

WorldRadio

ONLINE

Year 40, Issue 12

JUNE 2011

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NEWS • FCC • DX • SATELLITES • CONTESTS • HAMFESTS • AERIALS • CW



ARISSat-1 Activated for Gagarin Commemoration

To celebrate the 50th anniversary of the first human space-flight by cosmonaut Yuri Gagarin, the ARISSat-1 satellite aboard the International Space Station was put on the air for three days in April using the station's external antenna.

To preserve the satellite's battery, transmissions cycled on and off, transmitting for 40 to 60 seconds, and then going silent for two minutes.

The FM transmissions on 145.950 MHz alternated between a voice ID, telemetry values, SSTV images and audio greetings in 15 different languages. One of the transmissions contained audio of a conversation between Gagarin and ground controllers that was recorded during the historic flight.

The 50th anniversary of the flight of space pioneer Yuri Gagarin, pictured, was commemorated with the activation of ARISSat-1 aboard the International Space Station in April.
(Courtesy of Wikimedia Commons)



ARISSat-1 was scheduled to be deployed during a February 16 extravehicular activity (EVA). It has since been rescheduled for next month. (See N8KI's *Amateur Satellites* column elsewhere in this edition for more details. Also, check the CQ Newsroom for the latest ARISSat-1 updates < <http://www.CQnewsroom.blogspot.com> > - Ed.) — Southgate ARC

FCC Promises 'More Intuitive User Experience' On Website

The Federal Communications Commission announced on April 6 that it has launched a complete overhaul of its website.

According to an April 6 Commission press release, the new website is "architected with a more intuitive user experience and the addition of Web 2.0 technologies, and improves and simplifies the *FCC.gov* experience for consumers, government, public safety agencies and the business community."

A Beta version of the new site was available for preview at: < <http://beta.fcc.gov/> >.

This is the first major update to the Commission's website in 10 years. — ARRL

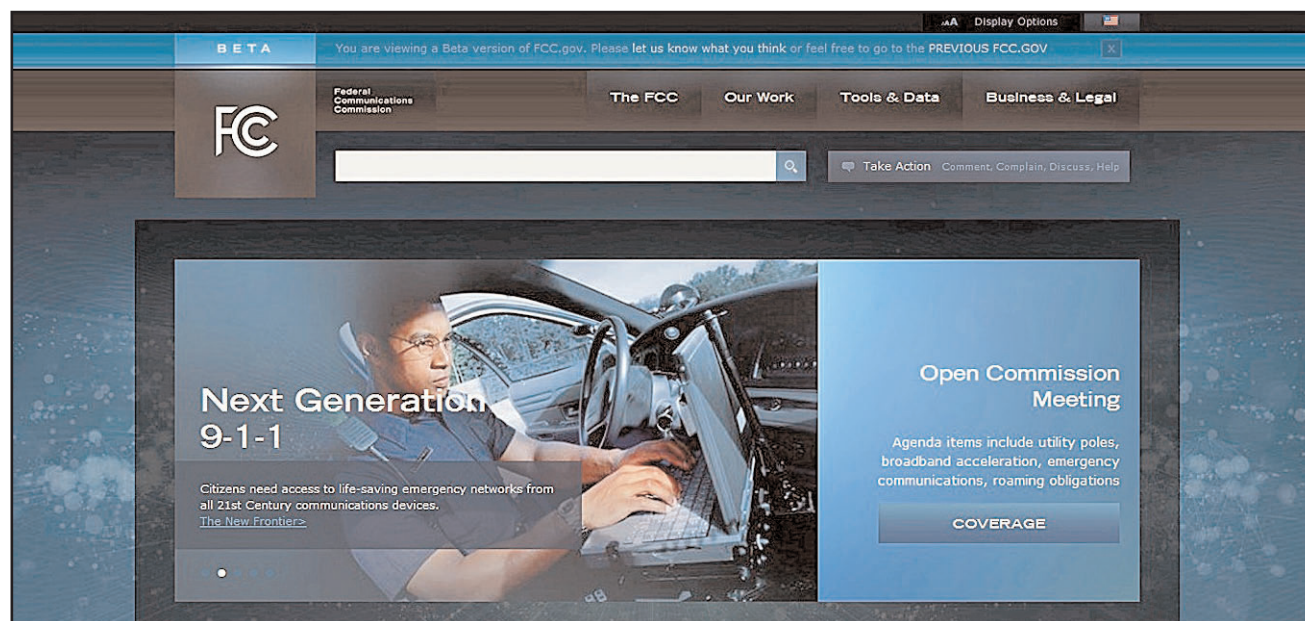
Amateur Radio Convention Activities Slated This Month

There are several local, state and national amateur radio conventions this month:

June 4: The ARRL Atlantic Division Convention, Rochester, New York; ARRL East Bay Section Convention, Berkeley, California; ARRL Georgia State Convention, Marietta, Georgia.

June 10-11: The ARRL National Convention, Plano, Texas.

June 11: The ARRL Tennessee State Convention, Knoxville, Tennessee. — ARRL



The FCC is retooling its website, promising a "more intuitive user experience" for visitors. (Courtesy of FCC)

"The Northwest's Largest Ham Convention"



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Look for updates on our Web Site: www.seapac.org

Missouri Congressman Meets With Hams About H.R. 607

The *Springfield News Leader* newspaper has reported that Missouri U.S. Rep. Billy Long (R-7th District) assured radio amateurs during a constituents meeting he will "keep them informed" about H.R. 607, "a bill that contains a provision to sell a band of frequencies that (hams) use heavily for emergency service work," according to *Amateur Radio Newsline*.

Long is a co-sponsor of the bill, introduced by New York Representative Peter King, chairman of the Committee on Homeland Security.

"The bill is intended to unite the communications capabilities of first responders by reallocating certain frequencies in the 700 MHz band specifically for their use," *ARN* reported. "But another part of the bill would sell off 420 to 440 MHz to the highest bidder" to make up for lost revenue in the giveaway of the 700 MHz spectrum for interoperable, first response radio use.

ARN said Long "promised that he will continue to listen to ensure that we are not cutting any vital emergency services and not adversely affecting ham radio operators." — *Amateur Radio Newsline*

FCC Changes Rules, Forcing Question from Extra Exam Pool

New rules regarding amateur radio Spread-Spectrum communications took effect April 29, prompting the removal of one question in the Extra Class VEC exam pool.

The National Council of Volunteer Examiner Coordinators (NCVEC) advised all VECs and volunteer examiners who

design their own tests to drop question number E1F13 from the Amateur Extra Class question pool. The question deals with the maximum power permitted on amateur radio Spread-Spectrum transmissions, and the FCC has just changed the answer.

The FCC had finally ruled on a petition filed five years ago by the ARRL, agreeing to drop the requirement for automatic power control on Spread Spectrum transmissions, but also dropping the maximum permitted S/S output power from 100- to 10-watts PEP.

The new rule was published in the Federal Register on March 30, meaning that it became effective 30 days later, on April 29. — *CQ Newsroom*

Alleged Pirates Indicted in Deaths of 3 Hams

Thirteen alleged pirates from Somalia and one from Yemen have been indicted by a federal grand jury in Virginia on piracy, kidnapping and firearms charges.

They were captured at sea by the U.S. Navy after allegedly taking over a sailing vessel off the coast of Africa and killing the four crewmembers on board, three of whom were hams. According to *Newsline*, the four had been delivering Bibles around the world. The suspected pirates will stand trial in Norfolk, Virginia.

The radio amateurs were identified as Scott Adam, K9ESO; his wife Jean, KF6RVB; and Bob Riggle, KE7IIV. The fourth person on board the S/V Quest was identified as Phylis Macay, who was not a ham.

The Adams were from the Los Angeles area while Riggle and Macay lived in Seattle. — *CQ Newsroom*

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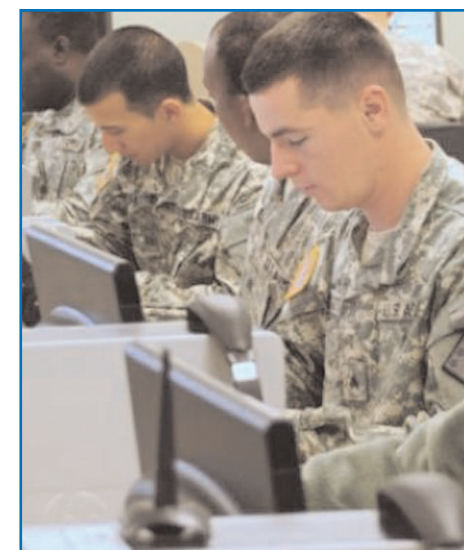
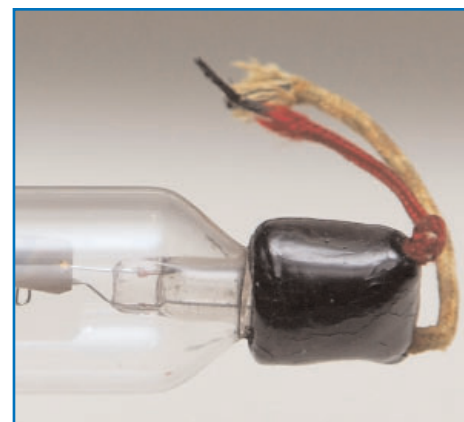
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On the Cover: Keeping your 2011 ARRL Field Day setup simple can reap big benefits on a low-impact excursion to an area park. Find tips on a *Spontaneous Field Day* in this month's Trail-Friendly Radio. (Photo courtesy of KI6SN). **ALSO:** With the Handihams columnist Patrick Tice, WAØTDA, reflects on two decades with the organization. (Photo courtesy of WAØTDA)

Ready for Field Day?

IC-7410 HF/50MHz Transceiver



It's that time again—get your antennas, coax, generators and headsets out for one of the most fun weekends of the year. Break through field day pile-ups with the latest in Icom's HF technology, the IC-7410. A high grade DSP unit and double conversion super-heterodyne system developed for our higher grade IC-7800/7700/7600 series are used. In addition, the IC-7410 comes with a built-in 15kHz 1st IF Filter and can accept up to two optional filters (3kHz/6kHz). This is the all-mode rig of choice for hopping through the bands for any field day enthusiast.

Features:

- Double Conversion Superheterodyne System
- Built-in 15kHz 1st IF Filter (Optional 3kHz/6kHz)
- ±0.5ppm Frequency Stability
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AD/DA Converter
ADC Signal (Noise+Distortion): 100dB
ADC Dynamic Range, S/N: 113dB
DAC Signal (Noise+Distortion): 97dB
DAC Dynamic Range, S/N: 115dB



DSP Unit
ADSP-21369
Internal Clock Speed: 333MHz
32-bit Floating Point DSP
Max. Performance: 2000MFLOPS



Large Heat Sink
Even during long hours of heavy duty use, the IC-7410 provides stable output power.



USB Connector for PC Control
A standard type B USB connector is located on the back panel. Use it to control your IC-7410 via PC.

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From Small Lots Come Big Antenna Expectations

We were only eight minutes into the *WRO Live Online Chat* in April when **Graham Rogers, VK6RO**, noted from Ferndale, Western Australia: "Propagation is improving. Daily openings to Europe and Asia on 10-meters." He's running 100 watts to a two-element Yagi on the Indian Ocean coast.

It's the kind of activity report that can get a chat community jazzed. You could almost hear *Auld Lang Syne* as the group showed propagation Cycle 23 the door.

That might be a *teeny bit* overstated, but it's clear the higher HF bands are getting better. And from the sound of it, young and old operators' fancies are turning to antennas — especially of the DX-working kind and often from the city or the 'burbs.

There was no shortage of antenna performance observation and advice for those feeling the real estate squeeze.

Kerry Miller, WD5ABC, summed it up from Victoria, Texas: "DX from a small lot is tough . . . Maybe a good vertical (would be an option). Propagation is getting better, so that helps a lot."

'ABC recommended that if you're going *vertical*, no matter what kind you use, "put down as many radials as you can." Even short radials are better than none. And, "more short ones are better than a few long ones." Using a quarter-wave vertical on 40 meters," he wrote, "with some top-load wires about two feet each (and just four radials) it wasn't (working) too great. But I'm up to 20 radials now, and the difference (in improved performance) is night and day."

Apparently, a contingent from the *Cushcraft Admiration Society* was on board for the chat, as well.

Bob Allen, WF1M, said he's used a vertical "for some decent DX across the pond" from Plymouth, Massachusetts. It was a Cushcraft R-7, "pretty close to sea level."

VK6RO added that "antennas like the old Cushcraft R-5 with the short counterpoise work well in restricted space — if it is above the roof line."

Ted Luehbers, K1AYZ, has been using "a Cushcraft, R-6000, ground-mounted vertical in my back yard" in Tavares, Florida and "no radials required . . . Worked 141 countries so far with it."

On the other hand, **Harold Adams, W2ACO**, of Parsippany, New Jersey, uses "a Cushcraft, 10-meter mobile (antenna), sitting on an old steel microwave by the front window." He has a 104-inch radial out the window, "and one inside made of ladder line." 'ACO said it hears well, but conditions aren't quite good enough yet for solid two-way contacts.

Then there's **Jack Ciaccia, WMØG**, who revealed, "10 meters is *always open* from my station," in Boulder, Colorado: "Three elements at 170 feet.

"On 10-meters I can get on a dead band and start CQ'ing and before long, stations appear. I have always been in awe of that band." (*No need to rub it in, Jack. — Ed.*)

Despite **WMØG's** monster tower and beam, there is a "small-lot" side to him, as well: "The antenna I have had most publicity on is my RainGuttIR (*read that: RainGutter. — Ed.*). It has had a couple of pages dedicated to it in the latest *RSGB Stealth Antenna* book. You can buy (the book) through *CQ Online Bookstore* < <http://bit.ly/eR1Evt> >."

What if you're cursed with plastic rain gutters? *WRO Looking West* columnist **Bill Pasternak, WA6ITF**, offers this solution: Just run "some insulated copper wire along the PVC gutters. It's easier to get resonant antennas that way."

There were lots of great DX antenna ideas, and as I noted to the group: "*I've loaded up bedsprings before. Where there's a will, there's an antenna.*"

To see the full narrative of April's *WRO Live Online Chat*, visit the *WRO Blog* < <http://www.WorldRadioOnline.blogspot.com> > and click *REPLAY*.

. . . And Don't Miss The Krusty One

If you're grappling with limited-space antenna issues of your own, be sure to see **Kurt N. Sterba's Aerials** this month: *DX Chasing: Suited to a 'T' — Even from a Small Lot*. A great idea for a vertical, prompted by a reader's question.

Meantime, the April chat group made a pact to get on 10 meters between now and our next session. *So, please excuse me while I get that 28-MHz antenna finished. Will keep an ear out for you there.*

— Richard Fisher, K16SN

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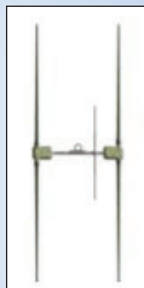
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Which *SteppIR* Product is Best for You?

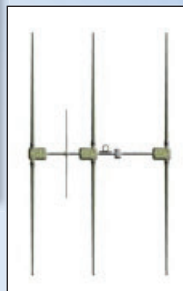
2, 3, and 4 Element Yagis

For the hams who are fortunate enough to have towers in their backyards. Gain and directivity is yours with a SteppIR Yagi.



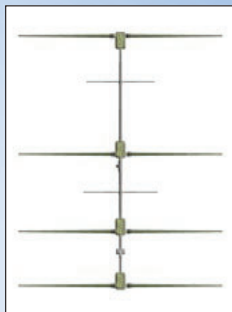
2 Element 20m-6m Yagi

2 element Yagi, 20m-6m continuous coverage; 57" boom, 36 ft longest element, 18.2 ft turning radius, 6 sq ft wind load, 30 lb; SDA 100 controller included.



3 Element Yagi 20m-6m

3 element Yagi, 20m-6m continuous coverage; 16 foot boom, 36 ft longest element, 19.7 ft turning radius, 6.1 sq ft wind load, 51 lb; SDA 100 controller included.

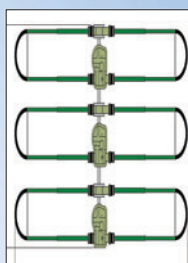


4 Element Yagi 20m-6m

4 element Yagi, 20m-6m continuous coverage; 36 ft longest element, 24.1 ft turning radius, 9.7 sq ft wind load, 99 lb; SDA 100 controller included.

Dream Beam Series Yagi's

The Dream Beam series offers antennas for both space limited Hams as well as the "Big Guns" who have the space and want the very best.

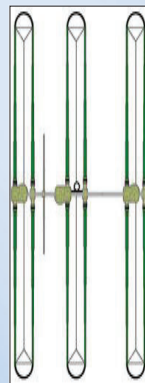


DB11 Yagi Antenna

DB11 Yagi, 18.5 ft element length, 11 ft boom, 10.8 ft turning radius, 61 lb, 5.9 sq ft wind load; 2 active elements on 20m; 3 active elements on 17, 15, 12, 10, 6m.

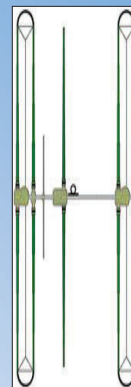
DB18 YAGI

Dreambeam DB18 yagi, 3 el on 20m-6m, 2 el on 40/30m, 18 ft boom; Does not include optional 6m passive element kit; Includes SDA100 controller.



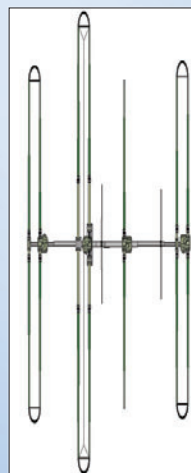
DB18E YAGI

Dreambeam DB18E, 3 el 30m-6m, 2 el 40m, three looped elements, does not include optional 6m passive element kit, 18 foot boom; Includes SDA 100 controller.



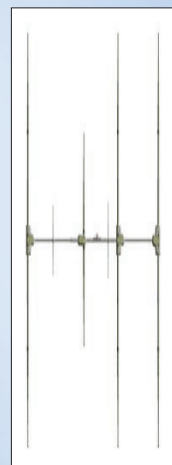
DB36 DreamBeam Yagi, 40m-6m

DreamBeam DB36 4 element Yagi, 40m-6m continuous coverage; 36ft boom, 48 ft longest element, 26 ft turning radius, 17.5 sq ft wind load, 160 lb; SDA 100 controller included.



MonstIR 4 Element Yagi 40m-6m

MonstIR 4 element Yagi, 40m-6m continuous coverage with full length elements; 34ft boom, 70 ft longest element, 39.7 ft turning radius, 23.9 sq ft wind load, 160 lb; SDA 100 controller included.



Vertical and Dipoles

For the ham who may not have a tower, but a tree or two for a dipole. SteppIR verticals work great when there are no tall structures around to hang some wire. And, the low take-off angle can be your friend.



BigIR Vertical Antenna, 40m-6m

BigIR vertical antenna, 40m-6m continuous coverage, 32 ft length, 15 lb total weight, 2 sq ft wind load; EIA 222C wind rating when guyed; Comes with SDA 100 controller and 1.5" mounting pole; Does not include optional 80m coil.



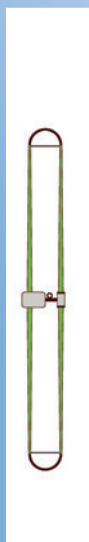
SmallIR Vertical Antenna 20m-6m

20m-6m continuous coverage, 18 ft total length, 12 lb weight, 1 sq ft wind load; EIA-222C wind rating without guys.



20m-6m Dipole

20m-6m continuous coverage dipole; 36 ft element length; Comes with SDA 100 controller.



40m-6m Loop Dipole

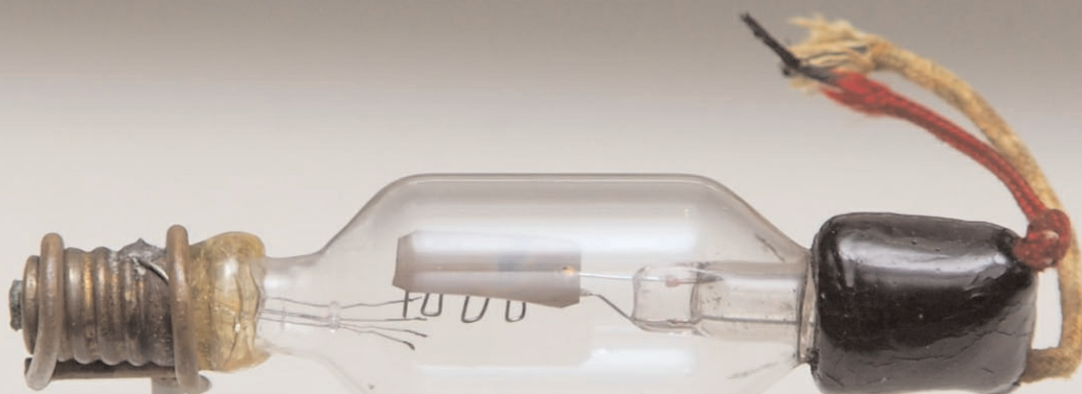
40m-6m continuous coverage, 39 ft total length; SDA 100 controller included.

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Movers and Shakers and Savants . . . Oh My

From AC to DC, Hot Squat to Tesla Coil, Audion to Superhet — They Gave It All

By Ray J. Howes, G4OWY

Lee de Forest, inventor of the triode tube, played a seminal role in the development of radio as we know it today. Close inspection shows the de Forest *audion's* plate and grid — revolutionary for its time. The tube is part of the History of San Jose, Perham Collection of Early Electronics. (Photograph courtesy of Gregory F. Maxwell, taken at “The History of Audio: The Engineering of Sound,” an exhibition of the San Francisco Airport Museum (2006-7) and posted on WikiMedia Commons)

Who said it?

AC electricity is a waste of time.

Looks like a bunch of laundry marks, (when looking at his employees' mathematical worksheets).

I was always afraid of things that worked first time.

Time's up.

ANSWER: The great entrepreneur, albeit long-winded, genius-inventor Thomas Alva Edison — the man who spent a large part of his working life promoting the benefits of direct current (DC) while ignoring the obvious solution of Nikola Tesla's alternative power source known as alternating current (AC).

“If Edison had a needle to find in a haystack,” Tesla once remarked, “he would proceed at once with the diligence of the bee to examine straw after straw until he found the object of his search.” Tesla, probably at the end of his tether at such ineptitude, said he was a “sorry witness of such doings, knowing that a little theory and calculation would have saved (Edison) 90 percent of his labor.”

Max Planck, one of the giants of nuclear physics, rightly observed many years ago that, “a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it.”

Thomas A. Edison: Great Savant or Fabulous Drone?

Someone, whose name I don't remember, said, as well, “remember that when observational data or experiment con-

flicts with a theory, no matter how beautiful the theory or how impressive the credentials of its author, a rational person pitches out the theory.”

It appears Edison did the opposite when it came to actually accepting the inevitable — the consequences of not embracing the positive attributes of alternating current.

So, was Edison really the great savant he is made out to be or, as another person observed, *a fabulous drone*? Was he merely a plodder of the manic kind, an astute businessman with a heavenly gift? A man who passionately believed in the credo of good, old-fashioned hard work? Someone who loved to tinker and re-invent the wheel and who sometimes found the occasional pot-of-gold at the end of the rainbow?

The well-known stories go that Edison would try every-which-way to engineer his inventions to success. Giving up was not part of his persona. And if it meant performing thousands of experiments, then so be it.

If it didn't work, according to Edison, those thousands of experiments were not failures — they were *thousands of ways that won't work*. There's his disclaimer of the first electronic phonograph: “Maybe we could use it for some sort telephone repeater.”

And, in the same vein, voicing his opinion on the early emergence of radio broadcasting: “The radio craze would soon pass . . . the present radio is certainly a lemon. It will in time cure the dealer of any kind of radio.”

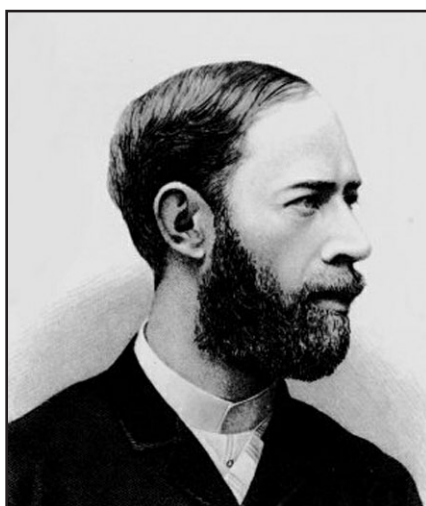
Many brilliant men would stride through the ever-curious life of Edison. Bertil Haufman, for example, was working at



To his delight, Lee de Forest discovered the main attribute of his *audion* tube — not only could it oscillate, it could modulate. (WikiMedia Commons)



Edwin Howard Armstrong's remarkable work in developing the regenerative, superregenerative and superheterodyne receivers are testimony to his breadth as an inventor. Shown here in his World War I uniform, Armstrong would later design an eight-tube superhet receiver for use by the armed services in World War II. (WikiMedia Commons)



Heinrich Hertz demonstrated how electromagnetic waves could be persuaded to travel from point A to point B using a couple of loop antennas — each with a spark-gap. His name will forever be associated with frequency — originally referred to as the *Hertzian Wave*. (WikiMedia Commons)

one of Edison's laboratories when he perfected an electronic phonograph. Edison, who had a hearing impairment, pronounced it *distorted and terrible*. This was not the sort of affliction that would endear our hero to appreciate the sheer inventiveness of what was then a giant leap forward for voice reproduction.

However, unknown to his famous employer, Haufman was allowed to continue his work in a less-conspicuous location at the factory, far away from the gaze of his boss.

Edison vs. Tesla and Westinghouse: The War of the Currents

You cannot mention Edison without also mentioning his arch-rival, Nikola Tesla. Their spats were legendary — the most contentious being the supremacy of direct current (DC), or Tesla's invention of the rotating magnetic field known as alternating current (AC). *The War of the Currents* had begun.

It was Edison vs. Tesla and George Westinghouse, who developed a business partnership with Tesla. The battle trundled on, with Edison remarking, "AC is a waste of time."

At one point, Edison engaged the services of one of Tesla's friends to electrocute cats and dogs to discredit and demonstrate to the public the dangers of using AC. "I have taken life — not human life

— in the belief that the end justifies the means," Edison said in defense of his actions. His obsession with DC apparently held no bounds. However, the great man was about to do an about-face.

Westinghouse was surprised when he learned Edison had installed an AC system in New York City to supply power to the first electric chair — the *Hot Squat*.

Since the State of New York in 1888 had decreed capital punishment via electrocution legal, Edison saw it as an ideal time to get some much-needed publicity for the Edison General Electric Co. — especially after the dogs and cats fiasco. The chair would be presented as the cutting edge of technology. *A big mistake*.

In its first outing, demonstration of the world's first AC-powered electric chair turned into a disaster. It didn't work; prompting one observer to remark it was "a spectacle much worse than hanging."

So, was the *Wizard of Menlo Park* really "99 percent perspiration and 1 percent genius?" Probably not. However, another wizard was waiting nearby.

Nikola Tesla: His Gift of Alternating Current

A man from Serbia, Nikola Tesla, would be known as the *Master of the Universe*, having donated alternating current to the world at large. *Donated?* He never received his just desserts from a financial point of view.

Born on July 9, 1856, Tesla was reputed to have a photographic memory, which saved time by not having to work out mathematical problems on paper. He did it all in his head, in a flash.

His invention of the rotary magnetic field, the bedrock of AC, had all come to him while he slept. A past president of the American Institute of Electrical Engineers summed up Tesla's life-changing discovery: *The work of Nikola Tesla in his great conception of his rotary field seems to me one of the greatest feats of imagination which has ever been attained by the human mind*.

Who can argue with that? Not even Edison, who employed Tesla as his European troubleshooter at the Continental Edison Co., in Paris during the late 1880s.

In 1885, Tesla saw the light. Saying Edison had swindled him over bonus payments, Tesla went his own way.

Tesla's Turning Points

One of the most pivotal moments for Tesla would be the lecture he gave to the

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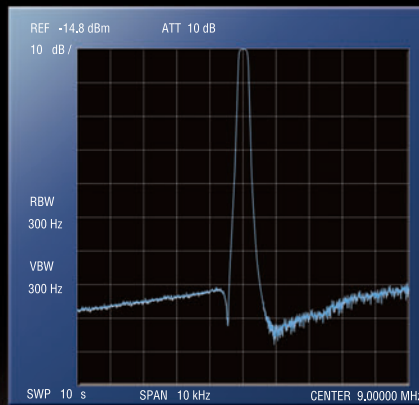
112 dB / IP3 +40 dBm



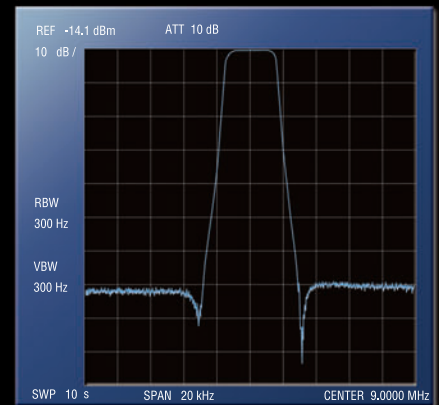
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American Institute of Electrical Engineers on May 6, 1888. Before an enthralled audience, he described his system of power generation via AC — 60 cycles per second as the standard in the United States; 50 cycles per second for the United Kingdom. He had finally *arrived* and was accepted by peers.

He went on to team up with Westinghouse, the dynamo of Wall Street, but as was the case in his association with Edison, received very little cash from this dynamic entrepreneur.

Tesla did, however, see his AC system in commercial use. In fact, a demonstration at the 1893 World Columbian Exposition in Chicago, introduced a curious audience to the benefits of alternating current. More discoveries followed.

The *Tesla Coil* would mesmerize everyone who saw it, just as it does today. He also developed radio tuning via electrical means in 1890 — the essential prerequisite for radio operation. He demonstrated wireless transmission as early as 1891. Last, but certainly not least, was Tesla's work on the fluorescent lamp.

Indeed, Tesla was a very busy individual and an extremely clever one. But it seems Guglielmo Marconi caught him napping with regard to the early commercialization of wireless transmission. *Or did he?* Perhaps Tesla didn't care.

The Fathers of Radio: So Many Key Players

Before Marconi and Tesla got their hands dirty on the finer points of radio transmission, someone beat them both to the prize.

Where radio was concerned, Mahlon Loomis was a man before his time. There he was, in the Blue Ridge Mountains of

Virginia in 1866, communicating via radio using kite-antennas over a distance of 18 miles or more.

He also used balloons to carry his antennas aloft and made antennas of steel — vertical antennas, as well. It was probably the first time they were used for radio communication. Ditto, the balloons.

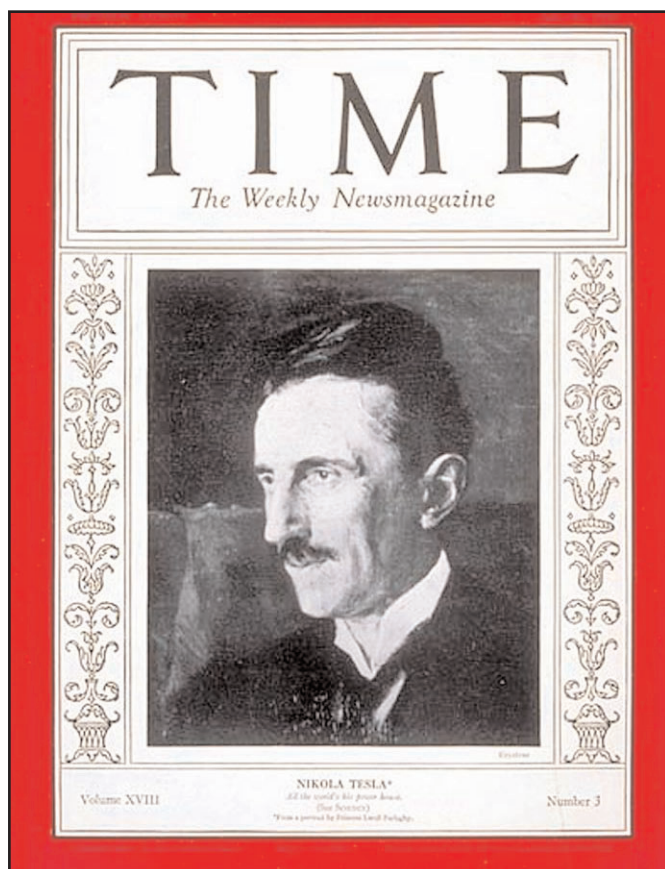
In 1872, Loomis received American Patent No. 129971 for his wireless telegraph. And in doing so, his was the first experimental transmission of wireless telegraph signals. Maybe the title *The Father of Radio* was, indeed, appropriate. Unfortunately, financial problems impacted his work. He died in 1886.

Marconi's main claim to fame would be the actual distance he was able to *throw* a radio wave, as well as his commercialization of the radio process.

Samuel F. B. Morse, before his Morse code would hit the airwaves, was busy trying to perfect a method of sending electromagnetic signals without wires using, of all things, a body of water. The water was a primitive conductor. Metal plates were put into the water connected to two sets of wire. Lack of efficiency spelled the end to the idea — a case of needing an ever-increasing amount of wire and the more important problem of metal plate separation at each end.

The question of just who invented radio to this day baffles and confuses many historians and aficionados. So many names pop-up, it's difficult to whom the credit goes.

Heinrich Hertz, for example, demonstrated how electromagnetic waves could be persuaded to travel from point A to point B using a couple of loop antennas — each with a spark-gap.



Nikola Tesla's renown in the world of electricity vaulted him to the cover of *Time* magazine's July 20, 1931 edition. (WikiMedia Commons)



Well-known stories go that Thomas Edison would "try every-which-way to engineer his inventions to success. Giving up was not part of his persona. And if it meant performing thousands of experiments, then so be it." (WikiMedia Commons)



Nikola Tesla saw his alternating current system demonstrated at the 1893 World Columbian Exposition in Chicago, introducing to the benefits of AC to a curious audience. (WikiMedia Commons)

As a spark was generated in one loop via a discharge from a Leyden jar and hopped across the gap, the same action was induced in the other loop placed some distance away.

As a consequence of his discovery, *Hertzian waves* became an apt description of electromagnetic radiation. Embryonic radio had begun. Years later, in 1928, the term was shortened to Hz in Hertz's honor. It was James Clerk Maxwell, though, who in 1865 theoretically predicted electromagnetic waves' existence.

A Wide and Fascinating Electric Field

We shouldn't forget some of the lesser-known and earlier pioneers of *electricity* — the stuff we all use to power modern-day amateur radio equipment.

There were the Greeks, who learned *amber*, a plaything, would attract other material to it when rubbed. They named it *Elektron*.

A Leyden, Holland resident — Van Musschenbrock — in 1745 was trying to find a way to store electricity. It was thought to be a fluid at the time. He got a student to put water into a jar, hold it with one hand while an electrical charge coursed into the water via a metal conductor.

Our intrepid pioneer subsequently offered the world his *Leyden Jar* — actually a capacitor, then called a condenser. Why? Because of the charge *condensing* through the so-called electric fluid.

As the 1700s came to an end, a few people were busy experimenting with this wonderful, but little understood, thing called *electricity*. And one thing would lead to another.

In Britain, Professor Branley was experimenting with iron-filings when he observed they would *cohere* when brought into the influence of an electrical charge. This discovery would be taken up by Oliver Lodge, who would carry it a step more in 1894.



Guglielmo Marconi's fame brought him an audience with Pope Pius XI, where he can be seen in the center, back-ground. (WikiMedia Commons)

Although Lodge's principal activity was not communication in the radio sense, he used Branley's earlier discovery to form a coherer to detect Hertz's *Hertzian waves*.

Unfortunately, Lodge didn't patent this idea. It would not be long before Marconi caught the essence of the possibilities of Lodge's discovery and would go on to use a tuning system invented by Lodge to help bring radio communication to a successful beginning.

Marconi's insight was to simply add an antenna and a ground circuit. He, of course, used a coherer as a detector for his first receiver — with Lodge's tuning system.

But it wasn't long before Marconi would enlist the help of Ambrose Fleming, who would patent the *vacuum diode*, and Lodge to help him tweak his invention. The coherer would no longer be used.

Marconi was using a magnetic transformer as a detector. Again, this was another ingenious idea that worked by using an iron belt. It moved, as well. The permanent magnets are continually magnetized in one direction, which caused a sort of rectifying action.

One of Marconi's earliest antennas, by the way, was nothing more than two metal pipes with a down lead. Was the down lead doing the radiating? *Perhaps so*.

It appears Edison bumped into the thermionic emission, as well, while working on the incandescent light bulb. It's what would

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become an essential ingredient of radio communication. But he didn't recognize the vital part it would play in the grand scheme of things.

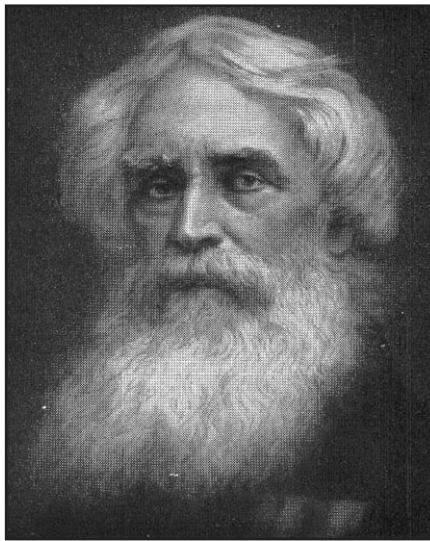
Fleming, under contract to Edison, saw the possibilities, though, and developed the *vacuum diode*. Therefore, Edison owned the rights to Fleming's tube development. As a consequence, Edison decided not to license the use of the device to any other American companies — quashing any chance for competition.

Lee de Forest: Smitten With His Audion

We now meet the inventor of the *triode* tube.

Just as Fleming did with Edison's discovery, Lee de Forest improved upon Fleming's device. De Forest's driving force was efficiency and a bit of secrecy, too. He engaged himself in a manic focus of invention built on trial and error.

After many tribulations with foil — placing it on the outside of the glass envelope, putting it inside, and so on — he hit upon the idea of a *wire grid*. De Forest's *triode* was born, screaming, very loudly.



“When Professor Samuel Finley Breeze Morse sent out that famous Morse code message on May 24, 1844, did he ever suspect the events he was about to set in motion?” (WikiMedia Commons)

The first triodes were so big they were called *bottles*.

De Forest dubbed his creation the *audion* and locked it away from prying eyes. Dissatisfied with the amplifying properties of his *audion* tube, de Forest discovered what would be its main attribute — not only could it oscillate, *it could modulate*. He was so smitten with its ability, he proceeded to broadcast the fact via news and musical radio broadcasts.

Edwin Armstrong: From Regen to FM

Along comes Edwin H. Armstrong, inventor of the regenerative detector. Armstrong had noted the special communication qualities of de Forest's *audion*. And being the savant he evidently was, figured out an ingenious method of amplifying the signal output of the *audion* by feeding the signal back to the grid circuit. However, de Forest got wind of Armstrong's improvement, which was nearly identical to his own. A legal battle ensued with de Forest ultimately winning the patent to this amplification design.

Armstrong would go on to develop the super regenerative receiver, which is especially useful at VHF frequencies. He's also the father of frequency modulation — FM.

Another Armstrong radio revolution was the *superhetrodyne* receiver. This circuit design, just like Armstrong's

groundbreaking regeneration receiver, would revolutionize the way radio receivers would be built and designed.

But it would be a long while before Armstrong's FM mode of radio reception was finally accepted. After all, back in the 1930s when FM sprung from Armstrong's fertile mind, amplitude modulation (AM) was the method of choice for most radio broadcasters. Moving to FM broadcasting would have been a very expensive option.

Louis Alan Hazletine invented the *neutrodyne* receiver, principally to *neutralize* the alarming squeals that screamed through the loud-speakers of early radio receivers. But the circuit turned out to be too expensive to reproduce and was too complicated from a component-count point of view.

Armstrong's *superhet* marched undaunted. Coincidentally, he'd been involved with testing an eight-tube design during World War II at the top of the Eiffel Tower in Paris — using this new circuit design to detect weak signals coming from enemy shortwave transmissions.

We Are Left to Wonder . . .

When Professor Samuel Finley Breeze Morse sent out that famous Morse code message on May 24, 1844, did he ever suspect the events he was about to set in motion?

By 1862, a telegraph wire carrying Morse's dots and dashes had traversed the United States, landing in California. Those dots and dashed arrived on the west coast before transcontinental train service.

And it wouldn't be long before the whole continent of North America was serenaded with the musical notes of Morse code, courtesy of the Western Union Telegraph Co., and Morse's first practical telegraph recording machine.

Think of it: The gigantic leap from the ancient Greeks' wonderment of the mysterious electrostatic properties of the yellow substance called *amber* to the even stranger magnetic effects of the Lodestone. From Volta's famous *pile* to Tesla's *alternating current* device and de Forest's triode. From Marconi's assault of the airwaves to Edison's many inventions — and all the other lesser-known luminaries who dared to go where others feared to tread. They've led us down a path to a remarkable technological frontier.

But even as *1s* and *0s* are now embedded in virtually everything electronic, maybe Mr. Edison should have the last words: *We don't know a millionth of one percent about anything.*

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YAESU FTM-350AR



The **Yaesu FTM-350AR** dual band mobile transceiver provides a full 50 watts of reliable power on both 2 meters and 440. It has two separate receivers with dual speakers on the rear of the control head. On the left receiver enjoy the AM, FM and stereo FM broadcast bands with extended receive: 0.5-1.7, 76-108, 108-250, 300-1000 MHz (less cellular). The right receiver covers 108-250, 300-1000 MHz (less cellular). There is a total of 1000 channel memories plus 9 DTMF memories. The radio even has stereo line inputs. This radio is APRS® compatible with optional FGPS-1 GPS unit. The front panel is easily remoteable with supplied cable. This latest "A" version adds: GPS standard format NMEA ready, way point data out, new MMB-98 vacuum bracket, APRS® will operate in the background, on single band, additional voice alert function, reallocated keys for easier operation, ability to program direct APRS® onto programmable key on the DTMF microphone.

YAESU VX-8DR/GR



The **Yaesu VX-8DR** HT provides 5 watts FM on 50/144/430 MHz plus 1.5 watts on 222 MHz. It supports Blue Tooth hands-free operation with the optional BU-1 and BH-1A or BH-2A accessories. There is also an optional GPS unit and antenna with loads of features. This radio supports APRS® 1200/9600 bps data communication (B band only) and is WIRES compatible. In fact, this latest "D" version adds these APRS enhancements:

- ✓ Smart Beacons™ Function,
- ✓ Station List memories raised from 40 to 50.
- ✓ APRS® Msg mems raised from 20 to 30.
- ✓ New DIGI-PATH route indication function.
- ✓ Heads up compass display.
- ✓ Msg LED flashing rate is selectable.
- ✓ DIGI-PATH route settings raised to 7.

The VX-8DR is submersible to IPX57 specs. A 7.4 V 1100 mAh Li-Ion battery is included. It supports simultaneous independent 2-signal dual receive function with both V+V or U+U. It has weather alert and a barometric sensor is included. The dot matrix LCD provides memory tags (to 16 characters). You even get a high-resolution spectrum analyzer with ± 60 channels indication with wave monitoring of received/modulated signal! DCS and CTCSS encode/decode are standard. 2.36 x 3.74 x 0.92".

The **Yaesu VX-8GR** HT provides 5 watts FM on 144/430 MHz. Receive is 108-999 MHz in NFM/FM modes. Unlike the VX-8DR, this radio is not BlueTooth capable, does not have the SU-1 built in and is not submersible. It is however APRS capable (B band only) and even has a GPS built-in. Details at www.RFfun.com

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The **Yaesu FT-450D** covers HF and 6 meters all in an easy to use, compact package. It employs state of the art IF DSP technology to bring an array of advanced features to the operator. Enjoy 500 regular and 2 voice memories plus a voice synthesizer. A 10 kHz roofing filter is standard. The backlit LCD display is very sharp. This new D version adds: key illumination, foot stand, 500 and 300 Hz CW Filters, and improved knob set. With hand mic, mic clip and DC power cord. Requires 13.8 VDC @22A. 9 x 3.3 x 8.5 inches 7.9 lbs.

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FT-897D



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FT-817ND



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Field Day Adventure — At the Very Last Minute

By Richard Fisher, KI6SN

Spontaneous and ARRL Field Day aren't often seen hanging out together.

OK, maybe like this: "On ARRL Field Day, what Billy thought was a case of spontaneous combustion was actually a case of reverse battery polarity — which released the smoke from lots of components inside his new BuzzWinder transceiver."

For many operators and groups, though, Field Day is the culmination of months of painstaking planning. There's nothing spontaneous about it.

That's not to say there couldn't be, though.

If you're not fully invested in "The Field Day Thing," what's stopping you from waking up the weekend of June 25-26, throwing a rig and simple antenna into a knapsack and stepping out for some T-FR fun? (*HINT: Nothing. — Ed.*) You can still have a great time, despite your last-minute *joie de vivre*.

Field Day weekend is a trail-friendly operator's dream. Signals are wall-to-wall, up and down the spectrum — HF to VHF/UHF and beyond.

Simple radios and antennas can perform remarkably well. Other contest operators who want your points to increase their score often are willing to invest their time and energy into pulling smaller signals out of the mayhem.

It's an opportunity for us T-FR types to test new radios, antennas, power sources and portable station accessories. It's a chance, as well, to *get outside* with a guarantee there will be lots of people on the air. But we don't necessarily need to spend months in preparation.

Consider a Walk in the Park

Contrary to appearances, *Spontaneous Field Day* is not a total no-brainer. For the consummate procrastinator, day trips to local, county, state or national parks may be the perfect destination. *Easy does it.*



Dick McCoy, N4UN, of Rainbow City, Alabama, chose Cheaha State Park <<http://bit.ly/hUNs5d>> as his destination for this an easy-does-it field operation during an Adventure Radio Society Flight of the Bumblebees event. (Photographs courtesy of N4UN).

But you'll still need to do a little homework.

- **CALL AHEAD.** Contacting authorities before Field Day is a sure way to find out if there are antenna or other restrictions where you'd like to stage things. Ask if they have recommendations for good operating locations. They'll also be glad to know you're coming. *No surprises.*

- **NUMBERS, PLEASE.** To find parks' phone numbers and email addresses, the Internet is your best friend. Local, county, state and national parks are often just a Google away. It took about 30 seconds, for example, to find this excellent starting point for considering a National Park: <<http://1.usa.gov/fPBaJx>>.

- **CLOSE TO HOME.** If you're eyeing a park nearby, check in advance with

your local Parks and Recreation Department. Most staff members will be more than happy to help you and may have suggestions for locations that would be just right for your Field Day activities.

- **BE CONSIDERATE.** You're likely to be sharing your operating space with other people. Maybe lots of them. It's a June weekend, for heaven's sake. Does it make sense to stake your antenna's guy wires five feet from playground equipment? Of course not. There are so many things to think about in these situations. Let common sense and common courtesy rule the day.

- **SAFETY, ALWAYS.** Regardless of how last-minute your Field Day may end up, *always be careful.* THINK: Is there a chance there are power lines hidden from

view by the tree you're shooting antenna lines over? Of course there is. In everything you do, *be smart*.

- **WHAT IF?** You may be expecting a short, relaxing stint on the radio. But we know how weather, spiders and snakes, the sun and other intrusions can change things in a hurry. (*Gilligan and The Skipper's "three-hour tour" lasted three years.* – Ed.) Assure that your preparedness is at least one step above the difficulty level of your field trip.

- **DON'T FORGET.** Water. Water. Water. Determine what's *enough* and carry more.

Spontaneous Success: An Operator's Strategy

If you're new to contesting and outdoor operation, here's a suggestion: Have your *Spontaneous Field Day* on June 26, Sunday morning, when everyone's nearing the end of competition.

By that time, most of the die-hards have worked most of the other diehards.

That means those operators are desperately trolling for new call signs — fresh blood. They're tired and grouchy and frantic to squeeze every bit of Field Day life from the band before the final buzzer. They'll do almost anything to log a new call in the contest's waning moments.

On phone, they'll answer the CQ of a station that's just above the noise level. CW hotrods will actually *slow down* to work you. It's absolutely dumbfounding.

Best of all, you'll feel wanted and loved. It's *you* who are handing out those precious last points. You're not a dupe (short for duplicate contact). Nor a dope. You're a park bench hero. (*Queue the soaring violins* – Ed.)

Share Your Tale of Field Day Spontaneity

If you've been inspired to try your own last-minute Field

Day. (*and after this build-up, who wouldn't?* – Ed.), please share the details of your adventure with Trail-Friendly Radio readers. Send your reports and photographs to: < WorldRadioOnline@gmail.com >.

We'd be very happy to feature them in an upcoming edition of **WRO**.

Have fun, be safe and be careful. We want happy endings from sea to shining sea.

This Month, CQ Amateur Radio Goes 'To the Field'

June's *CQ Amateur Radio* magazine is a themed edition that is *must reading* for Trail-Friendly Radio enthusiasts. This month, *CQ* says: "*Take It to the Field.*"

Editor Rich Moseson, W2VU, has called upon some of the most knowledgeable and talented field operators and outdoors-people to cover a wide range of topics — from anywhere but home.

Here's a sampling of what you'll find both in the magazine and in additional stories online:

CQ features:

- DXpedition — "Yes, You Can!" — by Ronald Boucher, KC2SOU
- XE1CRG: The Hams of Guanajuato — by C. Stewart Gillmor, W1FK
- "Two Blue Lawn Chairs 20 Feet High" — Antennas in the Park — by Judy Ferrara, K7JLF
- CQ Reviews: Three Portable Single-Lever Keyer Paddles — by J. Bruce Prior, N7RR

CQ columns:

- *Public Service:* EmComm to the Field — NZ Hams Blanket the Countryside After 'Quake



N4UN's trail-friendly setup — a fine example of what would work quite nicely on a *Spontaneous Field Day* — is lean and clean, with a small multimode transceiver, keying accessories, a solar panel, battery and antenna. Doesn't get much simpler than that.

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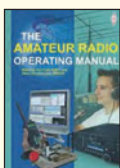


Stealth Antennas

By Steve Nichols G0KYA

Offers a wide range of antenna solutions for getting your signal out despite limited location, intolerant neighbors or HOAs. From using house rain gutters and drain pipes, or a magnetic loop in the loft, to a tuned loop around the window frame you'll find a wide range of ingenious solutions.

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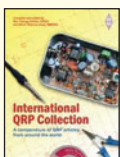


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Cheaha State Park is home to the highest point in Alabama at 2,405 feet. "I hiked about a mile up the Pinhoti Trail, which connects to the Appalachian Trail by way of the Benton MacKaye Trail," N4UN said. *No strain, no pain.* For a webcam-view of the park, visit: < <http://bit.ly/fEWEdE> >.

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- *QRP:* Takin' it to the Woods
- *Learning Curve:* Extreme Radio, or There and Back Again
- *VHF Plus:* Rover Operating
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CQ On the Web:

- Quartzfest: A One-Week "Field Trip" . . . With Seminars! – by Gordon West, WB6NOA
- Build a Battery Discharge Meter, – by H. Scott McCann, W3MEO

For more information on obtaining a copy of June's *CQ Amateur Radio* and a link to the supplemental Web content, visit the magazine's homepage: < <http://www.cq-amateur-radio.com/> >.

But Wait, There's More . . .

CQ Public Service On the Web has *To the Field* stories, as well:

- Reflections: Three-Mile Island, 32 Years Later – by Bob Josuweit, WA3PZO
- An Easy-to-Build 2-Meter Portable EmComm Antenna – by Richard Fisher, KI6SN
- SNAPSHOT: Highlights of a *CQ VHF* magazine story about a desert rescue and how mobile EmComm saved the day. – by Joe Moell, KØOV.

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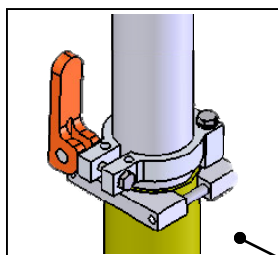
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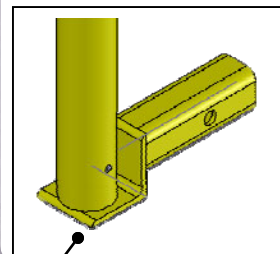
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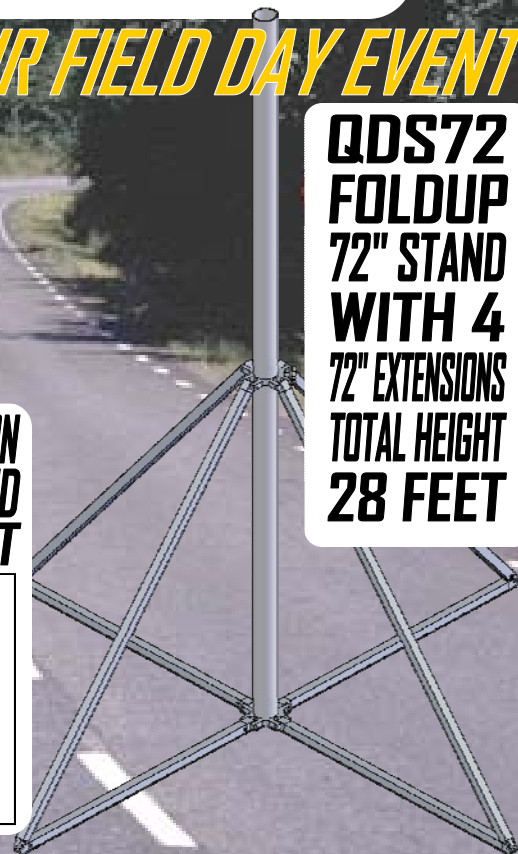


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Reflecting On 20 Years: My Time With the Handiham System

By Patrick Tice, WAØTDA

In May of 1991, I changed careers and began my service at Courage Center as the manager of the Handiham System. Since I was first licensed in 1967 as a teenager, my amateur radio life somewhat paralleled the Handiham System's own history.

Ned Carman, WØZSW, had started the Handiham System in Rochester, Minnesota that same year. I never had a chance to meet Ned face-to-face, but as soon as I earned my General Class ticket and started getting on the high-frequency bands, I quickly learned about *Handihams*. PICONET, a popular upper Midwest 75-meter phone net, had become *the place* to make the acquaintance of many other amateur radio operators who lived within several hundred miles of my location in southern Minnesota.

Since Rochester is a southern Minnesota city, there were a number of Handiham members who also checked into the PICONET. I enjoyed getting on the air and practicing Morse code with a blind operator who lived maybe 20 miles from my QTH. Still, I didn't really have any active involvement with the Handiham System in any formal way, and wouldn't for more than 20 years.

In those two-plus-decades I was busy doing other things: Earning my college degree and finishing graduate school, teaching for several years, co-founding an antenna company, getting married, reinventing my career and doing police work for a decade. And then finally ditching full-time work to be a full-time dad.

Enter: Courage Center

When my son was old enough for us to be comfortable send-



Patrick Tice, WAØTDA, manages the Handiham System, a program that helps people with disabilities earn their amateur radio licenses and get on the air. In May 2011, he celebrated 20 years of service with Courage Center. He can be reached directly at: < wa0tda@arrl.net >. (Courtesy of WAØTDA)

ing him to day care, I started looking around for another career path — one that didn't involve working nights and weekends. Believe it or not, my career at Courage Center started when my wife spotted an ad in the Minneapolis paper seeking a person to manage the Handiham System. I had a pleasant, relaxed interview with former Handiham Manager Bruce Humphrys, KØHR, and was offered the position.

It has been my privilege and pleasure to serve for 20 years, guiding the program through what I now realize was a period of amazing change in technology.

It all just seemed to happen slowly at the time. In 1991, I walked into the office wearing a shirt and tie, ready to plunge into whatever my job was supposed to be. All I can say is that it was a good thing Sister Alverna O'Laughlin, WAØSGJ; Maureen Pranghofer, KFØI, and our secretary, Jane Rova, knew what to do!

Primitive By Today's Standards

Eventually I hit my stride and figured it all out. Back then the office technology consisted of an IBM Selectric typewriter on Jane's desk, telephones and little, pocket, mini-cassette recorders for voice dictation. Member records resided on a wooden shelf in Sister's office, neatly alphabetized in boxes of index cards.

Two Telex, high-speed, cassette-tape duplicators copied audio tapes for distribution by mail to Handiham members working on their licenses or upgrades, and shelves and shelves of master tapes provided members with options for license man-



Joe Bogwist, N3AIN, and Patrick Tice, WAØTDA, enjoy a lively conversation at the Handiham booth at the Dayton Hamvention®. "Joe produced an excellent audio tutorial on the Kenwood TS-480SAT for our blind members," WAØTDA said. (Courtesy of WAØTDA)

uals, question pools, equipment instruction manuals — read word-for-word, cover to cover — and a few Handiham-produced audio tapes of our own.

When Handiham members wanted to ask us a question or find study materials, they sent us letters by postal mail or called us on the telephone. In those days we got a huge amount of paper mail. We still get plenty of phone calls. Then, as now, the Handiham System is a *distance education program* for many people.

A cadre of volunteers worked in our well-equipped shop two floors below and prepared used equipment for loan to our members. They also put considerable time into fixing member equipment.

The Handiham shop sported a huge collection of replacement vacuum tubes. Meanwhile, upstairs at the Handiham headquarters ham shack, there were several stations available for member use and the tri-band beam antenna on the roof was great for working DX.

Along Comes the Internet

What a different world we live in today! The Handiham System was the first program at Courage Center to use email and build a website. The Internet was about to change everything.

Today, typical member contact is by email, and telephone calling has gotten really cheap because of bundled long-distance service that often comes with cellular phone plans. And VoIP phone services are taking the place of traditional landlines.

Although we still use the telephone a lot, postal mail has really fallen off to only essential paperwork rather than the detailed member service explanations of radios or answering questions about studies that it had been in the past.

Most of the membership is served via the Internet in one way or another, whether it is by email exchanges that are much faster and more helpful than paper letters or by the many services now offered by our website: < <http://www.Handiham.org> >.

Modern Technology

Although the tape duplicators are still used for a few holdout members who do not use computers, most members are delighted with the high-quality, up-to-date audio materials offered directly from the website and would never want to go back to the old days of using clunky, unreliable

tape cassettes . . . not to mention having to wait for them to arrive in the mail.

Of course, the Internet also makes collaboration and social interaction much quicker and richer, and the Handiham System has benefited by the opportunity to publish *Handiham World* almost 50 times per year in its new form — a weekly e-letter. It used to be a quarterly newsletter.

In the old days a volunteer would read the quarterly print edition onto a cassette tape which was then duplicated and sent

to members via postal mail. Today — 50 times per year — *Handiham World* is delivered efficiently and quickly by email on Handiham.org, and as a free audio podcast available through the *iTunes* store.

Original Handiham Productions

We have also started to produce more of our own original audio. Instead of simply reading license manuals or equipment

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instruction manuals from cover to cover, we now take the more effective approach of teaching our own courses in audio format and making them available to our members on demand right from Handiham.org.

Instruction manuals are generally available from most manufacturers of amateur radio equipment in accessible PDF format that contains embedded text accessible by anyone with a screen reading computer. We do, however, have audio tutorials by people who actually use the equipment and can teach from a blind perspective how to use it.

This audio is available to our members from the website, as well, making it easy to download and use without having to wait for something to be sent through the mail.

Ever-Changing Landscapes

And how the office has changed! As you might expect, the index cards are long gone and our records are now kept electronically. The office itself has moved to Camp Courage, where there is real estate

for a 300-foot, wire antenna that supports a new Handiham remote base Internet-controlled HF station available for member use. A second remote base station several hundred miles to the north also serves Handiham members who want to get on HF but who cannot put up large antenna systems.

VHF for most Handiham members used to be pretty much confined to repeater operation and was pretty unexciting. A few adventurous members discovered the fun of working CW or sideband on VHF, but most just used repeaters occasionally and got on HF if they were lucky enough to be able to set up a station and have an antenna.

Today the Handiham Radio Club has a daily — except Sunday — EchoLink-enabled net that is available worldwide and that enjoys a healthy following. With the EchoLink application available from the iTunes store and the Android Market, Handiham members can even use accessible portable devices and Smart Phones to check into the net.

Computers and the Internet have

enabled us to do much more for our members and to do it more quickly than ever.

Tough Times, Too

Not all changes have been for the better. With the economic recession has come considerable belt-tightening. We no longer have staff to tend to regular maintenance of member-owned radio equipment, so that is a service we no longer offer.

The equipment loan program still exists but is limited to a couple of times a year when I can get volunteers together at the radio camp session in the summertime and any other times when we can go over equipment and match it up with members who need it. It still gets done, but not on a daily basis.

On the other hand, we save considerable money by efficiencies that only computers and the Internet could make possible.

In Reflection . . .

So as I try to wrap my mind around all of the changes that have taken place in the past 20 years, I have to remind myself that change is not always easy. Sometimes it is for the best, but other times it can be painful and difficult.

Saying goodbye to Handiham members, supporters and volunteers who have become silent keys over the years has been tough, as well.

On balance, I think we have done pretty well for ourselves here at the Handiham System. There is no way we could have maintained the program without embracing new technologies and different ways to offer member services to keep our Handiham community strong.

Most of all, I have come to realize that it is the *sum total* of members, volunteers, supporters and staff who have made this Handiham System possible and have kept it going for more than four decades. We have all worked together: *Hams helping hams*.

I know that we are up to the challenges the next decade will bring.

For more information on the Handiham System, please visit: < <http://www.handiham.org> > or email < hamradio@couragecenter.org >.

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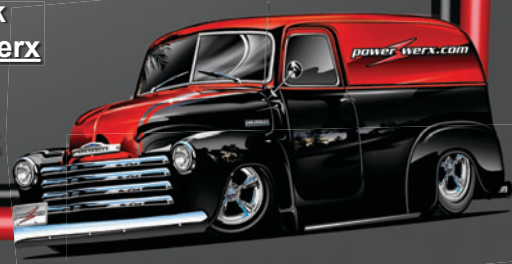
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Take in a CW Summer Vacation Spot

By Randall Noon, KCØCCR

While many brass pounders would love to take part in a DXpedition to Palmyra, Tahiti or perhaps even South Georgia Island, alas, most of us do not have the time or resources to operate from such exotic places.

Just getting away for a weekend can sometimes be difficult, much less taking off two or three weeks for a long trip.

There are many places, though, that may be close to where you can afford to vacation where you can have a great CW afternoon experience — perhaps even including the whole family.

So, as you make your summer plans, have a look at my geographically correct list — two CW vacation spots on the Atlantic Coast, two on the Pacific Coast and two in the middle — *the Middle Coast*? Perhaps you can work in a couple of these CW vacation operating spots.

Newington, Connecticut: Be a Guest Op @ W1AW

Newington is not only a town of about 30,000 people, but it is also home to the American Radio Relay League and its world-famous amateur radio station, W1AW.



The headquarters station of the American Radio Relay League is in Newington, Connecticut. With proper identification, you can get on the air from there using the famed callsign and equipment of W1AW.

(Photographs courtesy of KCØCCR)



The Ensor farm and radio station are in commemoration of Marshal Ensor, W9BSP, renowned teacher, radio amateur and CW operator. It's part of the Marshal Ensor Park and Museum in Olathe, Kansas. Note the tower.

Pounding Brass

Do you have a favorite Morse key, bug or paddle you'd like to see featured in WRO's Pounding Brass? Send a photograph with a brief description of the instrument and why you like it so much to: <WorldRadioOnline@gmail.com>.

John Shannon, K3WWP's, Begalis

"When I think about my favorite key," John Shannon, K3WWP, of Kittanning, Pennsylvania, writes, "actually, three come to mind.

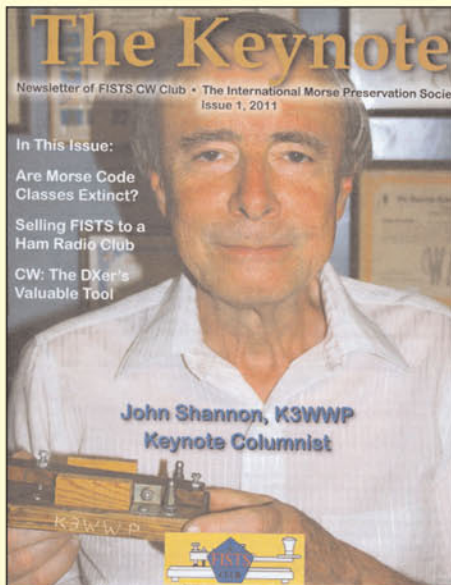
"First is an old J-38 that was used by my uncle on the railroad many years ago. Then come two others. They are so interlinked I'll have to write about them as one key — a Begali Blade straight key and a Begali Magnetic Classic paddle. Both are silk-smooth and almost effortless to operate.

"But that is not why they are my favorites. It is how I obtained them that make them so special. I am vice president of the North American QRP CW Club (NAQCC) <<http://www.naqcc.info>>. Club President Tom Mitchell, WY3H, decided — out of the goodness of his heart — to ask club members to make a donation to present me with a nice straight key as thanks for the work I do in handling the everyday affairs of the club.

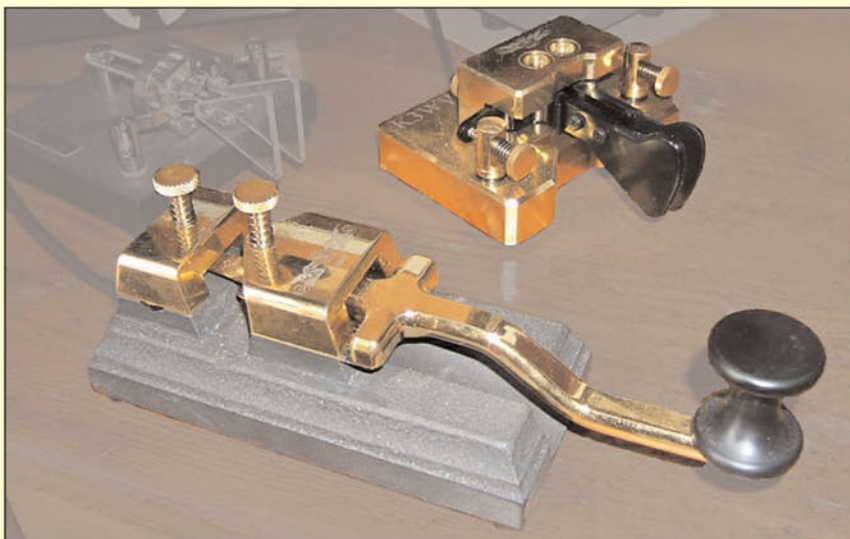
"Well, he vastly underestimated the generosity of our NAQCC members," K3WWP said, "and instead of a nice simple straight key, there were enough donations to buy the two beautiful Begali keys you see pictured, and still have some money left over for a restaurant gift certificate.

"I was deeply moved by the response of the NAQCC members. Beyond their smooth operation, it's why these two Begali keys are my favorites — and always will be."

(K3WWP was recently featured on the cover of "The Keynote," the FISTS CW Club periodical. — Ed.)



CW man John Shannon, K3WWP, is featured on the cover of FISTS' "The Keynote."



A Begali Blade straight key and Magnetic Classic paddle rank as K3WWP's sentimental favorites. (Courtesy of K3WWP)

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Hams who can show they are licensed may operate the equipment and use the W1AW callsign from 10 a.m. to 12 p.m. EST, and then 1 p.m. to 3:45 p.m. EST Monday through Friday, except for holidays.

While W1AW is an interesting place to visit just to see the exhibits, wouldn't it be really cool to operate CW from *the mother ship* itself? Check the ARRL website for additional details.

Olathe, Kansas: Enjoy Field Day at the Ensor Museum

The Marshal Ensor Park and Museum in Olathe, Kansas is a seasonal museum devoted to Marshal Ensor, the teacher and amateur radio operator.

From 1929 until 1939, Ensor, W9BSP, taught Morse Code and radio theory on 1.903 MHz by radio to thousands of operators coast to coast. In fact, his master's thesis at Kansas State University was *Teaching Radio by Radio*. Many World War II *Sparkys* learned their CW from W9BSP. The original equipment has been restored and is fired up sometimes for special events.

If you visit on an ARRL Field Day, perhaps you can help run up the QSO

There are lots of interesting antennas at Cabot Tower on the historic Signal Hill, St. John's, Newfoundland, Canada, historic spot where the first trans-Atlantic radio signal — an S — was copied.



score for the local Santa Fe Trails Amateur Radio Club that operates there.

The Ensor Museum is open to the public from 1 p.m. to 5 p.m., May through October. Special visits by groups of 10 or more can be arranged by appointment by calling (913) 592-4141 or by writing to: Marshall Ensor Memorial Organization, 18995 W. 183rd Street, Olathe, KS 66062. There are many entries on the Internet about Marshal Ensor.

Signal Hill, St. John's, Newfoundland: Work DX Where DX Was Invented

This is the place where the first CW signal, an S, crossed the Atlantic from Poldu, in Cornwall, United Kingdom to St. John's, Newfoundland, Canada. The original wood building used by Marconi was moved and later burned down.

However, Cabot Tower, which was standing at the time, is still there. Signal Hill overlooks the city and there are exhibits about Marconi and the wireless station in Cabot Tower, and some excellent hiking trails.

Additionally, there is a gift shop and an amateur station, VO1AA, which can be operated by visiting amateurs in the summer months. There is also a repeater, VO1AAA (146.790 / +0.600 MHz), which is located inside Cabot Tower and is used all year.

KPH, Point Reyes, California: Be a Maritime Coast Station *Sparky*

Thanks to the dedication and hard work of the Maritime Radio Historical Society, the famous RCA-coastal station KPH, located about 30 miles west-northwest of San Francisco in Marin County, has been restored and is operating again both on a commercial and amateur basis.

KSM, the commercial station, can be heard on 500, 4350.5, and 12,993 kHz to name a few. K6KPH, the amateur station, can be heard *and worked* on 3550, 7050 and 14050 kHz. KSM and K6KPH both use the protocol and original transmitters, receivers and equipment, just as it was done when KPH was a communications lifeline for several generations of Pacific mariners.

The amateur station is on the air on Saturdays from 1700 GMT to 2300 GMT, and is also on the air for special occasions like Straight Key Night and International Marconi Day. Guest operators are welcome. While you are there, be sure to see the nearby Point Reyes Lighthouse and enjoy the hiking trails and ocean views in the Point Reyes National Seashore park.

Dayton Hamvention® — Operate from the Mother of All Hamfests

This year the Dayton Hamvention was

May 20-22. So you've got plenty of time to plan a fun trip to Ohio for the 2012 event. For CW enthusiasts, this is a chance to look over a fine selection of keys, keyers, paddles, bugs and cooties, not to mention a tantalizing selection of new and used equipment and the opportunity to visit all the important CW related booths, like FISTS, QRP Amateur Radio Club International, HFBackpackers and, of course, CQ Communications, home of **World Radio Online**.

However, don't forget that each year there is also a special event station, W8BI, at the Hamvention. While you are emptying your wallet, you can impress your fellow club members back home. Set up a schedule and send updates directly from Dayton back to the club while working HF with some first rate equipment.

Of course, operators staying at home were able to work the Dayton station by monitoring 7.050, 14.050 and 28.050

MHz.

The Queen Mary — Work a Historic Ship's Radio Room, Circa 1930s

The HMS Queen Mary sailed the oceans in luxury from 1936 to 1967. It is now permanently docked in Long Beach, California. Not only does it have great hotel accommodations, good food, fun activities, guided tours and even paranormal tours of the ship, you can also be its radio operator for an afternoon.

Any licensed amateur can work DX from the Queen Mary's state-of-the-art radio room, whose call is W6RO. There is one small catch — you have to agree to operate at least four hours a month. *Really tough terms, eh?*

Of course, you can operate longer than four hours. If you operate a few hours a month this way for a year, by the way, the Associated Radio Amateurs of Long Beach will reward you with a fine cer-

tificate. Some people have enjoyed being Queen Mary radio operators so much, they have been doing this for more than 20 years.

An instruction session for new operators is held in the Wireless Room and is generally given by Gerald Fullerton, KD6JBL. For more information about working DX from the Queen Mary, give Gerald a call at (714) 393-6220 or email him at: < kd6jbl@socal.rr.com >.

The Queen Mary radio room is on the air seven days a week from 9 a.m. to 9 p.m. local time. This might be a great place for the whole family to have a good time.

Have a peek at what the Queen Mary can offer the non-licensed members of your family at the website: < <http://www.queenmary.com> >.

Upcoming CW Activities:

Historic Ships Ham Radio Event, June 6 and 7: On this first weekend in June, operators will have the opportunity to QSO with hams either near or on historic U.S. Navy ships around the country, such as the USS New Jersey (NJ2BB), the submarine USS Batfish (WW2SUB), the USS Alabama, the USS Missouri (KH6BB), the USS Wisconsin and even a German U-Boat, (WW2MAN).

Perhaps 75 such museum ships will participate including several foreign ships. While you may have to listen around a bit, here are some of the CW frequencies that participating historic ships will use: 3.539, 7.039, 10.109, 14.039, 18.079, 21.039, 24.899, 28.039 and 50.109 MHz.

ARRL Field Day, June 25-26: If you are a brass pounder, almost every club around will welcome you joining them on Field Day. Every CW QSO that is logged is worth twice the points of a phone QSO. CW ops are real Field Day "money makers." If you are not affiliated with a club, consider helping one out for the occasion.

FISTS Summer Sprint, July 8: The Summer Sprint is sponsored by the Morse code preservation organization FISTS and runs from 2000 EDT to 2400 EDT on Friday, July 8.

A sprint is a fun, relaxed CW contest for all levels of CW operators that is only four hours long. That is about the same amount of time it takes to listen to a ball game on the radio along with the wrap up scoreboard show.

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Sunspots and 10.7-cm Solar Flux — Which Is Better?

By Carl Luetzelshwab, K9LA

Last month's column noted the excellent correlation between the smoothed sunspot number and the smoothed 10.7-cm solar flux from the inception of 10.7-cm solar flux measurements (early 1947) through Cycle 22.

The excellent correlation also appeared to be preserved from the rise of Cycle 23 through its first peak. But the second peak of Cycle 23 showed an obvious discrepancy between these two parameters of solar activity. As a reminder, the second peak of Cycle 23 in terms of the smoothed 10.7-cm solar flux was significantly higher than the first peak, whereas the second peak in terms of the smoothed sunspot number was slightly lower than the first peak.

Since our propagation prediction programs use a model of the F_2 region that relies on the correlation between a smoothed solar index (either the smoothed sunspot number or the smoothed 10.7-cm solar flux) and monthly median ionospheric parameters, it is important to understand the impact of what this discrepancy means.

Drilling for Answers

The question to ask is: *Which solar index better reflected the state of the ionosphere during Cycle 23?* To answer, we need to know the state of the ionosphere during the first and second peaks of Cycle 23. As a side note, other solar cycles have exhibited double peaks, and the period between the peaks is called the *Gnevyshev gap*.

We can take a cursory look at the state of the ionosphere by looking at ionosonde data. **Figure 1** shows foF_2 (the F_2 region critical frequency) over the Boulder ionosonde from January 1999 through December 2002. I used Boulder, as it had most of the data for this four-year period.

Figure 1 has a lot of information in it. The gray points are the foF_2 data, and there are a lot of data points since there's a point for each hour of each day during the four-year period. There are about 35,000 data points in **Figure 1**.

Since hourly data is plotted for four years, we should see several types of variation in the data. The diurnal (daily) variation of foF_2 is in there, but the compressed horizontal scale masks it. To see the diurnal variation (lower foF_2 at night, higher foF_2 during the day), you would either have to significantly expand the horizontal scale or focus on a shorter time period.

The seasonal variation of foF_2 is quite obvious, with the four summers annotated in red. The winter months have significantly higher daytime foF_2 values than the summer months as was discussed in the May 2009 column.

As a refresher, this is called the *seasonal anomaly*. And it's anomalous because the ionization does not follow the solar zenith angle. The Sun is lower on the horizon in winter and thus the ionization should be *less* according to basic ionospheric theory.

Another variation that's not evident in **Figure 1** is the day-to-day variation of the F_2 region. I've talked about this in several columns. For a constant sunspot number or constant 10.7-cm solar flux, the daily foF_2 varies quite a bit. We'd have to

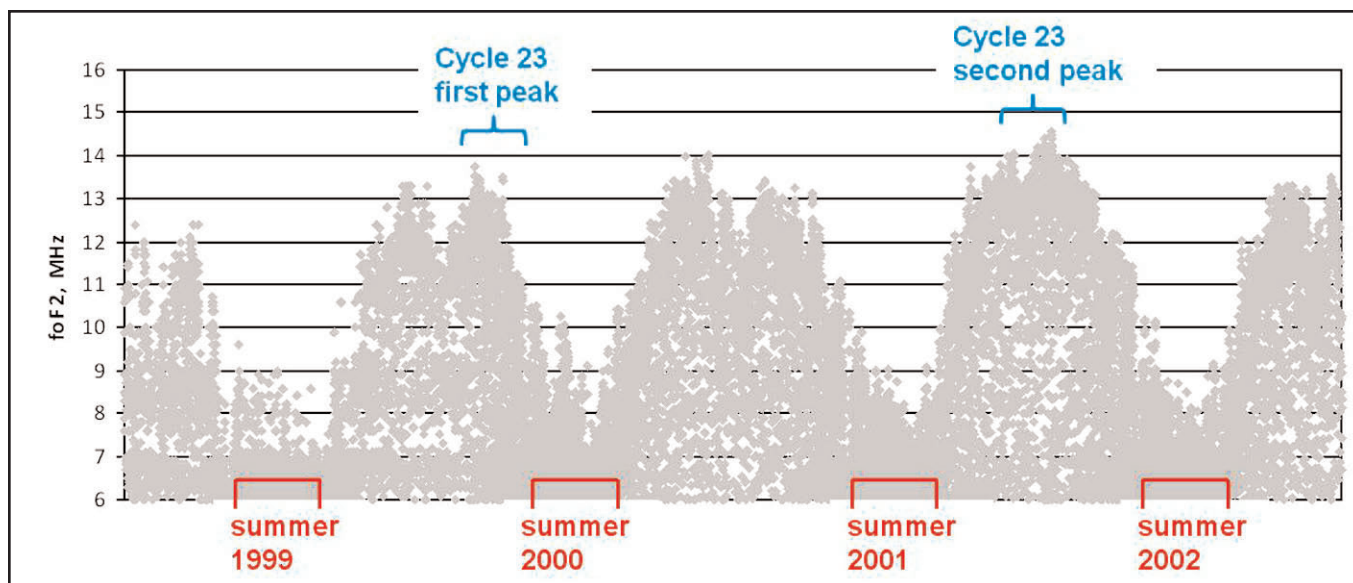


Figure 1: Boulder foF_2 from Jan. 1999–Dec. 2002.

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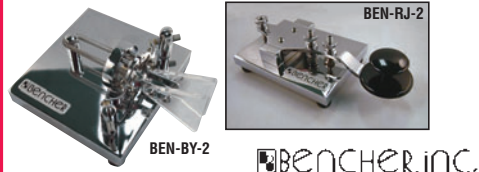
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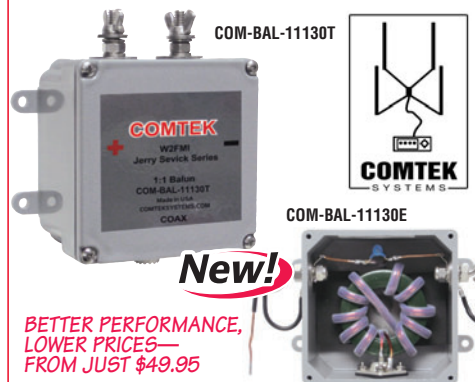
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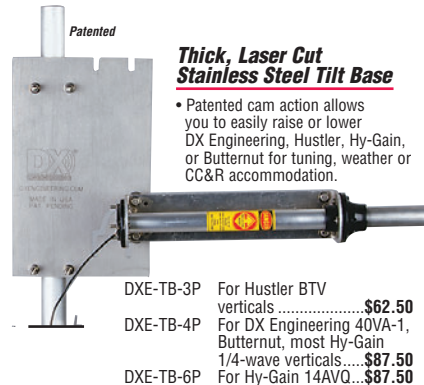
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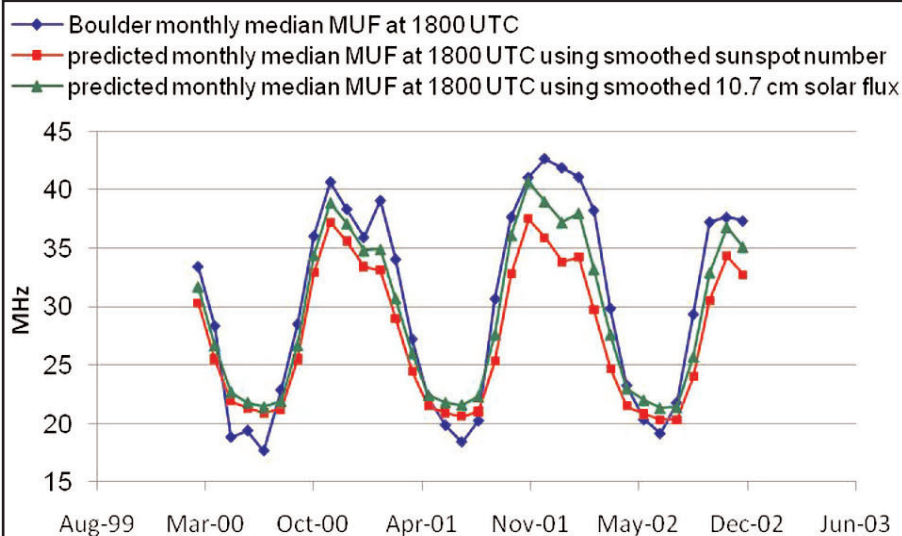


Figure 2: Comparison of monthly median MUFs at 1800 UTC

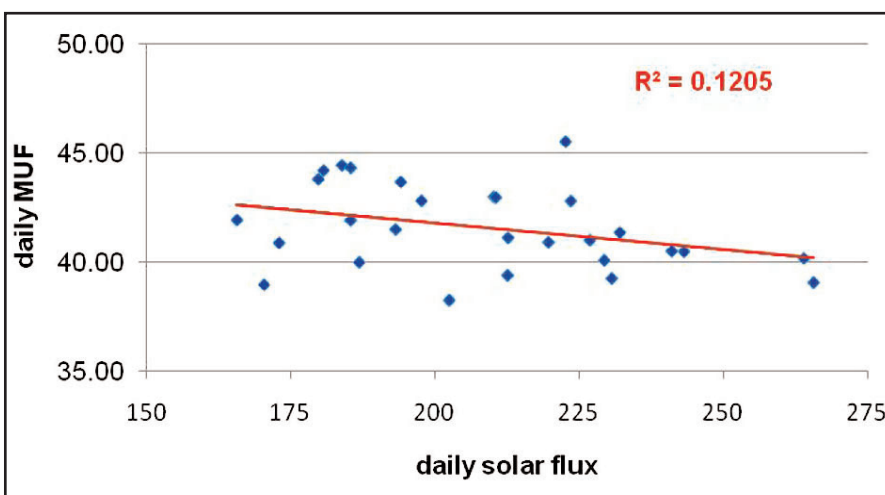


Figure 3: Daily Correlation for November 2001.

expand the horizontal scale (or focus on a shorter time period), just like we did for the diurnal variation, to see this day-to-day variation.

Sunspot Count vs. Solar Flux

Enough about the variations in the **Figure 1** data — let's get back on track with sunspot number versus solar flux. What's obvious in the data is that the highest foF₂ was indeed during the second peak of Cycle 23.

To better quantify this difference, let's extract appropriate points from the Boulder data to determine the monthly median MUF at 1800 UTC for a 3,000-km (about 1,864 miles) hop from March 2000 through December 2002. Then we'll compare this data to VOACAP propagation predictions using the smoothed sunspot

number and the smoothed 10.7-cm solar flux for the same period.

What we expect to see is good agreement during the first half of that period (up through the first peak of Cycle 23), and less agreement during the second half of that period (the second peak of Cycle 23). **Figure 2** is the result of this exercise.

Indeed the difference between the predicted monthly median MUF derived from the smoothed sunspot number (red) and the predicted monthly median MUF derived from the smoothed 10.7-cm solar flux (green) is small during the first peak — about 1.5 MHz maximum during the winter months. The second peak shows a sizeable difference — up to about 4 MHz — again during the winter months.

Note also that both of these predicted MUFs underestimate the true MUF (the

Boulder ionosonde in blue) during the winter and overestimate the true MUF during the summer. Although I have not dug into this, I believe this just says our statistical representation of the ionosphere, while highly correlated to what really happens, is not a perfect correlation.

Thus our conclusion, which answers the question, *Which solar index better reflected the state of the ionosphere during Cycle 23?*, is that the smoothed sunspot number and smoothed 10.7-cm solar flux appeared to give similar agreement prior to the second peak of Cycle 23.

But during the second peak of Cycle 23, the smoothed 10.7-cm solar flux was the better solar index. The difference in the predicted monthly median MUF is important when trying to make 6-meter predictions. For example, using the smoothed sunspot number for November 2001 (predicted MUF = 37.5 MHz) says 6 meters should not be open on any days of the month. Using the smoothed 10.7-cm solar flux (predicted MUF = 40.7 MHz) says 6 meters should be open for a couple days of the month.

Looking Short Term

So far we've looked at long-term (smoothed) solar indices. What about short-term (daily) solar indices? Do we see the same difference? Or does the day-to-day variation of the F_2 region MUF overwhelm any short-term difference? Let's start by plotting the daily MUF versus the daily 10.7-cm solar flux for November 2001. **Figure 3** gives this result.

As surmised, the correlation between the daily MUF and the daily 10.7-cm solar flux is so low ($R^2 = 0.1205$) that the scatter of the data will mask any attempt to distinguish the difference between daily sunspot number and daily solar flux over the two peaks of Cycle 23.

By the way, I did look at other formulations of solar flux (7-day average, 14-day average, 30-day average, 1-day lag, 4-day lag and 10-day lag) to see if the correlation could be improved — it couldn't.

In closing, realize that the other models of the F_2 region (for example, Raymond Fricker's equations in W6ELProp; the International Reference Ionosphere; and others) will likely give slightly different absolute results than presented here.

But I think they will all show the discrepancy in predicted MUF during the second peak of Cycle 23 when using a smoothed sunspot number or a smoothed 10.7-cm solar flux. Will Cycle 24 continue this divergence in the two solar indices? *We'll just have to wait and see.*

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In Japan's Time of Need, One DXer's Concern for Another

By Kelly Jones, NØVD

When I learned of the 9.0 magnitude earthquake that struck Japan on March 11 many things crossed my mind. And if you have been paying attention to any of the recent world events — particularly within the last year — you've certainly heard of the power of social networking.

Interestingly enough, this is exactly how I first heard about the 'quake — not by TV or radio news, or by ham radio — but rather by Facebook.

My old college buddy Gary Smith, AA9JS, has lived in Japan for more than 25 years. His Facebook post about the 'quake was intended to be humorous, but at the time, little did we know the magnitude or resulting destruction that would follow.

Over the next few days, I — along with the rest of the world — watched in awe as the aftermath unfolded. As it turned out, Gary was roughly 150 miles from the epicenter, so there was limited damage around his location — a fortunate thing for him.



“This is a very sad experience for us,” said Mac Maekawa, JK1TOJ, “but we’ve realized we’re not alone in the world and we have many good friends who are watching us.” (Courtesy of NØVD)

JK1TOJ: An Up-Close Account

Also about 150 miles from the 'quake was Mac Maekawa, JK1TOJ. We exchanged emails shortly after it happened.

As you'll see, his experience was quite surreal.

“This is a very sad experience for us, but we’ve realized we’re not alone in the world and we have many good friends who are watching us,” he wrote. “Fortunately, our home is located about 150 miles southwest of the center of the earthquake.

“March 11th 14:46 JST, I was driving my car on the street in the downtown, I felt a strange motion of my car first. I wondered *what's happening?* — and looked around there. The electric light poles and power lines were swinging. Then I realized *this is an earthquake*. The road and buildings were shaking. It continued about two minutes. I couldn't control the car so I stopped driving.

“After a while I tried to call my wife Kay on the cell phone, but the line was dead. I'm sorry, I have no radio in my car at the moment. I had stacked all of my radio gear in a shed because the cell phone is more convenient than radio to communicate with everyone. However, in an emergency, the radio is a good tool for communication.

“Kay is a ham also,” he continued. “If we had the radio in my car and home, Kay wouldn't have had to worry about me

until I was back home — I'm now going to put the radio in my car again.

“We had no damage at our home or to ourselves, but it was a very strong 'quake . . . Some houses around here had damage. Typical Japanese houses put many pieces of tile on the roof. Those roof tiles were broken and fell down to the ground (as a result of the) heavy 'quake.

“It's still a very terrible nightmare. Ten thousand or more people are dead and 13,000 or more people are missing because of the tsunami.

“There are areas that are off limits within 20 miles of nuclear plants, and the rescue teams can't go to there. There is increasing fear of them.

“About 210,000 victims have taken refuge in evacuation areas without food, drink, fuel — in the cold. Fortunately, a railroad company has recovered their railroad (and) some harbors are recovering also. We're beginning to send everything that is needed by (people) now. The local government buildings are temporary houses for them. This is a very sad situation, but we'll be able to reconstruct there.

“However, we don't know when we'll be past the nuclear plant's problems. It seems to be getting worse and worse. The

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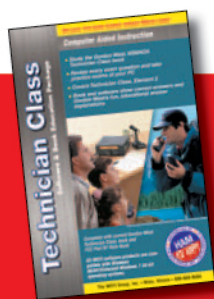
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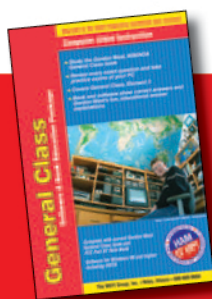
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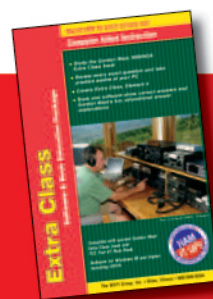
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nuclear radiation is spreading from the plants. Many brave men are working hard to recover the nuclear reactors safely. But this is a very dangerous place — nobody knows how it will be done.

“The nuclear leaking is beginning to have an (impact) on the surroundings — the vegetables, milk and water have spoiled a little bit . . . We hope it will be calmed down as soon as possible.

“Our life is coming back to the normal a week after the ’quake (but) all goods are (in short supply). We found many empty racks in the every store. We couldn’t refill the fuel for the car and oil heater — many gas stations were closed. I could find only a few gas stations, but I had to wait for long time for refueling. It is not so inconvenient for our life recently, but the consumer’s mind is sluggish.

“Nobody spends much money for (non-essentials). You know, we used to go to play golf one or two times in a week, but we didn’t do that in last two weeks because we had a guilty conscience about our own delight when many people are in a serious situation.

“We went to play golf last Thursday and this Monday. There were quite (a) few players on each golf course. One course had no damage from the ’quake, but another one had very bad damage at its clubhouse facilities. They opened only the golf course for the players.

“Many events will be canceled, too. For example, the JLPGA golf tournament, flower festivals and more. Spring has come now. All kinds of the flowers

and blossoms are blooming now. This is one of the more beautiful seasons here in Japan, but I feel nobody will be happy. I think we have to work more and spend more money. It will help the stricken area recover with good economic activities.

“Our electric power company is doing scheduled (rolling blackouts) to prevent whole blackouts because they lost some power plants — including the nuclear power plants — so we have some electricity shortage. We don’t know when and where the cut-offs will happen until they come.

“Fortunately, they exclude a region where we live from the cut offs, but it did happen in the area I go for my work. If the power company cuts off the electric power, then I am not able to fix any equipment. We hope everything will be better soon.

“We deeply appreciate your consolation and your concern for Japan’s crisis. Please take good care of yourself. I will continue to send updates on happenings in Japan.”

Our Thoughts Are With the People of Japan

I’m sure I echo everyone’s thoughts when I say I wish the best for Japan and its people. Being in ham radio, especially being a DXer, we get an insight into other cultures and people that many non-hams do not get to experience. We get a sense of awareness and being tied to world events.

I’ve made many friends in other countries by being a ham and DXer. And I can say without hesitation that ham radio and DXing are what made that possible.

We Close With a Smile . . .

On a much lighter note, while recently perusing the Web I ran across a humorous website that made me chuckle. They listed a few terms every aspiring DXer should know like the back of their hand <<http://www.rfcafe.com/miscellany/humor/ham-definitions.htm>>.

For example:

- **Balun:** (Pronounced *balloon* by many). An anti-surveillance device, installed in coaxial lines at the antenna to prevent nosy neighbors from eavesdropping on you through their TV sets.

- **Coax:** (Usually mispronounced as two syllables.) A term applied to the maneuvering of a piece of transmission line through the attic or walls of a house.

- **Long Path:** The direction you are told to aim your antenna to work a rare DX station, as suggested by the other fellows in the pileup.

- **QRP:** Restricting final input power to the transmitter to anything less than 500 watts on 20 meters.

- **Lists:** A method of making DX contacts, where some self-appointed person takes a list *on the air* (aka: his buddies on 2 meters) of people who wish to *work* a person in some DX location. This makes it easy for hams who do not have the patience or time to learn DX skills to get a quick, easy contact. In fact, if you can’t hear the actual report from the foreign station, the list-controller will often help: “ . . . OK, there, WB6???, did you hear Jose give you a ‘59’ signal report?”

- **QSL Manager:** The station you worked in Juan De Nova tells you to send a *Green Stamp* to a ham in Germany who is called a *QSL Manager*. It is his duty to send your card to a ham in California, who then — after holding it for eight months — sends you a QSL card.

That’s it for this month’s column. A special thanks to JK1TOJ for sharing his recent earthquake experiences. I look forward to hearing your comments, complaints or whatever is on your mind. If you have a story or opinion you would like to share, please send it to me at <n0vd@dxcentral.com>. I’ll do my best to include it in and upcoming column. Also look for me on Facebook or Twitter and until next time, see you in pileups!

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DX Predictions

June 2011

Maximum usable frequency from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 1934, Middleburg, VA 20118). The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janeiro. Smoothed sunspot number = 46.

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

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
10	(19)	*17	*17	17	*20
12	21	*14	*15	18	18
14	24	*16	*15	20	*24
16	26	17	(14)	22	*28
18	*28	*19	(14)	22	*31
20	*28	*23	27	19	*33
22	24	*24	*33	16	*31
24	20	*24	*34	14	*27
2	18	*24	*35	(12)	*23
4	*19	*23	*33	16	*20
6	24	*22	*28	19	*17
8	(19)	*21	*19	17	*16

CENTRAL U.S.A.

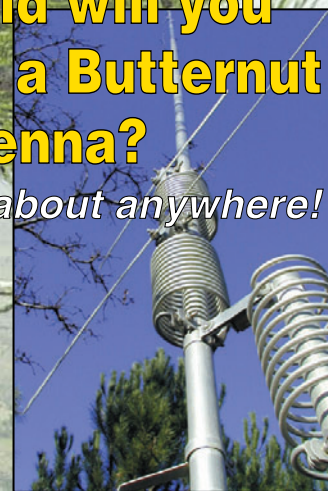
UTC	AFRI	ASIA	OCEA	EURO	SA
8	(17)	*17	*18	16	*16
10	(19)	(16)	*17	*18	*17
12	23	18	*15	*20	*24
14	25	*19	*15	*22	*28
16	27	(14)	(14)	*23	*31
18	*28	(15)	(14)	*23	*33
20	*28	18	27	*22	*34
22	*23	21	*32	*19	*32
24	20	22	*35	*16	*29
2	*18	23	*35	*14	*24
4	*19	22	*33	*13	*20
6	20	*21	*28	*16	*18

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	20	16	*21	15	*16
9	22	16	*17	*17	*17
11	*27	18	*16	*20	*23
13	*31	*20	(15)	*22	*28
15	*33	17	(14)	*23	*31
17	*34	(15)	(14)	*24	*33
19	*31	17	(19)	*23	*34
21	*25	20	30	*21	*33
23	*21	22	34	*18	*30
1	*19	23	35	*16	*25
3	*16	21	*34	*13	*21
5	*23	19	*29	*16	*18

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Good News, Bad News, Sad News, Alarming News . . .

By Terry Douds, N8KI

The good news: ARISSat-1 arrived at the International Space Station on Saturday, January 29.

The bad news: It was scheduled to be deployed during an extravehicular activity (EVA) on February 16th, but during initial testing on the station it was found to have a battery problem.

The good news: It has now been rescheduled to be deployed during EVA 29, in July. I'll have an update in my next column.

By the way, ARISSat-1, also known as Radioskaf-V, is "a boxy, 57-pound nanosatellite that houses congratulatory messages commemorating the 50th anniversary of Yuri Gagarin's launch to become the first human in space," according to NASA. "The ham radio transmitter will enable communications with amateur radio operators around the world for three to six months.

"It is the first of a series of educational satellites being developed in a partnership with the Radio Amateur Satellite Corp. (AMSAT); the NASA Office of Education International Space Station National Lab Project; the Amateur Radio on the International Space Station working group; and RSC-Energia."

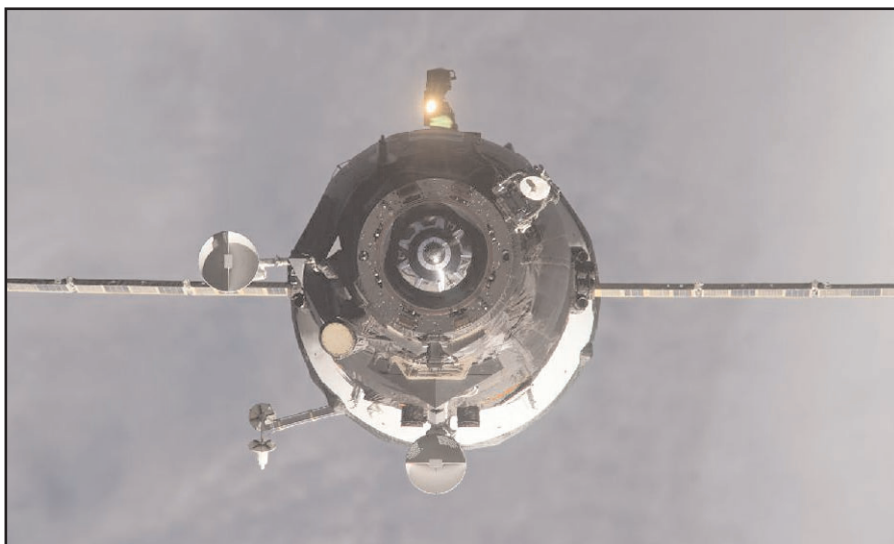
The deployment delay does offer some interesting developments. The ARISSat-1 FM downlink on 145.950 MHz includes live SSTV images as part of the cycling voice ID, select spoken telemetry values and the international greeting messages. Because of the delay, it gives everyone time to begin station improvements to receive SSTV pictures from orbit.

One fun feature is that there are four SSTV cameras mounted on the spacecraft. ARISSat's software will sequentially select a new or stored image from one of the four cameras.

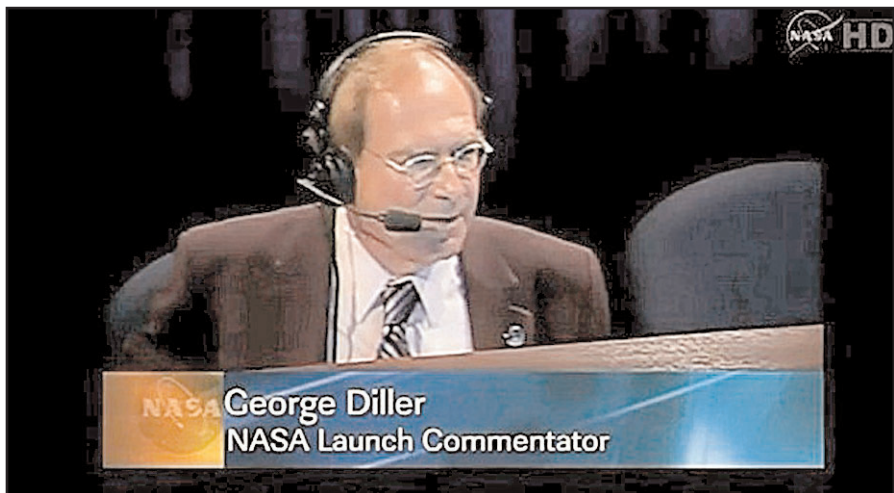
There are two prerecorded images as part of the sequence. The camera that took the picture can be identified by the color of the callsign in the upper left of the SSTV image. The SSTV image will be sent down as FM audio SSTV in Robot 36 format on 145.950 MHz about every 140 seconds.

The RF downlink power on the 145.950 MHz FM downlink will be 250 mW which is predicted to provide a link margin around 6 dB on a handheld radio with a *big whip* when the satellite is at 15 degrees

elevation. ARISSat-1 is not stabilized, so the antenna orientation is unpredictable and a certain amount of fading will happen. The receiving link margin may be improved with a handheld beam.



The unpiloted ISS Progress 41 resupply vehicle approaches the International Space Station on January 29, bringing propellant, oxygen, water, spare parts, supplies and the ARISSat-1 amateur radio nanosatellite to the crew. (Courtesy of NASA)



In this video screen capture, NASA commentator George Diller delivers the news that the Glory satellite mission had failed to reach orbit in pre-dawn hours in March from California's Vandenberg Air Force Base. Sadly, three student amateur radio CubeSats were part of the doomed rocket's payload. (Courtesy of NASA)

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- Rig Control built-in - Yaesu CAT, ICOM CI-V & Kenwood logic level, USB and RS-232
- Isolates Computer from Radio
- 2 RS-232 port and two USB ports

The HamHub II connects your computer, your TNC and your radio. It switches seamlessly between data controller modes and sound card modes under software control. A single USB cable connects to your computer - no audio cables, no RS-232 cables! It has a built-in USB sound card with isolated audio

I/O to your radio to prevent ground loops. The logic level rig control works with your Icom CI-V, Yaesu CAT and older Kenwood radios. Dual USB and dual RS-232 ports take care of rig control on your newer radios, TNC control and accommodate additional accessories.

Why do I need a HamHub II?

The problem with a typical sound card interface is that it is designed to work with your radio only. Many stations still use hardware data controllers for modes and features the sound card interfaces and computers don't have. The HamHub II connects any radio, any TNC and your computer in a flexible system to use all the resources of your hardware and software.

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Click here to have your club listed!

To view the SSTV downlink from ARISSat-1 you'll need a computer running SSTV software for your soundcard and an audio connection between your radio and the computer.

The audio from the radio to the computer is the key link. An initial *Receive Only* configuration is easily done consisting of an audio patch cable between your radio and the soundcard. Take the speaker or headphone output from the radio and run it into the line (or microphone) input on your PC sound card.

Setting the level is simple as well, as the MMSSTV software has a bar indicator. Just adjust the sound card gain slider and/or radio volume control so that the SSTV signal is within the center part of the bar. MMSSTV will give you an "overflow" indication if the volume is too high.

If your rig has a *Line Out* connection, this can be run to the soundcard *Line In*. Using the radio *Line Out* you won't have to deal with the interaction of the radio's volume control with the soundcard levels. But you will need to use the soundcard *Volume Control* to set the *Line In* levels.

There are many amateur radio SSTV software-decoding applications available. One of the easiest to use on Windows computers is the MMSSTV program. This can be downloaded from: < <http://mmhamsoft.amateur-radio.ca/pages/mmsstv.php> >.

MMSSTV installs like most other Windows software. The download site has audio test files for you to learn with. If you have an HF rig, the SSTV crowd hangs out 14.230 MHz and you can use their signals for testing and learning. MMSSTV will also automatically determine which SSTV protocol is in use. You won't need to remember Robot 36 if you set MMSSTV's receive mode to *Auto*.

SSTV software for the Mac is available at: < <http://web.me.com/kd6cji/MacSSTV/MultiScan.html> >.

SAD NEWS: Student CubeSats Fail to Reach Orbit

NASA announced that the March 4 launch of a Taurus XL rocket from Vandenberg AFB in California carrying the Glory Satellite Mission and three student CubeSats from the University of Kentucky (KySat-1), University of Montana (Explorer-1 [Prime]), and University of Colorado (Hermes) failed to reach orbit. Telemetry indicated a fairing, the protective shell atop the Taurus XL rocket, did not separate as expected about three minutes after launch.

This is too bad, as it stopped three new CubeSats from going on line, which would have increased our knowledge of space and related technologies. Hopefully replacement hardware will be constructed and readied for a later flight.

The NASA Press Release can be found on-line at: < http://www.nasa.gov/home/hqnews/2011/mar/HQ_11-050_N0_Glory.html >.

GOOD NEWS: KletsKous Is in the Wings

The good news is that some new birds have been announced, which brings some hope to the horizon! SA-AMSAT has announced *KletsKous*, a hands-on CubeSat aimed at promoting greater involvement in satellite activity by South African radio amateurs.

"Klets" is an Afrikaans word for *talking a lot*. "Kous" is the Afrikaans word for a *sock*. The transponder that is planned for the satellite can also be referred to as a *bent-pipe transponder*, aligning the idea to the shape of the sock.

The main payload on this CubeSat (pronounced KLETskous) will be a linear UV transponder with a bandwidth

of 20 kHz. The UV mode, which is a 70-cm uplink and 2-meter downlink, was chosen in line with internationally recommended practice, as it will minimize interference.

The aim is to have it operating over Africa without the need of an access tone to open the transponder, giving amateurs with modest equipment easy access to the satellite. For the rest of the world, where the amateur population is denser, tone access will be required to reduce unwanted interference — even on 70-cm uplinks.

For educational purposes, a beacon and parrot functionality may be a good idea. Proposals for additional payloads will be considered. It should be remembered, though, that the amount of available power is a limiting factor.

The first draft of a project plan will be available soon on the SA-AMSAT website. Regular updates will be posted as the project develops.

ALARMING NEWS: Amateur Satellite Service Spectrum in Jeopardy

H.R. 607, a bill in the U.S. House of Representatives titled *Broadband for First Responders Act of 2011*, was introduced by Rep. Peter King (R-NY) and addresses the creation and maintenance of a nationwide Public Safety broadband network. This bill is singular in that it provides for the reallocation of the 420-440 MHz block of frequencies away from its current primary and secondary users.

The inclusion of most of the amateur 70-cm spectrum, and the entire spectrum allocated for the Amateur Satellite Service, constitutes a major threat to satellite operations. Almost all current and planned amateur satellites include the use of 70-cm band. If the use of 70 cm is lost, there is no reasonable replacement. The next available band — 23 cm — is restricted to uplinks and is coming under increasing pressure from global navigation services. Likewise, 13 cm is rapidly becoming unusable due to terrestrial noise sources from consumer devices.

The passage and implementation of this bill will effectively end the ability to use relatively cheap, readily available amateur equipment for both amateur communications and university research programs.

AMSAT is planning to make a sample letter for sending to your representatives. Visit < <http://www.amsat.org> > for more information.

We, as members of the Amateur Satellite Service, need to make it known to legislators that this is not acceptable. There were several bills introduced providing for the allocation of the D-Block (758-763 and 788-793 MHz) for Public Safety use and HR 607 does this as well.

However, they are attempting to offset the loss of revenue resulting from the

assignment of D-Block to Public Safety rather than placing the frequencies up for public auction — 420-440 MHz would be reallocated to commercial auction within 10 years of passage of HR-607.

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That's it for this month. Hope to hear you soon on the birds!

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This Communicator's Tough Job: Remaking the Army's IT Networks (Hopefully Including MARS)

Commentary

By Bill Sexton, N1IN/AAM1RD/AAR1FP

When a teammate gets picked for the All-Star team, there's only one thing to do: applaud. So here's a cheer for Susan S. Lawrence.

That's *Lieutenant General* Susan Lawrence. The big league up in the Pentagon drafted her over the winter from the Network Enterprise Command/Ninth Signal Command (Army) at Ft. Huachuca, Arizona, which is the parent command of Army MARS. Now she is Chief Information Officer/G6 of the U.S. Army, the first woman ever to hold the loftiest post a Signaler can aspire to.

Let's hope that while tackling her new challenges, General Lawrence won't forget the dedicated radio amateur volunteers left behind in NETCOM's farm system. MARS, too, has challenges to overcome if we're to measure up in a vastly-changed environment. *We need help.*

Our distinguished former Commanding General and teammate was fresh out of high school in Ida Grove, Iowa when she decided to enlist some 40 years ago. Her preference was the Navy, but its recruiter wasn't interested so she signed up with the old Women's Army Corps (WACs).

As if being rebuffed by the Navy wasn't sufficiently frustrating, she had to make her military debut as a *stenographer* to a general — in Alaska! And then it took the brass half a dozen years to discover she was officer material.

To this day only four women have achieved three-star rank in the Army, and only one has gone on to win four stars (in 2008).

You won't find it in General Lawrence's Army biography, but she was named "Defense Executive of the Year" in 2006 by *GCN*, the *Government Computer News* magazine, for tending the Army's command and control circuits to and within Iraq.



Lieutenant General Susan Lawrence, who began her military career 40 years ago as a Women's Army Corps stenographer, is the new chief of the Army's communications and IT operations. (Courtesy of Army CIO/G6)

The official bio also fails to mention that in the mid-2000s she had to undergo cancer surgery, followed by months of getting up at 4:30 a.m. for radiation and chemotherapy so she could be on time at 7:30 for a full day's work. Retirement wasn't even considered.

What the record *does* show is a steady climb through command and staff positions in Korea, Germany, the U.S. Central Command and the Joint Chiefs of Staff before her 30 months at Ft. Huachuca. There she was responsible for information technology services (including communications) provided U.S. Army forces overseas.

"She's a soldier's general," *GCN's* "executive of the year" citation said of her repeated forays into the combat zones, "and she comes back to ensure her troops have optimal communications when and where they need it."

The ascent through multiple glass ceilings from buck private — better make that "doe" private — to the military's second highest rank tells you she's smart as well as tough. She'll need both attributes in the

new assignment, which is nothing less than integrating all the Army's fragmented and variegated information networks worldwide into a single, coherent, soldier-to-soldier system. This would be daunting enough even without simultaneously overseeing IT for two wars, or is it three?

"If you were to talk to Army leadership," said a top technology official at the Pentagon, Lt. Gen. William N. Phillips, in a recent Web interview, "I think they'd tell you that the most important and highest-priority program that the Army has today is the 'network' and synchronization of all the systems . . ."

As Lawrence herself once put it, today's warfighters need network connections more than their rifles. The M16 can run out of ammunition, she explained, while the network can call for supporting fire.

In the continental U.S. alone, the Army has spawned 264 separate "directorates of information management" spread over a stunning 447 different locations. Sounds more like a snarl than a web. To untangle it, she has a \$10 billion budget. Her arrival

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One of the Army's more unusual organizations was presented the Superior Unit Award by General Lawrence last year recognizing a "difficult and challenging mission carried out under extraordinary circumstances" in peacetime. The 21st Signal Brigade, based at Ft. Detrick, Maryland, provides the secure communications used by the President, Secretary of Defense and Joint Chiefs of Staff. (Courtesy of Ft. Detrick Visual Information)

more or less coincides with the project's crossover from the planning stage to the actual implementation.

To put a practical face on the undertaking, consider just one phase: Within the 12 months of 2011, all the several hundred email servers at military installations all over the world are to be folded into a single megasystem developed in partnership with Microsoft. Operating costs will be reduced by an estimated \$100 million a year. Network security will be significantly enhanced. And yes, it'll work on an iPad (with security apps).

The overall objective, as defined in the *U.S. Army Posture Statement, 2010*, is "to transform to an integrated enterprise network capable of providing reliable and predictable access anywhere at any time . . . globally accessible, relevant, and agile supporting both contingency operations and the day-to-day requirements of an expeditionary army . . . a single operating environment for Army forces."

Change a word or two, and you get a pretty good insight into some of the issues faced by the Military Auxiliary Radio System.

Our three branches (Army, Air Force and Navy-Marine Corps) lack "a single operating environment" (to borrow one phrase from the *Posture Statement*). Moreover, "reliable and predictable access" is problematic at both FEMA and, in the case of Army MARS, with the active-duty forces involved in the Defense Support to Civil Authorities mission (DSCA).

At least MARS can boast of achieving "relevant and agile" readiness to support military and civil customers if ever invited. It's the rusty connections to those customers that need top-down fixing.

Email in the Cloud

You might be getting a message one of these days with a puzzling @mail.mil return address. Give it a little respect because @mail.mil could become the stuff of digital history.

It is the callsign (so to speak) of the U.S. Army's new Enterprise Email service provider-in-the-sky. Starting in February, the Army began migrating all the million-plus email accounts from several hundred local servers spread around the globe to a single Microsoft Express 2010 megasystem operated in what it and Microsoft call a "private cloud."

For those just catching up on the jargon, "cloud" refers to an *invisible somewhere* in which are located the software, files, utilities and memory that formerly resided on each individual client's computer. In this case, the *digital somewhere* is an array of five Network Service Centers operated globally by the Defense Information Systems Agency.

There's been a lot of talk that cloud computing will become the wave of the future for all of us. If so, the Army's effort to increase security while cutting its data-handling costs bears watching.

It's a huge undertaking, relocating 200,000 secret and 1.4 million unclassified accounts by the end of 2011 without interrupting service — keeping in mind email is absolutely vital to the 24/7 conduct of two wars, not to mention homeland security.

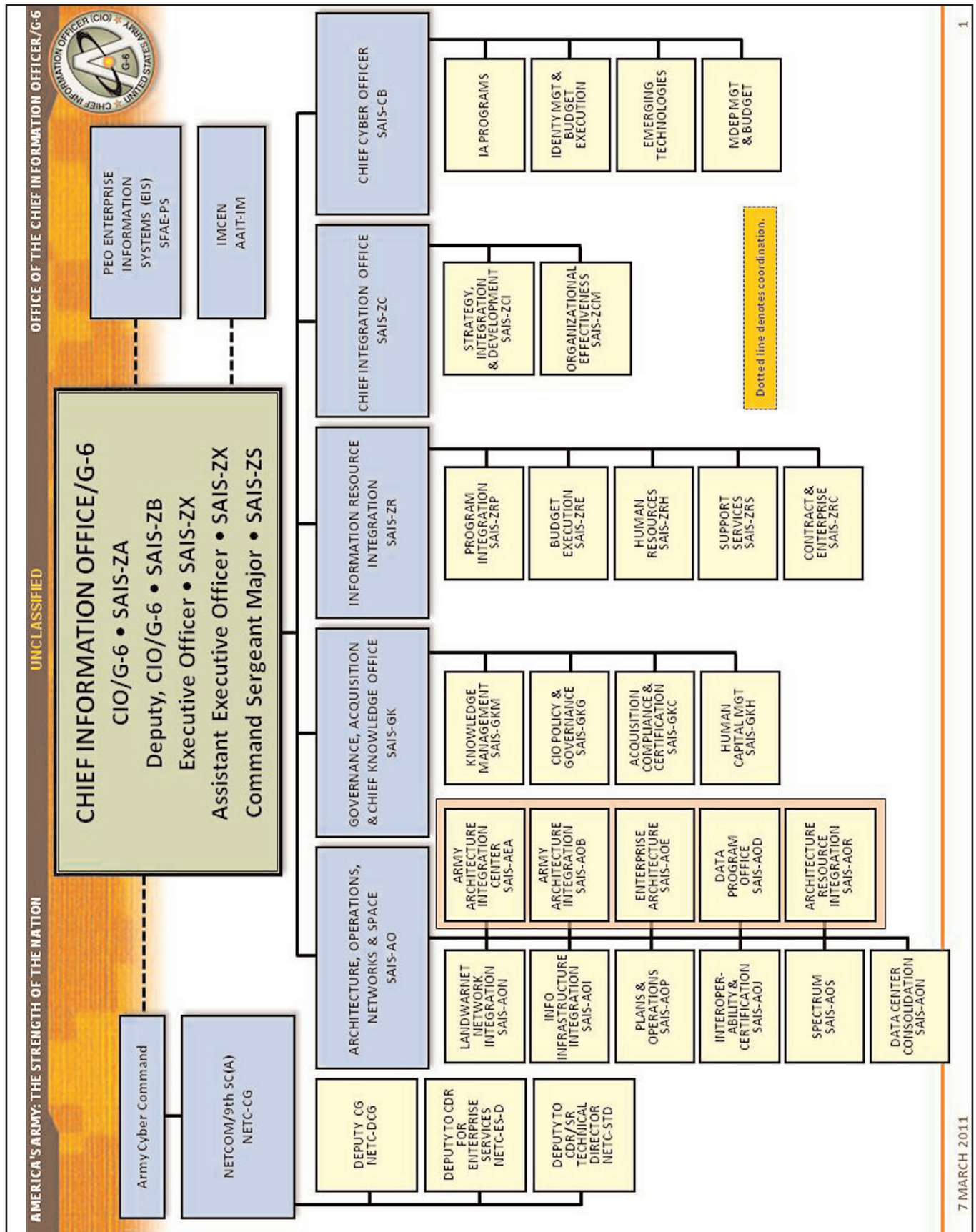
With its central users' list, the sysops at NETCOM / 9th Signal Command (Army) can instantly update or cancel access privileges and security clearance for every person in the system if circumstances require.

The CIO/G6 office predicts that by eliminating all the duplication, the annual cost of a single email "seat" will drop from more than \$100 to less than \$39 and the overall bill of \$400 million will drop by about \$100 million. That's while increasing each individual mailbox's capacity from the current 100M to 4G.

— N1IN/AAM1RD/AAR1FP



Soldiers at the Fort Stewart, Georgia Signal Center work on class material and catch up on email. (Courtesy of Siobhan Carlile, 7th Signal Command Theater).



This new chart shows the complexity of General Lawrence's responsibilities. Had Army MARS been included, its position would be in the left-hand column under NETCOM, which no longer reports to the Chief Information Officer. The dotted line means that NETCOM and CIO/G6 "coordinate." (From the CIO/G6 website)

Tweet Me, Troops



The Army's recently-retired Chief Information Officer/G6 Lieutenant General Jeffrey Sorenson championed innovation, including a lively official military presence on Twitter and Facebook. "Those of us who have been in the Army a long time typically think that everything is driven from the top," he once explained. "But in today's culture, both inside and outside the Army, there is the Web 2.0 environment that's creating opportunities to empower people and communities. It is not top-driven; instead it starts from the bottom." His successor continues utilizing both social networks as easily-accessible expressways to his and from the boss's office. (Courtesy of twitter.com.)

The organizational "top" is particularly murky these days. The Army MARS chief, for instance, has a full time job elsewhere and is seldom heard from. The disconnect becomes even more obtuse farther up the line.

Until a year ago, the three MARS chains of command intersected at the

Defense Department's Assistant Secretary for Networks and Information Integration. As an economy measure, Secretary of Defense Robert Gates abolished that office. (See the December 2010 WRO MARS column. — Ed.) That pretty much stymied hopes of bringing unity of command to the three branches.

And now, NETCOM has just been unplugged from the Chief Information Officer. NETCOM, the operator of communications systems, is being transplanted onto the Army Cyber Command, the guardian of secrets. What does Cyber Command know, or care, about responding to domestic disasters (unless the capital is involved, obviously)?

For those of us in Army MARS, the net effect (no pun intended) is twofold: Not only is the organization left unsure of its organizational moorings, but we also seem fated to dangle even farther down a long chain of command much more involved in overseas warfighting than homeland security. (The easy solution, of course, would be hitching MARS directly onto ARNORTH, which is primarily concerned with the homeland).

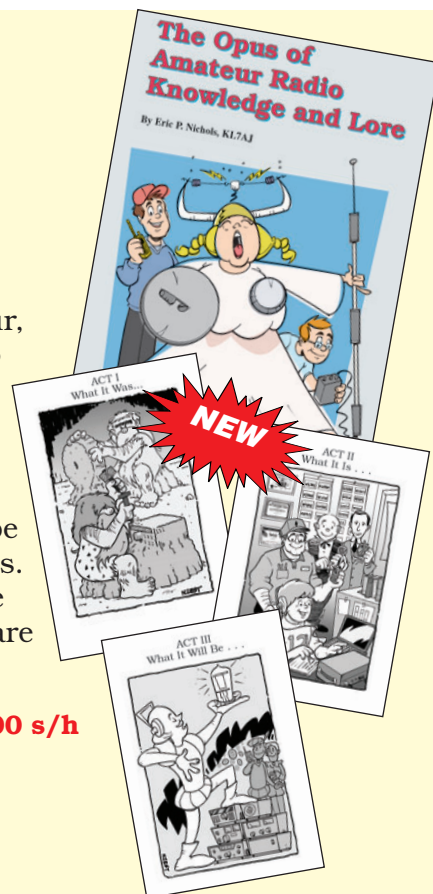
As a quasi-member of the old team at NETCOM — at the batboy level, or thereabouts — I could offer a couple of thoughts for General Lawrence, whose new post provides for coordination with Cyber Command (see accompanying chart).

Ponder for a moment the homeland being struck by a truly catastrophic event on the scale of Fukushima's. In the crucial first hours of confusion and likely panic, how will response planners at the

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Pentagon acquire any sense of the situation on the ground?

Answer: MARS members — those who survive — are sited, equipped and trained to acquire and communicate ground truth. ARNORTH can't be everywhere on Day One. MARS members already are.

And once the National Guard and FEMA get a handle on communications, there are lots of ways we can help if the DSCA folks will just include us. Hams are great improvisers and do-it-yourselfers. The heroic story comes to mind of two South Florida hams in the old Army-Amateur Radio Systems who requisitioned dozens of auto batteries over four days to keep the Army and Red Cross abreast of the deadly Caribbean hurricane of 1928 until power could be restored.

There's also the pair of MARS members, one Army and one Air Force, who after the Haiti earthquake last year flew on their own initiative to Port-au-Prince and established essential medical communications (including a link to the Navy's hospital ship offshore). One of them, the Army branch's Ron Tomo, KE2UK, with his long record of public service, was awarded the American Radio Relay League's 2010 International Humanitarian Award.

But we're useful in normal times, too. For hundreds of communities across the 50 states, MARS operators are the one and only permanent, seven-days-a-week personification of the military's commitment to civil support — and they cost the Pentagon nothing. Good people to have on the DoD team, but they need support.

Another CIO, and Wikileaks



Teresa Takai, a civilian, is new Chief Information Officer for the Defense Department, but MARS doesn't come under her jurisdiction. (Courtesy of DoD)

The Defense Department has a Chief Information Officer, too. Congress in 1996 imposed the requirement on *all* federal departments in an effort to attain efficiency and economy as spending on information technology exploded.

Then in 2002, the legislative branch demanded that federal IT operations emulate private business enterprises. That explains where the "enterprise" in the Network Technology Enterprise Commands name comes from.

Business enterprise is also where the new DoD CIO came from. For 30 years, Teresa M. Takai worked at Ford Motor Co., developing its multinational strategic IT operations. Subsequently she had been CIO successively of the states of

Michigan (2003-2007) and California (2007-2010).

Like Army's CIO Susan Lawrence, Takai wears two hats — CIO and Acting Assistant Secretary of Defense for Network and Information Integration, also known as ASD(NII).

Takai landed at the Pentagon at an interesting time. President Obama announced her ASD nomination in March 2010. In July the Wikileaks release of classified "Afghan Diary" documents erupted — an informational embarrassment of historic proportions. Then, in August, in a totally unconnected economy measure, Defense Secretary Robert Gates announced that her ASD billet was going to be abolished even before she could be confirmed by the Senate. (She continues in an acting capacity while responsibilities are redistributed.)

This spring, Takai got the assignment of explaining DoD's Wikileaks response to the Senate Homeland Security and Government Affairs Committee. She told Congress that to get control of the vulnerabilities that led to the Wikileaks incident, the Defense Department has disabled the ability to copy data from roughly 90 per cent of its classified computers. The rest were left intact to write removable media for operational reasons but only under strict new controls, she explained.

As California's CIO, responsible for 130 major systems and 10,000 employees, she once said: "We often learn more from our mistakes than from the things we've done right."

— NIIN/AAM1RD/AAR1FP

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The Rules Say...

John B. Johnston, W3BE

What Is An Emergency?

Q Our ham club has been discussing how we should properly prepare for providing emergency communications. It is not at all clear, however, as to what the rules consider the types of situations for which we should be ready to provide emergency communications. What is an *emergency* in the context of our amateur service?

A. That term goes undefined in Part 97. A common meaning of *emergency*, however, is a sudden, urgent, unexpected occurrence or occasion requiring immediate help or relief to provide safety of human life and protection of property.

Part 97 incorporates a Subpart E titled *Providing Emergency Communications*. It has provisions for safety of life and protection of property, station in distress, and RACES as well as for sharing the Alaska-Private Fixed Service channel.

It is, however, Section 97.113(b) that reveals some insight into our regulators' view for the scope of our providing emergency communications. It says:

An amateur station shall not engage in any form of broadcasting, nor may it transmit one-way communications except as specifically provided in these rules; nor shall an amateur station engage in any activity related to program production or news gathering for broadcasting purposes, except that communications directly related to the immediate safety of human life or the protection of property may be provided by amateur stations to broadcasters for dissemination to the public where no other means of communication is reasonably available before or at the time of the event.

From this we can conclude — provisionally — that there should be three dire adversities present while providing emergency communications in our amateur service:

- (1) A sudden, urgent, unexpected occurrence or occasion requiring immediate help or relief;
- (2) A need of assistance for the immediate safety of human life or the protection of property;
- (3) No other means of communication is reasonably available.

Q. We are having difficulty in understanding Section 97.113(a)(3)(i):

- (a) No amateur station shall transmit:
- (3) Communications in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer, with the following exceptions:
 - (i) A station licensee or control station operator may participate on behalf of an employer in an emergency preparedness or disaster readiness test or drill, limited to the duration and scope of such test or drill, and operational testing immediately prior to such test or drill. Tests or drills that are not government-sponsored are limited to a total

time of one hour per week; except that no more than twice in any calendar year, they may be conducted for a period not to exceed 72 hours.

We haven't found any definition for a *control station operator*, or even a *control station*, anywhere in Part 97. We consider a *control station* to be an auxiliary station; one that transmits communications point-to-point within a system of cooperating amateur stations for remote control and telecommand purposes under the authority of the special operations in Sections 97.3(a)(7) and 97.201. This apparently is not the meaning of *control station* in the context of the rule.

The only other meaning that we could imagine was in reference to our network control station control operator. Is that person the only operator who can accept pay?

A. Unlikely. That irregular term *control station operator* in Section 97.113(a)(3)(i) is doubtless an unintentional scramble of the term *station control operator*. Section 97.7 says each amateur station, when transmitting, must have a control operator. That term is defined in Section 97.3(a)(13):

An amateur operator designated by the licensee of a station to be responsible for the transmissions from that station to assure compliance with the FCC Rules.

Q. We are probably not expected to always blindly follow the rules to the letter while providing emergency communications. We assume that we are expected to use our best on-the-scene judgment. But we couldn't find anything like that actually stated in the rules. If it's in there, where is it?

A. Sections 97.403 and 97.405 are the operative rules:

§97.403 Safety of life and protection of property.

No provision of these rules prevents the use by an amateur station of any means of radio communication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.

§97.405 Station in distress

(a) No provision of these rules prevents the use by an amateur station in distress of any means at its disposal to attract attention, make known its condition and location, and obtain assistance.

(b) No provision of these rules prevents the use by a station, in the exceptional circumstances described in paragraph (a) of this section, of any means of radio communications at its disposal to assist a station in distress.

Section 97.1(a), moreover, gives us reassurance that Part 97 is designed to provide an amateur radio service having a fundamental purpose as expressed in several principles, one of which is to provide the public with voluntary non-commercial emergency communications

Q. Section 97.3(a)(4) unambiguously defines an amateur as a duly authorized person interested in radio technique solely with a personal aim and without pecuniary interest. There is a clear-cut pecuniary interest when a person causes or allows a station to transmit communications on behalf of an employer. Those persons are not *amateurs*; they are paid *professionals* and, as such, are ineligible for the classification amateur.

A. Under Section 97.113(a)(3)(i), they are most likely conducting operational testing during — or immediately prior to — an emergency preparedness and disaster readiness test or drill.

Q. What is operational testing?

A. That term also goes undefined in Part 97. It refers, seemingly, to transmissions made during those periods between that of actually providing emergency communications and that of participating in emergency preparedness or disaster tests or drills. If non-RACES government sponsored, it has priority over our amateur service communications. Read Section 97.101(c).

Q. What kinds of communications can be transmitted during operational testing?

A. Those communications, apparently, that could help to increase the possibility that the stations' transmissions will go through during a real emergency.

Q. For which levels of government infrastructure may a station licensee or control station operator professional participate on behalf of an employer in unlimited emergency preparedness or disaster readiness testing and drilling.

A. For all levels of government: federal, state, county, municipal, etc., without time limits, unless they involve communications for RACES training. Non-RACES government sponsored testing and drilling can be conducted any time, with priority over amateur service communications. Read Section 97.101(c).

RACES training drills and tests — unlike other government-sponsored tests and drills — are limited to a total time of one hour per week; except that no more than twice in any calendar year, they may be conducted for a period not to exceed 72 hours. Read Section 97.407(e)(4).

Section 97.113(a)(3)(i) also limits our non-government, private-sector emergency communications testing and drilling to a total time of one hour per week; except that no more than twice in any calendar year, they may be conducted for a period not to exceed 72 hours.

Q. Does that also include agencies of foreign governments?

A. Yes. Section 97.113(a)(3)(i) does not exclude foreign government agencies. Station licenses and control operators can participate on behalf of a foreign government agency in unlimited emergency preparedness or disaster readiness tests or drills. The station license, however, cannot be held by a representative of a foreign government. Read Section 97.5.

The foreign government agency, nevertheless, can engage a FCC-licensed amateur operator, or a non-U.S. citizen (alien) holding an amateur service authorization granted by the alien's government, provided there is a multilateral or bilateral reciprocal operating agreement in effect to which our United States and the alien's government are parties. Read Section 97.107.

Q. Section 97.101(c) says that at all times and on all frequencies, each control operator must give priority to stations providing emergency communications, except to stations transmitting communications for training drills and tests in RACES. What is the policy with respect to non-RACES government professionals drilling and testing away 24-7 on our frequencies with priority over our private sector amateur service communications?

A. In the Report and Order in WP Docket No. 10-72 adopted July 14, 2010, it was stated:

While we recognize commenters' concerns regarding the potential for improper use of amateur radio in conducting emergency drills and tests, we find that the public interest in permitting non-government-sponsored entities to utilize, on a limited basis, amateur radio as part of emergency and response outweighs such concerns.

For more questions and answers concerning emergencies, read BE Informed No. 44.1 <<http://bit.ly/gYNalr>>.

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VE6EFR, Alberta, Canada: Wireless Meets Web at 'Edmonton Fire Radio'

By Jeff Bishop, VE6EFR

A visit to his brother's father-in-law many years ago sparked Jeff Bishop's interest in amateur radio. A Hammarlund HQ-140X receiver and CW practice tape subsequently led to a license. "I remember spending many an hour in front of that radio listening to the ham bands as well as listening to short-wave broadcasts," he recalled.

Today he is VE6EFR, and along with his wife Lana has bridged the narrowing gap between amateur radio and the Internet — with Public Service through their "Edmonton Fire Radio" as the harmonic convergence.

Are you as proud of your station's appearance as VE6EFR? Or do you find your messy radio shack quite comfortable and the perfect retreat for some on-air relaxation? Send digital photographs of your station with details to: <WorldRadioOnline@gmail.com> and we'll consider them for publication in Station Appearance in an upcoming edition of WRO.

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

I got started in amateur radio quite a while ago. When I was a kid, my brother's father-in-law was a ham. When visiting his home he gave a demonstration of amateur radio and noticed my interest.

One day when my brother came for a visit he had with him a Hammarlund HQ-140X receiver as well as a CW practice

tape . . . I look back at this as being my first step into the hobby of amateur radio.

I was originally licensed by the Federal Communications Commission as a Novice back in 1988. I worked my way through Technician, then General, Advanced and finally Extra Class licenses.

After moving to Canada, my U.S. ham license was going to expire. Since I no longer had an address in the United States, the FCC would not allow me to renew my ticket. A friend of mine who works for the City of Edmonton in Fleet Safety who is also a ham told me I should give the Canadian exam a try.

After looking over the material for a few weeks, I took and passed the test. Here, in Canada, when you fill out its equivalent of Form 610, they ask you to list three callsigns you would like to be issued. VE6EFR was available and I was granted it. (Why VE6EFR? You'll see! — Ed.)

One interesting side note is that the privileges I have with my Canadian license are pretty much the same as what I had as an Extra Class in the U.S.

While I am not part of the emergency services here in Edmonton, I do have an enormous amount of respect for the men and women who put their lives on the line in order to help keep the rest of us out of harm's way. So my wife and I started *Edmonton Fire Radio* in 2007. (Now, check that callsign. — Ed.)

Our amateur station pulls double duty by allowing people to



Edmonton Fire Radio has been a listener service on the Internet by VE6EFR and his wife Lana since 2007. A Radio Shack PRO-96 scanner provides the feed for online broadcast to listeners around the world. (Photographs courtesy of VE6EFR)

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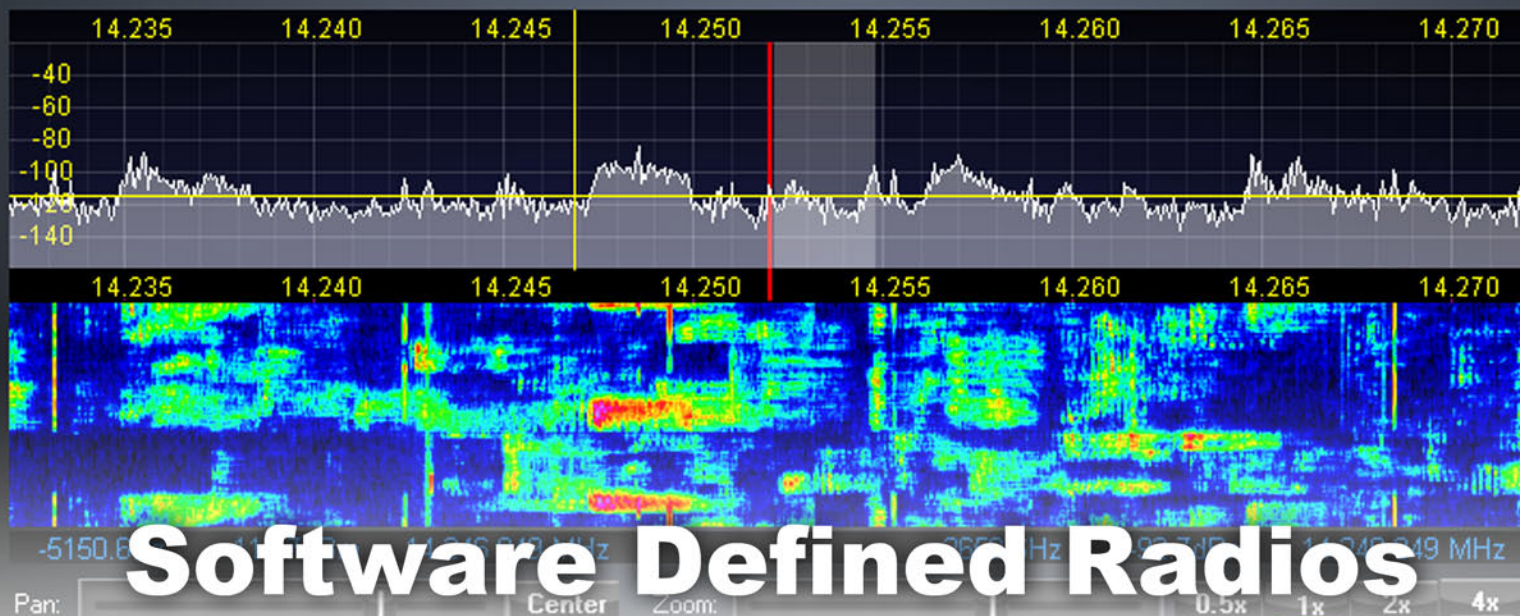
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An ICOM 207H at VE6EFR is usually scanning between 146.94 and 147.06 MHz , as well as 147.495 MHz simplex.

listen to live audio from the Edmonton Fire Rescue Services and Edmonton EMS on our website: < <http://www.edmontonfireradio.com> >.

Originally we wanted to give a few friends who live outside of the Edmonton area a way to listen-in on what was happening with fire and EMS here in real time — via the Internet. Word got out and we started to see our listener numbers grow. Then in August 2008 we were contacted by the *Edmonton Sun* newspaper. After the article ran, almost immediately we found our audio server at near capacity. Today we average more than 10,000 unique listeners per month from 108 countries.

The two smaller monitors you see in the accompanying photographs are 23-inch-wide screens and the larger one in the middle is a 32-inch HDTV/monitor.

You can see the radio equipment on the right side of the image. The mobile radio is an ICOM 207H and is usually scanning between 146.94 and 147.06 MHz and 147.495 MHz simplex. The object directly beneath the radio is a 12-amp power supply and external speaker.



A Radio Shack Pro-96 scanner and Kenwood TH-D7 A/E VHF/UHF HT are part of the equipment line-up at Edmonton Fire Radio – VE6EFR.

The scanner we use for the feed on our website is on the far right — a Radio Shack PRO-96.

Below the desks are two Acer computers. The processor is an AMD Athlon II x4 620 with 4 GB RAM.

Due to antenna restrictions, 2 meters and 70 cm are the bands I operate 90 percent of the time. However my main reason for getting involved in amateur radio is chasing DX and contesting, with 20 meters being my favourite band on HF.

On VHF/UHF I have tried several different indoor antennas — from magnet mount mobile antennas to a self-standing J-pole but found, at least in my case, a simple vertical dipole antenna seems to work better than anything else. I am able to reach almost every repeater within 40 miles of my home with 25 watts or less.

The amateur radio equipment is used mostly for casual communications. I am the net control station for the North Central Alberta Amateur Radio Club on Wednesday evening net on the



A screen capture shows VE6EFR's Edmonton Fire Radio homepage on the Internet: < <http://www.edmontonfireradio.com> >.

VE6LAW-R (EchoLink node number 236406 at 7:30 PM Mountain time). I am active with CANWARN operations, as well — similar to the SKYWARN program in the U.S.

A while ago we added an IRC (Internet Relay Chat) chat room on the website so listeners can talk to each other about events they are hearing. Normally it is fairly quiet with around 10 or so people in the room. If a major event breaks in the city, the number of people in the room often jumps to 25 or more and the number of listeners on the audio server quickly reaches the maximum of 110.

Recently the EFR chat room has been getting attention from a few of the fire and EMS dispatchers. A few of them have started to log-in while on duty and chat with listeners as time permits. Talk about getting a *unique point of view* about a particular event that we are hearing on the radio!



A simple vertical dipole for 2-meter and 70 cm operation does the job at VE6EFR, giving the station capability to hit repeaters as far as 40 miles away.

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JUNE

KNOXVILLE, TENNESSEE – Knoxville Hamfest and Electronics Exposition and ARRL Tennessee State Convention, Kerbel Temple, Knoxville, Tennessee. Saturday, June 11, 8:30 a.m. to 4 p.m. In association with **Radio Amateur Club of Knoxville, RACK**. Latest information: < <http://www.W4BBB.org> >. Contact Lou Dreinhoefer, WB3JKQ, e-mail: < wb3jkq@arrl.net > or David Bower, K4PZT, e-mail < d.bower@ieee.org >. Talk-in 53.770, 147.300, 224.500, 444.575 MHz. VE exams. Tickets \$7. Inside tables \$20. Outside tailgating \$5.

QUEENS, NEW YORK – The Hall of Science Amateur Radio Club Hamfest will be held June 12 at the New York Hall of Science parking lot, Flushing Meadow Corona Park, 47-01 111th Street, Queens, New York. Doors open for Vendors to set up at 7:30 AM. Buyers admitted at 9 a.m. Free parking, door prizes, drop and shop, QSL card checking, food and refreshments. Free admission to museum from 10 a.m. to 11 a.m. or \$6 after with hamfest ticket. VE Exams at 10 a.m. Admission by donation. Buyers \$5. Sellers \$10 per space. Talk-in on 444.200 (PL 136.5), 145.270 (-600 kHz, PL 136.5). For further information: < <http://www.hosarc.org> > or call at night only: Stephen Greenbaum, WB2KDG, (718) 898-5599. Via e-mail: < WB2KDG@arrl.net >.

PISCATAWAY, NEW JERSEY – Raritan Valley Radio Club ARRL Hamfest, June 18 at Piscataway High School (Lots 11/12), 100 Behmer Rd., Piscataway, NJ. Information: < <http://www.w2qw.org> >. Talk-in: 146.625 and 442.250 (both PL 141.3). Public contact: E. Drew, W2OU. E-mail: < drumor@optonline.net >.

MISSISSAUGA, ONTARIO, CANADA – Special Event Station VE3MIS, Mississauga Amateur Radio Club, June 4-5, 1400-2000Z daily. Annual Streetsville Bread & Honey Festival. Frequencies: 28.480, 14.240, 7.230 MHz. Certificate: MARC, c/o Michael Brickell, VE3TKI, 2801 Bucklepost Cres, Mississauga, ON, Canada L5L 1M6. Include \$2 U.S. for postage. Please note: We cannot use U.S. postage stamps in Canada. Information: < <http://www.marc.on.ca/> >.

PHILADELPHIA, PENNSYLVANIA – Special Event Station K3DN, 17:00Z, June 4 to 17:00Z, June 5. Warminster Amateur Radio Club at the Union League in Philadelphia to honor the American Flag. Frequencies: 28.70, 21.050, 21.280, 14.050, 14.280, 7.050, 7.280, 3.580, 3.880 MHz and PSK31 on 14.070 MHz. More information: < <http://www.k3dn.org> >. Certificate via self-addressed, stamped letter-size envelope along with \$1 U.S. to K3DN, Warminster Amateur Radio Club, PO Box 113, Warminster, PA 18974. Foreign stations must include the correct amount of postage. Contact: Irwin Darack, KD3TB, < irwindarack@comcast.net > or (267) 261-4959.

JULY

WAYNESVILLE, NORTH CAROLINA – WCARS Hamfest July 30 at Haywood County Fairgrounds, Waynesville, North Carolina. Sponsored by Western Carolina Amateur Radio Society. \$5 per ticket if you buy in advance. \$7 at the gate. \$12 for vendors per table. The club will be giving VE Exams. Free tailgating and parking with the purchase of a ticket. Contact: Randy Harris, KI4VLW, < rtsp71@aol.com >. On the Web: < <http://www.wcars.org> >.

OKLAHOMA CITY, OKLAHOMA – 36th Annual Ham Holiday 2011, July 29-30. Presented by the Central Oklahoma Radio Amateurs, Inc., at the Biltmore Hotel/Conference Center, I-40 and Meridian, Oklahoma City < <http://www.biltmoreokc.com> >. From 4 p.m. to 8 p.m. Friday, July 29; and 8 a.m. to 3 p.m. Saturday, July 30. Technical and nontechnical programs, DXCC/WAS card check, VE testing, flea market. Pre-registration \$8; at door \$10; flea markets \$15/table in advance; \$20/table at door (if available). Online registration available in early May. Under 16 years of age free with adult. Talk-in: 147.03 (+ offset, PL 167.9Hz). Additional information and registration forms available on the CORA Web site: < <http://www.HamHoliday.org> >. Vendors, contact < kc5qcv1@att.net > for details. See the CORA webpage < <http://hamholiday.org> > for preregistration information.

OSHKOSH, WISCONSIN – Special Event Station W9ZL, from EAA Airventure 2011, July 27-31, 1500-0000 UTC. World's largest airshow and fly-in. Fox Cities Amateur Radio Club, Inc., will operate W9ZL from the EAA grounds on 14.250 and 7.250 MHz, and 52.550 MHz FM. Certificate available. Send QSL and large SASE to FCARC AirVenture 2011, PO Box 2346, Appleton WI 54912.

OAK CREEK, WISCONSIN – South Milwaukee Amateur Radio Club 44th annual SWAPFEST, July 9, 6:30 a.m. to at least 2 p.m. CDT, American Legion Post No. 434 grounds, 9327 S. Shepard Ave. Free parking, picnic area, extremely limited free overnight camping. Hot and cold beverages, and donuts and sandwiches available. Admission: \$5 per person. Prizes will include \$100 at noon. Talk-in: 146.52 simplex and local repeaters. Free flyer with map: The South Milwaukee Amateur Radio Club Inc., Post Office Box 222, South Milwaukee, WI. 53172-0222. On web-site: < <http://www.qsl.net/wa9txe> >.

NORTH BEND, NEBRASKA – Pioneer Amateur Radio Club 14th Annual Flea Market at St. Charles Parish Center. North Bend, Nebraska. July 30 from 9 a.m. to 12:30 p.m. Free coffee and tea. Admission \$2. Each table \$5 in advance or \$7 at door. Prizes. Complete details: < <http://www.k0jfn.com> >.

OAK CREEK, WISCONSIN – South Milwaukee Amateur Radio Club Summer Swapfest, July 9 at American Legion Post No. 434, 9327 S Shepard Ave., Oak Creek, Wisconsin. 6:30 a.m. to about 2 p.m. Limited free overnight parking. Breakfast and lunch served by the auxillary. Flyer and a map with a link to Mapquest: < www.qsl.net/wa9txe/ >. There is a \$100.00 prize given away at noon. Contact: WB9TIK, < wb9tik@sbcbglobal.net >.

KIMBERTON, PENNSYLVANIA – Valley Forge Hamfest and Computer Fair, July 17 at Kimberton Fire Company Fairgrounds, Rt.113, Kimberton, Pennsylvania. Sponsored by The Mid-Atlantic ARC. Full details including a printable flyer can be found at < <http://www.marc-radio.org> >. Sellers, 7 a.m. Buyers 8 a.m. Talkin: 145.13/- and 147.06/+ ctcss 131.8. Contact Mike Pilotti, KF3CD at < kf3cd@arrl.net > or (610) 696-5040.

INDIANAPOLIS, INDIANA – Indianapolis Hamfest, July 9. Gates open 6 a.m. Air conditioned commercial building, large outdoor flea market, MARS meeting, forums, contest, dual-band HT given away each hour. More information: < <http://www.indyhamfest.com> > or (317) 261-6658.

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VE EXAMS

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

p/r pref. = pre-register preferred but w/i OK

w/i = walk-in only

p/r = pre-registration only-no w/i

w/i pref. = w/i preferred to p/r

CITY	DATE	CONTACT	NOTES	CITY	DATE	CONTACT	NOTES
ARIZONA				NEVADA			
Mesa	3rd Mon	Steve KY7W, 480-804-1469, kj7wk@cox.net	w/i	Stagecoach	2nd Sat	Jack, AC6FU, 775-577-2637 ac6fu@arrl.net	
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@arrl.net		NEW JERSEY			
ARKANSAS				Roselle	4th Sat	Gerry, AA2ZJ, 732-283-2795, aa2zj@arrl.net	
Sherwood	1st Sat	Daryl Stout, AE5WX, 501-291-5058	w/i	Winslow	4th Tues	Mark, K2AX, 609-820-1523, JTRA@comcast.net	
Vilonia	3rd Sat	James, KE5OVE, 501-796-3910, ke5ove@arrl.net	p/r pref.	NEW YORK			
CALIFORNIA				Bethpage	2nd Tues	Bob, 631-499-2214, w2ilp@optonline.net	p/r
Highland	6/18	Ed, WU6I, 909-864-0155, wu6i@arrl.net	p/r pref.	Canandaigua	1st Wed	Squaw Island ARC, David A. Foster, 585-398-0216, www.siarc.us	w/i
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arrl.net	p/r	Valhalla	Call	Stanley, WA2NRV, wa2nrv@weca.org	
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r	Yonkers	Call	Paul, AC2T, 914-237-5589, w2yrc@hotmail.com, www.yarc.org	w/i ok
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5dfl@arrl.net	p/r	NORTH CAROLINA			
Redwood City	Call	Al, WB6IMX@arrl.net, www.amateur-radio.org	w/i	Fayetteville	Call	Patricia Edwards, N4UGH, n4ughpat@aol.com, 910-584-1801	w/i
Sacramento	Hotline!	916-492-6115, n6na@arrl.org		OHIO			
San Francisco	See site	www.hamcrams.com	p/r pref	Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok	Sandusky	Call	Luther, N8HC, 419-684-7864, n8hc@arrl.net	p/r
Sebastopol	Hotline!	Recording 707-579-9608		OREGON			
Sunnyvale	Visit Site	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i	Astoria	Call	AA7OA, 503-338-3333	p/r
COLORADO				Bend	Weds	Joe, K7SQ, 541-385-3152	p/r
Englewood	1st Sat	Dave, N0HEQ, 303-795-5718, n0heq@arrl.net, Commerical Exams also	p/r pref	Lincoln City	1st Sat	Carl, w7li@arrl.net, 503-965-7575	w/i ok
FLORIDA				McMinnville	Call	Mark, AC7ZQ, 503-843-3580	w/i only
Longwood	4th Sat	James, N4ZKT, 407-333-4245		Sisters	Call	Dave, N7TYO, 541-549-7831	p/r
Melbourne	1st Sat	John, AA8IS@earthlink.net, 321-412-2779	w/i ok	Tigard	Call	John, KS0F, 503-626-7399	p/r
North Port	Call	Bill Norris, KC7TSG, 941-426-0214	w/i pref.	PENNSYLVANIA			
St. Pete	Call	Mark, NP3R, 727-528-0071	w/i pref.	Erie	3rd Sat	Ron, KB3QBB, 814-833-6829, kb3qbb@arrl.com, www.wattsburg-wireless.us	p/r
Sanford	4th Sat	James, N4ZKT, 407-333-4245, n4zkt@bellsouth.net		Lebanon	3rd Sat	Wa3gpm@arrl.net	
HAWAII				PUERTO RICO			
Oahu Is.	Call	Lee, KH6BZF, 808-247-0587	p/r	San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
IDAHO				SOUTH CAROLINA			
Kamiah	2nd Tues	Alan, 208-937-2222, Ken 208-935-8888		Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org; www.qsl.net/wa4usn/	w/i
IOWA				Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hyy@sc.rr.com	w/i
Ames	6/22	George Oster, NP2N, 515-233-3535	w/i pref.	VIRGINIA			
Vinton	3rd Tues	Kenneth, N0EGV, 319-223-5739, n0egv@southslope.net	w/i ok	Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arrl.net	w/i
ILLINOIS				Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arrl.net, www.qsl.net/semcomm	p/r
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok	WASHINGTON			
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r	Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
Lake in Hills	4th Sat	Jeffrey Dubin, N9MXT, 847-815-9407		Vancouver	Hotline!	CCARC, 360-896-8909	p/r
Roselle	2nd Tues	Sam, W9SFB, 630-894-0708, w9sfb@aol.com	p/r	Vancouver	Call	Vancouver ARC-Clark County, 360-892-5580 C. Wayne Schuler, AI9Q ai9q@arrl.net	w/i ok
INDIANA				WEST VIRGINIA			
Richmond	Call	Mike, 765-439-4230, w1idx@arrl.net	w/i	Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r	WISCONSIN			
MASSACHUSETTS				Racine	1st Sat	Robert, W0WLN, 262-886-8551	w/i pref.
Brookline	Call	Jim, N1ICN, 617-364-4658, n1icn@arrl.net	p/r				
Marlboro	3rd Sat	Bill, K1IJ@mmra.org, mmra.org/exam	w/i pref.				
MICHIGAN							
Garden City	Call	Ken Wardell, AB8ZD, 734-421-7730, gsnapshot@att.net	w/i ok				
Muskegon	1st Sat	Bob 231-780-5575, res00lw1@frontier.com					
Oak Park	1st Tues	D. Flint at 248-981-8145					
MINNESOTA							
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arrl.net	p/r pref.				
MISSISSIPPI							
Gulfport	1st Sat	Harrison Cty., Clay, W5ACS 228-863-2042 w5acs@arrl.net	w/i ok				

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CONTEST CORNER

CONTEST: Alabama QSO Party
DATE & TIME: 1600Z 4 June – 0400Z 5 June
BANDS/MODE: 160-10M CW/SSB
POINTS: 1 Pt. per SSB QSO; 2 Pts. per CW QSO
MULTIPLIERS: Alabama sta's count 50 States & Canadian Provinces; All others count Alabama Counties (67)
EXCHANGE: Alabama sta's give RS(T) + County; All others give RS(T) + State/Province/Country
ENTRY CATEGORIES: Single Op; Single Op – Multi; Multi Op – Multi; Single Op – Mobile; Single Op with Driver; Multi Op – Mobile; Club; School; QRP (<5W); Low (>150W); High (>150W)
ENTRIES: 30 Days Jim Johnson, KC4HW 6274 South CR 49 Slocomb, AL 36375
 Cabrillo to: logs@alabamagsoparty.org
 Rules at: www.alabamagsoparty.org/2011/2011Rules.pdf

CONTEST: NAQCC Sprint
DATE & TIME: 0030-0230Z 8 Jun
BANDS/MODE: 80/40/20M CW
POINTS: 1 Pt. non-member QSO; 2 Pts. member QSO
MULTIPLIERS: States/Provinces/Countries
EXCHANGE: RST + State/Province/Country + Member # (non-members give power)
ENTRY CATEGORIES: SWA – simple wire antenna(s); Gain – all other antenna(s)
ENTRIES: 7 Days John Shannon, K3WWP 478 E. High St., Kittanning, PA 16201
 E-mail: naqcc33@windstream.net (Submit log as plain text, NO attachments!)
 Rules at: http://naqcc.info/sprint_rules.html
 On-line log form available at: http://naqcc.info/sprintlog.html

CONTEST: Portugal Day DX
DATE & TIME: 0000-2359Z 11 Jun
BANDS/MODE: 80-10M SSB/CW
POINTS: 1 Pt. Same Continent/Same Country; 5 Pts. CT to CT;
MULTIPLIERS: Portuguese District/Autonomie Districts + DXCC
EXCHANGE: RS + serial #; Portuguese sta's give RS + District/Autonomie
ENTRY CATEGORIES: Single op only!
ENTRIES: 31 August REP - Rede dos Emissores Portugueses Award/
 Contest Manager Rua D. Pedro V, No. 7-40, 1250-092 Lisboa, Portugal.
 Cabrillo to: rep-concursos@rep.pt
 Web page: www.rep.pt/portugal_day_contest/
 Rules at: www.rep.pt/portugal_day_contest/rules.html

CONTEST: Asia Pacific Sprint
DATE & TIME: 1100-1300Z 12 Jun
BANDS/MODE: 15/20M SSB
POINTS: 1 Pt. per QSO
MULTIPLIERS: Prefixes per WPX rules
EXCHANGE: RS + serial # (Note: Logs must contain both sent and rcvd serial #)
ENTRY CATEGORIES: Single Op only!
ENTRIES: 7 Days by E-mail: (Cabrillo) apsprint@jsfc.org
 Web page: http://www.jsfc.org/apsprint/
 Rules at: www.jsfc.org/apsprint/aprule.txt

CONTEST: ARRL VHF QSO Party
DATE & TIME: 1800Z 11 Jun - 0300Z 13 Jun
BANDS/MODE: 6M and up!
POINTS: 1 Pt per QSO, 6 or 2M; 2 Pts per QSO 222 MHz or 432 MHz; 3 Pts per QSO 902 or 1296 MHz; 4 Pts per QSO 2.3 GHz or higher
MULTIPLIERS: Grid Squares per band
EXCHANGE: Grid Square
ENTRY CATEGORIES: Single op - Low or High; Single op - Portable; Rover; Multi op; Multi op - limited
ENTRIES: 12 July June VHF, ARRL 2225 Main St., Newington, CT 06111
 Cabrillo format to: JuneVHF@arrl.org;
 Web entries via applet at: www.b4h.net/cabforms/
 Rules at: www.arrl.org/june-vhf-qso-party

CONTEST: All-Asian DX
DATE & TIME: 0000Z 18 Jun - 2359 19 Jun
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. 40-15M; 2 Pts 80/10M; 3 Pts. 160M
MULTIPLIERS: Asian prefixes
EXCHANGE: OM's give RST + age; YL's give RST + age (or "00" if desired)
ENTRY CATEGORIES: Single Op – low or high; Single Op non-Asian – low or high; Multi Op – single XMTR; Multi Op – Multi XMTRS
ENTRIES: 30 Days JARL All Asian DX Contest Tokyo 170-8073, Japan
 E-mail: aacw@jarl.or.jp (NOTE: Based on 2010 rules.
 2011 rules not available at time of submission)

CONTEST: West Virginia QSO Party
DATE & TIME: 1600Z 18 Jun – 0200Z 19 Jun
BANDS/MODE: 80-10M SSB/CW/Digital
POINTS: 1 Pt. SSB; 2 Pts. CW or Digital/DXCC Countries
MULTIPLIERS: WVA Counties (55); WVA sta's use WVA Counties + States/Provinces
EXCHANGE: WVA sta's give RS(T) + County; All others give RS(T) + State/Province/DXCC Country
ENTRY CATEGORIES: Single Op, QRP, Low, High; Multi-Multi, QRP, Low, High; Mobile
ENTRIES: 20 July Jeffrey Woods 123 Gladesville Cemetery Rd., Independence, WV 26374
 E-mail logs: wvqplogs@gmail.com
 Rules at: www.qsl.net/wvsarc/wvqp/2011wvqsorules.html

CONTEST: Run for the Bacon
DATE & TIME: 19 Jun. 2100 – 2300 Eastern Daylight Time,
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. non-member, 3 Pts. Flying Pigs member, 5 Pts. DX member
MULTIPLIERS: States/Provinces/Countries
EXCHANGE: RST + State/Province/Country + member # (non-members give power)
ENTRY CATEGORIES: Not given
ENTRIES: Online only: http://www.fpqrp.com/autolog.php
 Rules at: http://www.fpqrp.com/fpqrpun.php

CONTEST: Marconi Memorial HF
DATE & TIME: 1400Z 25 Jun - 1400Z 26 Jun
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. per QSO
MULTIPLIERS: CQWW countries
EXCHANGE: RST + serial #
ENTRY CATEGORIES: Single Op - QRP (<5W), Low (<100W); Multi Op- QRP/Low
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 Cabrillo to: contest.marconi@arifano.it
 Rules at: http://www.arifano.it/Contest_Marconi.htm#Go to Rules (English)

CONTEST: ARRL Field Day
DATE & TIME: 1800Z 25 Jun - 2100Z 26 Jun
BANDS/MODE: All bands/modes
POINTS: Complicated
MULTIPLIERS: Complicated
EXCHANGE: ARRL Sections
ENTRY CATEGORIES:
ENTRIES: 26 July Field Day Entries 225 Main St., Newington, CT. 06111
 E-mail ASCII or Cabrillo format to: fieldday@arrl.org
 Web applet: www.b4h.net/cabforms/
 Rules at: www.arrl.org/files/file/Field-Day/2011/2011_Rules.pdf

CONTEST: QRP ARCI Milliwatt Field Day
DATE & TIME: 1800Z 25 Jun - 2100Z 26 Jun
BANDS/MODE: Same as ARRL
POINTS: 1 Pt. SSB; 2 Pts. CW or Digital
MULTIPLIERS: Highest power output – 1 (>5W); 7 (1-5W); 10 (250mW-1W); 15 (55mW-250mW); 20 (<55mW)
EXCHANGE: Class + ARRL Section
ENTRY CATEGORIES:
ENTRIES: 30 Days Jeff Hetherington, VA3JFF 139 Elizabeth St., W. Welland, Ontario Canada L3C 4M3
 E-mail: contest@qrparci.org
 Rules at: www.qrparci.org/content/view/6870/118/
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CONTEST: His Majesty, The King of Spain
DATE & TIME: 1200Z 25 Jun - 1200Z 26 Jun
BANDS/MODE: 160-10M SSB
POINTS: DX sta's = 1 Pt per QSO other countries, 3 Pts. QSO with EA sta's; EA sta's = 1 Pt. per QSO DX, 2 Pts. Per QSO EA sta's
MULTIPLIERS: Spanish provinces (52 possible) in each band
EXCHANGE: RST + Serial #; EA sta's give RS(T) + Province + Serial #
ENTRY CATEGORIES: Single-op, EA or non-EA monoband; Single-op, EA or non-EA multiband; Multi-op, EA or non-EA
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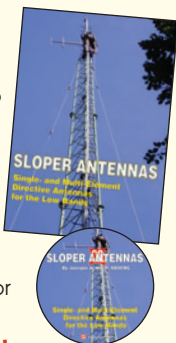
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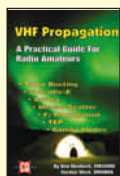
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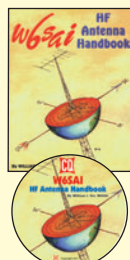
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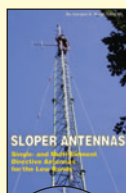
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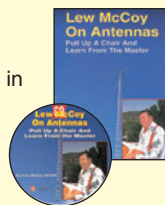
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DX Chasing: Suited to a 'T' — Even from a Small Lot

By Kurt N. Sterba

Doug Scotberg, KA7ZVW, writes from Spokane Valley, Washington: "I enjoy your *Aerials* column in *WorldRadio Online*. I have a wooden mast 32 feet in length. If I attach a 40- or 80-meter dipole, I am looking at a *cloud warmer*, since 32 feet is less than a half wavelength for both 80 and 40. My question is: What can be done for 80 and 40 on a three-quarter-acre lot and a 32-foot mast?"

Krusty Olde Kurt thinks you can do a lot to put you in a position to work DX on both bands. What you should do is put up a 32-foot, top-loaded vertical with a good set of radials under it. The first step is to find a location for the 32-foot mast that will put it clear of buildings, trees and any other RF-absorbing obstructions. It should also be clear at ground level to allow for the radials.

Put in at least 12 radials and make them 35 feet long. If you can do so, make that 30 radials, each 80 feet long. More and longer radials are always better — but either of these will enable you get out quite well.

Kurt suggests a "T" antenna. Run a wire up the 32-foot pole and then put out your 80-meter dipole (flat-top), but with no center insulator. Both sides of the "dipole" connect directly to the vertical wire. The vertical is your radiating antenna, top-loaded by the horizontal wires.

Currents go out the horizontal wires in opposite directions. They tend to cancel each other so there is very little horizontal radiation. Your RF goes out from the vertical wire at low angles — ideal for working DX. The length of the horizontal wires can be whatever is convenient considering what end supports are available. But the two wires should be of equal length.

Short antennas are always narrow-band. You can broaden them somewhat by running two wires down from the "flat-top." Separate them by two or three feet and connect them in parallel, at the bottom.

The antenna is not going to be resonant so you should resonate it separately on each band. You will most likely want to use coax into the shack. If you don't match the antenna to the coax you will have losses in the cable that you don't need.

Use your SWR meter or analyzer to bring the antenna to resonance. On 80 meters you'll need a loading coil. On 40, a capacitor may be required.

Once you get resonance, hook up the cable and check the SWR. If it is 2:1 or less, go with it. If higher, use a transformer to bring it down. See one of Jerry Sevick, W2FMI's, books for winding the one you need.

All this sounds complicated, but it's really pretty easy — except for putting in those radials, which can be a lot of work. They are the key to success, however.

A short antenna like this — a quarter-

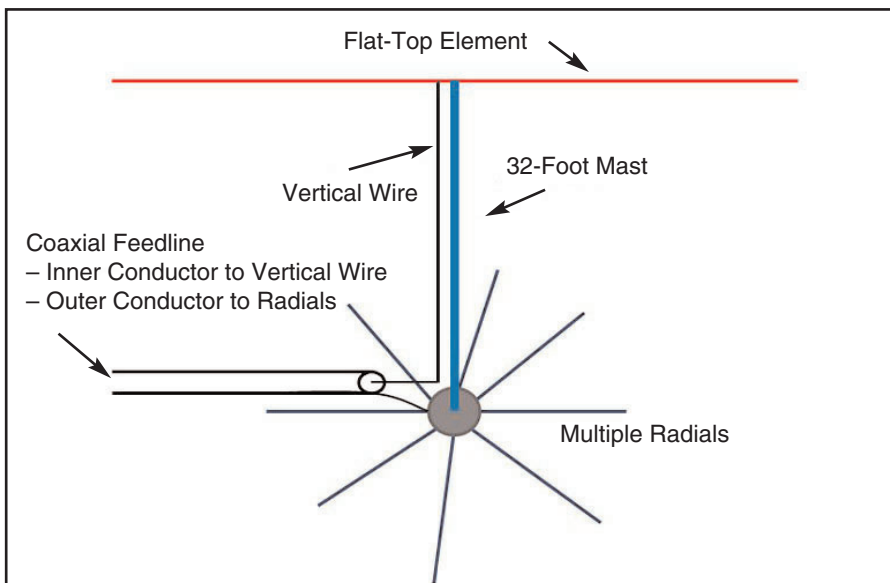


Figure 1: Kurt's 32-Foot Top-Loaded Vertical

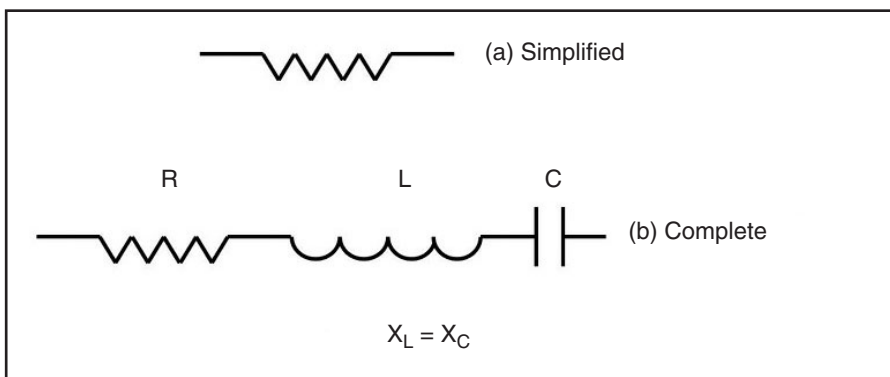


Figure 2: The Resonant Antenna.

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wave on 40 and an eighth-wave on 80 — can radiate almost as well as a full size vertical if the ground radials are adequate.

Kurt used a 32-foot, inverted L to work Japan, Australia and the Caribbean from the West Coast on 160 meters. You can do a lot better on 80 and 40 with a "T" at that height.

Antenna As a Resistor? Really?

Kazimierz Siwiak, KE4PT, takes issue with Kurt's explanation of why a non-resonant antenna radiates just as well as a resonant antenna in April's *WorldRadio Online*: "I beg to differ about the resonant antenna you picture (See *WorldRadio Online Blog* < <http://worldradioonline.blogspot.com/> > for April's illustration — Ed.) What you picture is a resistor, not an antenna. I challenge you to find an antenna that can be represented by a resistor!"

"A resonant thin dipole antenna can be modeled as a series R L C circuit where at resonance the L and C have equal and opposite reactances — X_C and X_L . The distinction is very important because it is this L and C, which comprise the near-field stored energy.

"Furthermore, the ratio of $|X_C|/R = |X_L|/R =$ the Q of the antenna.

"Remember that Q is equal to $(2\pi) \times (\text{stored energy})/(\text{energy radiated in one cycle})$. Since Q is typically much greater than 1, there is far more energy swapping between the electric and magnetic near fields (the equivalent C and L) than there is radiated energy. The radiated energy is, of course, replenished by the transmitter in each RF cycle.

"The non-resonant antenna is also an R L C circuit but the L and C do not resonate at the operating frequency. A similar stored energy picture exists, but now additional energy storage elements come into play (when we use a tuner to bring the system into resonance at the operating frequency. — Ed.), as long as these additional elements are very low loss. The efficiency of the non-resonant antenna can be very high."

The Krusty One's Perspective

What KE4PT says is exactly right and is very interesting because it gets us into the mechanism of antenna radiation. Fig. 2 is a more complete schematic of a resonant antenna. Interesting and correct as it is it complicates Kurt's explanation of why a non-resonant antenna can be as efficient as a resonant one.

Using our measurement instruments — noise bridge, antenna analyzer or impedance bridge — we find they tell us, when the antenna is resonant, that it appears as a resistor as in Fig 2 (a). When it is too long for the operating frequency it appears to be a resistor in series with an inductance and if it's too short, a resistor in series with a capacitor.

So, working in the backyard with our antenna, Kurt's simplified explanation works just fine and he will stick with it. But let us keep in mind that KE4PT's explanation tells of the complete state of affairs.

Kurt welcomes questions of general interest from readers and will answer them in his column. Write to him at: < WorldRadioOnline@gmail.com >.

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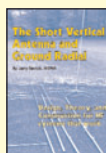


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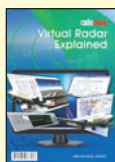


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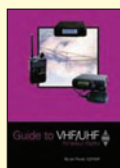
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