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POPULAR COMMUNICATIONS

AUGUST 2012

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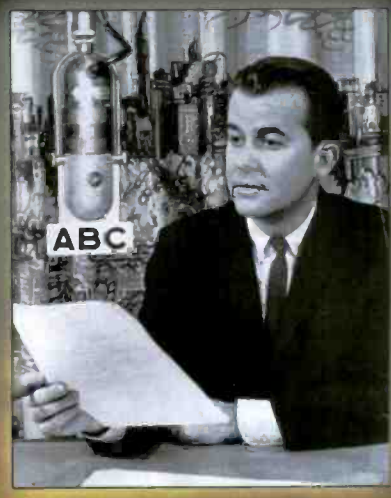

A *Bandstand* Tribute to Dick Clark, p. 36

Turn On Your Radio and Follow the Sun!

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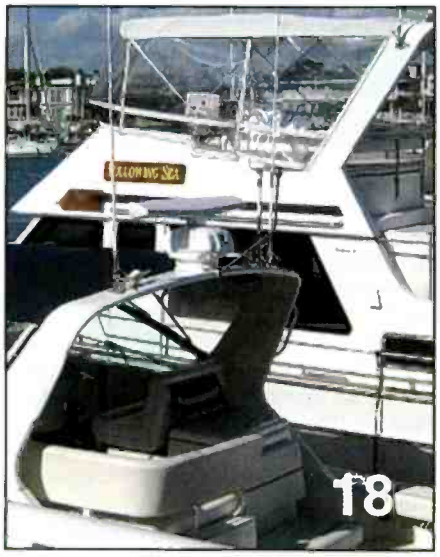

FEATURES

FEATURED COLUMNS

ON THE COVER

A beautiful sunset is the backdrop for our August cover, highlighting when the Sun goes down, broadcast band DX comes alive. Details in Bruce Conti, WPC1CAT's, ongoing series: Defining the Modern AM Broadcast Band DXer: "Follow the Sun!" ALSO: *Pop'Comm* celebrates the return of "Aviation: Plane Sense," keeping scanners abreast of news from that fascinating part of the spectrum. In "Wireless Connection," build a Voltage Probe Antenna for SWLing in tight places. *(Cover images courtesy of Shutterstock, KPC6PC, YouTube, Peter Hunn. Cover design by Liz Ryan.)*

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 *Multi-Reader*™ into your shortwave receiver's earphone jack.

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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.

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Easy to use, tune and read

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

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Indoor Active Antenna

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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.

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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.

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MFJ Shortwave Headphones

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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.

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MFJ-956 **$69.95**

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Super Passive Preselector

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MFJ Shortwave Speaker

MFJ-281 **$12.95**

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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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MFJ-461 **$89.95**

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EDITORIAL
Tuning In

by Richard Fisher, KPC6PC/KI6SN
<editor@popular-communications.com>

A New Starter, Pinch Hitters and a Team Meeting

There are so many changes in this month's *Pop'Comm* lineup, you'll need the proverbial scorecard to keep track. *It's all good.*

Entering the Lineup: *Plane Sense* — It's Back

Aviation is such a fascinating part of the scanning spectrum. Monitors who listen on those frequencies tell me it's absolutely mesmerizing. If scanning the skies is not on your bucket list, please put it there.

We're happy to report that Bill Hoefer, KPC4KGC/WPE4JZZ/KG4KGC, makes his return to *Pop'Comm* this month as our aviation monitoring specialist. Many readers have been asking for more coverage of the skies.

Longtime readers will remember Bill's byline from about 2000 to 2005 as the *Plane Sense* columnist.

With a 40-year career in air traffic, Bill certainly has the portfolio to know the scene. He re-introduces himself beginning on page 46, and gives an Aviation 101 mini-course to help beginners get their feet on the ground and their ears in the air. It's a great refresher for the seasoned sky scanner, as well.

We're extremely happy Bill's back!

Pinch Hitting for Shannon

Shannon's Broadcast Classics is taking the month off while Shannon is on a well-deserved vacation — no doubt, someplace teeming with wireless history.

In the meantime, we've got a great pinch hitter with a remembrance of *American Bandstand's* Dick Clark. Written by a radio industry veteran who was 1976 Billboard Air-Personality of the Year, this beautiful piece reflects on how Mr. Clark, the consummate professional, touched so many broadcast industry lives. The story begins on page 36. *You'll not want to miss it.*

Pinch Hitting for Wireless Connection

Wireless Connection columnist Peter Bertini, K1ZJH, is cooling his soldering iron, as well, trading solder smoke for fresh air and taking a siesta this month. *Good for him!*

There's a nifty little circuit for a Voltage Probe Antenna that I'd been meaning to write about, so you'll find KPC6PC's byline atop this month's *Wireless Connection.* I describe how to homebrew a portable SWLer's active antenna. Listen to the world on just 50 inches of hook-up wire. *Pretty cool.*

Readers have been asking for more building projects. We're happy to comply. *And no worries:* Peter will be back next month!

Team Travels to Dayton Hamvention®

It was incredibly gratifying to see so many SWLers and scanner monitors at the 2012 Dayton Hamvention®. We think of the event as a *hams-only.* You prove it's so much more. Sincere thanks to all the *Pop'Comm*'ers who stopped to say hello at the CQ Communications booth on Hara Arena's main floor.

Your words of support, suggestions and comments about everything from the *Pop'Comm Monitoring Station* program to magazine content and delivery were very helpful. I took good notes.

If you're a listener — not necessarily a transmitter — please save May 17-19, 2013 on your calendar. Hamvention's a blast for communications buffs of all kinds. We bet you'll have a great time.

On the Schedule: *Pop'Comm-WRO* Team Meeting

In keeping with our sports theme: We'll have a *Pop'Comm* team meeting via live Internet chat on Sunday, August 12 beginning at 8 p.m. Eastern time – that's 0000 UTC Sunday.

Actually, it's our regular monthly *gabfest,* along with readers of *WorldRadio Online.*

The hour-long session is casual, friendly and laid back — just the way you want it when cooling down from a great weekend.

At chat time visit the *WorldRadio Online* blog at <http://www.WorldRadioOnline.blogspot.com> and click on the *Cover It Live* box. You'll be linked right into the chat where all the fun happens.

There are replays of previous sessions on the blog now if you'd like to get a flavor of the conversation. And you can sign up for an email reminder there today so you don't miss a minute of the action August 12.

Please save the date. We hope to see you there. — *Richard Fisher, KPC6PC/KI6SN*

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Logic Level plus PTT

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The Weirder Side of Wireless, and Beyond

Compiled by Richard Fisher, KPC6PC

Beetle Fan Club Flourishes On the Air in Taiwan

You've heard the Beatles on the radio. Now we have radios on the beetles.

Tiny stick-on radio transmitters are being used by researchers to track the movements of giant rhinoceros beetles in Taiwan, **Photo A**. *Really.*

Photo A. Itsy-bitsy stick-on radio transmitters are being used by researchers to track giant rhinoceros beetles in Taiwan, <http://tinyurl.com/bmv7sro>, according to the BBC. *So it must be true. (Internet screen grab)*

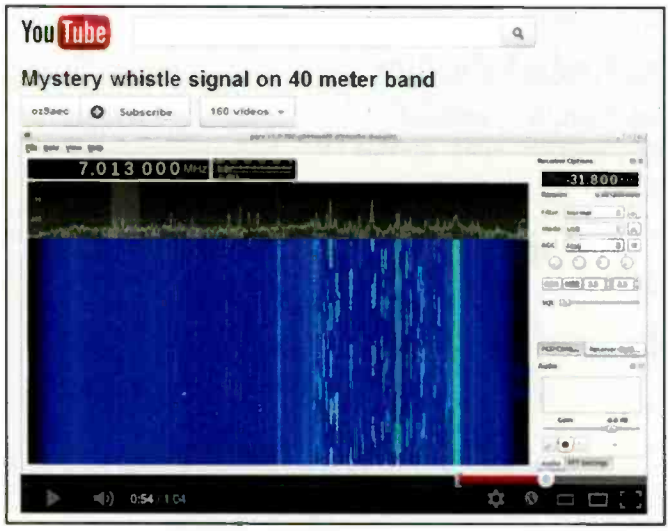

Photo B. Watch and listen to the strange mystery whistle OZ9AEC has been copying on the 40-meter band at 7.013 MHz, <http://tinyurl.com/6s7d8m2>. *(YouTube screen grab)*

University of Montana researcher Dr. Erin McCullough told the BBC she is using the radio trackers "to find out more about the nocturnal insects' behavior and to figure out why they hide during the day." ***(NOTE:** We suspect they're hiding to avoid getting nailed with one of the doc's transmitters. – KPC6PC.)*

"Detailed tracking data," she explained to the BBC, "could help conservationists to protect the beetles. Many of these large, striking insects are harvested, sold and collected."

"I think it's important to know the dispersal capabilities of these species in order to protect local populations," McCullough said. *(Source: BBC, <http://tinyurl.com/bmv7sro>.)*

What's That Mystery Whistle On 7.013 MHz?

AMSAT-UK is reporting Alexandru Csete, OZ9AEC, of Ribe, Denmark, "has found a strange signal in the 7-MHz band using his AMSAT-UK FUNcube Dongle with an HF up-converter."

He's hearing a *strange whistle-like* signal at 7.013 MHz, **Photo B**, on 40 meters on a Gqrx software defined radio (SDR) receiver and a Funcube Dongle with shortwave converter connected to a 16-foot, 6-inch wire. "The signal appears to be amplitude modulated with suppressed lower side band," he notes.

Is it an ionosonde or a numbers station? Nobody seems to know. *(**WATCH** and **LISTEN:** To the OZ9AEC-captured Mystery Signal at <http://tinyurl.com/6s7d8m2>.)(Source: AMSAT UK, <http://www.uk.amsat.org/6875>)*

Yikes! Man Loses Eye in Tussle Over Loud Radio

A dispute over a loud radio turned violent, leaving a man with only one good eye in what has been described as a roommate squabble.

The Vallejo (California) Times-Herald reported police arrested Tyrone Shelton at San Francisco General Hospital's psychiatric ward in connection with the incident. It was his 36th birthday.

Police said the victim suffered from severe swelling, so it took some time for officials to notice the missing eye.

Shelton was being held on suspicion of felony aggravated mayhem "after he allegedly removed the eyeball of his roommate, a 61-year-old man," the report said.

(Continued on page 68)

News, Trends, And Short Takes

By Richard Fisher, KPC6PC

Never Heard a Pirate? Listen to This!

The SWLing Post website, <http://swling.com/blog/>, offers monitoring stations that have never copied a pirate radio station on the shortwaves an opportunity to listen to more than an hour of transmissions from *Undercover Radio* on 6925 kHz, "broadcasting from the Middle of Nowhere," **Photo A**. "Thanks for listening this evening . . ."

Complete with signal fading (QSB), static (QRN) and momentary heterodynes, almost 75 minutes of *Undercover Radio* programming are available to Web visitors via SWLing.com's embedded player or MP3 download.

The broadcast was posted by "Thomas" who reports he made the recording at 03:18 UTC on May 13. Listen to pirates *North Woods Radio* and *Captain Morgan Shortwave*, as well.

*(**NOTE:** Some pirate radio broadcasts may contain content some listeners might find objectionable. – KPC6PC.) (Source: SWLing Post)*

Broadcast Leaders Meet for Summit in Bangkok

Hundreds of broadcast industry leaders from the Asia-Pacific region attended the Ninth Asia Media Summit in Bangkok, Thailand in May, hosted by the Thai Public Broadcasting Service.

Day one of the summit featured five discussion sessions with topics ranging from *Media Development and Conflict* to *Building Sustainable "Small" Radio and TV Stations* and presentation of the 2012 World Television Awards.

The KBS Korea documentary *"Dharma — where does happiness lie?"* took top honors in the category of Humanity. In Science and Environment, *"Ozone — the human factor,"* by HUM TV, Pakistan, was top winner.

Thepchai Yong, Managing Director of Thai PBS, said AMS 2012 had "added significance, as it coincides with the 10th anniversary of the Bangkok Declaration, which was issued at the 1st Conference of the Ministers of Information and Broadcasting in Asia Pacific held in Bangkok in May 2003." *(Source: Asia-Pacific Broadcasting Union, <http://tinyurl.com/83wgxah>.)*

Photo A. If you're never heard a pirate broadcast over shortwave, the website *SWLing Post* has posted recordings of three stations' audio, including *Undercover Radio* on 6925 kHz, "broadcasting from the Middle of Nowhere." Visit: <http://swling.com/blog/>. *(Internet screen grab)*

Nielsen: TV-Watching Landscape Is Changing in America

Cable, satellite, broadband and broadcast TV viewing is changing across the United States, according to Nielsen figures for 2011.

According to *NAB Smart Brief*, U.S. households are sticking with TV, however, viewers' choice of delivery system is decidedly in flux. Viewers "are shifting to new technologies and devices that make it easier for them to watch the video they want, whenever and wherever they want," Nielsen reported. *(**NOTE:** For a detailed examination of this trend, see this month's Horizons, by Rob de Santos, K8RKD, on page 10 – KPC6PC.) (Source: NAB Smart Brief)*

International Radio Festival Hosted By Iran

Producers from 32 countries converged on Tehran for the 11th edition of Iran's International Radio Festival in May.

According to published reports the festival "is the biggest event in the Middle East and North Africa (and) receives a huge number of (awards) entries from radio stations and independent producers every two years from all around the globe."

"Bulgaria, Poland, Japan, Germany, France, the Czech Republic and Iceland are among the countries that (discussed) the production of radio programs and exchange their experiences during the annual festival," according to reports on *PressTV*.

With the theme *Radio: Medium of Hope and Awareness*, the event "aims to provide an opportunity for further cooperation among participating countries," officials said.

The festival, which concluded May 28, "also aims to (encourage) innovative and creative producers and (help improve) their theoretical and practical knowledge. *(Source: PressTV, <http://tinyurl.com/6tso5wq>.*

Study Finds TV Replacement Window Narrowing

The average time consumers worldwide change TV receivers has decreased from 8.4 to 6.9 years, according to the latest NPD DisplaySearch Global TV Replacement Study.

It found "a variety of reasons for this trend, including declining prices, a wider variety of sizes, and desire for the latest technologies," the website *Advanced Television* reported.

The purchase intent of consumers was examined in 14 markets, concluding "in the next year, 31 percent of households are planning to replace an existing TV, while 22 percent are planning to add a new TV."

The leading impetus for TV replacement in nearly all countries "is a desire to trade up in size, followed by wanting to own a flat panel TV with improved picture quality. Although price was not among the top 3 reasons for recent replacements, the study indicates that it does have a significant impact on the purchasing decision," the Web posting noted. *(Source: Advanced Television, <http://tinyurl.com/7wlyfph>.)*

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KPC6PC/KI6SN

Radio Amateurs On 23-cm Must Protect New FAA Radars

Amateur radio operators using the 23-cm band (1240-1300 MHz) need to be aware of a new generation of radar systems being deployed by the Federal Aviation Administration that operate between 1240 and 1350 MHz.

The *ARRL Letter* reminds hams that the amateur allocation on this band is secondary to radio navigation (radar) and certain types of satellites, and that those primary users must be protected from interference, as mandated by the FCC.

The ARRL says it is in contact with FAA engineers to determine the areas in which accommodations may be required to protect the new Common Air Route Surveillance Radar system. *(Source: CQ Newsroom, <http://www.cqnewsroom.blogspot.com/>)*

Drones Under Consideration for Use in EmComm

The FCC is exploring the possibilities of restoring communications after a natural disaster or civil emergency by launching specially-equipped drones or other aircraft, according to published reports.

"Like science fiction, it is technologically complex," FCC Chairman Julius Genachowski said. "But it's not that hard to understand, if you imagine a cell tower that is floating or flying in the sky."

Officials said Deployable Aerial Communications Architecture (DACA) in emergency communications could be capable of restoring vital channels when land-based services are knocked out. The goals include protecting emergency response and 911 calling.

WATCH AND LISTEN: To the Federal Communications Commission Forum at the 2012 Dayton Hamvention® in May featuring the FCC's Bill Cross, W3TN, and Curt Bartholomew, N3GQ. Their presentation included discussion of pending regulations and amateur radio emergency communications. The video was produced and posted to YouTube by *Ham Radio Now*, <http://bit.ly/Kuegss>. *(YouTube screen grab)*

The onslaught of Hurricane Katrina knocked out 911 call centers, and millions lost phone service. An aerial system could fill the gap until land-based communications are repaired, authorities said.

According to *ToneSquelch.com*, before the service can be implemented, the FCC needs to determine whether there will be interference between a DACA-enabled aircraft and ground communications, detail how the technology will be activated, and select who will have oversight. *(Source: ToneSquelch.com, <http://bit.ly/KPMR5l>.)*

Commission Proposes Vanity Callsign Fee Hike to $15

The FCC has released a Notice of Proposed Rulemaking (NPRM) seeking to raise the fee for amateur radio vanity callsigns by 80 cents.

If the Commission plan is OK'd, the new fee will be $15 for 10 years. At the time of its proposed hike, a vanity callsign was $14.20, good for 10 years. The vanity callsign fee has fluctuated over the 14 years of the current program — from a low of $11.70 in 2007 to a high of $70, as first proposed in the FCC's 1994 Report and Order.

The FCC said it anticipates some 14,300 amateur radio vanity callsign "payment units," or applications, during the next fiscal year, collecting $214,500 in fees from the program.

The vanity callsign regulatory fee is payable not only when applying for a new vanity callsign, but upon renewing a vanity callsign for a new term, as well. *(Source: ARRL Letter)*

Full Strength: Senate Approves Two New FCC Commissioners

The U.S. Senate announced in May that it has confirmed the appointment of Jessica Rosenworcel and Ajit Varadaraj Pai as commissioners to the FCC.

Rosenworcel, a Democrat whose term runs through June 2015, fills the seat vacated by Michael Copps, who retired earlier this year. Pai, a Republican, replaces Meredith Attwell Baker, who left the Commission in June 2011. His term runs through June 2016.

Their appointments bring the FCC to its full complement of five Commissioners.

Chairman Julius Genachowski and Mignon Clyburn are Democrats while Robert McDowell had been the lone Republican on the Commission.

Rosenworcel was the Senior Communications Counsel for the Senate Committee on Commerce, Science, and Transportation, working for Sen. Jay Rockefeller since 2009, and previously for Sen. Daniel Inouye from 2007-2008. She worked at the FCC from 1999 to 2007 as a legal advisor.

Pai was a partner in the Litigation Department of Jenner & Block LLP. Previously he worked in the Office of the General Counsel at the FCC where he served as Deputy General Counsel, Associate General Counsel and Special Advisor to the General Counsel. *(Source: Published reports)*

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The information shown is preliminary and may be subject to change without notice or obligation.

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- New TDR functionality

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- New TDR functionality

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The Internet, Cutting the Cord and the S Curve

by Rob de Santos, K8RKD
email: <commhorizons@gmail.com>
Twitter: @shuttleman58

"Cord cutting is the term used to describe those who drop cable TV service. To the cable industry, it is a great fear."

As a young engineer, I gained a coveted position as the staff assistant to the director and was responsible for seeing that all technical issues needing his attention were properly managed. Along with this came the need to do charts with both current data and projections for the future. It was there I first encountered the *S curve*. This was a non-mathematical way to describe how many people behave.

First, adoption or completion goes slowly, then rapidly accelerates and finally slows again and levels off as you near 100 percent. Not surprisingly, we are seeing the same thing happen with the adoption of the Internet, and in particular broadband Internet use.

Internet usage was only 10 percent in 1995 with almost all dial-up access. Virtually no one had broadband speeds at home. By the turn of the millennium, broadband was used in only 3 percent of U.S. homes. Adoption grew slowly for the next several years and finally seemed to take off in 2004, growing from 16 percent the previous year to 66 percent by 2010. What's happened since? Growth has slowed and even declined to 62 percent in 2011. Of course, the economic conditions are a factor, but perhaps the biggest factor is human.

Recent studies suggest that 78 percent of Americans have Internet access at home — but what of the remaining 22 percent? Most of them have no interest in ever getting it. Two thirds of the non-adopters say it isn't relevant to them or they don't know how or are unable to do so for various physical reasons. Fewer than 1 in 16 of the non-adopters are unable to get it because it isn't available to them. This translates to barely 1.5 percent of the entire population.

Price and access are therefore not the key reasons people don't use the Internet. The largest number of non-adopters is over 65 years old while only a tiny percentage are under age 25. The conclusion is that future growth of broadband will be slow and occur as the population ages.

That brings us to *cord cutting* — the term used to describe those who drop cable TV service. To the cable industry, it is a *great fear.* Providers worry that you will take the Internet service, dump your cable or satellite TV service, and get everything you watch from the Internet. Combine this with the factors discussed already and if Internet adoption is no longer growing rapidly, any *cord cutting* must inevitably eat into the cable and television companies' growth and profits. Over the past 12 to 24 months, most major cable companies have seen minimal to no growth in their subscribers. Satellite services are the clear exception.

By the best estimates only 1 to 2 percent of TV viewers have completely dropped their cable TV service in lieu of Internet-delivered TV at this point. What does the future hold? It seems unlikely, at least in the next year or two, that the number of cord cutters will become a significant percentage of TV viewers.

However, the growth of Internet-provided TV services, particularly those through services such as Roku, Boxee, and Google, TV is significant. Increasingly, you can get everything you want to watch via services such as these.

At this point, the weaknesses of Internet-delivered TV services are several. The major one is what is not available: Many live sports events and *first time to air* network TV programs.

Yes readers, I know some of you have found ways around even those restrictions, but the legality of those methods is often questionable. The barriers are falling though, and more and more content is legally available via the Internet.

Ease of use is a factor. It is harder to navigate and find programs on these services than via current cable services. This will improve with time. Finally, most of these services require the user to acquire the box or service, do the installation and so on, with minimal technical support. The early adopters tend to be more technically savvy and self-motivated than the general population.

What we can learn from the *S curve* is that if Internet TV — sometimes referred to as IPTV — starts to take off, then it will spread rapidly, just as the Internet edges toward maximum adoption.

Whether IPTV proves to be a temporary bump or runs up the *S curve* remains to be seen, but we'll probably know that answer in a few more years.

Meanwhile, if you are a cable or TV executive, it's time to sweat.

Have you dropped your cable or satellite service? If so, how well has that worked out for you? Contact me whatever way works best for you. I look forward to hearing from you.

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Where Have All the Stations Gone?

A Gathering Silence On the Shortwaves from Central America, Mexico and the Caribbean is Cause for Concern

By Gerry Dexter, WPC9GLD

We are all very much aware of the long downhill slide we are on as we watch shortwave broadcast stations drop off the air. Nowhere is the problem more severe than Central America, Mexico, and the Caribbean.

Once upon a time, the bands were nearly thick with broadcasters from that area. Today, many of the countries that were well represented on the bands are silent or, at most, have just one or two stations active or even listed. Whether those listed are actually active is an open question, though. Based on actual reception, I'd have to say *not*.

The days when we could enjoy sounds from Radio Trinidad, Radio Jamaica, Radio Caribe, La Voz de Fuerzas Armadas

Guatemala's national broadcaster, TGW — Radio Nacional, is long gone.

"Today, many of the countries that were well represented on the bands are silent or, at most, have just one or two stations active or even listed."

(Dominican Republic), Radio Nacional El Salvador, Radio Tezulutlan (Guatemala), Radio Mexico International and literally dozens of others are gone!

Let's take a look at the 1986 *World Radio TV Handbook* and compare things then to the picture we see now. Here's a look at what we had then and what's left:

Costa Rica

In 1986 we had Radio Reloj, Radio Colombia, Faro del Caribe TIFC), Radio Casino, Radio Rumbo, Radio Universidad and Radio Impacto.

Look under *Costa Rica* in the *WRTH* National Radio section today and you will not find any shortwave stations listed, even though there are still two active.

There is **Radio Republica**, which you'll find in the *Clandestine and Target Broadcasters* section in the back of the book. It beams to Cuba, is based in Florida, transmits from Guapiles and is shown as active in Spanish on 5954 from 2200-1000 where it's sometimes observed around 2300-0100. It's also scheduled from 1000-1500 on 9965 but that has not been reported for quite some time. ***(WRITE:*** *<radiorepublica@gmail.com>. – WPC9GLD.)*

Costa Rica also hosts a gigantic official relay station for Spain's **Radio Exterior de Espana**, consisting of three 100-kilowatt transmitters, and is very easily heard relaying REE's broadcasts. The service uses 3350, 5965, 7125, 9630, 9765, 11815, 15125, 15170 and 17850. ***(WRITE:*** *<secretariatecnico.ree@rtve.es>. – WPC9GLD.)*

A year or so ago, a station called **Radio Universidad de Costa Rica** was briefly active using 6105 and was dug out by a few DXers, but there's been no activity on that front for at least a year now. Once in a while we get some brief, tantalizing action.

Cuba

Not much has changed in this Communist nation since 1986. You can't tune even so much as half an inch without tripping over **Radio Havana Cuba**. It makes much use of 5040, 6000, 6010, 6050, 6120 — and on and on and on — all the way up the dial, ending at 17750. It is on in Arabic, English, Spanish,

"Dawn" in the Dominican Republic is a wake-up call for Radio Amanecer (6025).

1986: Central America, Mexico, the Caribbean

Station	Country
El Eco de honduras	Honduras
Faro del Caribe	Costa Rica
"La" "Q: de Mexico"	Mexico
"La" "U de Veeracrjz"	Mexico
La Hora Exacta	Mexico
La Voz de Atitlan	Guatemala
La Voz de Junco	Honduras
La Voz de Mosquitia	Honduras
La Voz de Nahauala	Guatemala
La Voz de Nicaragua	Nicaragua
La Voz Evangelica/HRVC	Honduras
La Voz America Latina	Mexico
Ondas 145	Mexico
Radio Casino	Costa Rica
Radio Chortis	Guatemala
Radio Colombia	Costa Rica
Radio Cultural/TGNS	Guatemala
Radio Havana	Cuba
Radio Huayacocotla	Mexico
Radio Landia	Honduras
Radio Lux	Honduras
Radio Luz y Vida	Honduras
Radio Mam	Guatemala
Radio Maya de Barillas	Guatemala
Radio Mexico Intl	Mexcio
Radio Mil	Mexico
Radio Nacional	El Salvador
Radio Nacional	Guatemala
Radio Reloj	Costa Rica
Radio Rumbo	Costa Rica
Radio Sandino	Nicaragua
Radio Santiago	Dominican Republic
Radio UNAM	Mexico
Radio Union/AWR	Guatemala
Radio Universidad	Costa Rica
Radio Univesdad	Mexico
Radio Zinica	Nicaragua
Radio Rebelde	Cuba
RadioTezulutlan	Guatemala
Radio Impacto	Costa Rica
Radio Clarin	Dominican Republic
Tus Pantera	Mexico

Source: 1986 WRTH

Quechua, Portuguese and French. English runs from 0000 on through to 2100, mostly on the 6-MHz frequencies. ***(ON THE WEB:*** *<http://www.radiohc.cu>.* ***WRITE:*** *<inforhc@net.cu>. – WPC9GLD.)*

More interesting, with less talk, is **Radio Rebelde**, which holds forth with 50 kilowatts on 5025 at any time, day or night, offering lots of great Cuban music! ***(ON THE WEB:*** *<http://www.radiorebelde.cu/>.* ***WRITE:*** *Radio Rebelde, Apartado 6277, Havana 1600. – WPC9GLD.)*

Dominican Republic

In 1986, Radio Santiago and Radio Clarin were active. Today the only currently active station is **Radio Amanecer** — "Dawn" — in Santo Domingo, which is quite easily heard with its 1 kilowatt on 6025 from 0900 to 0300 daily. ***(ON THE WEB:*** *<http://www.ra.do/>. – WPC9GLD.)*

A couple of other stations are very occasionally active:

- 4960 rarely sees activity from **Radio Cima** 100 — sometimes ID'ing as **Radio Vila** or **Super Q FM**.
- 5010 will sometimes support **Radio Cristal International**. ***(NOTE:*** *Take the "International" part of the ID with a huge helping of Morton's. – WPC9GLD.)*

El Salvador

Radio National El Salvador was active in '86 on a somewhat spotty basis — but no more. The last activity from that small country was a station called **Radio Imperial** on 17835 — an odd frequency for a small Latin American station.

Apparently it was relaying local YSDA in Sonsonate on 810 kHz. I think the jury is still out as to whether this was even a legitimate operation.

Guatemala

Guatemala gave us La Voz de Atitlan, Radio Cultural (TGNA), Radio Myra de Barillas, La Voz de Nahualla, Radio Tezulutlan, Radio Choritis, Radio Mam, Union Radio (AWR), and Radio Nacional Guatemala. So it was once quite populated with religious broadcasters appealing to local tribes.

But the country is now down to one such station: **Radio Verdad** — "Truth" — in Chiquimula, operating on 4055 from 1130 to 0500 in Spanish and occasionally with some English programming. ***(ON THE***

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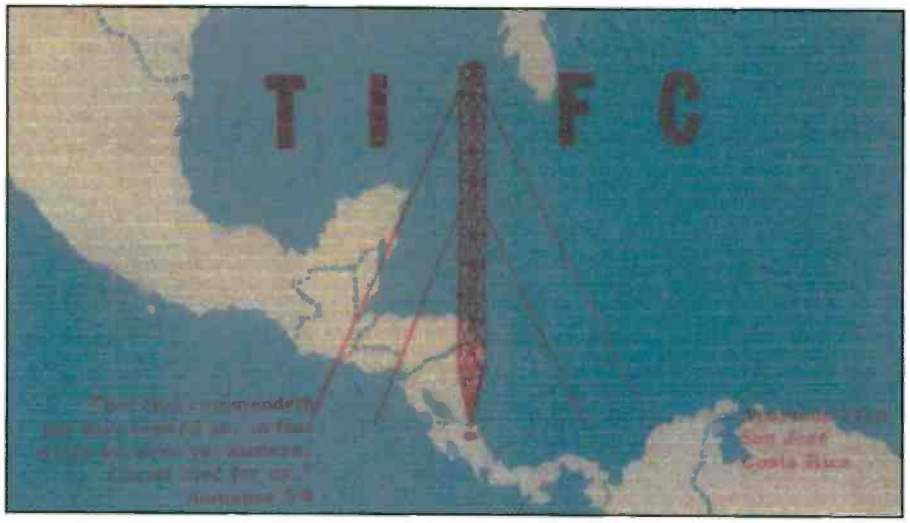
2012: Central America, Mexico, the Caribbean

Station	County	Frequency
Radio Amanecer	Dominican Rep.	6025
Radio Educacion	Mexico	6185
Radio Exterior Espana	Costa Rica	3350
Radio Havana	Cuba	6000
Radio Luz y Vida	Hondudras	3250
Radio Mil	Mexico	6010
Radio Misiones Intl	Honduras	3310
Radio Rebelde	Cuba	5025
Radio Republica	Costa Rica	5954
Radio Verdad	Guatemala	4055

Source: 2012 WRTH



The "Lighthouse of the Caribbean" was TIFC (Faro del Caribe), one of the larger religious broadcasters, based in Costa Rica.

Radio Sani, in Puerto Lempira, Honduras, used 4755 briefly.

WEB: *<http://www.radioverdad.org>.* ***WRITE:*** *<radiovrdad5@yahoo.com>. – WPC9GLD.)* The station always seems happy to hear from listeners and to issue QSLs for reception reports.

Radio Buenas Nuevas, in San Sebastian on 4800, is still listed but is inactive, and has been for some years now.

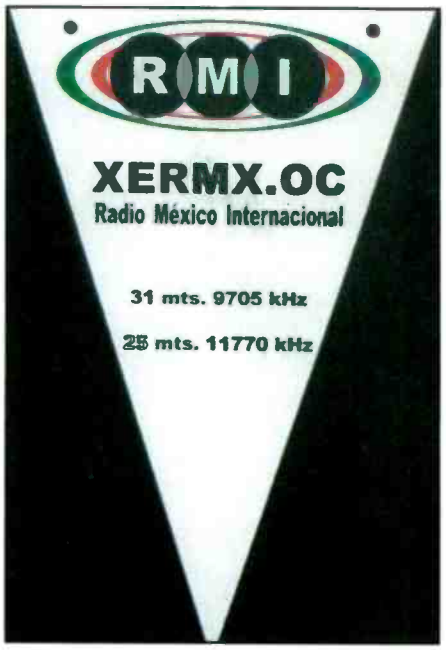
Honduras

Back in 1986, Honduras had Radio Luz y Vida, La Voz Evangelica (HRVC), Radio Lux, La Voz de Mosquitia, Radio Landia, El Eco de Honduras, and La Voz de Junco. In those days it was busy for shortwave broadcasters but today activity there has shrunk to only two — or perhaps just *one and a half.*

Radio Luz y Vida — "Light and Life" — with 1 kilowatt on 3250, serves a local audience from 1100-1600 and 2000-0400. It is a good bet for reception most any evening. *(**WRITE:** <efmhonduras@globalnet.hn>. – WPC9GLD.)*

Mexico

This country offered Radio Huayacacotla, Radio Mexico International, Radio Mil, La "U"de Veracruz, Radio Universidad San Luis Potosi, Ondas 145, Tus Pantera, La Voz de America Latina, Radio Educacion, La Hora Exacta, and La Q de Mexico. Quite active back then, Mexico is still the most active country *south of the border* on shortwave these days.



Radio Mexico International, XERMX, formerly used mostly 9705.

Its main "international" voice, Radio Mexico International, may have given up, but one or two of the university and commercial stations still hang in there.

Radio Educacion, using 10 kilowatts on 6185, is there to be heard on most any attempt in our evenings or early mornings, often treating us to classical music. *(**ON THE WEB:** <http://www.Radioeducacion.edu.mx>. **WRITE:** <infomes@radioeducacionedu.mx>. – WPC9GLD.)*

A couple of other "university" stations are only briefly and irregularly active:

- **XEXQ: Radio Universidad San Luis Potosi** is shown for 6045.
- The national university station in Mexico City, **Radio UNAM,** sometimes appears on 9600 where it is often bludgeoned by QRM.

XEOI, Nucleo Radio Mil, on 6010, is fairly regular and has been recently noted around 0900 to 1000. *(**ON THE WEB:** <http://bit.ly/K0HySp>. **WRITE:** <info@rnm.com.mx>. – WPC9GLD.)*

One other commercial outlet is **Radio Transcontinental de America, XERTA**. It is still shown on 4800 and was active a year or two ago — but provided only spotty reception, mostly in the evenings. *(**ON THE WEB:** <http://bit.ly/KOdvYl>. **WRITE:** <info_xerta@yahoo.com.mx>. – WPC9GLD.)*

Nicaragua

In 1986, Nicaragua still had La Voz de Nicaragua, Radio Zinica, and Radio Sandino. Today *there's nobody home.*

Where Is Everybody?

At the end of the trail, I count some 40-or-more stations that were in the 1986 *WRTH*. The sad tale is that the 2012 *WRTH* totals a mere 14 broadcasters, depending on whether you count the *inactive stations.*

At any rate, we are left with disturbingly few. So maybe we better consider this situation as a wakeup call and make certain that all those remaining stations are safely logged, the receptions reported and then hopefully QSL'd. *These . . . are the good 'ol days!*

The frequently-heard Radio Verdad from Guatemala (4055).

Costa Rica's Radio Rumbo, which used 6075 back in the early to mid-1980s.

Photo A. If you are close to a marina, there is plenty of need for the commercial MROP or GROL operator's license. *(Photography courtesy of WB6NOA)*

To Be a *Smooth Operator*, You Better Understand FCC Commercial Licensing

By Gordon West, WB6NOA/WPC6NOA

"Coast to coast, LA to Chicago . . . No need to ask: He's a smooth operator. A smooth operator."

The English group *Sade's* monster hit in the mid-1980s, *Smooth Operator,* <http://bit.ly/Kn0rgU> could have been referring to anyone who has successfully navigated the Federal Communications Commission's maze of licensing options.

There's a lot to know. To get a handle on commercial licensing, you must first see the big picture. Don't make the mistake of failing to understand the many intricacies — such as those that distinguish the *station* from the *operator* license. There are major and important differences.

Station Licenses

For example, the FCC issues radio licenses to radio station *equipment* in nearly 100 radio *station categories.* To name just a handful:

- AM and FM radio stations
- Police and Fire radio
- General Mobile Radio Service
- Business radio service
- Power and Water Utility service
- Railroad, Taxi, and Tow truck radio service

"To get a handle on commercial licensing, you must first see the big picture . . . There are important distinctions from other licenses."

Icom has the receivers for the experts...

IC-R9500 The Ultimate Wide Band Receiver

- 0.005–3335.000MHz*
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- 1020 Alphanumeric Memory Channels
- P25 (Option UT-122)
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IC-R75 Wide Band Receiver

- 0.03–60.0 MHz*
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AND for those on the go!

IC-R20 Advanced Ops

- RX: 0.150–3304.999MHz*
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- Dualwatch Receive
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IC-RX7 Track Ready

- RX: 0.150–1300.0MHz*
- AM, FM, WFM
- 1825 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Programmable[2]
- Water Resistance Equivalent to IPX4

IC-R6 Pocket Compact

- RX: .100–1309.995MHz*
- AM, FM, WFM
- 1300 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Controllable[1]

IC-R2500 2 Wide Band RX in 1 Black Box

- RX: 0.01–3299.99MHz*
- AM, FM, WFM, SSB, CW (Main)
- AM, FM and WFM (Sub)
- 1000 Memory Channels
- Optional D-STAR (UT-118)
- Optional P25 (UT-122)
- Optional DSP (UT-106)
- PC Controllable

Limited Time Only!

See your dealer for details.

IC-PCR1500 PC Control Wide Band RX

- RX: 0.01–3299.99MHz*
- AM, FM, WFM, SSB, CW
- Record and Save Audio as .WAV File
- USB Cable Connection
- Optional DSP

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ICOM

*Frequency specs may vary. Refer to owner's manual for exact frequency specs. [1]Optional CT-17 required. [2]Optional CS-RX7 required.

Photo B. This simple field strength meter will satisfy the rules for a positive power output indicator.

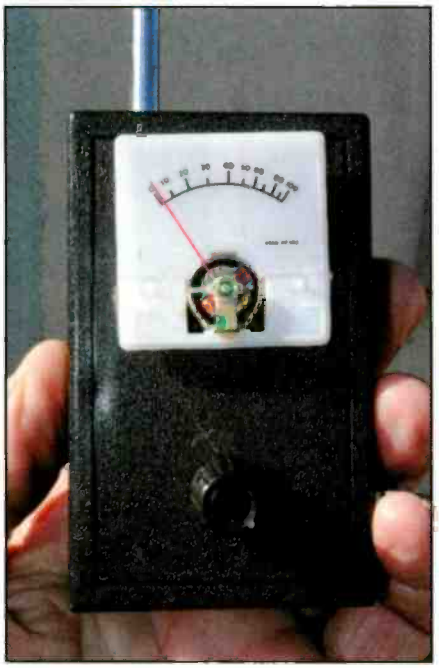


Photo C. You will need a professional watt meter to conduct power output checks during radio inspections with the GROL license.

- Marine radio, aboard boats and on land
- Local Government Radio service
- Emergency Medical
- Cellular Radio service
- Low-Power Radio service (Cat, bird, animal tags)

These are renewable *station* licenses, usually good for five or 10 years. Some can cost thousands of dollars to obtain, and more thousands to renew.

Operator Licenses

The FCC has only two categories of *operator* licensing.

- Part 97 Amateur Radio Service license, a 10-year renewable ticket.
- Commercial radio operator license, good for life

Station vs. Operator

To reiterate, a *station license* is for the equipment and the assigned frequencies this gear works on.

The *operator license* is for the *individual* who may talk over a specific class of station, or the individual with the proper grade of FCC operator license to pop the chassis cover, and make adjustments inside the transmitter. *Got it?*

There are countless different *FCC station licenses*, but only two types of *operator* license — radio amateur and commercial.

Radio Amateurs

The amateur radio license classes are Technician, General, and Extra Class, plus grandfathered Novice and Advanced class *operators*.

Hams are permitted to use amateur radio *stations*. The amateur radio station — a.k.a., *the equipment* — does *not* require a separate *station* license. It does require an amateur radio *control operator* for transmitting who is responsible for that station.

Ham tickets are renewable every 10 years and there is no FCC fee for that license, but there may be a modest fee for ham testing and a renewal through a service group. There *is* an FCC fee for a personally-chosen vanity callsign.

Back in the Day: Commercial Operator Licenses

Prior to 1985, there was quite a lineup of commercial *operator* licenses:

- First Class Radiotelephone
- Second Class Radiotelephone
- RADAR Endorsement
- Third Class Radiotelephone
- Broadcast Endorsement
- Restricted Radiotelephone Permit (no test required)
- First, Second, and Third Class Telegraph

You needed the FCC First Class Radiotelephone ticket to work on broadcast radio and TV transmitters prior to 1985. You needed the Second Class 'phone to work on public safety radios, land mobile radios, and marine radios.

Before 1985, you needed the Third Class ticket to operate certain radios, ensuring that you knew the applicable radio law.

The Commercial Operator License Today

On June 15, 1984, the FCC combined the First and Second Class Radiotelephone Operator licenses into the new lifetime General Radiotelephone Operator License, abbreviated GROL.

Those of us with the *First 'Phone* had a short window of time to downgrade to the new GROL without having to pass the new GROL exam.

The Third Class Operator Permit, along with the Broadcast Endorsements, was eliminated.

The biggest FCC Rule shocker was the elimination of *any* type of FCC operator license to service private two-way radio transmitters, including police and fire radios, GMRS, CBs, taxi radios, powerful AM and FM transmitters and even encrypted FBI radios. *Wow!* After '85, no FCC operator license was required down at the service shop.

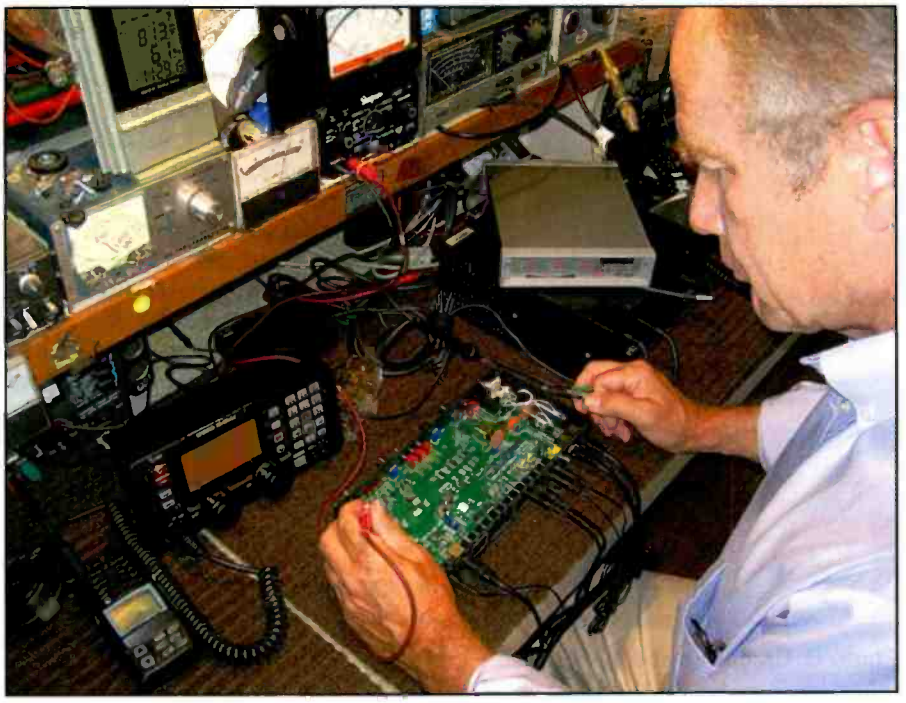


Photo D. You will need to hold the GROL operator's commercial license to work on VHF marine radio transmitters.

However, the new GROL would continue to be a required license to work on the certain radio equipment, under international law:

- Aviation radios, Part 87
- Marine radios, Part 80
- International Long-Range broadcast stations, Part 23.

"Without any FCC operator's license, few land mobile radio shops will hire a no-license applicant, even though the rules no longer require the FCC GROL license to work on the inside of domestic two-way radios," said William Alber, WA6CAX, who works in public safety radio and is a fellow commercial radio instructor and ham operator.

Are we clear on that? The FCC requires *no* operator license to work on most domestic land mobile radios and land mobile microwave radio systems,

Photo E. Carefully inspect how the reserve source of energy (RSE) is getting its battery recharged.

Photo F. Carefully inspect VHF antenna coax leads. If you spot cracks in the jacket, the antenna system needs to be replaced.

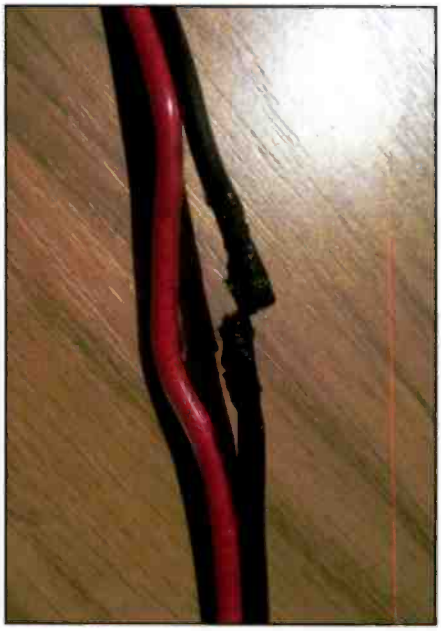


Photo G. Carefully inspect VHF radio power leads — in this installation, stray ground currents have melted the DC negative lead. Both red and black DC leads will need to be replaced.

but *does require* the GROL, and even higher-category licensing, to work on equipment in the marine radio service.

To earn the GROL, two elements must be passed:

- Element 1, Marine Radio Operator Permit, a relatively simple 24-question, multiple-choice exam on FCC Rules.
- Element 3, a Marine and Aviation technical test, a 100-question test with multiple-choice answers. Passing is 74 percent minimum number correct for each test.

Element 1 is a prerequisite for Element 3. However, Element 1, the Marine Radio Operator Permit, all by itself, can land you a job down at the water. Here are some examples:

Marine Radio Operator Permit — MROP

What does the Marine Radio Operator Permit cover?

- U.S. Coast Guard-required radio operator license for vessels carrying more than six paying passengers.
- Larger ship-required radio station operation
- Certain land-marine coast stations and certain land-aircraft stations
- International shortwave broadcast stations

As a bare minimum for piloting or skippering your own small vessel or private aircraft that goes into international waters and airwaves, the Restricted Radiotephone Operator Permit, with no test, is required.

If you are an aircraft pilot or skipper of a boat, you should get the simple MROP with a 24-question, multiple choice test. Almost everyone in the maritime industry and aviation field has that *ticket* as a minimum.

If you plan to work in the two-way radio business, you first pass Element 1, MROP, and then study up and pass Element 3 for the GROL lifetime ticket. The degree of technical-question difficulty is nearly identical to ham radio Advanced and Extra Class exams.

General Radio Operator License

"Ham operators who recently passed the Extra Class exam will quickly see about three-quarters of the commercial General Radio Operator License technical questions are identical!" said WA6CAX.

"Many of the same questions and answers are used on the commercial exam as the ham Extra Class, with even the same A-B-C-D order of the multiple choice answers," Alber said, suggesting most anyone with an Extra Ham license should study Element 1, marine and aviation rules and regulations, skim Element 3 Commercial technical questions, and likely pass the GROL in one sitting.

The GROL opens up job opportunities at aviation, electronics service stations, and in the marine electronics industry. If you live near the water, river, lake or ocean, check in with the National Marine Electronics Association <http://www.NMEA.org> to learn more about its commercial marine electronics program for all you can do with that entry level GROL license on the shop wall.

If you enjoy working for yourself, around the water, your GROL lifetime commercial operator license qualifies you to become a U.S. Coast Guard-recognized FCC-licensed *Small Passenger Vessel Radio Installation Inspector.*

"A *small passenger vessel* is defined as a boat that sails in bays, harbors, rivers and sounds, adjacent to the open ocean, or in the open ocean, not more than 20 nautical miles from the nearest land," according to a USCG bulletin. These vessels require the skipper to hold the Marine Radio Operator Permit, plus a valid Marine Radio Station License plus the Certificate of Inspection by a GROL license holder, pursuant to the GMDSS 47 CFR, Part 80, subpart W or subpart Q.

When the U.S. Coast Guard inspection team comes aboard a small bay excursion boat that typically takes 10 to 20 passengers out for an afternoon bay cruise, the Coast Guard will need to see the current MROP displayed at the radio station as well as *your* certificate of a passing radiotelephone installation.

Your inspection, typically $100 per hour, will include some of the following:

- Check for a Current FCC Ship Station License, posted — good for 10 years
- Captain's MROP license on display
- 25-watt VHF radio with adequate 12-V DC source
- Radio installation shows callsign, MMSI ship identity
- A nearby clock to note time
- Radio next to steering wheel
- Radio receiver tested for acceptable sensitivity
- Radio transmitter checked for minimum and maximum power output
- Radio modulation check

Photo H. A handheld marine VHF radio is a great way to check modulation over the air. Wiggle the microphone cord, too, to check for a solid connection.


The United States of America

Federal Communications Commission

GENERAL RADIOTELEPHONE OPERATOR LICENSE

(General Radiotelephone Certificate)

This certifies that the individual named below is a licensed radio operator and is authorized to operate licensed radio stations for which this class of license is valid. The authority granted is subject to any endorsement placed on this license. The authority granted is also subject to the orders, rules, and regulations of the Federal Communications Commission, the statutes of the United States, and the provisions of any treaties to which the United States is a party, which are binding upon radio operators.

This license may not be assigned or transferred to any other person. This license is valid for the lifetime of the holder unless suspended by the FCC.

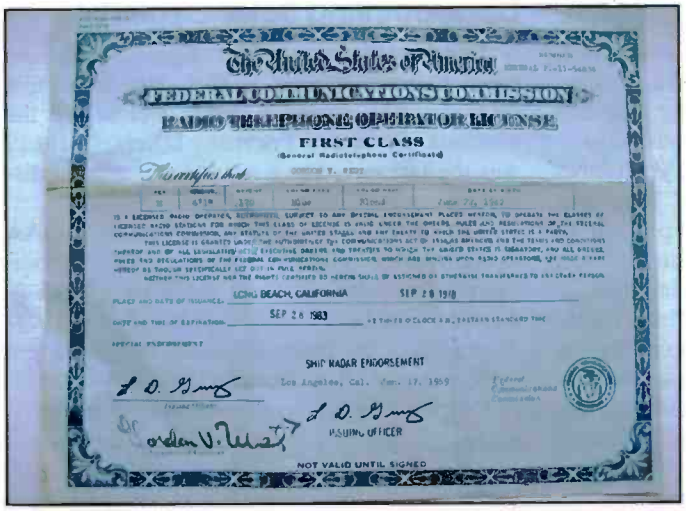
Endorsement: SHIP RADAR ENDORSEMENT

Licensee: GORDON V. WEST

Date of Birth	Issuance Date	Place of Issuance / License Number
JUNE 22, 1942	JANUARY 2, 1985	LONG BEACH, CA. / PG-11-30673

Signature of Licensee

Photo J. Here is the new General Radiotelephone Operator License, issued by the FCC.


The United States of America

FEDERAL COMMUNICATIONS COMMISSION

RADIOTELEPHONE OPERATOR LICENSE

FIRST CLASS

(General Radiotelephone Certificate)

LONG BEACH, CALIFORNIA SEP 28 1978

SEP 28 1983

SHIP RADAR ENDORSEMENT

Los Angeles, Cal. Jan. 17, 1969

ISSUING OFFICER

NOT VALID UNTIL SIGNED

Photo I. This is the original First Class License, issued by the FCC.

- 10-minute power output test
- Frequency tolerance test
- Visual means of transmitter output power check (may be an external VSWR meter)
- Illuminated dial check for nighttime operation
- Sufficient loudspeaker audio to overcome engine noise
- Detailed inspection of the fiberglass or stainless-steel VHF antenna
- Antenna VSWR check
- Coax cable from radio to antenna inspection
- Documented radio operation on 1 watt of low power with another vessel

You won't need a $10,000 spectrum analyzer, but you *will need* a minimum of the following:

- A copy of your GROL license
- FCC Radio Inspection Form No. 824
- Portable frequency counter
- VHF watt meter
- Multimeter
- Deviation meter
- The required FCC check list
- A DSC VHF handheld radio to test DSC non-emergency operation

Finally, you need to be dressed professionally, representing serious safety concerns. This means no denim or hard-soled shoes. Bring safety glasses because you will be inspecting the battery connections of the circuits feeding 12 volts to the marine VHF transceiver aboard.

Be sure to bring your invoice pad. I usually spend 3 or 4 hours aboard, not only checking out the VHF radio installation, but reviewing with the ship's captain the latest on VHF distress signaling, using DSC, as well as the importance of getting familiar with the Automatic Identification System (AIS).

A Plan of Action

Get the Marine Radio Operator Permit if you are running just a small shore boat operation.

Get the GROL if you plan to work on marine and/or aircraft radios plus provide ship station inspections.

If you plan to upgrade to higher classifications of marine operator licensing such as GMDSS Operator and/or Maintainer, you will still need Element 1 and, likely, Element 3 (the whole GROL) for big ship radio and satellite signaling gear, plus additional GMDSS exams.

If you were a Navy RADAR technician, you may also wish to earn the RADAR Endorsement, (FCC Element 8) which can accompany the GROL. That's all three — Elements 1, 3, and 8.

*(**NOTE:** The "GROL + Radar" FCC Commercial Radio License Preparation Study Manual, including Element 1 – Radio Law, Element 3 – GROL Technical, and Element 8 – Radar Technical, is a 300-page, large format, soft cover book, from Master Publishing, of Niles, IL, written by Gordon West, WB6NOA. To order, visit <http://www.W5YI.org> or call (800) 669-9594. It is also available via Amazon.com or from most commercial and ham radio stores. – KPC6PC)*

The Modern AM Broadcast Band DXer Defined: Do It in the Dark, But Follow the Sun

by Bruce A. Conti,
WPC1CAT
<contiba@gmail.com>

"The same sunspot activity that energizes the Aurora Borealis can also result in enhanced reception from southern latitudes."

Most everyone is familiar with the rather provocative saying, *AM radio DXers do it in the dark*, but did you know that they also *Follow the Sun?*

Sure, we all know that when the Sun goes down, AM broadcast DXers get busy. During daylight hours, energy from the Sun causes absorption of AM broadcast band radio signals by a layer of the atmosphere. As energy dissipates in that layer with the setting Sun, the atmosphere becomes a reflector of AM broadcast frequencies. This allows signals to propagate over long distances, similar to shortwave or CB radio skip.

The modern AM broadcast band DXer follows the Sun from another perspective: The same sunspot activity that energizes the spectacle of Aurora Borealis or Northern Lights can also result in enhanced reception from southern latitudes.

The energy radiated from sunspot flares is concentrated at the north and south poles by the Earth's magnetic field, producing the aurora light show and resulting in daytime-like absorption of signals at northern latitudes, essentially clearing the nighttime airwaves for the arrival of signals from the south.

These southern or tropical radio signals arrive at low angles, slipping beneath the dome of energy emanating from the Arctic, thus escaping the atmospheric absorption.

Disappointing Solar Cycle 24

However the current Solar Cycle 24 has been off to a very slow start. In fact, data shows that solar activity has been in steady decline over the previous few cycles. For many DXers, Cycle 19 was the last to produce memorable auroral disruptions of AM radio reception.

The current revised forecast from the NOAA Space Weather Prediction Center (SWPC) indicates this cycle will have the lowest peak in sunspot numbers since Cycle 16 in 1928. Additionally the forecasted peak of the current cycle was pushed out from this year to May 2013.

Despite a lower level of activity than previously anticipated, it doesn't mean that there won't

Photo A. When the Sun goes down, AM broadcast band DXers get busy. *(Courtesy of WPC1CAT)*

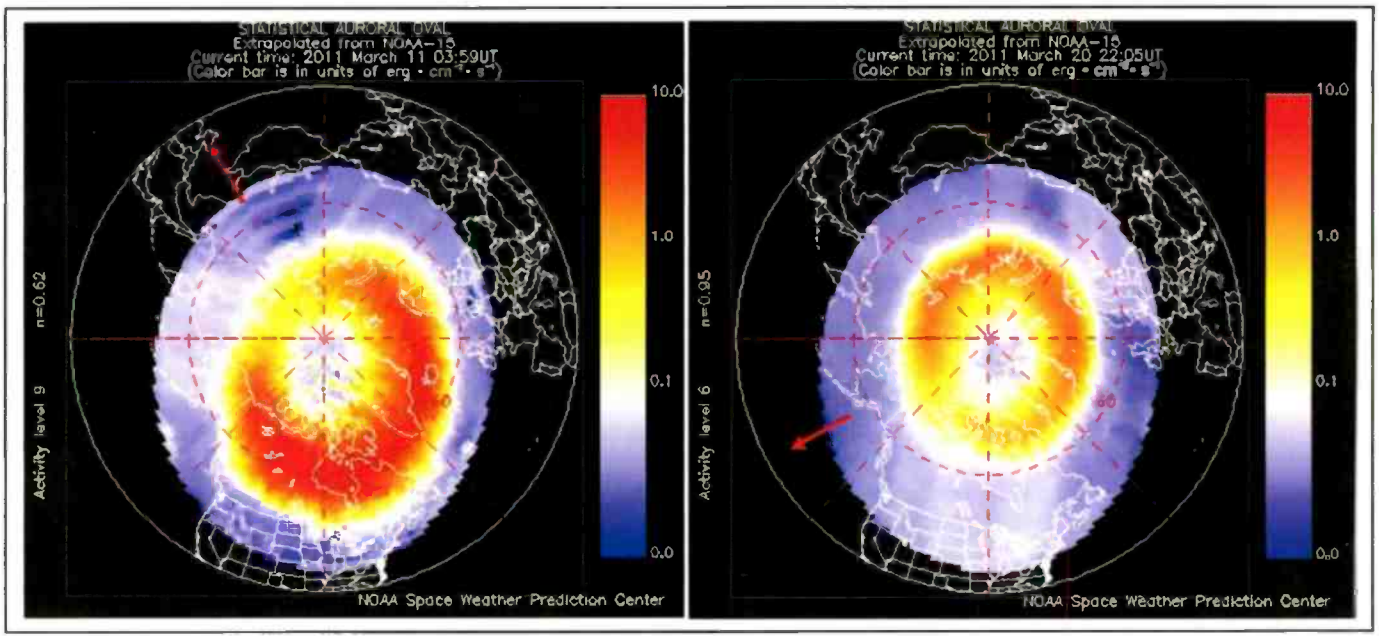


Photo B. The yellow and orange in these SWPC auroral oval images represent high-intensity energy. The image on the left from the March aurora shows the dome of energy covering Canada, while the image on the right was during quiet conditions more typical of the current weak solar cycle.

be any severe solar weather events taking place during this cycle, according to Doug Biesecker of the NOAA SWPC. "Even a below-average cycle is capable of producing severe space weather," he said in an updated forecast by the center. "The great geomagnetic storm of 1859, for instance, occurred during a solar cycle of about the same size we're predicting for 2013."

So even though it appears unlikely that a dramatic peak in solar activity will coincide with the end of the Mayan calendar, as some had suggested to lend support to prognostication of the end of days this December, AM broadcast DXers remain hopeful for increased auroral reception conditions in the coming months.

Auroral Ear-Witness Accounts

A brief two-day auroral event that occurred last spring could be an indicator of what's to come. Solar activity was at high levels March 9 and 10 primarily due to a series of relatively long duration major flares according to the Space Weather Highlights report by NOAA SWPC.

Geomagnetic field activity was at quiet to severe storm levels during the period. By March 11, activity returned to overall quiet levels. It's important to note the delay between when auroral conditions were first reported by NOAA SWPC and when AM broadcast band reception was impacted, especially during such isolated solar events. The hysteresis between a solar event and associated reception conditions can be one or two nights as the following accounts would confirm.

Exhibit A

"The auroral conditions of March 11 and 12 provided some of the best Latin American reception that I've experienced on medium wave DXing, either from home or from DXpedition locations, with over 80 tropical AM stations logged," reported Pennsylvania DXer Brett Saylor. "While it was fun to hear Radio Globo Brazil, the real thrill was logging Argentina alone on 1030 with a fantastic signal and clear ID (this was country No. 51 from Pennsylvania and No. 71 logged from all locations). Thanks to Jim Renfrew for the suggestion to check for Venezuela national anthems at the bottom of the hour, yielding a couple of new Venezuelans plus other new stations heard while looking for the Venezuelans! I still have lots of unchecked Perseus SDR files to go through, so there might be a hidden gem still left to uncover."

Venezuela is one of the few places in the world where time is offset by half an hour. Venezuela time is UTC -4.5 hours. The Venezuela national anthem is broadcast by all radio stations at midnight Venezuela time, 0430 UTC.

Exhibit B

"The March 11 and 12 auroral event really stood out," said fellow DXer Jim Renfrew. "I can't remember an event like this going back quite a ways. My location is not very friendly toward the south. It's my shortest antenna (200 feet), but there's a ridgeline in sight that seems to make DX from Latin America more difficult than it was when I lived in the next town over.

"Even so, Venezuela and Colombia are a lot less available to me than I can ever remember. Even Cuba struggles to get here. On the other hand I've been mostly enjoying my 'Kaz' Delta antenna aimed for transatlantic signals, since I had largely gotten most of the usual suspects from Latin America. The perception among Newfoundland DXpeditioners is that a lot of Latin American stations are running with less power than licensed or listed. Due to the cost of fuel, we suspect, especially if they run generators for power.

"Also, some of the Venezuelan stations are off the air altogether due to disputes with the government. So the walloping signals I got on March 11 and 12 were a welcome surprise here. That I was able to record spectrum on the Perseus SDR helped me log 45 new ones over the two days, which included some deep south domestics."

"The most interesting result was all of the low and middle power Mexicans I got, many of them from the Puebla area," continued Renfrew. "A very directional aurora I'd say. The next night was a field day with all of the Venezuelan anthems at 0430 UTC, and then all of the Cuban anthems at 0500. It's quite enjoy-

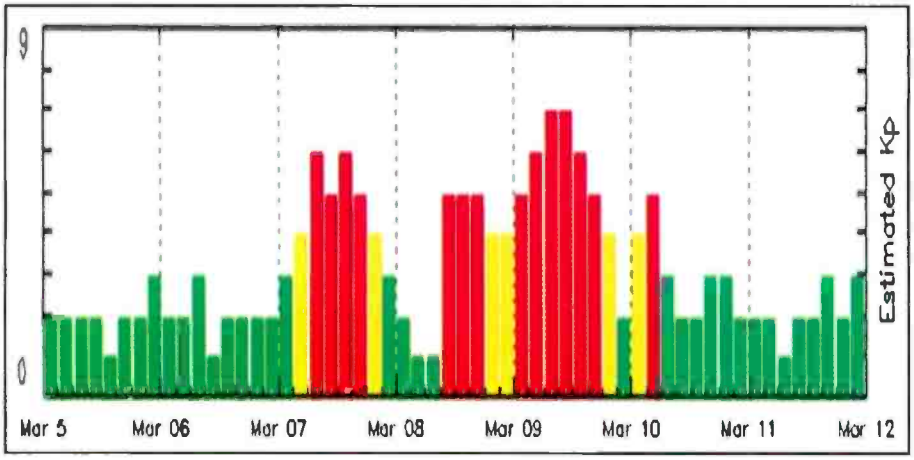


Photo C. This bar graph of the K_p-index compiled in the SWPC Space Weather Highlights report clearly indicates solar activity was at high levels during the March auroral event.

able scrolling through the Perseus file and picking them off one by one.

"The cream of the crop, though was my second Brazilian ever on 1220 (the first was 1100 during an unscheduled WTAM silent period in 2005). The 1100 was also in, and I suspect another with preaching on 990, but not identifiable. The biggest surprise was Radio Splendid 990 from Argentina. I had Argentina tentatively on 870 and 1620 many years ago, so I was very glad to get a solid ID from Splendid."

Five to Follow the Sun Online

The 3-Day Estimated Planetary K_p-Index bar graph at <http://1.usa.gov/K5TVg7> is a good place to start monitoring for the potential impact of solar activity on reception. K_p indices of 5 or greater displayed on the graph by red bars are an indicator of storm-level geomagnetic activity and possible auroral reception conditions.

Green indicates generally quiet conditions conducive for high latitude transcontinental or transoceanic DX reception, while yellow serves as a warning of increased or moderate solar activity but not necessarily enough for tropical enhancement.

The Joint USAF/NOAA 3-Day Report of Solar and Geophysical Activity, <http://1.usa.gov/KRvVY9>, is the next place to go for current analysis and forecast information. The report summarizes solar observations and provides probabilities for active, minor and major storm conditions.

Remember that the impact of solar activity may not be apparent on the AM broadcast band until a night or two later. It also can take a couple of nights for the band to fully recover after quiet solar conditions return.

The NZ40 Medium Frequency (300-3000 KC) Radiowave Propagation Forecast <http://bit.ly/KBnWSo>, produced by Thomas F. Giella NZ40 includes an email reflector where DXers may discuss anything related to solar conditions and radio wave propagation. Solarcycle24.org is also on Facebook where the forecast is issued daily. In addition to solar conditions, Giella provides a global noise outlook on the website with links to near real-time lightning strike maps for the U.S. and worldwide.

The Ovation Auroral Forecast at <http://bit.ly/JQTX5J> provides an empirical model of the earth showing the location and intensity of aurora as estimated from solar data. The model also shows the current location of the day-night line or "grayline terminator" which is useful to identify which locations are in darkness and more likely to propagate. Locations in transition between daylight and night at sunset or sunrise may benefit from additional signal enhancement along the terminator line. For example, if it's sunset at your receiving location and in Colombia, then reception can be enhanced during that time period from just a few minutes up to an hour. The transition doesn't always have to be occurring at the receiving location though. Sometimes transmitter site dawn alone will give signals a boost, such as strong transatlantic reception of locations in Europe as sunrise progresses over the continent. This technique of following the day-night line is known as grayline DX.

Last but not least, follow *Pop'Comm* columnist **Tomas Hood, NW7US**, at <http://sunspotwatch.com> to track space weather data and forecasts. Sunspotwatch.com features links to auroral oval maps, images of the sun, tracking software, and solar observation videos.

Broadcast DX Logs

This month's selected logs reach for the Sun, featuring the exceptional tropical AM broadcast reception that's possible under auroral conditions. All times are UTC.

530 Radio Enciclopedia, Villa María, Cuba, at 0100 light instrumental, Radio Enciclopedia ID by woman; fair. (Connelly-MA)

560 Radio Rebelde, Ciego Avila, Cuba, at 0430 Cuban music and talk parallel other Rebelde channels including 610, 620, 650, 670, 710, and 770 kHz. (Saylor-PA)

580 WKAQ San Juan, Puerto Rico, at 0900 callsign, mention San Juan and Mayagüez (assume the parallel on 600) then talk in Spanish; weak in auroral noise but clear on frequency. (Saylor-PA) At 2330 "WKAQ en la noche," dominant. (Connelly-MA)

590 Radio Musical Nacional, La Julia, Cuba, at 0200 under WEZE Boston; classical piano, then ID with classical harp. (Conti-NH) At 0940 classical music, ID on the hour, interference from 580 WLVA Lynchburg, Virginia. (Hill-VA)

600 WYEL Mayagüez, Puerto Rico, at 0012 talk parallel 580 WKAQ; over Cuba. (Connelly-MA) At 0400 pop music including Lady Gaga's "Edge of Glory." Radio Reloj ID then back and forth talk by a man and woman in Spanish. No callsign or mention of parallel 580 WKAQ at top of hour (580 was not audible at this time); their AM format is listed as news/talk, but their FM reportedly broadcasts contemporary hits format, so could this be a simulcast of FM? (Saylor-PA)

630 WUNO San Juan, Puerto Rico, at 0100 Puerto Rico and RadiUno mentions; sometimes over WPRO. (Connelly-MA)

660 HIAM Radio Visión Cristiana Internacional, Santiago, Dominican Republic, at 0600 religious program in Spanish, several RVC ID's, then English ID mentioning 1330 WWRV, 1310 WRVP, 1440 WWCL, 1580 WVNZ, 1360 WTOC, and 530 Turks and Caicos; RVC singing ID, then into "Voz salvación" religious program in Spanish. Clear on frequency. (Saylor-PA)

670 Radio Rebelde, Cuba, at 0100 a good signal; time marker and sounder during "beisbol nacional de Cuba." (Conti-NH) At 0131

This Month in Broadcast History

75 Years Ago (1937): New standards were adopted for marking radio towers which included painting in alternating bands of international orange and white. Towers of 200 feet or greater above ground were required to be lighted and painted.

50 Years Ago (1962): "Breaking Up Is Hard to Do" by Neil Sedaka topped the Mighty 850 WKIX Hit Parade in Raleigh, North Carolina, <http://bit.ly/KY7LAN>.

25 Years ago (1987): The FCC voted by a 4-0 decision to repeal the Fairness Doctrine though it was never officially deleted from the Code of Federal Regulations until 2011 as part of an overall government mandate to eliminate obsolete and unnecessary regulations.

parallel 770 with 9-note sounder; over YVLL. (Connelly-MA) At 0502 national anthem. (Renfrew-NY)

680 Radio Rebelde, Cuba, at 0252 electronic sound effects during sports coverage parallel others. Nothing listed in the 2012 *WRTH*. (Renfrew-NY)

690 XEN Mexico, at 0252 heard "La 69 es noticias" and "Grupo Radio Centro." 0948, "La Sesenta Nueve" ID. (Renfrew-NY)

700 XERV Villahermosa, Tabasco, Mexico, at 0254 ID as "Yo FM 106.3 FM" and "RTV Mexicana." (Renfrew-NY)

720 Radio Catolica, Managua, Nicaragua, at 0100 serious-sounding talk, Radio Catolica ID; through jumble with Cuba, others. (Connelly-MA)

720 YVQE Radio Oriente, Porlamar, Venezuela, at 0105 — Oriente ID, Latin American male vocal; over WGN. (Connelly-MA) At 0430 CVR flourish, then national anthem. (Renfrew-NY)

750 YVKS RCR Caracas, Venezuela, at 0303 RCR mentioned twice at this time, otherwise few IDs during talk program. 0533 national anthem. (Renfrew-NY) At 0430 a very dramatic vocal version of the national anthem by a male and female singer. (Saylor-PA)

770 YVKK Radio Valencia, Venezuela, at 0433 fragments of national anthem, Valencia is the only Venezuelan station on this channel. (Renfrew-NY)

880 Radio Paraguaná, Punto Fijo, Venezuela, at 0258 ID just before top of the hour, through WCBS. 0520 ID and web address announced. (Renfrew-NY) At 0400 nice ID, "En Paraguaná . . . Radio Paraguaná" then peppy Latin American music. (Saylor-PA)

940 ZYJ453 Rio de Janeiro, Brazil, at 0013 reverberated Portuguese man with futebol mentions; over WIPR and YVNN. (Connelly-MA)

990 LR4 Radio Splendid, Buenos Aires, Argentina, at 0459, "Transmite Radio Splendid en 990 kHz," and another ID at 0500 that also mentions "La Republica Argentina." Co-channel WDCX Rochester, New York, went off the air suddenly at 0500. New country #76 at 5,477 miles distance! (Renfrew-NY)

1030 LS10 Radio del Plata, Buenos Aires, Argentina, at 0400 romantic accordion music up to the hour, five short and one long time pip (same pitch) while music still played, then ID, "Radio Noticias del Plata," into news in Spanish. At 0430 presumed news again by a woman with a man announcing before each segment e.g., "internacional," short piano or accordion interlude, then more talk. (Saylor-PA)

1060 XEEP Mexico, at 0708 jazz piano instrumental, Radio Educacion ID, Moonlight Serenade played; checked webstream and found same song playing. (Willie-NL)

1100 ZYK694 Radio Globo, São Paulo, Brazil, at 0011 two men with excited Portuguese shouting, advert, Globo jingle; good. (Connelly-MA) At 0245 poor under WTAM Cleveland, but a nice "Radio Globo" ID and wolf whistle. (Renfrew-NY)

1110 YVQT Radio Carúpano, Venezuela, at 0102 heard "En Venezuela ¡Carúpano!" and llanera music. (Conti-NH) At 0735 heard lively Spanish talk and tropical music. (Willie-NL)

1120 XEPOP Puebla, Mexico, at 0259 "Radio Cinco" and "POP AM." It took some web digging to see that "Radio Cinco" is a group of stations. (Renfrew-NY) At 0300 "Fórmula" and "Cinco Radio" IDs, this is the only Fórmula/Cinco Radio on 1120 that I can find in listings. (Saylor-PA)

1140 Radio Surco, Morón, Cuba, at 0357 under WRVA Richmond, Virginia; national anthem, ID with signature music, "Sintonise CMIP Radio Surco, desde Ciego de Avila, capital de la locución cubana." (Conti-NH) At 0547 "Radio Surco" mentioned. (Renfrew-NY)

1180 Radio Rebelde, Cuba, at 0313 on top of WHAM Rochester, New York. Parallel 710 which was on top of WOR New York, and 600 in clear with no competition. (Hill-VA)

1220 ZYJ458 Radio Globo, Rio de Janeiro, Brazil, at 0244 "Radio Globo" IDs, wolf whistles, parallel web audio. Brazil #2 here. Still popping in at 0400. (Renfrew-NY) At 0355 rapid talk by man in Portuguese with mentions of Globo, Michael Jackson's "Criminal" and Madonna's "Borderline." This is definitely the most satisfying of all the station logs from the auroral conditions. (Saylor-PA) At 0415 heard Portuguese talk and vocals. (Willie-NL)

1220 XEB La B Grande, México, at 0257 Beatles "Hello, Goodbye," then ID, mixing with Brazil. (Saylor-PA) At 0404 no ID, but mention of "Instituto Mexicano de la Radio." Interference from Brazil! (Renfrew-NY)

1290 YVLF Radio Puerto Cabello, Venezuela, at 0036 romantic Spanish vocals, a good signal most of the night. (Willie-NL)

1410 XEAS Nuevo Laredo, Mexico, at 0301 "Que Buena FM" ID, listed as 1000/250 watts. (Renfrew-NY)

1540 ZNS1 Radio Bahamas, Nassau, Bahamas, at 0101 political talk, "There are only 11 more days and the sun will set on what history will record as the worst 5-year term of any political party in the modern Bahamas." Loud, way over WXEX New Hampshire. (Connelly-MA)

1550 Radio Rebelde, Cuba, at 0131 Rebelde talk and 9-note sounder parallel 1620; over WSDK Connecticut religious station. (Connelly-MA) At 0252 sound effects during sports coverage parallel others. 0601 national anthem. (Renfrew-NY) At 0500 fair; organ theme music, "Rebelde la habana, emisora de la revolución," parallel 1620 kHz. (Conti-NH)

1620 Radio Rebelde, La Habana or Guantánamo, Cuba, at 0131 Rebelde talk and 9-note sounder; way over suspected WDHP U.S. Virgin Islands. (Connelly-MA) At 0252 sound effects during sports coverage parallel others. 0601 national anthem. (Renfrew-NY)

Thanks to Mark Connelly, WA1ION; Norman Hill; Jim Renfrew; Brett Saylor; and Allen Willie. The National Radio Club and Worldwide TV FM DX Association is holding its annual convention August 3-5 in Bridgeport, West Virginia. The convention is a great opportunity to meet fellow DXers and talk radio. Go to <http://www.nrcdxas.org> for more information. 73 and Good DX!

August '42: The Radio Operators of Guadalcanal

By R.B. Sturtevant, KPC7RBS/AD7IL

It started very slowly in early July of 1942. But it was clear the clouds of war were ominously gathering in the Pacific. Seventy years ago.

Intercept stations along the Australian northern coast were picking up radio traffic from the northeast. Just a few at first — coded enemy transmissions that Direction Finding said was coming from somewhere around the Island of Tulagi.

Some of the message addresses and callsigns indicated at least some of the stations were attached to Japanese Naval Air ground stations. That there were several stations on the air indicated that they were not all on the same island. If that were the case, a telephone would have worked.

Smart money was betting that General Douglas MacArthur was planning something around Port Moresby on New Guinea.

"Never did the captured Japanese radio station on Guadalcanal go off the air. The U.S. radio operators maintained long-range communications . . . without fail."

Japanese Zero fighters and Betty bombers over his beachheads would make things dicey for the Army. Enough evidence piled up that somebody needed to check things out.

Somebody, flying a B-17 with reconnaissance cameras and plenty of film, did. When the film came out of the darkroom the prints showed that the Japanese were building up around Tulagi. A Japanese airstrip was being scraped out of a flat space on an

Photo A. A Marine Corps radio operator copies incoming CW traffic on Guadalcanal Island. This transmitter/receiver is an American model and shows the conditions under which U.S. radio operators worked away from the main base high-frequency station. *(Photography courtesy of the U.S. Marine Corps)*

Photo B. On this map, Guadalcanal looks like a tropical paradise. When you look closer it becomes much more. So many ships, both American and Japanese, were sunk in the six month campaign on Guadalcanal that Sealark Channel's name was changed to Iron Bottom Sound.

island called Guadalcanal. The facilities weren't nearly finished but their meaning was pretty clear.

August 7: The Battle Is On

Ultimately Guadalcanal, in the Solomon Islands, was the first action in which Americans and Japanese ground forces would face each other.

Japanese in Rabaul were notified as soon as the Marines started ashore on August 7. To show the amount of confusion, word of the Guadalcanal landing sent Japanese fliers rushing for charts to find out where the Americans were. After they found their target, Japanese pilots had to fly more than 500 miles each way to deliver an attack on the Marines.

The Marines had only to deal with a few snipers and small, scattered parties on their first day ashore. Their main problem was in regard to the supplies the Navy was landing on Red Beach.

Because the Navy was worried about submarines and air attack, they were off loading cargo as fast as they could. About 2:30 p.m., August 8, their fears were realized.

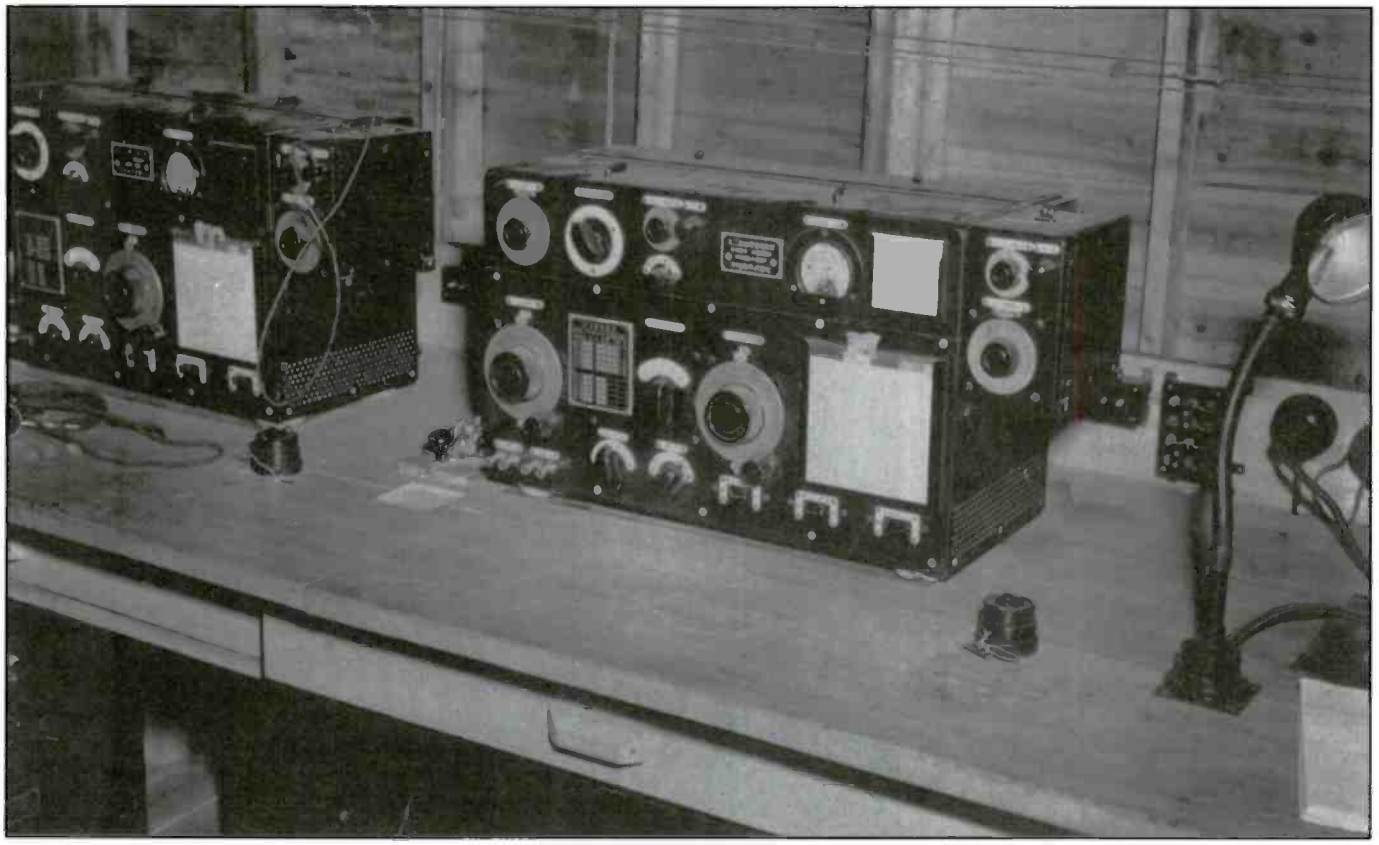


Photo C. A duplicate operator's position in a Japanese military radio station was captured by Marines and put back on the air during the first days of fighting on Guadalcanal. These sets continued to be used for some time and supplied the only long-distance communications on and off the island. After these sets were replaced with American equipment they were transferred to Camp Lejeune, North Carolina and used to train future Marine Corps radio operators during the rest of the war.

Japanese bombers and Zeros from Rabaul arrived to drive off the Marines. Fortunately they had loaded bombs rather than torpedoes and none of the U.S. ships were damaged. Very little delay was caused on the ground.

Shortly after the air attack, U.S. Navy flyers spotted a Japanese Task Force of five cruisers and several destroyers headed for the area of the landing operations. The message was relayed through seven different radio stations, which added a great deal of confusion to the text. By the time the message reached the combat area, nobody was certain which way the Japanese Task Force was heading. Confusion was inevitable.

The night of August 8 was a confusing one for both the Americans and the Japanese. A screening force of five cruisers was set up in the channel northeast of the landing operations, near Savo Island, to protect the transport ships from attack. The Japanese Task Force slipped past the outer picket line of the American Screening Force and engaged the Americans in a night action.

The Enemy Strikes

The Japanese sank four cruisers and heavily damaged the fifth. One Japanese cruiser was damaged. This led the Japanese commander to withdraw fearing air attack from the two carriers covering the transport ships force.

Intelligence was so poor at this time in the war that nobody knew what Japanese ships might be in the area or how many Japanese were on Guadalcanal. Knowing that he could no longer be properly defended against Japanese attack, the Naval Commander of the operation let his Marine Corps colleagues know that he was leaving as soon as he could get underway. The Marines asked the Navy to stay until unloading was completed. The Admiral would not put his ships at such risk.

By about 2 p.m. on August 9, after all the cargo the Higgins Boats could carry was ashore, the Navy left the area. Now, one of the Marines' biggest problems was the tons of freight that sat on Red Beach in a hopeless pile — inviting attack from the air.

Captured Japanese Radio Gear

Left aboard the departing transport ships was all the radio equipment that the Division Signal Company would need to maintain communications with anyone outside the Guadalcanal area. The Signal Company was ashore but they could not communicate with the Navy, Australia or the United States.

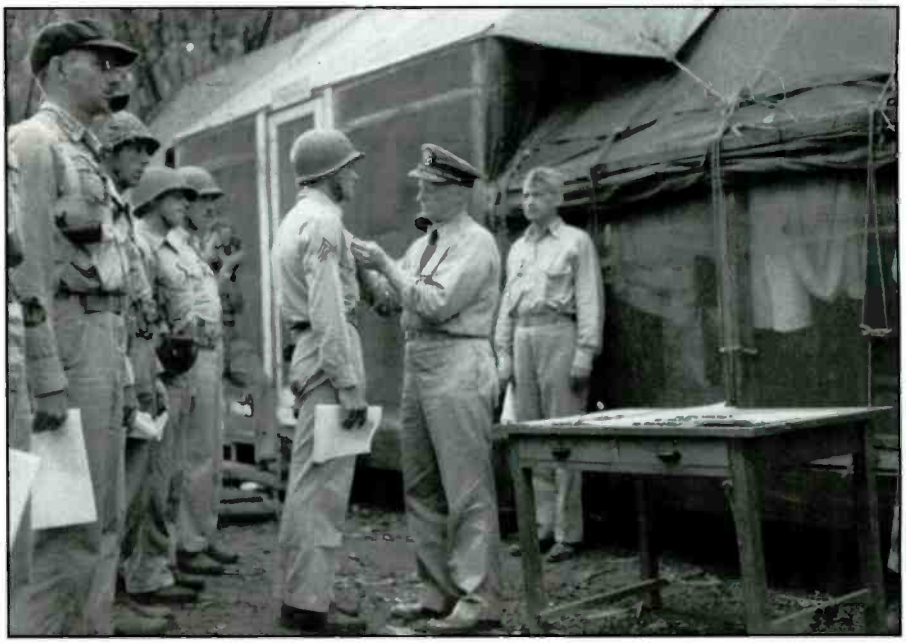


Photo D. Navy Admiral Chester Nimitz awards a medal to a Marine Corps radio operator for action related to getting captured Japanese radio stations on the air. This was the only communications facility capable of getting signal traffic on or off the island during much of the Guadalcanal operation.

Lt. Col. Eddy Snedeker, Division Communications Officer, informed General Vandergrift of the situation but said his men were working on something that might work.

The men selected to form the Division Signal Company were not led by beginners: Master Technical Sergeant Felix L. Ferranto, W6NDH, had accompanied Admiral Byrd to the Antarctic in 1938-39 as radio operator on one of Byrd's two ships. Some Navy Men were hams, as well.

At 9:30 a.m. August 8, the Signal Company had come ashore and by 3 p.m. were in what had been the main Japanese base on Guadalcanal. Here they found four transmitters — three high-frequency and one much lower — antennas and everything just as the fleeing Japanese had left it.

Unfortunately all the technical manu-

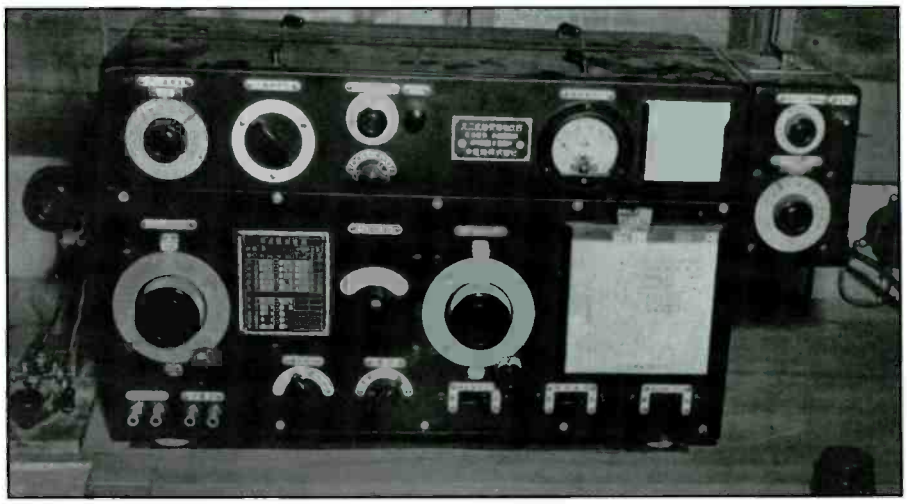


Photo E. Here is a panel view of a Japanese radio transmitter/receiver after it was put back on the air by U.S. Marines. Note the key to the left of the set. The Japanese equipment was largely copied from American designs. It was efficient, substantially built and had surprising power and range.

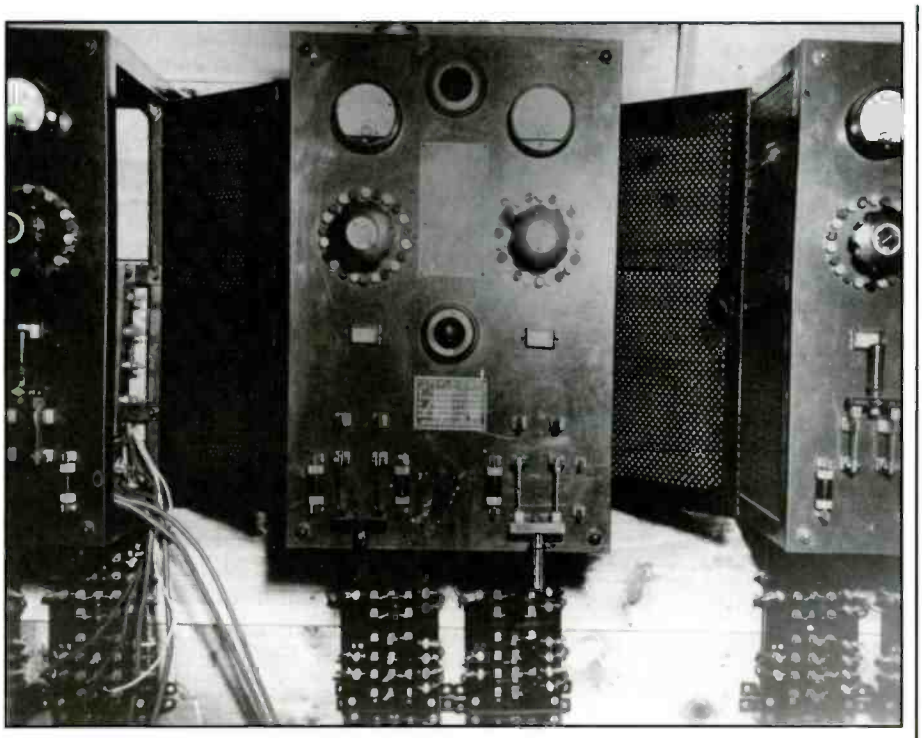


Photo F. Marines put the captured Japanese station equipment back on the air in order to conduct all off-island communications. American equipment to do this job had not been brought ashore during initial landing operations. Shown is part of the power supply and its elaborate switching.

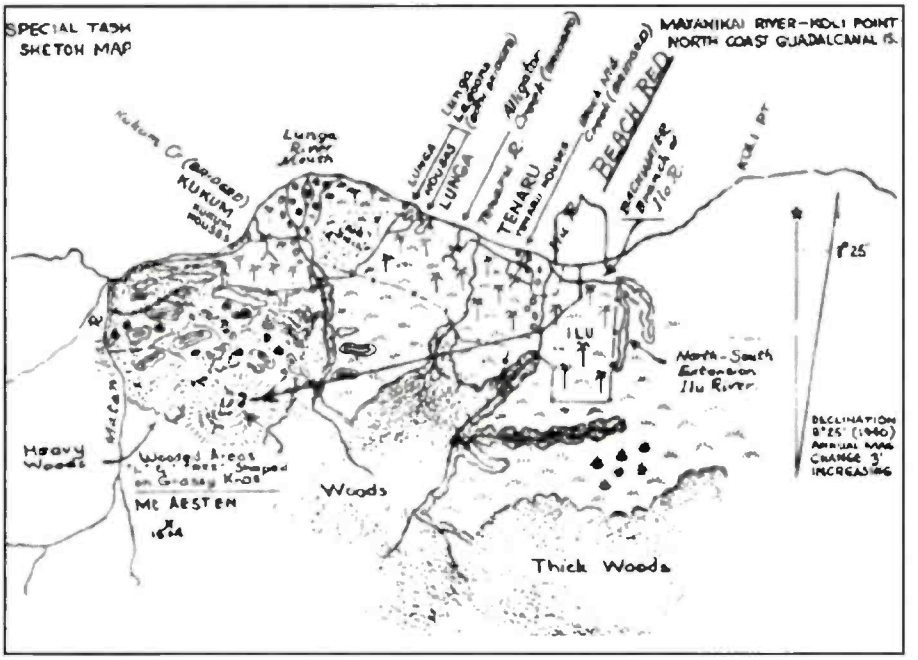
als, schematics and charts were written in Japanese. At this time in the development of radio there was very little *cross pollination* between nations in radio design. The radio's design was distantly related to an American design but had been changed enough to confuse all but true radio experts.

Moreover, the Japanese had been using voice transmissions. The U.S. Marines required CW-only in order to be accepted into Allied nets.

Making the Radios Work

These problems required that the sets be modified. The main conversion was in the grid biasing system that required a redesign of the Japanese arrangement. There also was no keying system built into the Japanese rigs that had to be added by the Marines. Band-switching was arranged by changing taps on coils in the inter-stage circuits and gave the transmitters a range of 3.7 to 18.2 MHz.

Many other oddities came to light as the sets were brought in line with American standards. But the radiomen worked around these problems. A Japanese diesel generator was brought on line, which supplied electricity for the entire camp as well as the three high-frequency transmitters in the radio station.



A sketch was used to plan the Guadalcanal invasion.

'We're On the Air!'

Colonel Snedeker was soon able to report to General Vandergrift that the radio station was on the air and ready for traffic. The only problem then was that all the Navy's Task Forces in the area, fearing attack, were maintaining radio silence and refused to answer.

Better pens than mine have been employed to tell the story of the Battle for Guadalcanal. I will not attempt to do justice to that six-month-long heroic strug-

Photo H. Here's an aerial view of Henderson Field.

gle involving daily air strikes, six major sea battles and fearsome land actions between American Marines and soldiers and their Japanese adversary. But it does need to be said that never did the captured radio station on Guadalcanal go off the air. It maintained long-range communications as well as directing the various American combat units around the island without fail.

Analysis: The Enemy Is Impressed

There was a lot of analysis on American fighting methods by the Japanese. It was compiled in a document that was later captured by American forces. In late 1943, the analysis was translated and distributed to high level Allied Commanders as *A Japanese Analysis of American Combat Methods*

Snapshot: The Marine in Communications Today

By R.B. Sturtevant, KPC7RBS/AD7IL

Today, after boot camp, a Marine in a technical field is off to an electronics *A School* for some of the most thorough training in the world.

The length and complexity varies, depending on the career field. And the Marines' electronics career fields are many.

Communications, as well as Command and Control, have wire, voice and digital radio, tropospheric scatter radio and satellite communications.

Data Communications and Maintenance deal with switching, computers and repair of the high-tech gear. Both Electronics Maintenance and Avionics deal with flight controls and electronics on the ground and in the air.

Intelligence and Signal Intelligence cover the areas that you would expect. One surprise, however, is that the U.S. Marines is the only American service to have positions for Morse code operators — in the Intelligence field. Indeed, *Devil Dogs* are pounding brass for Uncle Sam.

Think of Marine communications and you likely envision a guy carrying a backpack rig with an infantry squad. You get a different picture after talking with Marine Sergeant Daniel Rauguis, a communications instructor in Satellite Communications at Marine Corps Base Quantico.

"A Marine in communications needs a good understanding of radio basics and propagation," Raugust said. "There are new radios coming along all the time, so the days of learning one radio and staying on it are long gone. We're always looking for better ways to do things and keeping up with the latest gear."

Rauguis joined the Marines in 2000 and went to VHF Radio Operator School. He was assigned to the Infantry as a Radio Operator and has served in locations including Japan, Korea and Iraq. He is not a radio amateur, but knows many in the Corps.

Photo I. Marine Lance Corporal Christine Salazar of the 24th Marine Expeditionary Unit, uses a PRC-117 and SATCOM antenna to receive satellite communications. *(Courtesy of U.S. Marine Corps)*

The sergeant has done some high-frequency radio operation and went to the Army's Advanced Radio Training School at Fort Gordon, Georgia.

A job in HF could be from a fixed site or mobile, but most Marines with radio operator billets wind up in VHF or Satellite Communications. Both are highly mobile and get a Marine communicator to where the action is.

on Guadalcanal. Some of it revealed a great deal about the Japanese opinions of American Signalmen.

"When their attack fails, they revise their plans on a larger scale. However, the signal unit follows up — establishes and maintains communications — with unexpected speed."

Another observation by John Miller, Jr., author of *Guadalcanal: The First Offensive*, was that "the Japanese apparently believed that American troops employed electric devices, such as microphones, at observation posts to warn them against approaching enemy infantrymen. A similar idea was expressed by Colonel Furumiya who was killed in October 1942. He suggested that the Americans were perhaps using machine guns which were operated by remote control, thus eliminating the need for a crew to man the guns."

The Japanese echoed this belief in their analysis: "As soon as they perceive (by their microphones, etc.) that we are approaching, they repeatedly carry out a concentrated searching fire of 20 guns in the already prepared zone of fire."

At another place in the same analysis: *"At night they place pickets (between 15 and 20 men) very sparsely at important points so that infiltration by patrols and small forces is comparatively easy. In these openings, instead of security guards, they frequently place microphones. The division has never been able to discover these, but the wires have been noticed."*

None of my research has turned up evidence of automatically controlled machine guns or remotely placed microphones used to detect enemy movements. The wires referred to were probably field telephone wires, which were widely used on Guadalcanal.

Another observation by the Japanese that should be noted is: *"Use of machine power and material power: They are skillful in the use of abundant material power and machine power. Even though they are the work of the enemy, the newly established automobile roads, the strengthening of positions, speedy construction of . . . (airfields), the setting up of a network of communications, etc., are beautiful things. It demands all the more attention to force them out."*

As the air attacks continued, Australian Coast Watchers were able to see the Japanese coming from Rabaul, giving the famous "Cactus Air Force" from 45 minutes to four hours advanced warning on incoming Japanese planes.

*(**NOTE:** The "Cactus Air Force" was assembled piecemeal on the newly named Henderson Field and referred to Guadalcanal's code name "Cactus." – KPC7RBS)*

U.S. Wireless Operators' Crucial Role

The radiomen of Guadalcanal helped to win the first American land victory of World War II in the Pacific. They helped bring about Commander of the Japanese 35th Infantry Brigade, Major General Kiyotake Kawaguchi, statement "Guadalcanal is not the name of an island. It is the name of the graveyard of the Japanese Army."

Resources: The Battle of Guadalcanal

- *Hyperwar: Pacific Theater of Operations:* <http://bit.ly/KXh808>
- *Hyperwar: A Hypertext History of the Second World War:* <http://bit.ly/KjK9Wm>
- *Pearl Harbor to Guadalcanal:* <http://bit.ly/JIF4cd>

Pop'Comm August 2012 Reader Survey

Your feedback is important to us at *Pop'Comm*. It helps guide us to make the magazine even more valuable to you each month.

Please take a few minutes to fill out this month's Reader Survey Card and circle the appropriate numbers corresponding to the questions below. We'll pick a respondent at random for a year's free subscription or an extension of an existing subscription as thanks for your participation — so don't forget to fill in your mailing address and other contact information.

We encourage your comments and suggestions in the space provided, as well. Thank you.

Last, but not least: You can now take this survey online. See details below.

As a shortwave listener or scanner monitor, do you include the amateur radio bands in your tuning regimen?

Yes, regularly 1
Yes, but only occasionally 2
Only during DXpeditions 3
No, never 4

Have you ever requested a QSL — reception confirmation — from a ham?

Yes, with a lot of success 5
No 6
I ask for QSLs, but hams don't often respond anymore 7

What do you find most interesting about monitoring the ham HF bands? (Choose all that apply.)

The content of conversation on the phone bands 8
CW, it's like copying a foreign language 9
The low-power QRPers. Five watts can do amazing things. 10
Listening to the propagation. Fascinating 11
Hearing interesting people from far-away places 12
Nothing. I don't listen there at all. 13

There are three major events in the VHF-UHF spectrum this month. As a scanner monitor, which interest you? (Choose all that apply.)

The ARRL UHF Contest, August 4-5 14
Perseids Meteor Shower, peaking August 12 15
ARRL 10 GHz and Up Contest, August 18-19 16
None interest me. 17

If the *Pop'Comm Monitoring Station* program offered an award for confirming reception of amateur radio stations from, say, 10 states, would you be interested in going for it? (Please use the comment line.)

Take This Reader Survey Online

You can now participate in this reader survey via the Internet. Simply go to *Pop'Comm On the Web*: <http://www.popcommmagazine.blogspot.com/> and click the link to the *Pop'Comm August 2012 Reader Survey*. It's quick and easy.

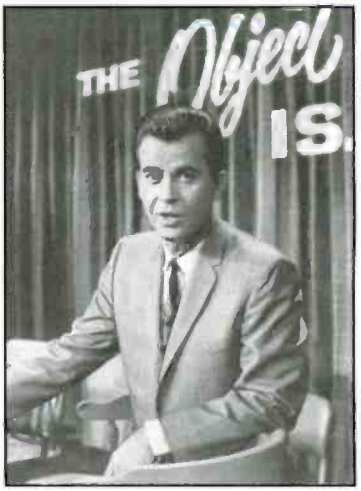
Our August Winner!

For participating in the *Pop'Comm Reader Survey*, the winner of a free subscription or extension is **Gregory Hatzis, KC2ZZE**, of **Highland Hills, New York**, who says: "I like sharing my discoveries with fellow scanners."

That's so good of you, Gregory! We should all be so generous. Thanks! – KPC6PC

Remembering Dick Clark, With Tangential Pieces of *'American Bandstand'*

Rather than compete directly with the many recent biographical eulogies for 'American Bandstand's' beloved host, this tribute to Dick Clark seeks to honor the famed broadcaster by noting how even the most seemingly insignificant of connections with his life have produced a positive influence on others. That's what Dick Clark's consistent professionalism was all about.



By Peter Hunn

"Hey, if you still want to see the original *Bandstand* studio," a seasoned Philadelphia radio engineer yelled through my control room's 5-inch thick oak door, "you'll have about a 10-minute tour before we take this building dark."

It was 1978 and Charlie Fritz knew that I was moments away from finishing my final WMGK broadcast from the legendary soft rock FM's soon-to-be abandoned headquarters in downtown Philly. He also bet that even though his voice barely penetrated the shop-worn, sound-deadening portal, I would enthusiastically receive his barely audible signal to see a long-mothballed room I'd been bugging him to reveal since I joined the MaGiK 103 air-personality staff six months earlier.

My decision to sign with WMGK — the erstwhile WPEN-FM — instead of taking a Boston AM's offer, was partially based upon the fact that MaGiK 103's sister, WPEN, possessed a storied history and a reportedly forgotten stash of radio souvenirs somewhere in the cellar of its anachronistic headquarters at 2212 Walnut Street.

"I figured my warning would liven you up a bit," Fritz chuckled as I ran toward the stairway down which he was already descending. "The outfit we hired to clear out the stuff that isn't worth taking to our new studios in Bala got here earlier than I thought and has already filled one dumpster." By Bala, the tech was referring to the new home of WMGK(fm)/WPEN, palatial by the Walnut Street venue's standards, in a contemporary office complex in Bala Cynwyd, Pennsylvania — on the Montgomery County side of Philadelphia's City Line Avenue and just out of reach of Philly's annoying city wage tax and horrible parking scenarios.

As I followed Fritz, he apologized for his last minute fulfillment of a promise he made when we'd first met.

Peter Hunn is a former radio station owner and 1976 Billboard magazine Air-Personality of the Year. These days, though, as a high school principal, he only occasionally has time to broadcast a few daily announcements from his office.

During the "power lunch" following an interview in which I was hired, WMGK's corporate program director, Julian Breen, mentioned plans for the station's move and shared facts about the current Walnut Street facility's past.

When I demonstrated an appreciation of radio history, as well as an oral report on the recently-released Dick Clark autobiography, *Rock, Roll & Remember,* Breen, pointed out that Clark's signature program, *American Bandstand,* sprang from all-but-forgotten roots on the first floor of 2212.

Back at that address, he introduced me to Fritz and suggested that the tech let me have a look-see in the "*Bandstand* studio" sometime before the anticipated relocation to more habitable haunts.

"I'm a man who keeps his promises," Fritz smiled as he led me through the seedy ground floor storefront that had last served as a rental furniture establishment which some of my colleagues believed to be a "front" for some other kind of monkey business. "Until the '70s, this used to be a drug store run by the company that owned WPEN AM/FM," he explained.

"Through here," my fast-walking guide pointed, "is the luncheonette counter and kitchen that served the audiences who came to see a radio show in the big studio." On the way, I slowed long enough to lift the dusty lid of a stainless steel container marked chocolate sauce. About a gallon of the once tasty stuff had solidified in the canister and prompted me to wonder how long the glop had been there.

"Maybe a decade. Maybe more." Fritz speculated, as he motioned me into a room about half the size of a hotel banquet hall. "Behold," he pointed with faux enthusiasm, "I present the William Penn Room, also known as *The 950 Club* dance studio, or — as you call it — *Bandstand's* birthplace."

Actually, I'd only labeled it that way due to another radio history buff that worked in WPEN's office. He'd apparently heard from some other guy, *and so on and so forth,* that Bob Horn, the crosstown WFIL-TV emcee/*Bandstand* television show originator, had concocted the program in 1952 based on

Probably dating to somewhere between 1955 to spring 1956, this point-of-purchase promotional placard pointed to TV GUIDE's availability and touted the Bob Horn version of WFIL-TV's *Bandstand* show. *TV GUIDE* was founded by the licensee of WFIL AM/FM/TV. A few weeks after Labor Day 1952, and when their inexpensive package of British movies from the Depression-era failed to attract many afternoon viewers, programming officials at Philadelphia's Channel 6 needed ratings-boosting ideas. The one that caused the proverbial light bulb to shine came from WFIL radio's chief DJ, Bob Horn, who suggested a music, artist interview/performance, and live audience kind of show. While working with crosstown WPEN in the late 1940s, Horn observed the success of such a radio offering that included studio audiences dancing to and commenting about the program's tunes. Channel 6 implemented Horn's suggestion, sort of, and let him VJ, or video jockey, a collection of tacky film shorts (that somebody at WFIL-TV had bought without thinking) featuring musicians doing their thing. When he got lucky, Horn sometimes coaxed singers into the studio for a chat. In any event, less than a month into this initial foray, *Bandstand* morphed into more of what Horn had originally pitched. His only complaint was that WFIL-TV brass insisted he have a co-host: A supposed comedian who happened to have a big advertising account that would buy air time on the show. Horn reluctantly acquiesced so that Channel 6 bigwigs would OK the studio audience part of the deal. After word went out into Greater Philadelphia "teenager-land," some 1,200 young people amassed at the station door for the October '52 danceable *Bandstand* premier. In 1955, after convincing WFIL-TV that he didn't need a co-host, Horn soloed for about a year, but was replaced during early July 1956 by WFIL Radio DJ Dick Clark, after Horn got arrested for, among other things, drunken driving and IRS violations. Clark soon topped the show's previous enviable local ratings and came to the attention of American Broadcasting Company Television Network mavens who put the program on coast-to-coast starting in early July 1957 and rechristened it *American Bandstand*.

a popular WPEN radio offering dubbed *The 950 Club* — so named for the station's dial position.

Dick Clark's book even cited the connection, though hadn't associated Horn with WPEN. Clark did chronicle *The 950 Club's* format, a weekday afternoon affair during which hosts, Joe Grady and Ed Hurst played the day's popular records and invited their studio audience to dance and then chat with the two DJs about the tunes or whatever topic proved germane.

The show debuted in 1946, at least 10 years before rock was relevant to advertisers. So, it focused on Pop/Easy Listening artists with whom Grady & Hurst could easily relate. By the mid-1950s, Horn began honing *Bandstand*, his fledgling video version of Grady & Hurst's broadcast dance party concept, to include records with sufficient rhythm to attract viewers younger than those core to *The 950 Club*.

Neither program, however, had any difficulty drawing teens to their respective locales. Both were situated close enough to neighborhoods of Philadelphia's row houses, so that even if inclement weather, homework, shyness, lethargy, or forgetfulness had exponentially combined on any given afternoon, a few of the two shows' regulars could be quickly dispatched to knock on doors and fill the studio with young people — contrasting Grady, Hurst, and Horn.

"A couple engineers ran things from that little control booth up there," said Fritz, pointing to a 4- by 8-foot window protruding a bit from the wall, starting approximately 10 feet from the floor and looking down onto The William Penn Room/950 Club studio.

"See that phone on the counter or podium near the front of the studio?" When I nodded, Fritz gestured back up toward the compact control room. "They had an extension line in the booth and communicated with the hosts regarding what records to spin and other programming details. The audience probably thought that the emcees were simply taking listener requests . . . It added to the mystique of the show. Bob Horn conveniently copied the phone on the counter arrangement when assembling the TV *Bandstand* set."

'Watch Your Head When You Squeeze in Here'

As his background details continued, I followed Fritz up a few aggressively angled stairs and into the so-called suspended control room. What struck me was the entombed sense of loneliness it seemed to imbue.

Cloistered there, inches from its dusty, nicotine-scarred ceiling, I got the sense that the box wondered: "Why did the men, who'd spent so many busy hours within these walls, leave one evening and never return? And what about the happy folks that could be seen through the now cobwebbed plate glass?" How come they haven't showed up in years?

"Hello?" Fritz asked rhetorically, prompting me to quit my historical-fiction daydreaming and get on with being an abbreviated tourist.

"Sorry," I admitted while picking up the phone handset in order to tactually imagine getting a cue from a famed Philadelphia broadcaster. "I was just thinking about this place when it was really alive."

"Well your phone line there is dead," Fritz replied. Reaching past me, he gripped the telephone wire and yanked it out of its wall-mounted connector junction. "Here," the engineer stated, thrusting a Western Electric model 202 into my surprised hands. "Don't say I never gave you anything."

Measuring 17 by 22 inches, it took a big typewriter to handle the completion of this WPEN log from June 1949. It predated by less than a year, the station's move to quarters at 2212 Walnut Street, the erstwhile Philadelphia corporate home of PHILCO, and a building with the live studio in which audience members came to dance. →

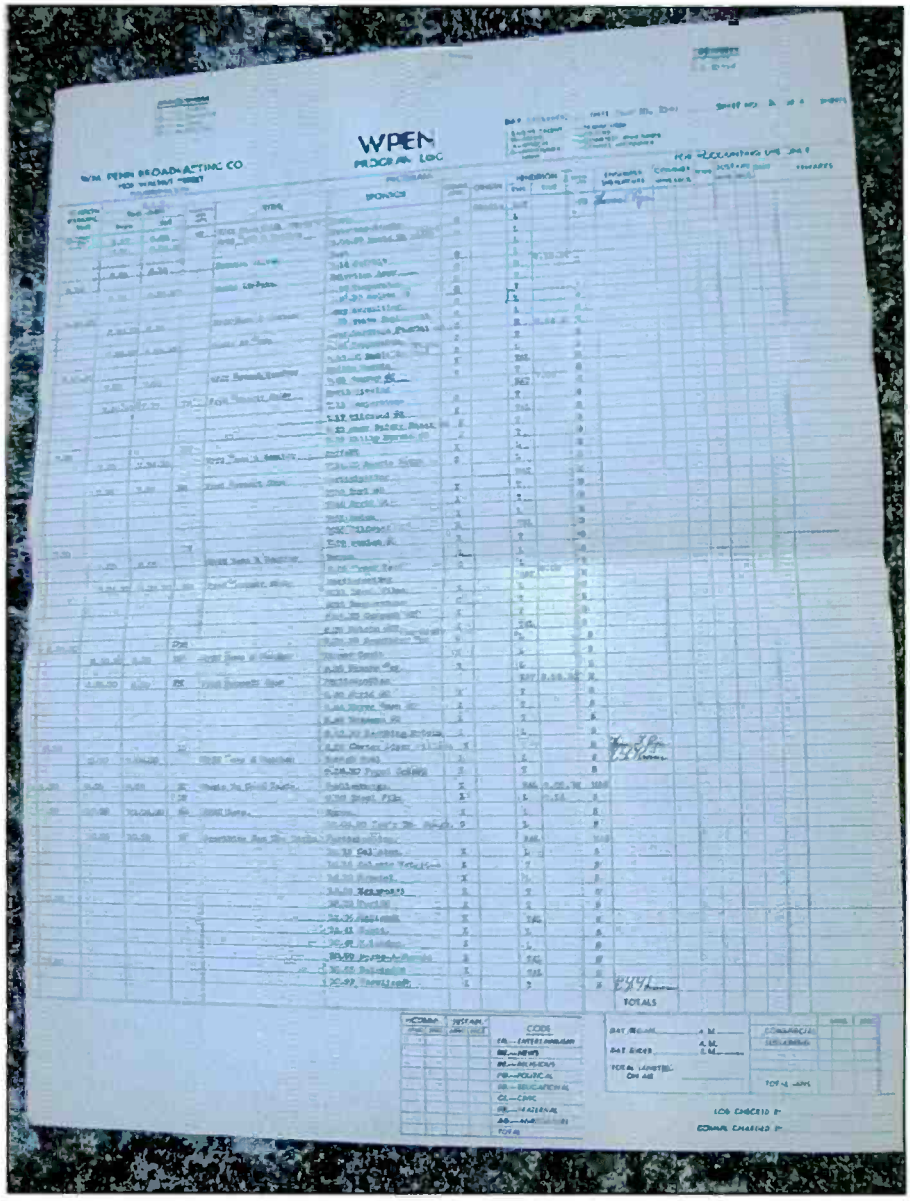
The impulsive gift giving turned out to be a tangible sign that the main tour had just ended. Fritz moved quickly down the stairs, back through the big studio, the kitchen, and then into the building's basement. Over the mundane chatter of several laborers tossing and clanking alleged trash into wheel barrows, Fritz wound-up his hospitality with the suggestion, "Let's see if the stevedores are gonna get this place emptied before the lease runs out."

The Philadelphia Pickers!

Nearly a quarter century has elapsed since that moment, but time is not to blame for my hazy recollection of the basement's contents. Rather, the mental fog rose from the fact that there was so much classic radio stuff, loosely piled and in bulging boxes, that I did not know where to begin searching.

Worse yet, were the determined garbage men, each focused on the joys of meeting a deadline and accompanying bonus. Additionally, my aforementioned co-worker and self-styled amateur electronic historian had somehow gotten tipped off to the vintage AM/FM treasure trove and already amassed a mountain of microphone call letter flags, colorful promotional literature circa 1960, as well as a Lionel train-sized billboard replicating WPEN roadside signs that had once appeared throughout the Delaware Valley.

Selfishly considering his stash, I felt like a colossal loser and then almost lost my phone after absentmindedly setting it on a carton within range of a particularly industrious trash man who was soulfully belting out some spiritual. Undeservedly, however, my prayers were answered when a shoebox I coaxed from atop a very rusty cabinet yielded a nicely preserved



			FK	
9.59*			DN	WPEN News & Weather
	9.00	9.04.30	FK	
	9.25	9.59	BH	Bob Horn Bandstand
9.28				
			FK	
9.59*			DN	WPEN News & Weather
	10.00	10.04.30	FK	
	10.25	10.59	BH	Bob Horn Bandstand
10.28.30*				
10.59*				
	11.00	11.04.30	FK	WPEN News & Weather
			BH	

A close-up of the June 29, 1949 WPEN log indicates that Bob Horn did a radio program called *Bandstand* on the station prior to his association with other Philly outlets such as WIP and WFIL. →

Radio Corporation of America model 74B Junior Velocity microphone.

A second pass along the tall cabinet netted the little RCA's crown, an aluminum ID flag with W-P-E-N cast upside down. It was a solid clue that it had seen duty suspended on a boom over a studio interview table.

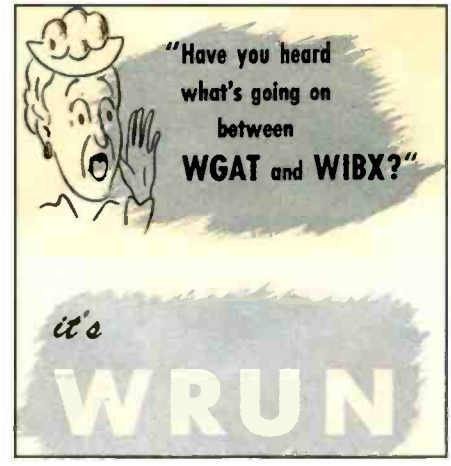
Still in daily use by the author, the vintage Western Electric telephone was originally installed in a cramped control room overlooking the so-called *Bandstand*, a.k.a. *950 Club* or William Penn Room live audience participation/dance studio at 2212 Walnut Street. The former WPEN phone is an extension model, enumerated Ext. 6, and communicated with another such unit on the big studio's podium.

The singing stevedore happened to hear my supposition about the boom and happily directed me to a corner of the cellar where one waited for its junky fate. He seemed mighty pleased that someone else was actually ecstatic about now having to dismantle the three-wheeled contraption and lug it up the rickety staircase.

My fellow picker looked up from his loot long enough to witness the stevedore's thoughtfulness, so touted me as a *lucky duck*. I returned the congratulations and we decided to work together on the Hertzian harvest.

Within a few minutes, the added bounty included a stack of FM sub-carrier receivers, diminutive paper bags filled with 102.9 MHz (the frequency of the former WPEN-FM) crystals, reams of early 1960s WPEN newspaper ad proof sheets on glossy paper and a mound of plastic combs in vinyl sheaths imprinted with the *batta-bing!* slogan: *WPEN, the station that's hard to part with!*

Each of us jammed our cars full with the haul, and refused to vacate the mining operation until the stevedore chief declared the place officially empty. On my way out for the last time, I spied some escaped pieces of folded paper dying of



The cartoon lady is spreading some 1948 gossip about a new radio station that'd soon be on radio dials in the Rome-Utica, New York market. The planned AM's frequency modulation (FM) sister had already hit Mohawk Valley airwaves when this promotional ad appeared in WRUN's sister print outlet, the Rome Sentinel. Dick Clark's uncle owned that paper and gave Clark, who'd just graduated from high school in June '47, a summer job at WRUN-FM, allowing for the teen's broadcast debut prior to starting his freshman year at nearby Syracuse University.

neglect on the concrete floor. They were WPEN program logs from June 1949.

Years after their rescue, and just a few hours after hearing of Dick Clark's April 2012 passing, I managed to find them among my casually cataloged archives. Typed on each roster, between 9 and 11 p.m., was *Bob Horn's Bandstand.* Surely, that's not much of a link to Dick Clark, but it does verify a connection to WPEN and Horn's subsequent creation of the WFIL-TV *Bandstand.* Along with my control room phone, the program logs offered me visual pause for remembering the life of Dick Clark, arguably broadcasting's best-loved and most talented host.

Same Time Slot, Same Studio, Different Decade

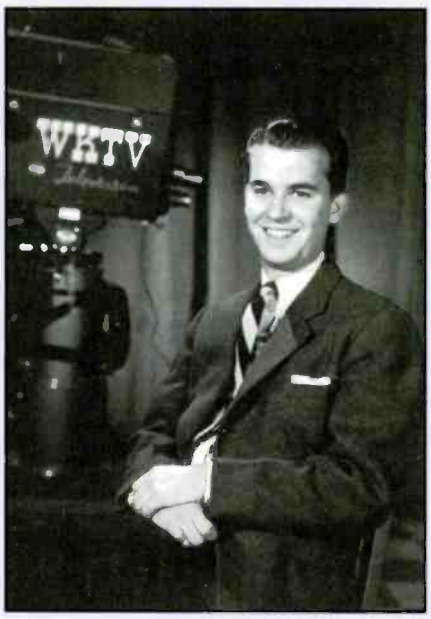
My wife grew up in Utica, so she knew a little bit about Dick Clark's broadcasting career start there at WRUN AM/FM radio and WKTV television. She'd also heard of my brief brush with Clark's legacy, as guest host on a WHYY(TV) telethon.

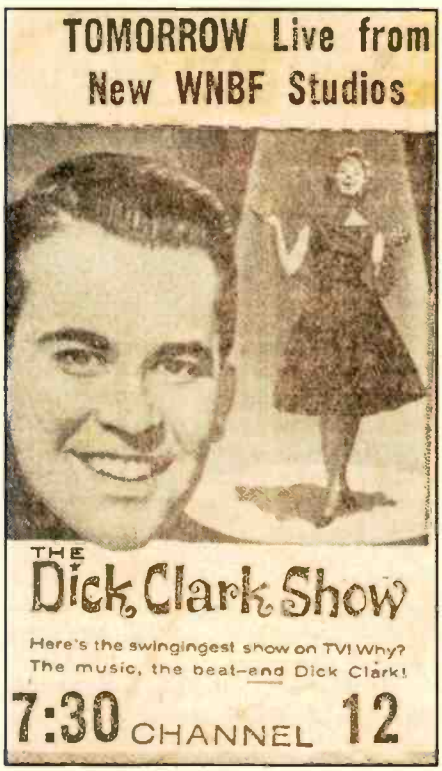
Sometime in winter 1979, my WMGK colleagues and I were asked to do a few hours of fundraising for the Philadelphia-based public broadcast operation. Apparently nobody else on the staff responded favorably to our program director's "volunteers wanted" request and I was wavering toward a rain check.

"What part of town is WHYY(TV) located in?" I asked the PD, thinking it'd have crummy parking and a good excuse for respectfully declining. When he told me, however, about WHYY(TV) occupying the former WFIL-TV facilities and that the telethon would take place in that venue's famed Studio B, home of the Philly-era *American Bandstand,* I RSVP'd affirmatively.

"They're looking for someone to host between 3 and 5 p.m.," he noted, "Pretty much the identical slot as Dick Clark had in that exact same place years ago." (***NOTE:*** *When the show debuted on the*

You communicate better than anyone I've seen on television!" the manager of WHEN-TV — now Syracuse's Channel 5, WTVH — exclaimed to Dick Clark. In the gifted communicator's 1976 autobiography, Clark notes that the WHEN-TV official was referring to a 20-year old Clark's performance on local Utica, New York's WKTV(TV). In order to appear so personable to the lens, in those early 1950s days predating TelePrompTers, Clark tape recorded his script, inconspicuously played it back through an earpiece, and simply repeated what he'd heard himself say. It eliminated the need for looking down at a paper script or getting tongue tied while staring into the camera and desperately trying to ad lib a paragraph of information.





Because Binghamton, New York's WNBF-TV was owned by Triangle Publications, licensee of WFIL-TV, the small Southern Tier station was able to get a top star, Dick Clark, to add clout to its new studio facility. Note that the ad heralds an evening music program, as opposed to an afternoon edition of *American Bandstand.* Clark's business acumen allowed him the wisdom to know how to create good quality and profitable programming that attracted young audiences that advertisers wanted to influence via his company Dick Clark Productions. Those who worked with him or watched his career verify that Clark was an incredibly hard working professional who was always able to give a consistently tasteful presentation — whether in a major market outlet or a station in a place not everyone would know.

As a radio guy, I count this as one of my favorite pictorial remembrances of Dick Clark. Circa 1963, he's shown in an ABC Radio publicity still photograph, probably recording some copy for one of the many aural products he produced — from music countdown shows to commercial spots. Though he made his mark on TV, Clark grew up listening to the radio and always considered the aural medium to be an important and personal way to reach people wherever they lived, worked or drove. To really feel a part of the radio community, he owned and operated KPRO (1440) in Riverside, California.

ABC-TV Network, it began at 3 p.m., although for a while the show's local start time was 2:45 p.m. – P.H.)

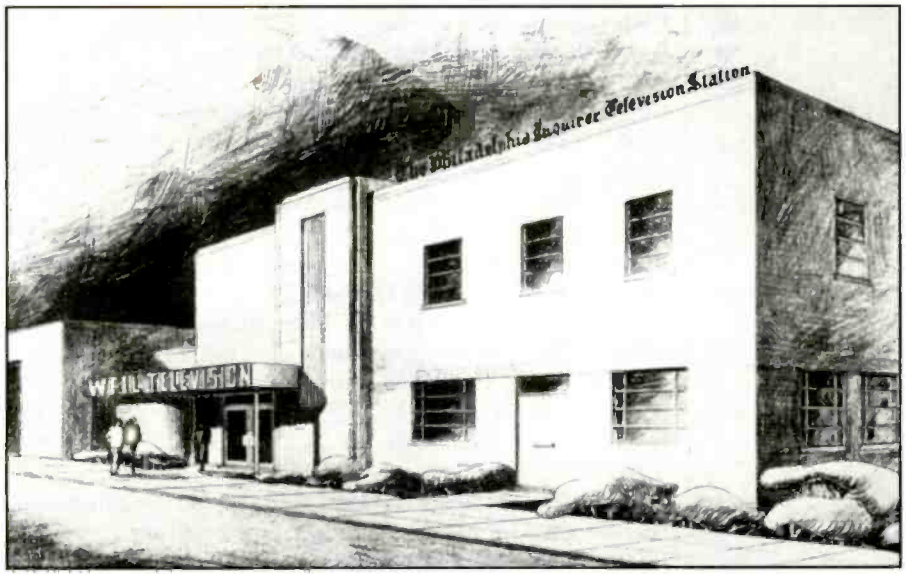
That night, I re-read Clark's book, devouring any tip that contributed to his success and for references to Studio B that might still be evident during my WHYY(TV) volunteer host experience. Like me at the time, Clark was in his mid-20s when he first broadcast from the *Bandstand* studio. He acknowledged not having the "authoritative look of a [network] newscaster," so simply spoke as he would to his dad.

Conversely, Clark observed, "many early TV performers addressed the camera like they were speaking to an audience of millions. [Instead, he] always kept in mind the feeling [CBS radio personality] Arthur Godfrey gave him when he listened to him on the radio: There's only one person listening. [Clark just] talked to the camera like it was a human being."

He also recalled that at exactly 3 p.m. on August 5, 1957, after "taking a deep breath," his opening words for *American Bandstand's* ABC Network debut were, *"Hi, I'm Dick Clark. Welcome to American Bandstand. You and I have got an hour and a half to share together with some of my friends here, lots of good music, and our special guest stars."*

I decided it'd be fun to adapt that introduction to my two-hour telethon emceeing stint in Studio B. Standing there at the ready at 2:59, I checked to see which camera would be live after the taped top of the hour station ID, and then happened to glance up at the rows of studio lights. Still stenciled to their crinkle finish fixtures were the call letters, WFIL-TV. The sight instantly transported me to another era, a spell broken by the floor director who asked if I was OK and then counted me down to three o'clock.

Although nobody else would have the slightest reason to remember seeing or hearing me trying to replicate the spirit of the *American Bandstand* host's consistently personable presentation, I relive those moments — and return his little sign-off salute — every time someone fondly recalls the life of Dick Clark.



Here's an artist's 1946 rendering of the WFIL-TV building at Market and 46th Streets in Philadelphia. It was in video use by late winter 1948 (WFIL AM/FM moved there in 1952) and was reportedly the first building anywhere that was designed primarily as a TV facility. In fact, as WFIL-TV was the initial ABC-TV affiliate, joining the fledgling network on March 29, 1948, and served as origination point for the Network's first telecast: *On The Corner with Henry Morgan*. But it was Dick Clark who made the structure famous, eventually netting the site — now utilized by public broadcaster WHYY — an historic marker denoting the *Bandstand* and *American Bandstand* shows that occurred in its Studio B. In his autobiography, Dick Clark remembered the iconic place this way: "Studio B was a large sound stage at the back of WFIL-TV with sliding doors that opened to a parking lot behind the station . . . where the kids were admitted. Whenever snow fell while we were on the air, we opened the back door to the studio. The reaction we got from places like Phoenix, Arizona and [Southern] California was amazing." It was simple ideas like this that, coupled with Clark's sincere on-air delivery, really connected with viewers in a wide range of demographics.

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	4717	Radio Yura, Bolivia	SS
0000	6135	Radio Santa Cruz, Bolivia	SS
0000	11620	All India Radio	Urdu
0000	9855	VOA, Sri Lanka Relay	Tibetan
0000	9685	International Radio of Serbia, via Bosnia	
0000	15470	Vatican Radio, via Bonaire	PP
0000	5040	Radio Havana Cuba	SS
0100	5940	Voz Missionaria, Brazil	PP
0100	11710	Radio Argentina al Exterior	JJ
0100	5925	Radio Republica, via Costa Rica	SS
0100	13760	Voice of Korea, North Korea	
0100	11905	Sri Lanka Broadcasting Corp.	Hindi
0100	15335	BBC, Singapore Relay	
0100	11895	VOA/Deewa Radio, USA	Pashto
0100	9800	Voice of Russia	
0100	9655	Voice of Russia, via Moldovia	
0100	11730	Vatican Radio, via Uzbekistan	Malayan
0100	6175	Voice of Vietnam	
0100	11780	Radio Nacional Amazonas, Brazil	PP
0200	6070	CFRX, Canada	
0200	3250	Radio Luz y Vida, Honduras	SS
0200	9315	Radio Cairo, Egypt	AA
0200	15275	Radio Thailand	
0200	6165	Voice of Turkey	
0200	5025	Radio Rebelde, Cuba	SS
0200	6160	CKZN, Canada	
0200	6050	HCJB, Ecuador	Quechua
0300	4915	Radio Difusora Macapa, Brazil	PP
0300	4789	Radio Roraima,Brazil	PP
0300	9720	Voice of the Broad Masses, Eritrea	Tigrinya
0300	12025	BBC, Cyprus Relay	
0300	4780	Radio Djibouti	AA
0300	15720	Radio New Zealand Internatiional	
0300	5010	Radio Madagaskara, Madagascar	Malagasy
0300	7215	Adventist World Radio, via South Africa	Amharic
0300	9940	Radio Miraya, Sudan, via Ukraine	AA/EE
0300	3350	Radio Exterior de Espana, via Costa Rica	
0300	7200	Sudan Radio TV	AA
0300	7215	Trans World Radio, via South Africa	Amharic
0300	5915	Zambia National Broadcasting	
0300	3200	Trans World Radio, Swaziland	vern.
0300	6025	Radio Amanecer, Domincan Republic	
0300	11920	Islamic Republic of Iran Broadcasting	
0400	15785	China Radio International	
0400	4930	VOA Relay, Botswana	
0400	6195	Radio Japan, via Bonaire	SS
0400	4055	Radio Verdad, Guatemala	EE/SS
0400	6190	BBC, via South Africa	
0400	9760	Radio Farda, USA,via Germany	Farsi
0400	4960	VOA, Sao Tome Relay	
0400	2210	Radio Sonder Grense, South Africa	Afrkaans
0400	3345	Channel Africa, South Africa	
0400	4965	CVC-One Africa, Zambia	
0400	9870	Radio Voice of the Peple, via Madagascar	EE/vern.
0400	9820	Radio 9 de Julho, Brazil	PP
0400	5446.5	AFN/AFRTS, Florida	
0430	6155	Adventist World Radio, Austria	FF
0500	4790	Radio Vision, Peru	SS
0500	5910	Alcaravan Radio, Colombia	SS
0500	4885	Radio Clube do Para, Brazil	PP
0500	11715	Radio Japan	RR
0500	5975	Radio Japan, via England	
0500	3290	Voice of Guyana	EE/Dutch
0500	5005	Radio Nacional, Bata, Equatorial Guinea	SS
0500	7255	Voice of Nigeria	
0500	7275	RT Tunisienne, Tunisia	AA
0500	9700	Voice of Turkey	
0500	7230	Channel Africa, South Africa	
0500	9500	Trans World Radio, Swaziland	
0500	12030	Voice of Russia	
0500	9645	Vatican Radio	
0500	6135	Republic of Yemen Radio	AA
0500	4960	VOA, Sao Tome Relay	
0500	6185	Radio Educacion, Mexico	SS
0600	6115	China Radio International, via Canada	
0600	6125	Rado Havana Cuba	
0600	6165	Rado Nederland, Bonaire Relay	DD
0600	11700	Radio France Iinternational	FF
0600	11725	Radio New Zealand International	
0700	3995	HCJB, Ecuador, via Germany	

UTC	Freq.	Station/Country	Notes
0800	9635	RTV Malienne, Mali	FF
0800	5930	Radio Rossii, Russia	RR
0900	4755	The Cross Radio, Micronesia	
0900	4975	Radio Pacifico, Peru	SS
0900	4990	Radio Apinte, Suriname	DD
0900	3310	Radio Mosoj Chaski, Bolivia	SS
0900	5035	Radio Cultura do Para, Brazil	PP
0900	7235	Wontok Radio Light, Papua New Guinea	
1000	6010	La Voz de su Concencia, Colombia	EE/SS
1000	3330	Ondas del Huallaga, Peru	SS
1000	5039	Radio Libertad, Peru	SS
1000	4775	Radio Tarma, Peru	SS
1000	5020	Solomon Islands Broadcasting Corp.	
1000	5940	Voice of the Strait, China	CC
1000	9820	Beibu Bay Radio, China	CC
1100	9490	Radio Canada International, via Philippines	CC
1100	2310	VL8T, Australia	
1100	9580	Radio Australia	
1100	6185	Radio Japan	
1100	6055	Radio Nikkei, Japan	JJ
1100	4781	Radio Oriental, Ecuador	SS
1100	3205	NBC, Papua New Guinea	Tok Pisin
1100	6174	Radio Tawantinsuyo, Peru	SS
1100	9615	Radio Veritas Asia, Philippines	CC
1100	9705	La Voix du Sahal, Niger	FF
1100	9655	Radio New Zealand International	
1100	6010	Radio Mil, Mexico	SS
1100	4820	Xizang PBS, China (Tibet)	Tibetan
1100	12020	Voice of Vietnam	
1200	15205	China Radio International	FF
1200	11640	China Radio International	CC
1200	7345	China Radio International, via Albania	Serbian
1200	9615	KNLS, Alaska	
1200	9870	All India Radio	Hindi
1200	7245	Radio Mauritanie, Mauritania	FF
1200	5075	Voice of Pujiang, China	CC
1300	9525	Voice of Indonesia	
1300	12105	Adventist World Radio, Guam	Mandarin
1300	7110	Thazin Broadcasting Station, Myanmar	Burmese
1300	12140	Radio Free Asia, Northern Maranas Relay	Burmese
1300	9680	Radio Republik Indonesia	II
1400	13710	China Radio International	
1400	11660	Radio Australia	
1400	9690	All India Radio	
1400	15140	Radio Sultanate of Oman	EE/AA
1400	9835	Sarawak FM, Malaysia	Bahasa Malay
1400	15480	Polish Radio, via England	Polish
1500	21640	Bible Voice Broadcasting, via Germany	
1500	15760	Kol Israel	Farsi
1500	11710	Voice of Korea, North Korea	
1500	15340	HCJB, Australia	
1500	11575	Radio Pakistan	
1500	11650	Far East Broadcasting, Philippines	
1600	13580	China Radio International	RR
1600	9655	KNLS, Alaska	
1600	17745	Sudan Radio Service, USA, via England	
1600	15700	Italian Radio Relay Service, via Romania	
1600	11795	Radio Okapi, DR Congo, via UAE	
1700	11600	Radio Televison Libye, Libya	FF
1700	15520	Voice of Turkey	
1700	15690	Radio Taiwan International	
1700	15190	Radyo Pilipinas, Philippines	
1700	15235	Channel Africa, South Africa	
1800	11775	University Network, Anguilla	
1800	11655	Radio Nederland, Madagascar Relay	
1900	12080	VOA, Botswana Relay	FF
1900	15220	Adventist World Radio, via Austria	FF
1900	9445	All India Radio	
1900	12070	Deutsche Welle, Germany, Rwanda Relay	
1900	117795	BBC	
1900	15190	Radio Africa, Equatorial Guinea	
1900	15120	Voice of Nigeria	
1900	11615	Radio Nederland, via Vatican	
1900	15480	Adventist World Radio, via South Africa	AA
1900	9905	Radio Free Asia, No. Marianas Relay	CC
1900	12005	RT Tunisienne, Tunisia	AA
1900	11750	Adventist World Radio, via South Africa	Ibo
1900	11665	Family Radio, via Ascension Is.	Yoruba
1900	15465	Voice of Russia	FF
1900	11970	Radio Romania International	Romanian
1900	11820	Broad. Svc. of Kingdom, Saudi Arabia	AA
1900	9540	Islamic Republic of Iran Broadcasting	
1900	9665	Radio PMR, Moldova	
1900	17680	CVC-Christian Voice, Chile	SS
2000	11760	Radio Havana Cuba	
2000	11810	BBC Relay, Ascension Is.	
2000	11945	Deutsche Welle, Germany, Rwanda Relay	
2000	9705	Radio Ethiopia	Amharic
2000	15540	Radio Kuwait	EE/AA
2000	11860	VOA, via South Africa	Hausa
2000	11940	Radio Romania International	
2000	9660	Vatican Radio	
2000	9580	Africa Number One, Gabon	FF
2100	15315	Radio Nederland, Bonaire Relay	
2100	15510	Radio Australia	
2100	15630	Voice of Greece	Greek
2100	9420	Voice of Greece	Greek
2100	9915	BBC, Ascension Is. Relay	
2100	6030	Radio Romania International	FF
2100	7250	Voice of Russia, via Armenia	
2100	6075	Vatican Radio	AA
2100	7530	Radio Tirana, Albania	
2200	6165	Radio Nationale Tchadienne, Chad	FF
2200	5925	Cyprus Broadcasting Corp.	Greek
2200	11765	Super Radio Deus de Amor, Brazil	PP
2200	7255	Radio Belarus	
2200	15345	Radio Argentina al Exterior	SS
2200	6973u	Galei Zahal, Israel	HH
2200	15785	Galei Zahal, Israel	Hindi
2200	9730	BBC, Seychelles Relay	
2200	9440	WBCQ, Maine	
2230	15190	Radio Inconfidencia, Brazil	PP
2300	6020	CFVP, Canada	
2300	6270	Radio Cairo, Egypt	AA
2300	11595	Democratic Voice of Burma, via Armenia	Burmese
2300	5995	RTV Malienne, Mali	FF
2300	7375	Croatian Radio, via Germany	
2300	7450	Radio Makedonias, Greece	Greek
2300	7475	Radio Tirana, Albania	Albanin

Short & Sweet: Build a Voltage Probe Receiver Antenna

*(**EDITOR'S NOTE:** Wireless Connection columnist Peter Bertini, K1ZDH, is taking a break this month. He'll be back with soldering iron blazing in the September edition of Popular Communications. – KI6SN)*

By Richard Fisher, KPC6PC

"It is quite possible to experience the pure joy of listening without having to go through the antenna-stringing hassle."

With some travel on the calendar, I found myself in the place of a lot of monitoring stations. I'd like to take along a receiver, but don't want to fuss with an antenna. Whether it's in a hotel room or on a picnic table in a park nearby, the prospect of flinging wire into the air just didn't appeal.

After all, most business trips are a parade of one exhausting day after another. Who wants to add to the frustration by becoming the *Mayor of Tangle Town*, where twine and wire are the neighborhood *ne'er do wells*.

It is quite possible, you know, to experience the pure joy of listening without having to go through the antenna-stringing hassle.

Todd Gale, VE7BPO, of Kelowna, British Columbia, Canada has a slew of solutions in what he calls his Voltage Probe Antenna Experiments, <http://bit.ly/LtpZsS> — part of his *QRP-SWL Homebuilder* Internet site.

If you're thinking *experiments* suggests a bunch of half-baked ideas, you'd be wrong. These are fully developed plans for VPAs — Voltage Probe Antennas — RF amplifiers that can keep your antenna wire length to a few feet. Now that's not too much to fiddle with, is it?

You'll find his website has circuits that can turn a short whip or piece of hook-up wire into a remarkably performing receive antenna.

His simple designs include a Broadband Transformerless Active Antenna, Broadband Voltage Probe RF Pre-Amp, Broadband Voltage Probe Antenna with High-Pass Filter and 3.18- to 10.4-MHz VPA.

At KPC6PC, we built the circuit titled 7.0- to 7.1-MHz Tuned Gate VPA, **Photo A**, for use in the 40-meter amateur radio band, where we enjoy shortwave listening to ham operators around the world.

As VE7BPO puts it: "(These simple designs) are not antennas for critical, high-performance, high-dynamic range receivers." Rather they're for simple receivers — the kind you'd throw in your travel case — and can provide "surprisingly decent performance for casual receiving."

Using the circuit described in the tattered schematic from KPC6PC's homebrew notebook, **Photo B**, we can tell you that properly designed and constructed VPAs can perform beautifully. With just a 50-inch-long piece of stranded No. 22 hookup wire connected to the VPA, and patched into a homemade Wheatstone Bridge Regenerative Receiver, we were able to clearly copy all of the low-power stations checking into the Western States Net on a Saturday morning. QRP CW operators up and down the coast of California; Arizona; Colorado; Nevada; Washington; Oregon; and Baja, Mexico were solid copy on 7.040 MHz. Some of the stations were at the 1-watt output level. Frankly, I was amazed by the VPA's performance.

We used the 7.0- to 7.1-MHz Tuned Gate VPA with direct conversion receivers and a Kenwood

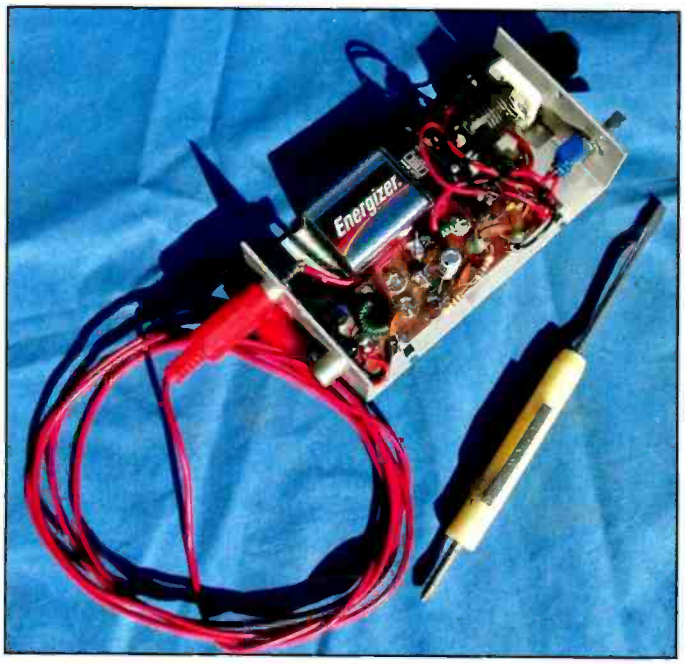


Photo A. The VE7BOP 7.0- to 7.1-MHz Tuned Gate Voltage Probe Antenna is easy to build and eliminates the need for stringing a long wire antenna for receiving. This little RF amplifier goes between your receiver's antenna jack and just 50 inches of antenna wire. *(Photography courtesy of KPC6PC)*

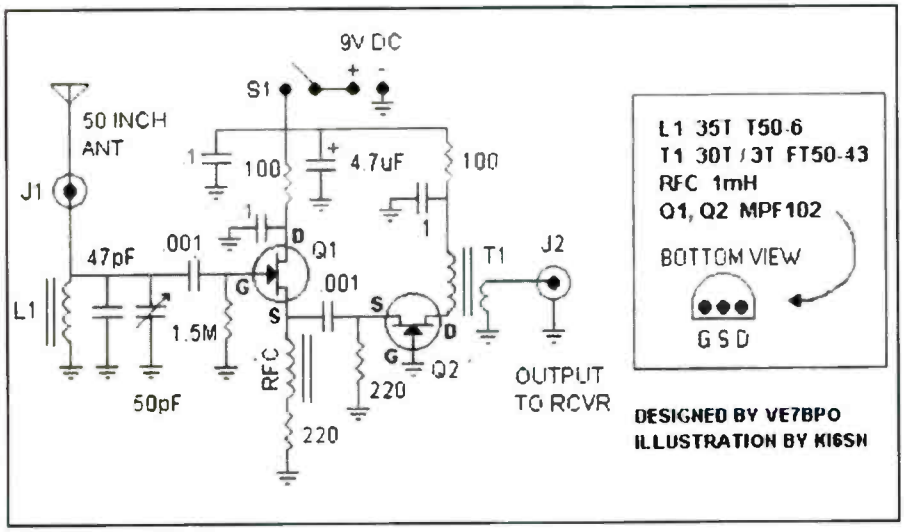


Photo B. A tattered schematic from a dusty homebrew notebook shows the circuit of the 7.0- to 7.1-MHz Tuned Gate VPA. It's simple and housed in a metal box small enough to fit in your hip pocket.

TS-140 transceiver, as well, with similar results. *Very impressive.*

This circuit is easy to build and consists of parts that are readily available. Even monitors that have little experience with a soldering iron should be able to construct this circuit from scratch — perhaps with the help of a more experienced builder.

Two garden-variety MPF-102 JEFT transistors are the workhorses of the active antenna shown in the schematic.

A panel-mounted, 50-pF variable capacitor, **Photo C**, tunes L1 for optimum signal strength. If you don't have access to a variable capacitor, check the VE7BPO site for an alternative circuit that uses a varactor diode and potentiometer for tuning.

T1 is a matching transformer that allows the VPA and 50-ohm receiver input to warmly shake hands.

The KPC6PC version was built in a metal box 2.25-inches wide, 4.25-inches long, and 1.25-inches tall — small enough to fit in your hip pocket.

The circuit was constructed "ugly" and Manhattan style on a piece of copper-clad printed circuit board 3-inches long and 1-inch wide. This left plenty of room in the box for a 9-volt battery, the 50-pF tuning capacitor, single-pole/single-throw ON/OFF toggle switch and antenna INPUT and OUTPUT RCA-style jacks. **Photo D**.

Having front panel tuning control is important because frequently peaking the 7.0- to 7.1-MHz Tuned Gate VPA is necessary for optimum performance. Even tuning your receiver a few kilohertz can require re-tweaking. If you're a knob twister like me, though, that's part of the fun of using this little wonder.

"Whip length and diameter critically affects the tuning of the tank circuit the antenna element is attached to," VE7BPO points out. "I also found that the proximity of the whip to my body, hand/body movement and even touching a knob to make an adjustment on my scope, which was connected to the Q2 output, affected the tuning of the VPA. A whip antenna is most certainly a reactive device." An electrically short antenna has limited bandwidth and tunes sharply.

As you can see, it is important that VPAs be housed in metal enclosures to minimize these outside affects.

For the SWLer and experimenter, these are fine circuits to play with. And if you're looking for active antennas that will work on a range of frequencies beyond the 40-meter radio amateur CW band, check VE7BPO's website. There are lots of options from which to choose.

Parts of the 7.0- to 7.1-MHz Tuned Gate VPA can be obtained from a variety of sources, including RadioShack®, DigiKey, Mouser and Dan's Small Parts and Kits — all with parts listings and prices on their respective websites.

If you're looking for an easy-to-build and very useful monitoring station accessory — especially if there is travel in your future — give this little project a try.

Photo C. An ON/OFF toggle switch and knob for the VPA's 50-pF tuning capacitor are positioned on the front panel.

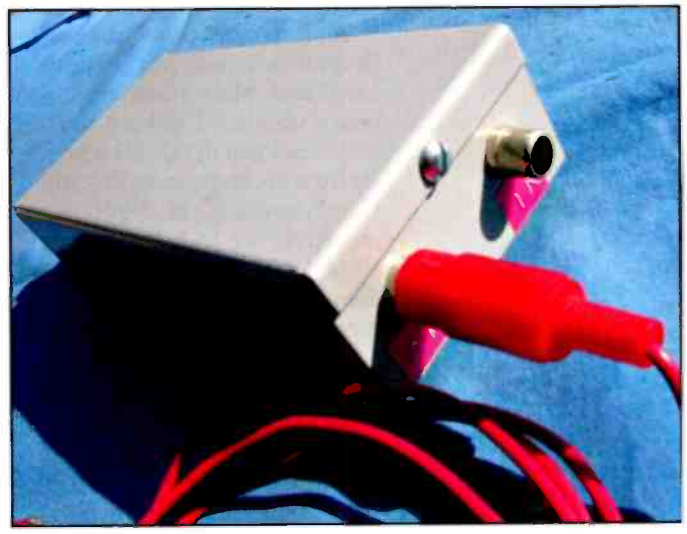


Photo D. On the back panel are RCA-style jacks for connecting the 7.0- to 7.1-MHz Tuned Gate VPA to your receiver and to the 50-inch piece of wire that serves as the antenna.

Inside the World of Aviation Scanning

Understanding the System Helps Listeners Understand What They Hear

By Bill Hoefer,
KPC4KGC/WPE4JZZ/
KG4KGC
<flacap388@gmail.com>

"To be an informed scanner listener, it's important to understand the structure in which voice communication is being used. Especially when it comes to aviation."

Scanners of the skies — listeners tracking private, commercial and military aviation communications — often need help in understanding and identifying:

- What they're hearing.
- Why they're hearing it.
- The things air traffic controllers and pilots are doing at the time they're hearing it.
- Strategies for making aviation scanning even more interesting and enjoyable.
- Websites and other resources to help the listener dig even deeper into this fascinating niche of the hobby.

That's where I come in as new *Aviation* columnist for *Popular Communications.*

Actually, I'm the *old Pop'Comm* Aviation writer, as well, having turned out *Plane Sense* from about 2000 to 2005. So, it has been a while, and a lot has happened in the interim — both on the scanning scene and in my personal life.

On the Move

Since you last heard from me I retired from the Federal Aviation Administration (FAA) when Lockheed Martin acquired its flight service responsibilities. I've been working for Lockheed since then and in the last few years took a transfer from my home in St. Petersburg, Florida to the Commonwealth of Virginia when Lockheed moved my job to Ashburn, Virginia.

My wife and I arrived at the onset of *Snowmageddon* in 2010. We were trapped in our motel for about four days. Since then I purchased a house in Front Royal and after nearly eight months of "spirited discussions" with the mortgager I finally closed on the house in April.

The pace is now slower. The lifestyle, easier. Add to that: I'm less than a half mile from the Appalachian Trail (AT), and you've got one happy guy, **Photo A**.

Because of my proximity to the AT, an upcoming column will focus on combining hobbies — biking/hiking/camping with radio, both from a perspective of a radio amateur and as an aviation scanner. And after looking at the aviation maps for northern Virginia, the opportunities are many.

Photo A. Former and new *Plane Sense* columnist Bill Hoefer, KPC4KGC, now lives "less than a half mile from the Appalachian Trail (AT)," he says, "and you've got one happy guy." An upcoming Aviation column will focus on scanning aviation frequencies when on the trail. *(Courtesy of KPC6KGC)*

Who Is This Guy?

For those who haven't read my previous *Pop'Comm* columns, let me give you a snapshot of my experience:

In November, I'll have been in air traffic for 40 years. I began in ATC (air traffic control) school at Keesler Air Force Base, Mississippi (KBIX) near Biloxi in November 1972. In the Air Force I was involved in radar approach (RAPCON) at Patrick AFB, Florida (KCOF) and Columbus AFB, Mississippi (KCBM) and at the

Photo B. Among KPC4KGC's professional experience is working the Flight Service Station for the Sun-n-Fun fly-in in Lakeland, Florida (KLAL). This Mooney M20TN Acclaim is among the planes that have been on display there. *(Courtesy of Ahunt via Wikimedia Commons)*

air route traffic control center (ARTCC) at Tempelhof Flughafen in occupied West Berlin, Germany.

Even though I was born seven years *after* World War II hostilities ended, I earned an Army of Occupation Medal. After leaving the Air Force I worked at the air traffic control tower (ATCT) in Albany, Georgia (KABY); Orlando Executive, Florida (KORL); and Grand Island, Nebraska (KGRI). I've also worked at a temporary tower at Moultrie Spence Field, Georgia (KMUL).

Leaving the control tower, I started working in Flight Service in St. Petersburg, Florida (KPIE), then transferring to the Flight Service Station (FSS) hub in Ashburn, Virginia (KDCA). Since starting with flight service, I've worked the temporary FSS for the Sun-n-Fun fly-in in Lakeland, Florida (KLAL), **Photo B**, and a 6-month stint at a seasonal station in Northway, Alaska (PAOR).

Photo C. A Cirrus SR-20 belonging to Western Michigan University taxis along an airport ramp. *(Courtesy of Tcmdkzoo via Wikimedia Commons)*

Understanding ATC: The Basics

If you noticed, I discussed the four aspects of ATC. I've been involved in them all. Though they are related, they are distinctly different. Some pilots may utilize all four in one flight, some none.

To be an informed scanner listener, it's important to understand the structure in which voice communication is being used. Especially when it comes to aviation.

Let's start by discussing the responsibility of each ATC component, in the normal order a pilot may use them.

First, Flight Service

Flight service, or AFSS — for automated flight service station — is the oldest of all components in the ATC system. Over the years the methods and responsibilities as well as the equipment have changed, but the primary role is still the same: Give a pilot the information he/she needs to decide if a flight can be safely accomplished and react appropriately.

A pilot calls the nationwide toll-free number and asks to talk to a briefer for the particular state he/she is flying in or from. A controller at one of the facilities will get certain information to tailor the brief for the pilot.

For example, the person may be a student pilot staying in the Sanford, Florida area (KSFB). The controller will get the information the student can use. Obviously the student flying a Cirrus SR-20, **Photo C**, in the local pattern would not need information for other airports or winds at high altitudes. *(**WATCH** and **LISTEN**: To pilot and tower communications as an SR-20 comes in for a landing at Norwood (Massachusetts) Memorial Airport, <http://bit.ly/J8HbBS>, **Photo D**. – KPC4KGC).*

If the controller deems that the flight cannot be made safely due to inclement weather he/she will use the phrase: "VFR flight not recommended," and explain why.

Data given the pilot will be a synopsis of the weather, inclement weather along the route including AIRMETs (AIRman's METeorological information), SIGMETs (SIGnificant METeorological informa-

Photo D. Watch and listen as a Cirrus SR-20 light aircraft comes in for a landing at the Norwood OWD in Massachusetts: <http://bit.ly/J8HbBS>. *(Internet YoutTube screen grab)*

tion), and CONVECTIVE SIGMETs (tornadoes, embedded thunderstorms, 0.75-inch or greater hail, and so on) along the route. Also, the current weather and forecast weather at the departure and destinations, the forecasted weather for the destination, the area forecast en-route, the forecasted and actual (if available) winds along the route, NOTAMs (notices to airmen), and TFRs (temporary flight restrictions).

Once the pilot decides if he/she wishes to file a flight plan, the controller uses the information given to file a domestic or international flight plan, be it civilian or military, instrument or visual.

A visual flight rules flight plan (VFR) remains in the FSS system while an IFR (instrument flight rules plan) is transmitted via computer to the appropriate ARTCC approximately 30 minutes before the aircraft's proposed flight time. Flight plans not activated will fall out of the system two hours after the proposed time. IFR flight plans will be the focus of an upcoming column.

As noted, the VFR flight plan remains in-house until activated. When the pilot departs from an airport he/she contacts the in-flight controller for FSS and requests the flight plan be activated. As soon as it is activated it is transmitted, via computer, to the appropriate sector in the same or another FSS.

For example, let's say N12345 (a real aircraft, but is generally used in discussing flight information) is flying from Sanford, Florida (KSFB) — in the South East Area of Responsibility (AOR) — to Knoxville, Tennessee (KTYS) in the Nashville AOR with an estimated time of flight of 4 hours and 30 minutes. N12345 leaves at 8 a.m. (1200 GMT). The aircraft is expected to arrive at KTYS at 12:30 p.m. (1630 GMT). This information is displayed at the Flight Data position in the Nashville area. As long as the pilot calls flight service by 1 p.m., (estimated arrival time plus 30 minutes) and closes the flight plan, all is well.

Photo E. "In truth, the towers control a very small percentage of the air traffic spectrum as far as physical size, but it is very concentrated," writes KPC4KGC. *(Courtesy of Skeezix1000 via Wikimedia Commons)*

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However, should the flight plan *not* be closed, the flight data controller will get a warning on the computer and begins a Search and Rescue. The controller doesn't go out and hop in an airplane to start looking for the pilot, though there are FSS controllers in the Civil Air Patrol.

No, the controller just starts calling the tower, if available, for the airport where the pilot was to land. If no luck — or as controllers and pilots say: *No joy* — then the facilities at the destination are called and eventually police and sheriff's departments are called, the phone number on the pilot's flight plan, en-route airports, and so on. And eventually the rescue coordination center at Tyndall AFB, Florida (KPFN) will be contacted.

By and large, though, that's rare: 98 percent are the result of the pilot forgetting to close the plan. The pilot apologizes. The plan is closed. *Joy!*

Photo F. Aero News Network provides daily updates on news in the aviation industry — civilian, airline, business, military. Visit the website at: <http://www.aero- news.net>. *(Internet screen grab)*

Next: 'This is the Tower . . .'

The air traffic control tower is one of the most recognized in ATC. In truth, the towers control a very small percentage of the air traffic spectrum as far as physical size, but it is very concentrated, **Photo E**.

The *normal* airspace is a 5-nautical-mile radius of a specific spot on the airport, normally the geographic center of the airport, including the airspace up to, but not including, 2,500 feet above the surface of the airport. I say *normal*. In my old stomping grounds of Albany, Georgia, there are no other ATC facilities close by, so the 5-mile radius holds true up to the appropriate altitude. If you take a look at the two main airports in Orlando, Florida, though, you'll see that it's much different there. Because of the proximity of Orlando Executive (KORL) with Orlando International (KMCO, not OIA as given on the local news broadcasts [this is one of my rare soapboxes you'll see me standing on]) the airspace for KORL is 5 miles west to north to northeast, but is cutoff dramatically immediately south of the airport.

The airspace goes only to 1,500 feet above ground, as well, not 2,500. This is because of the north/south configuration or the runways at KMCO. Airliners landing at KMCO from the north must remain at or above 2,500 feet until they cross KORL and then do what is called a *slam-dunk* to land at KMCO.

If departing to the north off KMCO the airliner must be at or above 2,500 when crossing KORL, which is not an easy feat since there's only 7 miles separating the two airports. If they can't be at that altitude they must take a turn away from KORL unless the controllers at KORL give permission for the airliner to pass through their airspace.

But at many of the larger airports the toughest job isn't the aircraft departing or landing — it's the ground controller. More people wash out there than any other job. Unlike arriving and departing aircraft, which are on specific, established routes and can be climbed or descended as necessary to separate them, the ground controller must keep a lock on all aircraft on the ground which can cause a log jam as aircraft are being bandied about to get them to and from the various hangers, terminals, maintenance facilities and runways. *More on this in a later article.*

Then: Approach Control

Approach controls, which are to my knowledge all RADAR approaches now, utilize much more airspace. Today there's no specific definition of area. When I came in ATC, the basic rule of thumb was a 40-nautical-mile radius of a specific point, normally the primary airport, using airspace up to 5,000 or 10,000 feet above ground.

On the radar, airways are shown and pilots are turned (vectored) to and from the appropriate airway, navigation aid (more on this later), or airport. While scanning the frequencies you may hear the words RAPCON, TRACON, CERAP which are all basically the same thing:

- RAPCON (Radar Approach Control) is more a military term.
- TRACON (Terminal Radar Approach Control) a civilian term.
- CERAP (Center or Combined Radar Approach Control) is normally heard only in Guam or Puerto Rico.

As I said, to my knowledge all are RADAR approaches. Until the mid-1980s there was a thing called a *conventional approach control*, which is a fancy term for non-radar. I worked at one of the last non-radar approach controls in Albany, Georgia until Jacksonville Center acquired it. It was used, as the Center RADAR didn't *see* low enough to work traffic in the area. On a personal note, it was quite enjoyable. Instead of using electronics to *see* where the aircraft were, we utilized pilot-given position reports and time in order to keep the aircraft separated. Because RADAR was not being used, a larger area was given for separation of aircraft based on the position reports of the pilots and their reported altitude.

Even today, the regulations have provisions for non-RADAR separation in the rare event of the failure of the RADAR equipment.

Finally: The 'Centers'

Air Route Traffic Control Centers — or simply Centers — have the largest area of responsibility. Their airspace normally goes from the surface up to 60,000 feet. That's *flight level six zero zero*. There are some areas near the surface not in control of a center, approach or tower. Obviously the higher in altitude, the less aircraft are flying — normally airliners, business jets, and military.

Above 60,000 feet, few aircraft fly — a handful of airliners and business jets,

Photo G. Space Shuttle *Discovery* lands at Dulles airport on its final flight in April. The shuttle was being put on display at the Air and Space Museum's Udvar-Hazy Center. *(Courtesy of Carl Lindberg via Wikimedia Commons)*

but mostly military. Much higher than that, and you can earn your astronaut wings.

That's a Start, But It's Your Turn

Obviously these are just postage stamp pictures of the various facilities. I'll be going into more detail in later articles.

Now it's your turn. Send me your questions of what you've heard and don't understand and I'll try to clarify what's been said.

Have you seen an unusual aircraft? Heard a callsign you're unfamiliar with? I'll try to explain it.

Of course if it's considered "sensitive" or "for official use only" I'll try to reply to you via email because, though it's considered unclassified it may be sensitive — *and I'll say so.*

Aviation Website of the Month

Each month I'll give readers an interesting or useful Internet site.

Here's one I found recently and now get a daily email from: Aero News Network <http://www.aero-news.net>, **Photo F**. It provides daily updates on news in the aviation industry — civilian, airline, business, military. All for your perusing.

A co-worker told me about the site just days before the final flight of the space shuttle *Discovery* to its final resting place in the Udvar-Hazy Museum at Washington Dulles International Airport (KIAD), replacing the first shuttle — *Enterprise* — which was moved to its final spot in New York, **Photo G**.

Wheels Down . . .

Until next month, this is Bill. Thank you for reading. You can contact me at: <flacap388@gmail.com>.

Pop'Comm Monitoring Stations Take A Stroll Down Memory Lane

By Richard Fisher, KPC6PC

The *Pop'Comm Monitoring Station* community is on quite a growth curve. It has well above 1,000 registered monitors and requests to join the group are flowing in daily.

Jason Feldman, WPC2COD, couldn't be happier with the reception the program has received in the monitoring world. As Director of Monitoring Station Registration, he is spinning the dials as fast as he can to keep up with the volume of membership requests.

We're particularly pleased that a growing number of *Pop'Comm* monitors are having QSL cards made to proudly display their station ID when sending station reception verification requests. **Len Estorge**, of Baton Rouge, Louisiana, for example, had a handsome card made for his **WPC5AD** monitoring station, **Photo A**.

This month, we're carrying more member remembrances and comments about how monitoring has impacted their lives. *Fascinating*. We encourage you to share your stories and pictures, as well.

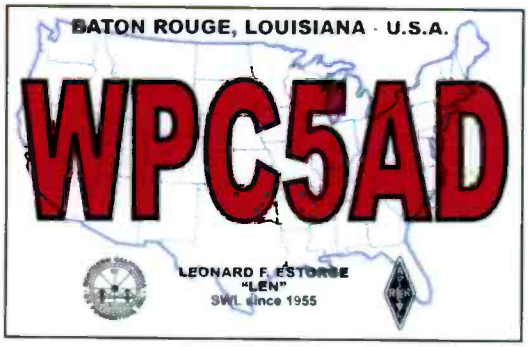


Photo A. Len Estorge, of Baton Rouge, Louisiana, had this handsome WPC5AD SWL QSL card made for requesting station reception verifications. *(Courtesy of WPC5AD)*

Jan Parker, WPCØAVD, Kearney, Nebraska

I have attached a photo of part of my listening post wall, **Photo B**. My *Pop'Comm Monitoring Station* certificate is at the center, top of the picture. My original *Popular Electronics* monitoring certificate is at the lower left. My ham and First Phone — now GROL — tickets are on the wall, as well.

I can honestly say *Pop'Comm* is my favorite — and first read — magazine every month. My favorite part is *Shannon's Broadcast Classics*, by Shannon Huniwell, WPC2HUN.

I was a *lucky* kid in that I always knew what I wanted to be when I grew up: *I was going to*

Photo B. Jan Parker, WPCØAVD, displays his *Pop'Comm Monitoring Station* certificate on the wall of his listening post in Kearney, Nebraska. He has the distinction of counting world-renowned *Charlie Tuna* as his mentor, leading to a 50+ year career in communications. *(Courtesy of WPCØAVD)*

Photo C. Art Ferguson, aka *Charlie Tuna*, who was Jan Parker, WPCØAVD's, mentor, is captured on video during a 1985 air check on KHTZ in Los Angeles, <http://bit.ly/LrJZft>. *(YouTube screen grab)*

be in radio! Back then you had to be 16 and have a Third Class commercial radio operator's license to even be a disc jockey. Somehow, I was able to take the test ahead of time. So, on my 16th birthday I had my first air shift!

My teacher and mentor at KGFW in Kearney <http://www.kgfw.com/> was a kid a couple of years older than me, but *really good:* Art Ferguson. He is well known, to say the least, in the Los Angeles area, Armed Forces Radio and in syndication as *Charlie Tuna.*

I've been in all areas of broadcasting and communications for 50 some years, and really enjoy Shannon's work!

*(**WATCH** and **LISTEN**: To Charlie Tuna during an air check on KHTZ in Los Angeles from 1985, <http://bit.ly/LrJZft>, **Photo C.** – KPC6PC)*

Thomas Leahy, WPC6IVJ, Freeland, Washington

My mom encouraged me to get my ham license when I was 13. She drove me to and from the classes and then to the Los Angeles FCC office for my written and Morse code tests.

My callsign was WB6IVJ. She was 42 then, and every time I saw her until her passing at age 87 she always asked me if I remembered WB6IVJ. My *Pop'Comm Monitoring Station* identification sign — WPC6IVJ — is in my mom's memory.

Don Ferguson, KPCØZWC, St. Charles, Missouri

I began monitoring the airwaves during Christmas in 1956 after having received a National NC60 receiver. This was during a worldwide communications frenzy. I've heard more cold war era frequency jammers than the average listener.

A local ham taught me how to use the CW function to tune the SSB *Donald Duck*-sounding talk, which the hams were beginning to use.

Gene Patterson, KPC3SWL, Gibsonia, Pennsylvania

I became fascinated with radio at a very young age. I was given a broken AM table radio, which I fixed by simply reseating the tubes. One thing led to another and my dad built a Star Roamer shortwave receiver and I was hooked on shortwave listening.

I registered for a *Popular Electronics* WPE station ID sign with Hank Bennett and received WDX3IHG. My roots in radio are with shortwave radio listening

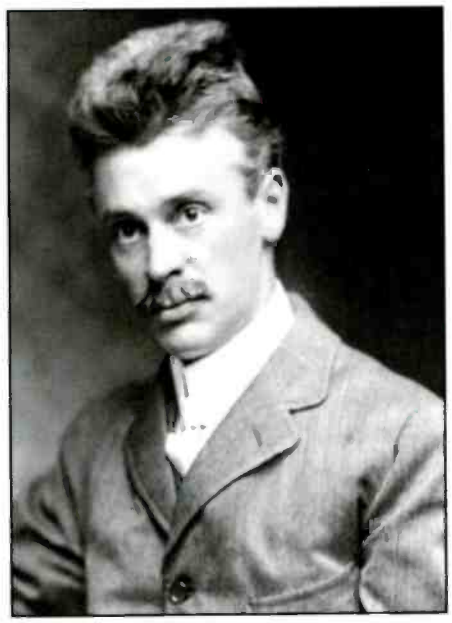


Photo D. Amateur radio pioneer Hiram Percy Maxim, above, was inspiration for Kevin Childers' *Pop'Comm Monitoring Station* ID request: WPC5HPM. Childers' listening post is in Ashland, Mississippi. *(Courtesy of Library of Congress)*

so I'm happy to have a *Pop'Comm* ID sign that reflects that.

Kevin Childers, WPC5HPM, Ashland, Mississippi

I have been a shortwave listener since 1975. My collection of tube-type shortwave receivers is my prize possession! I monitor the shortwave bands daily. I am also an amateur radio operator and a member of the American Radio Relay League.

The founder of the ARRL was a man I greatly admire, Hiram Percy Maxim, **Photo D**. I was honored when the FCC issued my amateur radio callsign that contains his initials — HPM — in the suffix! I am so happy to be able to include this great radio pioneer's initials in my *Pop'Comm Monitoring Station* ID sign, as well!

Thank you for your wonderful magazine. I love it. Thanks also for offering this fun monitoring station program!

Henry Wrobel, WPC1NFN, Fort Wayne, Indiana

Many a long night was spent in the basement of my parents' home sitting in front of my Hallicrafters S-77A logging distant stations. I just wish I still had that logbook. My home city then was Niagara Falls, New York.

Vince Henley, KPC7GV, Anacortes, Washington

My amateur call is KB6GV and I've had it quite a while. I didn't change it even after having moved from California to Washington. I find that I do more shortwave listening these days than ham operating, as I am in an antenna restricted community. My *Pop'Comm* station ID sign suffix matches my amateur radio callsign.

I am also a member of the North American Short Wave Association and keep track of what's happening on the bands through their resources, and others.

Frederick Bennett, II, KPC2AAM, Ogdensburg, New York

I have been hooked on shortwave listening since I was 10 years old and received my ham ticket in 1987 at the age of 16. I still do a lot shortwave listening.

My station ID sign, KPC2AAM, is a tribute to my ham radio Elmer, John

Hackett, KA2AAM, who has passed away. My *Pop'Comm Monitoring Station* ID is in remembrance of him.

Kenneth Hayes, WPC1KMH, Pittsfield, Vermont

Thanks for reviving a monitoring station program, like the old WPE program of yesteryear. Wish I still had my old certificate!

I still have fond memories of dark winter nights on Long Island, hunched over my Lafayette HE-30 — and later my upgrade to a Hammarlund HQ-200 — desperately trying to dig out broadcasts from *Outer Slobovia* or some other exotic locale, as mentioned in that month's column by Tom Kneitel, WPE2AB. Signals were often just above the receiver's noise floor and interfering atmospherics.

Robb Leamy, WPC5OM, Granville, Ohio

I was originally WPE3OM in the *Popular Electronics* monitoring station program when I was in high school back in Erie, Pennsylvania. I am so happy to be able to keep the same suffix in the *Pop'Comm* program. It is great to see this monitor program up and running.

Ernest Armstrong, WPC5OL, Willis, Texas

I was assigned WPE5OL when the *Popular Electronics* first started assigning station IDs. I first listened on an old Zenith TransOceanic my grandfather gave me. I logged a lot of stations and collected my first award for 10 countries. Then 25. I was hooked.

I built the Space Spanner and the Ocean Hopper Knight kits, **Photo E**, and still use them today. I later received a brand new Hallicrafters SX-85.

Photo E. "I built the Space Spanner and the Ocean Hopper Knight kits, and still use them today," writes Ernest Armstrong, WPC5OL, of Willis, Texas. "I later received a brand new Hallicrafters SX-85." *(Courtesy of KPC6PC)*

I have confirmed many more countries and now I listen on an SX-96. I heard and confirmed and have a QSL card from the Russian Sputnik, <http://bit.ly/KlgzPT>! I'm going to dig out the three awards and QSL cards and display them again after 50+ years. I am 70 years old. Thank you for reviving the program.

Evan Newlon, WPC5NM, Albuquerque, New Mexico

My first SWL QSL was from Radio Sweden in September 1967, using a four-tube Heathkit receiver bought from a pawn shop. Originally I was WPE5EZA, circa May 1968, with 25 states and 25 countries verified.

In October 1982 I was issued WDX5EZA, and have 30 states and World Zones verified and 50/75/100 certificates

Photo F. Glenn Daniels, WPC2NY, of Marlboro, New York, remembers, "Long nights. Just me, my receiver, and the rigged-up long wire blowing in the wind out back. With the warm hum of the receiver and the world at my fingertips, it was awesome." His HR-10 receiver "is long gone, but the memories I keep close by." Watch and listen to a Heathkit HR-10B at <http://bit.ly/KUTJjx>. *(YouTube screen grab)*

Photo G. "In 1970," writes Jim Watson, WPC8MSP, of Milford, Ohio, "I received as a gift my first shortwave radio — a Science Fair Globe Patrol kit. My soldering skills weren't very good, but fortunately my older cousin's skills were great . . . I still have the radio and it still works." *(Courtesy of KPC6PC)*

for countries verified — all from Hank Bennett. I have been a radio amateur since 1988, but still love medium wave and shortwave monitoring.

Glenn Daniels, WPC2NY, Marlboro, New York

It's great to see *Pop'Comm* put together this program! When I was a young teen, I would listen to the world on my old Heathkit HR-10, **Photo F**, I had acquired from a family friend.

Long nights. Just me, my receiver, and the rigged-up long wire blowing in the wind out back. With the warm hum of the receiver and the world at my fingertips, it was awesome.

The Heathkit is long gone, but the memories I keep close by.

*(**WATCH** and **LISTEN:** To the Heathkit HR-10B receiver in action, <http://bit.ly/KUTJjx>. – KPC6PC)*

Jim Watson, WPC8MSP, Milford, Ohio

I began monitoring AM stations in 1965 at the age of 7. I was a huge fan of the Cincinnati Reds and began listening to nearly all of their games, particularly the night games, on their flagship station — which at that time was 1530, WCKY.

Listening at night, I soon learned that I could also hear radio stations from distant cities, which totally fascinated me. My grandparents had a huge 1941 Zenith console radio. I became hooked when I learned their radio not only picked up the distant AM stations, but also picked up stations from around the world.

In 1970, I received as a gift my first shortwave radio — a Science Fair Globe Patrol kit, **Photo G**. My soldering skills weren't very good, but fortunately my older cousin's skills were great and he put the radio together for me. I still have the radio and it still works.

I remember what a thrill it was to hear my questions about the USSR being read on Radio Moscow's Mailbag program and to hear my name mentioned on Radio Nederland's Happy Station program.

SWLing sure is a lot different now compared to the Cold War days. The *Pop'Comm Monitoring Station* program takes me back to the 1970s when I was a member of the Canadian International DX Club, which also issued ID signs to its members. When I read that *Pop'Comm* was coming out with this program, I knew that I had to join.

David Stewart, VEPC4DXR, Steinbach, Manitoba, Canada

My first introduction to radio came one Christmas in the mid-1960s when I got a Rocket Crystal Radio, **Photo H**. I spent many hours with that radio grounded to the finger-stop on an old rotary dial phone. I wish I still had that radio.

Some years later I discovered shortwave radio by listening to a portable AM/FM/SW radio my dad had. The first station I heard on that radio was WWV on 10 MHz. I also listened to HCJB, Radio Netherlands and BBC on that radio.

I rigged up an AM car radio in my room with a very short antenna, as I was living within a mile of CKRC's 10,000-watt transmitter. I got my first QSL card using that radio. It was from KSL in Salt Lake City.

I also heard PJB Bonaire, Netherlands Antilles, on 800 kHz on the car radio. Later in 1977, I bought a Yaesu FRG-7 that I still use for DXing. I also have a Sangean ATS-803A and Grundig G3. I use the Grundig with a Tecsun AN-200 loop antenna for portable medium wave (MW) DXing.

I enjoy *Popular Communications*. I like the range of articles — especially the radio history items. One thing I would like to see would be construction articles on radios, antennas and other radio items.

Interested in PCMS?

For complete information on the Pop'Comm Monitoring Station (PCMS) program and to join, visit Pop'Comm Monitors On the Web: <http://popcommmonitors.blogspot.com>. – KPC6PC.

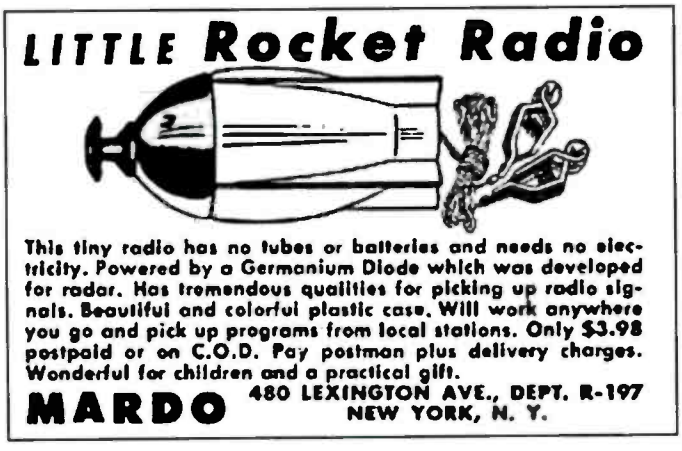


Photo H. David Stewart, VEPC4DXR, of Steinbach, Manitoba, Canada, grounded his Rocket Crystal Radio to the telephone when he was a kid. Crystal sets in the form of a rocket were very popular in the 1950s and '60s. This advertisement appeared in a 1952 edition of *Popular Science*.

WPC1QY: Tiverton, Rhode Island

Please send us a photograph of your listening post and tell us about your monitoring experience. We'd be happy to feature you as a Pop'Comm Monitor of the Month. Write to Pop'Comm Monitor of the Month at: <PopCommMonitor@gmail.com>.

– Richard Fisher, KPC6PC

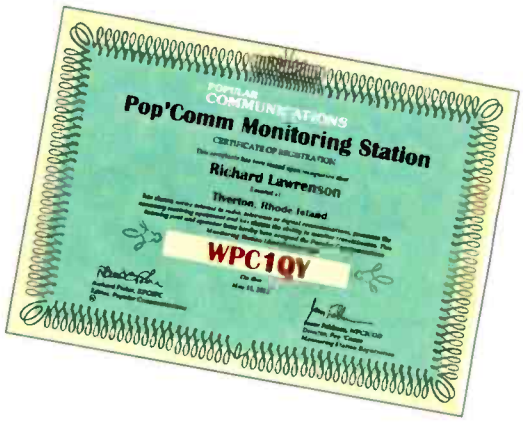
By Richard Lawrenson, WPC1QY

"I have managed to QSL 129 shortwave broadcast countries, 263 amateur radio countries and 48 via utilities. It has been such a great hobby all of these years."

I have been DXing and shortwave listening since 1958. I got my first receiver at Christmas of 1957. It was a Zenith TransOceanic. My listening post has changed a lot since then, **Photo A**.

The TransOceanic, **Photos B** and **C**, has been replaced by much more contemporary gear: Two ICOM R-71As, <http://bit.ly/M42ojR>, **Photo D**, with FL44 filters. It's hooked to an SP-20 speaker, <http://bit.ly/Lx70w1>.

I hold the WPE1QY monitor certificate (from *Popular Electronics*), which I believe I got in 1959. I also have my WDX1QY monitor certificate and QSL card from 1970, **Photo E**.



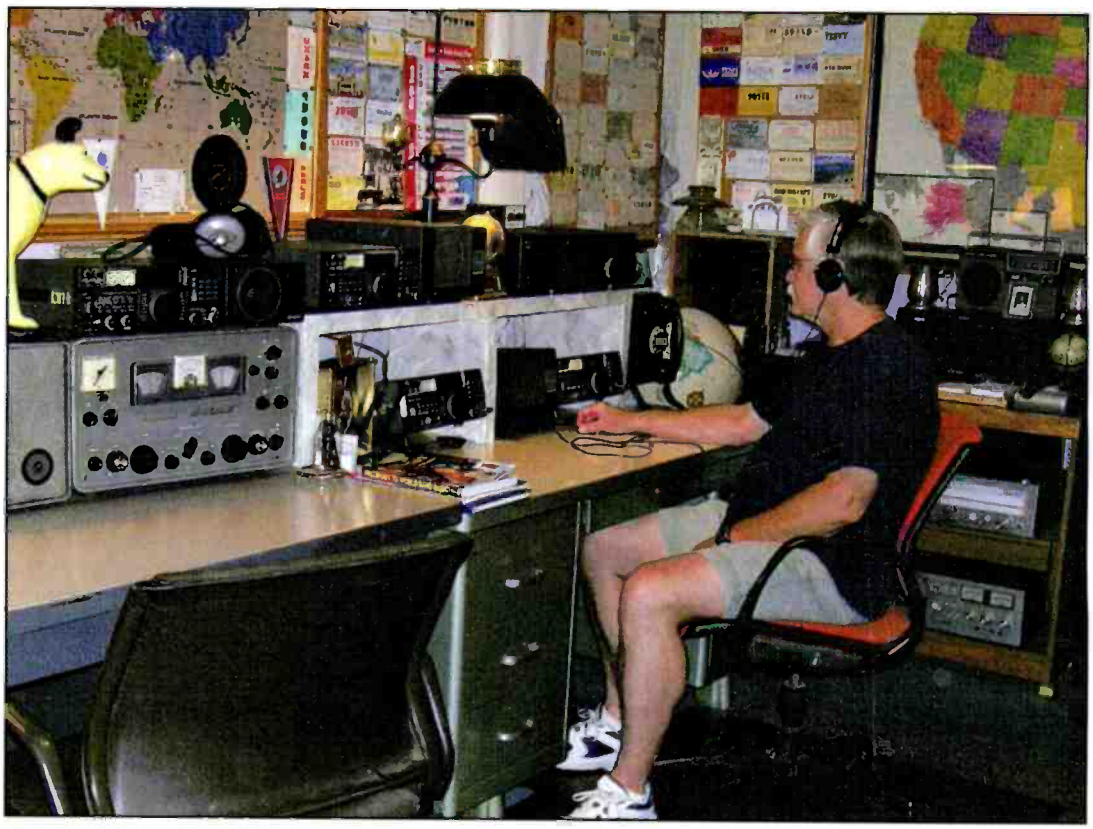


Photo A. Two ICOM R-71A receivers are the workhorses at the Tiverton, Rhode Island listening post of Richard Lawrenson, WPC1QY. *(Courtesy of WPC1QY)*

Hot Summer Items . . .

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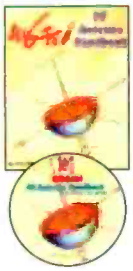
W6SAI HF Antenna Handbook

by Bill Orr, W6SAI



W6SAI was known for his easy-to-understand writing style. In keeping with this tradition, this book is a thoroughly readable text for any antenna enthusiast, jam-packed with dozens of inexpensive, practical antenna projects that work!

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Photo B. Watch and listen to a 1950s Zenith TransOceanic receiver in action: <http://bit.ly/LnFMWN>. *(YouTube screen grab)*

Both original certificates are on my shack wall. I have been a longtime subscriber to *Pop'Comm* — since 1983. I belonged to the NNRC (Newark News Radio Club), <http://bit.ly/JmHmJJ>, and am a member of the North American Shortwave Association (NASWA), <http://www.naswa.net/>.

I have managed to QSL 129 shortwave broadcast countries and 263 amateur radio countries. I've also QSL'd 48 countries via utilities. It has been such a great hobby all of these years.

Thanks for rekindling such a great program. *Popular Communications* and the NASWA club bulletin keep the different facets of the radio hobby all together for me.

Photo C. This Zenith TransOceanic radio is on display at Shoreline Historical Museum, Shoreline, Washington. *(Courtesy of Joe Mabel via Wikimedia Commons)*

Photo D. Watch and listen to an ICOM R-71A receiver on the shortwaves at: <http://bit.ly/LA8uXs>. *(YouTube screen grab)*

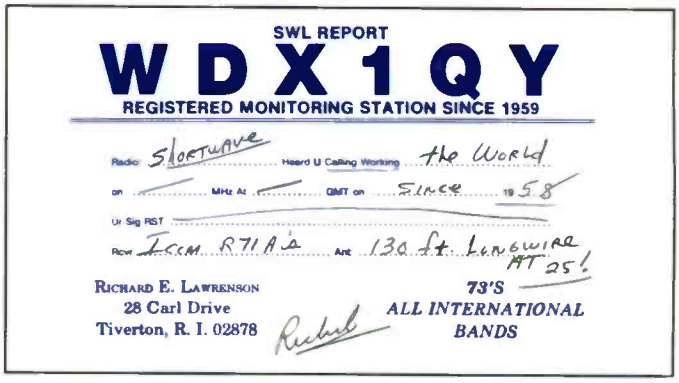

Photo E. "I also have my WDX1QY monitor certificate and QSL card from 1970," writes longtime listener WPC1QY. *(Courtesy of WPC1QY)*

By Jason Feldman, WPC2COD

Uniden Debuts New Wireless Video Surveillance System

Uniden has announced that it is introducing the Guardian G755, the latest in wireless video surveillance technology. The new Guardian G755 will allow you to remotely access live video from up to four cameras anytime, anywhere via iPhone®, iPad®, Android™ smart phones, tablets or PC.

Photo A. The Uniden Guardian G755. *(Courtesy of Uniden)*

Uniden said that the cameras are easy to install, and with secure digital wireless transmission, you can record up to four cameras simultaneously to independent files directly to the included 4 GB SD card.

The high-resolution, 7-inch, color touch-screen LCD monitor allows you to view live and recorded video, and set up your system through an icon-based interface.

Features:

- Free remote access via iPhone®, iPad®, Android™ smart phones, tablets and PC (Remote mobile snapshot & Remote video recording to PC)
- Direct connection to Internet router with included charging cradle - No PC required
- Record up to four cameras at the same time (Motion detection, Scheduled & Manual)
- 4 GB SD card included
- 7-inch color LCD (Resolution: 480 x 272. Also includes rechargeable Lithium Polymer battery and touch screen)
- Intuitive icon-based interface
- Weather proof cameras (IP66)
- High-quality H.264 video
- Night vision up to 40 feet
- Digital PentaZoom™
- Up to 500-foot video transmission range
- Easy DIY setup (No A/V wiring to install)
- Supports up to four cameras
- Quad, Full and Scan views
- Secure, digital interference free 2.4-GHz FHSS video transmission

The Uniden Guardian G755 MSRP is $499.99. ***(VISIT:** <http://bit.ly/Lafjx4>)*

Cabinet Communications Releases the 2012 Pirate Radio Annual

The new 2012 Pirate Radio Annual by Andrew Yoder has been released by Cabinet Communications. At 186 pages, the 2012 Pirate Radio Annual features listings for over 155 North American and 20 European stations.

This year's edition also features an interview with Harri Kujala, a listener's comparison of Channel Z's homemade transmitters, an in-depth look at the shortwave activities of The Minority Association (featured in the movie Resurrect Dead) in the early '80s, and a 71-minute CD with audio clips from 79 different stations in North America and Europe.

The 2012 Pirate Radio Annual is available for $16 from Cabinet Communications, P.O. Box 109, Blue Ridge Summit, PA 17214 or via PayPal to <info@hobbybroadcasting.com>.

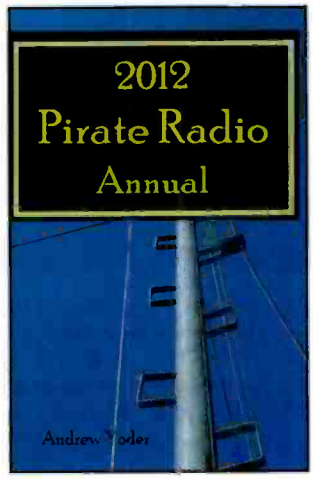

Photo B. The 2012 Pirate Radio Annual is available now. *(Courtesy of Cabinet Communications)*

Some Basic Terms, Part IV: Solar Wind and Coronal Holes

by Tomas Hood, NW7US, WPC7USA
<nw7us@arrl.net>

"The ionosphere, when strongly energized, provides the environment in which refraction of the higher shortwave frequencies occurs."

Last month, we explored one of the indices by which we measure solar activity, namely the 10.7-cm Radio Flux. We learned that this measurement tracks closely with the monthly sunspot number, and that the higher the 10.7-cm Radio Flux, the stronger the ionosphere becomes. High solar activity is good for shortwave communications, because the ionosphere when strongly energized provides the environment in which refraction of the higher shortwave frequencies occurs. This month, we look at the solar wind and a solar feature known as a coronal hole.

The Solar Wind

The Sun, and each planet, has a magnetic structure. The Earth has a north pole and a south pole. Magnetic field lines run from pole to pole, forming a donut shape of magnetic flux energy. The Sun has a magnetic structure, as well. It can become quite complex, with several intertwined poles. The Sun even reverses its northern and southern poles each solar cycle.

The Sun's magnetic field permeates the entire solar system, and beyond. This region that stretches from the Sun outward past the end of the solar system is called the *heliosphere*. The magnetic field that originates in the Sun and stretches out through the heliosphere is called the Interplanetary Magnetic Field (IMF). The IMF interacts with the Earth and is a primary cause of space weather.

The IMF sprawls away from the Sun in the form of a huge *current sheet*, a vast expanding

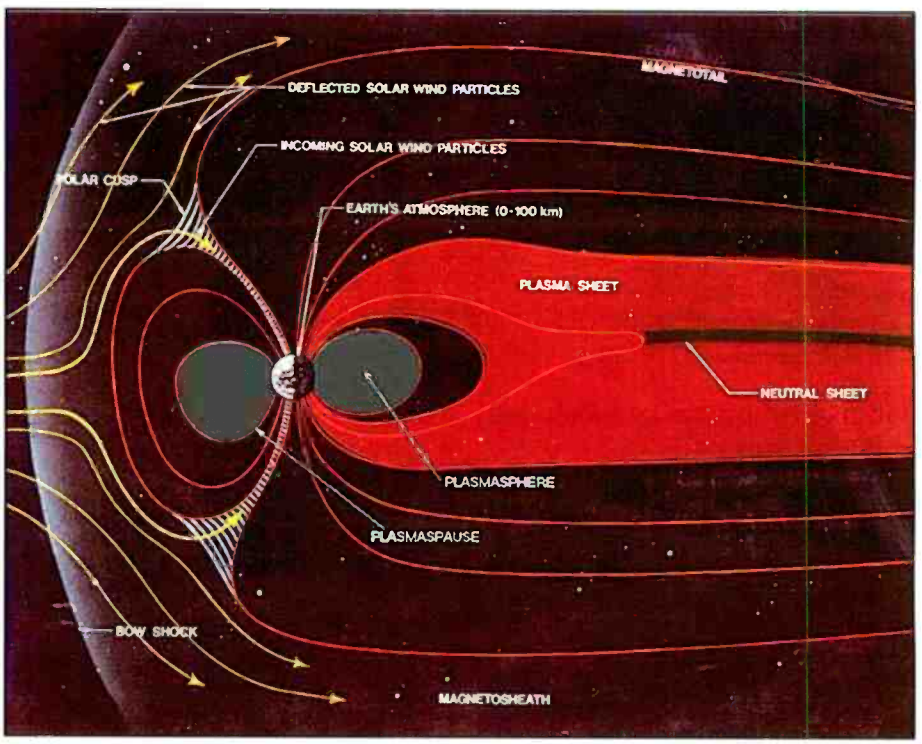

Figure 1. Here's a diagram of a portion of the magnetosphere. Note that the magnetotail is huge. It is stretched far away from the Earth and the Sun, by the pressure of the solar wind. The Sun-Earth connection involves the ever-present solar wind, and the Interplanetary Magnetic Field (IMF). The solar wind can cause geomagnetic storms and aurora (see text) during its interaction with the magnetosphere. (The plasmasphere is a region circling the equatorial plane of Earth, and the plasmapause is the boundary surrounding the plasmasphere). *(Courtesy of NASA)*

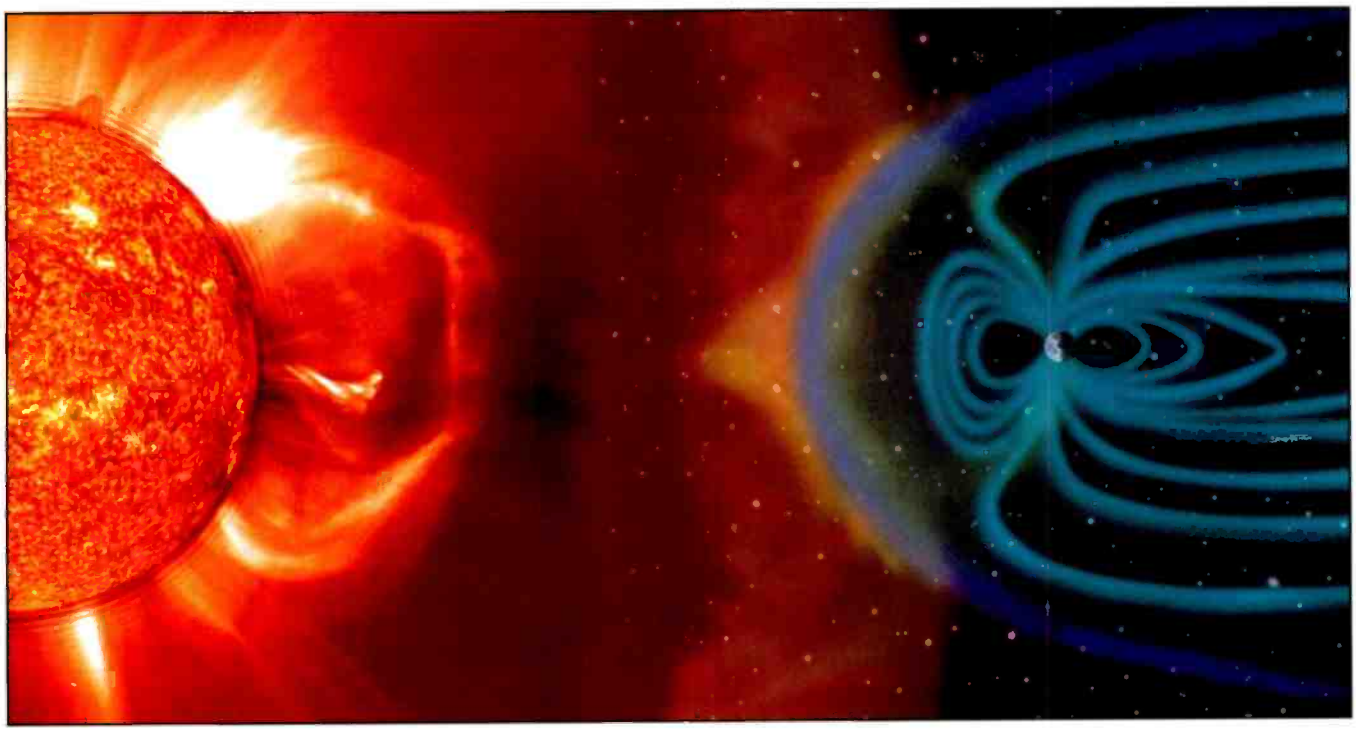

Figure 2. The Sun-Earth Connection. NASA and solar scientists are watching the Sun in an effort to better predict space weather — blasts of particles and magnetic field from the Sun that impact the magnetosphere, the magnetic bubble around the Earth. Filled by charged particles trapped in Earth's magnetic field, the spherical comet-shaped magnetosphere extends out 40,000 miles from Earth's surface in the sunward direction and more in other directions, especially away from the Sun and Earth, as the magnetotail. *(Courtesy of Steele Hill/NASA/SOHO)*

surface where complex magnetic field lines run from one solar pole far out into the solar system, arching back again along this sheet to return to the sun's other pole.

We have spacecraft that measure the IMF near the Earth. One measurement is known as the "B sub-Z" which provides a way to observe the polarity at the spacecraft. The IMF magnetic field lines have polarities that change from north (seen as a positive B_z) to south (indicated by a negative B_z).

The huge solar current sheet that expands away from the sun is 10,000-km thick (about 6,214 miles) and extends past the orbit of Pluto. The entire heliosphere is organized around this giant sheet, which carries an electrical current that is about 16 orders of magnitude less than that of the current carried in an ordinary light bulb.

Ordinarily, the current sheet circles the Sun's equator, spreading out in a wavy sheet that might resemble a dancer's skirt that flies up while the dancer is spinning (refer to the February 2012 edition of this column). As Earth orbits the Sun, it dips in and out of the main structure of this wavy current sheet. On one side of this sheet the Sun's magnetic field lines point northward. On the other side they point southward.

Space is not a vacuum, at least in our solar system. The Sun's atmosphere actually extends very far out from the Sun. Space in our system is filled with plasma, a low-density gas in which the individual atoms are charged. The temperature of the Sun's atmosphere is so high that the Sun's gravity cannot hold onto it. The plasma streams off the Sun in all directions at speeds of about 300 to 400 kilometers per second (about 1 million miles per hour). This is known as the "solar wind."

The speed of the solar wind fluctuates, and sometimes the wind carries with it magnetically-complex plasma clouds. These clouds are regions where high-speed wind catches up with slow-speed wind, resulting in a twisting of the IMF's magnetic signature.

South-pointing solar magnetic field flux lines tend to connect with Earth's own magnetic field — think of holding two bar magnets together with one bar magnet's northern pole against the other bar's southern pole. Solar wind energy can then penetrate the local space around our planet and fuel geomagnetic storms.

Coronal Holes

At times, weak magnetic regions emerge on the Sun. Because of the weak magnetic structure and the resulting low density in these regions, solar plasma tends to *pour out* of these regions, billowing away from the Sun on the solar wind. These regions are known as *coronal holes* because of the way solar plasma escapes the Sun's gravitational and magnetic hold.

The corona is so hot that the gases in it lose some of their electrons in the powerful collisions between atoms. This creates *electrified gas,* or *plasma.* The solar plasma is a mixture of positively-charged ions and negatively-charged electrons.

An example of plasma can be seen by looking at a neon light. You are looking at plasma: Gas inside the tube is energized to the point where light is emitted. Because plasmas are electrically conductive, they can steer magnetic fields. And they are steered by magnetic fields.

Over coronal holes, solar magnetic fields are stretched and dragged into interplanetary space by the inertia of the expanding plasma that spirals out on the solar wind.

The speed of the solar wind is high (on average 600 to 800 km/s, or about 375 to 500 miles-per-second) over coronal holes and low (roughly 300 km/s, 185 miles-per-second) over the rest

Optimum Working Frequencies (MHz) - For August 2012 - Flux = 133, 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	27	27	26	25	23	21	19	18	16	15	14	13	14	16	19	21	22	24	25	26	26	27	27	27
NORTHERN SOUTH AMERICA	34	34	34	31	28	26	24	22	20	19	18	17	17	19	23	25	28	29	31	32	33	34	34	34
CENTRAL SOUTH AMERICA	34	31	29	26	24	22	21	19	18	17	17	19	18	21	25	28	30	32	34	35	36	37	36	36
SOUTHERN SOUTH AMERICA	31	27	23	22	20	19	18	17	16	16	15	15	15	18	21	24	27	30	31	33	34	35	35	34
WESTERN EUROPE	16	12	12	11	11	16	17	14	12	12	17	19	20	21	22	23	23	23	23	23	22	21	20	19
EASTERN EUROPE	11	11	11	10	15	18	17	12	12	11	11	15	18	20	21	22	22	22	21	20	19	17	12	12
EASTERN NORTH AMERICA	31	30	29	28	26	24	22	20	19	17	16	15	17	21	24	26	28	29	30	31	31	32	32	31
CENTRAL NORTH AMERICA	17	17	17	16	15	14	13	12	11	10	9	9	8	11	13	14	15	16	16	17	17	17	17	17
WESTERN NORTH AMERICA	9	9	9	9	8	8	7	7	6	6	5	5	4	4	6	7	7	8	8	9	9	9	9	9
SOUTHERN NORTH AMERICA	28	28	28	27	26	24	22	20	19	17	16	15	14	15	18	21	23	24	26	27	27	28	28	29
HAWAII	24	24	24	24	24	23	23	21	19	18	16	15	14	13	12	12	14	16	18	19	21	22	22	23
NORTHERN AFRICA	18	16	15	14	13	13	16	14	13	12	16	19	20	22	22	23	24	24	24	24	24	23	21	19
CENTRAL AFRICA	20	19	17	16	15	16	18	16	13	15	18	19	20	21	22	22	23	23	23	23	23	23	23	22
SOUTH AFRICA	21	20	18	18	17	16	17	18	17	16	15	16	21	24	26	27	28	29	30	30	29	26	24	22
MIDDLE EAST	14	13	13	14	18	19	17	13	12	11	11	17	19	21	22	22	23	24	23	22	20	18	17	15
JAPAN	24	25	25	25	24	23	22	21	19	16	15	14	13	12	14	15	14	13	12	16	19	21	22	24
CENTRAL ASIA	25	25	25	25	24	23	22	21	19	16	15	14	13	12	15	18	20	19	18	16	15	17	20	23
INDIA	20	21	21	21	21	20	19	16	12	11	11	11	15	12	11	11	10	10	10	13	16	18	19	20
THAILAND	20	23	24	24	24	23	22	21	19	16	14	13	13	13	17	20	21	21	19	18	17	16	15	17
AUSTRALIA	34	35	36	37	37	36	35	33	30	27	25	23	21	20	19	18	19	18	17	16	18	24	28	31
CHINA	23	24	24	24	23	23	22	20	19	16	14	13	12	16	18	16	15	14	13	13	14	18	20	22
SOUTH PACIFIC	36	37	37	36	35	34	31	27	23	21	20	19	18	17	16	16	15	15	15	25	30	33	35	36

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	31	30	30	28	25	23	21	20	18	17	16	15	16	20	22	24	26	27	28	29	30	30	31	31
NORTHERN SOUTH AMERICA	31	31	31	28	25	23	21	20	18	17	16	16	15	19	22	24	26	27	29	30	30	31	31	32
CENTRAL SOUTH AMERICA	34	31	28	26	24	22	21	19	18	17	17	18	20	23	26	29	31	32	34	35	35	36	36	35
SOUTHERN SOUTH AMERICA	31	26	24	22	20	19	18	17	17	16	15	15	18	20	24	26	29	31	32	33	34	35	35	33
WESTERN EUROPE	19	17	14	12	15	15	14	13	12	14	18	20	21	22	23	23	23	23	23	23	22	22	21	20
EASTERN EUROPE	12	11	11	11	10	17	14	13	12	17	19	20	21	22	23	23	23	23	22	21	20	19	17	12
EASTERN NORTH AMERICA	22	22	21	20	18	17	15	14	13	12	12	11	14	16	18	19	20	21	22	22	23	23	23	23
CENTRAL NORTH AMERICA	10	10	10	9	9	8	7	7	6	6	5	5	5	7	8	9	9	10	10	10	10	10	10	10
WESTERN NORTH AMERICA	18	17	17	16	16	15	13	12	11	10	10	9	9	10	12	14	15	16	16	17	17	18	18	18
SOUTHERN NORTH AMERICA	20	20	19	19	18	16	15	14	13	12	11	10	10	12	14	15	17	18	18	19	19	20	20	20
HAWAII	28	28	28	28	27	26	24	22	20	19	17	16	15	14	14	14	16	19	21	23	24	25	26	27
NORTHERN AFRICA	22	21	19	18	17	16	15	14	13	12	16	19	21	23	24	24	25	25	26	26	26	25	25	24
CENTRAL AFRICA	21	19	18	17	16	15	15	14	13	12	17	19	21	23	24	24	25	25	26	26	25	25	25	22
SOUTH AFRICA	21	19	18	17	17	16	16	22	20	19	18	21	25	28	31	33	34	35	34	31	28	26	24	22
MIDDLE EAST	15	14	13	13	15	15	14	13	12	15	18	20	22	23	24	24	25	25	24	23	21	19	18	16
JAPAN	25	25	24	23	22	21	19	16	15	14	13	12	14	17	16	15	14	13	12	17	19	21	23	24
CENTRAL ASIA	25	24	24	23	22	21	19	16	15	14	13	12	16	19	21	22	21	19	18	17	16	17	20	23
INDIA	14	16	18	19	20	19	16	13	12	12	17	19	20	19	19	18	16	14	11	11	11	10	10	10
THAILAND	20	23	23	22	22	20	19	17	14	13	12	16	19	20	21	22	23	21	20	18	17	16	15	17
AUSTRALIA	34	36	37	36	35	34	32	29	26	24	22	21	19	18	20	19	18	17	17	16	20	25	29	32
CHINA	23	24	23	22	22	20	19	17	14	13	12	17	19	20	18	16	15	14	13	12	14	18	20	22
SOUTH PACIFIC	37	37	36	36	34	32	29	23	21	20	19	18	17	16	16	15	15	15	18	27	31	34	35	36

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	24	24	23	21	19	18	16	15	14	13	12	12	15	17	19	20	21	22	23	24	24	24	25	25
NORTHERN SOUTH AMERICA	28	28	26	24	22	20	18	17	16	15	14	14	15	18	20	22	24	25	26	27	27	28	28	28
CENTRAL SOUTH AMERICA	33	30	28	25	23	22	20	19	18	17	16	18	22	25	27	29	31	32	33	34	35	35	35	35
SOUTHERN SOUTH AMERICA	30	26	24	22	20	19	18	17	16	16	15	15	20	23	26	28	30	32	33	34	34	35	35	33
WESTERN EUROPE	17	15	14	13	12	11	13	12	12	15	18	20	21	22	23	24	24	24	23	23	22	22	21	19
EASTERN EUROPE	12	12	11	11	14	14	13	13	12	17	19	21	22	23	24	24	24	23	23	22	21	20	19	16
EASTERN NORTH AMERICA	11	10	10	9	8	8	7	6	6	6	5	6	7	8	9	9	10	10	10	11	11	11	11	11
CENTRAL NORTH AMERICA	23	23	22	21	19	18	16	15	14	13	12	12	15	17	19	20	21	22	23	24	24	24	24	24
WESTERN NORTH AMERICA	31	31	30	28	27	24	22	20	19	18	16	16	17	21	24	26	28	29	30	31	31	32	32	32
SOUTHERN NORTH AMERICA	25	24	24	23	21	19	17	16	15	14	13	12	13	16	18	20	21	22	23	24	24	25	25	25
HAWAII	30	30	30	29	28	25	23	21	20	18	17	16	15	17	16	15	18	20	23	25	26	28	29	29
NORTHERN AFRICA	23	21	20	18	17	16	15	17	16	17	21	24	26	28	29	30	31	31	31	31	30	29	28	25
CENTRAL AFRICA	21	19	18	17	16	15	17	17	16	17	21	24	26	28	29	30	31	31	30	30	29	27	25	23
SOUTH AFRICA	20	19	18	17	17	16	16	20	19	18	19	23	26	28	30	32	33	35	34	31	28	26	24	22
MIDDLE EAST	19	18	17	16	15	15	14	13	13	15	19	21	22	23	24	25	26	26	26	26	26	25	23	21
JAPAN	24	23	22	21	19	17	15	14	13	13	13	17	19	17	16	14	14	13	12	17	20	21	23	24
CENTRAL ASIA	24	23	22	20	18	16	15	14	13	12	16	19	21	22	23	23	21	19	18	17	16	16	20	23
INDIA	11	11	10	10	15	14	13	13	12	17	19	21	22	22	22	22	21	20	20	18	17	13	12	11
THAILAND	19	22	21	19	16	15	14	13	12	16	19	21	22	23	24	24	24	22	20	19	18	16	16	15
AUSTRALIA	35	36	36	35	33	30	27	25	23	21	20	19	18	21	20	19	18	17	16	16	21	27	30	33
CHINA	23	22	21	20	17	15	14	13	12	14	18	20	22	21	20	17	15	14	13	13	13	17	20	21
SOUTH PACIFIC	36	36	35	35	31	29	26	20	19	18	17	16	16	15	15	15	14	14	22	29	32	34	35	36

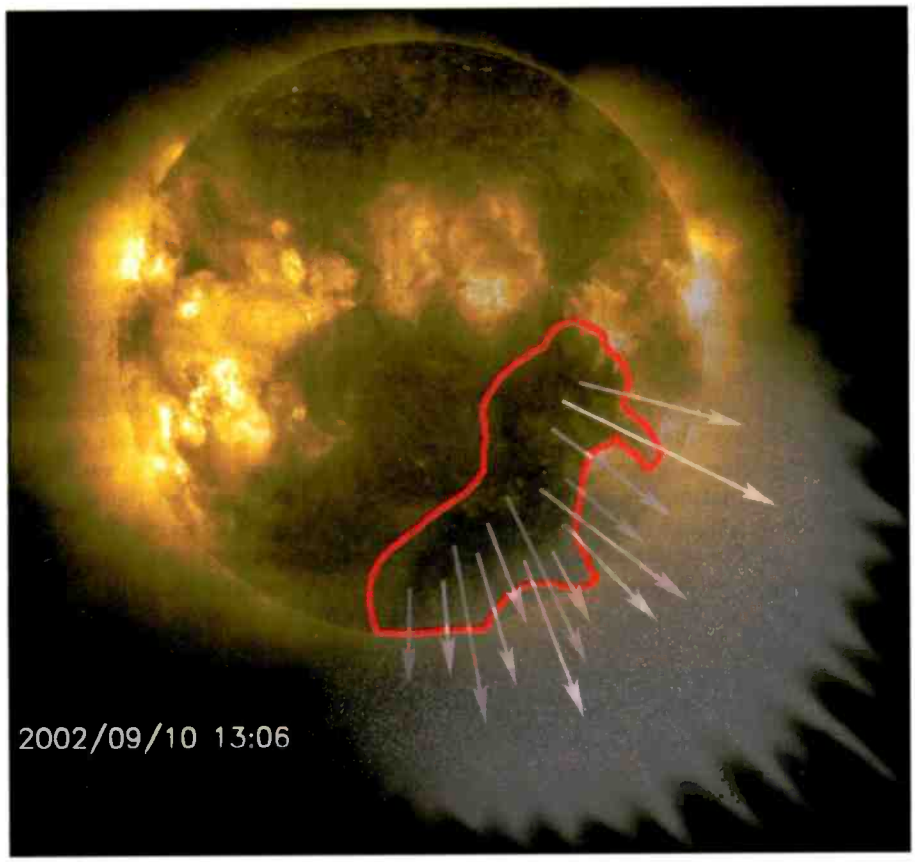

Figure 3. Coronal holes appear as dark areas of the corona when viewed in ultraviolet light. This large hole area seen here on September 10, 2002 had a direct impact on Earth. Coronal holes are often the source of strong solar wind gusts that carry solar particles into space. This one spewed a large stream of charged particles out to our magnetosphere and beyond. Solar wind streams take 2 to 3 days to travel from the Sun to Earth, so it probably originated from the Sun about September 9. The magnetic field lines in a coronal hole extend into the solar wind rather than coming back down to the Sun's surface as they do in other parts of the Sun. Although they are usually located near the poles of the Sun, coronal holes can occur in other places, as well (see text). *(Courtesy of NASA/SOHO)*

of the Sun. Plasma streams that have escaped from coronal holes ride the solar wind at much greater speed than the *quiet* solar wind.

Coronal holes follow the rotation of the Sun, taking about 27 days for a full revolution around the Sun. This means that if the coronal hole lasts long enough, we'll see its influence on space weather every 27 days. When a coronal hole survives to make it around a second time, the coronal hole is said to be *recurrent.* Coronal holes, then, are typically long-duration features.

Coronal holes are largest and most stable at or near the solar poles, and are a source of high-speed solar wind. However, those coronal holes situated at or near the solar equator tend to have the greatest impact on the Earth.

The Earth has a magnetic field with a north and a south pole that is enclosed within a region surrounding the Earth called the *magnetosphere.* As the Earth rotates, its hot core generates strong electric currents that produce the magnetic field, which reaches 36,000 miles into space. The magnetosphere prevents most of the particles from the Sun, carried by solar wind, from impacting the Earth. The solar wind distorts the shape of the magnetosphere by compressing it at the front and causing a long tail to form on the side away from the Sun. This long tail is called the *magnetotail.*

Geomagnetic disturbances are generated by the encounter with southward-oriented magnetic fields of the IMF and solar wind, and the density and speed of the solar wind. The ability of the solar wind to disturb the Earth's magnetosphere is a function of its speed and the strength and orientation of the magnetic fields. In the presence of a strong southward magnetic field component (seen as a B_z with a negative index), a *connection* is made between the solar wind's magnetic fields and the Earth's magnetic fields. Try picturing two pole magnets, where the north pole of one *connects* with the south pole of the other.

If the coronal hole is positioned along the Sun's equator and is facing Earth, the plasma and solar particles from the coronal hole will pass by the Earth as the Sun rotates. The enhanced solar wind, dense with the extra solar plasma and with the speed elevations and variations caused by the coronal hole, buffet the Earth.

If the magnetic orientation of the solar wind is southward, the coronal-hole-enhanced solar wind causes geomagnetic storms — some with aurora — and degrades ionospheric propagation for days at a time. Because the coronal hole may last long enough to rotate back into Earth-directed position 27 days later, these stormy conditions will re-occur too.

Geomagnetic activity is measured around the world, and is reported by the K-index. These worldwide measurements are averaged and combined into the Planetary K-index (K_p), which is calculated and reported every three hours.

These are then used to calculate the day's Planetary A-index (A_p). The higher these indices, the greater the geomagnetic disturbance. The K_p ranges from 0 (no activity; all quiet) to 9 (major storm level). If the K_p rises above 4, it is typical to see aurora. The greater the K_p, the stronger the possible resulting aurora. Of course, the stronger the geomagnetic storm, the more radio propagation on the high frequencies is degraded.

The ionosphere is affected by these changes due to the disturbance created by the solar wind. Because the Earth's magnetic field becomes disturbed, with quickly moving and chaotic magnetic field lines, the ionosphere experiences a decrease or even a depletion of ionization. Depressions in ionospheric density cause major communications problems because radio frequencies that previously had been refracting off the ionosphere now punch through. The Maximum Usable Frequency (MUF) on a given radio signal's path can be decreased by a factor of two during an ionospheric storm event — a substorm. Storm effects are more pronounced at high latitudes.

During the beginning phase of a solar cycle (we're at the beginning phase of Solar Cycle 24), we see far fewer coronal holes than during the decline phase of the

cycle. At any time, though, geo-effective (Earth-facing) coronal holes are a source of frustration for those involved with shortwave radio communications. Coronal hole activity often contributes to days of very poor propagation on the high frequencies (30 MHz and below). On the other hand, when these geomagnetic storms and aurora occur, VHF may come alive via exotic aurora-mode propagation.

This month, we'll see days when recurring coronal holes dominate space weather. Solar activity will be low to moderate, which will slightly help as the ionosphere is stronger than a year ago. International shortwave broadcasters have taken all of this space weather and geomagnetic activity, and the expected strength of the ionosphere, into consideration. They choose frequencies that, with the high power and gain of their transmitting facilities, will overcome tough propagation into their target areas. But, there may be days when it will be a challenge to hear the station you're hunting for.

I've provided live updates of the K_p and A_p indices, as well as other space weather and radio propagation data, at my page, <http://SunSpotWatch.com/>.

A subset of this information is provided on the Solar Weather tab on both the *Popular Communications* Facebook page <http://g.nw7us.us/GNJ21M> and the same tab at the HFRadio.org Space Weather Facebook page <http://g.nw7us.us/GNJbCe>.

Next month, we'll look at more space weather science. Stay tuned!

HF Propagation

Propagation on the higher frequencies will change less drastically between day and night this month, as the hours of sunlight are quite long and the ionosphere has very little time to recombine during the hours of darkness. Higher HF frequencies are going to be less reliable over most paths, but when Sporadic-E (E_s) openings occur, expect good domestic signals. These E_s openings will be strong at times, and fairly common, but might be short-lived.

Nineteen and 22 meters will compete with 16 meters for the best daytime DX band during August. These bands will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Look for gray-line propagation from Asia, with long-path common from southern Asia, the Middle East, and northeastern Africa as well as the Indian Ocean region via the North Pole.

The 25- and 31-meter bands have an incredible amount of activity since many broadcasters target their audiences during prime times (morning and early evenings) in the target areas. Expect 11 MHz to be an excellent band for medium distance (500 to 1,500 miles) reception during the daylight hours. Longer distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Heavy congestion will occur here, too, as many international and domestic broadcasters make use of 25 meters.

The backbone of worldwide shortwave broadcasting, 31 and 41 meters, will provide medium distance daytime reception ranging between 400 and 1,200 miles. During August, reception up to 2,500 miles is possible during the hours of darkness, and until two to three hours after local sunrise.

Forty-one and 49 meters should be best for worldwide DX from sunset to sunrise. Early evening and into darkness, increasingly longer paths develop, up to several thousand miles. As propagation conditions don't change much on the lower HF bands through the solar cycle, a high number of HF broadcasters rely on these bands. International and domestic broadcasts compete with amateurs on the 41-meter band and with each other on both. This makes for a lot of interference, especially during the late afternoon and evening hours, making reception of weak, exotic signals a bit more of a challenge.

Don't expect any improvement in nighttime DX conditions on 41 through 120 meters during August, since we are not yet close enough to the seasonal decrease in the static levels. The 5-, 3-, and 2-MHz shortwave bands are used mostly in designated tropical areas for domestic broadcasting. The entire 4-MHz band is set aside for domestic broadcasting in Asia, and some of this band is used throughout Europe.

On all of these bands, during daylight, reception should be possible from up to 500 miles away. After sunset until an hour or so after sunrise, reception of signals

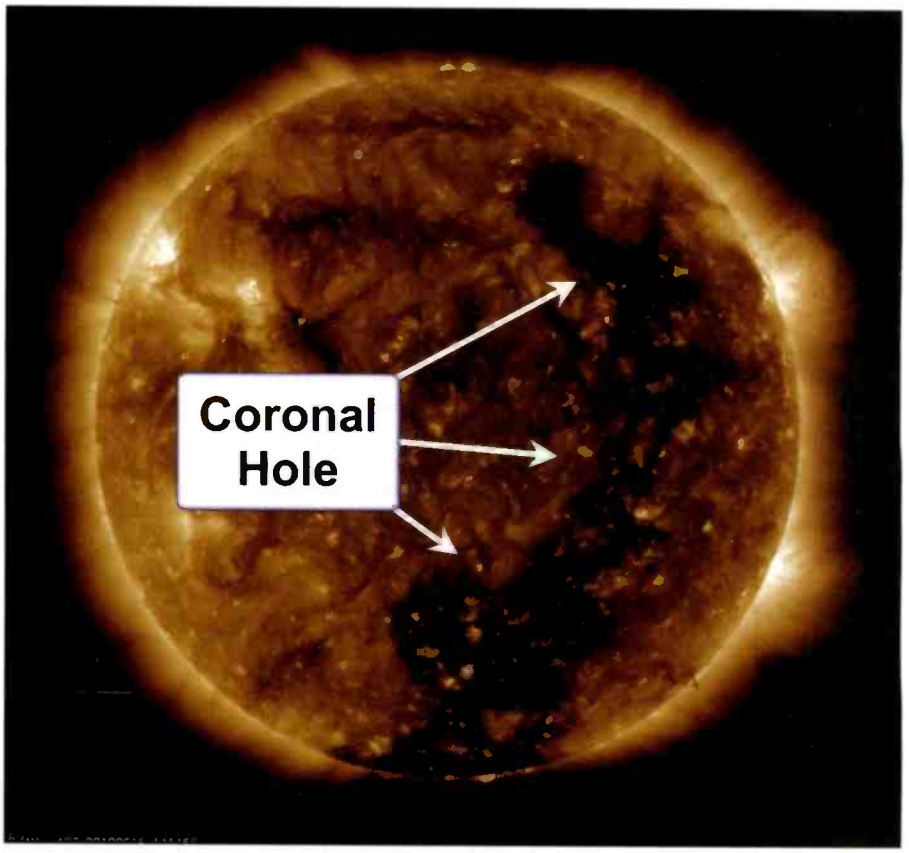

Figure 4. Coronal holes are large regions in the corona that are less dense and cooler than surrounding areas. The open structure of their magnetic field allows a constant flow of high-density plasma to stream out of the holes. There is an increase in the intensity of the solar wind effects on Earth when a coronal hole faces us (see text). *(Courtesy of SDA/AIA)*

from 1,000 to a possible 2,000 miles away is possible. There will still be a high level of static during August, so these bands will be a challenge to those looking for long-distance DX of exotic tropical stations. The best time to search for these would be just before sunrise and an hour or so after daylight.

VHF Conditions

Statistical studies show that a sharp increase in Sporadic-E propagation takes place at mid-latitudes during the late spring and summer months. During August, short-skip propagation over distances as great as 1,400 miles should be possible for about 10 percent of the time on 6 meters. Higher VHF (2 meter) openings may also be possible during periods of intense sporadic-E ionization.

In addition, conditions for tropospheric ducting begin to form over wide areas of North America, and over the Atlantic and Pacific Oceans. Watch for stalled high-pressure cells between your location and the DX. Each summer season in North America, weather systems develop that produce conditions favorable for VHF DX. Stalled high-pressure weather cells, with pressures reaching above 1025 millibars, are known to cause ducting of VHF radio signals. When ducts occur, VHF radio signals may propagate through these ducts far beyond the normal line of sight distances.

Tropospheric ducting forms each year between Hawaii and the U.S. West Coast, and from San Francisco to Los Angeles, Denver to Dallas, Texas to Florida, the Great Lakes to the eastern seaboard, from the Great Lakes to Texas, Nova Scotia to Miami, and from the Midwest to the Southeast.

Advanced visual and infrared weather maps can be a real aid in detecting the undisturbed low clouds between the West Coast and Hawaii or farther during periods of intense subsidence-inversion band openings. This condition occurs also over the Atlantic.

There is a great resource on the Internet that provides a look into current conditions. Bill Hepburn has created forecast maps and presents them at <http://bit.ly/GQ6079>, which includes maps for the Pacific, Atlantic, and other regions.

Current Solar Cycle 24 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for April 2012 is 55.2, down from March's 64.2, yet still up from February's 33.1. The lowest daily sunspot value of 9 was recorded for April 9. The highest daily sunspot count was 108 on April 20. The 12-month running smoothed sunspot number centered on October 2011 is 59.9, slightly higher than September's 59.5. A smoothed sunspot count of 80, give or take about 9 points is expected for August 2012.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 113.1 for April 2012, down from March's 115.1. The 12-month smoothed 10.7-cm flux centered on October 2011 is 118.4, the same as in September. The predicted smoothed 10.7-cm solar flux for July 2012 is 133, give or take about 9 points.

The observed monthly mean planetary A-Index (A_p) for April 2012 is 9, down from March's 14. The 12-month smoothed A_p index centered on October 2011 is 8.0, about the same as September. Expect the overall geomagnetic activity to be varying greatly between quiet to stormy during August, much like the months prior, because we're seeing the Sun become ever

more active as we move toward the cycle maximum. Refer to the Last Minute Forecast published in *CQ* magazine or on this columnist's website <http://SunSpotWatch.com> for the outlook on what days that this might occur.

I'd Like to Hear From You

I welcome your thoughts, questions and experiences regarding this fascinating science of propagation. You may email me, write a letter, or catch me on the HF amateur bands. On Twitter, please follow @NW7US (and if you wish to have an hourly-automated update on space weather conditions and other radio propagation-related updates, follow @hfradiospacewx). If you are on Facebook, check out <http://www.facebook.com/spacewx.hfradio>.

Speaking of Facebook, check out the *Popular Communications* fanpage at <http://www.facebook.com/PopComm>. This is a great place for the *Pop'Comm* community, to participate and share information, tips, DX spots, and photos of your antennas, radios, or your excursions into the field with your radio gear for that DX hunting trip.

Until next month,

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Unwired *(from page 6)*

The two men roomed together at a skilled nursing facility. *(Sources: Vallejo Times Herald, <http://www.timesherald online.com/> and AZCentral.com, <http://tinyurl.com/7m8cmgv>.)*

Radio Helped Sink the Bismarck (to the Bottom of the Sea)

The role radio and two Catalina flying boats played in sinking the Bismarck, **Photo C**, was the focus of a recent documentary on the BBC.

The program chronicled how in late May 1941 two of the planes flew over the Donegal corridor to search for the German battleship. Legend had it the Catalinas found the Bismarck by chance. *Not so!*

The documentary revealed that not luck, but radio — including amateur radio — was "vital in finding the Bismarck," according to the Lough Erne Amateur Radio Club website in Northern Ireland. Direction-finding stations, such as Gilnahirk in Belfast and others, took bearings on the battleship's Morse signals. "They were identified and reported for decoding," the LEARC reported.

Some of the radio amateurs assisting were in Ireland, "including the late George Noblett, EI9D, whose hilltop station . . . overlooked the Atlantic." You can read the full story at: <http://tinyurl.com/7q2mjse>. *(Source: Lough Erne ARC)*

Photo C. Survivors from the Bismarck are pulled board HMS Dorsetshire after the German battleship was sunk — with the help of radio — in May 1941. *(Courtesy of Wikimedia Commons)*

'Contest' Your Way to WAS or DXCC in a Weekend!

by Kirk Kleinschmidt,
NTØZ, KPCØZZZ
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"The true 'awards-gathering power' of contesting didn't really sink in until I worked a few rounds of Sweepstakes, fall DX contests and Field Day."

As a kid I was "wallpaper crazy." I wanted to cover my shack walls with QSL cards, award certificates, contest achievement certs — you name it. There was no public Internet in the late '70s, so I began my quest to earn Worked All States and DXCC the hard and old-fashioned way. I listened to QSOs on the air and tallied each op's QTH *by ear!* I didn't have a current Callbook. CD-ROM callsign directories were merely futuristic ideas, and DX clusters weren't even in the fantasy stage.

When I heard a callsign from a *needed state or country* I called after the existing QSO was complete and tried my best to work *the new one.*

I called CQ every now and then, but even to this day that's not my norm. In the beginning, when just about every state is a new one, this works well. But soon I started looking for easier and faster ways to find less-available states and countries. To put Wyoming in the log I checked into the Colorado-Wyoming Slow-Speed CW net one night after supper. That got me Wyoming and Montana!

The *tricky stuff* was starting to get my attention. I scoured the *ARRL Net Directory* looking for geographically targeted nets that I could access, first as a Novice and then as an Advanced-class op who was still in high school during the daylight hours.

To put North and South Dakota into the log I checked into the *Piconet All Day Watch* on 75 meters and *read the mail* until I heard stations checking in from Fargo and Sioux Falls. Even in neighboring Minnesota, the Dakotas can be hard to find.

Although progress was relatively slow overall, using those tried and true methods paid big dividends in the long run. Listening to hundreds of QSOs is never a bad thing for beginning ops, and it's still something I recommend to this day. But there are much faster ways to qualify for achievement awards and to put contest certs on the wall.

Fastest Path: Contesting!

Back in the day I made a bit of progress on my WAS award by participating in the Novice Roundup — a contest for contest beginners — but the *true awards-gathering power* of contesting didn't really sink in until I worked a few rounds of the Sweepstakes, the fall DX contests and Field Day. Lately it's been the ARRL VHF QSO Party for VUCC and WAS on 6 meters.

Compared to less efficient methods, simply working a contest or two — even casually — can really add to your totals. Two seasons ago a beginning ham friend of mine worked 40 states on 6 meters in one weekend during the ARRL VHF QSO Party. He also worked nearly 90 of the 100 grid squares required for the VUCC award with the same QSOs. It was his first contest, and he was very green. That may have taken months — even years — the old-fashion way!

With an average station you can work all 50 states or 100 DXCC entities in a single weekend. Even if you only work 48 states or 93 countries, *so what? Nice effort!* I have done it myself with low power and indoor antennas. With a little practice and a bit of cooperation from the solar cycle you can do the same.

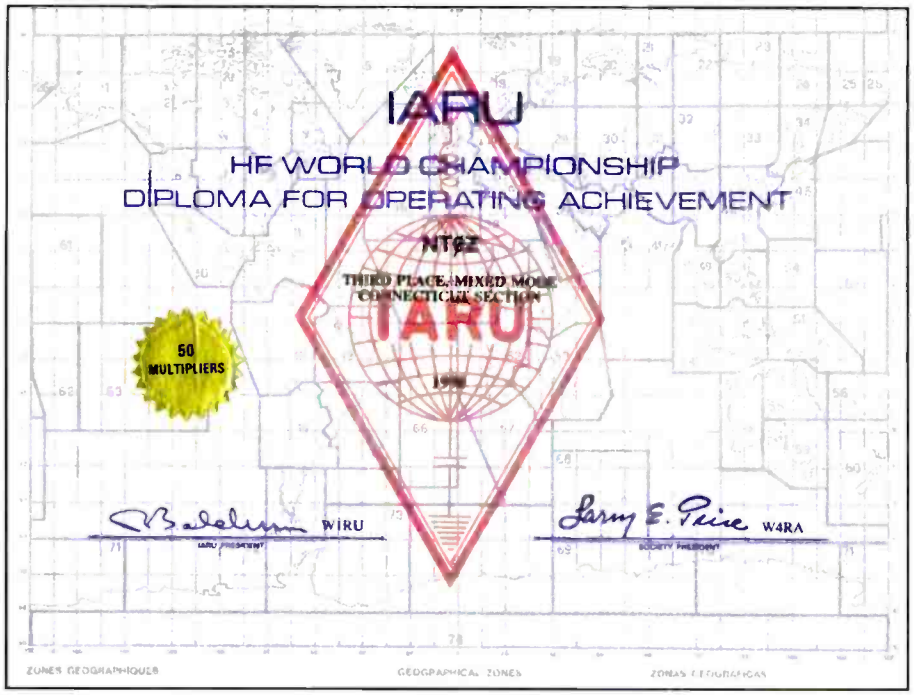
So let's take a quick look at contesting this month and see what's what. Although Field Day and the June VHF QSO Party — powerful, beginner-friendly outings that are unfortunately over for this year — the traditional amateur radio contesting season starts in the fall, so there's still plenty of time to get ready and get your nerve up!

Don't worry if your killer instinct is a bit rusty. Radio contesting is friendly and accommodates all levels of participation. And even if you don't officially compete by turning in a log, and so on, you will still come away with many benefits, including improved operator skills. You can work as many — or as few — stations as you want in pursuit of your own personal on-air goals without turning in a log and officially competing.

Don't worry about doing your own thing. And if you discover that you want to submit a log, that's fine, too. It's all fine.

The radio contests we're discussing are on-air events in which hams work as many different stations as they can in a defined period of time. Often a weekend. Depending on the particular contest, a premium is placed on working stations in different geographical regions (states, countries, ARRL Sections, *CQ* Zones, grid squares, islands, and so on), or stations with different callsign prefixes (KAØAAA, KBØAAA, KCØAAA, and so on).

The regions or differing prefixes are called *multipliers.* In the simplest sense, contest scores are determined by multiplying the number of two-



Who says casual operators with modest stations can't qualify for certificates? You may just have to be extra sneaky, like I was in 1990 when I snagged this certificate for a somewhat underwhelming *Third Place, Mixed Mode, Connecticut Section* in the IARU HF World Championship contest. At the time, anyway, this contest wasn't especially well attended, so the little guys had a much better chance in the wallpaper chase. I hardly made any contacts and only participated for a few hours one afternoon — but I did submit a log! And now that *casual* contesters are being courted, many contests offer awards for achieving certain *reasonable* levels of participation, even if most ops have no real chance of winning. – *NTØZ*

way contacts (QSOs) by the number of multipliers (subject to the fine points of each particular contest, of course!).

When the dust settles, the contestants with the highest scores (there are usually several categories of competition, such as power level, number of station operators, bands used, and so on) receive certificates or plaques and have their scores listed in ham magazines and on websites. Everyone competes together, but like a large marathon, participants are only competing against others in their own categories (if they're officially competing at all). In ham contests, unlike the Tour de France, you can ride on the course with the race leaders anytime you want!

Back in the day most contest activity came from experienced ops, but that's not necessarily true today. Beginners and relative newcomers are rolling up their sleeves and getting involved, working new states and countries, trying out new modes and becoming better hams in the process.

Contest operating can be fast and furious. Sometimes, especially at sunspot peaks, thousands of signals from every corner of the globe are crowded into relatively small parts of the bands. A typical SSB contest QSO may only last a few seconds. Ops exchange signal and loca-

Contests for Beginners

Months	Contest	Activity
Feb, Oct	School Club Roundup	All stations work all others. Beginners!
Mar	ARRL DX Contest	W/VE stations work DXCC Countries
Apr, Aug, Dec	ARRL Rookie Roundup	Veterans work beginners
Mar, May	CQ WPX Contest	All stations work all others
Jun	ARRL Field Day	Mostly W/VE
Jun	ARRL VHF QSO Party	6-meter madness
Oct, Nov	CQ World Wide DX Contest	All stations work all others
Nov	ARRL Sweepstakes	W/VE stations work W/VE only

Table 1

tion reports, and perhaps consecutive serial numbers or power-level identifiers. At first, the whole scene may seem overwhelming, but once you get your feet wet, you'll get the hang of it, especially when you learn to find the parts of the bands where the activity is a bit slower paced — usually the upper ends of the contest *subbands*.

There's another benefit to the crazy *signal density* that might not be readily apparent: Everybody's on. All counties have been heard from. You could spend days looking for North Dakota or Hawaii to finish your Worked All States (WAS) Award, or you could work them both in one afternoon (several times each) in any of a dozen contests during *the season*.

The same thing holds true for DX contacts and DX awards. Remember that *everybody's on*, and that contest ops regularly work all 50 states and 100 or more DX countries in one weekend (or even a single day) by participating in the right contest! Although you may not finish your certificate's requirements in one sitting, you'll probably be amazed at your progress.

In **Table 1** I've listed just a few major contests that see widespread activity. There are many more contests spread throughout the year. *CQ* and *QST* feature monthly contesting columns, and many ham radio websites have contest listings, tips and other useful information. See <http://bit.ly/rmfodM>, WA7BNM's contest information supersite.

Also check out <http://www.arrl.org/contests> and <http://www.contesting.com> for beginners.

These are good places to look for up-to-date contest information. *The ARRL Operating Manual* has plenty of detailed information on the fine points of contesting. If you're lucky you can find a copy at your local library. It's a popular subject.

As with any competitive sport, extreme levels of competition have driven some hams to put up gigantic antenna arrays powered by rows of dedicated amplifiers and top-of-the-line transceivers. Fortunately, ham radio contesting is productive and fun even if you don't have access to a *contest superstation*. Plus, those big-gun stations in far-flung locations can use their immense might to receive your weaker signals with ease.

Don't be afraid to enter the fray with only a transceiver and a simple antenna — the big-guns need you, and they have to listen for weak signals. In essence, they work for you, so don't be shy!

Contesting Tips for 'Little Pistols'

Everybody's on: If you ever wonder whether any hams live in French Guyana, Rhode Island or "wherever," during a major contest you'll hear at least one — and maybe 23 — ops from hard-to-find states and DXCC entities. You may not always work them, but you'll know for sure that they exist.

Avoid the crowds: In most contests the bottom of the contest subbands are crowded with big-gun signals and gazillions of people calling them. If you want to enjoy the action at a more manageable pace, move up in the band — even a bit above the *designated* contest frequencies. For example, on 20-meter CW, 14.000 to 14.040 MHz will be a rock concert of wild signals, but 14.050 to 14.080 MHz will produce plenty of *easier to sort* contacts, and 14.080 to 14.100 will offer up QSOs at an even slower pace. Once you get comfortable, whether that takes one contest or ten, you can move lower and battle it out.

There's no time to chat! Contest QSOs, by design, are quick, quick, quick, so focus on how fast you can rack up juicy contacts and save the friendly ragchews for later. Ragchewing is like commuting and contesting is like racing. There's a time and place for both, so enjoy!

Beginning Morse ops are welcome: Back in the day there was a special contest for beginning Morse ops called the Novice Roundup, where beginners could learn contesting and Morse skills at the same time, at a manageable pace. That's not always the case today, but most contests accommodate slow-speed CW QSOs in the upper parts of the contest subbands. Additionally, organizations such as the North American QRP CW Club, <http://www.naqcc.info> are dedicated to slow-speed CW operating and contesting, with an emphasis on providing help to beginning CW ops. NAQCC has monthly contests and on-air events, and they also issue awards in the same vein. Lots of fun! The club has more than 6,000 members in all 50 states and 90 countries.

Second days are less frantic: Big contests usually start on Friday evenings (local time) and run through Sunday evening (again, local time). Friday nights can be over the top. You'll hear the juicy stations, but you may not work them until later because everyone and his brother has the same idea. On Sunday afternoon, though, the Big Juicy stations will be begging for you to call them. You'll almost feel sad when you hear, "Anyone, anywhere, this is Papa Forty Victor calling CQ contest," repeated over and over. Until you call them, of course, and boom! — another country is in your logbook!

Surgeon General's Warning: Amateur radio contesting has proven to be highly addictive. It's rarely fatal, but it's often chronic. I wouldn't be surprised to hear from hams who have lost jobs and spouses to *Contest Fever*. You have been warned!

Looking Up: Hey, You! Get Onto My Cloud!

By Dan Srebnick, K2DLS <k2dls.rfbits at gmail.com>

"The idea of the cloud is that instead of having to build a server and provision services, services will be obtained through a template or forms-based model."

The information technology industry has been abuzz for at least a couple of years now with talk of *the cloud*. This supposedly new concept was initially portrayed by some as the way that IT will be done in the future. The *cloud first* policy of the former White House Chief Information Officer, Vivek Kundra, did much to foster this idea in the trade press, especially among government IT shops.

The idea of the cloud is that instead of having to build a server and provision services, services will be obtained through a template or forms-based model. Self-service dashboards will help to orchestrate the end result and those contracting for IT services will pay as they go. No more need to invest in datacenter infrastructure and better productivity is the supposed payoff.

If you've ever set up your own virtual webserver for a website with a major provider such as Go Daddy or Rackspace, you already have touched the cloud. A self-service website is used to request the server or services, you enter your credit card number, and you're now an information provider on the World Wide Web. Lots of hobby websites are set up in this manner because there's no need to invest in infrastructure of your own.

The idea of the cloud in IT or even in our homes is not new however. We've all been using a cloud for years . . . the Internet itself is one big cloud. So is the electrical grid. The idea of a cloud simply is an abstract representation that you don't really need to know what is going on inside of the cloud to use it. Even if your knowledge is fuzzy or *cloudy*, all you do is plug in and it's there.

From a cloud services perspective, IT folks talk about *IaaS*, *PaaS* and *SaaS*. These terms stand for Infrastructure, Platform, and Software "As A Service," respectively. If you just need a raw server that you'll set up for some purpose, that's IaaS. If you want a highly-customizable software envi-

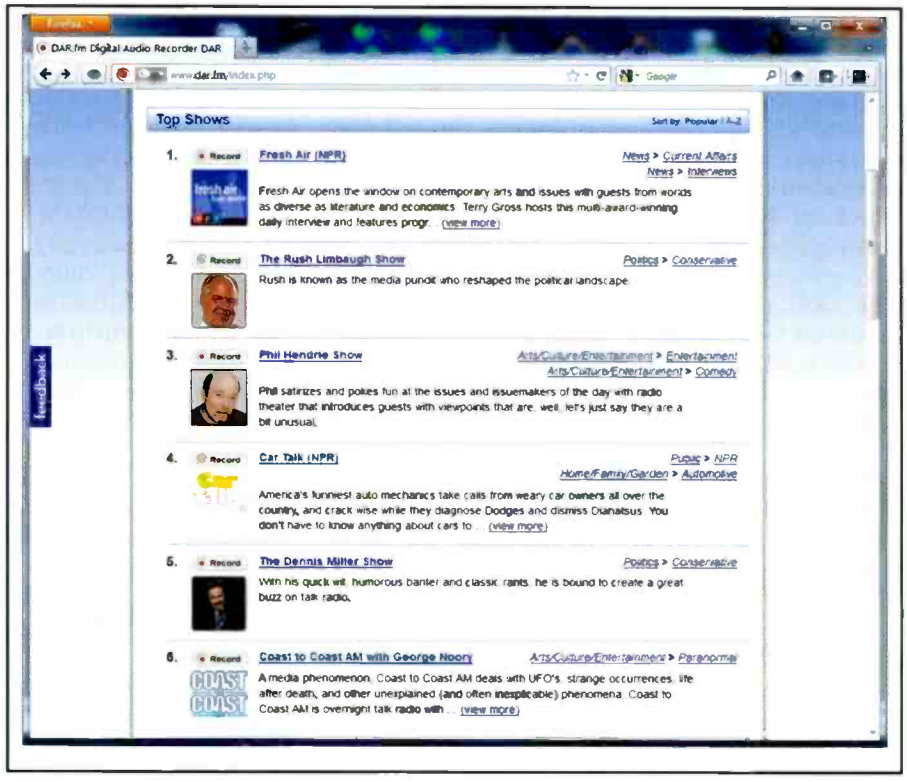


Figure 1. There's a lot of suggested content to record at DAR.fm.

ronment that you can adapt and change, such as a Sharepoint or Wordpress site, that's PaaS. A turnkey accounting or human resource system would fall under the definition of SaaS.

Why is any of this important to a column about radio and computers? If you haven't noticed, cloud services are available to support your radio habit — *er, I mean hobby.* Arguably, QRZ.com may have been the first cloud service for hams, although we didn't notice this in 1994 when it was started. It essentially has replaced the Callbook that many of us once used with a simple online query. We don't know or care how QRZ.com does it, but it does it and does it well. But that is just a start.

Digital Audio Recorder

I've been using a digital audio recorder service in the cloud for a while, and it has been interesting to see it develop from an early beta-test to a full-fledged cloud service. According to its website at <http://www.dar.fm>, "DAR.fm is a service that lets you record radio stations and shows so you can listen whenever you like. Please browse the site to find some radio to record." That's quite an invitation!

If you have a TiVo or other DVR, then you already have a rough idea of what a digital audio recorder has to offer. The main difference between your DVR and DAR.fm, though, is DAR.fm is completely in the cloud and therefore does not require that you purchase or rent a particular piece of hardware. In fact, the multiplatform support is one of the amazing things about DAR.fm. I schedule recordings via my Firefox web browser and listen to programming via a Grace or Squeezebox Internet radio. I could as well schedule and listen to content on an iPhone, iPad, or Android device.

A free account at DAR.fm allows the listener to schedule one recording and store up to 2 GB, or roughly 100 hours, of content in the cloud. The scheduled recording can be a repetitive event such as the Monday-Friday airing of *Coast to Coast AM*, which might normally be on a bit late for those who work day jobs. Premium accounts can be purchased which remove the limit on the number of recordings that can be scheduled and offer up to 200 GB of cloud storage for your programs.

The DAR.fm website offers a quick list of top shows that other others are recording. If you don't see what you want, you can set up your own date/time based recordings just like you can with your DVR, **Figure 1**.

Wide Device Support

I mentioned that DAR.fm is truly a multiplatform, cloud based, audio recording service. According to its website, the platforms listed in **Table 1** are supported.

The device support page at <http://www.dar.fm/devices.php> offers both step-by-step instruction on using your particular platform or device as well as instructional videos to walk you through

iPhone, iPod Touch	iPod/Other MP3 Players
iPad	PC/Mac
Android	Ubuntu Linux
Blackberry	Roku Player
Windows Phone 7	Grace Digital Radios
Palm OS	Logitech Squeezebox

Table 1.

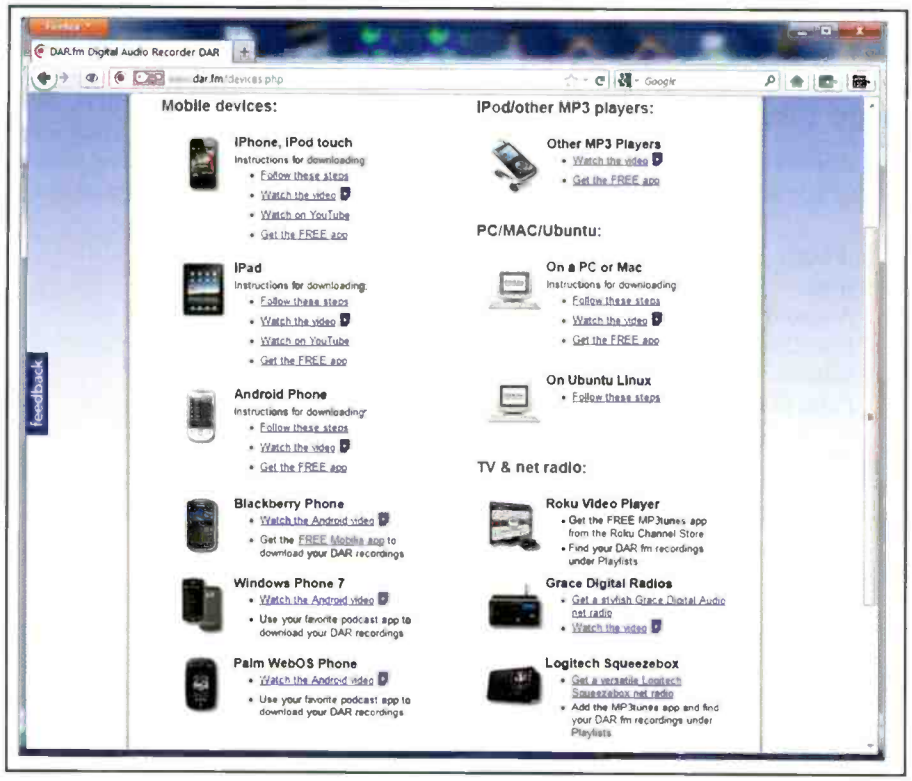


Figure 2. DAR.fm offers a wide range of supported platforms.

Figure 3. Setting up the DAR.fm download URL in DAR Car (DAR.fm video).

the process. This is helpful, because there are inconsistencies in the implementation of DAR.fm playback between the different platforms.

In the background, DAR.fm makes use of another cloud based storage service called "MP3 Tunes" <http://www.mp3tunes.com/> and the MP3 Tunes digital locker. In fact, when you set up your DAR.fm account, you automatically get an MP3 Tunes account as well. MP3 Tunes is used to actually store the recordings created by DAR.fm. In some cases, this is completely transparent to the user but in others it is not.

For example, my Grace Reciva-based radios have a menu entry for DAR.fm, which I can use to access the recordings that I have scheduled with my web browser; however, on my Logitech Squeezebox, I find my DAR.fm recordings under the MP3 Tunes application. The recordings themselves are stored in 15 minute segments. Playback via either DAR.fm or MP3 Tunes can be somewhat like an old 8-track tape switch at the transition point between segments.

Both my Grace and Squeezebox support the ability to fast forward and fast rewind — really fast — to the next or previous 15-minute segment of a program. On the Grace remote, this is done through the right and left arrow buttons. On the Squeezebox remote, there are buttons marked FWD and REW that perform this function. Recordings cannot be deleted nor can schedules be changed directly on either of my two Internet radio platforms. For this, I use the website at <http://www.dar.fm/>. If for some reason you need to save just particular segments of a program but delete other parts, you can do so at <http://www.mp3tunes.com/>, where your 15-minute program segments are stored as playlists. You'll need to know which segments you want to keep and which you want to delete.

I tested the Android applet. The applet is available from the Android Market and is called "DAR Car," presumably because this is how you can listen to DAR in the car. The installation process is as straightforward as any Android app, but configuration is a bit strange. In order to associate the Android app with your DAR.fm account, you first need to logon to the DAR.fm site using the web browser. Under the Settings tab, you are offered a Download URL. In effect, this is the RSS feed created by your DAR.fm recordings. This Download URL must be entered into the DAR Car app under its settings in

order to transfer the recordings from the cloud to your Android handset or tablet, **Figure 3**.

DAR.fm also sends out regular email notifications to let you know whether your content is being recorded properly or if you have run out of disk space in the cloud.

Is it Worth the Trouble?

After using DAR.fm for some months, I have to offer a resounding *yes*. There are some inconsistencies in interfaces, documentation and operational methods between platforms, but DAR.fm offers me DVR like features that complement my radio listening habit. If there is radio content that you'd like to time shift, if there's something not available in your local area but is somewhere on the Internet, you're going to like DAR.fm.

Ham Radio Deluxe in *The Cloud*

While we're all waiting to see what happens next with Ham Radio Deluxe now that Simon Brown has sold his franchise, it is worth mentioning that HRD users have had a cloud-based logbook solution available to them for some time. HRDLOG.net <http://www.hrdlog.net/> seamlessly interfaces with the Ham Radio Deluxe logbook to mirror the important elements of your logbook in the cloud.

HRDLOG.net has some interesting features. It functions as a backup copy of your logbook. It allows others to see your online logbook, and through some Javascript, show your current operating frequency and 15 most recent contacts on your QRZ.com page or other webpage. It also offers a QSO matching service. When two HRDlog users upload the same QSO to this cloud-based service, you each receive an email confirming that your QSO has matched. HRDLOG.net also makes a weekly backup of my copy of the logbook in the cloud. If you have ever had a computer crash and lost a copy of your logbook, you will appreciate the value of cloud-based logbook backup.

So far, 6031 hams are making use of HRDlog.net. HRDlog is a volunteer effort and will remain so, even though HRD has gone commercial. Donations are much appreciated and can be made via the website. **Figure 4** gives you a sense of what HRDLOG.net has to offer. Note that in addition to keeping track of your logbook, you can also review the logbooks of others to see how they're doing on the bands.

Radio Reference Expands Repeater Coverage

The website <http://www.radioreference.com/> has long been recognized as the definitive online directory used by scanning enthusiasts. One criticism that occasionally surfaces is that "RR" does not cover amateur repeater frequencies with the exception of SKYWARN® repeaters. This policy has now changed and "RR" is adding a full user contributed amateur repeater directory to its listing of public safety and other frequencies.

In the Cloud?

Have you been making use of any interesting hobby related services in the cloud? Let me know, via another widely used cloud service — email k2dls.rfbits at gmail.com. – 73 de K2DLS

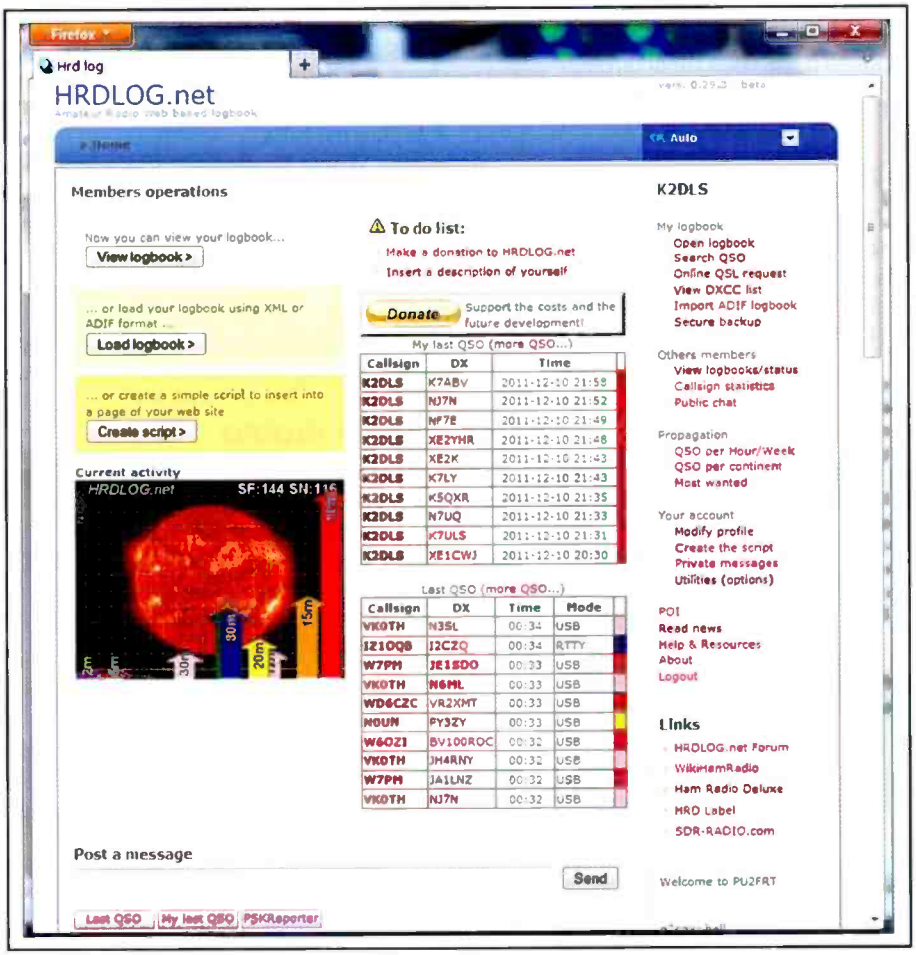


Figure 4. HRDLOG.net provides a backup of your logbook in the cloud. It also provides a glimpse of others' logbooks!

Not Earth Shattering, But There's Good News

by Gerry L. Dexter,
WPC9GLD
<gdex@wi.rr.com>

"Remember, your shortwave broadcast station logs are always welcome. QSLs, too, along with station photos and anything else you think would be of interest."

For a change this month's shortwave news lands more on the positive side, although the level does not reach quite that of a seismic shift. Instead it's more a case of treading water, as though we are just marking time while we wait for the next transmitter to drop.

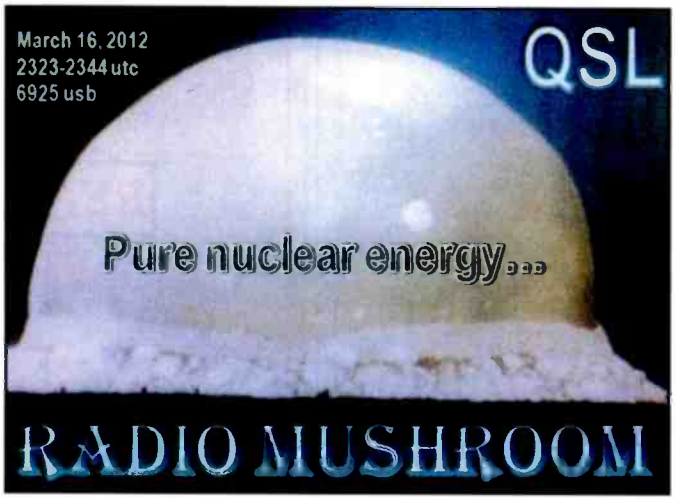
Hello, Brazil

Radio Caiari in Porto Velho, Brazil, has been reactivated on MW 1430 and 4785 on 60 meters. This religious broadcaster airs programs only in Portuguese. The mailing address is Rua Das Criancas 4846, Barrio Areal da Floresta, CEP-76805-440, Porto Velho, Rondrina, Brazil. For email use: <radiocarari@gmail.com>.

Also from Brazil — I hinted earlier that **Radio Difusora Macapa** had, or was about to return to the air. That's now confirmed. Macapa is being heard on 4915, although it had been silent throughout most of 2011, it's certainly a positive to hear that they are back, and hopefully for good!

AIR Going DRM

There are six 50-kilowatt shortwave transmitters of **All India Radio** at the Delhi (Kingsway) site which have been closed. The six — which used 4860, 4870, 5015, 6030, 6190, 7235, 7370, 9575, 9835, 11710, 11830, 15135, 15185 and 15260 — have been replaced. The six transmitters were suffering from problems due to old age.



Boom! Radio Mushroom's QSL for D'Angelo's reception on 6925

Their jobs will be taken over by a pair of 100-kilowatt units to be installed at Kingsway, two 250-kilowatt units at Aligarh and a single 500-kilowatt transmitter at Bangaluru.

Also, two 250-kilowatt units at **Khampur** will be upgraded to handle DRM. *All of this sounds positive*, but the kicker is that by this year's last quarter most of AIR's external service will be transmitted only in DRM, which in essence, takes it off the air for most of us. It's an open question whether the few DRM-capable receivers out there will be able to handle a DRM signal from transmitters at that distance.

Update: TWR and AWR

Trans World Radio has been asked to discontinue its broadcasts from Monaco — technically the site is in France. Apparently operators of the site have decided to close it down, since TWR-Europe was its sole customer, and that, by itself, was not paying the bills.

Adventist World Radio had been using DW's Trincomalee, Sri Lanka, site — but only for around three months, probably not much later than through June — while KSDA's site in Guam is having maintenance done on its antennas. An additional antenna is also being installed on Guam. AWR was issuing a special QSL for reception of its broadcasts from the Trincomalee site.

Hello, Saudi Arabia

New, 250-kilowatt transmitters are now in service at the **Broadcasting Service of the Kingdom in Saudi Arabia**. Such an addition *should* improve reception, which in past times has always bordered on the chancy. They'll be used for English at 1000-1300 (on 17610 and 21530) and 1600-2100 (7430, 9710 and 9840).

Elsewhere . . .

Last month I noted that **Radio Tanzania-Zanzibar** had been reactivated. The 11735 frequency is now being *fairly widely* reported. Formerly it was on the air early enough to hear the 1800 relay of its local FM station's English newscast. But occasionally they forget to activate the shortwave — sometimes not until after 2030. That doesn't leave much log time since it closes down at 2100!

Where's the "Vixen" on this QSL received by D'Angelo.

Galei Zahal (Israel) has returned to 6973u, running in parallel to 15785u.

Twilight Zone

We've experienced some unusual propagation of late — leading to some strange log sets this month: The usual large number of **Brazilians**, a shortage of **U.S. religious broadcasters**, a 0.25-inch thick stack of **pirate log strips** and an *extra-heavy* number of receptions from **European-based pirates.** In any event . . .

Now, Let's Hear From You

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 (originating) 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 how about sending a photo of you at your listening post? C'mon! Take a shot! It's way, *way* past your turn to grace these pages!

What We're Heard

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, 9615 at 1232 with *Music to Love* pgm, promo, mention of "New Life Station" and a motivational message. (Sellers, BC) 9655 with EE ID at 1600 went into RR. (Ronda, OK)

ANGUILLA—Caribbean Beacon, 11775 at 1815 with Melissa Scott preaching. (Maxant, WV)

ARGENTINA—Radio Argentina al Exterior, 11711 at 0121 in JJ with ID, W ancr, guitar. Also, 15345 at 2348 in SS with classical guitar music. Off by 2357 recheck. (Sellers, BC). 1004 in JJ with LA instls and vocals. (Coady, ON) 2240-2300 with SS talk and domestic music. (Alexander, PA)

ASCENSION—BBC South Atlantic Relay, 9915 at 2132. (Fraser, ME) 11810 at 2002 with world news. (Brossell, WI) 17885 at 2205 in Hausa. Went off suddenly at 2029. (Goodman, IA)

AUSTRALIA—Radio Australia, 9580 with news at 1130, ID for "ABC News Radio." (Miller GA) 1305 with news and 11880 on Kuala bears. (Maxant, WV) 11660 with CC/EE language lesson at 1411. (Sellers, BC) 15160, Shepparton at 0510 with report of UFO sightings, better than //15240, 17715 at 0045 with talk, numerous IDs, world news at 0100. (Goodman, IA) 15515 at 2130 to the Central Pacific. (Rippel, VA)

ABC Northern Territory Service: VL8A, 2310 Alice Springs at 1000. (Wilkner, FL) 1225 with golden oldies, ABC News. (Sellers, BC) VL8K, Katherine, 2485 at 1020-1045 and 2325, Tennant Creek, at 1030. (Wilkner, FL)

AUSTRIA—Adventist World Radio, 6155, in FF at 0432. (Goodman, IA) 15220 in FF at 1938. (Brossell, WI)

BAHRAIN—Radio Bahrain (p) 9745 at 2357-0008 with AA vocals in the clear after another station closed. Brief flute music, AA vocals but no ID. (D'Angelo, PA) 0010-0025 in carrier plus USB with domestic type music. (Alexander, PA)

BELARUS—Radio Belarus, 7255 with EE and local pops and folk. Into RR at 2200. Occasionally mixing with Nigeria which was intermittently on/off the air, //11730 which was poor-fair. (Alexander, PA)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 in SS at 1000 and 0035. (Wilkner, FL)

Radio Eco, Reyes, 4409.7 with M in SS at 0000-0140. Better than normal. (Wilkner, FL)

Radio Santa Ana, Santa Ana de Yacuma, stronger than usual heard at 2335-0030. (Wilkner, FL)

Radio San Miguel, Riberalta, 4699.6 strong in SS at 1030. (Wilkner, FL)

Radio Yura, Yura, 4716.7 signing on in SS at 1023. (Wilkner, FL)

Radio Lipez, Uyuni, 4795.9 at 0930-1025 not noted in awhile and now seems to be active only on local mornings. (Wilkner, FL)

Radio San Jose, San Jose de Chiquitos, 5580.2 strong in SS at 0000-0025. (Wilkner, FL)

Radio Pio Doce, Siglo Viente, 5952 at 0010, fair-poor with W in SS and lively songs. (Ronda, OK)

Radio Santa Cruz, Santa Cruz, 6134.8 at 0055-0116 with SS pops. Off at 0116 with a Santa Cruz song. (Alexander, PA) 0103 with conversation in SS and short music bridges. (Ronda, OK) 0016-0205 with M ancr, LA vocals, talk, ID and anmts. Continued to a new closing time at 0205. (D'Angelo, PA)

BONAIRE—Radio Nederland Relay, 6165 at 0620 in DD with talk, ID and anthem, then off at 0625. Also 15315 at 2105 with talk and ID. (Goodman, IA)

BOTSWANA—VOA Relay, Mopeng Hill, on 4930 at 0419. (Sellers, BC) 12080 in FF at 1918. (Brossell, WI)

BRAZIL (All in PP – gld)

Radio Municipal, Sao Gabriel de Cachoeira, 3375.1 strong with good music at 0950. (Wilkner, FL)

Radio Difusora do Amazonas, Manaus, 4805 at 0900-1020. (Wilkner, FL)

Radio Cancao Nova (t), Cachoeira Paulista, 4825 at 0104. (Sellers, BC)

Radio Roraima, 4878.5 at 0345 with Brazilian pops, ID and off with NA at 0403. (Alexander, PA)

Radio Clube do Para, Belem, 4885 with male speaker and hymn-like numbers at 0104. (Sellers, BC) 0457 with traditional music. (Wood, TN)

Radio Novo Tempo, (t) Campo Grande, 4895 at 0103 with male ancr and music. (Sellers, BC)

Radio Alvorada (t), Londrina, 4865 at 0930-0950 with non-stop talk. (Wilkner, FL)

Radio Difusora Londrina, 4815 at 0109 with talk and Christian songs. (Sellers, BC)

Radio Difusora Macapa, 4915 at 0805 with Brazil-pops, ballads, talk, ads, IDs. (Alexander, PA) 0915 with M in long talks, ID, several anmts and cow mooing SFX at 0938. (D'Angelo, PA)

Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication! (Over 440 shortwave broadcast station logs were processed this month!) Why not join the fun and add your name to the list of G.I.G. reporters? Send your logs to Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

**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.*

Another 6925 pirate QSL from D'Angelo for an April reception.

Radio Educacao Rural, Tefe, 4925.2 with partial ID at 0930. (Wilkner, FL)

Radio Brazil Central, Goiania, 4985 at 0000 good local evenings but weak at 0930. (Wilkner, FL) 11815 at 0145, but poor with songs. (Ronda, OK)

Voz Missionaria, 5940 at 0147 with M hosting music pgm and a shouted ID at 0208. (D'Angelo, PA)

Super Radio Deus e Amor, 6120 with preacher and inspirational music. Better on //6060, 9565 and 11765. (Alexander, PA) 11765 with talks at 2250. (Brossell, WI)

Radio 9 de Julho (t) 9820 with possible sign on at 0030 and into apparent religious pgm. (Sellers, BC)

Radio Bandeirantes, Sao Paulo, 11925 with lively songs at 0134. (Ronda, OK)

Radio Inconfidencia, Belo Horizonte, 15191.4 at 2245-2310 with ballads, talk. IDs at 2300 and 2310. Not usually this far off frequency. (Alexander, PA)

CANADA—Bible Voice Broadcasting, 21460 via Wertachtal at *1500 with M opening EE pgm f/by a preacher. (D'Angelo, PA)

CFRX, Toronto, 6070 at 1720 with the *Roger Capital* show. (Maxant, WV)

CFVP, Calgary, 6030 at 2338 with country classics, some QRM from co-channel Radio Marti. (Sellers, BC)

CHU, Ottawa, 7850 with FF time anmts at 1710. (Maxant, WV) 14670 with FF/EE time anmts at 0016. (Sellers, BC)

CHAD—Radio Nacional Tchadienne, 6165 2145 with a variety of African hi-life selections, Afro-pops, Euro pops and ballads. Then local drums at 2200, FF and vernacular talk. Still hearable under Radio Nederland after their 2359 sign on. (Alexander, PA) 2247-2254* with non-stop hi-life vocals until the carrier was suddenly terminated. (D'Angelo, PA)

CHINA—China Radio International, 5960 via Albania at 2108 on Australia's food supply. (Fraser, ME) 6020 with news at 0600. (Cameron, MI) 6115 via Canada at 0630. (Goodman, IA) 7345 via Albania in (l) Serbian at 1233; 7440, Nanning in CC at 1237; 9540, Beijing in (l) Cantonese at 1150; 9600, Kashi in CC at 1243; 9745, Urumqi in (l) Esperanto at 2009; 11640 in CC at 1255; 13580, Urumqi in RR at 1634 and; 15205 in FF at 1248. (Brossell, WI) 9675, Kashi in EE to Europe at 0107; 15785, Xi'an at 0452. (Sellers, BC) 13710, Kashi with M/W and EE talks. (Coady, ON)

China National Radio/CPBS: Xinjiang PBS, Urumqi (p), 4850 at 2350-0006 with Southeast Asian music. Presumed ID by W, talks by M. Unreadable by 0007 and virtually gone by 0015. (Rippel, VA) CPBS, Beijing, 7290 in CC at 1225; 7235, Jinhua in JJ at 1230. (Brossell, WI)

Firedrake music jammer, 11560 at 1253. No idea as to the jamming target. (Brossell, WI)

COLOMBIA—La Voz de su Concencia, Puerto Lleras, 6010.1 at 1030 with EE religious talk with SS translations. (Alexander, PA)

Alcaravan Radio, Puerto Lleras, 5910 in SS with LA music at 0520. (Goodman, IA)

CROATIA—Voice of Croatia, 3985, //7375 (via Germany) at 0200 with brief tones interrupting music and W with ID in Croatian and M with EE ID. (Coady, ON)

CUBA—Radio Havana Cuba, 6050 at 0128 with EE propaganda. (Cameron, MI) 6125 at 0601 with W and EE ID, f/by *This Date in History. (Wood, TN)* 11760 in EE at 2050. (Fraser, ME)

CYPRUS—Cyprus Broadcasting Corp., 5925 (nf) at *2216-2244 opening with local music and Greek anmts. Seems irregular on this frequency. Scheduled Fri-Sun only and //7290/ 9760, 7220 at 2215-2245 was having transmitter problems. Carrier was strong but there was no programming. (Alexander, PA)

DJIBOUTI—Radio Djibouti, 4780 at *0318 abrupt sign on with AA talk and indigenous vocals. (Alexander, PA) Good at 0322. (Wilkner, FL) 0330 in AA with news/commentary in AA. (Rippel, VA)

ECUADOR—Radio Oriental, Tena, 4781.5 at *1102 with ID by M with music and some modulation problems, faded out by 1117. (Wilkner, FL)

EGYPT—Radio Cairo, 6270 with talks in AA at 2316. (Brossell, WI) 9315 at 0244 with W talking about Koran verses. (Coady, ON)

ENGLAND—BBC, 3255 via South Africa with M presenting news at 0404 and 6190 via South Africa at 0451 with *Network Africa*. (Sellers, BC) 9410, Oman Relay at 0134 with *World Business Report* at 0134; and 12035 Cyprus Relay with *Network Africa*. (Coady, ON) 9750 with various news reports at 0325. (Miller, GA) 17795, Skelton at 1950 reporting on Iran war. (Brossell, WI)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 heard at *0536 sign on with SS talk. Weak and poor in noisy conditions. (Alexander, PA)

Radio Africa, Bata, 15190 at 1939 with a laid-back U.S. preacher and W offering an occasional "Amen." Then OC from 1955 to 2003, brief trumpet sounds and off. Lately seems to be quite erratic. (Alexander, PA)

ERITREA—Voice of the Broad Masses – 2nd Program, 7175 in AA at *0256 sign on with IS, vernacular talk, HOA music. (Alexander, PA) 0318 with OA traditional vocals and lively AA vocals. M with apparent AA news at 0330. (Coady, ON) 7205 with Program One at 0312 in (l) Tigrinya with HOA vocals, brief talk. (Coady, ON) 9720 Program 1, //7175 at *0256 sign on with IS, vernacular talk at 0300. (Alexander, PA)

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 prize winner is **Robert Wilkner**, Pompano Beach, Florida, who collects a copy of *Joe Carr's Loop Antenna Handbook* from Universal Radio. The book is subtitled "Your Guide to Small Loop Antennas for Transmitting and Receiving." Universal Radio is your prime source for radio receivers, antennas and all the associated equipment, not to mention stacks and stacks of books — all accompanied by fast, friendly and knowledgeable service. Check out their website <www.universal-radio.com> or call them at (614)-866-4267 and request a copy of their giant, free book-length catalog. Universal is my source for all my radio hobby stuff. Make them yours, too.

Voice of Mongolia QSL'd D'Angelo for reception on 12085 for a report to this new email address: <vomon@yahoo.com>.

ETHIOPIA—Radio Ethiopia, 9705 at 2040 with HOA folk music, Amharic talk. Off with NA at 2101. (Alexander, PA)

Radio Oromiya, 6030 seemed to pop up through the Radio Marti jammer around 0420. Seemed NA, f/by M in (p) Oromo. (D'Angelo, PA)

FRANCE—Radio France International, 11700 in FF at 0600 with time pips and talks. (Goodman, IA)

GERMANY—Deutsche Welle, 9655 Rwanda Relay at 2011 on Somalia and 12070 at 1911 on life in Sudan. (Brossell, WI) 11800 Rwanda at 0505 on negotiations in Nigeria. (Goodman, IA)

GREECE—Voice of Greece, 9420 in Greek ending a sports event at 2102. (Fraser, ME) 15630 in Greek with p-b-p sports at 2040. (Goodman, IA)

GUATEMALA—Radio Verdad, Chiquimula, 4055 at 0424 with EE preacher. Seems to have more EE, per recent logs. (Wilkner, FL) 0506 with EE preacher. (Sellers, BC)

GUAM—Adventist World Radio/KSDA, 12105 in Mandarin at 1300 with ID as "This is the Voice of Hope" and into Mandarin. (Sellers, BC)

GUYANA—Voice of Guyana, 3290 at 0339 with M in EE hosting vocals. ID and news on the hour. (D'Angelo, PA) 0422 with BBCWS relay. (Ronda, OK) 0900 with ID and Brubeck's "Take Five" which they often play. (Wilkner, FL)

HONDURAS—Radio Luz y Vida, San Luis, 3250 at 0140, lately with much weaker signal. (Wilkner, FL)

INDIA—All India Radio, 4920, Chennai at 0109, seemed //5010. Presumed in listed Tami. Very poor. 4950, Srinagar (Kashmir). 0115 with carrier, AIR IS began at 0119, chorus at 0120, 0121 W talk, too weak to ID language; 5010, Thiruvananthapuram at 0103 in (p) Malayan with possible news; 9690, Bangaluru ending EE news at 1409; //13710, 11620 at 0044 with W giving schedule, ID and into news headlines. (Sellers, BC) 9445 at 2200 with newscast. (Miller, GA) 9445, Bangaluru at 1940 on exports to China. Also 11670 with ID for General Overseas Service at 1820. (Maxant, WV) 2122 with W hosting EE features pgm, //11670. (D'Angelo, PA) 9870, Bangaluru in (l) Hindi at 1250; 11670, Bangaluru in talks in (l) Hindi at 2014; and 15175 in (l) Gujurati at 1533. (Brossell, WI) 11740, Panaji (Goa), at 0057 in (l) Sinhalese with local vocals and M with talk. (Coady, ON) 11985 in Sinhala with local pops to 0115 close. (Goodman, IA) 7270, Chennai at 1120 with songs in (l) Tamil, off at 1215; 11620, Bangaluru with songs in Urdu at 0156. (Ronda, OK)

In Times Past

Here's your "blast from the past" for this month: Voz Resistencia do Galo Negro (Voice of the Resistance of the Black Cockerel), on 7090, the anti-Angolan clandestine broadcasting in PP at 2043 on December 7, 1995.

INDONESIA—Radio Republic Indonesia, Palangkaraya (Kalimantan), 3325 in II at 1242 with II pops, RRI, Kendari, (Sulawesi), 3395 at 1238 with possible news in II, RRI-Wamena (Irian Jaya) at 1155 with western pops, probable news at 1200. (Sellers, BC)

Voice of Indonesia, 9526 with W and EE news at 1305. (Sellers, BC)

IRAN—Islamic Republic of Iran Broadcasting, 6165 at 2110 with talks in (l) Albanian. (Brossell, WI) 9540 at 1930-2030, //11750 with mid-eastern music and EE commentary. (Rippel, VA)

ISRAEL—Kol Israel, 15760 at 1508 in (l) Farsi for Iran. (Brossell, WI)

Galei Zahal, 6973 at 2140 with HH talk, pops, electronic SFX and sirens, //15785, both in USB mode. 15785 at 2235 with local pops. HH talks. And, 15850 (ex-15785) at 2250 with local pops and HH talks. (Alexander, PA)

ITALY—Italian Radio Relay Service, 15700 via Romania carrying Brother Stair at 1620. IRRS ID, contact info and another preacher. This is listed for Saturdays only. (Alexander, PA)

JAPAN—NHK World Radio Japan, 5975 via England with world news at 0505, 6195 in SS at 0415, JJ language lesson at 0425 and 11715 in RR at 0535. Off at 0600. (Goodman, IA) 6185 in RR at 1135, 15445 via Germany in JJ at 1848. (Brossell, WI) 11695 via Uzbekistan at 1006 with M/W and EE news, 11705 via Palau at 1400 with ID and news and 11970 via France with IS and news at 0500 sign on. (Sellers, BC)

KUWAIT—Radio Kuwait, 15540 at 1840 with women talking about peace in the Islamic world. (Maxant, WV) 1940 with an EE cultural feature, f/by continuous pop and rap. Off without anmt at 2046. (D'Angelo, PA) 1944 with pgm on Islam. (Brossell, WI) 2100 closing with freq anmt and NA. (Miller, GA)

LIBYA—Radio Television Libya, 11600 at 1715-1804* with FF talk, light instls and FF ballads, IDs. Irregular. (Alexander, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0228 with IS, choral anthem, opening anmts at 0231, Malagasy talk, local chorals and African music, but Improved to a fair level by 0300. (Alexander, PA) *0230 with musical opening, rooster crow and more talk. W with talk in Malagasy, more rooster crows and music. (D'Angelo, PA)

MALAYSIA—Sarawak FM/Radio TV Malaysia, 9835 at 1425 with Bahasa Malay pop song. W ancr, medley of pop song excerpts, and W phone interview. (Sellers, BC)

MALI—Radio TV Malienne, 5995 at 2345 with local tribal songs, indigenous vocals, talk in unid language. Off at 2400. 9635 at *0758, on with guitar IS f/by flute IS at 0759 and opening FF ID anmts, local vocals at 0801 and vernacular talk. (Alexander, PA)

MAURITANIA—Radio Mauritanie, 7245 at 0108 with talk in FF. (Ronda, OK) 0241 with long W vocal, AA talk by M/W and another Middle Eastern vocal. (D'Angelo, PA)

MEXICO—Radio Mil, Mexico City, 6010 strong in SS at 1015. (Wilkner, FL)

MICRONESIA—The Cross Radio, Pohnpei, 4775.4 at 0913-0955, being noted most mornings at this time. (Wilkner, FL)

MYANMAR—Thazin Radio, 7110 at 1130 with a short chime IS and TC, into talk but with sudden breaks in the transmission. Next day heard at 1204 in (p) Burmese. (Ronda, OK)

NETHERLANDS—Radio Nederland, 11615 via Vatican at 1947 with news headlines, //11655-Madagascar and 15495 via Germany at 1944 with a feature on Radio Dabanga. (Brossell, WI) 11655 Madagascar Relay with M/W and African news at 1830. (Fraser, ME) 15495 via Vatican at 2050 with talk and ID at 2056. (Goodman, IA)

NEW ZEALAND—Radio New Zealand International, 9655 at 1246 with *Dateline Pacific*, QRM from KBS on 9650. (Sellers, BC) 1100 with IS, time pips and ID, news. Also 11725 with *Music 101* pgm featuring Kiwi pops, news at 0700. (Coady, ON) 1925 on rebuilding of Christchurch. (Maxant, WV) 15720 at 0259 with time pips, W in EE f/by news, then into *Dateline Pacific*. (D'Angelo, PA)

NIGER—La Voix du Sahel, 9705 with FF talk, indigenous music, local chants at 2255. Ten second test tone at 2301 and then off. (Alexander, PA)

NIGERIA—Radio Nigeria, Ikorodu, 7255 at 2230-2259* with M

in Hausa hosting music pgm. ID at 2257, f/by closedown anmts and anthem. (D'Angelo, PA)

Voice of Nigeria, 15120 at 1830 on Nigeria being a peaceful country. (Maxant, WV)

NORTH KOREA—Pyongyang People's Broadcasting Station, 3320 in KK at 1243 with M talk in KK. But barely audible. (Sellers, BC)

Voice of Korea, 11710, Kujang at 1334 with usual stuff lauding the Kim family. (Ronda, OK) 13760 at 0101, //15180 with anthem opening their English transmission. (Coady, ON)

OMAN—Radio Sultanate of Oman, 15140 ending EE news at 1438, ID and into western pops. (Sellers, BC) 2125 with Middle Eastern music, AA talks f/by discussion by two W. (Rippel, VA) 15350 in AA at 1850. (Brossell, WI)

OPPOSITION—Democratic Voice of Burma, 11595 via Armenia at 2330-0030* with local music and Burmese talk. (Alexander, PA)

Radio Republica (to Cuba), (p) 5954.2 at 0140 with W in SS and political message and without jamming. (Wilkner, FL) 0156 with M vocal to carrier terminated w/out anmts. Poor. (D'Angelo, PA)

Voice of Oromo Liberation (to Ethiopia), 15170 via Germany at *1600-1630* with vernacular talk, some HOA music. Limited to Sundays only. (Alexander, PA)

Denge Mezopotamia (to Iran), 11530 via Ukraine at *0300 with Kurdish national anthem, Kurdish talk and local music. (Alexander, PA) 0440 in Kurdish with local music. (Goodman, IA)

Radio Biafra London (to Nigeria), 11870 via Germany at 2031-2059* with man in heavily-accented EE with talks about Nigeria, ID at 2045 f/by talks in (p) Igbo. (D'Angelo, PA) 2045-2100 with vernacular talk, off with local African music. Listed for Thursdays and Saturdays. (Alexander, PA)

Anti Imperialist National Democratic Front, (to South Korea), 4557 with M in KK commentary or political talk, //3480. (Sellers, BC)

Radio Voice of the People (to Zimbabwe), 9870 at 0415-0457* with vernacular talk, IDs, into EE. (Alexander, PA)

PAPUA NEW GUINEA—Radio Sandaun, (New Guinea), 3205 steadily improving from 1000. (Wilkner, FL) 1150 with two PNG politicians speaking in parliament, one in EE, the other in Tok Pisin. (Sellers, BC)

Radio Southern Highlands, (Papua), 3275 with mostly Tok Pisin but some EE. Seemed to be a political talk. Not //3205. (Sellers, BC)

Radio Western (New Guinea), 3305 at 1233 in Tok Pisin with PNG pops, M ancr. (Sellers, BC)

PERU—Ondas del Huallaga, Huanuco, 3330 with M in SS, music at 1000-1010. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.5 at 0955 noted under CODAR QRM with music, but slightly drifting. Seems to be irregular, but good that it's back. (Wilkner, FL)

Radio Pacifico, Lima, 4974.8 in SS at 0917 to 0925. (Wilkner, FL)

Radio Libertad de Junin, Junin, 5039.3 with nice music at 1000-1100. (Wilkner, FL)

Radio Tawantinsuyo, Cusco, 6173.9 at 1020 with M in SS. But with co-channel QRM. (Wilkner, FL)

PIRATES—Captain Morgan Shortwave, 6925 at 0144-0150, 0155-0223, 0300-0326, and 2315-2330 mostly with pop/rock, blues, Dick Clark clips. Also, 9650 at 2200. (Alexander, PA) 6925 at 2320-2332 with blues, frequent IDs. (D'Angelo, PA)

Wolverine Radio, 6925u at 0130-0140 with '30s to '50s oldies. Also, 6950u with variety of pop/rock and blues at 0140-0220, also 6950 at 2315-2300 oldies from the '20s to '30s. (Alexander, PA)

Radio Strange Outpost 7, 6899.6 at 2315-2316* with electronic music, coded messages and IDs. Off with "transmission complete" anmt and 6949.9 at 2350-0005* with similar content. (Alexander, PA)

Undercover Radio, 6925u at *0140-0214* with Dr. Benway promising to catch up with QSL replies. Had intermittent computer problems and closed. Then returned minutes later, having solved the problem. (D'Angelo, PA; Zeller, OH) 0330-0345 with rock, ID, email, talk by Dr. Benway and rock. (Alexander, PA)

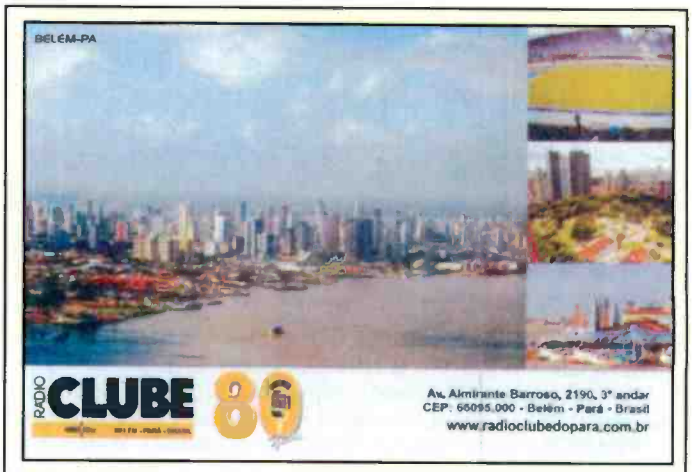
Radio True North, 6950 at 0345 with pop/rock. (Alexander, PA)

Radio Gaga, 6925u at 0045-0105 with pop/rock. (Alexander, PA)

WMPR, 6925 at 0002-0018* with techno and M giving IDs. Closed after the last one. (D'Angelo, PA) 2350-0005 with IDs and techno things. (Alexander, PA)

Radio Ronin Sortwave, 0004-0049* with ancr Henry Sheppard and usual assortment of classic rock with IDs and <radioroninshortwave@gmail.com>, also gave the Belfast postal address. (D'Angelo, PA) *0226 with rolling Stones, variety of rock and G-mail address. (Zeller, OH) 2300-2325 with rock. (Alexander, PA)

Red Mercury Labs, 6925u at 0140-0220 with rock and report



5A.

5B.

5C.

Bob Brossell was happy to get this QSL from Radio Clube do Para (4885) is celebrating 80 years on the air. It was Brazil's fourth radio station.

Not many heard or QSL'd AFAN at McMurdo Station, Antarctica. John Miller (GA) was one of the few.

acknowledgments. Also heard at 0200-0230 with rock, DJ chatter and 0230-0240 with Johnny Cash songs. (Alexander, PA) 0343-0440 with pop/rock. Email as <redmercurylabs@yahoo.com>. (D'Angelo, PA)

Rave On Radio, 6925u at 0025-0043 with Bob Dylan things. (Alexander, PA)

Radio Azteca, 6925 at 0330-0420 with rock, talk by two men discussing traffic, possible ID and email. Later with jazz music. (D'Angelo, PA)

Radio Vixen International, 6925 at *0052-0112* after Ronin closed with "Little Sister" opening, several IDs by W. Email ancd at close was: <radiovixeninternational@gmail.com>. (D'Angelo, PA)

Radio Free Mars, 6950 at 0100-0115 with Elton John things, IDs and news parodies. (Alexander, PA) 0114-0131, also with David Bowie and Ground Control. ID at close. (D'Angelo, PA)

Northwoods Radio, 6925u at 0000-0036* with variety of pop, rock, oldies and country. IDs, shoutouts, email, call of the Loon. (Alexander, PA) *2354-0036 rock/country. <northwoodsradio@gmail.com> for reports. (Zeller, OH)

Radio Mushroom, 6925u at 2342-2344*ending pgm of rock, several IDs and closedown anmts. Reports to <radiomushroom@gmail.com>. (D'Angelo, PA)

Bust-a-Nut Radio, 6940 at 0110-0217 with frequent IDs mentioning "playing the hits." (D'Angelo, PA)

Renegade Radio, 6925u at 1525-1546 with lite instrumental music, then rock and email address at 1515. Weak in noise. (Alexander, PA)

Hot Legs Radio, 6925 at 2340-0010 with music from James Bond movies and pops. (Alexander, PA)

WBNY, 6925 at *2338-2350 with pgm about Dead Friday, dead monkeys. Otherwise rock things. (Zeller, OH)

KIPM, 6925u at *0251 with an Alan Maxwell radio drama. ID as KIPM and Voice of the Illuminati. Gave the Elkhorn address. (Box 69). (Alexander, PA)

XFM, 6950 at 0149-0220 with rock, email, shutouts. Poor. (Alexander, PA)

Radio Appalachia, 6935 at 0123-0150 with bluegrass and ID as "Free Voice of the Ohio Valley, broadcasting from high above Moundsville, West Virginia." (Alexander, PA)

EUROPEAN PIRATES—Spaceshuttle Radio, 15840-45 at 1315, 1405 and 1655-1807* variously with pops, *World of Radio* pgm, techno-pop dance things. Email as: <spaceshuttleradio@yahoo.com>. Improved to a good level around 1745. (Alexander, PA)

Radio Spaceman, 6295 at 2315 with wide variety of pops, country, dance, rock and local folk. Said was from the Netherlands. (Alexander, PA) 2357-0043* with M in EE thanking U.S. listeners for tuning in, rock selections. (D'Angelo, PA)

Cupid Radio, 15070.2 at 1545 with ID and dance music. Also 21460.2v at 1440-1520 with pops, dance things, ID as "Cupid Radio from the Netherlands." (Alexander, PA)

Radio Mustang, 15020 at 1419 and 1440 with pops and dance things. (Alexander, PA)

TRX Radio, 6305 at 2300-2330 with country songs. Weak, but readable. (Alexander, PA)

Fox 48, 6936u at 0010-0045* with rock and ID. Weak, but fair on peaks. (Alexander, PA)

Radio Flying Dutchman, 6299.6 at 0110-0123* with pops, IDs. (Alexander, PA)

PHILIPPINES—Radio Veritas Asia, 9615 in CC at 1151. Full EE ID at 1159. (Brossell, WI)

ROMANIA—Radio Romania International, 6015 at 2320 on women leaders in the EU and a talk on forests in Romania. (D'Angelo, PA) 6030 with news in FF at 2100, 11970 in (l) Romanian at 1933 and the same on 15195 at 1245. (Brossell, WI) 9700 at 0005 with talks. (Cameron, MI) 11940 on the Euro at 2025. (Maxant, WV)

RUSSIA—Voice of Russia, 4975 via Tajikistan in Pashto/Dari at 1338. Very poor to poor, //11500. (Sellers, BC) 7250 via Armenia with religious news at 2110. (Fraser, ME) 9665 at 2305 in RR. (Cameron, MI) 0150 with ID on helping developing nations, 9800 at 0108 on world financial structures and 12030, Petropavlovak with world news at 0520. (Goodman, IA) 15465, Moscow in FF at 1942. (Brossell, WI)

SAO TOME—Voice of America Relay, 4960 at 0417 on Tuareg rebellion in Mali, //9855, Botswana. (Sellers, BC)

SERBIA—International Radio of Serbia, 9685 via Bijeljina (Bosnia), at 0032-0059 with news in EE then ID, music and features until closedown at 0058. (D'Angelo, PA)

SEYCHELLES—BBC Indian Ocean Relay, Mahe, 9750 at 0306. (Coady, ON) 2219 with EE features. (D'Angelo, PA)

SINGAPORE—BBC Far Eastern Relay, 15335 at 0101 with news, then W with *Your World* at 0106. (Coady, ON) 15470 in Urdu at 1505. (Brossell, WI)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corp., 5019.9 at 1030 using lsb with Havana's signal down. (Wilkner, FL)

SOUTH AFRICA—Channel Africa, 3345 at 0409 with news and 7230 at 0503 with M/W doing news. (Sellers, BC)

Radio Sonder Grense (p), 3320 at 0434 in Afrikaans with news. (Sellers, BC)

TWR, 7215 repeating IS and ID "You are tuned to Trans World Radio," then into Amharic at 0030. (Coady, ON) 0345 with songs and talk in Amharic, EE ID at 0345 and off, per sked. (Ronda, OK)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay, at 0319 with long talk in SS. Time pips at 0330. (D'Angelo, PA)

SRI LANKA—Sri Lanka Broadcasting Corp., 11905 at 0051 in Hindi with songs, W ancr between. (Sellers, BC)

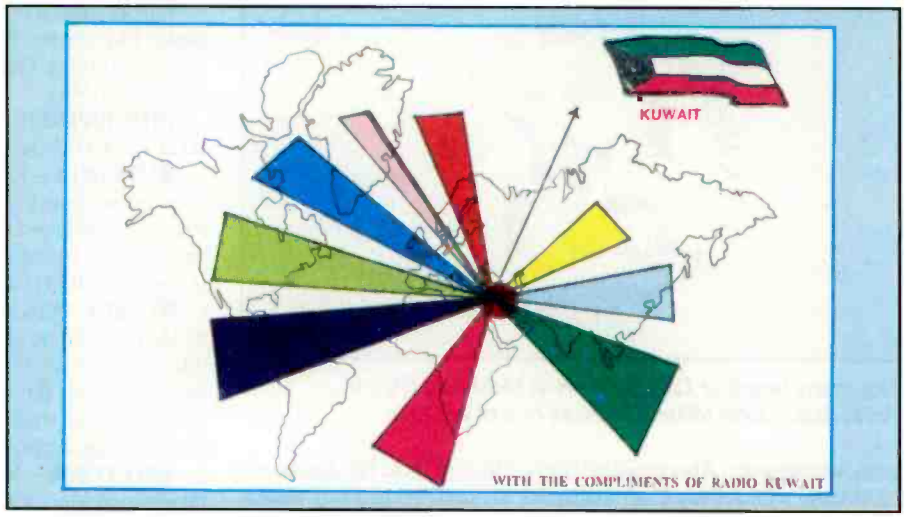
SUDAN—Sudan Radio TV/Radio Omdurman, 7200 in AA at 0332 with local vocals, man talk, more vocals and back to talk at 0335. (Coady, ON)

SURINAME—Radio Apinte (t), Paramaribo, 4990 weak at 0900, also at 0140. (Wilkner, FL)

SWAZILAND—TWR, 9500 at 0530 with ID, into *The Word Today* pgm. (Sellers, BC)

Remember Radio Luxembourg on 6090 back in the mid-80s? Here's their QSL featuring their announce staff. *(Courtesy of John Miller)*

Miller also got a QSL from Radio Berlin International on 9620 back in 1988.



John Miller received this folder QSL from Radio Kuwait on 9665 back in 1989.

TAIWAN—Radio Taiwan International, 5950 (via FL – gld) and two W hosts with M at 0225. (Cameron, IL) 15360 via Dhabbaya (UAE), in FF at 1935 and slowly improving by 1942. Off at 2000. (Ronda, OK) 15690 at 1730 about a trip to Jordan. (Maxant, WV)

THAILAND—Radio Thailand, 5875 fair at 1116 with EE ID and into Cambodian. (Ronda, OK) 15275 at 0000 with EE service opening with M/W ID'ing. (Sellers, BC) 0200 with IS, oriental fanfare and ID. (Coady, ON)

TUNISIA—RTV Tunisienne, 72275, Sfax at 0505 in AA with comments about the Middle East music being played. (Wood, TN) 12005 at 1935 in AA. (Brossell, WI)

TURKEY—Voice of Turkey, 6165 at 0253 with OC, then IS loops, W with ID from 0256 until killed by Radio Nederland sign on at 0259. (Anderson, PA) 9700 in SS at 0116 and in TT at 0540. (Goodman, IA) 15520 at 1715 on future pgms, times, frequencies. (Maxant, WV)

UNITED STATES—VOA, 7340 Kuwait Relay at 0132 with news. (Coady, ON) 9855 Sri Lanka Relay at 0000 with ID, W in Tibetan. (Coady, ON) 11860 via South Africa at 2055 in (l) Hausa.//11885 Sao Tome. (Brossell, WI) VOA Deewa Radio, 11895 Sri Lanka Relay in Pashto at 0114. (Goodman, IA) 15580 at 2120 with pgm of country hits. (Miller, GA)

Radio Free Asia, 9905 Northern Marianas Relay at 1950 in CC. (Brossell, WI) 12140 Northern Marianas in Burmese opening at 1330. (Sellers, BC)

Radio Farda, 9760 Lampertheim Relay, in Farsi from 0258-0345 with ME vocals, news at 0301. (D'Angelo, PA) 0445 in Farsi at 0502. (Goodman, IA)

Family Radio, 11665 via Ascension at 1955 with talks in (l) Yorba. Web address and ID at 1958, 15160 via Germany in (l) Oromo at 1625. (Brossell, WI)

Adventist World Radio, 11750 in (l) Ibo at 1952 and 15480 via South Africa in AA at 1950. (Brossell, WI)

WWCR, Tennessee, 6875 at 0000. (Cameron, MI)

Sudan Radio Service, 17745 via England with EE ID, contact info and news at 1631. (Coady, ON)

WBAP, Dallas STL, 25910 at 2146 with Shaun Hannity pgm including several IDs during breaks. (D'Angelo, PA)

VATICAN—Vatican Radio, 6075 at 2140 in AA with IDs, sign on and into talk. (Fraser, ME) 9645 in EE at 0501, //7250. (Sellers, BC) 0505 with prayer and a religious talk. (Goodman, IA) 9660 at 2015 on the Pope's visits to Mexico and Cuba. (Maxant, WV) 11730 via Uzbekistan in (l) Malaysian at 0148. (Ronda, OK) 0100 in Hindi. (Coady, ON) 15470 in PP at 0050. Into SS at 0100. (Goodman, IA)

YEMEN—Republic of Yemen Radio, 6135 in AA at 0547 on Nigeria. (Wood, TN)

ZAMBIA—Zambia National Broadcasting, 5915 at *0249 with Fisheagle IS, choral anthem. Thought it was a man talking but it was way down in the mud and lost when Iran opened at 0300. (D'Angelo, PA) ZNBC/Radio One, 0425 with African-sounding music, 0430 M in vernacular. Very noisy and very poor. (Sellers, BC)

CVC-One Africa, 4965 at 0420 in vernacular language. (Sellers, BC)

And that's the lot for this time! Thanks and huge high fives to the following who manned the knobs this month: Mark Coady, Peterborough, ON; Rich D'Angelo, Wyomissing, PA; Brian Alexander, Mechanicsburg, PA; Charles Maxant, Hinton, WV; Jim Ronda, Tulsa, OK; Robert Wilkner, Pompano Beach, FL; John Miller, Ochlochnee, GA; Harold Sellers, Vernon, BC; George Zeller, Cleveland, OH; Joel Goodman, Stanwood, IA; Robert Brossell, Pewaukee, WI; Robert Fraser, Belfast, ME; Joe Wood, Greenback, TN; and Dan Cameron, Whitehall, MI.

readers' market

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TWO NOVELS involving ham radio: Full Circle and Frozen in Time, by N4XX. Visit <http://www.theodore-cohen-novels.com/>

SuperBertha.com ULTIMATE LONG BOOM OWA YAGIS: Designed by WA3FET and K3LR. Scott W3TX. 814-881-9258.

COMMUNICATIONS MONITORING ANTENNAS, HF/VHF/UHF Super Discone $49.75. AntennaCraft Scantenna $47.70. 30–1200 MHz. 4–12 dB Log Periodic $69.50. 806–900 MHz. 13 dB 9 element Yagi $74.00. MURS/GMRS Dual Band Base $48.95. All prices **INCLUDE** Priority S&H&I. See these antennas plus many, many more for Amateur, Business, CB, and Monitoring radio, plus cellular phone antennas on the web at: **www.antennawarehouse.com** MC/Visa Order line 877-680-7818. To help maintain our low pricing, we do not print catalogs.

FOR SALE - DRAKE TR-7/TR-7A/R-7/R-7A Service kit. Includes 13 Extender Boards and Digital Jumper Card. $64.95 includes postage. See http://wb4hfn.com/Services/W7AVK/tr7ext2.htm Bob W7AVK, 5581 Panorama Drive, Moses Lake, WA 98837, w7avk@arrl.net, 509-750-7589.

SuperBertha.com CUSTOM ROTATING POLES: No guy wires, entire pole rotates, stack all your antennas, rotor at ground level, 50ft to 300ft high, EIA-TIA-222-G. Starting at $37,799.00. Scott W3TX, 814-881-9258.

ADVERTISERS' INDEX

Reach this dynamic audience with your advertising message, contact Chip Margelli at 405-ADS-CQCQ (405-237-2727), FAX 714-895-3714, or e-mail: advertising@popular-communications.com.

'I Know Gordon West. Gordon West is a Friend of Mine. Call me Gordo.'

by Bill Price, N3AVY
<chrodoc@gmail.com>

"I've always defined a tire as a tire so long as it is reasonably round and holds air for at least the time it takes me to get to work."

It was great to see Gordon West, WPC6NOA, on the cover of April's *Pop'Comm*. It's been a long time since my friend Norm introduced me to Gordo at the Dayton Hamvention®. I should let him know that we share the same nickname now, although the only people who call me Gordo are my Spanish-speaking friends. I'll leave that for you to figure out, but it's not flattering. ***(HINT:*** *<http://anse.rs/LBzpTl>. – N3AVY.)*

Things have been quiet here in Cowfield County. We seemed to skip winter last year, which was financially a good thing but the air-conditioning season is upon us and I'm still trying to work some voodoo and put a hex on my electric meter to make it run slower. Maybe if I take it out and put it in upside down, it'll run backwards and they'll pay *me* every month.

Frugal has always been an applicable adjective for most of the hams I know. My friend David G. is the exception. He actually *buys* a piece of coax or some connectors when he needs them, rather than watching various dumpsters during key remodeling at various electronics sites.

I was recently working at one of our transmitter sites with a shared tower, and the amount of good, useful hardware that can be picked up off the ground free for the taking is breathtaking — if that's your idea of a good time.

I have a pair of those *cargo pants* with about six big pockets. After just a few minutes picking through the gravel, my suspenders were stretched to near the breaking point as I walked back to my car to unload my treasures and go back for more.

There had been a recent major overhaul at that particular tower, and the crews don't normally climb down to retrieve every nut and bolt they drop.

Along the road to frugality, you might see my car passing you as you're watching the world go by. It's got enough miles on it now to have driven about 10 times around the world, and still ticking — especially the valves — but clean living and at least one oil change a year has kept it going strong. I've always defined a tire as a tire so long as it is reasonably round and holds air for at least the time it takes me to get to work. I might leave home without one of my credit cards, but I never leave home without my compressor.

Now that my favorite radio station has begun *simulcasting,* (a phrase from the past) on both AM and FM, I'm no longer forced to sit through AM noise from power lines and the computers which control both traffic signals and the drive-through order-taking systems at most of the restaurants I patronize. I only have to switch from AM to FM if the signal gets too noisy, or back to AM if I'm a little too far from the transmitter.

I figure that so long as the radio in this car holds out, I'm going to continue to drive it — or sit by the side of the road waiting for my roadside-assistance organization to send a tow truck. They have recently complained that I use the towing service more than any other member. It's a sure sign that I'm getting my money's worth on my membership.

I always keep an open invitation to Norm and Beezer to drop in on any of their trips that take them near Cowfield County, but Beezer is now working much more locally to his home than before, and Norm made the trip from south to north earlier than expected. I think he had to evict a few tenants into a snow bank or whatever it is that landlords have to do once in a while.

I hear his tower is being repaired. It no longer lists to one side where the furniture truck — driven by some hippie — put a kink in his guy line. His beam had been aiming at his choice of: **A.** The moon, or **B.** The top of his neighbor' chimney. He's now back to working the *great-circle* paths around the world.

Norm says his heart is doing fine. That's a good thing. A lot of people say Norm is *all* heart, and having it go bad on him would be like a giraffe having a sore throat. David G. keeps on wiring and repairing those hair-thin wires that make up the studio headphones and the like, and my feeble memory is now down to about 2 megs . . . and shrinking. I have some things to mail out to a few readers who are waiting patiently. Maybe when I get this issue in the mail it'll remind me.

AR5001D Wide Coverage Professional Grade Communications Receiver

The Legend Lives On!

The AR5001D delivers amazing performance in terms of accuracy, sensitivity and speed.

Available in both professional and consumer versions, the AR5001D features wide frequency coverage from 40 KHz to 3.15 GHz, with no interruptions. Developed to meet the monitoring needs of security professionals and government agencies, the AR5001D can be controlled through a PC running Windows XP or higher. Up to three channels can be monitored simultaneously. Fast Fourier Transform algorithms provide a very fast and high level of signal processing, allowing the receiver to scan through large frequency segments quickly and accurately. AR5001D standard features include storage of up to 2000 frequencies, 45 MHz IF digital signal processing, direct digital sampling, a high performance analog RF front-end, a DDS local oscillator and advanced signal detection capabilities which can detect hidden transmitters. With its popular analog signal meter and large easy-to-read digital spectrum display, the AR5001D is destined to become the choice of federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.*

Discover the next generation in AOR's legendary line of professional grade desktop communications receivers.

- Multimode receives AM, wide and narrow FM, upper and lower sideband and CW
- Up to 2000 alphanumeric memories (50 channels X 40 banks) can be stored
- Analog S-meter
- Fast Fourier Transform algorithms
- Operated by a Windows XP or higher computer through a USB interface using a prov ded software package that controls all of the receiver's functions
- An SD memory card port can be used to store recorded audio
- Analog composite video output connector
- CTCSS and DCS squelch operation
- Two selectable Type N antenna input ports
- Adjustable analog 45 MHz IF output with 15 MHz bandwidth
- Triple-conversion receiver exhibits excellent sensitivity
- Powered by 12 volts DC (AC Adapter included), it can be operated as a base or mobile unit
- Professional (government) version is equipped with a standard voice-inversion monitoring feature

Add to the capabilities of the AR5001D with options:

- Optional APCO-25 decoder
- Optional LAN interface unit enables control via the internet
- Optional I/Q output port allows capture of up to 1 MHz onto a computer hard drive or external storage device
- Optional AR-I/Q Windows software facilitates the easy storage and playback of transmissions captured within the selected spectrum in conventional modes, or, signals can be subjected to further analysis
- Optional GPS board can be used for an accurate time base and for time stamping digital I/Q data

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Cellular blocked for US consumer version. Unblocked version available to qualified purchasers with documentation. Specifications subject to change without notice or obligation

AIRWAVE SUPERIORITY

Never before has a compact HT offered as many features, and such high powered performance as the TH-F6A. Arm yourself with one today and gain your own airwave superiority.

- Triband 144/220/440 MHz all at 5W
- Receives 2 frequencies simultaneously even on the same band
- 0.1~1300MHz high-frequency range RX (B band)[1]
- FM/FM-W/FM-N/AM plus SSB/CW receive
- Bar antenna for receiving AM broadcasts
- Special weather channel RX mode
- 435 memory channels, multiple scan functions
- 7.4V 2000mAh lithium-ion battery (std.) for high output[2] and extended operation
- 16-key pad plus multi-scroll key for easy operation
- Built-in charging circuitry for battery recharge while the unit operates from a DC supply
- Tough construction: meets MIL-STD 810 C/D/E standards for resistance to vibration, shock, humidity and light rain
- Large frequency display for single-band use
- Automatic simplex checker
- Wireless remote control function
- Battery indicator • Internal VOX • MCP software

[1]Note that certain frequencies are unavailable. [2]5W output

TH-F6A
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