transmitter. Plenty of stations don't use baluns, but as stated in the *FRN Pirate Radio Survival Guide*, "Just remember, a balun is optional but is worth the trouble and $25 to install one."

The Pirate's Goal: Heard But Not Seen

The antenna is the offensive lineman of the pirate radio world; possibly the most underappreciated piece of equipment to all but the operators, who truly know their importance. Antennas for amateur radio and professional broadcasting can offer promotional exposure (a lighted callsign on a tower) or simple bragging rights ("I have the biggest antenna in town and you can spot my shack five miles away").

But in the world of pirate radio, security and portability take precedence. High performance is of no importance if it requires high visibility. It might be true that a Yagi on a 150-foot steel tower will outperform a droopy dipole with a 35-foot center, but these are the sacrifices made for safe operation.

Pop'Comm Goes To The Movies For Pirate Radio

A Radio Caroline DJ Weighs In On The Film

by Tony Palmer

I went to the theater with mixed feelings to see *Pirate Radio* (I live in England, so I saw a slightly different version titled *The Boat that Rocked*, the European release). I was worried that what I would see would be a terrible distortion of the facts. I cared because in the late 1980s I was a disk jockey and trainee engineer on board the *M.V. Ross Revenge*, the home of Radio Caroline, the biggest and best known of the offshore radio stations that broadcast music into Britain and most of Northern Europe between 1964 and 1990, and the movie's inspiration. Here's my take on the movie.

"...in the late 1980s I was a disk jockey and trainee engineer on board the M.V. Ross Revenge, the home of Radio Caroline...Here's my take on the movie."

Tony Palmer started his broadcasting career with the BBC and a South London pirate station. His subsequent Radio Caroline nighttime show had an audience of over seven million listeners.

Pirate Radio Fact And Fiction

Pirate Radio's action takes place over the course of a year, between the summers of 1966 and 1967, at a fictional offshore radio station called Radio Rock. It tells the story of the crew, the DJ's playing music over the airwaves to entertainment-starved Britons, and the efforts of the British government to stop them. Written and directed by *Richard Curtis of Four Weddings and a Funeral, Notting Hill, Bridget Jones' Diary* and *Bean* fame, the film is set in his usual slightly idealized version of Britain, where the sun always shines and things turn out for the best in the end.

The movie is episodic and some of the events ring true, while others serve the plot more than history. In one scene, for instance, the characters challenge each other to climb as high as they dare up the ship's antenna tower. If anyone had done this on Radio Caroline, they'd have been fried to a crisp by the 50,000-watt radio signal it transmitted. The tower and antenna feeder were surrounded by orange railings to stop crew from getting too close, and the chief engineer gave all newcomers the safety tour, complete with dire and graphic warnings about getting too close.

The Radio Rock ship's design closely copies the real thing—Radio Caroline's ship, the *Ross Revenge*, now in dry dock on the River Thames just East of London. At one stage the *Ross Revenge*

itself was going to be used, but legal and insurance issues prevented this. The movie's production designers, however, were permitted to take photos and measurements, so the mock up vessel looked remarkably similar, right down to the color scheme.

Veterans of Radio Caroline provided consulting and technical assistance during production. All the equipment in any sequence showing Radio Rocks' studio is actually from Radio Caroline. While it was in full working order, the actors' playing DJs don't have a clue how to use it. In many shots you see them starting the record decks from the power switches, rather than the start / stop buttons on the mixer; doing this would have made the records "wow" as they got up to speed. The record decks were vintage 1960 items, but the tone arms and pickups were 1990 era— something a few eagle-eyed viewers have noticed.

The cabins on board the Radio Rock ship were all palatial, far too big for a vessel that had been converted from a fishing trawler. My cabin on the real thing was 8 x 8 feet square and considered pretty luxurious compared with some others. Of course, the interiors on the fictional ship were shot on a sound stage at Shepperton Studios in Surrey, England, and the director and camera crews needed enough space for the camera, sound equipment, and actors.

Back in the 1960s the offshore stations anchored three miles off the coast, placing them outside British territorial waters. While the term "radio pirates" created by the British tabloid press was colorful, it was inaccurate: the stations were not actually illegal, as they were not subject to British law. By the 1980s, and during my time on Radio Caroline, the territorial limit had been upped to 12 miles, and the Ross Revenge was actually anchored nearly 15 miles out to sea, off the coast of Kent. All the sequences in the movie of groups of women coming out in tourist boats for some amorous fun with the DJs are complete rubbish. It simply never happened. The journey out to the real ship would take hours and only the most dedicated offshore radio fans (often called "Anoraks" due to their preferred style of warm, rather geeky clothing) would make the trip. They were almost exclusively male.

Spoiler Alert!

Caution: If you haven't seen the movie yet but plan to, skip this section!

There's one other major radio inaccuracy in the story. When the Radio Rock ship starts to sink at the end of the movie, the studios, transmitters, and all the electrical systems continue to operate normally, even when submerged in that great electrical conductor, salt-laden seawater. In reality, on Radio Caroline, we had frequent power outages caused by a circuit breaker tripping, something that was easily resolved. The standard fix was to have a bit of 2x4 rammed between the power panel and the opposite bulkhead, holding the circuit breaker closed—not something a modern Health & Safety department would ever recommend!

Thumbs Up

If it sounds like I'm trashing the film, please think again. I loved it. It's by far the most accurate portrayal of an offshore radio station ever committed to film. Yes, it has some clunky moments, is too long, and has several technical inaccuracies, but for me—as someone who lived that life, albeit 20 years after the events portrayed—it evoked the spirit of the camaraderie on board a rusty old ship anchored in the middle of a frequently stormy sea, miles away from your friends and loved ones.

If you haven't already seen it, I recommend you rent the DVD, which is scheduled for an April 13 release. While the critics, by and large, were dismissive of the movie, but I think I'm somewhat better qualified to judge. I was there.

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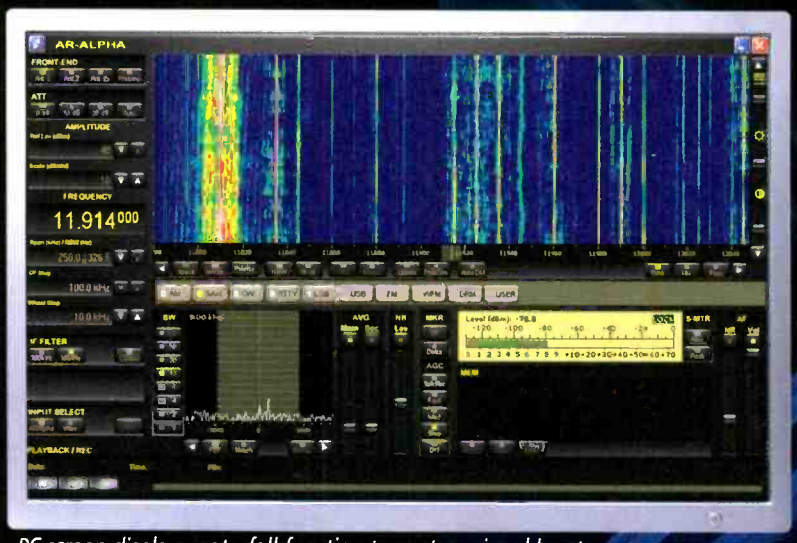

PC screen displays waterfall function to capture signal bursts

AOR has brought a new level of receiver control to the AR-ALPHA with the addition of AR-IQ software. This free software enables the AR-ALPHA to store and playback a full 1MHz of bandwidth activity without any loss of quality. Raw data can be easily transferred from the AR-ALPHA to the hard drive of almost any computer*** for later analysis and review. It is even possible to listen to a frequency off-line by recording data and storing it on a PC. Operators can also create loops to cover a particular time frame so that no signal is missed. Signal bursts are easily seen with the full color waterfall display function.

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At Your Service: The United States Army

Pop'Comm *Continues Its Multi-Part Acknowledgment Of The Military Branches That Serve Our Citizens*

By R.B. Sturtevant, AD7IL

The Army, 517,000 strong, represents 38 percent of our total armed forces and is the largest by far according to the Department of Defense. The Army inducts about 80,000 newbies every year, but don't think the Army is easy to enter. The days of minor offenders being given a choice between the Army and jail are long over, and less than 40 percent of those trying to enter the all-volunteer Army are accepted. The Army is big on education, too; less than 10 percent of the Army's new enlistees are allowed to come in without a high school diploma or GED. It's standards like these that make the U.S. Army the finest in the world.

R.B. Sturtevant, AD7IL, is *Pop'Comm*'s "Trivia" columnist and has written extensively on radio history.

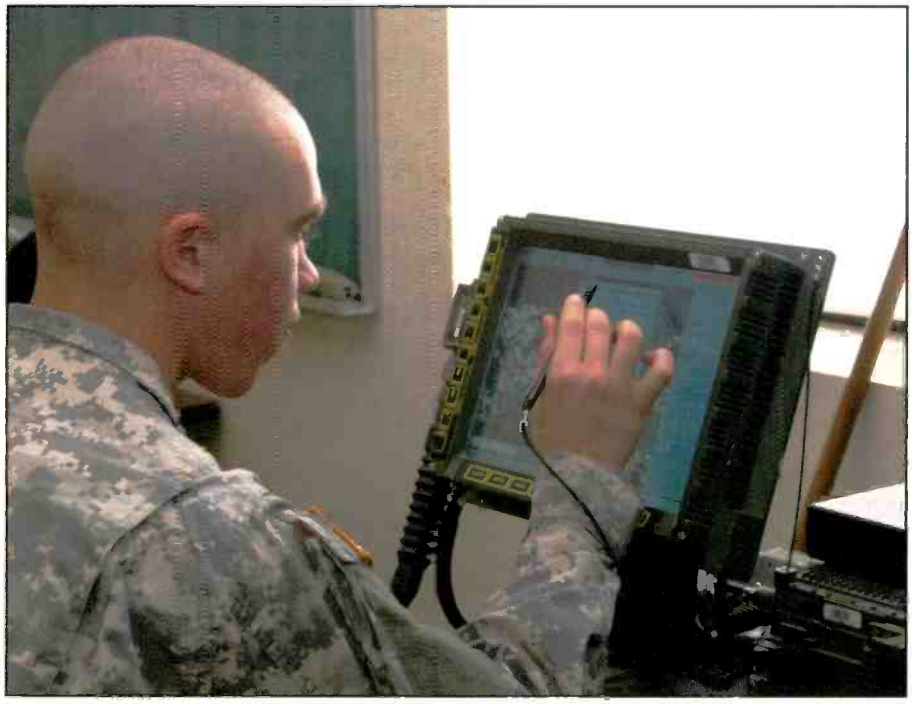
An Army Strong With Skilled Professionals

Enlistees have to take the Armed Services Vocational Aptitude Battery of tests known as the ASVAB. This test is the

Students in the 25C Course at Fort Gordon (Radio Operator-Maintainer) in their final week of the 11-week course. They're using SINCGARS (Single Channel Ground-Airborne Radio System) rigs.

"The Single Channel soldiers work with SINCGARS (Single Channel Ground-Airborne Radio System), which is the Army's primary mode of combat communications."

Instructor (left) and a student troubleshooting SINCGARS radios in a Tactical Operations Center.



Force 21 Battle Command Brigade and Below (FBCB2) radio with Blue Force Tracking global positioning system (allows the soldier to identify friendly or unfriendly forces.)

Single channel radio inside a vehicle.

same for all the services, but each service interprets the scores in its own way. Using those scores, jobs currently available in the Army are matched with a recruit's abilities and desires. Recruiters aren't "selling" the Army these days so much as fitting the right applicant into the 150 jobs descriptions that the Army has. And, believe me, soldiers don't do KP anymore: Army training is so expensive that it's cheaper to keep a soldier working at his or her job "real job" and hire a civilian to work in the kitchen.

The Army has programs that allow for enlistments of from two to six years. (Those who aren't interested in that kind of commitment can enter the National Guard. Guardsmen go to the same schools but only drill on weekends, usually once a month and two weeks in the summer.)

The electronics training in the Army is about the best you can get. After Basic Training, fledgling electronics wizards go to a tech school to be trained in the chosen fields. If their aptitude, scores, and desires are equal to it, they may wind up in the Signals or Electronic Maintenance fields, though there's a lot of radio and electronics going on in Intelligence. Tech school (the Signal Corps has 17) can last anywhere from four to eight weeks but some of the more specialized training can last for 26 weeks.

A Single Channel Radio Operator/Maintainer is basically the radio operator for a unit, and every unit in the Army has at least one. The Single Channel soldiers work with SINCGARS (Single Channel Ground-Airborne Radio System), which is the Army's primary mode of combat communications. During the Johnson administration the Army arranged for the President to make a phone call to the Pentagon from where he was patched in to a combat commander in Vietnam who was actually taking fire from the enemy. Back then, that was an experiment; today calls from the Pentagon to troops in the field, sometimes in combat, are handled routinely.

Other highly skilled people you'll find in today's Army include Multi-Channel Transmission Systems Operators/Maintainers and Signal Support Systems Specialists who perform maintenance and troubleshooting as well as give technical assistance on Signal Corps equipment. There are also Satellite and Microwave Systems Operators/Maintainers. And for the "John Wayne-types" in our Army, look to the Special Forces, with its four areas of specialization, one of which is Communications. Those guys are all sergeants, of course, and they're some of the finest radio operators in the world. No one works harder to "get the message through."

Others areas of expertise where you'll find soldiers using their knowledge of radio or electronics include Electrician, Communications Security, Radar Repair, Patriot and Avenger Systems Repair, and Avionics Equipment Repair. And don't forget our men and women who serve as Disc Jockeys or Radio Journalists, having received top-notch training in the Defense Information School. All five of our military services send their radio and TV journalists there. Broadcast Engineers are also trained, though at another school.

Because of the Army's size and diversity there is more room for advancement for those who want to put forth the effort to excel. It is not unusual to find a first term enlistee with E-4 or E-5 before they reenlist or get out of the Army.

This We'll Gratefully Acknowledge

Today's Army is the best trained we've ever put in the field. The level of responsibility, opportunity, and training given to our soldiers is without compare—anywhere. And so, with the anniversary of the war in Iraq approaching, we honor and thank the men and women who serve our country so well under the motto, "This we'll defend."

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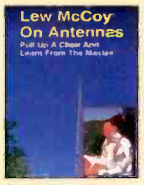

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The MFJ-8322 Handheld Triple-Trunking Analog Scanner

by Ed Muro, K2EPM

"A radio of this nature would be tedious to program by hand on a regular basis, so thank goodness it offers high-speed data transfer (with third-party software not included) as well as cloning capabilities."

The name MFJ Enterprises is well known to most of us in the radio hobby, primarily for its wide array of accessories. These range from antennas to antenna tuners; from antenna mounts to antenna analyzers; from 24-hour analog wall clocks to digital atomic clocks; from CW keys to CW readers; from code oscillators to entry level analog transceivers—and there's *still* much more.

So, when word leaked out that MFJ would enter a new market and add scanners to its product catalog, I'd hoped that it would be with something unique that we hadn't seen before. That wish was short lived, however, as one of the debut products, the MFJ-8322 (the other is the MFJ-8310, a desktop model), appears to be a private label of the GRE PSR-300. Having said that, I want to emphasize that this is not necessarily a bad thing for the consumer, as GRE has produced some of the finest scanners ever made. I'm sure that the arrangement is also mutually beneficial to MFJ and GRE, as MFJ gets to augment its line and GRE gains access to MFJ's well-established client base.

The MFJ-8322 is a 1,000-channel triple-trunking analog scanner. In layman's terms, that means that it scans Motorola, EDACS, and LTR-type analog trunked systems. Be aware that it will *not* scan APCO-25-compatible digital trunked systems, which are becoming more popular across the nation.

Out Of The Box

At first glance, you see that the MFJ-8322 is not a small scanner by any stretch of the imagination. It's a full-size device; the same size, in fact, as the GRE PSR-300 and similar to the PSR-500 as well as RadioShack's Pro-96/97 line. The buttons are large enough for those of us with big hands, have a nice feel to them, and are backlit. The easy-to-read alphanumeric display offers four lines of text and clearly shows detailed operating information. Text labeling is available for each channel, talk group ID, and/or bank allowing easy identification.

Ed Muro, K2EPM, has been a radio hobbyist since his early teens. He served three terms as vice-president of the Long Island Mobile Amateur Radio Club and is a public information officer and VE for the ARRL.

The MFJ-8322, a relabel of the GRE PSR-300 for MFJ Enterprises, is a full-size, triple-trunking analog scanner with large backlit buttons and an easy-to-read alphanumeric display.

As with GRE offerings sold under its own name or RadioShack's, you'll find two AA battery holders for the MFJ-8322: the normal dry cell pack, which is black, and the familiar yellow holder that houses rechargeable batteries. But here's something new—the wall-wart charger is *included*. Also in the box are a rubber duck antenna, a belt clip, and a 63-page user's manual.

The overall fit and finish of the radio is very nice for a scanner that sells at the $200 price point.

Main Feature Overview

The MFJ-8322's 1,000 channels are stored in 10 banks of 100 channels each. It has a real-time signal strength indicator that shows the relative strength of received signals. It will decode PL tones of the CTCSS and DCS variety. Other features include a spectrum sweeper that will scan frequency ranges for transmissions from nearby transmitters, preprogrammed search ranges, which reduces the time it takes to set up searches, and a weather alert system that ties in to the SAME FIPS system.

At A Glance

MFJ-8322

Major Features:
Scans Motorola, EDACS, and LTR-type analog trunked systems
1,000 channels
Spectrum sweeper
Weather alert system
High-speed data transfer/cloning program capability
Real-time signal strength indicator
CTCSS and DCS PL tone decode

List Price:
$199.99

Contact:
MFJ Enterprises, Inc.
P.O. Box 494
Mississippi State, MS 39762
Phone: 1-800-647-1800
www.mfjenterprises.com

A radio of this nature would be tedious to program by hand on a regular basis, so thank goodness it offers high-speed data transfer (with third-party software not included) as well as cloning capabilities. Furthermore, the CPU firmware is upgradeable with free upgrades provided on the GRE website (www.greamerica.com) as enhancements become available.

The scanner is pretty easily powered. The trend toward battery simplification means that the MFJ-8322 can be powered by four rechargeable or non-rechargeable "AA" batteries (not included). You can operate on AC or DC power using the supplied AC adapter or an optional DC power cord. For DC power, you can also use a 12V cigarette lighter socket with a 9VDC adapter that provides at least 400mA of power with a positive center pin.

Digging Deeper

To flesh out what you can expect if you purchase the MFJ-8322, following is a bit more on some of its features:

SKYWARN Function: If you press and hold the WX button for about 1 second the radio will automatically go into the SKYWARN mode, jumping to the SKYWARN channel programmed in to channel 999, and the display will read "SKY." For this feature to work, however, you must program your area's SKYWARN frequency into the scanner.

Data Cloning: This lets you transfer programmed data from or to another MFJ-8322 or 8310 scanner. You can also upload or download data to your PC with a data interface cable. ARC300, developed by Butel for the GRE PRS 300/C PSR 400/C and RadioShack PRO-163/PRO-164/PRO-97/PRO-2055 scanner series, is a user-friendly programming software application that supports the MFJ-8322. For more information, see www.butel.nl.

Attenuator Function: By depressing the ATT button you can reduce the scanner's sensitivity, thereby blocking extremely strong signals that may overload the radio's front end. The MFJ-8322 has two attenuator modes: a global mode, which attenuates the whole radio, and a "normal" mode that lets you set the attenuation on a per channel or bank/group basis. I'm not a fan of global attenuation myself, but it's a purely personal preference. If you happen to appreciate it, you're in luck.

Priority Channel: You may set a priority for your favorite channel, and the scanner will check that channel every two seconds so you don't miss any transmissions.

Receive Mode: Preset to the most common modes for each frequency range. You may change the mode by repeatedly pressing the MODE key.

Key Tone: Whenever you press a button on the scanner it will make a sound alerting you that a button was pressed. This feature can be disabled.

L/Out: Lets you lock out specific channels or talk groups.

Key Lock: Locks the scanner's keypad to prevent accidentally changing programming parameters.

First Time's A Charm

The MFJ-8322 may be the company's first foray into the scanner market, but this handheld trunked scanner is a solid performer with a stalwart lineage. If you're looking for a scanner that's simple to use, offers a high conventional channel capacity, basic trunking functions, and cloning or PC programming abilities, then the MFJ-8322 might be for you. With these features at this price point, you won't find a better deal.

The MFJ-8322 comes with a 12-month limited warranty. For more information, contact MFJ Enterprises (see boxed info).

Soup Up Your Scanner Through Antenna Experimentation

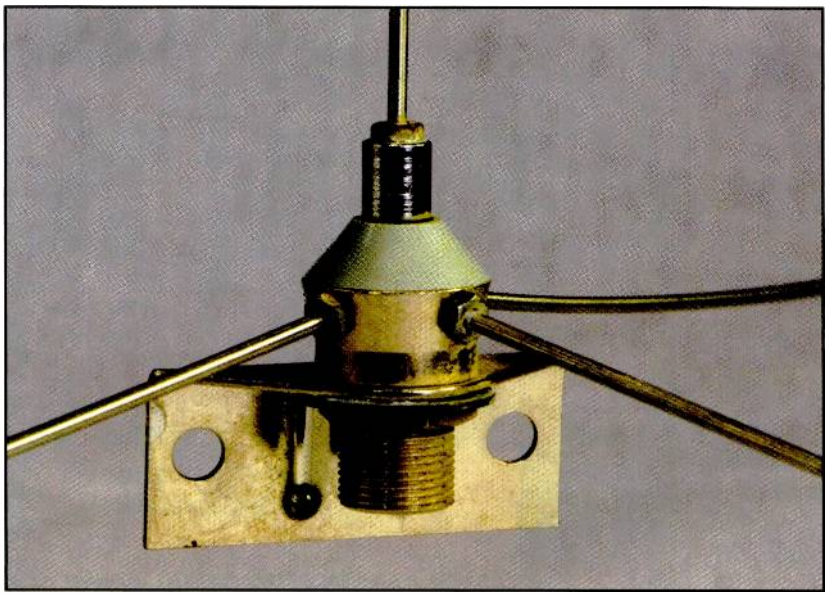
by Ken Reiss
radioken@earthlink.net

"Think about it: while many antennas are designed for one *precise frequency, our scanners and antennas perform across many* hundreds *of MHz—wow!"*

With springtime in glorious early bloom and the weather beginning to warm up (finally!), it's time to start thinking about those outdoor antennas and improving your reception for the coming year. The general idea with an antenna is to get as much metal as you can, as high as you can, up in the air in the hope of better reception.

There's an old maxim among hams that if you're in the northern states, and your antenna is still standing after the cold, snow, and ice (and this year should have been a pretty good test for most of us), it means that it wasn't big enough or high enough to be effective. While that's probably so for transmitting, and particularly for the amateur HF bands, it turns out that using the most metal might not be the most effective method for receiving.

Antennas can be a double-edged sword for a receiver. The idea behind using an antenna is to hear more stuff by gathering more signal, right? And if everything were perfect, raising the height of the antenna or increasing its effective gain would result in hearing more signals, right? Well, in a perfect world, that would be true, but our world, alas, is not quite perfect.



This versatile antenna from RadioShack (P/N #20-176) has four radials and a mounting bracket plus the vertical center radiator. It's designed for transmitting in the 2-meter band, but makes a great all-round and low-cost ground plane. Shown here, one of the radials has been left off the back so it can be wall mounted almost anywhere, outdoors or indoors. Add coax and you're off and running. Newer models have a second set of radiators that come off the center in a V shape for 440 MHz as well.

The problem is that increasing the height or gain of the antenna increases the amount of signal gathered at the antenna. Two things can happen to that signal to cause reception to actually deteriorate, rather than increase, when compared with a factory-mounted, back of the radio-type antenna.

The first is that you can experience signal losses in transmission lines (usually coax) that can be severe enough to defeat any gain you may have gotten from the better antenna. This is especially true above 400 MHz, and acute over 800 MHz. It can be largely overcome, or at least greatly reduced, by using very high-quality—and very expensive—transmission lines. Unfortunately, for most of us in that pesky real world neither the high-quality transmission line nor an extremely high tower will be an option.

The other potential problem is that the antenna can actually deliver more signal to the radio, but the radio can't process it correctly. This effect is called many things, depending on where in the radio the breakdown occurs, but for simplicity's sake we'll refer to it as overload.

I don't have the space to go into a lengthy discussion on this, but I want to point out that if you do make antenna changes and find you're not hearing as well as you did beforehand, you may be right. Don't panic; you can easily put things back the way they were, especially if you make your modifications progressively, in small steps rather than all at once.

I have to point out here that we're going to be talking about antennas for receiving only; if you're licensed to transmit, all the rules change and you should probably ignore this article completely. But if you want to experiment with the goal of improving your monitoring, read on.

Basics: Wavelength And Bandwidth

We're all familiar with frequency, which refers to how many times per second a signal is oscillating, and is measured in Hertz. But you can't really understand antennas without also understanding wavelength, which is a measure of distance and is given in meters.

The Most Basic Antenna Of All

Anything that will conduct electricity (or more specifically, radio frequency signals) will work as an antenna. The old coat-hanger bent in some funny shape and connected to your radio will receive. Likewise, a spool of wire from RadioShack with one end stripped and stuffed into the antenna connector will work, too. The important question, of course, is always "how well will it work?" Sometimes you can be surprised. If you're in a situation where an outside antenna isn't possible, you might do some experimenting with one of these two methods (neither costs much!) and see what you get. I've used the spool of wire trick for HF in many an apartment over the years and logged lots of stuff.

The versatility of this telescoping antenna with a loading coil near the top makes it a favorite among scanner enthusiasts. By varying the length, it can be used for a variety of frequencies. RadioShack sells this model (P/N 20-006) for $15.99.

Radio waves travel at a constant speed of 300,000 km per second (or 186,000 miles per second, if you prefer, but the calculations we'll be looking at are based on the metric system). The greater the number of oscillations per second, the less the distance, or space, between waves. The distance between waves, or more specifically between a point on one wave and the same point on the next, is what we refer to as the wavelength. You can measure from peak to peak or from start to start. It really makes no difference as long as you pick the same spot on both waves.

To calculate the wavelength of a frequency in meters, you divide 300 by the frequency in MHz. For instance, a signal with a frequency of 7 MHz makes the wave just over 40 meters long, so it's referred to as being in the 40-meter band, an amateur radio segment of the spectrum. As another example, the frequency range of 144–148 MHz is found within the 2-meter ham band.

If you do the math, you'll see that there's a considerable amount of rounding off involved in naming the band. When it comes to antennas, however, you want to be a bit closer to the mark, especially if you're building a transmitting antenna. For receiving, precision less critical.

In our examples, notice that as we've gone up from 7 to 150 MHz, the wavelength has gone down from 40 to 2 meters (from about half a football field to about the length of a couch). As we go higher into the range of scanner frequencies, the waves continue to get shorter. At 850 MHz, we're down to 35 centimeters—just a little longer than the length of a letter-size piece of paper.

As you may have gathered from the above, many antennas are frequency specific. The performance of some will drop off considerably the further you move away from that optimum frequency, while others are fairly "broadbanded." Think about it: while many antennas are designed for *one* precise frequency, our scanners and antennas perform across many *hundreds* of MHz—wow!

Again, the good news is that for receive applications this bandwidth is not nearly as critical as it is for transmitting. A transmitter will require adjustment every few hundred kHz of frequency change, but a receiver will work several MHz away just fine. Sure, it won't be quite as efficient as an antenna optimized for a particular frequency, but it's a lot easier than trying to put up a different antenna for every frequency you want to listen to!

How does all this figure into antenna design? Well, the efficiency of the antenna is directly related to the wavelength of the frequency versus the physical length of the antenna. Its general usefulness to you may be a function of its bandwidth.

Let's move on now and take a look at one of the simplest designs: the dipole.

The Low-Cost, High-Efficiency Dipole

The dipole antenna is made from wire cut into two pieces, with one piece attached to the center conductor of the antenna jack and the other attached to the radio's ground (or outside of the antenna jack). An antenna cut to exactly one half the wavelength, known as a half-wave dipole, is extremely efficient and is one of the references we use for antenna performance.

A half-wave dipole for 146 MHz, say, would be 38 inches long, with 19 inches per side. As a shortcut, you can use a formula that will convert the length of the antenna elements directly to inches. Depending on which book you read, 2800 to 2808 divided by the frequency in MHz will give you the length per side for a dipole. Therefore, 2800/146 gives you 19.17 inches, while 2808/146 gives you 19.23. That's not much of a difference, but my philosophy is to start longer and trim as necessary. As we've learned, this amount of variation isn't critical for receive antennas, and in practice either of those measurements would probably be just fine. If you were building a transmit antenna, you'd want a standing wave ratio meter to tune the antenna for maximum power out, but there's no easy adjustment for receive antennas (and it's unnecessary for our purposes anyway).

Starting Simple

The simplest antenna to build is a half-wave dipole. In plain English, this is a wire that's cut to half the desired signal's wavelength (the length of the radio wave measured from peak to peak) and split at the center. The antenna has to be cut for a particular wavelength, although it will perform reasonably well for 20 to 30 MHz on either side of center.

The half-wave dipole comes in many variations, the most common for scanner

users is the quarter-wave ground plane. "What?" I hear you ask, "You just said it was half, now it's a quarter?" Yep, that's right. The active, or main, element of the antenna is one half of the half-wave, or one quarter. Each leg of a dipole is a quarter-wave, too.

What makes the ground plane antenna different is that the active element is vertical in the center of a "plane," or a number of elements that form the other leg. The ultimate ground plane is a metal disk with a radius equal to a quarter wavelength. However, you can get almost as much performance, and save a lot of wind resistance, with just a few metal elements (three or four are common). By having the elements spread out over 360 degrees, you'll get a very omnidirectional pattern; that is, it will receive signals from any direction.

If you think about a typical base station antenna, you'll understand that this is exactly the effect being created. The center single element stands straight up, and there are usually three or four radials sticking out at a more or less right angle to it, forming a circle around the bottom of the single center piece. Those elements sticking out form the ground plane.

The antenna that comes with your radio is probably based on this principle. By incorporating winding coils or other such "tricks," they're sometimes shorter than the quarter-wave normally required for the vertical element. Handheld antennas are also based on this idea.

So what is the other element for the ground plane? It's the radio itself. True, it's not exactly the right size and not quite as efficient as it could be, but using the radio itself is very practical. It's much cheaper than adding a separate piece of equipment, it obviously already fits in the box, and it means you don't have to carry a quarter-wave ground plane disk for 40 MHz, or even 150 MHz, around with you.

The standard rubberized antenna that comes most scanners, such as the RadioShack PRO-89, is another study in compromise. By winding the antenna in a coil and securing it inside the rubber jacket, it can be made shorter, but it's also less efficient.

Baby Steps For Best Signals

The antenna that came with your scanner will provide a good baseline for comparison. It was probably tested by the manufacturer to provide good (usually not great) performance over the range of the receiver. Determine how that works and then start to experiment with other antenna types and see what improves performance and what doesn't. You don't need sophisticated test equipment to do this, although that helps if you know how to use it. Otherwise, use your ears and listen carefully to what you're hearing!

Remember that the length of the antenna determines its optimum frequency. If you listen primarily to frequencies in the 800-MHz range, you may get better performance with the antenna collapsed to its shortest length (assuming it's telescoping); if you listen mostly to 150 MHz traffic, you may want it fully extended.

The key word here is "may." You "may" get better performance with the antenna shorter. Often, particularly in the higher frequencies, a fully extended antenna works out to another ratio of the wavelength. Experimentation is everything. You won't hurt anything as long as you're not transmitting.

Now that you have that baseline efficiency, try adding a half-wave dipole or quarter-wave ground plane. Again, both are easy to build or relatively cheap to purchase. RadioShack makes a ground plane antenna (P/N 20-176) that works on two bands: 140 MHz and 440 MHz. Cutting a bit off the ends might help fine tune those frequencies further, but most people find they work pretty well right out of the box. A notable exception, however, is when using this antenna in the military air band (220–400 MHz); for that the elements must be cut (2808/300 is about 9.3 inches for the longer elements).

Broadening Your Reach

A lot of scanner listeners find this simple arrangement placed in an attic or out-

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give that lucky winner a free one-year subscription, or extension, to *Pop'Comm*. Remember to include your address in case it's your name that's drawn! Good luck!

Let's give **158.725** a listen this month and see what we hear. Send your results in to me and we'll enter you into the drawing for a one-year subscription to *Popular Communications*! Please identify your email or envelope with the frequency so it can be entered correctly. And don't forget that address!

The most recent winner of our drawing is **Nolan King** of **Traverse City, Michigan**. Nolan wrote in:

On 462.575 MHz, I hear talking but it's scratchy and I can't quite make out what they are saying. I have Family Service Radios, too, so I would be using that frequency sometimes myself. What I probably heard was a mile or so away.

Thanks sharing that, Nolan, and congratulations on your new subscription!

side works just fine for all the signals they care to hear. However, this antenna isn't particularly broadbanded, so if you wander too far away from the frequencies it's cut for, you'll find reduced performance, possibly to the point of unacceptability.

Here's where the discone antenna, a scanner listener favorite, comes in. Most of us want to be able to listen to signals over the full range of our receivers, and with scanners that's roughly 30 MHz to somewhere around 1000 MHz or a bit higher. (If you go too much above that frequency all sorts of things start to change, and you really need a different antenna; the same thing applies below 30 MHz—there just isn't one antenna that will go the whole distance.)

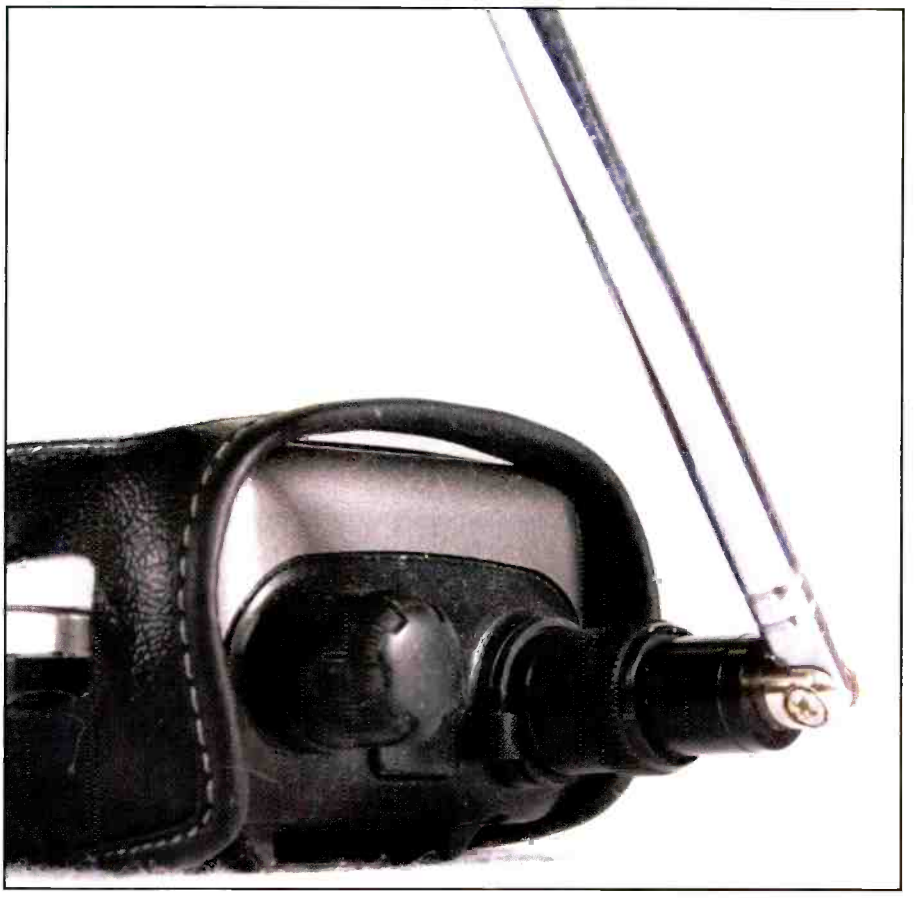
The discone does a decent job throughout most of that range, but like all antennas it represents a compromise. To get great performance in one area, you give up bandwidth, or acceptable performance across a wide range of frequencies. To get bandwidth, you give up performance, or gain, on any particular frequency. The discone's performance is probably about equal to, or maybe slightly worse than, a dipole's on any given frequency. But a discone will maintain that performance for a few hundred MHz on either side of center, or as a friend of mine likes to say, it performs equally poorly over a wide range.

As mentioned above, the discone does have a center frequency, just like the ground plane. Many military monitors cut discones to center around 300 MHz, but still get acceptable performance on most of the public safety bands. The disk radials should be 2008/Freqency, and the longer "cone" radials should be 2953/Frequency.

Most discones are manufactured for the VHF-Hi and UHF ranges, so you'll have to modify this antenna on your own if you want to monitor elsewhere. A standard discone will receive signals in the VHF-Lo range, although it's helped tremendously by the addition of a whip on top of the disc. The new RadioShack discone (P/N 20-043) has this addition, as do many discones offered by Diamond and Comet. Any antenna built for ham applications will also work reasonably well for your scanner.

Looking For Direction?

Up to now, we've been discussing omnidirectional antennas, antennas that receive equally well (or poorly) from all directions. Under most circumstances,



The antenna that came with your scanner may be a good place to start your experimentation. This telescoping antenna features a BNC connector that allows for rotation since the radio can be used standing up or lying down, and over a wide range of frequencies.

A good old-fashioned S meter comes in handy when you're experimenting with antennas, because it can help to confirm what your ears are telling you. Don't worry if you don't have one, though—just listen carefully and take your time.

that's exactly what you're looking for with a scanner antenna, because you want to hear things all around you. There are times, however, when you'll want to concentrate on a particular signal, or perhaps are looking for maximum distance. For these situations, directional antennas are best.

Directional antennas, or beams, come in all shapes and sizes, but they have one major characteristic in common that separates them from the omni crowd: They give up bandwidth and omnidirectional performance in exchange for high performance (gain) in one direction. These antennas are often mounted on a rotor so they can be turned towards whatever signal is of interest. Many transmitting operations use beam antennas for all sorts of reasons, but for receive applications, they're somewhat specialized.

Of course, in order to emphasize performance in one direction, beam antennas, by nature of their design, must de-emphasize it in another (sometimes many others). This feature can be useful in helping to eliminate an interfering signal in favor of one you're after. If you're located in an outlying area and want to hear signals from a particular transmitter or city, a beam antenna mounted high might be your only option.

Beams also come in many shapes and sizes and tend to be a bit larger than omnidirectional antennas. The higher the frequency of the beam, the smaller it will be physically, but even 800-MHz antennas with many elements can become quite large. In addition, they may need to be mounted on a mast with a rotor so you can vary their direction.

Looking closely at the antenna on the left in this photo you'll see some just barely visible short radials forming a ground plane. Its way-out-of-proportion center radiator probably means this antenna is optimized for gain on one particular frequency, but still requires as much of an omnidirectional pattern as possible (there will be some interference from the tower legs). If anyone recognizes those strange things on the right, let me know; I'm guessing they're another form of gain antenna for a relatively high frequency.

Instructions on building your own directional antennas are available on the Web and in many amateur radio publications. Here, too, a beam purchased for ham radio operation will probably work quite well for your scanner, with only slight modification for frequency performance.

Try Something, Gain Something

Remember, in finding the optimum antenna for your needs, experimentation is key. What works great in one situation may fall apart in another. One of the great things about antennas is that you can build many of them out of relatively low-cost materials, and it doesn't take too much to experiment, so give it a try. Keep careful notes so you can put things back as they were if you're not happy with the results.

Let me end here with a warning: **Be careful**. If you're working outdoors, stay a safe distance from power lines, and always wear a safety belt if you're climbing a tower or other structure. Never work alone.

Remember this is a hobby, and you'll want to be around for next month's exciting issue of *Popular Communications*! Write in and let me know what you've found that works in your situation.

Until next month, Good Listening!

Pop'Comm April 2010 Reader Survey Questions

With pirate radio recently in the news—and on the silver screen—let's see if our readers' attitudes about it have changed since our last survey on the topic. Please use the Reader Survey Card and circle all appropriate numbers. Thanks for participating.

How interested are you in pirate radio broadcasting?

- Extremely interested . . . 1
- Quite interested . . . 2
- Moderately . . . 3
- Slightly . . . 4
- Not at all . . . 5

Are you more or less interested in pirate radio than you once were?

- My interest level is about the same, I love it . . . 6
- Less interested . . . 7
- More interestd . . . 8
- About the same, I hate it . . . 9

If you do listen to pirate radio, where do you primarily seek it out?

- Shortwave . . . 10
- FM . . . 11
- AM . . . 12
- Internet . . . 13

If you catch a pirate broadcast do you typically...?

- Listen and move on . . . 14
- Record it . . . 15
- Send for a QSL card . . . 16
- Send in a log . . . 17
- Report it to authorities . . . 18

We didn't run a survey last December, so we don't have a sub winner or results to report to you from that month. We'll be back with both next time.

A New Voice From Florida? Plus Easier Shortwave Catches Elsewhere

by Gerry L. Dexter
gdex@wi.rr.com

A new addition to the family of shortwave broadcasters has arrived, but I don't think anyone is passing out cigars just yet! WJHR will be (or is, by the time you read this) broadcasting from Milton, Florida, in single sideband and, at this writing, is testing occasionally with 1 kW on 15550. The station is an outgrowth of an earlier construction permit held by the Smyrna Baptist Church in Pensacola. WJHR will draw most of its program material from an extensive collection of recordings made at the Pensacola church over the years. WJHR is a commercial endeavor hoping to draw financial support from other churches that support its beliefs, with the "commercial" clause available in case there's a need to look elsewhere for support, i.e. other denominations or paid programs. WJHR's sole owner is Scott Mock who is also an amateur radio operator (WB4BFQ).

Meanwhile, yet to be heard from is KTMI out of Oregon, expected to be active at any time. Watch for action from them on 6025, 9445, and 11615. This is believed to be something of a shoestring operation, so you might want to catch it quickly! And while you're at it you might want to program two more frequencies in to your receiver memory: 5755 and 9480, which should shortly be in use by still another new U.S. commercial religious broadcaster, WTWW in Lebanon, Tennessee.

The Radio Nederland Relay station at Talata-Volonondry was damaged by a fire back in late December and had to be shut down temporarily. That caused Radio Nederland's broadcasts to be relayed temporarily by other sites, including Botswana, Sao Tome, Biblis, and Lampertheim. Other broadcasts via Madagascar (Radio Sweden and Vatican Radio) were similarly affected. By now, however, everything should be back to normal.

We should soon be hearing the Voice of Nigeria at stronger levels. VON is installing huge, rotatable curtain antennas and a large number of stacked dipoles; this will allow them to operate on channels anywhere between 6.0 and 26.0 MHz. Wish them good luck. Maybe they'll fix their modulation problems, too!

"WJHR is a commercial endeavor hoping to draw financial support from other churches that support its beliefs, with the "commercial" clause available in case there's a need to look elsewhere for support..."

Polish Radio has signed an agreement with VT Communications, which will offer the service for 20 hours per day via various VT-operated transmitter sites. Polish Radio will also be beamed in several languages to listeners in Europe and Israel, so we should see an expansion of its schedule and, as a result, might have clearer, cleaner signals from Poland.

The anti-China opposition broadcaster, Sound of Hope, is feeling pressure from Taiwan's government broadcaster, which in turn is under pressure from Beijing authorities not at all pleased by the SOH programming content. It all may shake out with a termination of SOH's contract with Taiwan's Central Broadcasting System. SOH may well have to make other relay arrangements, or even close down. At this point things are still unsettled.

HCJB Global plans to add another 100-kW transmitter to its facility in Australia fairly soon. In addition, it's switched its broadcasts, which were formerly transmitted via Wertachtal to Sitkunai (Lithuania), and it is now broadcasting in Portuguese on 11920 via Santiago, Chile, from 2300.

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each logging according to its home country and include your last name and state abbreviation after each. Also needed are spare QSLs or good copies you don't need returned, station schedules, brochures,

pennants, station photos, and anything else you think would be of interest (and that includes your shack photo!).

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned English (EE) is assumed.

ALASKA—KNLS, Anchor Point, 7355 at 1210. (Brossell, WI)

ANGOLA—Radio Nacional, Mulenvos, 4950 with W in PP. Weak but in the clear at 0235. (Parker, PA) (t) at 2305 in PP with W and occ M talk. (Taylor, WI)

ASCENSION—BBC South Atlantic Relay, 7255 at 0337 with a correspondent report, ID. (Taylor, WI) 0400 with world news. (Brossell, WI)

AUSTRALIA—Radio Australia, 9660 with soccer match at 0635. (Maxant, WV) 9710-Shepparton with news feature at 1609. (Strawman, IA) 12010-Darwin with news at 2305. (Ng, Malaysia) 15560-Shepparton at 2237, //13630, 15230, and 15515, all Shepparton. (MacKenzie, CA)

ABC Northern Territory Service: VL8A-Alice Springs at 1239 with ballads and anmts just above the noise level. (Brossell, WI) VL8T, Tenant Creek, 2485 with country songs at 1342. Poor and wiped out by a noise blob. (Taylor, WI)

CVC Intl, 9430 via Wertachtal in EE at 0605 with Christian rap. (Parker, PA) 13635-Darwin with W, ID and pops until sudden close at 1830. (Barton, AZ) 17635-Darwin with pops in CC at 0640. (Ng, Malaysia)

BELARUS—RS Belarus, Minsk, 6155 in EE at 2204 with short news items, 2110 full ID and start of informational pgm. Programmers were hired from Radio Moscow. (Taylor, WI)

BOLIVIA—Radio Logos, Santa Cruz (p), 6165 at 2209 with M

A Guide To "GIG-Speak"

Here's a partial list of abbreviations used in the "Global Information Guide":

(l)	listed
(p)	presumed
(t)	tentative
*	sign on/off time
//	parallel frequency
AA	Arabic
ABC	Australian Broadcasting Commission
AFN	Armed Forces Network
AFRTS	Armed Forces Radio TV Service
AIR	All India Radio
am	amplitude modulation
ancr	announcer
anmt(s)	announcement(s)
AWR	Adventist World Radio
BBCWS	BBC World Service
BSKSA	Broadcasting Service of the Kingdom of Saudi Arabia
CBC	Canadian Broadcasting Corp.
CC	Chinese
CNR	China National Radio
co-chan	co-channel (same) frequency
comml	commercial
CPBS	China People's Broadcasting Station
CRI	China Radio International
DD	Dutch
DJ	disc jockey
DW	Deutsche Welle/Voice of Germany
EE	English
f/by	followed by
FEBA	Far East Broadcasting Association
FEBC	Far East Broadcasting Company
FF	French
GBC	Ghana Broadcasting Corp.
GG	German
HH	Hebrew; Hungarian
HOA	Horn of Africa
ID	identification
II	Italian; Indonesian
Intl	International
IRIB	Islamic Republic of Iran Broadcasting
IRRS	Italian Radio Relay Service
IS	interval signal
JJ	Japanese
KBS	Korean Broadcasting System
KK	Korean
Lang	language
LSB	lower sideband
LV	La Voz; La Voix
M	man
NBC	National Broadcasting Corporation (Papua New Guinea)
nf	new frequency
ORTB	Office de Radiodiffusion et Television du Benin
PBS	People's Broadcasting Station
PP	Portuguese
PSA	public service announcement
QQ	Quechua
RAE	Radiodifusion Argentina al Exterior
RCI	Radio Canada International
Rdf	Radiodifusora, Radiodiffusion
REE	Radio Exterior de Espana
RFA	Radio Free Asia
RFE/RL	Radio Free Europe/Radio Liberty
RFI	Radio France International
RHC	Radio Havana Cuba
RNZI	Radio New Zealand International
RR	Russian
RRI	Radio Republik Indonesia; Radio Romania International
RTBF	RTV Belge de la Communaute Francaise
s/off	sign off
s/on	sign on
SIBS	Solomon Is. Broadcasting Corp.
sked	schedule(d)
SLBC	Sri Lanka Broadcasting Corp.
SS	Spanish
TC	time check
TOH	top of the hour
TT	Turkish; Thai
TWR	Trans World Radio
unid	unidentified
USB	upper sideband
UTC	Coordinated Universal Time (= GMT)
UTE, Ute	utility station
v	variable
vern	vernacular (local language)
VOA	Voice of America
VOIRI	Voice of Islamic Republic of Iran
VOR	Voice of Russia
W	woman
ZBC	Zambian Broadcasting Corp.

Help Wanted

We believe the "Global Information Guide" offers more logs than any other monthly SW publication (nearly 500* shortwave broadcast station logs were processed this month!). Why not join the fun and add your name to the list of "GIG" reporters? Send your logs to "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or you can email them to gdex@wi.rr.com. Please note that attachment files do not always go through. See the column text for formatting tips.

**Not all logs get used. There are usually a few which are obviously inaccurate, unclear, or lack a time or frequency. Also discounted are unidentifieds, duplicate items (same broadcaster, same frequency, same site), and questionable logs.*

and low-key SS talk and periods of dead air. I wonder if there were brief musical sections that didn't propagate? (Taylor, WI)

BOTSWANA—VOA Botswana Relay, (p) 4930 and poor at 0357. (Taylor, WI) 0453 with talk on Gene Krupa. (Parker, PA) 9885 at 0407. (Brossell, WI) 11710 monitored at 0507 with HOA vocals, M in (l) Hausa, ID and off at 0530. (D'Angelo, PA)

BRAZIL (*All in PP—gld*) Radio Imaculada Conceicao, Campo Grande, 4754.9 at 0438 with W talk. (Parker, PA)

Radio Alvorada, Londrina, 4865 at 0450 with M ancr and flute music. (Parker, PA)

Radio Clube do Para, Belem, 4885 at 0404 with M ancr and heavy reverb, nice hilife-type music. (Parker, PA) 0420 with canned jingles, IDs, and nice, fast-paced music. (Wood, TN)

Radio Novo Tempo, Campo Grande, 4895 at 0435 with M talk. (Parker, PA)

Radio Difusora, Macapa, 4915 at 0401 with M ancr and annoying disco/club things. (Parker, PA) 0432 with M/W ancrs and MOR pops. (Wood, TN)

Radio Brazil Central, Goiania, 4985 at 0025 with comments and M vocal. (MacKenzie, CA) 0439 with LA pops. (Wood, TN) 0510 with PP vocals, M ancr, jingles, IDs and more vocals. (D'Angelo, PA) 0543 with slow ballad. (Parker, PA) 11815 at 0320 with talk and lite PP music. (Alexander, PA)

Radio Aparecida, Aparecida, 5035 at 0118 with W and long talk, music bridge and M with equally long talk. (Taylor, WI) 0436 with long talk f/by soft inspirational vocals. (D'Angelo, PA) 0545 with M ancr and slow music. (Parker, PA)

Radio Cultura do Para, Belem, 5045 at 0131 with sambas at 0131. (Taylor, WI) 0531 with blues and folksy things, vocals in several languages, 0604 "Radio Cultura" ID. (Wood, TN) 0600 "Cultura FM" pgm and M with a mix of good music. (Parker, PA) 0608 with Brazil-pops. (D'Angelo, PA)

Voz Missionaria, Camboriu, (t) 5940 at 0015 with talk, ID anmts, contemporary religious music. (Alexander, PA) 0132 with vocal, canned ID, M talk and religious talk, choirs, etc. (D'Angelo, PA)

Radio Itatiaia, Belo Horizonte, (t) 5970 at 0730 with a talk and a radio drama. (Alexander, PA)

Radio Senado, Brasilia, 5990 at *0928 on with Brazilian ballads, ID, rooster crow and talk at 0931. (Alexander, PA)

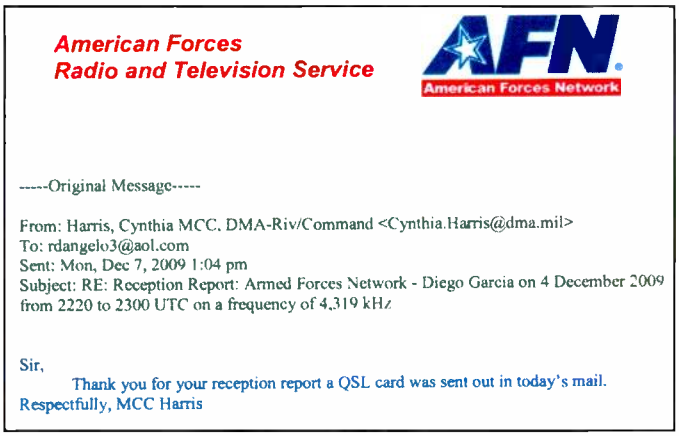
Radio Inconfidencia, Belo Horizonte, 6010 at 2250 with Brazilian pops/ballads and talk. (Alexander, PA)

Radio Capital, Rio de Janeiro, (t) 6070 monitored at 0340 with preacher and short music breaks. Running // to Super Radio Deus e Amor on 6060 and 9565. (Alexander, PA)

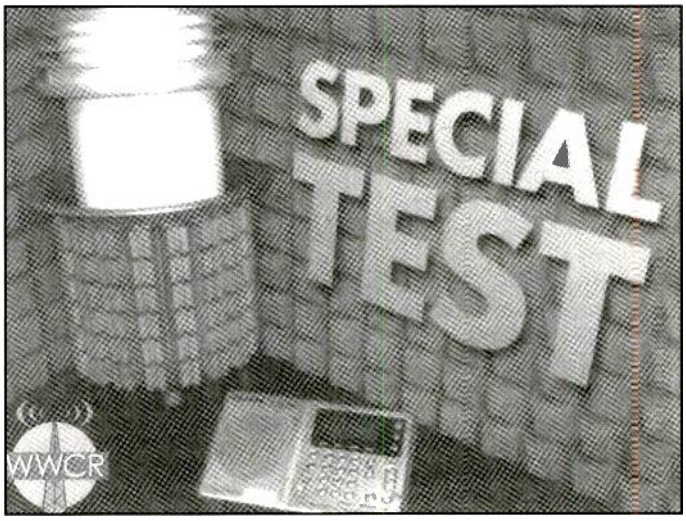
Radio Nacional Amazonia, Brasilia, 6185 at 0213 with contemporary Brazilian vocals. (Taylor, WI)

Super Radio e Amor, Curitiba, 9565 at 0620 with usual preacher with some religious music. (Alexander, PA)

Radio Cancao Nova, Cachoeira Paulista, 9675 at 2252 taking apparent phone calls. (Strawman, IA)



Much sought after is this QSL from Armed Forces Radio via Diego Garcia (4319), received by Rich D'Angelo.



WWCR tested on 4775 briefly this winter, certainly an unwelcome guest! (Thanks Robert Brossell)

Radio Bandeirantes, Sao Paulo, 11925 at 0600 with talk //9645, both weak but readable. (Alexander, PA)

BULGARIA—Radio Bulgaria, 5900 at 0042 with EE, //7400 (MacKenzie, CA) 0357–0401* on Bulgarian chain dancing. (Parker, PA) 15700 in FF at 1202. (Brossell, WI)

BURKINA FASO—Radio Burkina, Ouagadougou, 5030 at 2324 with M in FF, hilife vocals, ID, closedown anmts and orchestra anthem. (D'Angelo, PA) (p) at 2325 in FF and local language, W ancr and likely call-in by M. (Taylor, WI) 2340 with local tribal music, Afro-pops, vernacular talk. Off with anthem at 0000. (Alexander, PA)

CANADA—Radio Canada Intl, 6100 in SS at 2358, 11990 in EE/SS at 2348 and 17790 with interview at 1823. (Mackenzie, CA)

CFRX, Toronto, 6070 heard at 0940 with discussion pgm and promos for upcoming features. (Barton, AZ) 0955. (Maxant, WV)

CKZU, Vancouver, 6160 at 2347 with phone interview. (MacKenzie, CA)

CHU, Ottawa, 3330 heard at 0945. (Maxant, WV)

CHAD—RN Tchadienne, N'Djamena, (p) 6165 at 2219 in FF. Mellow contemporary songs and W with short items in FF. (Taylor, WI)

CHILE—CVC-La Voz, 17680 in SS at 1825. (MacKenzie, CA)

CHINA—China Radio International, 6020 via Albania in EE at 0017, 6040 via Canada in CC at 0010, 9610 in CC at 0015, 9745 via Bonaire in SS at 0030, 11790 on student suicides at 0029, 11820 in Cantonese at 0022, 11885 at 0016, 11975 in CC at 2348, 11990 in Khmer at 0040, 13580 in CC at 0022, 13655 in CC at 0037, and 13680

in VV at 0032. (MacKenzie, CA) 7360-Kashi, in Urdu at 0146. (Taylor, WI) 7360-Kunming in (l) Laotian at 1232, 7440-Nanning in (l) Mandarin at 1234, 11650-Urumqi at 1633 on the history of trade in China. Also 17575-Shijiazhuang in RR at 1218. (Brossell, WI) 7220-Jinhua in (p) JJ at 1503. (Strawman, IA)

CPBS/China National Radio, 9530 in CC at 0007, 11960 in CC also at 0007, 12045 in CC at 0037 and 13610 in CC at 0050. (MacKenzie, CA) CPBS-Beijing, 4460 in Mandarin at 1344. (Taylor, WI) Xizang PBS, Lhasa, 7255 in (l) Tibetan at 1208, Xinjiang PBS, 7340 in (l) Kazakh at 1227 and 11835-Xi'an in CC at 1233. (Brossell, WI) Xinjiang PBS, Urumqi, 4500 in Mongolian at 0135. (Parker, PA) (t) Nei Menggu PBS, 9520 in CC at 0004. (MacKenzie, CA) Hunan PBS, Changsha, 4990 in a CC dialect at 0941. (Parker, PA) CNR-1, Beijing, 5030 in Mandarin at 1333, 6175-Beijing in Mandarin at 1329 and CNR-1, 9455-Lingshi in Mandarin at 2156. (Taylor, WI) CNR-1 Jammer, 7270 in Mandarin at 2318, //CNR-1 outlet 7290-Beijing. (Taylor, WI)

CROATIA—Croatian Radio, 3985 at 0445 with pops until news in (p) Croatian at 0500. (Strawman, IA) 15360 heard at 0800 with ID and talk by W in Croatian. (Ng, Malaysia)

CUBA—Radio Havana Cuba, 6010 at 0620. (Maxant, WV) 6110 in SS at 2351, 11690 in SS at 1834, 13760 in SS at 0026, 13770 in PP at 0023 and 13790 in SS at 0020. (MacKenzie, CA)

Radio Rebelde, 5025 in SS at 0018. (MacKenzie, CA) 2215. (Yohnicki, ON)

CYPRUS—Cyprus Broadcasting Corp., 9760 at *2215–2245* with Greek music and talk, //7210 mixing with China and //6180 mixing with India. (Alexander, PA) 7210 in Greek at 2242. (Taylor, WI)

CZECH REPUBLIC—Radio Prague, 9430 at 2120 with *One To One* pgm. (Ng, Malaysia) 13580-Litomysil at 1315 with *From the Archives*. (Fraser ME)

DIEGO GARCIA—Armed Forces Network/AFRTS, 4319u at 2220 with news features and promos. Station break asked listeners to let them know on what medium they were being heard. (D'Angelo, PA)

DJIBOUTI—Radio Djibouti, Arta, 4780 in AA at 0300. Marching band NA, ID, Koran recitation. (Taylor, WI) 0330 with continuous AA talk. (Strawman, IA) 0347 in vernacular with Afro-pops, pleasant traditional music. (Parker, PA) 2040 in AA, rustic local music. Off 2101 with NA. (Alexander, PA)

DOMINICAN REPUBLIC—Radio Cristal Intl, Sto Domingo, 5010 at 2137 with M in SS and hilife music. A bit weak on audio. (Parker, PA) 2330–2359* (t) with LA music, SS talk. Very weak. (Alexander, PA)

Radio Amanecer, Sto Domingo, 6025 in SS at 0002 with anmts, music, W in long religious talk. (D'Angelo, PA) 0015 in SS with romantic ballad, SS talk by mellow ancr. (Taylor, WI)

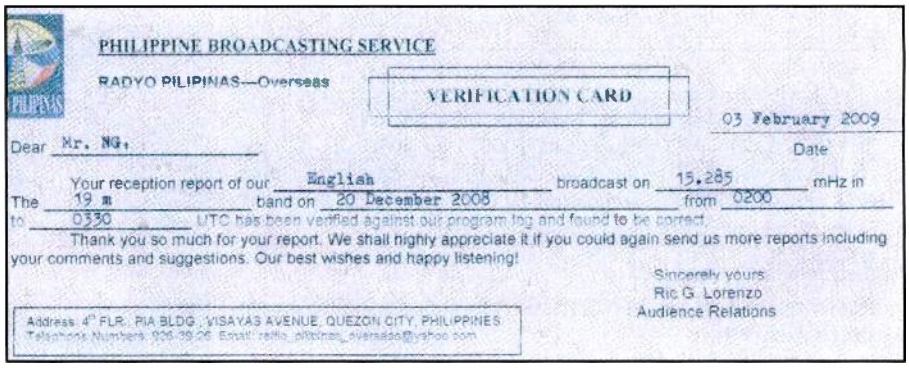
RADIO CHRISTIAN VOICE

HOME | PROGRAMMES | A LIST | STATION | STAFF | CONTACT US | EMPLOYMENT | LETTERS | FREE GIFT

"mwiza" <mwiza@zamnet.zm>
12/16/2009 04:28 AM

To rdangelo@firstenergycorp.com
cc
Subject RE: Reception Report: Radio Christian Voice from Lusaka, Zambia, on 13 December2009 from 2252 to 2325 UTC on a frequency of 4,965 kHz

CVC-Radio Christian Voice from Zambia QSLed Rich D'Angelo for his reception on 4965.



PHILIPPINE BROADCASTING SERVICE

RADYO PILIPINAS—Overseas

VERIFICATION CARD

03 February 2009
Date

Dear Mr. NG,

Your reception report of our English broadcast on 15,285 mHz in
The 19 m band on 20 December 2008 from 0200
to 0330 UTC has been verified against our program log and found to be correct.

Thank you so much for your report. We shall highly appreciate it if you could again send us more reports including your comments and suggestions. Our best wishes and happy listening!

Sincerely yours,
Ric G. Lorenzo
Audience Relations

Address: 4th FLR., PIA BLDG., VISAYAS AVENUE, QUEZON CITY, PHILIPPINES
Telephone Numbers: 926-39-06 Email: radio_pilipinas_overseas@yahoo.com

Peter Ng, Malaysia, pulled in this card for Radyo Pilipinas.

ECUADOR—HCJB Global, 11920 in PP at 0012 and 12025 in GG at 2305. (MacKenzie, CA) (*sites?—gld*)

EGYPT—Radio Cairo, 6270 in EE at 2115 and 6290 in AA at 2205. (Yohnicki, ON) 0413 with Koran recitations. (Brossell, WI)

ENGLAND—BBC, 3255 (p) South African Relay barely audible in EE at 0354. Also 6135 via Vladivostok in EE at 2200, 3 + 1 time pips, fanfare, ID, news, 7235 South African Relay at 0324 in Swahili with EE pops, W and fanfare into sports results. (Taylor, WI) 5790-Skelton in AA at 0337 and 9410-Rampisham in EE to Russia at 0555. (Parker, PA) 5915 Cyprus Relay at 2340 with *Newshour*. (Fraser, ME) 6045 via Vladivostok in (l) CC at 2240, 9915 Cyprus Relay in AA at 1645. (Strawman, IA) 7310 South Africa Relay with *The World Today* monitored at 0506, 11750 Thailand relay at 1223. (Brossell, WI)

Gospel for Asia (t) 6140 via Dhabbaya (UAE) in Sinhalese at 2312. (Taylor, WI)

FEBA Radio, 9850 via UAE with (l) Tigrinya service at 1639. (Strawman, IA)

Bible Voice Network, 15565 via Germany in Uyghur monitored at 1220. (Ng, Malaysia)

IBC Tamil Radio, (t) 6045 via Wertachtal at 0025–0300* with continuous Tamil music. Abruptly off at 0100. (Alexander, PA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 at 0528 in vernacular with upbeat tribal music. (Parker, PA) 0532 with M and news in SS, vocals. Also at 2258–2302* off with NA. (D'Angelo, PA) 2250–2301* with African choral, off with NA at 2258. (Alexander, PA)

Radio Nacional, Malabo, 6250 at *0537 with abrupt sign on with SS talk, ID. (Alexander, PA)

ERITREA—Voice of the Broad Masses, 7175 at 1950–2001* with HOA music, unid lang., off with vocal anthem. (Alexander, PA)

Voice of Peace and Democracy, 9560.4 at 1815 in (l) Tigrinya with talk and HOA music, very weak on //7165. Mon-Wed-Fri only. (Alexander, PA)

Voice of Eritrea, 9560v at 1815-1834* (p) listed Tigrinya and HOA music, weak on //7165. Listed for Tu-Th-Sat only. (Alexander, PA)

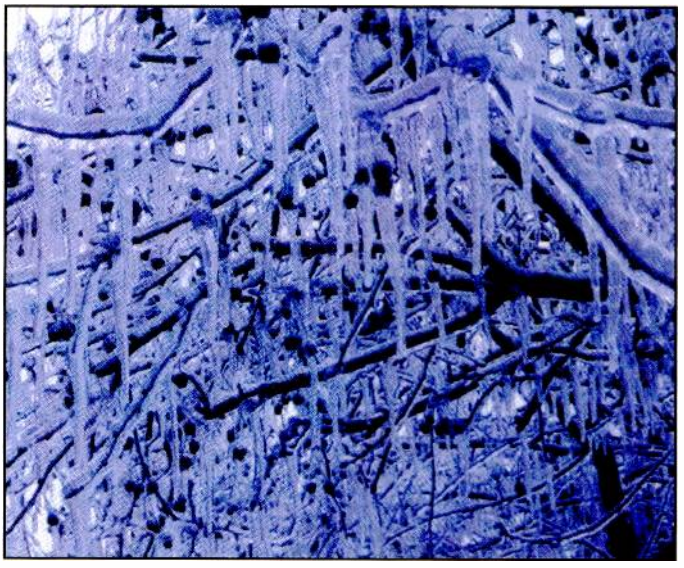
ETHIOPIA—Radio Ethiopia, 7110-Gedja, *0259 with electronic keyboard IS, talk in (l) Amharic, HOA music. Also at 2045–2101. (Alexander, PA)

Radio Fana, 6110 at 0325 with HOA music and talks in (p) Amharic. (Brossell, WI) 6890 at 2045-2101*, HOA music, talk in (l) Amharic. (Alexander, PA)

Amhara State Radio, 6090 at *0257 with IS, talk at 0300, local HOA music, some rustic vocals. Weak under Anguilla. (Alexander, PA)

GERMANY—Deutsche Welle, 5905 Sines Relay with *Newslink* at 0415. (Parker, PA) 9560 Sri Lanka Relay with EE news at 1606. (Strawman, IA) 9655 Rwanda Relay in GG at 0019 and 15640 via Cypress Creek at 2233. (Mackenzie, CA) 11690 Rwanda Relay at 1833 with HOA vocals and ancr in Hausa.

The "other" Japanese SW station, Radio Nikkei.



Not fond of winter? How about the folks at WMLK who had to deal with ice everywhere in 2008? (Thanks Charles Maxant)

(D'Angelo, PA) 12080 Portugal Relay in RR at 1645. (Brossell, WI)

GUINEA—Radio Guinee, 7125 at 2320 with Afro-pops and hilife music. Off around 2355. (Alexander, PA)

GUAM—Adventist World Radio, 15320 in EE at 2245 with comments on silent prayers. (MacKenzie, CA)

TWR, 11975 in CC at 0000. //9610 and 11780. (MacKenzie, CA)

HONDURAS—Radio Misiones Intl, Comayaguela, 3340 at 0320 in EE/SS mentioned "coming from our studio in California." (Wood, TN) 1033 with SS religious music. (Parker, PA) 1055 with SS anmts and religious music. (Alexander, PA)

Radio Luz y Vida, San Luis, 3250v at 0334 with traditional religious music, giving an address in Oklahoma City. (Wood, TN)

HUNGARY—Radio Budapest, 6150 with multi-lingual ID at 0159, off at 0200. (Brossell, WI)

INDIA—All India Radio, 4800-Hyderabad in vernacular at 0113 with pips on the quarter hour, sitar bridge, M with news. (Parker, PA) 4820-Kolkata (p) at 1215 in Hindi, W with SEA music, 4920-Chennai at 1230 in Hindi and EE, SEA music, ID, M with EE news, 4940-Guwahati in Hindi monitored at 1245 with SEA music, M ancr, 5010-Thiruvananthapuram in Hindi at 1254 with M/W talking at length, 6155-Bangaluru with South Asian music and Hindi at 0108 and (p) 7340-Mumbai in Hindi at 0139. (Taylor, WI) 4895-Kolkata at 1305 in Hindi and Song of India theme at 1311. (Strawman, IA) 6180 with Hindi pops at 2125 and 7305 at 0005 on railway tourism. (Ng, Malaysia) 9425-Bangaluru with domestic music and (p) Hindi talk at 2120. (Barton, AZ) 9870-Bangaluru in Hindi at 1345 with classical Indian music. (Fraser, ME) 11620-Bangaluru in (p) news in RR at 1630. (Brossell, WI)

INDONESIA—Radio Republik Indonesia, Makassar (Sulawesi), 4750 in II at 1221 with percussive music and II ancr between numbers. (Taylor, WI)

Voice of Indonesia 9525.9 (p) at 1043 with very low modulation with talk and local music. Too weak to be sure if it was the (l) EE. (Alexander, PA)

IRAN—Islamic Republic of Iran Broadcasting, 7305-Kalamabad with brief Koran at 1319 in Pashto, 7360-Sirjan (t) in Pashto at 0304 with mentions of Iranian place names and 7385 under RFI in JJ at 1425. (Taylor, WI)

JAPAN—NHK World Radio Japan, 5955-Yamata at 1345 with talk in II on Japanese food and 11740 via Singapore in CC at 1320. (Ng, Malaysia) 6145 via Canada at 0000, 13650 in CC at 2255; into Thai at 2300 and 17605 via Bonaire in JJ at 2224. (MacKenzie, CA) 7225 via UAE in JJ at 2257 and off at 2300. (Taylor, WI) 9825 with *Tokyo Mailbox* pgm at 0915. (Maxant, WV) 11815 in JJ at 1637. (Brossell, WI)

Radio Nikkei, 9595 in JJ at 2250. (Ng, Malaysia)

KUWAIT—Radio Kuwait, 11675 in AA at 0145 with possible Koran reciting. (Maxant, WV)

LIBYA—Radio Jamahiriya/Voice of Africa, 17725 at 1405 with feature on Islam in Africa, //21695. (Fraser, ME)

MADAGASCAR—Radio Madagasikara, 5010 at 0306 with soft hymns and talk in (p) Malagasy. (Brossell, WI) 0308 with M in Malagasy and lounge-type music. (Parker, PA)

Radio Mada Intl, 15670 via Pridnestrovie/Moldova, *1530–1600* with test tones, open anmts, "Radio Mada" ID, talk in (p) Malagasy heard at 1555 to 1600 close. Sat/Sun only.(Alexander, PA)

MALAYSIA—Voice of Malaysia, 15295-Kajang with EE *Evergreen* pgm at 0740. (Ng, Malaysia)

MALI—Radiodifusion-Television du Mali, 5995 at 2354 to 0001 close. Highlife vocals, FF ancr, tribal vocals, orchestral NA. (D'Angelo, PA)

MAURITANIA—Radio Mauritanie, Nouakchott, 4845 at 2350 in vernacular with M ancr and AA music. (Parker, PA)

MEXICO—Radio Mil, Mexico City, 6010 with talks and songs in SS at 1145. (Brossell, WI)

Radio Universidad, San Luis Potosi, 6045 in SS at 0451 with M/W in possible interview, mellow instl to 0500 off. (Taylor, WI)

Radio Educacion, Mexico City, 6185 in SS with instls at 0950. (Maxant, WV) 1150 with talks in SS. (Brossell, WI)

NETHERLANDS—Radio Nederland, 9350 via Northern Marianas monitored at 1237 in (l) DD. (Brossell, WI) 9895 Portugal Relay in SS heard at 0046. (MacKenzie, CA) 11655 Madagascar Relay in EE at 1918. (Fraser, ME) 1922 on the fall of the Iron Curtain. (Brossell, WI)

NEW ZEALAND—Radio New Zealand Intl, 6170 at 1307 on tsunami aid to American Samoa. (Brossell, WI) 17675 at 2215 with comments on island countries. (MacKenzie, CA)

NIGERIA—Radio Nigeria, Kaduna, 4770 at 0614 with two M in local language. (D'Angelo, PA)

Voice of Nigeria, 9690 with DJ and local music at 0950. (Maxant, WV) 15120 in EE at 1909 with a feature on an ancient city. (Fraser, ME)

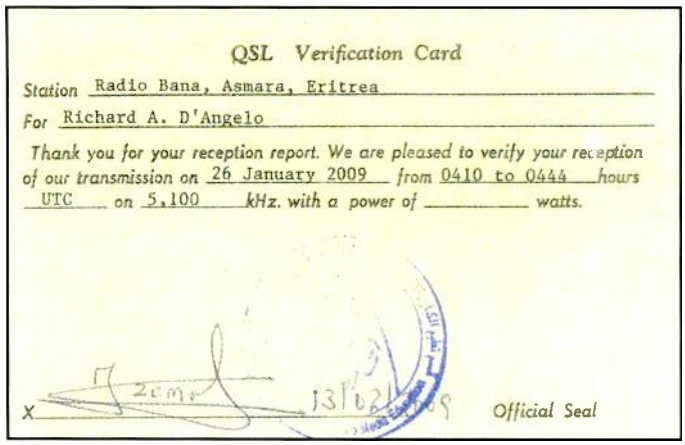
NORTH KOREA—Voice of Korea, 3250 in KK at 1115. (Brossell, WI) 3560-Pyongyang with carrier at 1054 f/by faint traces of their IS. (Parker, PA) 7180 at 2335 with operatic-style vocal, 9650 at 2300 with loop IDs by M/W, anthem to 2301 and into (p) JJ, 11710 with M/W and impassioned comments. Chorals to 1754 anthem. (Strawman, IA) 6185 with EE news by W at 1005. (Ng, Malaysia) 7180-Kujang in Mandarin with usual opera at 2253. (Taylor, WI) 11735 in SS at 0035, 12015 in KK at 2345, 13650 in CC at 0045, 13760 in SS at 0005 and 15180 in SS at 0022. (MacKenzie, CA)

Korean Central Broadcasting Station, 2850 at 1257 with operatic-style vocals, time pips to TOH were one-second late, M/W

This Month's Winner

To show our appreciation for your loggings and support of this column, each month we select one "GIG" contributor to receive a free book or other prize. Readers are also invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Rd., Hicksville, NY 11801, or by email to gdex@wi.rr.com. The email's subject line should indicate that it's for the "GIG" column. So, come on, send your contribution in today!

This month's prizewinner is **Charles Maxant**, who receives a Universal Radio T-shirt as a thank you for all his support over the past many months. Universal is *your* source for everything dealing with HF communications. To get a copy of its huge *free* catalog of neat stuff just email the company at dx@universal-radio.com or call (614) 866-4267. You can also drop a postcard to 6830 Americana Parkway, Reynoldsburg, OH 43068. Please mention *Pop'Comm* and the "Global Information Guide" when writing.



QSL Verification Card

Station Radio Bana, Asmara, Eritrea

For Richard A. D'Angelo

Thank you for your reception report. We are pleased to verify your reception of our transmission on 26 January 2009 from 0410 to 0444 hours UTC on 5,100 kHz. with a power of _____ watts.

X 13/02/09 Official Seal

Rich D'Angelo managed to report and QSL the rarely heard Radio Bana, Eritrea, using 5100.

exchanging comments. (Strawman, IA) 11735 in KK heard at 1224. (Brossell, WI)

OPPOSITION—Voice of Peace and Democracy (to Eritrea), 7165 at *0356 sign on with HOA music and ID anmts, talk in (l) Tigrinya at 0400, battling a noise jammer. (l) for M/W/F only. (Alexander, PA) 0423 in (l) Tigrinya with M and fairly long talk, HOA music. (Taylor, WI)

Voice of Tibet (to China), 7505 in TT at 1344 with W an interview. (Taylor, WI)

National Radio of RASD (to Morocco), 6927.1 at 2249 in AA/SS, ME music, excited-sounding W ancr, M with apparent call-in pgm. (Taylor, WI) 6299v at 2200 with W in AA with news. (Yohnicki, ON)

Korean National Democratic Front (to South Korea), 4450 in KK at 1145 with chorals. (Barton, AZ)

Voice of Oromiyan Liberation Front (to Ethiopia), 11760 at 1607 in (l) Oromo. Some HOA music, many mentions of Oromo. Abrupt sign off, //11805. Sked Sun/Tu/Th only. (Alexander, PA)

Radio Voice of the People (to Zimbabwe), 11610 via Madagascar at 0410 with vernacular talk, IDs, short breaks of African music, EE talk on human rights. (Alexander, PA)

PAPUA NEW GUINEA—Radio Madang, Madang, (New Guinea), 3260, (t) at 1050 with long talk by W, later a M. (Barton, AZ) 1224 with music and anmts in (p) Tok Pisin. (Brossell, WI)

Radio Milne Bay, Alotau (New Guinea), 3365 at threshold level at 0900, some music and talk but just hanging in there. (Barton, AZ)

PERU—Radio Vision, Chiclayo, 4789.9 at 0458 with M ancr, slow W vocal, ID at 0501. (Parker, PA)

Radio San Antonio, Vila Atalaya, (p) 4940 at 2349 in SS but weak and buried in static crashes. (Parker, PA)

Radio Cultura Amauta, Huanta, 4955 heard at 2344 in SS with religious talk. (Parker, PA)

Radio del Pacifico, Lima, 4974.8 at 0218 with M in SS. Taken out by super wide UTE with raspy CW every few seconds. (Parker, PA)

Radio Andina, Huancayo, (p) 4990 at 0215 with M speaking slowly in SS. Faint, and gone after about 15 seconds.

Radio Virgen de la Alta Gracia, La Libertad, 5030 at 0534 with two M in religious talk. In the mud from Rebelde splatter. (Parker, PA)

Radio Melodia, Arequipa, 5940 in SS at 0123 with pgm of contemporary ballads with comls or anmts between. 3 + 2 time pips, 0200 fanfare and possible news by M. (Taylor, PA; Strawman, IA)

Radio Victoria, Lima, 6020 at 0457 with SS talks, anmts, government-mandated NA at 0501 and light instls. (Alexander, PA) 0604 in SS with M/W in repetitive prayer. (Taylor, WI)

PHILIPPINES—FEBC, Manila, 7505-Iba in Mandarin service at 1404, presumed news 9430 with children's choir at 1357, news or anmts at TOH in CC. (Strawman, IA) 9445 in Khmer at 2350. (MacKenzie, CA)

Radio Veritas Asia, 11935 in (l) Karen language at 0010. (MacKenzie, CA)

PIRATES—The Crystal Ship, 5335.4 at 2200 with the end of USSR choral anthem. (Zeller, OH) 6876 with '60s things at 1340, another day at 1317 with "The Poet" and '60s/'70s things and the usual "Blue States" ID. (Wood, TN)

Radio Free Euphoria, 6925u heard at 0435 with novelty Christmas music. (Alexander, PA) 2203 with Captain Ganja and his Christmas pgm. Ended at 2224 with someone shouting "Jamba, Jamba, Jamba." (Zeller, OH)

CSIC, 6925 heard at *2031 with chipmunk Christmas things. "All chipmunks all the time," off at 2116. CSICradio@ gmail.com for reports. (Zeller, OH; Patterson, PA)

WBNY, 6925 at 2300 with many audio clips, Porky Pig, many mentions of monkeys, TV themes, Commander Bunny. (Hassig, IL)

MAC, 6924 heard at 1900 with an Eastern European station IS, ID. (Hassig, IL) 1944 with a child ancr and oldies. (Gay, KY)

WEAF New York, 6925 with big band music at 0040. (Gay, KY)

WEAK Radio, 6925u at 1050 with rock and ID. (Alexander, PA) 2217 heard while vacationing on Sint Maarten, Netherlands Antilles. (Patterson, PA) 2026 with rock oldies and novelties. Powerhouse level. (Zeller, OH)

Wolverine Radio, 6925u at 0122 with a Parent-Teacher Night skit, f/by SSTV ID. (Patterson, PA) *0156 with rock, clear IDs at 0203 and 0232 but no address ancd. (Zeller, OH) 0256 sign on with "The revolution's here" various rock and new-age things. (Hassig, IL)

Voice of Frank, 6925u at 0150 with Christmas pgm, novelties. Email to: voiceoffrank@gmail.com. Spike Jones number at close-down. (D'Angelo, PA)

NOEL, 6924.5 with Christmas music. "N-O-E-L, all Christmas all the time" at 2140, gone when I returned at 2207. (Hassig, IL)

Radio Robin Shortwave, 6924 at 2348 with rock, promised QSL via p-mail. Reports to roninradioshortwave@gmail. com. (Patterson, PA)

Radio Ga Ga, 6925 with rock heard at *2206, SSTV at 2216* close. (Zeller, OH) *2248–2302* with ID, rap parody and patriotic songs, SSTV and off. (Hullender TN)

In Times Past...

Here's your blast from the past for this month...

NICARAGUA—La Voz de Leon, Leon, 6937 in SS at 2345 on April 11, 1959, running just 500 watts. (Dexter, IA)

X-Ray Radio, 6930u at 2032. Email QSL in one day after a report to broadcastreception@hotmail.com. (Patterson, PA) 0300 rebroadcasting Pirates Week pgm *Pulse of the Planet*. ID 0330 and country song. (Alexander, PA)

Radio Zero, 6930 at 2131 with pop and UTE QRM. (Patterson, PA)

Outhouse Radio, 6925u at 1621 with pgm of blues, with ID at 1640. Also at 2341 with country rock and folk to 0002. Returned a few minutes later saying they had forgotten to ID! (Zeller, OH)

Voice of the Robots, 6925u at 0058 with rock and Christmas music. voiceoftherobots@gmail.com. (Zeller, OH)

KBOX, 6925u at 2213 with W calling herself "Boxy" and playing rock. Suddenly overpowered by Godzilla Radio at 2219. (Hullender, TN)

Northwoods Radio, 6925u at 2100 with distorted audio, heavy metal and protest tunes with W DJ "broadcasting freedom from the north woods." (Hassig, IL) 2133 with ID, SSTV. (Gay, KY)

KUSA, 6925 heard at 2135 with rock, ID and off at 2154. (Hullender, TN)

WMPR, 6925 with dance music at 1510. (Gay, KY) 1840 with heavily compressed dance things including talk critical of fundamentalist Bible thumpers. (Hassig, IL)

WWVK, 6925u at *2206–2255* with WWV parody "All the time, all the time," etc. No address aned. (Zeller, OH)

WTCR, 6925u at 0240 with pop/rock. (Hassig, IL)

Marine Corps Radio, 6925 at 2100 with Gunnery Sergeant "Buster Balls" playing march music and sign off by M at 2104. (Hullender, TN)

Barnyard Radio, 6925u with disco oldies at 2230. (Gay, KY)

Godzilla Radio, 6925u monitored at *2219 with "Hello Tokyo" repeated several times, then young boy with loops of "This is Godzilla Radio" over techno, clips from *Godzilla* and other movies. (Hullender, TN)

Captain Morgan, 6925u heard at *2041–2124* with classic rock mixed in with various *Twilight Zone* noises and some discussions by M with muffled VOX. (Zeller, OH)

Psycho Radio, 6925u monitored at *2255 with Mr. Psycho and heavy rock. (Hullender, TN)

Liquid Radio, 6925 monitored at 2040 with dance things, but poor with bad QRM from another pirate, also in AM mode. (Hassig, IL)

Channel Z Radio, 6924 poor monitored at 0202 with blues, Hawaiian music. Gave channelzradio@gmail.com for reports and said they were using only 1 watt. (Hassig, IL)

Radio Amica (Euro), 7610 at 0245 with a wide variety of pops. Also 0620 with light pops and instls, II anmts. (Alexander, PA) 0337 with '70s songs, mixed with some dance things, ID in both II and EE. radioamica@gmail.com (Paterson, PA)

Radio Playback (Euro), 6870 at 0350 with wide variety of jazz and pops, ID simply as "Playback." (Alexander, PA)

Radio Waves Intl (Euro), 6930 at 2123 with mix of pop, country, rock and IDs in EE and FF. (Patterson, PA)

Cupid Radio (Euro), 15070.3 at 1455 with rock and acknowledging listener reports. (Alexander, PA)

PORTUGAL—RDP Intl, 15560 with "Radio Portugal" ID and talks in PP at 1120. (Brossell, WI)

ROMANIA—Radio Romania Intl, 5960 in SS at 0028, //9525, 9665. Also 6015 at 2345, //5915, 7300. (MacKenzie, CA) 7270 at 0630. (Maxant, WV) 7380 with *Athlete of the Month* at 2150. (Ng, Malaysia) 11870 with EU-related interview at 1640. (Brossell, WI)

RUSSIA—Voice of Russia, 4975 (p) via Tajikistan in Pashto at 1215; possible change to Dari, 6130-Moscow in FF at 2157, bells and ID at TOH. (Taylor, WI) 5920 in SS at 2135. (Ng, Malaysia) 6120 in EE at 2045. (Yohnicki, ON) 7250 via Armenia at 0358, 12000-Khabaarovsk in CC at 1237, 12065-Chita in VV at 1241, 15510-Samara in (I) Pashto/Dari at 1207. (Brossell, WI) 7295-Khabaarovsk with CC at 1317, 12055-Moscow in Hindi at 1350. (Strawman, IA)

Radio Rossii, 7200-Yakutsk in RR heard at 0159, //7320-Magadan. (Taylor, WI) 6075 at 0915 over intermittent background music. (Barton, AZ)

Russian Intl Radio, 15540 in RR at 1513. (Taylor, WI)

Radio Sakha, 7200-Yakutsk in RR with pops at 2339, time pips and ID at 0000. (Strawman, IA)

SAO TOME—VOA Relay, 4960 in FF at 0540. (Parker, PA)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 15205 at 1719 with Koran to 1730, f/by anmts in AA and more recitations. (D'Angelo, PA)

SEYCHELLES—(p) BBC Relay, 9410 in EE at 1845. (Fraser, ME)

SIERRA LEONE—Cotton Tree News, 11875 via England with abrupt 0730 sign on with EE news "comes to you from CTN, Freetown." EE and vernacular. (Alexander, PA)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corp., 5020 at 1337 with BBC news. (Strawman, IA)

SOUTH AFRICA—Channel Africa, 3345 with African news by M at 0321. (Taylor, WI)

SOUTH KOREA—KBS World Radio, 9805 with CC news heard at 2305. (Ng, Malaysia)

SPAIN—Radio Exterior de Espana, 6055 with EE news and commentary at 0005, 9620 in SS at 0017 and 17850 Costa Rica Relay in SS monitored at 1820. (MacKenzie, CA)

(Continued on page 65)

World News, Commentary, Music, Sports, And Drama At Your Fingertips

This listing is designed to help you hear more shortwave broadcasting stations. The list covers a variety of stations, including international broadcasters beaming programs to North America, others to different parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	9655	Deutsche Welle, Rwanda Relay	GG
0000	9430	CVC, Australia	
0000	9660	Radio Australia	
0000	7255	BBC, Ascension Is. Relay	
0000	4985	Radio Brazil Central	PP
0000	6160	CKZN (Newfoundland), Canada	
0000	5990	China Radio International, via Cuba	SS
0000	9745	China Radio International, via Bonaire	SS
0000	13760	Radio Havana Cuba	SS
0000	6020	China Radio International, via Albania	
0000	4815	Radio el Buen Pastor, Ecuador	
0000	11975	TWR, Guam	CC
0000	7305	All India Radio	
0000	6145	Radio Japan	
0000	9895	Radio Nederland, via Portugal	SS
0000	15180	Voice of Korea, North Korea	SS
0000	11935	Radio Veritas Asia, Philippines	Karen
0000	9620	Radio Exterior Espana, Spain	SS
0000	5860	Radio Farda, USA, Kuwait Relay	Farsi
0000	11805	Voice of America, Philippine Relay	II
0000	9885	Voice of America	SS
0000	12095	Radio Thailand	
0100	6010	Radio Inconfidencia, Brazil	PP
0100	5025	Radio Rebelde, Cuba	SS
0100	6025	Radio Amanecer, Dominican Republic	SS
0100	6155	All India Radio	Hindi
0100	11675	Radio Kuwait	AA
0100	4955	Radio Cultural Amuata, Peru	SS
0100	7325	Voice of America, Sri Lanka Relay	
0100	7335	Vatican Radio, via Canada	
0130	6150	Radio Budapest, Hungary	HH
0200	6185	Radio Nacional Amazonia, Brazil	PP
0200	5045	Radio Cultura do Para, Brazil	PP
0200	4975	Radio del Pacifico, Peru	SS
0200	7200	Radio Rossii,Russia	RR
0200	7320	Radio Rossii, Russia	RR
0200	12025	Radio Liberty, USA, Sri Lanka Relay	Uzbek
0200	4828	Radio Zmbabwe	
0230	6010	Radio Sweden International, via Canada	
0300	4950	Radio Nacional, Angola	PP
0300	5900	Radio Bulgaria	
0300	7235	BBC, South Africa Relay	Swahili
0300	6090	Amhara State Radio, Ethiopia	Amharic
0300	7110	Radio Ethiopia	Amharic
0300	3250	Radio Luz y Vida, Honduras	SS
0300	7360	Islamic Republic of Iran Broadcasting	Pashtro
0300	5010	Radio Madagasikara, Madagascar	Malagasy
0300	7250	Voice of Russia, via Armenia	
0300	7200	Sudan Radio TV	AA
0300	3345	Channel Africa, South Africa	
0300	4976	Radio Uganda	
0300	4965	CVC-The Voice-Africa, Zambia	
0300	6040	Vatican Radio, via Canada	SS
0300	3320	Radio Sondergrense, South Africa	Afrikaans
0300	7375	Croatian Radio, via Germany	
0330	7215	TWR, via South Africa	Sidamo
0330	7400	Radio Bulgaria	
0400	5035	Radio Aparecida, Brazil	PP
0400	4915	Radio Difusora Macapa, Brazil	PP
0400	4885	Radio Clube do Para, Brazil	PP
0400	4930	Voice of America, Botswana Relay	
0400	9885	Voice of America, Botswana Relay	
0400	7175	Voice of the Broad Masses, Eritrea	Tigrinya
0400	4780	Radio Djibouti	AA
0400	5905	Deutsche Welle, Germany, Portugal Relay	
0400	6045	Radio Universidad, Mexico	SS
0400	4775	TWR, Swaziland	GG
0400	9760	Radio Farda, USA	Farsi
0400	7440	Radio Ukraine International	
0400	11610	Radio Voice of the People, via Madagascar	EE/vern
0400	7505	WRNO, Louisiana	tests, usb
0400	9625	CBC Northern Service, Canada	
0400	11690	Radio Okapi, Congo, via South Africa	FF
0430	3985	Croatian Radio	Croatian
0500	11710	Voice of America, Botswana Relay	unid
0500	6185	Radio Educacion, Mexico	SS
0500	4770	Radio Nigeria	vern
0500	6020	Radio Victoria, Peru	SS
0500	4790	Radio Vsion, Peru	SS
0500	4960	Voice of America Relay, Sao Tome	
0500	9700	Voice of Turkey	TT
0500	7275	RT Tunisienne, Tunisia	AA
0500	5910	Marfil Estero, Colombia	SS
0530	5005	Radio Nacional, Equatorial Guinea	SS
0530	6250	Radio Nacional, Equatorial Guinea	SS

UTC	Freq.	Station/Country	Notes
0600	7270	Radio Romania International	
0600	4990	Radio Apinte, Suriname	DD
0730	11875	Cotton Tree News, Sierra Leone, via South Africa	
0900	6070	CFRX, Canada	
0930	5990	Radio Senado, Brazil	PP
1000	3280	La Voz del Napo, Ecuador	SS
1100	3340	Radio Misiones International, Honduras	SS
1100	6010	Radio Mil, Mexico	SS
1100	3365	Radio Milne Bay, Papua New Guinea	Tok Pisin
1100	5020	Solomon Is. Broadcasting Corp.	
1100	6010	La Voz de su Concencia, Colombia	SS
1200	7355	KNLS, Alaska	
1200	2310	ABC No. Territories, Tennant Creek, Australia	
1200	15700	Radio Bulgaria	FF
1200	7360	China Radio International	
1200	7255	Xizang PBS, China	Tibetan
1200	11750	BBC, Thailand Relay	
1200	15565	Bible Voice Network, England, via Germany	Uighur
1200	9525	Voice of Indonesia	various
1200	4750	Radio Republik Indonesia, Makassar	II
1200	9595	Radio Nikkei, Japan	JJ
1200	15295	Voice of Malaysia	
1200	9350	Radio Nederland, via No. Marianas	DD
1200	3385	Radio East New Britain, Papua New Guinea	Tok Pisin
1200	3260	National Broadcasting Comm., Papua New Guinea	Tok Pisin
1200	15560	RDP International, Portugal	PP
1200	12065	Voice of Russia	VV
1200	12000	Voice of Russia	CC
1200	15510	Voice of Russia	Pashto/Dari
1200	11895	Family Radio, via Russia	VV
1200	9320	Radio Free Asia, Northern Marianas Relay	Burmese
1200	9720	Radio Thailand	
1200	5050	Voice of the Strait, China	CC
1200	4500	Xinjiang PBS, China	CC
1300	2485	ABC No. Territories, Alice Springs, Australia	
1300	13580	Radio Prague, Czech Republic	
1300	7305	All India Radio	Pashto
1300	6170	Radio New Zealand International	
1300	9430	Far East Broadcasting Corp., Philippines	CC
1300	6005	Family Radio, via Russia	Korean
1300	7560	Family Radio, via Kazakhstan	Burmese
1400	11725	Radio Jamahiriya/Voice of Africa, Libya	
1400	12035	Voice of Turkey	
1400	9250	Sound of Hope, Taiwan	CC
1430	9520	Radio Veritas, Philippines	vern
1500	15540	Russian International Radio	RR
1500	15650	Miraya FM, Sudan, via Slovakia	EE/AA
1500	17745	Sudan Radio Service, USA, via Portugal	
1500	9935	RS Makedonias, Greece	Greek
1530	15670	Radio Mada, Madagascar, via Moldova	Malagasy
1600	9560	Deutsche Welle, Sri Lanka Relay	
1600	12080	Deutsche Welle, Portugal Relay	RR
1600	11620	All India Radio	RR
1600	11815	Radio Japan	JJ
1600	11870	Radio Romania International	
1600	11625	Radio Free Asia, Northern Marianas Relay	Mandarin
1600	11715	KJES, New Mexico	SS
1600	15550	WJHR, Florida	tests, usb
1630	9850	FEBA Radio, England, via UAE	Tigrinya
1700	11655	Radio Darbanga, Sudan, via Madagascar	AA
1700	15215	Broadcasting Service of the Kingdom, Saudi Arabia	AA
1800	13635	CVC, Australia	
1800	11690	Radio Havana Cuba	SS
1800	17790	Radio Canada International	
1800	17680	CVC-La Voz, Chile	SS
1800	11690	Deutsche Welle, Rwanda Relay	Hausa
1800	9410	BBC, Seychelles Relay	
1800	12160	WWCR, Tennessee	
1800	11905	Voice of America, via Germany	Amharic
1800	13570	WINB, Pennsylvania	
1800	11735	Radio Tanzania, Zanzibar	EE/Swahili
1900	15120	Voice of Nigeria	
1900	11655	Radio Nederland, Madagascar Relay	
2100	5446.5	AFN/AFRTS, Florida	usb
2100	7340	Radio Prague, Czech Republic	
2100	6270	Radio Cairo, Egypt	
2100	9425	All India Radio	Hindi
2100	5920	Voice of Russia	SS
2100	7380	Radio Romania International	
2100	9330	Radio Damascus, Syria	EE,others
2200	15560	Radio Australia	
2200	6155	Radio Station Belarus	
2200	6165	Radio Logos, Bolivia	SS
2200	6165	Radio National Tchadienne, Chad	FF
2200	6130	BBC, via Russia	
2200	15640	Deutsche Welle, via Cypress Creek	GG
2200	15320	Adventist World Radio, Guam	
2200	11705	Radio Japan	JJ
2200	11675	Radio New Zealand International	
2200	6297v	Radio Nacional de la RASD, Algeria to Morocco	AA/SS
2200	17850	Radio Exterior Espana, Spain, Costa Rica Relay	SS
2200	6135	Voice of America, Thailand Relay	
2200	7540	Family Radio, via Tajikistan	Mandarin
2200	7375	Radio France International, via Russia	FF
2200	5860	RT Algerienne, Algeria, via France	AA
2230	7210	Cyprus Broadcasting Corp.	Greek, wknds
2300	6140	Gospel for Asia, USA, via UAE	Sinhala
2300	5965	Voice of Turkey	
2300	5030	Radio Burkina, Burkina Faso	FF
2300	11975	China Radio International, via Mali	CC
2300	12025	HCJB Global, Ecuador	GG
2300	5915	BBC, Cyprus Relay	
2300	7125	Radio Guinee, Guinea	FF
2300	13650	Radio Japan	JJ
2300	4845	Radio Mauritanie, Mauritania	AA
2300	9445	Far East Broadcasting Corp., Philippines	unid
2300	9805	KBS World Radio, South Korea	CC
2300	11805	Voice of America, Northern Marianas Relay	II
2300	12070	WEWN, Alabama	SS
2300	9840	Voice of Vietnam	
2300	15250	Radio Nacional Venezuela, via Cuba	SS
2330	5995	RT Malienne, Mali	FF

Trivia And Toons

by R.B. Sturtevant, AD7IL

Q. I was reading some old writings about telegraphy and found out that electricity was once considered a fluid. Why was that?

A. Back in those days, we pretty much thought about matter in three states: solid, liquid, and gas. Logically then, since electricity flowed, it must be a fluid. Nobody had any idea that subatomic particles could be racing around and doing things all on their own. In 1860, George Prescott, a leading authority on electricity, stated in his work *History, Theory and Practice of the Electric Telegraph* three "laws" of electricity, as follows:

1. Electricity seeks always an equilibrium in its distribution through matter. If there is an excess in one place, it always seeks to transfer itself to other places, where there is less, or a deficiency.

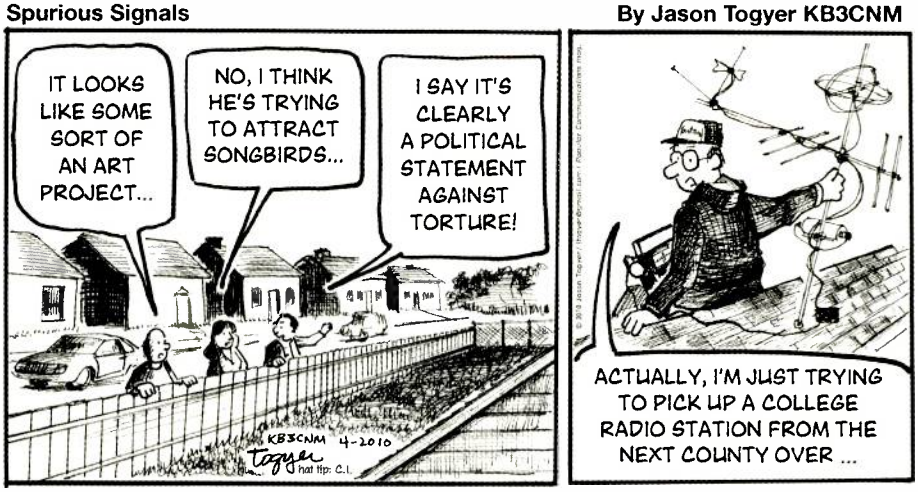
2. The production of electricity, from whatever source, is always twofold, or in two directions. One surface or part of our apparatus becomes always positive, while another becomes negative; thus suggesting the idea of a gain on one side and loss on the other, of a corresponding amount of electricity, in other words, of a disturbance of equilibrium. Thus the rubber and prime conductor of the electrical machine, the platina and zinc plates of the battery, and the antimony and bismuth of the thermo-electric pair, become respectively electro-positive and electro-negative, as the first condition and fact of electrical excitement.

3. Different substances have very different conductive powers of electricity; some permit the passage with slight resistances, while others, called insulators, completely bar its progress. The effect of this law, applied to the proceeding ones, is to make it possible to insulate electricity in our apparatus in the two opposite conditions of positive and negative when, by its tendency to equilibrium, a current, according to our common modes of expression, will pass from the positively excited body to the negatively excited body by means of a conductor as, for example the telegraph wire, which we may please to interpose between the two.

Q. From a signals standpoint, the hostilities in the Middle East are a little one sided don't you think?

A. Not entirely. In 2006, after a fight in southern Lebanon between the Israelis and Hezbollah guerillas, it was discovered that Hezbollah had been hacking into cell phones used by Israeli commanders for their communications. It was feared that the guerillas also tapped into Israel's sophisticated frequency-hopping radio system and had gotten the best of the encryption system as well. Israeli sources will not comment on the subject, but if it did indeed happen—and many think it did—it was effective. Hezbollah anti-tank teams ambushed Israeli columns and its intelligence had a fix on enemy positions, casualties, and plans. This is particularly vexing to us, because the Israelis were using mostly U.S. comm gear. Where did Hezbollah get the training and equipment? Something for our intelligence services to figure out, I'd say.

Spurious Signals **By Jason Togyer KB3CNM**



by Staff

New, Interesting, And Useful Communications Products

Cydle's T43H is a portable GPS that also boasts built-in HD Radio and free HD live traffic updates.

T43H Portable GPS-Multimedia Combo With Free HD Live Traffic Updates

Cydle, a provider of car-based multimedia systems, has combined navigation and entertainment with the introduction of the T43H, a portable GPS with built-in HD Radio and free HD live traffic updates. The T43H delivers the traffic updates up to 10 times faster than other traffic message channels, according to Cydle. It also offers a photo viewer, a movie and music player, and GPS SIRF STAR III functionality. The T43H's rechargeable lithium battery provides up to 10 hours of audio playback on a single charge. The unit supports external audio devices with its audio out, or users can connect directly via the earphone jack or simply use the internal 0.8-watt speaker. USB 2.0 compliant, other features/specifications include 128MB DDR RAM memory, 2GB NAND memory, a SD/SDHC card slot, and a 4.3-inch TFT touch-screen color display with 480 x 272 pixel resolution.

Street price of the Cydle T43H is approximately $249. For more information, visit www.cydle.com.

Yaesu FTM-350R Dual-Band Mobile Radio

The new Yaesu FTM-350R is an advanced transceiver that offers a full 50 watts (50/20/5W) of power on 144/430 MHz, plus 1 watt on 220 MHz QRP (U.S. version only). It has two separate receivers and speakers with individual volume controls. Best of all, the FTM-350R adds GPS, APRS, and Bluetooth capabilities. A built-in stereo decoder even lets you listen to FM broadcasts.

The FTM-350R has a large, flexible back-lit LCD display with bandscope and APRS functions. For GPS functionality, the optional FGPS-1 GPS receiver and antenna provide all the information available from a traditional GPS to the screen. It offers built-in TNC and is compatible with various APRS functions. Other features include cross-band repeat, built-in CTCSS tone encode/decode, built-in barometric pressure sensor, 1,000 memory channels, and multiple scanning modes. It's supplied with DTMF hand mic and much more.

Street price for the Yaesu FTM-350R is approximately $599.95. For more information, visit www.yaesu.com.

The Yaesu FTM-350R VHF/UHF transceiver adds GPS, APRS, and Bluetooth capabilities as well as a stereo decoder for FM broadcasts.

Haiti Earthquake: Radio's Vital Link In The Aftermath

by Bruce A. Conti
BAConti@aol.com

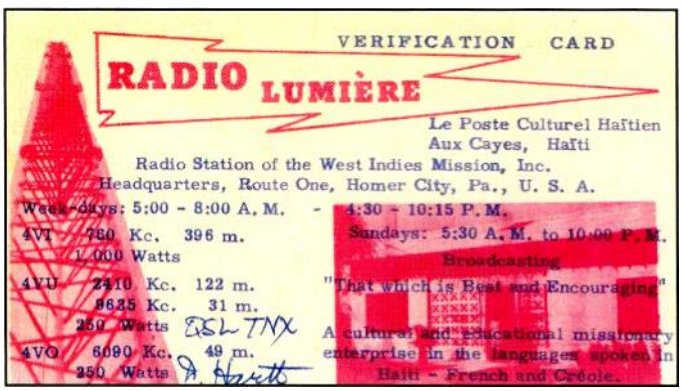
The Caribbean nation of Haiti was struck by a seismic event of unimaginable force in January. The capital city of Port-au-Prince was hit the hardest, and essentially reduced to rubble. Here's a look at how radio played a vital role during the initial crisis and recovery.

Radio In Port-au-Prince

In the immediate days following the earthquake, Haitians near and abroad turned to radio as a source of local news from Port-au-Prince. Radio station Internet websites functioned as a primary resource for accounts, photos, and streaming audio. Though most broadcast outlets in Port-au-Prince were knocked off the air without electricity, and many facilities literally were destroyed by the quake, a few websites remained online offering live streaming audio.

Radio Lumière was off the air, posting this update on its website at www.radiolumiere.org:

> Our Radio Lumière website is back online. After the earthquake we had so many visitors it overwhelmed our servers! Sorry for the inconvenience. Unfortunately we do not have the live feed from Haiti so you can listen to your radio station. The good news is that the studios in Cote Plage are still standing and nearly all the personnel are accounted for. The bad news is that the installations on Boutillier are down. So Radio Lumière is still not back on the air. We will try to keep you posted as things progress.



Vintage Radio Lumière QSL card received by Jerry Berg, noted author of *On the Shortwaves* and member of the Committee to Preserve Radio Verifications.

"Radio stations in Boston, New York City, and Florida, the largest Haitian immigrant communities in the United States, became crucial sources of news and information as listeners tried to make contact with relatives in Haiti."

Radio Kiskeya streaming audio via Live365 was down, but the website at www.radiokiskeya.com contained earthquake photos and news of two radio stations on the air, posting this statement:

> SignalFM et CaraïbesFM émettent en duplex: Sur les ondes de SignalFM, le cinéaste Arnold Antonin s'est fait l'écho de la société civile haïtienne pour exiger du gouvernement haïtien en général et du président Préval en particulier de venir s'exprimer à la nation sur la seule station encore en diffusion SignalFM. Il a fait état de nombreux cadavres qui jonchent les rues et qui à court terme vont poser un sérieux problème de santé publique.

Streaming audio from CaraïbesFM at www.caraibesfm.com was indeed on the air with news and information while taking listener phone calls. SignalFM streaming audio at www.signalfmhaiti.com was also on the air, and the website featured a slide show of earthquake images along with this message: "Le problème de communication demeure entier à Port-au-Prince. Les gens ne cessent d'envahir les studios de SignalFM pour lancer des appels, demander secours, faire savoir à un proche qu'ils sont vivants, annoncer la mort d'un parent, entre autres."

Although Radio 4VEH on 840 kHz in Cap Haitien remained on the air as the north coast was relatively unaffected by the earthquake, the website and streaming audio at www.radio4veh.org experienced temporary interruptions, probably due to the volume of traffic on the server as people desperate for information tried to access the site. Kate Michel at Radio 4VEH confirmed via Facebook that Radio Lumière in Port-au-Prince was still standing but off the air due to no elec-

tricity, and that CaraïbesFM and SignalFM were the only Port-au-Prince stations on the air at the time. "You should be able to get Radio 4VEH streaming audio now, it was off temporarily a bit earlier," she said. "The earthquake seems to have been focused on the Port-au-Prince area, though shocks were felt elsewhere. It appears there was no damage in the north, around Cap Haitien, where Radio 4VEH is located."

Reminiscent of the WRNO shortwave relay of 870 WWL New Orleans in the aftermath of Hurricane Katrina, Trans-World Radio (TWR) announced in a press release that Radio 4VEH would be relayed by station PJB Bonaire, Netherlands Antilles, broadcasting a powerful signal on 800 kHz:

> As the beleaguered nation of Haiti suffers from mass devastation caused by the earthquake, international Christian media ministry TWR will provide Creole language messages of hope into Port-au-Prince by radio. TWR will provide a simulcast of local Christian programming from Haiti's Radio 4VEH via TWR's 100,000-watt AM outlet on the island of Bonaire. Broadcasts of Radio 4VEH's live Internet audio stream will be aired from 10:15 p.m. until 2 a.m. local time in Haiti.

"Two solid Christian stations on Haiti are Radio 4VEH and Radio Lumière," explained TWR Americas International Director Tim Klingbeil. He continued:

> Since Radio Lumière is off the air due to a damaged transmitter facility, we believe broadcasting Radio 4VEH's programs from Bonaire will reach people who currently are not able to receive much-needed gospel messages. Radio 4VEH is located on the northern part of Haiti, and broadcasts do not effectively reach listeners in Port-au-Prince.

Radio 4VEH planned to make adjustments to regular programming during the TWR simulcast in an effort to address the needs of those who were suffering and looking for help. "Our thinking is that we will continue providing simulcasts at least until Radio Lumière is able to go back on the air," Klingbeil added.

TWR established a Haiti Earthquake Response Fund at www.twr.org to initially handle airtime and program production expenses. The ministry planned to produce additional programming in Creole and disaster-related broadcasts. "The key is to provide ongoing help once the immediate crisis has passed and people begin to realize the reality of the situation," said Klingbeil.

The U.S. Air Force Commando Solo C-130 division delivered 50,000 handheld radios for distribution to Haitian earthquake survivors. Commando Solo is notorious for its airborne Radio Democratie broadcasts on 1035 kHz in 1994 after a military coup in Haiti. According to a press release from Homestead Air Reserve Base in Florida, both solar-powered and hand-cranked emergency radios that don't require batteries were distributed in order for affected citizens to receive news and important information concerning international relief efforts. Public safety messages were broadcast on 92.4 FM, 104.1 FM, and 1030 AM in coordination with the Haitian government.

Haitian Radio In The U.S.

Radio stations in Boston, New York City, and Florida, the largest Haitian immigrant communities in the United States, became crucial sources of news and information as listeners tried to make contact with relatives in Haiti.

Paul McDonough of the Boston Area DXers reports his findings:

> I tried listening to the local Haitian Creole radio stations in the greater Boston area online. The station that seemed to be most active was Radio Energy at www.radioenergyboston.com. The announcer kept taking phone calls and giving out phone numbers. Eventually, around 11 p.m. local, the station started relaying Radio Canada in French. Radio Canada had a lot of coverage of Haiti, so the announcer let the program run for quite a while. The next day, Radio Energy was still taking phone calls by frantic listeners.

Radio Soleil International, Voice of the Haitians, in Brockton, Massachusetts, on 1710 AM and radiosoleilinternational.com was taking phone calls and relaying news from a France radio network. WRCB Radio Concorde, l'unité dans la diversité, also broadcast news, information, and phone calls on 1580 in the Mattapan neighborhood of Boston and at www.radioconcorde.com.

WRSH Radio Soleil d'Haiti serves over a million listeners in the Little Haiti community of Brooklyn, New York City, and the northeast corridor on a WSKQ FM sub-carrier authorization (FM-SCA) and www.radiosoleil.com streaming audio. Listeners purchase specially modified FM radios capable of receiving FM-SCA signals. The Little Haiti studio building became a focal point of the community as worried citizens gathered outside for support and to listen to WRSH for news of loved ones in Haiti.

WRSH received national attention in a report aired on ABC World News as station manager Ricot Dupuys was manning the phone in the broadcast booth. Dupuys could only describe the situation in Port-au-Prince as "apocalyptic." WRSH relayed live Internet streaming audio news from Port-au-Prince between phone calls from listeners.

Radio Verité, la parole de Dieu, in New Jersey on 105.1 FM-SCA and at www.radioverite.com, was also busy taking phone calls and managing a list of names with the hope of relaying news of relatives over the airwaves to concerned listeners. Unfortunately for many, the news was bad. Phone callers were heard crying on the air, devastated by the unfolding events.

Haitian radio is most prevalent throughout Florida, home to the largest

A building and antenna tower collapse in Port-au-Prince during the earthquake. (SignalFM photo)

The Radio 4VEH headquarters in Cap Haitien, Haiti.

Haitian population in the U.S. overall. Radio Independance, la raison de vivre, covers the Fort Myers, Florida, metropolitan area on 88.7 FM-SCA and www.radioindependance.com. Its history is typical of many Haitian community radio stations in the U.S. that began as unlicensed operations.

According to a brief posted on the station's website:

In 1996, to fill the void created by the communication needs in the Haitian community in Fort Myers and surrounding towns, we came up with the idea of a radio station. Radio Independance was born and quickly became the rallying point of Haitians of all part of life, from the tomato picker to the blue collar office worker. We started with a low power FM transmitter but it did not take long before we got in trouble with the FCC. With the help of friends in New York who did it successfully before us, we switched to FM-SCA. Since then we have been providing the community with the latest Haitian hits, news from Haiti and about Haitians around the world, gospel shows, economic analysis, interviews and political shows on our FM-SCA frequency and two FCC Part 15 AM transmitters covering the town of Immokalee. We have more than 15,000 receivers in use and growing.

Radio R.C.H., Haitian Community Radio, on 1610 AM covers Homestead, Florida City, Naranja, and Cutler Ridge. In a media kit, President and CEO Wilfrid M. Pressa describes the station as follows:

For almost 16 years, Radio R.C.H., Inc. has been the pride and voice of the Deep South Miami-Dade community. We are a multi lingual station with a format of music, news, talk shows, educational, spiritual, community and youth awareness programming. Radio R.C.H. is heard on 1610 AM in South Miami-Dade, on WPIK 102.5 FM-SCA in the Florida Keys, and on WBRD 1420 AM in Bradenton and its surroundings. It can also be heard via the Internet at www.radiorch.net transmitting out of Homestead, Florida. We are the only Haitian radio that covers Key West.

A Voice of America (VOA) press release reported that the Creole Service ramped up the strength and frequency of emergency broadcasts to Haiti. With Haiti's communications infrastructure badly damaged, the VOA, the largest international broadcaster in Haiti, provided listeners with news and information via a combination of shortwave, AM, and satellite broadcasts. "We're doing everything we possibly can to reach people in Haiti who have a desperate need for information," said Alberto Mascaro, chief of VOA's Latin America Division.

He said Creole Service programming on shortwave and satellite radio expanded from 1.5 hours daily to 5 hours. Programs now air at 1230–1330, 1730–1930, 2200–2300, and 0100–0200 UTC. The evening programs can also be heard on 1180 AM from a transmitter and tower in Marathon Key, Florida, pre-empting regular Radio Martí programming at those times. A special call-in number, 1-202-205-9942 mailbox 42, was established for people to leave messages that will be broadcast to Haiti. Facebook and Twitter accounts were also created in Creole.

VOA reporters are on the ground in Haiti, covering the ongoing international response to the disaster. Basic survival information, statements by President Obama, and messages from Haitians living in the United States were broadcast back to those dealing with the disaster. Up-to-date information is also available around the clock on www.VOANews. com/creole.

Amateur Radio Emergency Response

Amateur radio operators in Florida were among the first responders immediately after the earthquake struck. WJHG News Channel 7 reporter Josh Gauntt interviewed one such operator, Charlie Wooten, NF4A. Below are excerpts from their exchange:

Gauntt: Over the past few days, Charlie Wooten, NF4A, has had his ear on his ham radio, steadily listening to updates from the devastation in Haiti. He's one of hundreds of amateur radio operators or "hams" in our area. He runs his ham from what he calls his shack at his home. When the 7.0 magnitude earthquake hit Haiti, hams were the first ones to break the news.

Wooten: Ham radios were on the air within an hour of getting the news about the earthquake.

Gauntt: With communications still limited, Wooten was able to hear a Haitian priest and U.N. worker on the Salvation Army's amateur radio network.

Wooten: They want to set up some repeaters, VHF repeaters. They need the radios, equipment, walkie talkies, to make that system viable for them to be able to hear in Port-au-Prince.

Gauntt: In Wooten's backyard, you'll find a 70-foot-tall beam tower. The tower rotates to find the best signals, giving ham operators like Charlie a way to communicate and provide a helping hand to those who can't be heard.

This Month In Broadcast History

75 Years Ago (1935)—Radio HH3W shortwave was launched as the first privately owned and operated radio station in Haiti, later to become 4VRW Radio d'Haiti. Fibber McGee and Molly premiered on NBC radio.

50 Years Ago (1960)—Radio 4VEH Haiti broadcast a special DX program featuring music performed by Ken Boord of "DXing Horizons" and the Spruce Street Methodist Church Choir of Morgantown, West Virginia.

RADIO 4VEH
La Voix Evangélique d'Haïti.

25 Years Ago (1985)—Radio station WOZW owner Al Weiner denied inspection of the facility during an FCC investigation of pirate radio station KPRC on 1616 kHz, allegedly broadcasting from the same location. WOZW on 710 kHz in Monticello, Maine, was licensed for daytime-only operation. The FCC believed that KPRC was transmitting from the WOZW antenna at night.

An image from a WJHG News Channel 7 report about Florida amateur radio communication with Haiti.

During the night of the tragedy, amateur radio operators in the Dominican Republic received a message from the Red Cross requesting the use of an amateur radio repeater in order to establish communications between Haiti and the Dominican Republic. This repeater started to operate immediately, with the assistance of Joal Cleto, HI8RYF, and Angel Carpio, HI8ABC. The Radio Club Dominicano sent communication teams to the neighboring country in the hope of transmitting from the Dominican Embassy Pétionville on the frequencies 7.045, 7.065, 7.265, and 3.720 (recommended for disasters by the International Amateur Radio Union) and the 2-meter repeater on 147.970 MHz. The Radio Club Dominicano station operated under callsign HI8RCD/HH.

A Vital Link For A Massive Effort

This is only a small sample of the outpouring of support given through local community radio stations, worldwide broadcasters, and amateur operators. Of course mainstream radio and television outlets offered their support as well by telling the story of the Haitian people, broadcasting telethons and public service announcements, and providing important relief information on their websites. Most notably, for a moment in time, political and socioeconomic differences were set aside as the world came together on the radio during the crisis, all in an effort to help ease suffering on a staggering scale.

Until next time, 73 and Good DX.

Haiti Earthquake: Disaster And Response On An Unprecedented Scale

by Mark Meece, N8ICW
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One of the many subjects we've touched upon over past columns is the readiness and deployment capabilities of our various bases and units. As the major global power on Earth, the United States is always one of the first to respond to any global disaster and catastrophic situation. This has never been more evident than with the recent tragedy in the small island nation of Haiti.

On January 12, 2010, at 2153 UTC (1653 local) a 7.0 magnitude earthquake struck 16 miles west of the Haitian capital of Port-au-Prince. The United States Geological Survey recorded the quake at a depth of eight miles. It caused unparalleled destruction to the most impoverished country in the Western Hemisphere, and in addition to the horrific loss of life, had affected about three million people, and according to International Red Cross estimates.

"The Coast Guard and other agencies made heavy use of the Customs Over The Horizon Enforcement Network (COTHEN)...a communications asset that provides communications support for more than 235 aircraft."

Conditions in Haiti were already dismal before the earthquake. Against a backdrop of nearly constant political upheaval, Haiti had suffered

U.S. citizens living in Haiti wait to board a U.S. Coast Guard C-130 Hercules aircraft at the Troussaint Louverture International Airport in Port-au-Prince, Haiti, January 15, 2010, for transport back to the United States. (U.S. Air Force photo by Tech. Sgt. James L. Harper Jr.)

The entire second floor of the Haitian National Palace collapsed onto the first floor after the January 2010 quake. (Public domain photo)

through a successive string of tropical storms and hurricanes in 2008 that further eroded the fragile infrastructure of the tiny country.

With 7,000 peacekeeping troops in Haiti, the first responder should have been the United Nations Security Force already in country. Unfortunately the devastation of the quake was such that it claimed most of that force as victims themselves. The headquarters of the U.N. Stabilization Mission was itself destroyed in the quake and the top two ranking U.N. officials were killed, leading to extreme disarray of the U.N. force.

First Communications And Initial Response

As with any disaster of this type, the amateur radio community immediately sprung into action. Nets were established for communications into and out of the affected area. Late Wednesday morning following the quake, Father John Henault, HH6JH, in Port-au-Price made contact with the International Assistance and Traffic Net (IATN) on 14.300 MHz (USB). The IATN is the International Amateur Radio Union's Global Centre of Activity frequency for emergency communications. Father John reported to William Sturrdige, KI4MMZ, in Flagler Beach, Florida that he and those around him were safe; however, there was no power or telephone service. He was operating on a battery at the time, but hoped to get a generator later in the day. He asked KI4MMZ to phone his relatives with the information he was alright.

Other earthquake-related traffic nets were established on 14.265 Salvation Army Team Emergency Radio Network (SATERN), and on 7.045 and 3.720, both IARU Region II. IARU Region II Area C Emergency Coordinator is Arnie Coro , CO2KK, well known for the DXers Unlimited show on Radio Havana Cuba on shortwave. The Maritime Mobile Net on 14313 kHz was also used for phone patches and other related traffic.

Haiti's neighbor on the island of Hispaniola, the Dominican Republic, was the first country to respond to the tragedy. Teams from the Dominican Republic sent food, bottled water, and heavy machinery to remove the rubble. The country opened its hospitals to assist the injured, and sent eight mobile medical units along with 36 doctors including orthopedists, trauma specialists, anesthesiologists, and surgeons.

The United States Responds

U.S. Southern Command (USSOUTHCOM) immediately went into action.

The first department of Homeland Security to provide assistance to Haiti was the United States Coast Guard. The USCG Cutter *Forward* was the first to arrive in the waters just off Port-au-Prince with Maritime Intelligence Support Team 0410 to assess the damage to the port facilities. Two USCG HC-130s (fixed-wing, long-range surveillance and transport aircraft) from Air Station St. Petersburg, Florida, provided overflights of Haiti to assess the damage from the air. By Wednesday afternoon, the USCG Cutter *Mohawk*, a 270-foot medium-endurance vessel arrived in Haitian coastal waters. The USCG Cutter *Tahoma*, also a 270-foot medium-endurance vessel arrived on Thursday, along with the USCG Cutter *Valiant*, a 210-foot medium-endurance vessel carrying relief supplies for the earthquake survivors.

COTHEN

4614.5	8912.0	13907.0	20662.0
5250.0	10242.0	14582.0	23214.0
5732.0	11494.0	15867.0	25350.0
5909.5	12222.0	18594.0*	
7527.0	13312.0	20890.0	

(all frequencies are kHz, mode is USB, unless otherwise noted)
*Used for 2010 Haiti Earthquake Relief Ops

COTHEN Transmitter Locations

Albuquerque, NM	35° 05' 02" N	105° 34' 23" W
Arecibo, PR	18° 17' 26" N	66° 22' 33" W
Atlanta, GA	32° 33' 06" N	84° 23' 35" W
Beaufort, SC	34° 34' 22" N	76° 09' 48" W
Cape Charles, VA	37° 05' 37" N	75° 58' 06" W
Cedar Rapids, IA	42° 00' 09V N	91° 17' 39" W
Denver, CO	39° 15' 45" N	103° 34' 23" W
Fort Myers, FL	81° 31' 20" N	26° 20' 01" W
Kansas City, MO	38° 22' 10" N	93° 21' 48" W
Las Vegas, NV	36° 21' 15" N	114° 17' 33" W
Lovelock, NV	40° 03' 07" N	118° 18' 56" W
Memphis, TN	34° 21' 57" N	90° 02' 43" W
Miami, FL	25° 46' 20" N	80° 28' 48" W
Morehead City, NC	34° 34' 50" N	78° 13' 59" W
Oklahoma City, OK	34° 30' 52" N	97° 30' 52" W
Orlando, FL	28° 31' 30" N	80° 48' 58" W
Reno, NV	38° 31' 12" N	119° 14' 37" W
Sarasota, FL	27° 12' 41" N	81° 31' 20" W
Wilmington, NC	34° 29' 24" N	78° 04' 31" W

ALE Call IDs (Base)

CRB CBP AMOC Caribbean Regional Communications Node
CS1 COTHEN Remote Atlanta, GA used frequently by TSC, voice call "SERVICE ENTER"
CS2 COTHEN Remote Memphis, TN
CS3 COTHEN Remote Oklahoma City, OK
CS4 COTHEN Remote Lovelock, NV
CS5 COTHEN Remote Wilmington, NC
CS6 COTHEN Remote Kansas City, MO
CS7 COTHEN Remote Denver, CO
CS8 COTHEN Remote Albuquerque, NM
CS9 COTHEN Remote Beaufort, SC often used by OPBAT voice call "PANTHER" and by toms Surveillance Support Center, Jacksonville, FL voice call "JACKKNIFE"
EST CBP AMOC Eastern Region Communication Node
LNT USCG CAMSLANT Chesapeake, VA
OPB OPBAT Service Center, Nassau, Bahamas, voice call "PANTHER"; also used as a remote by HAMMER
PAC USCG CAMSPAC Point Reyes, CA; PNR400 OPBAT base, Georgetown, Bahamas
TSC CBP Orlando, FL Customs National Law Enforcement Communications Center - Technical Service Center
WST CBP AMOC Western Region Communication Node

ALE Call IDs (Mobile/Air)

D## CBP P-3/Q200 Detector Units
D01 CBP BOMBARDIER Q400 #N801MR, voice "OMAHA 1MR," Miami AMB, Homestead JARB, FL
D02 CBP BOMBARDIER Q400 #N802MR, voice "OMAHA 2MR"
D2C CBP another address used by D42 9-22-03
D2 CS CBP another address used by D42 9-22-03
D03 CBP BOMBARDIER Q400 #N803MR
D05 CBP BOMBARDIER Q400 #N805MR 1-14-09, 3-3-09
D06 CBP BOMBARDIER Q400 #N806MR w/WST 8-29-09
D07 CBP BOMBARDIER Q400 #N807MR w/704, H81, J33 1-21-06, 4-1-06
D14 CBP P-3A "Slick" #N18314/BuNo 150314, Corpus Christi AMB, TX, voice call "OMAHA 314"
D23 CBP P-3B "Slick" #N423SK/BuNo 153423, Corpus Christi AMB, TX, voice call "OMAHA 23SK"
D31 CBP P-3B "Slick" #N431SK/BuNo 153431, Jacksonville AMB, FL, voice "OMAHA 31"
D41 CBP P-3B "Slick" #N741SK/BuNo 152741, Jacksonville AMB, FL, voice call "OMAHA 41SK"
D42 CBP P-3 AEW&C #N142CS/BuNo 153452, Corpus Chrisiti AMB, TX
D43 CBP P-3 AEW&C #N143CS/BuNo 153447, Corpus Christi AMB, TX, voice call "OMAHA 3CS"
D44 CBP P-3 AEW&C #N144CS/BuNo 153446, Corpus Christi AMB, TX, voice "OMAHA 4CS"
D45 CBP P-3 AEW&C #N145CS/BuNo 155299, Jacksonville AMB, FL
D46 CBP P-3 AEW&C #N146CS/BuNo 154605, Jacksonville AMB, FL, voice "OMAHA 6CS"
D47 CBP P-3 AEW&C #N147CS/BuNo 152722, Jacksonville AMB, FL
D48 CBP P-3 AEW&C #N148CS/BuNo 154575, Corpus Christi AMB, TX
D49 CBP P-3 AEW&C #N149CS/BuNo 154581, Corpus Christi AMB, TX, voice call "OMAHA 9CS"
D69 CBP P-3B "Slick" #N769SK/BuNo 152729, Jacksonville AMB, FL, voice call "OMAHA 9SK"
D70 CBP P-3A "Slick" #N16370/BuNo 152170, Corpus Christi AMB, TX
D90 CBP P-3A "Slick" #N15390/Buno 151390, Corpus Christi AMB, TX, voice "OMAHA 390"
D95 CBP P-3A "Slick" #N16295/BuNo 151395, Corpus Christi AMB, TX, voice call "OMAHA 295"

I00 CBP CESSNA 550 #N1200N, Tucson Air Branch
I01 CBP CESSNA 550 #N37201, voice call "OMAHA 201," San Diego AMB
I08 CBP CESSNA 550 #N5408G, "OMAHA 08G"
I14 CBP CESSNA 550 #N4614N, Tucson Air Branch, "OMAHA 14N"
I1L CBP CESSNA 550 #N6001L, voice call "OMAHA 01L"
I21 CBP CESSNA 550 #N26621, voice "OMAHA 621," New Orleans AMB
I31 CBP CESSNA 550 #N2531K, San Diego AMB, CA
I34 CBP CESSNA 550 #N2734K, New Orleans AMB
I37 CBP CESSNA 550 #N6637G, Houston Air Unit
I3L CBP CESSNA 550 #N6763L,
I43 CBP BEECH 65-A90 #N43SA, Miami AMB, voice "OMAHA 3SA"
I49 CBP CESSNA 550 #N12549
I4J CBP CESSNA 550 #N5314J, logged on UHF in Arizona
I52 CBP CESSNA 550 #N752CC, SW US, voice call "OMAHA 2CC"

153 CBP CESSNA 550 #N753CC
154 CBP CESSNA 550 #N1254X, Miami AMB
155 CBP CESSNA 550 #N1255K, Miami AMB
157 CBP CESSNA 550 #1257B
162 CBP CESSNA 550 #N3262M
163 CBP CESSNA 550 #N2663Y
175 CBP CESSNA 550 #N6775C
176 CBP CESSNA 550 #N6776T, voice "OMAHA 76," San Diego AMB, CA
186 CBP CESSNA 550 #N586RE, logged on UHF in Arizona and Washington
194 CBP CESSNA 550 #N26494, San Angelo, Houston, or New Orleans based
196 CBP CESSNA 550 #N26496
197 CBP CESSNA 550 #N797CW

J01 USCG HH-60J #6001 CGAS Elizabeth City
J02 USCG HH-60J #6002 CGAS San Diego
J03 USCG HH-60J #6003 CGAS Clearwater
J04 USCG HH-60J #6004 CGAS Elizabeth City
J05 USCG HH-60J #6005 CGAS Astoria
J06 USCG HH-60J #6006 CGAS Kodiak
J07 USCG HH-60J #6007 CGAS Sitka
J08 USCG HH-60J #6008 CGAS Astoria
J09 USCG MH-60J #6009 CGAS Elizabeth City
J10 USCG HH-60J #6010 CGAS San Diego
J11 USCG HH-60J #6011 ATC Mobile
J12 USCG HH-60J #6012 CGAS Kodiak
J13 USCG HH-60J #6013 CGAS Clearwater
J14 USCG MH-60J #6014 CGAS Elizabeth City
J15 USCG HH-60J #6015 CGAS Clearwater
J16 USCG HH-60J #6016 CGAS Clearwater
J17 USCG HH-60J #6017 CGAS Clearwater
J18 USCG HH-60J #6018 CGAS Clearwater
J19 USCG HH-60J #6019 CGAS Clearwater
J21 USCG HH-60J #6021 CGAS Kodiak
J22 USCG HH-60J #6022 CGAS Astoria
J23 USCG HH-60J #6023 ATC Mobile
J24 USCG HH-60J #6024 CGAS Kodiak
J25 USCG HH-60J #6025
J26 USCG HH-60J #6026
J28 USCG HH-60J #6028 CGAS Cape Cod
J29 USCG HH-60J #6029 CGAS Kodiak
J30 USCG HH-60J #6030 CGAS Elizabeth City
J31 USCG HH-60J #6031 ATC Mobile
J32 USCG HH-60J #6032 CGAS Cape Cod
J33 USCG HH-60J #6033 CGAS Elizabeth City
J34 USCG HH-60J #6034 CGAS Cape Cod
J35 USCG HH-60J #6035 CGAS San Diego
J36 USCG MH-60J #6036 CGAS Elizabeth City
J37 USCG MH-60J #6037 CGAS Elizabeth City
J38 USCG HH-60J #6038 CGAS Clearwater
J39 USCG HH-60J #6039 ATC Mobile
J40 USCG HH-60J #6040 CGAS Clearwater
J41 USCG MH-60J #6041 CGAS Elizabeth City
J42 USCG MH-60J #6042 CGAS Elizabeth City

In addition to COTHEN, standard USCG HF frequencies were also in use by CAMSLANT CHESAPEAKE, VA and CAMSPAC Point Reyes, CA, as follows:

5732.0	10242.0	14582.0	23214.0
5909.5	11196.0	15867.0	25530.0
6709.0	11494.0	18584.0	
7527.0	12222.0	20890.0	
8912.0	13907.0	20662.0	

US Coast Guard Cutters Used During 2010 Haiti Earthquake Response

Cutter	Registration	Homeport
Valiant	WMEC 621	Miami, FL
Mohawk	WMEC 913	Key West, FL
Tahoma	WMEC 908	Portsmouth, NH
Forward	WMEC 911	Portsmouth, VA

United States Air Force Frequencies In Use For 2010 Haiti Earthquake Relief

(all frequencies are kHz, mode is USB, unless otherwise noted)

8992.0: Phone patch and general traffic on the USAF High Frequency Global Communications System
9018.0: USAF REACH assets (Airlift Assets) coordinating arrivals into Haiti.
11159.0: McClellan AFB HFGCS Discrete with numerous phone patches for USAF REACH cargo assets heading to/from Port-au-Prince
11175.0: Phone patch and general traffic on the USAF High Frequency Global Communications System

USSOUTHCOM Operations

MIAMI, U.S. Southern Command—this team of 30 people deployed to Haiti in support of U.S. relief efforts in the aftermath of the devastating earthquake. Included in the team were U.S. military engineers, operational planners, and a command and control group and communication specialists. For traffic, check on the following frequencies:

11205
11436
15025

U.S. Navy

The U.S. Navy was very active on 8971 with TIGER-01, FIDDLE, CARDFILE-02 and other assets coordinating P-3 radar communications and data links back to the U.S. Link 11 Coordination Net was monitored on:

5715.4
8975.4
9005.4

CANFORCE

Canada sent a reconnaissance team to Haiti to aid in assessing the needs and support of Canadians in Haiti. The team provided support for the deployment of Canada's Disaster Assistance Response Team, or DART, a military quick-reaction force for humanitarian aid. CANFORCE communications were utilized on:

5717	Halifax & Trenton Military
6706	Halifax Military
9007	Halifax & Trenton Military
11232	Trenton Military

Among the first Federal Emergency Management Agency (FEMA) responders to head to Haiti were members of the South Florida Urban Search and Rescue (USAR) team. Along with needed supplies, the team boarded a HC-130 aircraft of the USCG in Miami and departed for the airport at Port-au-Prince. Many other states also sent USAR teams to assist in the recovery.

At Pope Air Force Base in North Carolina, elements of the 82nd Airborne deployed to Haiti on January 15 using aircraft from the United States Air Force. Concurrently, the United States Navy sent several vessels to Haiti, including the hospital ship *Comfort* and amphibious helicopter carrier *Bataan*, to provide humanitarian aid.

COTHEN

The Coast Guard and other agencies made heavy use of the Customs Over The Horizon Enforcement Network (COTHEN). COTHEN is a communications asset that provides communications support for more than 235 aircraft. These include marine interdiction vessels, command offices, and numerous allied agencies including the U.S. Coast Guard, Drug Enforcement Administration, Border Patrol, Army, Navy, and Joint Interagency Task Forces.

For their equipment, COTHEN uses Rockwell/Collins Automatic Link Establishment (ALE) protocol to connect users to each other over the HF spectrum. When monitoring frequencies used by the COTHEN network, you'll hear ALE data signal transmissions, which units periodically and automatically initiate to determine the best frequency to use for calls to other units.

COTHEN assets currently use MIL-STD 188-141A protocol. Formerly COTHEN used the FED-STD-1045A ALE protocol, developed by Rockwell Collins. The FED-STD protocol is Rockwell Collins proprietary and goes by the trade name SELSCAN. SELSCAN is no longer actively used by the COTHEN network.

A Long, Difficult Rebuilding

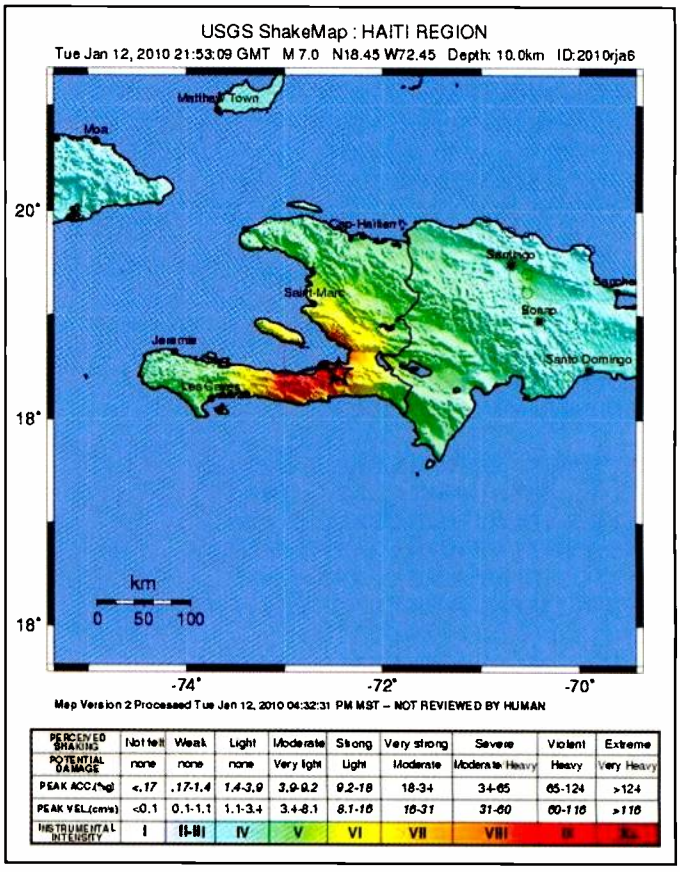
As I write this column, only a few weeks have passed since the tragedy. The full scope of the devastation has yet to be realized, but it's certain that communications in support of the relief effort will last for some time to come. For information on monitoring the related radio traffic, including COTHEN frequencies see the "Listening In" box.

Military Intercepts

Doug Bell of Ontario, Canada, once again provides us with this issue's military intercepts. Doug is using a Sony ICF-2010 and 50-foot-long wire. We welcome you to add your reports, whether on HF, VHF, or UHF. You can send them to the email address listed in the column header. Please follow the format you see here and we will include them in a future issue.

5550: USB 2314 CANFORCE 01 (CC-150 #15001/8 WG, 437 SQN, CFB Trenton, Ontario) wkg New York Radio and receiving instructions to contact New York Center on 133.5 VHF. [Prime Minister Stephen Harper returning to Ottawa after attending the Commonwealth Heads of Government Meetings in Port of Spain, Trinidad.]

5598: USB 2217 SPAR 27 (C-37A #01-0030/6th AMW, 310th AS, MacDill AFB, FL) wkg New York Radio with a position of 43N 050W with fl 410.



Shake map of 2010 Haiti earthquake. (Source: United States Geological Survey)

2235 CATBIRD 01 (C-20A #163692/"Catbird," VR-1, ETD, NAS Sigonella, Italy) wkg New York Radio and receiving instructions to maintain Mach .83. Flight also performed a BKCP SELCAL check.

2336 CONVOY 4716 (C-40A #165830/"Lone Star Express," VR-59, Fort Worth, TX) wkg Santa Maria Radio with a position of 41N 040W with fl 390. Flight performed a KRAC SELCAL check.

0106 REACH 1014 (MC-130P #69-5828/352nd SOG, 67th SOS, RAF Mindenhall, UK) wkg New York Radio and receiving routing clearance and req fl 230.

0108 REACH 1023 (EC-130J #99-1933/193rd SOW, 193rd SOS, PA-ANG) wkg New York Radio with routing clearance passed.

5696: USB 2306 COAST GUARD 1717 (HC-130H7/CGAS Barber's Point) wkg CAMSLANT Chesapeake with operation normal.

5616: USB 2227 Gander Radio repeatedly calling FENDY 52 (C-20H #90-0300/86th AW, 76th AS, Ramstein AB, Germany) with no response.

2257 REACH 160 (C-17A #01-0192/437th AW, Charleston AFB, SC) wkg Gander Radio with a position of 52N 030W with fl 340.

2257 CONVOY 9485 (C-9B #160051/"Taskmasters," VR-52, NAS Willow Grove, PA) wkg Gander Radio with unreadable data passed.

0321 TROUT 99 (KC-135R #63-7980/412th TW, 412th FLTS, AFMC, Edwards AFB, CA) wkg Gander Radio with a position report.

2223 OGRE 21 (B-1B #85-0079/28th BW, 34th BS,

A Navy helicopter from the *USS Vincent* delivers humanitarian supplies to the Coast Guard Cutter *Mohawk* off the coast of Port-au-prince on January 15, 2010. The supplies were then taken to the Haitian coast guard base at Killick, Haiti. (U.S. Coast Guard photo)

Ellsworth AFB, SD) wkg Gander Radio and receiving instructions to switch to 2899 for an advisory. [Aircraft returning home after an appearance at the Dubai Airshow.]

2335 ANNIE 14 (E-8C #95-0121/16th ACCS, Robins AFB, GA) wkg Gander Radio with a position of 57N 030W with fl 320.

5717: USB 2104 RESCUE 307 (CC-130E #130307/8 WG, 436 SQN, CFB Trenton, Ontario) wkg HALIFAX MILITARY with SAR data passed.

2130 RESCUE 320 (CC-130E #130320/8 WG, 436 SQN, CFB Trenton, Ontario) with an ETA passed for CFB Greenwood, Nova Scotia.

8864: USB 1246 COBRA 70 (OC-135B #61-2670/55th WG, 45th RS, Offutt AFB, NB) wkg Gander Radio with a position of 54N 030W with fl 330. Flight performed a JQBE SELCAL check.

1252 REACH 856 (C-5A #70-0453/433rd AW, 68th AS, Kelly AFB, TX) wkg Gander Radio and receiving clearance to climb to fl 300.

1347 REACH 606 (C-130H #91-1652/124th WG, 189th AS, ID-ANG) wkg Gander Radio and advised that higher fl is denied due to traffic.

1351 REACH 611 (KC-135R #62-3518/434 ARW, 72nd ARS, AFRC, Grissom AFB, IN) wkg Gander Radio CPDLC.

1359 CANFORCE 3281 (CC-150 #15003/8 WG, 437 SQN, CFB Trenton, Ontario) wkg Gander Radio with a position of 59N 030W with fl 360. Flight performed a ASCM SELCAL check.

1501 REACH 134 (C-5M "Super Galxaxy" #86-0013/436th AW, Dover AFB, DE) wkg Gander Radio with a position of 60N 030W. Flight instructed to contact Gander Center on 127.9 VHF.

8983: USB 2300 SWORDFISH 4205 (HH-60J/CGAS Cape Cod) wkg CAMSLANT Chesapeake and reporting operation normal.

2036 COAST GUARD 101 (C-37A #101/CGAS Washington, DC) wkg CAMSLANT Chesapeake with a standard flight operations report.

1632 RESCUE 2003 (HC-130J/CGAS Elizabeth City) wkg CAMSLANT Chesapeake with SAR Mission information passed.

8992: USB 1615 NAVY LT 621 (P-3C/"Broadarrows," VP-62, FRU, NAS Jacksonville, FL) wkg HF-GCS Station ANDREWS with a phone patch and flight data passed.

0230 TROUT 99 (KC-135R #63-7980/412th TW, 412th FLTS, AFMC Edwards AFB, CA) wkg HF-GCS Station LAJES with weather passed.

11175: USB 1730 CACTI 01 (KC-10A #85-0027/305th AMW, McGuire AFB, NJ) wkg HF-GCS Station OFFUTT with a phone patch and flight data passed.

2010 KING 24 (HC-130H #69-5824/920th RQG, 39th RQS, Patrick AFB, FL) wkg HF-GCS Station OFFUTT with a phone patch and ETA passed. An unidentified HF-GCS Station calling NIGHTHAWK 13 (VH-3D/"Nighthawks," VMX-1, Presidential Det., MCAF, Quantico, Va.) with no response. [NIGHTHAWK is MARINE ONE without the President on board.]

2115 CHILL 41 (B-52H/5th BW, Minot AFB, North Dakota) wkg HF-GCS Station OFFUTT with a HF radio check and unreadable traffic passed.

2132 NAVY LL 44 (P-3C/"The Pro's Nest," VP-30, NAS Jacksonville, FL) wkg HF-GCS Station OFFUTT with a phone patch and mission data passed.

2132 TUFF 34 (B-52H/2nd BW, Barksdale AFB, La.) wkg HF-GCS Station LAJES with a phone patch and weather passed for Barksdale AFB.

2133 TOPCAT 82 (LC-135R/108th ARW, 141st ARS, McGuire AFB, NJ) repeatedly calling HF-GCS Station LAJES with no response.

2145 DIXIE 7984 (KC-135R #63-7984/117th AW, 106th ARS, AL-ANG) repeatedly calling HF-GCS Station ASCENSION with no joy.

1610 CONVOY 3292 (C-130T/"Condors," VR-64, NAS Willow Grove, PA) wkg HF-GCS Station OFFUTT with a HF radio check.

1529 DERBY 36 (C-130H/123rd AW, 165th AS, KY-ANG) wkg a HF-GCS Station with several phone patch attempts.

The U.S. Coast Guard tranfers seriously injured earthquake survivors to rescue ships for further medical treatment. (Public domain photo)

11232: USB 1924 PRIMO 71 (C-17A/60th AMW, Travis AFB, Ca.) wkg TRENTON MILITARY with a phone patch and flight data passed.

2200 ATLAS 305 (CC-130H #130305/8 WG, 436 SQN, CFB Trenton, Ontario) wkg TRENTON MILITARY with flight data passed.

2204 CANFORCE 3504 (CC-150 #15004/8 WG, 437 SQN, CFB Trenton, Ontario) with weather passed and a ASCR SEL-CAL check performed.

2217 CANFORCE 2326 (CC-130E #130319/8 WG, 436 SQN, CFB Trenton, Ontario) wkg TRENTON MILITARY with flight information passed.

A COTHEN terminal in operation. (Public domain photo)

Some Short Commercial Spots Lead To Long-Lasting KFIZ, A Quick WASH, And A Couple Of TV Stations That Fizzled Fast

by Shannon Huniwell
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Besides being enthusiastic about God, family, and radio, my father loves to spend time focused on vintage outboard motors. I realize that's an unusual foursome, but Dad's diverse interests have given me a convenient way to pull the starter cord on this month's column. And so I begin...

One of my father's old boat motor collector colleagues, who's also nutty about table radios encased in colorful Catalan cabinetry, saw my previous *Pop'Comm* article related to records used in radio programming advertising. The fellow was attending a swap meet sponsored by *The Antique Outboard Motor Club* where he picked up a carton of old engine literature along with a couple more classic kickers destined for fix-up and display in his personal basement-based outboard motor museum. (He's got about 75 old engines, plus several shelves of 1930s and '40s bright plastic radios down there!)

Local radio salespeople loved to see clients walk through their station lobby door with media kits like this one from the makers of Mercury outboard motors. It contained both scripted and prerecorded commercials that sounded great to the advertiser and made his or her business, and the station, come across on the air as larger than life.

Anyway, near the bottom of the swap-meet bargain box, the guy found a 1966 radio advertising/promotional kit for Mercury "Merc" outboards. Apparently an amateur poet, he mailed the bulging packet to my Dad with an accompanying Post-It note that simply read, "Hey there, Sid...here's a little something for your radio writer kid."

The kit, more specifically a fat cardstock folder with two pockets, delighted me with its cornucopia of mid-1960s radio content. A cover letter from the famed outboard maker's publicity department was addressed to "Mr. Mercury Dealer" and promised that Merc's "hard-hitting" 1966 radio advertising campaign would be heard by millions of people from March through June on NBC's weekend program, *Monitor*, and weekdays on Mutual Broadcasting System's *Bill Stern's Sports Review*. As a bonus, Mercury officials noted, Mutual would also be running the commercials during some newscasts. All of that equaled "approximately 20 commercials every week during the heavy [outboard] selling season!" Much of the packet's weight was tucked under this letter and consisted of rosters noting NBC and MBS stations. What a neat time capsule those pages represented! Each affiliate was listed by state, callsign, time zone, day/night transmitter power, and frequency. Understandably, detailing America's oldest broadcast network, NBC's chart with lots of legacy stations boasting 5 to 50 kilowatts was thin compared to Mutual's, brim-

In this photo, probably from the late 1930s, a KFIZ studio engineer "rides gain" on the hometown Fond du Lac, Wisconsin, station's main audio control board. Note those official-looking dials on the desk front and the lamps over those two transcription turntables.

ming with statistics on local or small market facilities, second-string medium market daytimers, and a few also-rans—ratings-wise—transmitting from places the average U.S. geography buff wouldn't be familiar with.

Pouring over the lists, I sensed there was something missing, but couldn't put my finger on it initially. Finally, the conspicuous absence dawned on me: there was not a single FM outlet noted in either of the tabulations. To be sure, NBC and Mutual programming did exist on LBJ-era FM airwaves, but the perceived value of those fledgling FM audiences was apparently so low the band wasn't worth mentioning. I recall hearing that much of the FM side—especially in modest-sized communities where MBS stations typically resided—was then pretty much the province of AM/FM simulcast.

The MBS directory featured an especially telling asterisk, which denoted MBS as having a whopping 486 affiliated stations during the daytime, but admitted to only 324 after sunset. That speaks to the large assemblage of sunrise-to-sunset AMs in the MBS force. No doubt, some of these daylight-only facilities possessed an FM sister that carried on after dark, but Mutual didn't feel them worthy of consideration either.

The outboard company said nothing about FM in its media hints to its dealers, but hoped these franchisees would think about visiting the nearest station on their lists to buy some local airtime. Merc suggested this space be used for one of its ready-to-run :30-second commercial scripts to be delivered live by the local AM's announcers. One such script featured a welcome with the promise of refreshments:

> You're invited to see the nine quiet new '66 Mercurys and other water-fun things. (DEALER IDENTIFICATION) is having an open house on (DAY AND DATE). You'll have coffee and rolls while we show you (INSERT YOUR PRODUCT LINE HERE—SUCH AS: sturdy fishing boats, sleek runabouts, boats big enough for the whole gang) and boating accessories. Of course, each boat is matched with top-performing '66 Merc—from three-point-nine to 110 horsepower. Remember (DAY AND DATE) at (DEALER NAME/LOCATION)!

In the event that paper scripts didn't motivate motor dealerships to piggyback some radio time onto its corporate spot buy, Merc promotion people packed a 7-inch *pièce de résistance* into its ad campaign mailing. Produced by an outfit called Gardener Advertising Company, this incentive was a 33 1/3 record with six professionally voiced, ready-to-air :30-second commercial cuts touting Mercury outboards' performance, quiet operation, penchant for finding fish, economy, dependability (long a Johnson outboard claim), and the big 110 horse model, then the industry's most powerful.

In comparison to today's national commercials, often voiced by 20- to 30-year-olds with "normal" or relatively unpolished deliveries, the outboard voice-overs were handled by deep-toned pros who exuded a brand of authority now deemed too preachy by the average "I'm my own person, so don't tell me what to buy!" consumer. Back in 1966, however, if a boat/motor shop (most of which were mom & pop businesses) could swing some of the professionally done, declarative spots with a local dealer name/address tag, the business itself sounded like it ran 150 horsepower. In fact, those records in the media kits prompted a lot of Merc franchisees to invest a little more of their ad budget for radio reach to supplement a quarter-page in their area's newspaper. The declarative spots also moved some of these small businesspeople to negotiate for a remote broadcast to perk up their spring boat show open house.

My Dad recalls dropping some DY1 project, practically in mid-hammer blow, and driving over to hunt for old outboards on some little West Bend (a now long-defunct motor manufacturer) dealership's "bargain rack" circa 1963. He was motivated by a Saturday morning remote from the shop, where the station's novice announcer had just suffered through a relatively reluctant interview with the store's reticent proprietor. No matter the amateur-sounding repartee, word-of-mouth is always a powerful catalyst. Dad caught the magic phrases "Free coffee" and "We're practically giving away our inventory of older model trade-ins," which called him to action as effectively as anything Hollywood or Madison Avenue could have produced.

During the remote, Dad paid $10 for a gimpy 1951 Mercury Lightning outboard that needed lots of TLC. After lugging his greasy prize up the dealership's cellar stairs, he caught the attention of the DJ emceeing the shop's radio remote and spoke on the air at great length about the virtues of purchasing a bargain motor and fixing it up oneself—no doubt coming across to listeners as an on-air double whammy against the poor sponsor's line of *new* outboards and his motor repair service business!

Fond du Lac Connection

For as long as I can remember, that classic green 10-horse speedster Dad snagged there—and subsequently restored—was one of the most active in his vintage outboard collection, having zoomed our 12-foot aluminum rowboat on many a sparkling lake. The motor was produced in Mercury's factory at Fond du Lac, Wisconsin, a venue that came to mind when I opened an email from *Pop'Comm* reader, Ted Cohen, N4XX.

Cohen began his communiqué by identifying himself as "someone who was born and raised in Fond du Lac, in the late 1930s/early 1940s, moved to another area and then returned there during the summers of the 1950s after my parents inherited a summer home on the shore of Lake Winnebago." He reported listening often to KFIZ in Fond du Lac, saying, "Frankly, it often was the only station that I could pick up on the many crystal and transistor radios I built during some of those hot summer days and nights."

Cohen says KFIZ intrigued him, not only because it was so close to his summer place that the station essentially pestered his crystal sets, but he was also fascinated by the fact that it was one of the few stations east of the Mississippi that had a callsign that began with "K." Curious about such radio rule benders, he wondered if we might devote a few paragraphs to KFIZ's history, and we're happy to oblige...

A logical place to start the KFIZ history is with a rule that savvy AM/FM enthusiasts know by heart: American broadcast stations east of the Mississippi River are assigned calls with a "W" prefix; those west of that wet divide begin with "K." Of course, there are several notable exceptions, like 50-kW outlets WBAP Dallas, KYW, Philadelphia, and little KFIZ from Fond du Lac. From 1913 until 1923, however, radio regulations defined the "K/W" delineation as a line winding up (from the Mexican/U.S. border) along the eastern boundaries of New Mexico, Colorado, Wyoming, and Montana. KFIZ began operation, under this old rule, in the spring of 1922, but was located even further out of "official" K territory prior to the aforementioned rule change. Then why the "K?"

Suffice it to say that call assignments in broadcasting's earliest days could be somewhat arbitrary. Those seeking a license were seldom as focused upon call letters as they were on simply securing authorization to get airborne. Perhaps the person tasked with doling out the IDs occasionally alleviated his bureaucratic boredom by varying from the government's sequential list when naming a new station, and then went a bit rogue so far as to pick from the "K" list instead of the "W" roster, or visa versa. Maybe the Fond du Lac applicant asked for a "K" prefix.

But whatever the long-ago situation that spawned KFIZ's identity, the 1923 "K/W" line change timetable offered all incongruently named stations amnesty to keep their "left-handed" calls or forever hold their peace after the rule became immovable law.

A Way To Sell Cars And Radios

During the spring of 1922, Fond du Lac automobile and "wireless" salesman, Oscar Huelsman fired-up what would morph into KFIZ. His initial broadcasting venture originated in a spare room upstairs in the Haber Printing Company building and consisted of homebrew gear. Huelsman surmised that this jerry-rigged station would provide a technologically advanced way to promote his dealership's Dodge cars and DeForrest radios. He'd easily interested Haber executives in joining his radio experiment, as the print men were well aware of America's (and more specifically, Fond du Lac's growing legion of wireless enthusiasts') fast-increasing fascination with wireless signals. In fact, Haber Printing published a Fond du Lac newspaper, *The Daily Commonwealth*, in which word of radio's popularity often appeared.

The little station's owners asked the U.S. Department of Commerce to upgrade their radio license from "experimental" to "commercial," a paper modification that occurred in July 1923. At that time, listings showed KFIZ as having 100 watts on 1100 kc. That C-note transmitter power rating remained for years, though the station's frequency shifted to 1120 kc in 1928, jumped to 1420 kc in 1930, and then drifted over to 1450 circa 1942. Around the end of World War II, KFIZ's transmitter output was authorized to issue 250 watts, and—concurrent with many of its old Class IV or "local" neighbors on the so-called "graveyard channels"—was allowed 1 kW of daytime power in about 1967 and then a quadrupling of its 250-watt nighttime power sometime during the 1970s.

KFIZ was part of the asset base when *The Daily Commonwealth's* competitor, *The Fond du Lac Daily Reporter*, bought out Haber Printing in 1926. That acquisition resulted in a merged print product, dubbed *The Fond du Lac Commonwealth Reporter*, and KFIZ's serving as the new paper's audio sister.

According to *Broadcasting Yearbook*, KFIZ was later licensed (from 1946 to 1972) to KFIZ Broadcasting Company. From this entity, the AM was transferred to Public Service Broadcasters in 1972 and apparently spent much of the next 25 years under the ownership of various cable TV corporations as these businesses grew or got swallowed up by competitors, as *The Daily Commonwealth* had been decades earlier. The cable connection ended in 1997 when KFIZ became the property of RBH Enterprises, Inc. (aka Mountain Dog Media). Throughout all of these changes, however, KFIZ has not only retained its notable callsign, but the friendly 1000-watter also kept a reputation as Fond du Lac's dependable local radio station.

Cohen remembers KFIZ's programming as possessing "a very local feel," and his memories of tuning it are intertwined with those of his summer job as an attendant at the Lake Park Outdoor Theater nearby Lake Winnebago. As he describes it:

> Our summer home was at the junction of Sandy Beach Road and Winnebago Drive (Rt. 151). I know that the KFIZ transmitter today is located across the lake from where we used to live, on W. Scott Street, so it was a clear shot over the water into my upstairs bedroom where I heard KFIZ on my crystal set. I remember taking a nap in the afternoon around 4 p.m. every day, just before dinner, because if we had a double feature playing at the outdoor theater (which was almost always the case in those days), I might not get out of work until 1 a.m. the next morning, and I really needed to stay awake to check cars and direct traffic.

He recalls that KFIZ ran a sponsored program featuring the recitation of the Catholic rosary that aired just about the time he usually woke from his siesta. "I napped with the crystal radio's earphones on," he wrote, with an "lol" ("laugh out loud," for the uninitiated) accentuation. "I heard the rosary so often in my sleep that eventually I could recite it by heart...Quite an interesting accomplishment for a Jewish guy!"

Just A Bead In Video's Necklace

Back in the day when few thought UHF television had a prayer of survival, KFIZ's ownership committed to add pictures to its product line. About a week before Christmas 1968, KFIZ-TV took to the eastern Wisconsin skies. Because this UHF Channel 34 was situated in Fond du Lac, it could use its approximate equidistance between Milwaukee and Green Bay to blanket those medium-sized media markets, plus its own community of license. To accomplish such coverage, KFIZ-TV officials ran a respectable 582 kW visual power and 58.2 kW of sound with an antenna some 550 feet off the ground. Despite the theoretically generous signal, though, most of Channel 34's potential viewership was watching network affiliates out of Green Bay or Milwaukee. Independently programmed, which typically meant B&W sitcom reruns, old sci-fi movies, and low-budget local fare, KFIZ-TV fizzled out in late November 1972.

From FIZ To WASH

Remember the cold-shoulder treatment of FM by whoever assembled the NBC and Mutual affiliate lists in that 1966

Mercury outboard radio advertising kit? Well, our next featured call letters, WASH, belonged to one broadcasting firm that did give FM some positive attention in the latter 1960s. Metromedia, begun in 1946 by future media mogul John Kluge with daytimer WGAY in Silver Spring, Maryland, sold WGAY in 1959 and later acquired WCBM 680 in Baltimore. Kluge wanted an FM to augment the Baltimore operation and his Metromedia's WTTG-TV in Washington, D.C., so he acquired a signal in the nation's capital, and what better name to call a Washington radio outlet than WASH?

In its mid-1970s heyday, the station offered a bright, personality-driven, middle-of-the-road music format that gained a following with the upwardly mobile white collar set so coveted by advertisers. To me, that is *the* W-A-S-H. Imagine my feeling a bit hosed-down to discover that there'd been another WASH. Perhaps you'll join me in a suspicious, "Are you kidding me?" upon learning that *this* WASH was really owned by a laundry!

The Baxter Laundry Company of Grand Rapids, Michigan—a city better known for cleanly built furniture—gets credit for the original radio WASH. Before that outlet, it had started a 50-watt station on 1170 kc with an ID of WBDC in March 1925. By October of the following year, Baxter officials figured out that the letters W-A-S-H would spell something a whole lot more fun for listeners to pronounce and recall in conjunction with the laundry ownership than the government's sequentially assigned WBDC. Newly named WASH Grand Rapids was also re-powered with 500 watts.

For reasons likely related to an imminent frequency change, this output got halved in early 1928. A couple of weeks before Thanksgiving, WASH was shifted to 1270 kc and given the turkey assignment of having to share 1270 with crosstown competitor, WOOD. *Broadcast Pro-File* shows that WASH got another Federal Radio Commission OK to resume 500-watt operation. This winter 1929 grant was soon followed by an ownership change, as Baxter Laundry sold WASH to a clean-sounding outfit called WASH Broadcasting Corporation. Concurrently, "the station's studio was moved from the Baxter Laundry structure to new quarters in the Peninsular Building, 154 Louis Street, a three-story business structure, and the transmitter was relocated to a new site on Michigan Road, near Grand Rapids."

The studio installation proved short-lived. By December 1931, WASH was being leased by the Kunsky-Trendle Broadcasting Corporation, which had also arranged to rent WASH's 1270-kc timeshare neighbor, WOOD. The lessors relocated WASH's studios to the fifth floor of the Young Building at Ionia and Louis Streets in Grand Rapids. A year later, the WASH Michigan Road transmitter site was decommissioned, as the FRC authorized WASH to use the WOOD transmission system at "Furnwood (near Jenison, Michigan) one mile west of Grand Rapids." There, a pair of 90-foot towers "supported the stations' [wire] antenna system."

Because things seemed be looking up for WASH and timeshare sister WOOD, both stations' studios were moved to the top floor of the 16-story Grand Rapids National Bank building. Scheduling of the two AMs had WASH airing from 7 a.m. to noon and WOOD taking over until midnight.

Apparently, Mr. Kunsky, of the Kunsky-Trendle firm renting WASH and WOOD, wanted a last name with more successful ring to it (possibly since his broadcasting firm was in the midst of creating the Lone Ranger character for its WXYZ Detroit-based flagship), so he legally changed it from Kunsky to King. The company was then officially recast as King-Trendle Broadcasting Corporation in 1936.

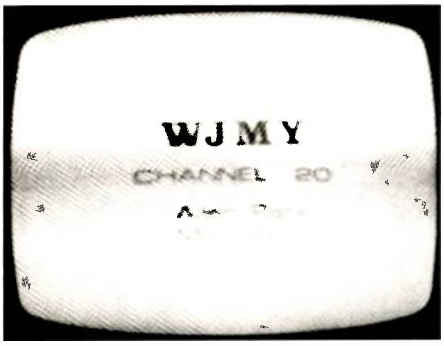
The name change coincided with FCC approval to use 1,000 watts day and 500 watts night at 1270 kc. For some reason, though, neither WASH nor WOOD took advantage of the 1-kW opportunity and it expired in 1937. Perhaps King-Trendle had heard that most North American stations were about to be asked to shift frequencies and figured it would wait until things were definitive. That reallocation came in March 1941, sliding WASH and WOOD up the dial to 1300 kc.

Once this electronic address was secure, King-Trendle was granted authority to build a directional antenna array and 5000-watt transmitter site (on RFD 1, south of Grand Rapids) for WASH and WOOD. As soon as the facility was ready (on November 28, 1942), however, King-Trendle hung WASH out to dry. The company then notified the FCC that it wanted to operate WOOD full-time. Of course, with both stations having long used the same studios and transmitter, WASH was in actuality just a set of call letters announced from 7 a.m. to noon over WOOD's microphones. FCC clerks cancelled the Grand Rapids WASH license and deleted the call letters, keeping them folded for future use in America's capital.

Wait, Was That Washed-Out Image A TV Station?

Compared to the final blip of Midwestern broadcasting's past we're about to examine, WASH of Grand Rapids lasted a proverbial lifetime. Allow me to offer the arcane example of one Detroit-area UHF-TV station that came and went in the blink of an eye, at least according to the media legend as outlined by Wikipedia and other sources.

This is the tale of WJMY-TV, authorized by the FCC as an Allen Park, Michigan-based Channel 20. The 1963 *Broadcasting Yearbook* indicates WJMY-TV went on the air on October 7, 1962, with 20 kW visual and 10 kW aural power from an antenna some 345 feet above ground. Triangle Broadcasting Company is listed as the little U's original owner.



While a magnifying glass might be required to decipher details in this miniscule image, the scanty size of this (probably) October 1962 test pattern of WJMY-TV somehow adds to the mystique of what could be America's shortest-lived commercial UHF television signal. It's easy to imagine this vestige being captured with a spy camera as the snowy scene briefly blinked through greater Detroit's Channel 20 ether.

Triangle apparently founded WJMY-TV from the remnants of WPAG-TV of Ann Arbor, Michigan, a Channel 20 operation that existed between 1953 and 1957. Interestingly, vintage directories show WPAG-TV with the same 20-kW picture/10-kW sound output as WJMY-TV originally claimed. One might speculate that Triangle bought WPAG-TV's equipment at a fire sale price.

Whatever the circumstances, WJMY-TV appears to have only been on the air a very short time—and with no real programming. *Broadcasting Yearbook*'s 1969 edition notes WJMY-TV as having been re-licensed to Detroit (a short hop from the Allen Park suburb) and OK'd to transmit with a mighty 417,000 watts visual/41,700 watts aural power from a 1,000-foot tower. United Broadcasting Company is shown as the station's owner and located on Eleven Mile Road in Southfield, Michigan. My guess is that this new and improved WJMY-TV never amounted to much more than a folder of FCC paperwork.

Wikipedia reports WJMY-TV as a 1967 construction permit that "never made it to the air except for a test signal for at least one night in 1968, consisting of a card displaying its calls and city of license." The online encyclopedia's contributor included a modest image of this test pattern, which heralds Allen Park, not Detroit, as WJMY-TV's venue.

My speculation is that this vestige hails from the UHF-TV station's original 20-kW signal circa October or November 1962, when the elusive television outlet issued its very brief hello. In fact, fine print in subsequent 1960s *Broadcasting Yearbooks* states that the Allen Park incarnation of WJMY-TV had already "suspended operations; target date [for a re-start is] *unknown*." The trail ends with the sale of United Broadcasting's CP for the yet-to-be-built 417-kW WJMY-TV Detroit. Crosstown Motor City's WXON-TV (now WMYN-TV) bought it in order to move from way up on Channel 62 down to Channel 20. In the UHF-TV game, like golf and cholesterol, the lower one's number the better.

And so ends another day of broadcast history on Pop'Comm...

CB Antennas: What Inquiring Minds Want To Know

by Kent Britain, WA5VJB
wa5vjb@cq-amateur-radio.com

I've been running up quite a backlog of mail, and a lot of it concerns CB antennas. I figured I'd take this month to catch up a bit and share some of the answers here since the topic is apparently of interest to many of our readers. So, bowing to popular demand, let's learn a little more about the CB radio aspect of the hobby.

From reader Steve in Santa Clara, California, we get the following question:

My buddy, who's also my neighbor, has a CB ground plane antenna. He put it on the side of his house close to my house. I really would like to put my ground plane on that same side of my house. How close can we put 5/8 ground planes to each other without blowing out our Cobras?

You have more than one problem, Steve. First of all, there'll be antenna interaction. This is the tendency of nearby metal to "try to become part of the antenna." In other words, the two 5/8s will interact if they are within 20 feet of each other, and they will still have issues out to 1 wavelength, or about 30 feet. At more than 10 feet of separation you shouldn't damage each other's rigs, when running legal power, of course.

I would highly recommend getting an antenna switch and putting a dummy load on the second position. When you're not using your rig, just leave it connected to the dummy load. This will protect your rig when your buddy is using his. Now, this won't keep the rig from jumping off the table every time he transmits, but it should be safe.

Reader Red, in Redmond, Oregon, wants to know what's up with mobile antenna angles:

I like to mount my whips back at a 45-degree angle to get better take off. Why don't the antenna companies make them this way in the first place?

OK, Red, stand out in front of your car and look at the antenna. Now have someone bend it back. You only see about half as much antenna, right? The guys out in front or back of you also see much less antenna. You're just not going to get out as well.

Now, if mounting the antenna back at an angle is important to you because it means fewer bumps and scrapes when you pull in your garage, that's one thing. But the antenna works best when straight up!

"Reader T.C. wanted to know if he could use his scanner antenna with his CB radio. The answer is, maybe."

Reader T.C. wanted to know if he could use his scanner antenna with his CB radio. The answer is, maybe.

Many scanner antennas are based on the discone design. A discone gets awfully big if you go below 100 MHz, but you see many advertised (using very careful wording, I might add) as having 30 MHz. These are typically 140–1000-MHz versions and have an added CB-type loading coil on the top of the "disk" on the discone. This loaded whip gives the antenna a 30-MHz response, and if tuned, would give decent performance on the CB channels.

The military uses discone antennas for transmitting all the time. Most scanner-type discones will work fine for ham 2-meter and 440-MHz use, and for the hobbyist, they will work with GMRS radios. You're on your own, though, in figuring out how to connect the coax to your radio.

Mike in Nashville, Tennessee, had questions about hiding a CB antenna, including whether any companies offered camouflage versions.

Yes, many companies do make disguised and camo CB antennas. I still have one that looks like a cell phone antenna, but gee, how many 800-MHz cell phones are left?

Another way to disguise a CB is to use a splitter box that goes on your AM-FM car radio antenna. This box houses a filter and an antenna tuner. The filter keeps the CB signals out of the AM/FM car radio, because that radio tuner is not designed to have 5 watts crammed back down its throat. The antenna tuner allows you to get a good SWR with the car antenna. The whip-type car radio antennas work a lot better than antennas imbedded in the windshield. You're not going to become top dog of the channel with an antenna like this, but it does let you have a modest range on the CB channels from a hidden antenna.

And Now A Couple Of Questions *For* Our Readers

Here's something I'm more than a little curious about: With the 800-MHz cell phone system virtually gone from the map, why are even the new rigs still cell blocked? Beats the heck out of me! If you've got a reasonable answer, by all means please share it.

Also, I have two versions of my column started for upcoming issues. What do you want to see next—more on electronic warfare or some construction projects on making your own 915-MHz or 2.4-GHz patch antennas. Drop me an email and let me know.

Again we welcome your questions, suggested construction projects, and possible topics for future columns. Drop me an email at wa5vjb@cq-vhf.com or you can visit www.wa5vjb.com for other antenna projects.

Global Information Guide *(from page 41)*

SUDAN—Sudan RTV, 7200 at *0240 sign on with Koran, AA talk. (Alexander, PA)

Miraya 101 FM, 15650 via Slovakia, 1459 open with African music, time pips, ID and EE news. Gave mirayafm.org website address. Into AA at 1511. (Alexander, PA)

Radio Dabanga, 11655 via Madagascar at 1625 with AA talk, "Radio Dabanga" jingles, and short breaks of African music. Stronger on //13800 via Germany. (Alexander, PA)

SURINAME—Radio Apinte, Paramaribo, (t) 4990 at 0611 in (p) vernacular, boisterous M ancr with very short anmts between songs. (Parker, PA)

SWAZILAND—TWR, 4775 at 0353 with M preacher in unid language. I presume they switched to GG at 0400. (Wood, TN)

SWEDEN—Radio Sweden, 6010 via Canada at 0336 on a Sweden-Russia treaty. (MacKenzie, CA)

SYRIA—Radio Damascus, 9330 at 2102 opening with EE anmts, IDs, frequencies and contact info, local music and EE news at 2105, //12085. (Alexander, PA)

TRANZANIA—Radio Tanzania, 11735-Zanzibar at 1742 in Swahili, ID at 1800 and news in Swahili. W taking phone calls at 1816. (D'Angelo, PA)

THAILAND—Radio Thailand, 6045 with CC at 2248, M/W alternating, 9680 with domestic news at 0014, 9720 at 1229 with EE news feature and 12095 at 0050 with W and news in EE. (Strawman, IA) 9680 at 0013 and 12095 at 0032. (MacKenzie, CA0

TUNISIA—RT Tunisienne, 7275 in AA at 0504. (Brossell, WI)

TURKEY—Voice of Turkey, 5960-Emirler in EE heard at 2335 on Western operas, 12035-Emirler with an EE discussion at 1403. (Fraser, ME) 6040 at 0410 on epidemic prevention there. (Brossell, WI) 9700 at 0506 with TT music. (D'Angelo, PA)

UGANDA—Radio Uganda, 4976 at 0342 with M in vernacular, intermittently taken over by a UTE. (Parker, PA)

UKRAINE—Radio Ukraine Intl. 7440 heard at 0403 with feature on the swine flu. (Brossell, WI)

USA—Voice of America, 6105 Thailand Relay at 2353, 9490 at 2358, 9885-Greenville in SS at 0048, 11805 Philippine Relay in II at 0025 and 15385 Philippines in CC at 0028. (MacKenzie, CA) 6135 Thailand Relay at 2245, 7575 Northern Marianas Relay at 1355, abruptly cut at 1358, 9875 Northern Marianas in CC at 2245 and 11805 Philippines in II at 2329. (Strawman, IA) 9700 Thailand at 1220, 11805 Northern Marianas with sign on in CC at 1230 and 15255 Philippines in (l) Mandarin at 1210. (Brossell, WI) 7325 Sri Lanka Relay with news features at 0136. (Taylor, WI) 11905 via Wertachtal at 1840 with pop tune and W in (l) Amharic. (D'Angelo, PA)

WJHR, Milton, FL, 15550u at 1555 with fire and brimstone preacher, ID and contact info at 1602. (Alexander, PA)

Radio Liberty, 9760 via Sri Lanka in (l) Uzbek heard at 1635. (Strawman, IA) 12025 Sri Lanka in (l) Uzbek at 0225. (Brossell, WI)

TWR, 7215 via South Africa in local Sidamo language at 0330. (Taylor, WI)

KJES, Vado, NM 11715 at 1600 opening in SS, choirs and familiar repetitious chanting. (D'Angelo, PA)

Radio Farda, 5860 via Sri Lanka in Farsi heard at 0030. (MacKenzie, CA) Kuwait Relay at 0350 in Farsi. (Parker, PA) 9760 via Germany in Farsi at *0400 with ME pops. (Alexander, PA)

Radio Free Asia, 7470 Sri Lanka Relay in (l) Taiwanese at 1236, 9320 Northern Marianas Relay in (l) Burmese at 1237, 11625 Northern Marianas Relay in (l) Mandarin at 1632. (Brossell, WI) (p) 7540 via Orzu, Tajikistan, in Mandarin at 2345. (Taylor, WI) 9570 Northern Marianas Relay in Cantonese monitored at 2240. (Ng, Malaysia) 15550 Northern Marianas in CC at 2322. (MacKenzie, CA)

WINB, Red Lion, PA, 13570 at 1842. (MacKenzie, CA)

Family Radio, 7560 via Almaty, Kazakastan, in Burmese at 1340. Also, (p) 6230 via Bau Jong, Taiwan, at 2247 in Mandarin. (Taylor, WI) 6005 via Komosomolsk, Russia, in (l) KK at 1300 and 11895 via Irkutsk, Russia, in (l) VV at 1234. (Brossell, WI) 21455-Okeechobee in GG monitored at 1812. (MacKenzie, CA)

WEWN, Vandiver, AL 12070 in SS at 2332. (MacKenzie, CA)

AFN/AFRTS, 5446.5u Key West, at 2153. (Parker, PA)

WWCR, Nashville, TN 5070 at 0030, 5890 at 0452, 5935 at 0454, 12160 at 1845 and 13840 with Gene Scott at 2358. (MacKenzie, CA)

Sudan Radio Service, 17745 via Sines, Portugal, at *1459 sign on with instl and African music, EE ID and contact info and into *Let's Talk* drama pgm. (D'Angelo, PA)

VATICAN—Vatican Radio, 6040 via Canada in SS at 0342, //7305. (MacKenzie, CA) 7355 airing the Pope's general audience at 0140 and 15460 on climate change at 0300. (Ng, Malaysia) 7360 at 0640. (Maxant, WV) 7360 via Madagascar in Swahili at 0340. (Taylor, WI) 7365 with choral response prayers, ID for the African Service at 2004. (Wood, TN).

VENEZUELA—Radio Nacional, 15250 via Cuba in SS heard at 2300, //13680. (MacKenzie, CA)

VIETNAM—Voice of Vietnam, 9840-Sontoy at 2329 with theme music and into W and EE news at 2330. (Strawman, IA) 2350 with contemporary VV music and W ancr. (Taylor, WI)

ZAMBIA—CVC-The Voice, 4965 with an EE sermon monitored heard at 0324. (Brossell, WI)

And, once again, order is restored! Thanks to those who stepped up to the plate this month: Brian Alexander, Mechanicsburg, PA; Peter Ng, Johor Bahru, Malaysia; Stewart MacKenzie, Huntington Beach, CA; Charles Maxant, Hinton; WV; George Zeller, Cleveland, OH; Rich D'Angelo, Wyomissing, PA; William Hassig, Mt. Prospect, IL; Jerry Strawman, Des Moines, IA; Robert Brossell, Pewaukee, WI; Chris Gay, Lexington, KY; Rick, Barton, Phoenix, AZ; Joe Wood, Greenback, TN; Robert Fraser, Bedford, ME; Clinton Hullender, Cleveland, TN; Michael Yohnicki, London, ON; Gene Patterson, Gibsonia, PA; and Mark Taylor, Madison, WI.

Thanks to each of you and, until next month, good listening!

Prepared For Safety

by Mitch Gill, NA7US,
NA7US@yahoo.com

Without a doubt, our taxes pay for some of the best public service agencies in the world, and we're very fortunate in that. But Homeland Security is not just about the government protecting our homes and businesses. We have to be an integral participants as well.

The attack at Fort Hood shocked everyone, despite being yet another example of an act of violence that seemingly came out of nowhere and found us unprepared. The failed al-Qaida attempt to blow up a Delta airplane on Christmas Day exposed holes in our security system that should have been fixed. And the tragic news and images from Haiti remind us that catastrophe can come from Mother Nature without warning. On a much smaller scale, we frequently must contend with accidents and even an aging infrastructure. Regardless of the cause of an emergency, the best way to minimize its effect is the same: preparation.

We have a choice in our approach. We can sit and do nothing and watch the world around us or prepare for the worst. I think we'd all agree that the latter is really the only intelligent option.

"The local AM-FM stations can't offer that kind of in-depth information right away, so I came up with a list of frequencies that I will monitor if that 'worst case' ever happens."

Planning For Preparedness

In order to prepare, you need to have a plan. The plan must be unique for you and your family. Do some research on the Internet as there are many helpful suggestions out there. The Federal Emergency Management Agency (FEMA) website is a good place to start. While FEMA advises you to always have an working AM-FM radio on hand and to watch the news on TV in case of an

Programming fire department frequencies into your scanner is a crucial part of being prepared for an emergency. Reserve Engine 249 (ex-Engine 241) of the Clay Fire Territory, Indiana.

Pop'Comm Shout Out

Last Veteran's Day, I found myself feeling a little down, so I decided to do a little extra volunteer work. Being a veteran who served in a foreign war, I checked out my local Veterans of Foreign Wars post, 5052.

I expected to find a few old men sitting around reminiscing about wars of long ago, but instead I found a vibrant group of people who were also engaged in volunteering their time. There were veterans there from every war, from World War II to our present struggles. What they talked about was the volunteer activities from the previous month and what they would be doing the next month. I was fascinated. Some of these men were in their 70s and 80s and were still volunteering their time for you and me. I was welcomed with open arms and joined that night.

So my Shout Out this month is to all of those volunteers who quietly serve our communities and country without ever expecting anything in return. That, of course, also applies to all our men and women currently in the military. Remember, they're volunteers as well.

emergency, it really doesn't go much beyond that. For instance, it doesn't tell you what frequencies you should monitor, and that's where this column comes in.

To design the best plan, you must consider the worst case. What happens if power is disrupted? That AM-FM radio better be battery or solar-operated (solar will also need battery back-up) or the crank-style sold by the Red Cross, the best option. Just keep in mind that the AM-FM stations are only going to have what information they can get from agencies working the emergency. That's not good enough for me. I want to know if the roads are clear, what area is affected, if there are nuclear or biological hazards, and which way the wind is blowing. *Why* is the power out? Was a substation attacked? Was there a catastrophic accident?

The local AM-FM stations can't offer that kind of in-depth information right away, so I came up with a list of frequencies that I will monitor if that "worst case" ever happens. I want to share that list with you here to show you the types of agencies/services you'll want to monitor.

On My "Must-Listen" List

The following is a short, but crucial, sampling of my "must-listen" list, and these agencies and frequencies are there for good reason. Even though it's for my local area in Washington State, you can use it as a guide and easily tailor it to yours.

Agency	Frequencies
State EOC	3.985 LSB 7.234 LSB
Fire Dispatch	154.070
Metro Transit Supervisor	452.275 and 452.350
King 5 Chopper	455.61250
King County Police	866.075

First and foremost I have the ARES/RACES frequency that directly supports my state's Emergency Operations Center (EOC). All states have some sort of support from these groups and the EOC is where, in our state, the governor goes in the event of an emergency. By listening to their communications I can receive information concerning events before the news stations have it, and that can give me a few minutes more to prepare for whatever I need to do. The ARES/RACES group operates on HF in our state, but yours may be on VHF FM.

I also listen to one or two frequencies for every agency I believe will give me the information I need (see below). For instance, the Fire Dispatch frequency on my list may tell me if there are fires and where they are. Metro Transit Supervisor frequencies allow the supervisor to talk to police, fire, and the buses, which may tell me what roads are closed and where dangerous areas are. King 5 chopper is up in the air for traffic reports. Listening to them before they go on the air may give me a heads-up on where I can go quickly without running into a traffic jam.

Remember that you can't monitor everything so pick and choose carefully. You need to think of every possible scenario and concentrate on those agencies that you believe will be of the most benefit. For example, the Cedar River Municipal Watershed is carefully managed to supply clean drinking water to 1.4 million people in the greater Seattle area. The watershed covers 90,638 acres and is owned by the City of Seattle. If there were an emergency involving that watershed, the Department of Health will have the best information, so I would monitor them. Decide on your area's crucial concerns and the agencies that would be involved in an emergency and program the applicable frequencies now rather than trying to gather them during the course of an unfolding event.

Till Next Time

I'd like to hear from you about your own experiences and your own approaches to preparedness, so please drop me a line. And to those of you who have emailed your ideas and thoughts, thank you. Keep emailing but more importantly keep monitoring!

"Video Games" For Radio Amateurs

by Kirk Kleinschmidt, NTØZ
kirk@cloudnet.com

"...these ham radio simulators use the Internet to connect 'hams' with one another using simulated (software) transceivers linked by VoIP (Voice over Internet Protocol) systems similar to those used by Skype and other Internet-based telephone systems."

Now that computers, the Internet, and technology in general have firmly rooted themselves in our everyday lives, it seems as if just about everything that's fun is also "simulated."

For example, you can play baseball at your community park, or you can "play" baseball on your Nintendo Wii. You can buy a decommissioned Russian SU-37 jet fighter (a real bargain at only $5 million), learn to fly it, and use it to cut your New York to Los Angeles transit time to about two hours. (Heck, it only burns $5,000 worth of jet fuel each hour, assuming you don't kick in the afterburners!) Or, you can load Microsoft's Flight Simulator X on your home PC and take advantage of the low-budget, simulated thrill. And now, you can sell your in-town condo to escape your pesky deed restrictions, buy an expensive place in the country, and spend even more to put up a world-class antenna farm to go with it! Or, you can experience the wacky and wonderful world of ham radio without emitting a single milliwatt of RF by talking with other hams and radio enthusiasts worldwide on a simulated ham radio!

I'm talking specifically about two "video game" offerings, QsoNet and Hamsphere, that are of, by, and for hams! (Actually, both are for hams, but only one can be used by non-hams who also want to "play" ham radio—more on that later.) To see what I'm talking about, point your Web browser to www.qsonet.com and www. hamsphere.com.

Certain differences aside, these ham radio simulators use the Internet to connect "hams" with one another using simulated (software) transceivers linked by VoIP (Voice over Internet Protocol) systems similar to those used by Skype and other Internet-based telephone systems.

In some ways these systems are so much like Skype that if you simply imagined an Internet-based telephone system that replaces the hardware or software telephones on each end of the link with "ham radio transceiver telephones," you'd be right on the money.

Unlike Skype, however, the telephones look and work like ham rigs, and everyone on the systems uses amateur radio protocols while working voice or Morse code QSOs! Plus, everyone's a ham or a radio enthusiast of some pedigree, so the entire community of "callers" almost exactly matches the folks you'd find on any given ham band. You know what they say: If it walks like a duck, quacks like a duck, and calls CQ like a duck...chances are, it's a duck! And after test driving each system for an evening or two, I can tell you without reservation that QsoNet and Hamsphere seem like "real radio"—sometimes eerily so!

Let's take a brief look at each ham radio simulator. There are many useful similarities and some interesting differences.

QsoNet

Created by Doug McCormack, VE3EFC (CorMac Technologies), of Thunder Bay, Ontario (a lovely little city of the "top side" of Lake Superior), QsoNet is a friendly community of nearly 30,000 users worldwide. QsoNet costs $32 a year (after a free 90-day trial), and its simulated radio, which runs in Windows 2000, XP, Vista and 7, is the model CQ100. If you're running a Linux or Mac OS you'll have to run a supported flavor of Windows in a virtual machine to access QsoNet.

The first thing I noticed about the CQ100 virtual transceiver was its simple friendly layout, easy-to-use controls and its bright, shiny appearance. When you click on the transceiver window, making the window active, the S meter at the upper left hand part of the radio glows with a golden "incandescent" color.

There are six "bands," each with SSB and CW subbands. The folks at QsoNet want to make sure that CW is used in the CW portion of the band, and that SSB is used in the SSB portion of the band, just like real radio.

You can tune the CQ100 transceiver by rotating the main tuning knob with your mouse pointer, but because the radio has a band scope, it's much easier to simply highlight the desired signal on the band scope, click on it with your mouse, and let the radio tune itself. One click is all it takes.

In addition to displaying the frequency, the radio's central display also shows you the name, callsign, and QTH of the person who's currently

These software radios, the QsoNet CQ100 and the Hamsphere Transceiver, might be software simulations of the real thing, but the fun you'll have using them is 100 percent real. Check them out at www.qsonet.com and www.hamsphere.com.

transmitting on the frequency, along with a little bit of personal information the operator might have added to pique your curiosity. Some operators list their age here, or mention another hobby, etc.

The voice quality is excellent—perhaps a bit too good. There's a little bit of simulated static between transmissions, but whenever operators are talking it's telephone quality all the way. The downside is that it doesn't sound *exactly* like radio; the upside is that it's *very easy* to understand other operators. Propagation is always good on QsoNet!

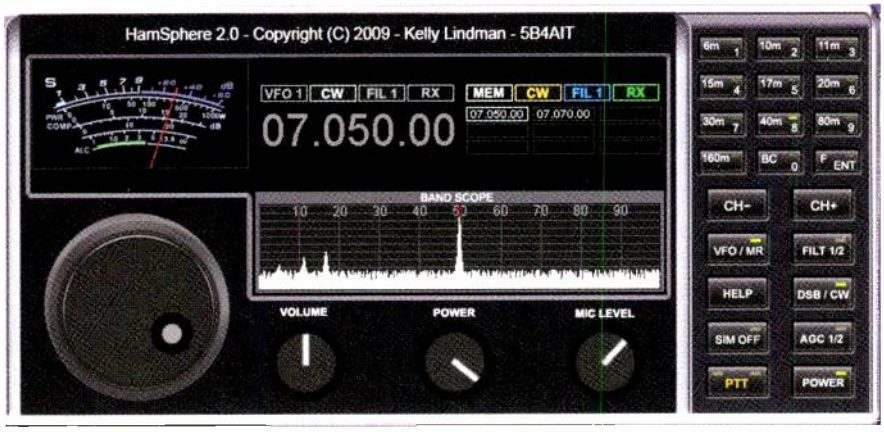
As with any VOIP system, there's a slight delay when switching from transmit to receive. When talking one-on-one the delay isn't a big deal, but when others may be trying to break in, it can be a bit confusing.

The CQ100 software downloads quickly and installs easily (I tried it on Windows XP only). You have to be a licensed ham radio operator to use QsoNet, and there are a variety of ways to prove to Cormac Technologies that you have a valid license. I scanned my ticket and submitted it to Cormac via the site's built-in submission tool. The next morning I was notified by email that I was good to go on the air!

The software "just works," meaning that you don't have to configure router ports, etc., making CQ100 easy to use from airports, hotels, or Internet cafes. Any headset that works with your PC should work with the CQ100. For both systems I used my venerable Logitech USB headset with perfect results.

My Contacts On QsoNet

At first it seemed that there wasn't much "DX" on QsoNet but then, as if on cue, the DX started rolling in. First up was BK Yoon, HL2AIU, who lives northwest of Seoul, South Korea, but was on a business trip to Moscow, Russia, when we spoke. He had just gotten out of bed and, before it was time to eat breakfast in the hotel restaurant, he was sneaking one more QSO with his CQ100 transceiver.



The first thing I noticed about BK was his sense of humor. I was already thinking it when he told me that his nickname was Burger King! I don't know any words in Korean, but he knew a few phrases in Japanese and Chinese, as do I. He chuckled as I tried out my limited vocabulary.

BK told me he "absolutely loves" CQ100. He loves talking to DX stations and he loves the high fidelity of the VoIP "radio." Because of the uncooperative sunspot cycle it's been quite a while since I've chatted with an operator from Korea. In addition to BK's jovial nature, this contact was a lot of fun on a variety of levels.

Next up was Yoshi, JH2UZR, a retired a gym teacher from Ise City, Japan, about 200 miles southwest of Tokyo. Much like BK, Yoshi's loves chatting on CQ100. He speaks *excellent* English, although his Australian accent is somewhat amusing. He says he learned English from his Australian ham buddies over many years!

My conversation with Yoshi was truly amazing. Ever since I can remember I've associated Japan with big cities and super-expensive real estate. But Yoshi lives in the country, has a pair of hunting dogs, and had just returned from hunting pheasants before calling CQ! Honestly, I didn't even know that people could go hunting in Japan!

JH2UZR's been licensed since 1973, so he's very familiar with amateur radio, yet he says he prefers chatting on CQ100 most days. Of course, I tried out my best Japanese and professed my love for sushi and sashimi! To his credit, he understood everything I was saying—in English *and* Japanese. Not everybody can make that claim!

I didn't make any Morse code contacts, but I did listen in on a few rather high-speed CW QSOs between Old-Timers. The CQ100 has a built-in CW

keyboard feature, but I didn't want to sound like a noob while I was trying to figure it out! Although I'm far from the world's best CW op, I have been slinging dits for more than 30 years...but never with a keyboard!

Hamsphere 2.0

The nifty creation of programmer Kelly Lindman, 54BAIT, a Scandinavian ham who now lives in Cyprus, Hamsphere 2.0 supports voice and CW QSOs via a virtual multiband transceiver ala QsoNet, but the complexity of the ham radio "simulation" is much more detailed, as is the software "radio."

Unlike QsoNet, you don't have to be a licensed ham to transmit on Hamsphere. After a short trial period, the system costs about $30 a year. The Hamsphere 2 software runs on Windows, Linux, and Mac systems (pretty much any system that can run a Java application).

The left side of the transceiver sports a chat window/DX Cluster, which helps to arrange contacts and find people calling CQ. The radio also has adjustable AGC and filter bandwidths, memories, and more. The amazing thing about Hamsphere is that it sounds like real radio in every way. Although VoIP is used to transport audio streams back and forth between Internet users, voice information is converted to actual DSB (double sideband) signals in the Hamsphere server's DSP engine! When you tune off frequency with your radio's VFO, voice signals sound weird and "Donald Duck-like," just as they do in real life!

To further mimic radio reality, Hamsphere simulates ionospheric and propagation effects, man-made and atmospheric noise, interference—even broadcast, spy, and pirate radio signals! When you're listening to stations on the Hamsphere system, signal and noise levels can fade up and down, interfering signals can pop in and out, etc.

It's fascinating and engrossing. QsoNet feels like ham radio on the intellectual level, while Hamsphere feels like radio on the visceral level. It's actually difficult to tell Hamsphere apart from real radio. That was made starkly apparent when I tuned to stations on "6 meters." There, perhaps to simulate FM voice communication, you can turn the simulation off; that is, you can keep the high-fidelity VoIP voice communication while eliminating the noise, fading, and interference! After listening to Hamsphere's normal "simulation mode" for a while, the transition is shocking! One seems like telephone, the other like radio-telephone! It's an amazing achievement!

QsoNet has Morse code practice transmissions at various speeds at the low end of each "band," while Hamsphere has CW beacons and even a few "spy numbers" stations in voice and CW! There are other goodies as well. When you're listening to a voice contact, for example, an occasional "chirp chirp chirp" from a simulated SITOR/AMTOR station will pop in and out to add realism to the "hamsphere." It's quite effective. And for the dedicated SWLs among us, Hamsphere even includes an SWL broadcast band, complete with a half-dozen voice and music broadcasts that sound just like real radio! Remember, they, too, are actual DSB signals that are subject to Hamsphere's fading and noise effects, so they sound *exactly* like listening to shortwave radio! I'm not sure whether Kelly is rebroadcasting received signals or whether the source audio is from several MP3 files, but the effect is shocking nonetheless.

Hamsphere QSOs

My Hamsphere QSOs were mostly DX (you can take the boy out of the city...). The first was with Gustavo, 3HS267, a 57-year-old from Sao Paulo, Brazil. We talked on "40 meters" about Brazilian Jiu-Jitsu, but band conditions weren't fabulous so the QSO was short.

Next up was Gerard, 19HS114, from Purmerend, The Netherlands. Gerard has never been a ham, but he spent some time on 11 meters "back in the day." His English was fine, although he was a bit self-conscious. He was quick to laugh (like me), and we thought it was somehow funny that we were both 47 years old! I told him how I used to listen to Radio Nederland, broadcast from Hilversum, Holland, back in my SWL days as a kid. He didn't live anywhere near Hilversum, but he told me some horror stories about the stray RF experienced by hams and residents alike who live near the shortwave powerhouse!

The last QSO I'll mention was with Rich, 2HS706, a veteran CBer from Liverpool, New York. Rich loves working ops on Hamsphere because the system's simulated propagation is a whole lot better than the actual propagation on 27 MHz nowadays at the bottom of the current sunspot cycle. Before we could get too far along, however, the Hamsphere server went down for maintenance (we were chatting in the wee hours of the morning).

The unusual callsigns of the Hamsphere ops I worked are also the creation of Kelly, 5B4AIT. Licensed hams use their own callsigns, while unlicensed ops receive a unique "HS" Hamsphere call when registering for the system. I haven't figured out all the details yet, but the callsigns are assigned on a logical basis, with the prefix representing some kind of geographical area (and the suffix probably representing a sequential number given to users in each region). Cool! Hamsphere has its own simulated ITU, too!

Soapbox

After a couple of charming evenings playing around with these wonderful ham radio "video games," I was stunned to see so much bitter, negative feedback and carping about them in various amateur radio online forums (that shall remain nameless). Apparently, a lot of hams don't understand the video game analogy. Yes, friend, we know it's VoIP, we know there's no RF involved, and we know it's all simulated. And knowing that, we don't care! It's fun, educational, and it affords easy access to a cadre of radio enthusiasts of every background.

If you come across some of this negative, off-color, and off-base commentary, actually try QsoNet and Hamsphere for yourself before worrying about what some loudmouthed purists have to say about the subject. Fun is fun. Video games are fun. And simulated radio is fun if you discover that you like it.

For me, it brought back the thrills I used to get during sunspot peaks. I'd often work plenty of JA, VK, and ZL stations in the Pacific during the evening on 20 and 15 meters. Contacts were plentiful and easy to come by, even for a landlocked Midwestern ham with a dipole antenna and 100 watts. With the generally challenging propagation we've been experiencing for the past few years, my 5 watts to an attic loop antenna earns me many QSOs on CW and PSK31, but I can't easily ragchew with Asian and European hams under any circumstance—except for QsoNet and Hamsphere, that is!

Whether it's a mainstay or simply frosting on your ham radio cake, simulated radio can add a lot of flavor to your radio experience, whatever your style. Why not find out for yourself?

Aurora: Lighting Up 2010

by Tomas Hood,
NW7US, nw7us@arrl.net

Get ready! With our local star waking up in a very noticeable way, it's highly likely that this year's auroral season will be an active and exciting show of lights. And while such auroral activity and the associated geomagnetic storms that come from an increase in solar activity degrade HF radio propagation, these conditions often create useful VHF radio propagation. During times of minor to severe geomagnetic storm activity, the ionosphere loses its ability to refract HF. At the same time, however, high geomagnetic activity causes auroral substorms that create areas of ionization capable of reflecting VHF signals.

Auroral observations over the last 100 years reveal that peak periods of radio aurora occur close to the equinoxes; that is, during the months of March and April, and again September and October. Of the two yearly peaks, the greater peak, in terms of the number of contacts reported, occurs during October. However, some of the strongest levels of geomagnetic storms are in the spring. The minimum activity yearly occurs during the months of June and July, with a lesser minimum during December.

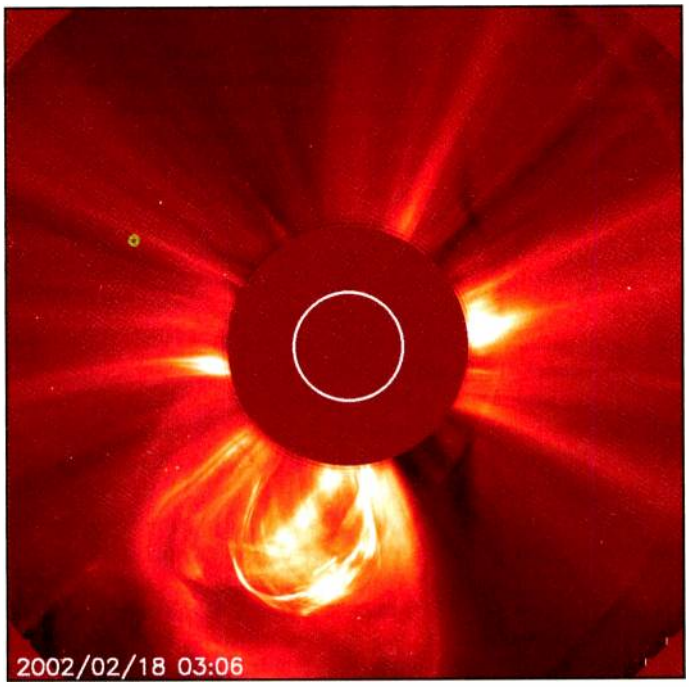


Figure 1. A coronal mass ejection, a huge cloud of solar plasma, escapes from the sun on February 18, 2002. When these massive clouds of plasma are directed toward Earth, they can trigger aurora. (Source: National Oceanic and Atmospheric Administration)

Understanding Aurora

Aurora is a direct result of solar plasma interacting with gasses in the upper atmosphere. Geomagnetic storms develop when strong gusts of solar wind and coronal mass ejections (CMEs; see **Figure 1**) hit the Earth's magnetosphere in just the right way. The magnetosphere is filled with electrons and protons that are normally trapped by lines of magnetic force that prevent them from escaping into space or descending to the planet below.

The impact of a CME breaks loose some of those trapped particles, causing them to rain down on the atmosphere. Gasses in the atmosphere start to glow under the impact of these particles, and different gasses give out various colors (think of a neon sign and how the plasma inside the glass tube, when excited, glows with a bright color.) The precipitating particles mostly follow the magnetic field lines that run from Earth's magnetic poles, and are concentrated in circular regions around the magnetic poles called "auroral ovals." These bands expand away from the poles during magnetic storms. The stronger the storm, the greater these ovals will expand. Sometimes they grow so large that people at middle latitudes, like California, can see these "Northern Lights."

When active aurora is seen in the auroral zone, a strong magnetic disturbance is usually also observed there. These disturbed magnetic fields often are much stronger than those of a geomagnetic storm, but are strictly local, fading away quickly as one moves toward the equator. This suggests that the currents that disturb the magnetic fields flow somewhere nearby—probably near the auroral arcs.

The Norwegian physicist Kristian Birkeland (whose portrait appears on Norwegian currency) carefully observed auroral disturbances and concluded that the currents flow parallel to the ground, along the auroral formation. Because electrical currents must flow in a closed circuit, and because these magnetic disturbances seemed

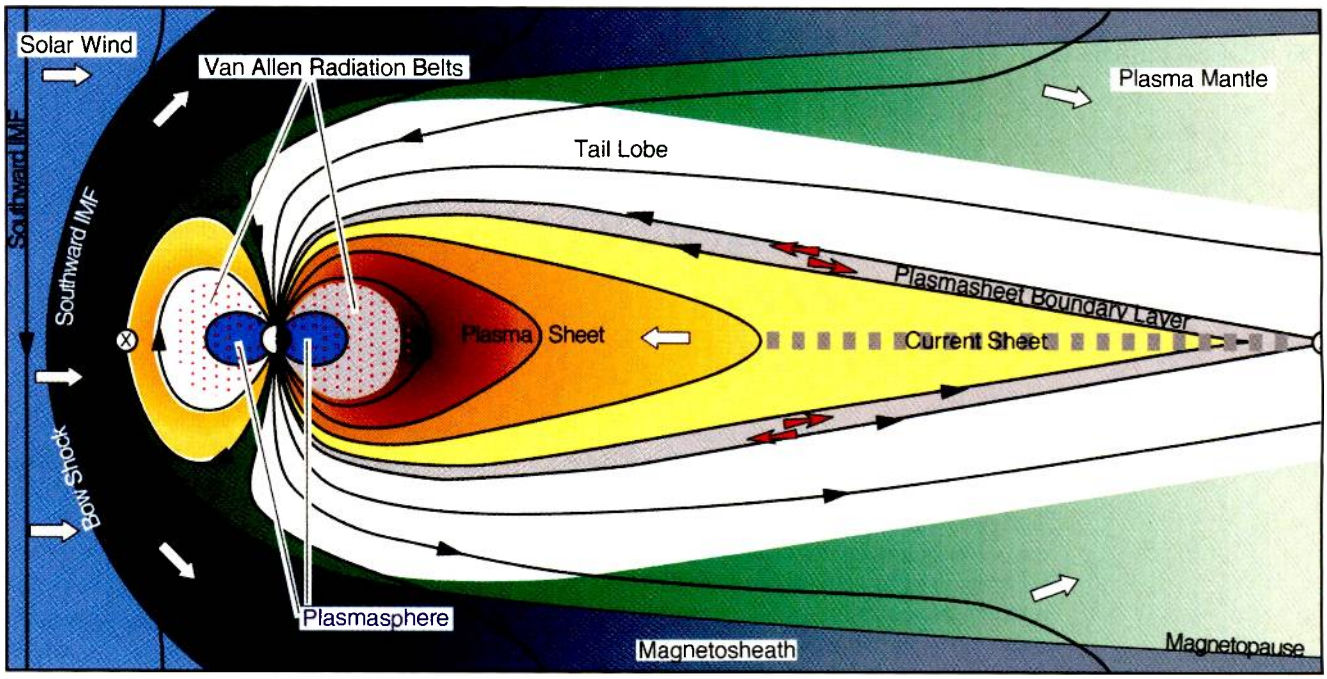


Figure 2. A CME is so powerful that when one hits the Earth, it will disrupt the Earth's magnetosphere, compressing it on the dayside and extending the nightside tail. When the magnetosphere reconnects on the nightside, it creates trillions of watts of power that is directed back toward the Earth's upper atmosphere. This process can cause particularly strong aurora, known as the "Northern Lights" or "aurora borealis" (in the Northern Hemisphere), and the "Southern Lights" or "aurora australis" (in the Southern Hemisphere). (Source: Rice University, adapted from T. W. Hill/NASA)

to be caused by processes taking place in distant space, Birkeland proposed that the currents came down from space at one end of an arc and returned to space at another end.

In 1910 Birkeland performed a series of experiments to reproduce many of the characteristics of the aurora that he observed during expeditions he'd made. He placed an electromagnetic sphere, coated with fluorescent paint, inside a vacuum chamber and projected a beam of electrons at the sphere, enabling him to view the trajectories of streaming electrons. This allowed Birkeland to accurately reproduce how solar wind would make its way into the Earth's magnetic poles, and he was able to simulate the auroral ovals near them.

It wasn't until 1954 that auroral electrons were actually observed by sensors aboard a rocket launched into an aurora by Meredith, Gottlieb, and Van Allen, of Van Allen's team at the University of Iowa. The Van Allen team discovered Earth's radiation belts, which now bear his name.

Continuing research has revealed that aurora is caused by the interaction of Earth's magnetic field and the solar wind. The magnetic field around the Earth, called the magnetosphere, is distorted by a flow of charged particles, mainly protons and electrons, which flow away from the sun (**Figure 2**). This flow, known as the "solar wind," also contains magnetic field lines. On the windward side, the side mostly facing the sun, a bow shock is formed, while on the leeward, opposite side, the magnetosphere is dragged out into a long tail.

The magnetosphere acts as a giant shield around the Earth, blocking the solar wind particles. However, there are distinct regions in the magnetosphere where solar wind particles may enter Earth's upper atmosphere. They may enter directly via the dayside cusps or, having been trapped in the plasma sheet around the Earth, they can enter via the enclosed magnetic field lines at the polar auroral oval on the night side.

In 1961, Dr. Jim Dungey of Imperial College, United Kingdom, predicted that cracks might form in the magnetosphere when the solar wind contained a magnetic field that was oriented in the opposite direction to a portion of the Earth's field. He postulated that the two magnetic fields would interconnect through a process known as "magnetic reconnection" and form a crack in the shield through which the electrically charged particles of the solar wind could flow. In 1979, Dr. Goetz Paschmann, of the Max Planck Institute for Extraterrestrial Physics, Germany, detected these cracks using the International Sun Earth Explorer (ISEE) spacecraft. In the early 2000s, the Imager for Magnetopause to Aurora Global Exploration (IMAGE) satellite, along with the 4-satellite Cluster constellation that flies far above IMAGE, revealed the direct correlation between a proton aurora (non-visible) and the flow of ions through these cracks.

All this takes place within an area known as the "auroral oval," which comprises rings with a radius of roughly 1,500 miles, centered on the Earth's geomagnetic poles—not on the geographical pole, nor even magnetic poles. The geographic North Pole is located at 90 degrees North latitude and is the point where the lines of longitude converge. The magnetic North Pole is located roughly at 73.5 degrees North latitude and 100 degrees West longitude, near Resolute Bay, Canada. This is the point where magnetic medians converge. The geomagnetic pole, however, which is the center of the auroral oval, is located at the northwest tip of Greenland at 78.5 degrees North latitude and 69 degrees West longitude. It is the northern axis of the mathematical field of closest fit to the actual magnetic field of the Earth.

Using this geomagnetic pole, we define a set of latitude and longitude coor-

dinates, known as the geomagnetic coordinates. The auroral oval during average solar activity lies in a ring between about 70 and 75 degrees North geomagnetic latitude, and can grow during geomagnetic storms and shrink during very quiet geomagnetic activity periods. It also extends farther south on the nightside than on the dayside, which means that as the Earth rotates beneath the aurora, a given location will be nearer the oval at night than during the day.

In the early 1970s scientists recognized a connection between the component of the interplanetary magnetic field (IMF) that lies along Earth's magnetic axis—known as B sub z (B_z)—and Earth's changing seasons: the average size of B_z is greatest each year in early spring and autumn.

Why do these storms increase in strength and number during spring and autumn?

As the sun rotates (one full rotation occurs about every 27 days), the plasma spewing out from it forms into a spiral shape, dubbed the "Parker Spiral" after the scientist who first described it. This solar wind carries with it an interplanetary magnetic field, which is ever expanding away from the sun in this spiral. Think of one of those rotating lawn sprinklers with jets of water shooting away from the center with its bending or curving of the water lines. As the Earth moves around the sun, these spiraling solar winds sweep into Earth's magnetosphere (**Figure 3**). How the magnetic field lines (IMF) in the solar wind interact with the magnetic field lines of the magnetosphere is the key to geomagnetic storms and aurora.

At the magnetopause, the part of our planet's magnetosphere that fends off the solar wind, Earth's magnetic field points north. If the IMF tilts south (i.e., B_z becomes large and negative), it can partially cancel Earth's magnetic field at the point of contact. This causes the two magnetic fields—Earth's and the IMF—to link (think of how two magnets link with one magnet's south pole connecting with the other's north pole), creating a magnetic field line from Earth directly into the solar wind. A south-pointing B_z opens a window, through which plasma from the solar wind and CMEs can reach Earth's inner magnetosphere, bombarding the gasses of the upper atmosphere.

Earth's magnetic dipole axis is most closely aligned with the Parker spiral in April and October. As a result, southward (and northward) excursions of B_z are greatest at those times. This is why aurora is most likely and strongest during the equinoctial months. When we are in the peak of a solar cycle and a year or so afterward, solar activity is very high. The amount of solar wind and plasma is large at this point in the cycle, causing very dramatic and spectacular auroral light shows.

When the molecules and atoms are struck by solar wind particles the stripping of one or more of their electrons ionizes them to such an extent that the ionized area is capable of reflecting radio signals at very high frequencies. This ionization occurs at an altitude of about 70 miles, very near the *E* layer of the ionosphere. The level of ionization depends on the energy and amount of solar wind particles able to enter the atmosphere.

While correlations exist between visible and radio aurora, radio aurora could exist without visual aurora. Statistically, a diurnal variation of the frequency of radio aurora contacts has been identified that suggests two strong peaks, one near 6 p.m. and the second around midnight, local time.

VHF auroral echoes, or reflections, are most effective when the angle of incidence of the signal from the transmitter, with the geomagnetic field line, equals the angle of reflection from the field line to the receiver. Radio aurora is observed almost

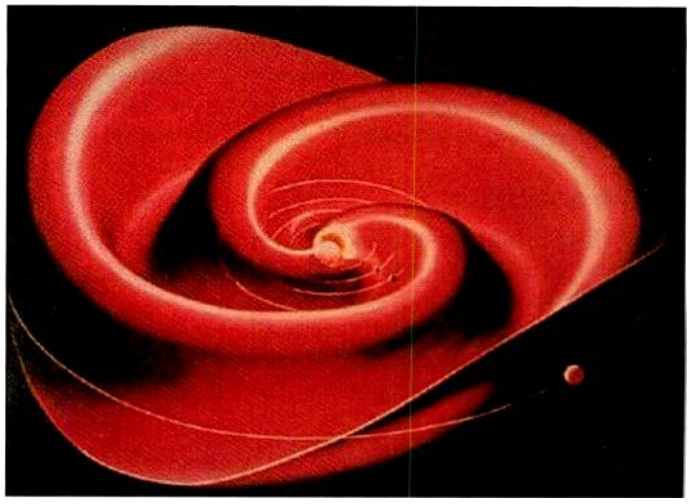


Figure 3. As the sun rotates, the plasma spewing out from the is forms into a spiral shape known as the "Parker Spiral" (see text). Along the plane of the sun's magnetic equator, the oppositely directed open field lines run parallel to each other and are separated by a thin current sheet known as the "interplanetary current sheet" or "heliospheric current sheet." The current sheet is tilted and has a wavy, ballerina skirt-like structure as it extends into interplanetary space. Because the Earth is located sometimes above and sometimes below the rotating current sheet, it experiences regular, periodic changes in the polarity of the IMF. (Source: Artist's conception of heliospheric current sheet obtained from J. Todd Hoeksema, Stanford University)

exclusively in a sector centered on magnetic north. The strength of signals reflected from the aurora is dependent on the wavelength when equivalent power levels are employed. Six-meter reflections can be expected to be much stronger than 2-meter reflections for the same transmitter output power. The polarization of the reflected signals is nearly the same as that of the transmitted signal.

The planetary K index (K_p) is a good indicator of the expansion of the auroral oval and the possible intensity of the aurora. When the K_p is higher than 5, most readers in the northern states and in Canada can expect favorable aurora conditions. If the K_p reaches 8 or 9, it's highly possible for radio aurora to be observed by stations as far south as California and Florida.

Look for aurora-mode propagation when the K_p rises above 4, and look for visual aurora after dark when the K_p rises above 5. The higher the K_p, the more likely that you may see the visual lights. But you don't have to see them to hear their influence on propagation. Listen for stations from over the poles that sound raspy or fluttery on frequencies above 28 MHz, possibly up as high as 440 MHz. Sometimes aurora will enhance a path at certain frequencies; other times it will degrade the signals. Sometimes signals will fade quickly, and then come back with great strength. This is because the radio signal is being refracted off the more highly ionized areas that are lit up. These ionized areas ebb and flow, so the ability to refract changes, sometimes quickly. I've observed the effect of aurora and associated geomagnetic storminess even on lower HF frequencies.

Expect an increase in geomagnetic storms, and auroral activity, as we move into April. I have a wealth of links at http://prop.hfradio.org/ that provide up-to-the-minute aurora information and data. On my webpage, you can watch the B_z as

it changes from positive (northward) to negative (southward) during the Earth's passage through the solar wind stream. I also have links to useful aurora resources on http://hfradio.org/aurora.html/.

HF Propagation

As we move into spring in the Northern Hemisphere we experience great DX openings from around the world on HF. This is because the sun is mostly overhead over the equator, creating equal day and night periods in both hemispheres. The vernal equinox, which occurs at about 1732 UTC on March 20, 2010, marks the day when the hours of daylight and darkness are about equal around the world. This creates an ionosphere of similar characteristics throughout more of the world than is possible during other times, when it's summer in one hemisphere and winter in the other and there are extreme differences in the ionosphere.

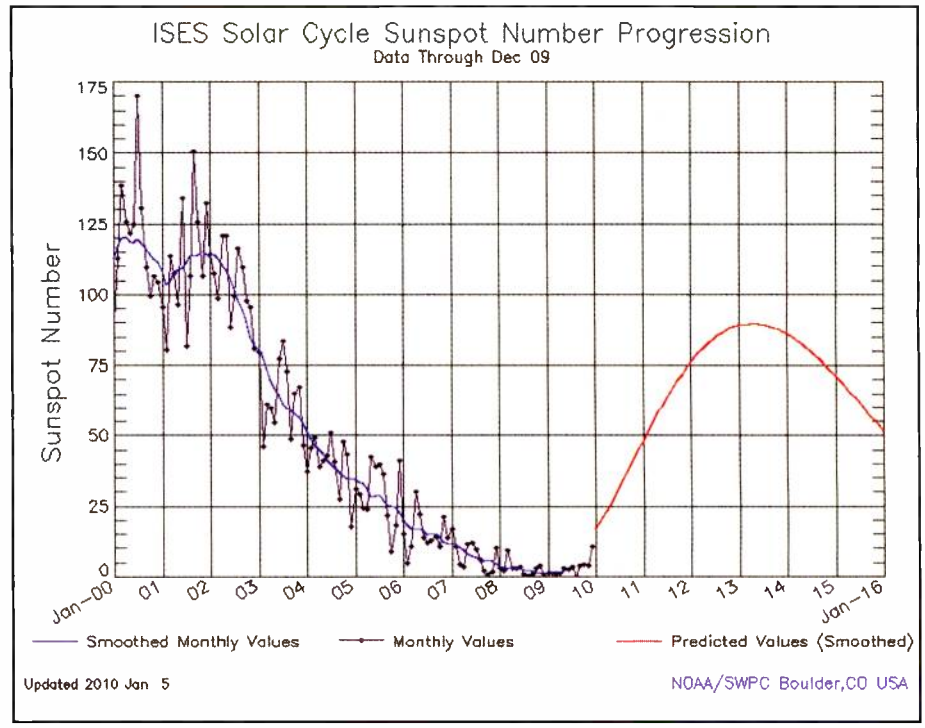
This equalization of the ionospheric, which takes place during the equinoctial periods (autumn and spring), is responsible for optimum DX conditions, and starts late in February and lasts through late April. The improvement in propagation is most noticeable on long circuits between the Northern and Southern Hemispheres. During this season conditions are optimum for long-path as well as short-path openings, and during gray line twilight periods associated with sunrise and sunset.

Expect fewer openings on the higher shortwave frequencies compared to the openings seen during the winter months. However, with the sunspot cycle still in a high stage (ranging from a smoothed sunspot number of 60 to just over 100), the frequencies from 15 to 11 meters should provide occasional openings through the end of April. If openings occur on these higher bands, expect good DX openings from most areas of the world during the hours of daylight. While normal seasonal changes in propagation will result in fewer east-west openings, conditions towards southern and tropical areas are expected to hold up very well. Look for peak signal levels to most areas of the world during the late afternoon hours.

Expect 16 and 19 meters (15 MHz to 18 MHz) to be the best bands for daylight DX during April. These bands should be reasonably active with DX signals from just after sunrise to well beyond sunset. Signals should be strongest to most areas of the world during the afternoon hours, but look for good, solid openings towards the southern and tropical areas well into the early evening hours.

Thirty-one, 25, and 22 meters are expected to be 24-hour DX bands for most of the month. Strongest signals, with DX openings to just about every area of the world, should occur during a two-hour window after local sunrise and again during the late afternoon and through the evening hours to as late as midnight.

Shorter hours of darkness and increasing static levels in the Northern Hemisphere will result in somewhat poorer DX conditions on the mid to low shortwave bands as we move closer to summer. Nevertheless, strong, stable signals



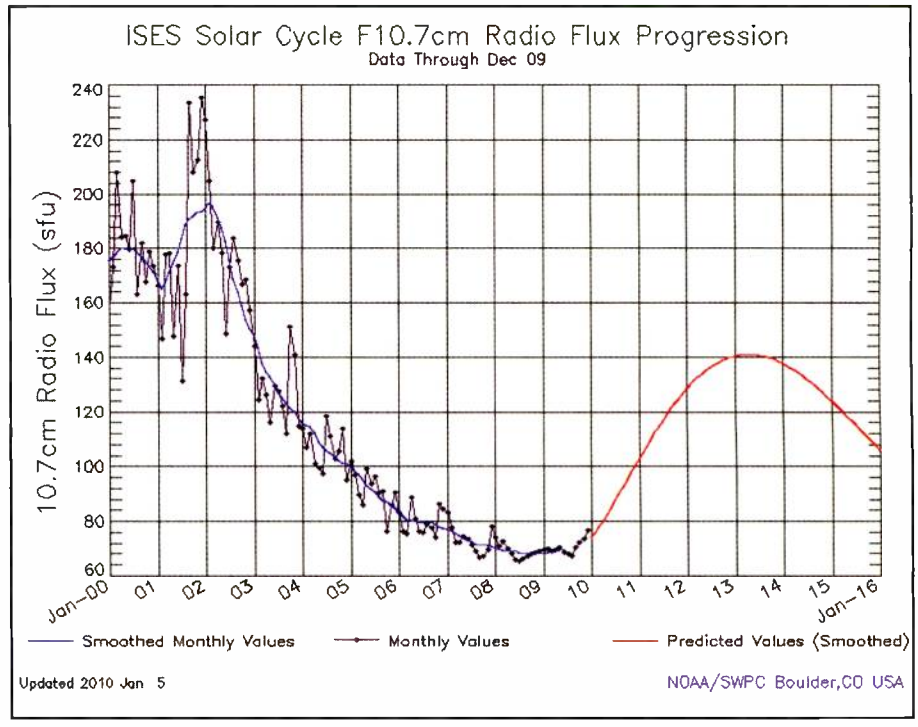


Figure 4. Sunspot Cycle 24 progression charts showing the definite rise in both the monthly observed sunspot counts in the last months of 2009, as well as the rise in the 10.7-cm flux monthly figures. (Source: Space Weather Prediction Center/National Oceanic and Atmospheric Administration)

Optimum Working Frequencies (MHz) - For April 2010 - Flux = 82, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	22	22	22	20	18	17	15	14	13	12	12	11	11	13	16	18	19	20	21	22	22	22	23	23
NORTHERN SOUTH AMERICA	28	28	28	25	23	21	19	18	17	16	15	14	14	15	19	21	23	24	26	27	27	28	28	28
CENTRAL SOUTH AMERICA	29	26	24	22	20	18	17	16	15	14	14	15	15	17	21	24	26	27	29	29	30	30	30	29
SOUTHERN SOUTH AMERICA	27	24	22	20	18	17	16	15	14	14	13	13	14	15	17	21	23	25	27	28	29	30	30	29
WESTERN EUROPE	15	12	10	9	13	15	11	10	9	9	11	15	16	17	18	19	19	19	19	18	18	17	17	16
EASTERN EUROPE	9	9	9	8	12	15	15	13	10	9	13	15	16	17	17	18	18	18	17	16	15	14	10	10
EASTERN NORTH AMERICA	25	24	23	22	20	18	17	15	14	13	13	12	14	18	20	22	24	25	25	26	26	26	26	26
CENTRAL NORTH AMERICA	14	14	13	13	12	11	10	9	8	8	7	7	7	8	10	12	13	13	14	14	14	14	15	14
WESTERN NORTH AMERICA	8	7	7	7	7	6	5	5	4	4	4	4	3	3	5	6	6	7	7	7	7	8	8	8
SOUTHERN NORTH AMERICA	24	23	23	22	21	19	17	16	15	14	13	12	11	12	15	18	19	21	22	23	23	24	24	24
HAWAII	20	20	20	20	20	19	18	17	15	14	13	12	11	10	10	10	11	14	15	17	18	18	19	20
NORTHERN AFRICA	13	12	12	11	10	10	11	10	10	9	9	14	16	18	18	19	20	20	20	20	19	17	16	14
CENTRAL AFRICA	16	15	14	13	13	13	10	10	9	9	10	14	16	17	18	19	19	20	20	20	20	20	19	18
SOUTH AFRICA	18	17	16	15	14	14	15	14	13	12	12	11	17	20	21	23	24	24	25	25	25	23	21	20
MIDDLE EAST	11	10	10	10	15	16	14	12	10	9	12	15	16	17	18	18	19	19	18	16	14	13	12	12
JAPAN	20	21	20	20	19	19	17	16	13	12	11	10	10	10	9	11	11	10	10	13	16	18	19	20
CENTRAL ASIA	21	21	20	20	19	19	17	16	13	12	11	10	10	9	9	14	16	15	14	13	13	14	17	19
INDIA	16	17	17	17	17	16	16	15	13	10	9	12	12	9	9	9	9	8	8	10	13	14	15	16
THAILAND	17	19	20	20	19	18	17	16	13	11	10	10	9	9	12	16	17	17	16	15	14	13	12	14
AUSTRALIA	27	28	30	30	30	29	28	26	23	21	20	18	17	16	15	14	16	15	14	14	15	20	23	25
CHINA	19	20	20	20	19	18	17	16	13	11	10	10	9	9	13	12	11	11	10	10	10	14	17	18
SOUTH PACIFIC	31	31	31	30	30	29	27	24	21	20	18	17	16	15	14	14	13	13	13	21	25	27	29	30

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	25	25	24	22	20	19	17	16	15	14	13	12	13	16	19	21	22	23	24	25	25	26	26	26
NORTHERN SOUTH AMERICA	26	26	25	23	21	19	18	16	15	14	14	13	13	16	18	20	21	23	24	25	25	26	26	26
CENTRAL SOUTH AMERICA	28	26	23	21	20	18	17	16	15	14	14	15	16	20	22	24	26	27	29	29	30	30	30	29
SOUTHERN SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	14	17	20	22	24	26	27	28	29	30	30	29
WESTERN EUROPE	14	10	10	9	9	11	10	10	9	9	14	16	17	18	19	20	20	20	19	19	18	18	17	16
EASTERN EUROPE	10	9	9	9	11	10	10	9	9	9	14	16	17	18	19	19	19	18	18	17	17	16	14	10
EASTERN NORTH AMERICA	18	18	17	16	14	13	12	11	10	10	9	9	11	13	15	16	17	18	18	19	19	19	19	19
CENTRAL NORTH AMERICA	8	8	8	7	7	6	6	5	5	4	4	4	4	6	7	7	8	8	8	9	9	9	9	9
WESTERN NORTH AMERICA	14	14	14	13	12	11	10	9	9	8	7	7	7	8	10	12	13	13	14	14	15	15	15	15
SOUTHERN NORTH AMERICA	17	16	16	15	14	13	12	11	10	9	9	8	8	10	12	13	14	15	16	16	16	17	17	17
HAWAII	23	24	24	23	22	21	19	17	16	15	14	13	12	11	12	11	13	16	18	19	21	22	22	23
NORTHERN AFRICA	17	16	15	14	13	12	11	10	10	9	12	16	18	19	20	20	21	21	21	21	21	21	20	19
CENTRAL AFRICA	17	15	14	13	12	12	11	10	10	9	13	16	18	19	20	20	21	21	21	21	21	21	20	18
SOUTH AFRICA	18	17	16	15	14	14	14	17	16	15	15	17	21	24	26	28	29	30	29	27	25	23	21	19
MIDDLE EAST	12	11	10	10	12	11	10	10	9	9	14	16	18	19	19	20	20	20	19	18	16	14	13	12
JAPAN	20	20	20	19	18	16	14	12	11	10	10	10	9	13	12	11	10	10	10	13	16	18	19	20
CENTRAL ASIA	20	20	19	19	18	16	13	11	11	10	10	9	10	15	17	18	16	15	14	13	13	13	17	20
INDIA	11	13	14	15	15	14	10	10	9	9	12	15	16	15	15	14	13	11	9	9	9	8	8	8
THAILAND	17	19	19	18	17	16	13	11	10	10	9	9	14	16	17	18	19	17	16	15	14	13	12	14
AUSTRALIA	28	29	30	30	29	27	25	22	21	19	18	17	16	15	16	17	16	15	14	14	16	21	24	26
CHINA	19	19	19	18	17	16	13	10	10	10	9	9	14	15	13	12	11	10	10	10	9	14	17	18
SOUTH PACIFIC	31	31	30	30	29	27	24	22	20	18	17	16	15	14	14	13	13	13	16	23	26	28	29	30

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	20	20	19	17	16	14	13	12	11	11	10	10	12	14	16	17	18	19	20	20	20	21	21	21
NORTHERN SOUTH AMERICA	23	23	21	19	18	16	15	14	13	12	12	11	13	15	17	18	20	21	22	22	23	23	23	23
CENTRAL SOUTH AMERICA	28	25	23	21	19	18	17	16	15	14	14	15	18	21	23	24	26	27	28	28	29	29	29	29
SOUTHERN SOUTH AMERICA	26	23	21	20	18	17	16	15	14	14	13	13	17	20	22	24	25	26	27	28	29	29	29	28
WESTERN EUROPE	12	11	10	10	9	9	10	9	9	12	15	16	18	19	19	20	20	19	19	19	18	17	16	14
EASTERN EUROPE	12	10	9	10	11	11	10	10	9	13	16	17	19	19	19	19	19	19	18	18	17	17	16	14
EASTERN NORTH AMERICA	9	8	8	7	7	6	5	5	5	4	4	5	6	7	7	8	8	9	9	9	9	9	9	9
CENTRAL NORTH AMERICA	19	18	18	16	15	14	13	12	11	10	10	9	12	14	16	17	18	19	19	20	20	20	20	20
WESTERN NORTH AMERICA	25	25	24	22	20	18	17	16	15	14	13	12	14	18	20	22	24	25	25	26	26	26	26	26
SOUTHERN NORTH AMERICA	20	20	19	18	16	15	14	13	12	11	10	10	11	13	15	17	18	19	20	20	20	21	21	21
HAWAII	25	25	24	23	21	20	18	17	15	14	13	13	12	14	13	12	15	17	19	21	22	23	24	25
NORTHERN AFRICA	18	17	15	14	14	13	12	13	12	13	17	20	22	23	25	25	26	26	26	25	25	23	22	20
CENTRAL AFRICA	17	16	15	14	13	12	14	13	12	13	17	20	22	23	25	25	26	26	25	25	24	22	20	18
SOUTH AFRICA	18	17	16	15	14	14	14	16	15	15	16	19	22	24	26	27	28	29	29	27	25	23	21	19
MIDDLE EAST	15	14	13	13	12	11	11	10	10	12	15	17	19	20	20	21	21	21	21	21	21	19	18	16
JAPAN	20	19	18	16	13	12	11	11	10	10	9	14	13	12	12	11	10	10	9	13	16	18	19	20
CENTRAL ASIA	19	18	17	15	12	11	11	10	10	9	11	15	17	18	19	18	16	15	14	13	13	12	16	19
INDIA	9	9	8	8	11	11	10	10	9	12	15	17	18	18	17	17	17	16	16	15	13	11	9	9
THAILAND	16	18	16	13	11	11	10	10	9	10	15	17	18	19	20	20	19	18	16	15	14	13	13	12
AUSTRALIA	28	30	29	28	26	24	22	20	18	17	16	15	15	18	17	16	15	15	14	13	17	21	24	27
CHINA	19	18	17	14	12	11	10	10	9	9	14	16	18	17	14	12	11	11	10	10	9	13	16	18
SOUTH PACIFIC	30	30	29	28	25	23	21	18	17	16	15	14	14	13	13	13	12	12	20	24	27	28	29	30

should be possible to many areas of the world on 31, 41, and 40 meters during the hours of darkness. Signals should peak from an easterly direction about an hour or two before midnight and from most other directions about an hour or so before local sunrise at the U.S. end of the path.

Some fairly good DX should also be possible on 49, 60, and 75 meters during the hours of darkness. Propagation patterns on 75 meters should be similar to those observed on 41 meters, but openings will be weaker and noisier. There is a chance for some DX openings on 90 and 120 meters during the hours of darkness as well, but expect to encounter increasingly high static levels. Thunderstorm activity is expected to increase during April in the Northern Hemisphere, and this should add to the static levels on all HF bands, but especially on 41 through 120 meters.

Check both long- and short-path openings during the sunrise and sunset periods on all bands between 11 and 90 meters for all paths between the Northern and Southern Hemispheres.

For short-skip openings up to approximately 250 miles, check 75 meters during the day and 120 meters at night. For distances between 250 and 750 miles, 31 and 41 meters should be the best during the day, 41 and 75 meters from sundown to midnight, and 75 meters from midnight to sunrise. For openings between distances of 750 and 1,300 miles, try 22 meters during the day, with 31, 41, 49, 60, and 75 meters best during the hours of darkness. Between 1,300 and 2,300 miles, check 15, 16, 19, and 22 meters during the day; 22, 25, 31, and 41 meters from sundown to midnight; and 41 and 49 meters from midnight to sunrise. Short-skip openings beyond 1,300 miles may also be possible on 11 and 13 meters during most of the afternoon hours.

A seasonal increase in sporadic-E (E_s) ionization usually begins right at the end of April and continues through the spring and summer months. Look for an increase in short-skip openings on both frequencies from 15 to 11 meters toward the end of April, as well as a possible occasional opening on 6 meters. While E_s openings may occur at any time of the day, they tend to peak between 8 a.m. and noon and again between 5 and 9 p.m. local time.

VHF Ionospheric Openings

The Lyrids, a major meteor shower, should take place between April 16 and 25. Expect it to peak April 22 at about 1700 UTC. 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 (if we get 30 to 60 good-sized meteors entering the atmosphere every hour), expect great meteor-scatter-type openings on the VHF bands.

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. Look for days with high K_p (5 or higher) and A_p (a planetary A index of 20 or higher) figures.

Current Solar Cycle Progress

It's now clear that the sun is awake after a long, quiet sunspot cycle minimum. **Figure 4** illustrates the rise in sunspot and 10.7-cm flux activity in the latest monthly data. Such an increase is truly welcome, as it breathes new life in the higher HF bands.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 76.8 for December 2009, up from November's 73.6, continuing a slow but steady monthly rise. The 12-month smoothed 10.7-cm flux centered on June 2009 is 70.2, also indicating a steady rise. The predicted smoothed 10.7-cm solar flux for April 2010 is about 82, give or take about 8 points.

The Royal Observatory of Belgium reports that the mean monthly observed sunspot number for December 2009 is 10.6, a very sharp rise over the previous three months' readings of 4.2, 4.6, and 4.2. The lowest daily sunspot value during December 2009 was zero, occurring on December 1–9 and December 25. That's only 10 days without sunspots! The highest daily sunspot count for December was 30 on December 20. The 12-month running smoothed sunspot number centered on June 2009 is 2.7. A smoothed sunspot count of 23 is expected for April 2010, give or take about 8 points.

The observed monthly mean A_p for December 2009 is one (1)! That's the lowest of the solar cycle minimum between cycle 23 and 24 (**Figure 5**). The 12-month smoothed A_p index centered on June 2009 is 4.0. Expect the overall geomagnetic activity to be unsettled to stormy during April, triggering aurora. At the time of writing, the forecast holds that April will be a quiet month, but with occa-

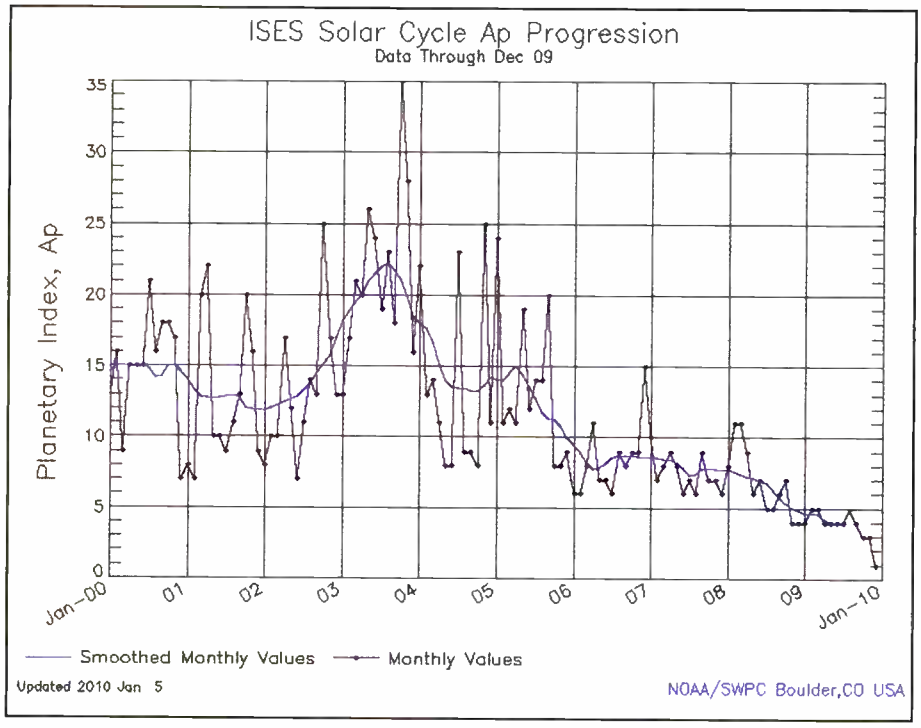


Figure 5. This graph of the monthly and smoothed A_p reveals that we've reached the most geomagnetically quiet period yet recorded in the sunspot cycle minimum between Cycle 23 and 24. This is a record low, at least within the last few solar cycles observed. (Source: Space Weather Prediction Center /National Oceanic and Atmospheric Administration)

sional strong geomagnetic storms due to recurring coronal holes, flares, and possible CMEs (if flaring occurs from possible sunspot activity). Visit the last minute forecast page at http://hfradio.org/last-minute_propagation.html for an up-to-the-minute propagation condition forecast that incorporates the geomagnetic conditions expected based on the 27-day rotation of the sun.

I'd Like To Hear From You

I invite you to visit my online propagation resource at http://propagation.hfradio.org/, where you can get the latest space data, forecasts, and more, all in an organized manner. If you are on Facebook, check out http://tinyurl.com/ fb-spacewx and http://tinyurl.com/fb-nw7us.

Do you have a question that you'd like me to tackle in this column? Drop me an email at the address located at the beginning of this column or at nw7us@hfradio.org or send me a letter (P.O. Box 9, Stevensville, Montana 59870), and I'll be sure to cover it. I'd love to hear any feedback you might have on what I have written. See you on the air!

Until next month, 73 de NW7US

MARS Gets New Name, Mission; Plus Haiti Comms Logged

by John Kasupski, W2PIO,
w2pio@verizon.net

"...considerable other military traffic was also logged, including air-to-air communications between a couple of C-130s from Hurlburt AFB on 9018.0 while en route to Haiti..."

Months of uncertainty concerning the future of the Military Affiliated Radio Service (MARS) came to an end on Wednesday, December 23, 2009, when the U.S. Department of Defense (DOD) issued an Instruction giving the Army, Air Force, and Navy/Marine Corps MARS services a new mission, and a new name to go with it.

While MARS will keep its titular acronym, effective immediately the acronym will now stand for Military Auxiliary Radio System. DOD's designation of MARS as a military auxiliary, which is the first major revision to MARS since 1988, basically places the MARS services on a par with the Civil Air Patrol and the USCG Auxiliary as (according to the DOD definition) "an organized body of volunteers prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous services when called upon or when situations warrant."

Among other things, this action by DOD keeps Navy/Marine Corps MARS intact after several months during which its members were concerned that this MARS service might be terminated by Navy commanders. Furthermore, the new mission tasks MARS to provide contingency radio communications support to U.S. government operations, DOD components, and civil authorities at all levels. These new directives are in addition to the traditional MARS mission of providing health and welfare communications to military personnel and to DOD and civil agency civilian employees and contractors. MARS is also expected to continue to maintain its ability to function as a stand-alone radio system—without support from landline communications systems such as telephones or the Internet—and to continue to operate on emergency power when normal commercial power service has been interrupted.

Left unanswered by the DOD Instruction is the question of which MARS service will take the lead when responding to events, an important issue with respect to the guidelines for unity of command specified by the National Incident Management System (NIMS). In fact, the new DOD Instruction dictates that MARS leaders will now report to three DOD officials, all of them assistant secretaries of defense, instead of the one assistant secretary of defense whom they previously reported to. Nevertheless, the prospect of MARS going away entirely has apparently been averted, and that decision is favorable to those disaster victims who stand to benefit from MARS participation in any future relief/recovery operations.

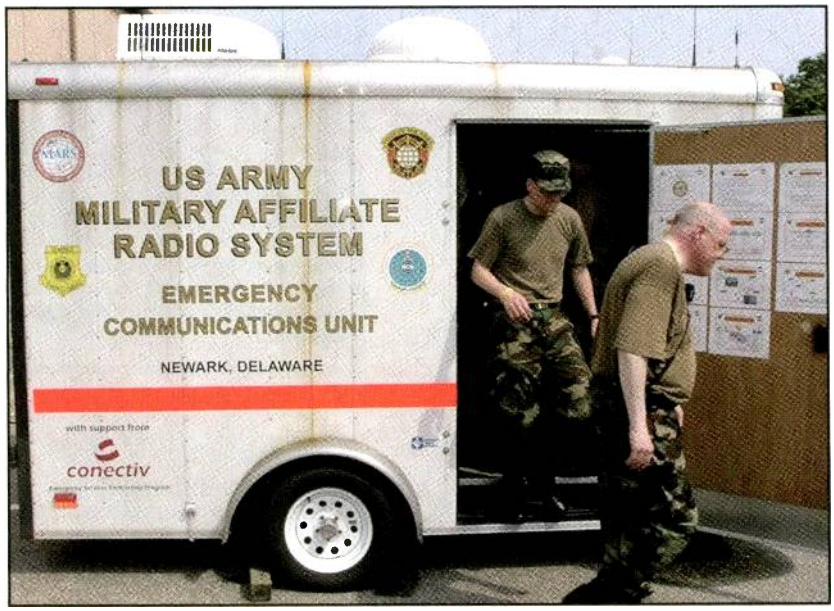


Photo A. MARS will see its mission expanded under its new DOD Instruction. (Photo Courtesy of U.S. Army MARS)

Haitian Earthquake Communications

This month's reader submissions include a couple of logs of ham radio nets engaged in communications related to the January earthquake that struck the Caribbean nation of Haiti. In this capacity, as well as certain others, hams are considered to be functioning as utility stations, and the following nets were in operation soon after the earthquake occurred:

IARU Region 2 Nets: 3720.0 and 7045.0, both in LSB mode.

SATERN (Salvation Army Team Emergency Radio Network) nets: 3977.0 LSB, 7265.0 LSB, and 14265.0 USB

Intercontinental Assistance and Traffic Net: 14300.0 USB

In addition to the hams, one very military-sounding station identifying as "Andrews Air Force Global Command" was active on an amateur frequency, using both Puerto Rico and stateside transmitters, and working W1RKT in the IATN net on 14300.0 throughout the morning of January 19.

While it's not clear whether this was an Air Force MARS station at Andrews operating under the directives of the new DOD Instruction or was actually the HF-GCS station at Andrews AFB, its operators were obviously military and just as obviously uncertain of how to talk to a ham station. This was the first time I've ever personally heard a military station operate on amateur frequencies.

Needless to say, considerable other military traffic was also logged, including air-to-air communications between a couple of C-130s from Hurlburt AFB on 9018.0 while en route to Haiti, who were caught by at least two of our readers. Other reports submitted to the Utility DXers Forum (UDXF) included the U.S. Navy Link 11 Net coordinating Haiti ops on 8975.4 kHz, and French Air Force voice traffic on 18012.0 from aircraft making frequent check-ins while making their way to and from Port-au-Prince. It was also reported to the UDXF that 11159.0 USB was active with numerous REACH (USAF Air Mobility Command) flights working McClellan AFB, with phone patches for crew extensions and logistics for flights to Haiti.

It's impossible to monitor such radio traffic without being acutely aware of the almost incomprehensible devastation that is behind it (the European Union estimated the death toll at 200,000 people just prior to press time). Suffice to say that while hearing Andrews in the ham bands is an example of very rare interoperations, and quite interesting to monitor, our deep sympathy is with the victims and their families and friends.

Reader Logs

Did I say something above about logs from our readers? Oh, yes...we get logs! Not only that, they're highly appreciated, and we only wish there were more. You can help with that by sending your own loggings to me at the email address that appears at the beginning of this column. We also love to receive shack photos, QSLs, and similar items.

Those who contributed this month's logs are Allan Stern, Satellite Beach, FL (ALS); Mark Cleary, Charleston, South Carolina (MC/SC); Glenn Valenta, Lakewood, CO (GV/CO); Chris Gay, Lexington, KY (CG/KY); and Spencer Sholly, Killeen, TX (SS/TX). We again gratefully tip the wide-brimmed "Utility Communications Digest" hat to you all.

347.0: GRK, Killeen-Fort Hood, TX NDB in CW at 0039Z. (SS/TX)

529.0: LYQ Manchester TN, NDB in CW at 1208Z. (CG/KY)

2598.0: Canadian CG Labrador with ice warnings for Atlantic coast, in French then English, in USB at 0951Z. (GV/CO)

2872.0: Gander Radio wkg various airliners in USB at 0835Z. (ALS)

2899.0: Shanwick Radio wkg various airliners in USB at 0428Z; Shanwick wkg Continental 68 for posrep in USB at 0255Z. (ALS)

2962.0: New York Radio wkg Judy 104 for routing, FL350, in USB at 0343Z; NY wkg Delta 126 for posrep (crossing 40 West), hands flight off to Santa Maria on primary 5598.0 kHz, in USB at 0345Z. (ALS)

Photo B. Haitian earthquake evacuees aboard C-17 Globemaster from March ARB, California. (USAF Photo)

2971.0: Gander Radio wkg various airliners in USB at 0835Z; Gander wkg Continental 22 for posrep in USB at 0338Z; Shanwick Radio wkg Speedbird 216 for posrep in USB at 0340Z. (ALS)

3016.0: Santa Maria Radio wkg various acft for SELCAL checks and posreps in USB at 0301Z. (ALS)

3299.0: AFN4VN (FL) net control in USAF MARS Region 4 4S1 Net in USB at 0111Z. (MC/SC)

3315.0: AFA1HA, AFA2YG (NJ), AFF2NY (NY) in USAF MARS NE2S1 Net in USB at 0013Z. (MC/SC)

3320.5: NNN0GBS (SC) in USN/USMC MARS 4G1B South Carolina Net in USB at 0115Z. (MC/SC)

3413.0: Shannon VOLMET with aviation WX in USB at 0528Z; same station heard another night at 0404Z. (ALS)

3455.0: NY Radio clearing Delta 124 to higher altitude in USB at 0128Z; NY wkg Skytour 831 for SELCAL check in USB at 0204Z. (ALS)

3455.0: NY Radio handing off aircraft to Santa Maria Radio on 5598.0, in USB at 0530Z; NY wkg Air France 429 for routing and SELCAL check in USB at 0543Z; NY Radio wkg Sunwing 755 for SELCAL check in USB at 0415Z. (ALS)

3455.0: New York Radio wkg unid; instructs acft "Crossing 40 West, ctct Santa Maria on 5598 kHz" in USB at 0327Z; NY wkg Cactus 740 for posrep, backup freq is 2887 kHz; in USB at 0332Z. (ALS)

3476.0: Gander Radio wkg various airliners in USB at 0430Z. (ALS)

3485.0: New York VOLMET reciting aviation WX for Bermuda and Miami, in USB at 0418Z; NY VOLMET reciting Terminal Aerodrome forecasts for Nassau, Orlando, Bermuda, other locations, in USB at 0544Z. (ALS)

3494.0: ARINC-San Francisco LDOC in USB at 0209Z. (ALS)

3813.4: Unid numbers station, not amateur, with 5-character groups, not International Morse, in CW at 2016Z. (CG/KY)

3816.0: Unid (not amateur) with "724 724 0" repeated for several minutes in CW at 2000Z. (CG/KY)

4013.5: NNN0PHR (TN) net control in USN/USMC MARS Region 4 4X1B Net in USB at 1419Z. (MC/SC)

4026.9: AAR4CW (FL) net control in USA MARS Region 4 AAA4RD/B Net with AAM4AL (AL), AAM4SC (SC), AAA4NC (NC), AAR4EU (TN) and others in USB at 1204Z. (MC/SC)

4026.9: AAR4TW (NC) in USA MARS Region 4 AAA4RD/C North Carolina Net with AAM4ENC (NC), AAA4NC (NC), AAR4CX (NC) and others in USB at 1303Z. (MC/SC)

4032.9: AAM3EMD (MD) net control in USA MARS Region 3 AAA3RD/A Net with AAA3VA (VA), AAA3PA (PA) and others in LSB at 1217Z. (MC/SC)

4035.9: AAR2ML closing a MARS net in USB at 1850Z. (CG/KY)

4089.0: Hobby dasher beacon, under some weak QRM from a LINK-11 signal, in CW at 0719Z. (GV/CO)

4149.0: Tug *ADVENTURER* (WBN 3015) ops report to WPE, Jacksonville in USB at 1756Z. (MC/SC)

4160.0: Unid Spanish voice transmission in Tadiran HF-2000 bypass mode but 1000-Hz pre-beep and then FSK overhead at 3300 Hz throughout transmission, in USB at 0405Z. (GV/CO)

4321.0: Voice QSO with several unid participants in an Asian language, in USB at 0715Z. (GV/CO)

4469.0: FLORIDA CAP 517 net control in Florida Civil Air Patrol Net in USB at 0130Z. (MC/SC)

4500.0: AFA4FQ (FL) net control in USAF MARS Region 4 4FLS1 Florida Net in USB at 1302Z. (MC/SC)

5505.0: Shannon VOLMET with aviation WX in USB at 0835Z. (ALS)

5520.0: NY Radio wkg Sunwing 755 for posrep in USB at 0253Z; NY wkg Canjet 870 for posrep, hands flight off to Miami ATC VHF freq, in USB at 0302Z. (ALS)

5550.0: NY Radio wkg Air France 695 for posrep and handing off to freq 6628.0 in USB at 0201Z; NY wkg Air Transat 517 for SELCAL check in USB at 0213Z. (ALS)

5550.0: NY wkg unknown airliner for SELCAL check and handing same off to Jacksonville Center on VHF, in USB at 0835Z; NY wkg Jet Blue 820 (en route to JFK IAP from Santo Domingo) for SELCAL check in USB at 0835Z. (ALS)

5550.0: NY wkg NATO 03 (E-3 AWACS, Geilenkirchen, Germany) for posrep "SNAGY at 2332Z" in USB at 2329Z; NY wkg Lufthansa 438 for posrep in USB at 0117Z. (ALS)

5598.0: NY Radio wkg various airliners in USB at 0346Z; NY wkg Delta 186 re: clearance to climb, in USB at 0228Z; Santa Maria Radio wkg various airliners in USB at 0230Z. (ALS)

5649.0: Gander Radio wkg various airliners for posreps in USB at 0216Z. (ALS)

6215.0: Unid mixed Spanish and English QSOs in USB at 0555Z. (GV/CO)

6579.6: Unid QSO 2 OM in Spanish, weak and with QRH, in USB at 0626Z. (GV/CO)

6586.0: New York Radio wkg American 169 for posrep and SELCAL check, in USB at 0216Z; NY wkg various airliners; switching aircraft to 11330 as Primary, 8918 as Secondary, in USB at 1154Z. (ALS)

6586.0: NY Radio wkg American 1738 for posrep in USB at 0147Z. (ALS)

6586.0: NY Radio wkg Delta 577, approaching San Juan, PR; hands off same to San Juan on VHF, in USB at 0234Z; NY wkg Iberian 6314 for SELCAL check, secondary freq is 5550.0, in USB at 0339Z. (ALS)

6586.0: NY Radio wkg Jet Blue 828 for posrep in USB at 0206Z; NY wkg American 1692 for posrep; hands flight off to freq 3455.0, in USB at 0210Z. (ALS)

6604.0: Gander VOLMET with aviation WX in USB at 0148Z; also heard another night with aviation WX for St Johns, etc. in USB at 0350Z. (ALS)

6628.0: New York Radio informs several airliners 6628 is primary tonight; 2962 is secondary, in USB at 0217Z; Santa Maria Radio wkg various airliners in USB at 0218Z. (ALS)

6628.0: Santa Maria wkg Viking 1902 for SELCAL check and amended clearance, in USB at 0318Z; New York wkg Avianca 014 for posrep in USB at 0322Z. (ALS)

6640.0: ARINC-New York LDOC wkg Jet Blue 747 (Airbus A-320, Orlando IAP-San Juan PR); is told 3494 kHz is backup, gets SELCAL check, in USB at 0151Z. (ALS)

6655.0: San Francisco Radio working Alaskan 66 and American 285 for flight progress reports in USB at 0448Z. (GV/CO)

6697.0: PUBLICIZE (U.S. Mil) with EAM broadcast in USB at 2240Z. (MC/SC)

6754.0: Canforce VOLMET with aviation WX in USB at 0150Z. (ALS); Trenton Military VOLMET in USB at 0445Z. (GV/CO)

6761.0: REACH 449 clg any radio with no joy in USB at 1357Z. (MC/SC)

7535.0: USN SESEF Norfolk, VA in QSO with POWERBILL for setup and test of a FSK link in USB at 2100Z. (CG/KY)

7635.0: COLUMBUS 37 in Civil Air Patrol net in USB at 1502Z. (MC/SC)

7811.0: AFRTS Key West with NPR news at good levels in USB at 0613Z. (GV/CO)

7860.5: Unid simplex QSO in Spanish, both sides heard, in USB at 0108Z. (GV/CO)

7887.0: V2A numbers station, YL/SS with 5-fig groups in AM at 2030Z. (CG/KY)

8156.0: C6LS (Royal Bahamas patrol boat) wkg CORAL HARBOUR with request to enter harbor and refuel, in USB at 2235Z. (MC/SC)

8282.0: Unid OM in Russian with duplex phone patch to YL on 8806.0 in USB at 0134Z. (GV/CO)

8291.0: CAMSLANT clg vessel in distress near 45N with no joy in USB at 2217Z. (MC/SC)

8602.0: CWA (Cerrito Radio, Uruguay) with CQ loop in CW at 0105Z. (GV/CO)

8806.0: Unid YL in Russian with duplex phone patch to OM on 8282.0 in USB at 0130Z. (GV/CO)

8840.0: Unid fishermen "Jimbo" and "Robbie" with chit-chat in USB at 2345Z. (CG/KY)

8912.0: RESCUE 1717 (HC-130) p/p via SERVICE CENTER to CGAS Clearwater for WX in USB at 2211Z. (MC/SC)

8971.0: FIDDLE clg FIGHTING TIGER 71C (P-3C, VP-8) in USB at 2232Z. (MC/SC)

8971.0: CARDFILE 02 in QSO with FIDDLE, voice and data comms, CARDFILE 02 queried, "any updates to our tasking?" in USB at 1815Z. (CG/KY)

8975.4: BELL 45 and BELL 35 doing HF

Photo C. SH-60F Seahawk helicopters from aboard *USS Carl Vinson* transport water and supplies to the area around Port-au-Prince, Haiti. (U.S. Navy Photo)

radio checks, went from here to 9005.4, then 14760.0 (not hrd), then 5715.4, in USB at 2200Z. (CG/KY)

8983.0: USCG CAMSLANT in QSO with CG2006, who was en route to CGAS Elizabeth City, in USB at 1620Z. (CG/KY)

9007.0: CANFORCE 3609 clg TRENTON MILITARY with no joy in USB at 1610Z. (MC/SC)

9010.0: PATHFINDER 30 (CP-140) wkg HALIFAX MILITARY with request to pass message to RJOC Atlantic in USB at 1509Z. (MC/SC)

9018.0: REACH 1017 (Hurlburt AFSOC C-130) air-air with REACH 1002 (Hurlburt AFSOC C-130) re: status of message from RICEBOWL, in USB at 1647Z. (ALS)

9018.0: REACH 1017 in QSO with REACH 1002 concerning fuel issues related to flight to Haiti, in USB at 1441Z. (CG/KY)

9025.0: 210196 (C-17A, 437 AW) sounding in ALE USB at 0244Z. (MC/SC)

10242.0: CG1501 in QSO with Miami Ops concerning transport of victims of Haiti earthquake in USB at 2120Z; Same parties also hrd on 8912.0 at 2142Z and on 7527.0 at 2223Z. (CG/KY)

10493.0: WGY9030, a FEMA station, in voice QSO with other stns not heard, in USB at 1608Z. (CG/KY)

10780.0: CANOE 04 (E-8 JSTARS test platform) wkg CAPE RADIO with p/p request in USB at 1522Z. (MC/SC)

10970.0: Chinese Mandrake jammer with intermittent music, in AM at 2357Z. (GV/CO)

11054.0: Unid simplex QSO in an Asian language in USB at 2238Z. (GV/CO)

11175.0: HF-GCS Station ANDREWS wkg CULMINATE for DSN phone patch to Offutt AFB RF Orderwire Controller, asks about station HIBERNATE, in USB at 1707Z. (ALS)

11175.0: ANDREWS wkg DESIRABLE for DSN phone patch to Stratcom Tech Control PATCHWORK, they QSY to 11510, in USB at 1753Z. (ALS)

11175.0: ANDREWS with a SKYKING "FOXTROT" in USB at 1555Z; REACH 400 calling MAINSAIL and raising LAJES for radio check in USB at 1600Z; AMC1437 calling MAINSAIL for radio check with no joy in USB at 1603Z. (CG/KY)

11214.0: Patrick AFB KING OPS wkg KING 64 (HC-130P #64-14864, Patrick AFB 39RQS, en route to Athens GA) for radio check in USB at 2300Z. (ALS)

11232.0: CANFORCE 85 wkg TRENTON MILITARY for WX at Thule and Alert in USB at 1730Z. (MC/SC)

11494.0: JULIET 17 (MH-60T, CGAS Elizabeth City) en route Wilmington, NC, requests guard from CAMSLANT in USB at 1756Z. (MC/SC)

13101.2: Unid simplex QSO in Spanish in LSB at 2211Z. (GV/CO)

13200.0: Offutt HFGCS clg NUTMEAT in USB at 2039Z. (MC/SC)

13927.0: HAWK 81 (B-1B, Dyess AFB, 7BW) via USAF MARS operator for DSN phone patch to HAWK OPS; requests msg "1513Z" passed to MUSTANG 3, in USB at 1430Z. (ALS)

13927.0: USAF MARS Operator AFA9PF (Los Angeles) wkg BRADY 13 (C-130H, Missouri ANG 139AW, Rosecrans MAP, MO) for phone patch in USB at 1906Z. (ALS)

13927.0: USAF MARS Operator AFA9AY (Calif.) wkg REACH 0453 (C-5A #70-0453, Kelly Field 433AW) for radio checks on two radios, in USB at 2140Z. (ALS)

13927.0: USAF MARS Operator wkg commercial Jet Blue flight, who asks if he can make a phone patch. he is refused, unless he has an emergency, which he does not; in USB at 2206Z. (ALS)

13927.0: kHz USB 2231Z: NNNOCSA (November-November-November-Oscar-Charlie-Sierra-Alpha) repeatedly calls "any MARS station stateside" with no joy, in USB at 2231Z. (ALS)

13927.0: USAF MARS Operator AFA5RS (Shelbyville, IN) wkg NNNOCSA (USCGC Seneca, WMEC-906) for M&W phone patch, crewmember Christmas message to home, in USB at 1618Z. (ALS)

13927.0: REACH 5142 (C-17A #05-5142, March ARB 452AMW, over northeast Canada) via USAF MARS operator for phone patch to a California area code regarding ETA in California, in USB at 1312Z. (ALS)

13927.0: AFA9AY wkg EVAC 321 for phone patch in USB at 2330Z. (ALS)

13927.0: USAF MARS Operator AFA7HS (Leawood, KS) wkg ROPER 65 (C-130H #85-1365, TX-ANG, Ft Worth NAS); but ROPER 65 cannot hear MARS Operator, in USB at 1620Z. (ALS)

13927.0: AFA9PF wkg COBB 28 (C-130 #81-0628, Dobbins ARB) for DSN phone patch to Dobbins AFB, reports two hours out from Dobbins; requests landing WX, in USB at 1802Z. (ALS)

13927.0: DARK 42 (B-1B, Dyess AFB, west of Abilene, TX) via USAF MARS operator for phone patch to Dyess BAT OPS, requests bird status for IR-178 in USB at 1812Z. (ALS)

13927.0: USAF MARS Operator AFA5QW (Greenwood, IN) wkg BLUE 62 (Coronet Mission tanker) for phone patch to McGuire AFB Metro; no answer; then phone patch to Dover Metro; requests WX for Seymour Johnson AFB at 1800Z and for McGuire AFB at 1730Z; in USB at 1607Z. (ALS)

13927.0: AFA9PF wkg PITT 05 (C-130H, Pittsburgh 911AW, over Massachusetts) for M&W phone patch to a New York area code, says they got out early because they did not need the de-icing they expected, in USB at 1722Z. (ALS)

13927.0: USAF MARS Operator AFN4PP (Florida) wkg DIXIE 11 (KC-135R, AL-ANG, Birmingham AL) for phone patch; advises 40 minutes out; chats with AFN4PP about how cold it is in Florida; DIXIE 11 says it is a lot worse in Birmingham; in USB at 1745Z. (ALS)

13927.0: AFA9PF wkg BLUE 82 (Coronet Mission tanker over North Atlantic) for M&W phone patch; informs that arrival might be late, in USB at 1751Z. (ALS)

13927.0: USAF MARS Operator AFA2YV (Binghamton, NY) wkg DOOM 96 (B-52H, Barksdale AFB) for M&W phone patch to a Louisiana area code; "Will see you after the debrief tonight, around 7 or 8 o'clock"; in USB at 2229Z. (ALS)

13927.0: USAF MARS Operator AFA6DD (Houston, TX) wkg REACH 1017 (C-130, Hurlburt Field, FL) for two phone patches (both official calls) to Puerto Rico area codes, then to Hurlburt Field CHIN-DIT OPS re: request for fuel at 1715Z at TJSJ (San Juan), in USB at 1454Z. (ALS)

13927.0: AFA6DD wkg DARK 42 (B-1B, Dyess AFB, 7BW) for phone patch to Dyess AFB BAT OPS, requests bird status at several locations in USB at 1719Z. (ALS)

13927.0: DARK 42 (B-1B, Dyess AFB) via USAF MARS operator for DSN phone patch to Dyess AFB DARK OPS in USB at 1801Z. (ALS)

13927.0: AFA5RS wkg REACH 366 (over Prescott AZ) for M&W phone patches to a Delaware area code; talks about being out of touch for a few days during visit to some "exotic" places, in USB at 1735Z. (ALS)

14265.0: SATERN net conducting Haiti Relief related comms in USB at 1752Z. (ALS)

14300.0: Intercontinental Assistance and Traffic Net with Haiti earthquake relief-related comms, looking for people who speak Creole, in USB at 1729Z. (ALS)

14327.0: W5CGC (TX) opening the USCG Amateur Radio Net in USB at 1802Z. (MC/SC)

14845.5: Simplex QSO with multiple unid participants, in Spanish, professional-sounding comms so suspect they are not fishermen, in USB at 2338Z. (GV/CO)

14902.0: IOWA CAP 04, FLORIDA CAP 251 and COLUMBUS 37 in Civil Air Patrol national net in USB at 1516Z. (MC/SC)

17145.0: Unid undecodable transmission in FAX at 2009Z. (GV/CO)

17490.0: CAPE RADIO radio check with TRACKSTAR in USB at 1508Z. (MC/SC)

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Bill Tries To Buy More Memory

by Bill Price, N3AVY
chrodoc@gmail.com

"I was never so astonished as the day when my friend and co-worker came in wearing an almost-stylish bracelet on her ankle, and the thing began to beep."

This is not the first time I've called myself a dinosaur, and it sure won't be the last. I'm old and stubborn about changing my ways, particularly about technology. For the (very) few times I get on the air, it's always on CW—never SSB, although I think I once used AM a long time ago.

I *do* own a nice SSB rig. Norm gave it to me several years ago, in the hopes that I'd put up a halfway respectable antenna and talk with him from time to time, but so far, email has won out over SSB.

I'd seriously use CW over the Internet if I had a high-speed connection. Of course, I'd have to find out if there's a software application that would allow me to use CW to chat with Norm and Beezer and Chief Bob (my former chief radioman from waaaaaay back when the Coast Guard used spark-gap transmitters).

And I've never even owned an electronic keyer. It's true that I let the bug make my dits for me, but it's for sure I'm perfectly capable of making my own dahs, for heaven's sake.

It's not that I'm too cheap to get the latest technology (well, I *am* too cheap, but that's a completely separate issue). It's that I just don't like change. The great cartoonist, Johnny Hart, creator of "B.C." had his brontosaurus say it best: "Gronk!" We dinosaurs have to stick together.

I don't have a cell phone either. OK, that's not entirely true—my employer gave me one to use. But if it weren't for that, I wouldn't own one, and the one I carry is just a phone. No texting (oh, how I despise that) or Web browsing, or fancy ring tones.

I have to admit, I was really annoyed when my Internet service provider told me I could no longer use Windows version 3.11. I *liked* that version. I'd still be writing this on WordPerfect 5.1—a perfectly good DOS based version—but no one could read my documents.

The embarrassing part of all this is that I not only dislike upgrades and changes, the truth is that I don't understand most of them. With the exception of using a birdcall, I don't know how to tweet. Maybe I'm just a twit.

I signed up on BookFace, or whatever it's called, and a zillion people now want to be my friends. I never had any friends when I was growing up, but all of a sudden, I'm popular—particularly with women I've never heard of. The long-suffering Mrs. N3AVY is still wondering just who "Wanda the SS She-Wolf" is, and why she is my friend.

At my age, it was important that I mastered the use of one of those little pillboxes with a little trapdoor for each day of the week (and one for a.m. and another for p.m.), but there's still no foolproof way to remind myself to take my medicine twice a day. I tape notes to the door and ignore them each day when I leave for work, so I put another on the steering wheel, asking myself if I've taken my meds. By then, I don't feel like going back into the house, so I just say "NO" to my steering wheel and drive off unmedicated. I understand that there are electronic pillboxes that will beep to tell me when to take my pills, but they don't have a way of putting themselves into my pocket, so they'd be of little use.

I set my alarm clock to show a time that's later than it really is—to fool myself into actually getting up instead of hitting the snooze button until noon. The only reason that has worked is that I set the time some odd number of minutes ahead (I think it's set 26 minutes fast) so that I can't accurately calculate what time it really is, so I eventually get up because I'm not sure what time it is.

It has taken me literally *years* to get into a habit of taking everything to work that I'm required to have at my HPJIE*. That includes some small tools, pen, pencil, notebook, pocketknife, flashlight, and most important—the cell phone. I was never so astonished as the day when my friend and co-worker came in wearing an almost-stylish bracelet on her ankle, and the thing began to beep. Perhaps you readers know all about this new technology, but I am still in awe that her ankle bracelet reminds her if she's strayed more than 20 feet from her cell phone.

I would get one (a manly version, of course) if it could remind me of all the things I need to take to work every day (and take my medications at the appropriate time), but I'd either shut it off and then forget to get the things I need, or more likely I'd just forget what it was I was supposed to remember. Of course, I'm still trying to remember why I tied this string around my finger....

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