

# WorldRadio

**ONLINE**

Year 39, Issue 1

JULY 2009

## The New Ballgame at Army MARS



- **Choosing Your First Handheld Radio**
- **The Saga of the Lafayette HE-35—Circa 1959**

**NEWS • FCC • DX • QRP • QCWA • CONTESTS • HAMFESTS • YL • AMSAT • CW**



## Congressional Bill to Reform Regulatory Matters is Introduced

A bill to change the way that the FCC approaches all regulatory matters has been introduced in the United States House of Representatives. Sponsored by representatives Joe Barton of Texas and Cliff Stearns of Florida, H.R. 2183, seeks to reform some of the Federal Communications Commission's regulatory processes.

Among the matters that H.R. 2183 addresses is a requirement that would force the FCC to let the public see any and all proposed rules and rules changes before it adopts them. Also, that the agency would be forced to provide everyone with a realistic amount of time to comment. The measure would require the FCC to provide at least 30 days for comments and an additional 30 days for replies on the published language of proposed rules. The measure would also give the FCC only 30 days from adoption of a policy to release the actual text of the decision.

According to the wording of the bill, Representatives Barton and Stearns want to require the agency to publish weekly the items being circulated among the Commissioners for a vote. They also want to name any commissioner who has not voted on a given item. For ham radio it would mean knowing more about what changes are being considered for our service instead of having to second guess what the future might bring.

(Newline)

## The Current IRCs Expire at the End of the Year

The current IRC will expire at the end of year. Unlike the old style coupons, the current types all have an expiration date giving them a maximum life of three years. Even if you purchased a current IRC today, they will still expire on December 31, 2009.

Ken, ZL2HU, advises us on the following information from the International Postal Union in Geneva: "The current issue (Beijing 2) IRC may be exchanged up to 31 December 2009 (date printed on coupon). In principle, Beijing 2 coupons will no longer be sold from 31 August 2009.

"The new international reply coupon (Nairobi model) is due to go on sale from 1 July 2009, and will be valid for exchange until 31 December 2013." So make sure you aren't holding any of the Beijing 2 coupons at the end of this year."

To see what the new International Reply Coupon looks like, go to [http://www.upu.int/news\\_centre/2008/en/2008-08-08\\_irc.shtml](http://www.upu.int/news_centre/2008/en/2008-08-08_irc.shtml) (WIA News)

## Congress Looks at EMCOMM Response Measure

Congress is taking a look at the valuable role that ham radio plays in times of natural or man made disasters. This, after US Representative Sheila Jackson-Lee of Texas has introduced HR 2160 in the US House of Representatives.

Better known as the Amateur Radio Emergency Communications Enhancement Act of 2009, HR 2160 would promote and encourage the valuable public service, disaster relief, and emergency communications provided on a volunteer basis by licensees in the Amateur Radio Service. By undertaking a study of the uses of Amateur Radio for emergency and disaster relief communications, the study would also identify unnecessary or unreasonable impediments to the deployment of Amateur Radio emergency and disaster relief communications.

It would also make recommendations for relief of any such unreasonable restrictions so as to expand the uses of Amateur Radio communications in Homeland Security planning and response. HR 2160 has been referred to the Committee on Energy and Commerce. If enacted into law, the measure would instruct the Secretary of Homeland Security to undertake its own study and report its findings to Congress

within 180 days. That study would also spell out the capabilities and specific uses of amateur radio communications in emergencies and disaster relief situations.

(ARRL/Newline)

## Nielsen Says Twitter has More Quitters than Joiners

Ham radio has nothing to fear from the Twitter instant messaging social network. A Nielsen Online survey that found the number of people leaving Twitter after just one month outnumber the new arrivals by a margin of 3 to 2.

David Martin is Nielsen's vice president of primary research. He says that if Twitter's user retention rates don't do better than the current 40 percent, the service simply won't be able to grow into the Internet social networking giants such as MySpace and Facebook.

According to Nielsen, in March, Facebook saw 69.2 million unique users, representing 41 percent of the U.S. Web audience. MySpace had 55.9 million, or 33 percent. Despite its initial rapid growth, Twitter, lagged far behind, at 13.9 million users and 8.2 percent.

No reason was given to explain the massive defection from Twitter but Nielsen's Martin says that if 60 percent continue to quit from one month to the next, the inability to replace defectors suggests a natural limit to growth with Twitter. He expects for it to max out at about 10 percent of the U.S. Internet audience.

As to ham radio, while nobody does regular research on the retention rate in the hobby, it appears to be well above 85 to 90 percent, month to month.

(RW, Chicago Tribune, others)

## Packeteers to hold Golden Packet Event

Packet operators and VHF rover stations will attempt the first ever Appalachian Trail Golden Packet event on Sunday, July 26th. The goal is to relay packet text messages the full 2000 mile length of the Appalachian Trail using 14 packet relay stations carried to the tops of some of the highest peaks in the Eastern United States.

This long linear demonstration will hopefully show the power of packet radio to re-constitute emergency communications into an area where normal communications capabilities can easily be lost. It will also demonstrate how easily a ham radio data network can be established using nothing more than a typical APRS mobile radio installation that's driven to the highest available spot in any given area.

More information about the Appalachian Trail Golden Packet event is on line at [www.aprs.org](http://www.aprs.org). (WB4APR)

## Honolulu Hams Win Mobile Radio Exemption

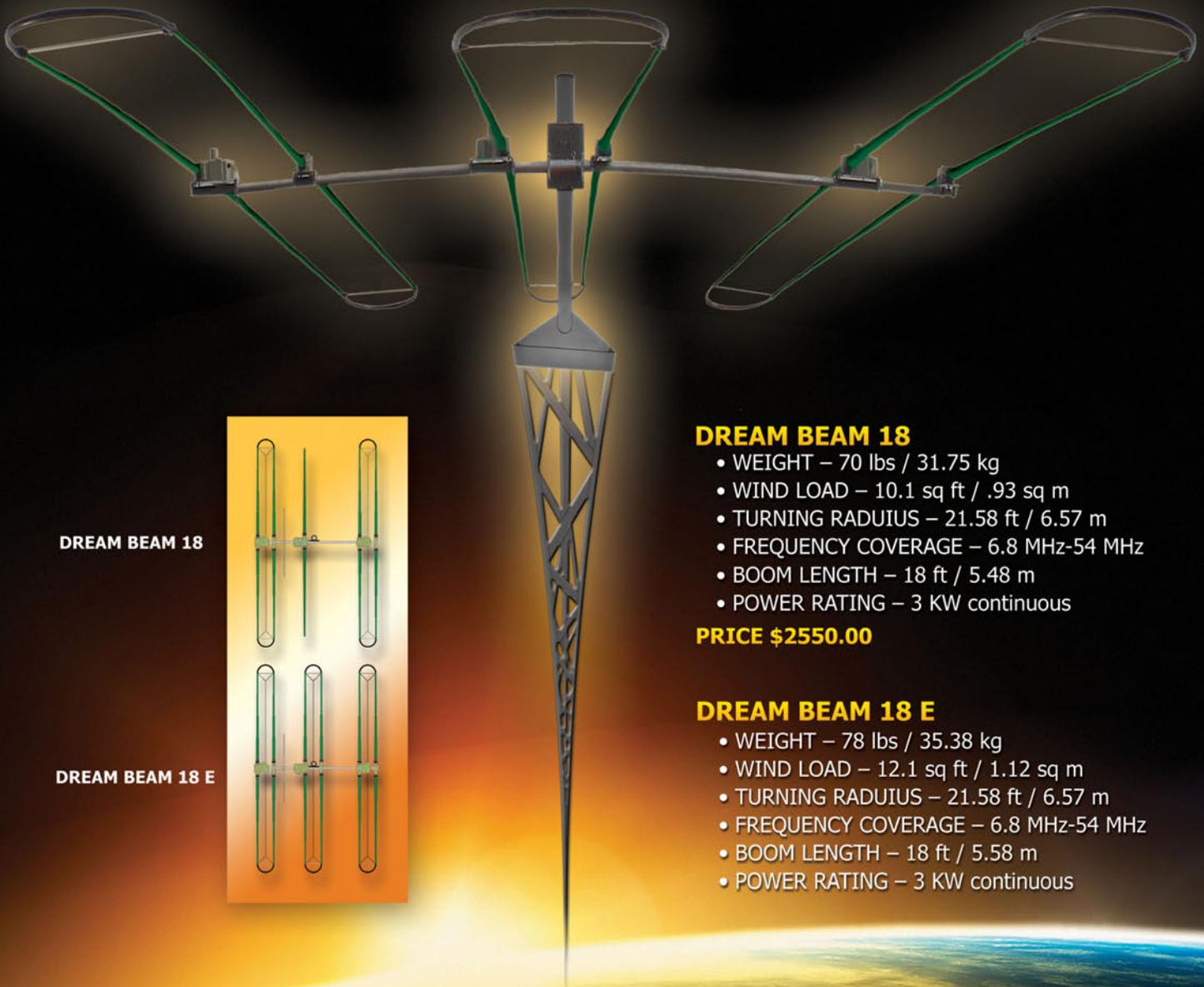
A major victory for hams in Honolulu, Hawaii. Bill 4, the ham radio mobile cellular phone legislation for the City and County of Honolulu passed Third Reading on April 22nd, and has passed out of the Council. The measure includes a full exemption for radio amateurs from the effects of this bill. This bill is significant because it addresses the issue of traffic safety, but does not diminish the role of amateur radio in the course of the legislation. It's also believed to be the first legislation in Hawaii that fully supports amateur radio. The mayor will sign this bill into law shortly, with an effective date will be July 1st.

But the fight is not over yet. The Hawaii County Council is currently working with a draft equivalent to Bill 4, but so far lacks the exemption for amateur radio. According to Ron Hashiro, AH6RH, the next few weeks will be important for the Big Island for testimony and education of their Council members.

(AH6RH, KH6QX)

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# WorldRadio ONLINE

## TABLE OF CONTENTS

Year 39 Issue 1

JULY 2009

### FEATURES

- 1** **Choosing Your First Handheld Radio** *by Rich Stiebel, W6APZ* .....8
- The Saga of the Lafayette HE-35 - Circa 1959** *by Bill Pasternak, WA6ITF* .....16

### 1-15 COLUMNS

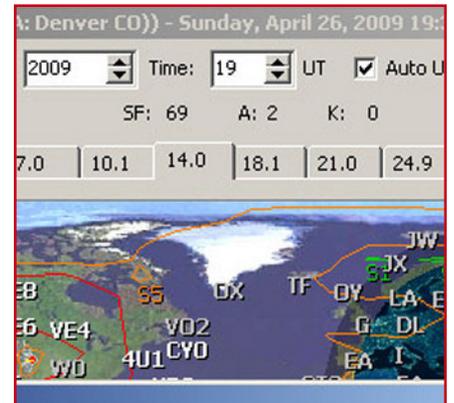
- EDITOR'S LOG .....6
- RULES & REGS: Too Easy Exams? .....17
- TRAIL-FRIENDLY RADIO:
  - 2** Preventing a 'Reversal of Fortune' in the Field .....20
  - FM, VHF, & REPEATERS: Looking West: What Would You Do?.....22
  - DX WORLD: Predicting Unpredictable Propagation .....24
- 16-27** MARS: The New Ballgame at Army Mars .....28
- QCWA: Leadership - An Analogy .....32
- YLs: Black Hole Or Conditions? .....34
- EMCOMM AND YOU:
  - 3** Think "Young" to Get Kids Involved in Ham Radio .....36
  - YOUTH FORUM: The Liberty Science Center .....38
  - PROPAGATION: The Right Time .....40
- 28-39** AERIALS: Which Antenna? .....48

### DEPARTMENTS

- 4** *WorldRadio Online* Newsfront .....2
- Hamfests & Special Events .....27
- DX Predictions - July.....42
- Contest Calendar.....43
- 40-50** VE Exams .....44
- New Products.....45
- Visit Your Local Radio Club.....46
- WorldRadio Online* Mart .....50

### ON THE COVER

Pat Lane, Army MARS National Emergency Coordinator, operating from a remote site near his home in Memphis TN.



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**M**any people will agree that amateur radio operators enjoy chatting on the air more than they like to socialize in person, but there is no denying that spring—particularly April, May, and June—is our social season. There are opportunities across the country to get together with our own kind and recharge our enthusiasm for the upcoming summer. We come out of hibernation by the thousands, have “eyeball QSOs” with buddies we haven’t seen since last year, then retreat into our shacks for a summer of hamming. It starts with the Visalia DX Convention in April, continues with the Dayton Hamvention® in May. June brings the Texas HamCom®. The social season culminates with Field Day the last full weekend in June.

I would like to thank the folks who stopped by the CQ Communications booth (and the FISTS booth) at the Hamvention® to give their opinion on the new *WorldRadio Online*. At the CQ Communications booth, a monitor scrolled through an issue of *WRO*. We were able to show many people how to find the *WRO* web page and download it or read it online. We received many compliments on how terrific the magazine looks in color and everyone I spoke with was pleased that we hadn’t changed its content and focus.

A concern we were able to address was “What happened to my Lifetime *WR* subscription?” If you didn’t see the announcements and information in *WorldRadio* or *CQ* magazines (click here to view the original announcement) and didn’t inform the CQ staff of your preference, the amount you paid for your Lifetime subscription was automatically converted over to the equivalent in *CQ Magazine* issues. For example, if you spent \$90 for your Lifetime subscription 20 years ago, then that \$90 was converted into *CQ* issues, which would be almost 2.5 years worth of *CQ*. If you paid \$250 for your Lifetime *WR* subscription, then you’d receive \$250 worth of *CQ*. If you would like to change the magazine you’re receiving (you have your choice between *CQ*, *CQ/VHF*, and *Popular Communications*), simply let the subscription folks at CQ Communications know and you can change it to another magazine. We want to keep you happy, as well as keep you as a *WRO* reader!

Is your local club promoting ham radio during Field Day? I hope you will take photos and enter our Gold Megaphone Award contest. As you may have already noticed, we’ve added a permanent Gold Megaphone Award contest information link to the *WRO* Welcome Page. Now you can view complete contest information and download/print an application form (PDF) at any time. Click here to view this new link.

A note on the June issue: Our apologies to John Johnston, W3BE, and any readers who may have been confused by an item in John’s June Rules & Regs column. A question was inadvertently omitted, making the “answer” appear to be a response to a previous question. The correct third question in the column should read:

**Q. A friend offered to let me put his repeater on the air with his call sign and be the SCO. I contend that the ID should be my call sign or the call sign of the club station for which that I am the trustee. Which is correct?**

**A. Either arrangement that you both can mutually agree upon. For your station call sign to be transmitted in the station identification announcement, he must relinquish to you physical control of his station apparatus. See Section 97.5(a).**

The next question is:

**Q. What about the propriety of a club having a pair of two-meter repeaters transmitting simultaneously?**

Happy Independence Day and hope to hear you on the air!

73 88 33, Nancy Kott WZ8C

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**See**

**AT-1000Pro Review  
in Nov. '08 CQ**



## NEW! YF-100

An autotuner for several popular Yaesu Radios. An included cable interfaces with your FT-857, FT-897 and FT-100 (and all D models) making it an integrated tuner, powered by the interface. Just press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. It's the perfect complement to your Yaesu radio. **Suggested Price \$199.99**



## AT-1000Pro

The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. All cables included. **Suggested Price \$599**



## Z-11Pro

The Z-11Pro, designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. All cables included. **Suggested Price \$179**



## NEW! IT-100

Matched in size to the IC-7000 and IC-706, the IT-100 sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible. **Suggested Price \$179.99**



## NEW! Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Powered by four AA internal Alkaline batteries (not included), no additional cables required. A coax jumper cable is also included for fast hook up. **Suggested Price \$129.99**



## NEW! KT-100

LDG's first dedicated autotuner for Kenwood Amateur transceivers. Easy to use - just right for an AT-300 compatible Kenwood transceiver. Has 2,000 memories for instant recall. If you have an AT-300 compatible Kenwood radio, you can simply plug the KT-100 into your transceiver with the provided cable; the interface powers the tuner, and the Tune button on the radio begins a tuning cycle. The supplied interface cable makes the KT-100 a dedicated tuner for most modern Kenwood transceivers. **Suggested Price \$199.99**



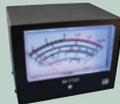
## AT-100Pro

Covers all frequencies from 1.8 - 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch, allowing you to switch instantly between two antennas. The AT-100Pro requires just 1 watt for operation, but will handle up to 125 watts. All cables included. **Suggested Price \$219**



## NEW! Z-100Plus

Small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. **Suggested Price \$159.99**



## FT Meter **NEW! FTL Meter** **NEW! M-7700**

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**NEW! M-7700** For IC-7700. It will display S-meter on receive, or power out, SWR, ALC level or supply voltages, all selectable from the radio's menu. What's more, the M-7700 and the virtual meter on your radio can work together. **Suggested Price \$79.99**



## AT-200Pro

The AT-200 features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 - 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. All cables included. **Suggested Price \$249**

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# Choosing Your First Handheld Radio

Rich Stiebel, W6APZ

New hams frequently ask, "Which radio should I buy?" Most of these new hams are products of a one-day "ham-cram" licensing session. Many of these licensees have obtained their licenses so that they can be more effective in helping with their CERT (Community Emergency Response Team) groups in emergencies. Because of this, they know that they want a handheld radio, but they do not know what is important to look for in an HT (handheld or Handie-Talkie®).

While I like my current HT, a Kenwood TH-F6, I'd be hesitant to recommend it to a new ham. All the "bells and whistles" that I enjoy can be intimidating to new hams. While teaching a Technician license class several years ago, I made the mistake of prominently using my complex HT in demonstrations in class. Although I did not recommend that the students buy the same radio, they inferred that this was the radio to get. After getting their licenses, several students came to me with the same model radio I had and were confused about how to make it work. It would have been more instructive to model ham radio using a basic HT during the class.

The ham radio magazines run survey articles every few years comparing the features and prices for current HTs. Manufacturers are constantly coming out with new rigs with various features, so it is difficult to recommend one radio today that will also be the choice tomorrow. What I can do is to recommend certain features found to be helpful, and mention some features to avoid. First, I will list these below; then discuss each feature.

## I recommend that a radio have the following features:

- Keypad for direct frequency entry
- 5-watt RF output
- Sub-audible tone: encode and decode
- External DC connection so the radio can be connected to and operated from an external battery or power supply
- Available AA battery pack
- Illuminated frequency display and keypad
- Repeater "reverse" button
- Easy-to-understand manual
- Several dozen memory slots for repeaters and simplex frequencies
- Robust antenna connector
- Jack for an external earphone and/or speaker

## Optional features:

- External microphone jack

## I would try to avoid radios that:

- Are not operationally intuitive
- Provide only one watt or less of power output

- Have a built-in antenna with no possibility of connecting an external antenna
- Require Internet access to be functional

## Other Considerations:

- How many bands?
- General coverage vs. ham band only
- Price
- Can't find an HT with all features

## Direct Frequency Entry

Some very compact radios save space and cost by not having a keypad on the radio. To program these radios, one has to go into the VFO mode (which frequently starts with the band edge or a pre-programmed frequency in the band) and scan the band until the desired frequency is found. At this point, one can save this frequency to memory, but this process may require pressing many buttons in the proper sequence to place the desired frequency in the desired memory position. Push a button at the wrong time and the process must be started over. To enter the next frequency, the procedure is repeated. This can be a very time-consuming task, but the result is a very usable radio, if the only frequencies one needs are those you have stored in the memories. This type of radio can be used as a monitor rig for your local repeater, but I would not recommend it for CERT work. Why not?

In emergencies, one often has to change frequencies to accommodate the local area situation. For example, if the repeater goes out, one may need to switch to a different machine, or switch to operate on the repeater output. If you are assigned to a post outside your usual repeater area, you may need to program in a new frequency. With direct frequency entry (a DTMF pad on the radio), this is easy; without it, entering a new frequency is a chore.

## 5-Watt RF Output

Shirt pocket-sized radios are cute and are good for monitoring your local repeaters, but I would avoid them for serious emergency work. While 100 milliwatts may give you a clear signal into your local repeater, when disaster strikes, you can't count on your local repeater to be on the air. In such cases, direct contact between two hams provides the most reliable communication. This depends upon each ham's RF power output and antennas. The higher your output and the better and higher your antenna, the greater distance over which you will be able to communicate.

## Sub-audible Tone Encode/Decode

Most repeaters in areas with many repeaters (such as metropolitan areas), require a specific sub-audible tone (below the

normal audio range) in order to retransmit the incoming signal. These tones, also known as PL (private line) tones, typically range from 67 Hz to around 250 Hz. To transmit through these repeaters, one must have a radio that generates a subaudible tone while the PTT (push to talk) button is depressed. In densely populated areas, more than one repeater may be heard on any given frequency. By assigning a different PL tone to each repeater, users can select the repeater through which they wish to transmit, thereby directing their signal to a particular geographic area.

Similarly, if the radio has PL decode, also known as tone squelch, the user will hear only the desired repeater rather than all the repeaters on the frequency. (Editor's note: This is true as long as the repeater controller either passes the tone from the transmitting station—many do not—or the repeater transmits its own tone on its transmitter—many don't). While PL is supposed to eliminate interference, in reality, it masks the problem, but the result is generally more pleasant for the users. PL decode is useful when using your radio around a computer. Many stores now use computerized cash registers and many homes now have computers. Computers generate a great deal of radio frequency hash. PL decode will keep your radio squelched until the desired repeater comes on the air. Not having the squelch open any time one is near a cash register make shipping trips with a fellow ham much more pleasant.

### External DC Connection

Most HTs come with an internal rechargeable battery, so why would you want an external DC connection on the radio? At some point, the HT battery will need recharging. While mobile with the HT, it is very convenient to be able to use the car's twelve-volt battery. Similarly, for emergency work that may require keeping the radio operational all day or for several days at a time, one will need a supply of rechargeable battery packs, an AA battery pack, or an external DC connection capability.

Ideally, the radio should transmit at full power when powered from an external source, such as a car's accessory socket. It's better if the HT can be connected directly (through a fuse) to the car's 12-volt socket and work properly. Less desirable are the models that require a voltage converter to drop or condition the voltage to match the radio's design voltage. While this voltage converter will power the radio, the user is required to purchase another item from the HT manufacturer, which adds to the total purchase cost for the radio.

12-volt gel cells are readily available either new or at flea markets. I use a fused 12-volt gel cell, which I carry in a camera pouch on my belt, with a cable that plugs into my HT. This battery can power my HT at a full 5 watts all day during public service events, leaving the internal rechargeable battery at full charge for later use. If I need to be operational for several days, I can use this same cable to connect to any 12-volt source.

### AA Pack

During many natural disasters, local 117VAC house power is not available to recharge the internal HT battery. Most HT manufacturers make a case that holds several AA size alkaline cells to keep your radio on the air during these times. Alkaline AA cells have a multi-year shelf life. Keep a quantity of these AA cells available and rotate them through flashlights, MP3 players, and other electronic equipment so there is always fresh stock for emergencies.

Ideally, the number of batteries in the HT case, multiplied by 1.5V, should equal the voltage needed for full-power output

from the transmitter. To keep this pack small, the manufacturer may provide space for only four AA cells, which will generally produce much less than full power output from your HT. Look for a radio that has an AA pack with sufficient cells to provide full power. If you buy a radio that does not produce full power with its AA pack, consider buying an accessory pack so you can stay on the air when you can't recharge your internal HT battery.

### Illuminated Frequency & Keypad

At night or in low-light conditions, it is very helpful to be able to press a button and have the dial and keypad light up. While emergency drills are usually scheduled for daylight hours, real emergencies can occur day or night. Whether you are just changing from one pre-programmed channel to the next or actually entering a new frequency, PL, and offset into the HT, being able to see what you are doing is very helpful. But use the light only when needed, in order to conserve battery power.

### Repeater Reverse Button

Most FM VHF/UHF operation is through a repeater. The Reverse button changes the HT's transmit frequency to the repeater's output and listens on the repeater's input. This function can be important in emergencies when a repeater goes down, as it enables communication between hams using that repeater. It can also be used to listen for hams who do not have, or know how to use, the proper PL tone. Without PL, their signals may not be retransmitted through the repeater. One way to hear them, if they are close enough to you, is to press the Reverse button. Then, you will then be listening on the repeater's input.

### Easy-to-Understand User's Manual

Even with years of experience as a ham radio operator and as the owner of many models of HTs, I still inadvertently hit a button on the keypad of my current HT that puts the radio in a mode that I don't normally use. Unless one has an easy-to-understand manual handy, it can be frustrating trying to get the radio back to normal operation. For a new ham, this could be a souring experience. This is one reason I recommend starting out with a less expensive radio with fewer features; there is less of a chance of placing the radio in an unfamiliar mode. Of course, having read the manual cover-to-cover at least once (so you will recognize what mode your radio is in), and keeping the manual handy is always a good idea.

Unfortunately, people whose second language is English have written some user's manuals. The sentence structure in the manual makes perfect sense in their native language but results in a confusing English sentence. What to do? Before you purchase a radio, read parts of the user's manual and try following the instructions. Many HT manufacturers provide downloadable copies of their manuals on-line. Look up the instructions for inputting a repeater frequency, PL, repeater offset, and for storing this information in a memory slot. Try doing this on a friend's radio or at the radio store where you are considering buying the radio. Then try the radio on the air. If the radio brings up the local repeater, the manual was clear enough for you.

If you really like the radio, but the manual is less than optimum, check out Users' Groups on-line, or with your local ham club or CERT group. Someone who has figured out how to make

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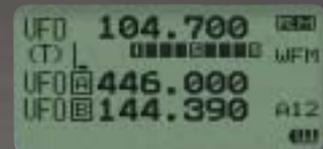
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\*1 With optional accessories

\*2 Cellular Blocked per FCC rule Part 15.121, may not receive 900 MHz Amateur band

\*3 Assuming a duty cycle of 6-second transmit, 6-second receive, and 48-second standby (50 MHz 5 W)

\* APRS® is a registered trademark of Bob Bruninga WB4APR.

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### HF/50 MHz Transceiver FT DX 9000D 200 W Version

Large TFT, Data Management Unit and Flash Memory Slot Built In, Main/Sub Receiver VRF, plus Full Dual Receive Capability, Three  $\mu$ -Tuning Modules for 160 - 20 M, 50 V/12 A Internal Switching Regulator Power Supply



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that particular radio work may have rewritten parts of the user's manual in plain, simple, English.

## Memory Slots

Some simple radios come with a few dozen memory slots, which are fine for local communication, but lacks flexibility for emergencies and general listening. Those memory slots will probably be sufficient for ARES/RACES (Amateur Radio Emergency Service) / (Radio Amateur Civil Emergency Service) and CERT support in your local area. However, one does not want to have to erase a favorite local repeater in order to program in a repeater used for a bike-athon or similar event. I find that, in addition to ham radio frequencies, I like to be able to program in several of my local weather channels, which are generally found in the 162.4 MHz range. When I travel, I program in the repeater frequencies for the area I'm going to. In addition to listening to weather, many hams like to monitor the aircraft band, which many 2-meter HTs can also cover. Adding aircraft channels takes more memory. Many radios today provide 100 to 200 memory slots, but some older and/or smaller HTs don't.

## Robust Antenna Connector

Unfortunately, the antenna connector on most small modern HTs is an SMA. This type of connector is generally fine if all you are doing is using the HT with the supplied 6-8" long rubber-duckie antenna. The base of the rubber duckie antenna should be about 5/8 inch in diameter to spread the torque load of the antenna to the HT case. The range of a 5-Watt HT is greatly extended by connecting the HT to an outside antenna positioned in the center of a car roof or on the roof of your home. The downside of this is the strain placed on the very small center pin of the SMA connector. Many hams that do this regularly have found that they have broken the rubber-duckie center pin.

When in the field, I frequently attach a  $\lambda/2$  wave or  $5/8\lambda$ -wave whip antenna to my HT to greatly increase my usable range. This type of antenna puts a lot of torque on the small SMA antenna connector and may cause the wire going from the connector to the radio's circuit board to break off. There are spaghetti whips that provide more gain than the rubber duckie antenna and put less stress on the SMA connector, but they do not have the gain of the  $\lambda/2$  wave antennas.

Years ago, when HTs were larger and came with BNC connectors that could take any type of antenna without damaging the HT, I got used to disconnecting the supplied HT antenna and connecting my mobile magnetic mount two-meter antenna. Other things being equal, a radio with a BNC connector will give fewer problems if you plan to connect different antennas to your HT. You may be stuck with an SMA connector, as that is the current design on most of the new, smaller HTs. Just be aware of the potential difficulties if you plan to connect an external antenna to an HT with an SMA antenna connector.

## External Earphone/ Speaker Jack

Most HTs have adequate volume for inside a house or in a relatively quiet outside environment. However, outside on a busy street, the audio from the HT's speaker may be marginal. I have found that plugging an external earphone into my HT has prevented me from missing important calls. In addition, using an earphone keeps the radio from disturbing people nearby.

## Optional characteristics— External microphone jack

Having grown up using die-cast heavy Motorola mobile microphones of the 1960s (which were then as big as some HTs today), I don't find a need for an external microphone for my HT. Yet some people prefer to leave the HT on their belts and use an external speaker/mic when they are in the primary coverage area of a repeater. If you think this applies to you, look for a radio that also provides a jack for connecting an external microphone. In terms of priorities, I'd rank this one low.

## Avoid

### Not Operationally Intuitive

If, after looking at the owner's manual, the steps do not seem to be logical to you, try another radio. After owning radios made by ICOM, Kenwood, Alinco, and Yaesu over the years, I have been able to pick up some models of those manufacturers and figure out the basics just by looking at the labels on the buttons. Some of what I consider intuitive may be based on my experience and the fact that at one time the basic programming operation of a manufacturer's new

radio was very similar to their prior models. It may be that the first radio you try will seem confusing, the second one less so, and by the third radio, you may be getting used to the typical programming procedure. To see if this is happening to you, after looking at several models, go back to the first radio and give it another chance. If it is still not operationally intuitive, choose another radio.

## One Watt Output or Less

Some radios are so small that the battery pack will support only one watt of RF output. Other even smaller radios put out only 300 milliwatts, or 1/3rd of a watt. These are great radios for operation close in to a repeater location, but are marginal for communications when a repeater may not be available, or even for simplex operation in hilly terrain. Depending upon net control's antenna and elevation, even one watt may not permit reliable communications on simplex in your area.

## No External Antenna Connection

A good antenna helps by extending both an HT's transmit range and the HT's ability to receive signals. Rubber-duckie antennas are a compromise in favor of small size, but are not very efficient antennas. Avoid radios that do not have an external antenna connector unless you plan to use the radio only for monitoring the local repeater.

## Internet Access Required

The Internet has extended ham radio communications capability in many ways such as IRLP, D-Star, and APRS, just to name a few. IRLP (Internet Radio Linking Project) permits HTs to communicate via a local repeater that is tied into the Internet and bring up a repeater in a country across the globe and talk to hams in that foreign country. D-Star is a digital communication system that links repeaters across the country and the world. APRS (Amateur Packet Reporting System) permits a ham to transmit digital information that goes to a website showing friends his current location. Some HTs have built-in APRS capability, and may even have an internal GPS unit to provide exact location information.

During normal times, one can have fun with these modes, but during a disaster, one cannot count on access to the Internet. Having an HT with these Internet features can add to your amateur radio fun. However, they add complexity and cost

to a radio and may not be a good choice for a first radio. When all else fails, amateur radio can get the message through. Direct communication between two radios that do not depend upon a repeater or the Internet should be the primary function of any HT that a ham plans to use to support their local CERT or for ARES/RACES activities.

## Other Considerations

### How Many Bands?

Most communities rely on the 2-meter ham band for emergency communications. The 440 MHz (70 centimeter) band is also popular in many areas of the country, though some 440 repeaters have had to reduce power (coverage area) to comply with government regulations. Some HTs are designed to cover any two of three bands at a time, such as 2 meters, 70 cm, and 6 meters, or 2 meters, 70 cm and the 1.25 cm (222 MHz) band. Recently, some 4-band radios have come on the market. If money is the primary concern, a single band, 2-meter radio should be your first choice, unless your local emergency group has chosen a different band. If you can afford the extra money, a 2-meter/440 radio will provide more flexibility.

Some multiband radios can monitor two frequencies in the same band or one frequency in each of two bands. This is preferable to those radios that can monitor only one frequency on each band at a time. Many times, I've monitored a simplex frequency and a repeater when meeting another ham. We use the repeater when we are far away, but switch to simplex (thus freeing the repeater for those that need it) when we get closer.

### General Coverage vs. Ham Band Only

Many HTs available today will cover not only the desired ham band but also adjacent frequencies, such as aircraft and weather. Especially if you are concerned with outdoor activities, being able to pick up the local weather in the 162.4 MHz range is a plus.

Some of the more complex radios will cover the AM broadcast band up through commercial FM and TV frequencies. Some will also receive SSB (single sideband) and CW (Morse code) transmissions. These are nice features, but sensitivity and selectivity on an HT will be inferior to the performance of a communications receiver.

Manufacturer HT Model	ALINCO	AOR	ICOM	KENWOOD	STANDARD	YAESU
<b>FEATURES</b>						
Direct Frequency Entry						
5-Watt RF Output						
Sub-audible Encoder/Decode						
External DC Connection						
AA Pack Available						
Illuminated Frequency Display						
Illuminated Keypad						
Repeater Reverse Button						
Understandable Manual						
Two dozen + Memory Slots						
Robust Antenna Connector						
External Earphone/Spkr Jack						
Number of Bands						
General Coverage vs. Ham						
Price						
<b>Optional</b>						
External Microphone Jack						
<b>AVOID</b>						
Not Operationally Intuitive						
One Watt or Less						
No External Ant. Connection						
Requires Internet Access						

Figure 1.

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7.0 Mhz - 54.0 Mhz  
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Note: Mount not included

**Little Tarheel II**  
200 Watts P.E.P.  
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Programmable, Screw Driver Controller turns counter w/10 memories



SDC-102 \$130

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10-40 Mtrs.	10-80 Mtrs.	10-80 Mtrs.
1.5 Kw P.E.P.	1.5 Kw P.E.P.	1.5 Kw P.E.P.
\$389	\$389	\$409



### EXTENDED COVERAGE

Model 75A	Model 300A	Model 400A
10-80 Mtrs.	10-160 Mtrs.	10-160 Mtrs.
250 watts P.E.P.	250 watts P.E.P.	250 Watts P.E.P.
\$389	\$389	\$409

Note: Mounts are not included.

### Price

At this writing, good quality, two-meter HTs cost from \$99.99 to \$127. Of course, one could also spend \$325 to \$450 for a multiband rig with some of the latest bells and whistles. Unless you know that you plan to use multi-VHF/UHF bands or some of these advanced bells and whistles, I'd recommend starting with one of the lower-priced two-meter HTs. Most areas use two meters as the primary support for ARES/RACES, and an inexpensive HT will give you a good start in emergency communications, learning to use ham radio.

What do you do when you decide you need more capability in an HT? Fortunately, there will always be new hams looking for a bargain when buying an HT. If you wish to upgrade in a few years (after having purchased one of the \$100-class radios), you should find a ready market for your used HT.

### Can't Find An HT With ALL The Features

OK, so you've looked at the current group of HTs available and you can't find any HT that has all the features suggested above, or you found one that has most of the features, but it also has some of the "Avoid" items listed. What should you do?

As consumers, we are limited to what is available. When I was looking for a new HT for my daughter-in-law, I was faced with the same problem. I knew what I wanted, but to get most of what was important for her, I had to accept a few features that were less than ideal. To help me decide, I made a spread-

sheet, (see Figure 1), of the desired features on the left with the manufacturer name and model numbers across the top. I've listed the HT manufacturers who have advertised in ham magazines for the past several months, leaving space for you to fill in up to three model numbers for each manufacturer. You can adjust the top part of this form to suit your needs. I'd be happy to email a free copy of this form, which is in Excel, to anyone who emails a request to me at: w6apz@arrrl.net. I have also converted this form to PDF for those who do not use Excel. Let me know which format works for you.

Using this form, I filled in the model numbers of the HTs across the top and entered checks in the column for each feature that model has. I was then able to easily compare HTs and decide which one to buy.

I would not rule out an HT just because it did not have one or more of these features. You may have to do a trade-off, deciding which features are most important to you.

### Conclusion

I have discussed HT features that I consider important in choosing your first HT to give you some things to look for when trying to decide what to buy. The February 2009 CQ Amateur Radio magazine on page 18 compares the current crop of HTs. I advise reading this article and comparing features and specifications before going to a store, looking specifically for the features I've discussed above. There are similar older articles in prior years that will be helpful if you are considering buying a used HT.

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TM-G707A



TM-V7A



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# The Saga of the Lafayette HE-35 - Circa 1959

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By Bill Pasternak, WA6ITF

As the summer VHF DX season approaches, my thoughts wander back to my earliest days as a new ham on 6-meter AM. Many rigs today, like my Yaesu FT-847, include all-mode operation on the 6 meter, 2 meter, and 70 cm bands, as well as all of HF. Advanced as it is, its technology is close to a decade old. It's just fine for me, but it does show how far VHF ham radio has come since the era of the Heathkit HW-29 Sixer and its chief rival, the Lafayette HE-35 and HE-35A.

Like the Heath Sixer, the Lafayette HE-35 was an entry-level transceiver. It featured the same type of two-stage transmitter and common receive/transmit audio section as the Heath. The Lafayette departed from the Heath in that the former sported a simple, single conversion superhet design while the Sixer was an even more rudimentary super-regen.

In the late 1950s through the early 1960s, the DeWald Radio Company made most of the Lafayette ham radio transceivers and accessories, including the HE-35, in Long Island City, N. Y. DeWald also made numerous "All-American 5-tube AM radios." As I recall, the HE-35 series was built on the same chassis as many DeWald AM table receivers. I'll have to look at its "big brother"—my HE-45B—but I believe it, too, was on a chassis that looked as if it was an AM - FM table radio in an earlier incarnation.

To be quite candid, the Lafayette HE-35 was almost too basic for anything other than local contacts. The receiver consisted of a dual-purpose 6EA8 triode - pentode tube using the pentode as a broadband RF preamp feeding the triode as the first mixer. A second 6EA8 had its triode as a tunable local oscillator injecting a signal into the other 6EA8 mixer that spit out an IF frequency of 1750 kHz. This was amplified by the pentode of the second 6EA8 and fed to 1/2 of a 6AL5 twin diode. This acted as the AM detector, after which the detected audio was fed through the other half of the 6AL5 as a variable noise clipper and onto the second section of a 12AX7. This, in return, fed a 6V6 beam power tube used as both an audio output amp on receive and as a modulator tube in transmit.

Like the Heath Sixer, the HE-35 transmitter used a type 6AW8 dual-purpose tube as both an overtone oscillator and power output. Like its Heathkit transmit cousin, its all too simple overtone oscillator would overheat the fragile crystal element. As one talked; he or she would slowly QSY up the band. The two radios were distinguishable on the air because the audio on the Heathkit had far more bass response than did the Lafayette.

Anyhow, the HE-35 was a radio made for the industrious tinkerer to modify and it did not take very long for mods to begin

to appear. Most were courtesy of this scribe and my lifelong ham radio buddy, Larry Levy, WA2INM.

If you were an early adopter of the HE-35 and wanted it to play better, then you may recall that some employees "unofficially recommended" to anyone wanting their radios "improved" to "contact either WA2INM or WA2HVK in Brooklyn." I was WA2HVK back in those days and Larry Levy is still WA2INM and a world famous cat breeder living a lot of the year in France.

Among our "mods" were installing a military surplus 1629 "magic eye" tube, that back then cost only 29 cents plus associated circuitry, to indicate relative receive signal strength and proper output tuning (tune for maximum eye closure). Then there was our little sub-chassis with a 6AK5 that served as an oscillator-tripler to permit the use of 8 MHz crystals. If you wanted to hear better, we added another 6AK5 as an RF pre-amp for the receiver. Most important was rewiring the NE-2 neon transmit indicator away from the plate of the 6AW8 pentode so that it would not act as a TVI generator. With the "eye tube", it wasn't needed.

We also came up with the "poor ham's" conversion to use 8 MHz transmit crystals: We simply added a 27 pf capacitor across the oscillator coil, rewired it to a Hartley or Colpitts circuit—whichever we had parts on hand to do. Then tune the oscillator to 25.xxx MHz and the final would now double. To make up some of the lost power, we subbed a 6CX8 for the 6AW8. We got about two watts out in that configuration.

So, if you are ever wandering through a flea market and spy an ancient Lafayette HE-35 transceiver with a green "magic eye" tube mounted on the front panel just to the right of center, the chances are it was an IMN / HVK modded radio—straight out of Larry Levy's basement lab on Brooklyn's East 18th Street between Ave J and Ave K.

To this, I will add that those customer recommendations from Lafayette paid for my first two used cars and for many dates with some truly lovely young ladies of that era. How can I not have a special place in my heart for the HE-35 and the later HE-45 radios of my misbegotten ham radio youth?

**PS:** The World Radio Laboratories "Lincoln 6 Meter Transceiver" was just an HE-35 in WRL livery. It came from the same DeWald production line. This was the built radio — not their "Tech-Ceiver 6" kit radio — that was a story unto itself.



# The Rules Say...

John B. Johnston, W3BE

## TOO EASY EXAMS?

**Q** Our exams are way too easy. That multiple-guess format is probably here to stay, unfortunately, because essay-type answers are overly subjective. I say to double the questions and require a B grade, not the current C. How can we further our cause?

**A.** Section 97.503 says our cause is to prepare and administer examinations that determine whether each examinee is qualified for an FCC amateur operator/primary station license grant of the class being sought. We must, therefore, make certain that our examination process facilitates our volunteer examiner's efforts in determining whether or not every examinee knows enough about operating an amateur station properly to deserve a license grant.

*W3BE-O-GRAM:* First and foremost, knowledge of the pertinent FCC rules is fundamental to operating an amateur station properly, along with a practical grasp of all related technical matters sufficient to make those rules meaningful. See BE Informed No. 38 TERMS USED IN PART 97 OF THE FCC RULES for a list of technical terms taken from Part 97 that need to be understood.

Prior to our VE system beginnings in 1984, the examinations were administered by FCC staff examiners. They also employed that controversial no-knowledge-to-grade multiple-choice format. Holding an amateur operator license grant, however, was not in their position descriptions. Our VE system cannot lay claim to any similar justification. Every VE must have passed not only the examination element that he or she is preparing or administering but also the next higher element, where there is one. See Sections 97.507 and 97.509.

**Q. Do we really have to administer those multiple-guess type exams?**

**A.** Although they are probably the most widely administered type, their administration is not an FCC rule requirement. Unless your VEC conditions your VE accreditation, under Section 97.525, upon your consent to administer only multiple-choice examinations, it is not obligatory. Sections 97.519(a) and 97.523 say that our VECs are to coordinate our VEs' efforts and to cooperate in maintaining one question pool for each examination element. It follows, therefore, that pool questions should be such as to enable our VEs to prepare and administer them in any suitable format of their choice. Otherwise, they will likely not be administrable in other formats.

*W3BE-O-GRAM:* The initial FCC-supplied question pools for our VE system did not incorporate suggested answers. Our VECs adopted the multiple-choice format with one correct and three incorrect answers. If you have ever submitted a question to the VECs, you already know that much of your effort goes into dreaming up those three bogus answers. For a report on writing a question about Section 97.1 according to the VECs' character-limited multiple-choice formula, see BE Informed NO. 36 HOW TO DUMB-DOWN AN EXAMINATION QUESTION.

**Q. Our club is concerned over all of this talk about the exams being dumbed-down. New licensees feel like they're not real hams.**

*W3BE-O-GRAM:* Lower standards bring us all lower standards and trivialize our amateur radio services. Our VECs should repudiate their call to reinvent our hobby, as they petitioned the FCC to do in RM-10870, into something that makes "... the amateur service accessible to as many citizens as possible." Citizens and non-citizens alike already have access to HF CB, VHF Multi-Use, and UHF Family and General Mobile Personal Radio Services. Our valuable spectrum is for the purpose of self-training, intercommunication and technical investigations carried out by those extraordinary persons interested in radio technique solely with a personal aim and without pecuniary interest.

**Q. Hams are ignoring an even more glaring issue: the disconnection between operator privileges and the question pools. The only real differences of any substance between Technician, General, and Amateur Extra are more frequency privileges and shorter call signs.**

*W3BE-O-GRAM:* The privilege differences between our four higher operator classes are small indeed. That discomforting fact is not a recent development. It has been commonplace, rather, for our rule-making petitions and comments to overlook taking into account the effect the contemplated changes might have on the examinations.

**Q. To maintain 350 questions for the General Class pool and 500 questions for the Amateur Extra Class pool means having to rely upon bazillions of questions about the sequential call sign system or administer questions that should have been asked in the Technician exam. There should be a 100-question test for Technician, 15 more questions for General and another 5 questions for Amateur Extra.**

*W3BE-O-GRAM:* We have on our hands a case of the tail wagging the dog. The VECs have identified the expertise required to operate any amateur station anywhere the FCC regulates our amateur services. It is embodied in the 1614 questions contained in their three pools. The way they distribute those questions between their pools, therefore, reveals how they envision the related privileges being utilized amongst our operator classes. See BE Informed No. 39 VEC'S QUESTION POOL SYLLABI.

Another view is that because practically all privileges should have been covered in the 392 questions in our Element 2 Technician Class pool, our General and Amateur Extra Class operator licenses are superfluous.

**Q. The VECs have apparently intended to make the language in the Technician exam accessible to kids. That is probably why they wrote questions like T1C02: "Where does a U.S. amateur license allow you to transmit?" What is wrong about that?**

**A.** Section 97.503 means what it says without regard for age, experience, licensing trends, etc. All pool questions about the

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privileges of an FCC license grant should concern only those authorized by FCC rules. The FCC is not the only agency of the United States government that grants amateur service licenses. At least six agencies have authorized amateur stations in places other than where the FCC regulates communications. Secondly, "you" do not do any transmitting – your station apparatus does that. It is the control operator that causes or allows it to do so.

**Q. When examinees cannot pass on the first try, can our VE Team give them some extra help with the topics with which they had trouble, and then test them again during the same session?**

**A.** Unless your VEC has made it a condition of your VE accreditation, that's an issue for your team to decide. See Section 97.525. Should your team offer immediate re-administration, it must be in compliance with Section 97.509(f): The same question set may not be re-administered to the same examinee.

**W3BE-O-GRAM:** One argument for transferring the preparation and administration of the examinations from the FCC staff examiners over to the amateur service community was that our VEs - who are supposed to understand the correct answers - could clear up all of the examinee's miscomprehensions right on the spot.

## THE LARC-VEC

Although not a requirement, VE teams coordinated by the LARC-VEC are encouraged to personally discuss with each examinee the correct answer to every question missed upon completion of an examination.

It is LARC-VEC policy that the preparation and administration of each question set at each examination session coordinated by the LARC-VEC be executed in a manner fully compliant with the FCC rules. Further, the LARC-VEC intends for the VEs to fulfill their duties in a responsible manner to allow our amateur service community to maintain and preserve a high standard of legitimacy.

Established in 1984, LARC-VEC has coordinated examinations throughout the United States and foreign countries. It is unique among the 14 VECs in that it is the only VEC coordinating examinations in multiple VEC Regions that has never collected a fee for its services. Its economized-budget funding comes from the Laurel Amateur Radio Club. Other radio

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WD8NHI, Assistant DARA Team Leader, and N2TUN generate a pre-printed CSCE and Form 605 at an examination session.

clubs sponsor some participating teams. Free testing is a hallmark of these clubs as their way of furthering the betterment of our amateur services. Their no-fee policy apparently has helped control the amount of the reimbursement fee collected from the examinees by the other VECs.

The LARC-VEC headquarters are located in the Laurel, Maryland suburbs of Washington, DC. LARC-VEC has

developed a structure of local VE teams. Each has a Team Leader, who reports to the Regional Coordinator for the applicable VEC Region. Each Regional Coordinator reports directly to the Chairman Diane Zimmerman, AA3OF. <http://larcmd.org.doore.net/vec/>. It is through these strong person-to-person accountability trail lines, cheating has been made exceptionally difficult while providing speedy service to examinees.

## APPRECIATION

### Our R&R Superham-of-the-Month...

is Mark Erbaugh, N8ME, LARC-VEC Regional Coordinator for VEC Region 8. Mark is also the Team Leader for the Dayton Amateur Radio Association LARC-VEC VE Team. Congratulations, Mark and DARA Team for a great job in preparing and administering examinations at the Dayton Hamvention.

**Read the rules—Heed the rules at:** [www.gpoaccess.gov/ecfr/](http://www.gpoaccess.gov/ecfr/) and click on [Title 47], then on [Part 97]. Also visit <http://wireless.fcc.gov/> and click on [amateur]"

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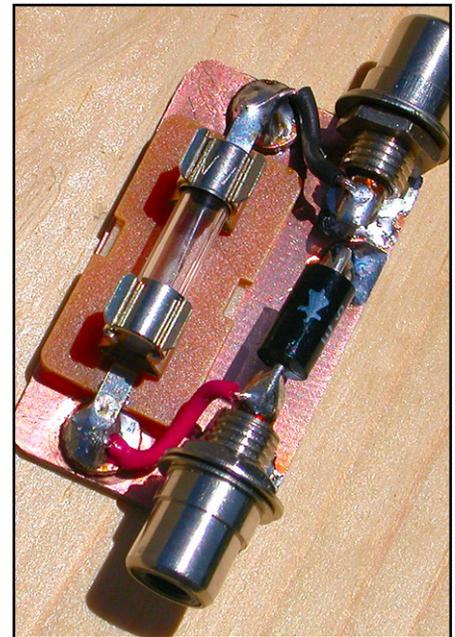
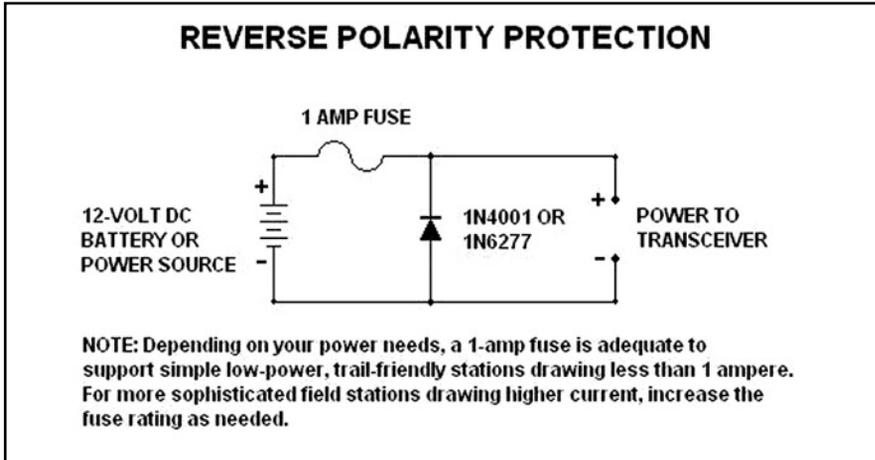
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# Preventing a ‘Reversal of Fortune’ in the Field

By Richard Fisher, KI6SN



A simple circuit for reverse polarity protection can take away the worry of properly hooking up the battery to your transceiver when operating in the field. Here’s a version built at KI6SN.

After hiking to a beautiful location, setting up camp and launching the perfect antenna, is there any feeling worse than realizing you’ve hooked up the battery to your rig backwards and fried the radio?

We can’t think of one.

Yet, over the years, we’ve heard one horror story after another of radio amateurs who have done just that. It’s so easy to get distracted and inadvertently put the positive clip onto the negative terminal on that gel cell. Followed by the negative on the positive.

Not only are you off the air, but the rest of the camping trip is spent worrying about how much damage you’ve done to the radio. Not to mention beating yourself up for making an honest – albeit knuckleheaded – mistake.

The elixir for preventing such a reversal of fortune in the field is adding reverse polarity protection to your arsenal of gear.

The strategy is this: If you accidentally hook up your battery backwards, you want a circuit that instantly recognizes the error and shuts everything down before damage can be done.

There are several reverse polarity protection circuits from which to choose, but the one we’re presenting here has just five inexpensive parts and, in our opinion, offers a couple necessary safeguards.

As the accompanying schematic shows, a diode and a fuse are the key elements to this insurance policy.

When the battery is hooked up properly, B+ flows happily through the fuse, passing by the diode, which is reverse biased and draws only a tiny bit of leakage current. Direct current flows into your eagerly awaiting radio. Life is good.

But if you’ve accidentally reversed the battery cables, the B+ now flows through the diode to the fuse on its way ground. Of course, this short circuit blows the fuse, saving the radio, the camping weekend, and the red-faced operator even more embarrassment.

Simply replace the fuse, connect the battery the right way and you’re good to go. Life is still good.

Since most field operations are battery powered, which is a non-current-limiting power source, integrating the fuse is a really, *really* good idea.

Without the fuse, if the reverse polarity current is above the diode’s forward current rating, the diode will overheat, self-destruct and most likely become an open circuit – changing it from reverse polarity protector to accessory in the murder of your radio.

If the current is less than the diode’s rating, you’ll see the wiring leading back to

the battery go up in smoke and might damage the battery beyond repair.

When choosing a diode, here are a couple of things to think about:

If you’re running strictly low-power gear that doesn’t draw a whole lot of current, the common 1N4001 (NTE116) general purpose silicon rectifier diode will be just fine in this circuit.

But if you want protection that is a little more robust, consider using a diode such as the 1N6277 (NTE4926), which is a surge clamping, transient overvoltage suppressor. In this circuit, it acts like a zener diode.

Both the 1N4001 and 1N6277 are inexpensive and available through parts houses such as Mouser and DigiKey.

Of course, you can build reverse polarity protection into each of your radios, but at KI6SN we opted to make one protector that can be used in the B+ line going to any transceiver we carry into the field.

Being conscious of weight and space for backpacking, our unit was built on a small piece of printed circuit board material that’s 1.63-inches long by 0.94-inch wide. Standard RCA phono plugs were used for the DC-line input and output. Other parts include the diode, fuse and fuse holder.

We chose small GMA-type 1-ampere fuses measuring 5-millimeters by 20-millimeters with a matching fuse holder.

Physically-larger fuses can be used, as long as their ampere rating keeps you out of the danger zone.

If you're OK using a 1N4001, everything can be obtained at Radio Shack. We bet a lot of junk boxes already have the ingredients on hand.

The small Philmore fuse holder used at KI6SN has exposed metal tips protruding through its base, so a dual-sided adhesive pad was added to insulate the holder from the PC board.

Two Manhattan-style construction pads were used as solder points from the fuse holder and for connections to the RCA phono plugs. The cathode side of the diode was connected from the center of the RCA plug at the output. The diode's anode was soldered directly to the PC board ground.

Once all the parts were in place and tested for continuity with a digital voltmeter, it was time for some self-induced fireworks. After all, how can you check a reverse polarity protector without blowing a few fuses?

Just to be safe, for the test we put a transceiver in line that already had reverse polarity protection built in. That way, if the newly-added protector failed to do its job, the transceiver's circuitry would save the day.

Using a fully-charged 12-volt, 17.2 amp-hour gel cell, we put all the pieces in place, connected the negative power line lead to the positive battery terminal, and then got ready to touch the positive power line lead to the negative battery terminal.

With this "lash-up for disaster" in place, it was time for the light show. Grabbing the positive power lead, we made contact with the negative battery terminal.

With a "POP!" and a flash, the fuse blew, saving the transceiver from being cooked or the power cables between the battery and the reverse polarity protector from going up in smoke.

In short – no pun intended – the unit did its job.

At KI6SN, we labeled the bottom of the reverse polarity protector BATT (for battery) and LOAD (for transceiver) to show in which direction to orient the unit in the 12-volt B+ line.

In a subsequent incarnation, we put the protector in its own box with a cable affixed with battery clip leads coming out of one side, and an RCA phono plug coming out of the other. That way there'll be no question as to which side of the protector goes to the battery and which side goes to the transceiver. You can see it on the Trail-Friendly Radio Extra Web site: <http://www.trailfriendlyradio.blogspot.com>

So, why run the risk of a "reversal of fortune" in the field? For a small investment in parts and a bit of time at the homebrew bench you can buy the insurance you need for a great weekend playing radio. Just remember to bring along some extra fuses.

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## LOOKING WEST: *What Would You Do?*

Bill Pasternak, WA6ITF

**W**hat would you do if you received a repeater channel pair on 2 meters from your local coordinator, then spent your hard-earned money to put a machine on the air, only to have the council tell you to take it off the air because the former owner of a repeater that used to operate on that channel wanted it back? This situation happens far more often than you might want to believe.

Last March, a contributor to eHam.net posted the following (paraphrased):

*Recently my friend and I decided to put up a repeater. We made a list of unused repeater pairs within 80 miles of us from the repeater council's database. We applied for 145.39, permission was granted, and we started using the repeater on this pair.*

*Some time later, another repeater began operation on the frequency. It turns out the owner is a coordinator and was threatening to sue the repeater council for giving his frequency pair away, after he had let his coordination lapse past the grace period..*

*Eleven months later, my friend whose call was used for our repeater, was notified that his coordination had been revoked and we were to stop using this pair immediately. There was no reason given. This is in strict violation of their bylaws and rules and regulations. What would you do?*

### **To "Coordinate" Means Only To "Recommend"**

The term "coordinate" has a finite meaning in relation to amateur radio repeaters. In ham radio, "coordinate" is used as a verb and it means "to arrange in proper order or position and/or to combine in harmonious relation or action." A "coordinator" or "coordination council" is nothing more an individual or body of individuals who use their technical expertise to combine the various interests in a given spectral parcel to permit all wishing to use that space to do so in a harmonious relation to one another.

All a coordinator can do is to "recommend" frequencies that give a prospective

repeater a reasonable chance of success with minimal impact on those others in the same geographic area. The FCC does not require amateur repeaters to be coordinated, and a coordinator may not force anyone to stop using a given frequency pair (only the FCC can do that). The FCC recommends coordination and will give precedence to a coordinated repeater in the event of a dispute between repeaters if one is coordinated and the other isn't; if both are coordinated, they are both equally responsible for working things out.

But there is an obvious problem: What are the minimum standards that all coordinators or coordination bodies must adhere

to? You know: Inter-system geographic spacing, use of tertiary (15 kHz) channels on 2 meters. The simple answer is that there is no one universal national standard for coordination or even a universal minimum standard to consider an applicant for coordination's needs.

In the earliest days of the "second-wave" coordination effort (starting about 1972 and continuing to about 1980), there was some amount of concern on this issue. Eventually there was a handshake agreement that the nation would go along with standards and a bandplan developed by the Texas VHF FM Society in the late 1960s. Even the ARRL got in on the act and declared it the officially anointed plan and the "Texas Plan" based on 60 kHz inter-system spacing and a 600 kHz input to output separation was the de facto standard in many places. A few years later, the 60 kHz channel spacing was cut in half to 30 kHz and even later to 15 kHz.

### **Technology Mixed With Politics = Coordination**

The only problem was that the political leadership in some geographic areas did not want to give up their autonomy and political acumen for a one-size-fits-all national plan. In the end, we wound up with a plethora of bandplans on 2 meters where some regions used the 15 kHz channels upright. Others regions inverted them. Still others abandoned 30 and 15 in favor of 20 kHz.

Likewise, on 70 cm, the repeater spacing began at 50 kHz. Later it became 25 kHz. Then, a few years ago as space ran out for new repeaters, a few places split to 12.5 kHz (the commercial standard) while others opted to go 20 kHz and re-coordinate the entire repeater subband.

At this point, please permit me to digress and note that, as one who served with a number of repeater coordination efforts on two coasts, coordination is as much "political" as it is "technological." Dealing with the problem of the non-existent or so-called "paper repeater" is one of them.

### **No Frequency Is Worth Fighting Over**

In this author's view, no frequency or repeater pair is worth fighting over. In the end, even the one who wins the fight also loses because the on-the-air range war will have left a proverbial bad taste in the mouths of many who wanted no part of the mess, but were drawn into it peripherally.

Also, the variable here is not the political power -- or lack of power -- on the part of the coordinator. He has done his job. At this point, the coordinator likely has no other obligation to either repeater.

In reality, the decision is up to the person wanting to maintain the "new repeater" as to whether it is worth the price of a

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range war between his repeater and the inactive one that suddenly sprang back to life and wants the new kid on the block to go off the air.

Also, the question must be asked as to whether it is worth the risk of litigation that might ensue. And is it worth either or both of you risking a citation and possible fine from the FCC over this matter?

Nevertheless, one thing is obvious to this writer: I have said it before and I'll say it here again. Had the implementation of universal and rigid standards for coordination been successful in 1968, many of today's problems would never have come to pass.

In the end you have to consider the legal definition of the word "coordinate" and "coordinator" to understand the actual extent of a coordinator's power -- which these days is vested with the overall area ham radio community. When a coordinator fails the needs, wants and desires of the local community it services, that coordinator will be replaced.

It is very easy for folks -- especially those outside your area and who have never owned nor operated a repeater -- to opine. But in the end, it is you, not they who must deal with the reality of the sit-

uation. And it is your license that is on the line, not theirs.

## One Last Word On Those Ham vs. Ham Lawsuits

As to one ham suing for not being able to hold onto repeater coordination, or for other repeater related situations, it seems to be an unfortunate part of today's ham radio landscape.

It has happened many times in the past. I guess the first such case was circa 1968 or 1969 on a repeater in northern New Jersey. While in that case the matter never went to trial, the litigant did get a substantial but undisclosed cash settlement from the three hams whom he accused of jamming his call and from the club that owned the repeater for "permitting him" to be jammed. Since it was an out-of-court settlement, it never became case law.

Since then, there have been at least a dozen such cases I know of, some well covered in past columns. I recall one from a few years back - a radio club hiring an attorney to get a civil restraining order against three people harassing the club repeater. Then the three "unwanted" got

their own lawyer to counter-sue. That was mid-1990. The club was successful and got the order, but the situation then escalated as others created a melee of jamming in support of those run off the machine. While each side in this dispute claimed victory, the only real winners were the lawyers representing their clients.

It is a strange but true fact that people sue people every day because it has become the "in thing" to do in today's ultra-litigious society. Be it over the shade of one's shirt, the height of lawn grass, how warm or cold a cup of coffee is or even the way you sound on the air, some pretty stupid nuisance law suits are filed. Added to this is the fact that there exist some "bottom feeding" lawyers out to make a name for themselves who will do anything to convince you to file a lawsuit so that they can gain a bit of fame, notoriety and your life savings in payment.

However, you cannot go through life hiding in a cocoon. Life is filled with both the good and the bad. All we can do is try to walk softly while being prepared. Besides which there might be a neighbor who sues you because he or she is allergic to your cocoon!



# Predicting Unpredictable Propagation

Kelly Jones, N0VD

One of the great things about being a DXer is the seeming unpredictability of the bands. Over the last year or so, there have been many musings in the magazines, on the web and at the local DX club meetings when it comes to Cycle 24. "When will it start?" is probably the most asked question. Technically, the consensus is that it has already begun. So the better question would be "When will the bands spring to life"? As we patiently wait, I would compare Cycle 24 to boarding a plane, but sitting on the tarmac waiting to take off.

If you watch the SFI (solar flux index) numbers, it would also seem to indicate "more of the same"; however, I am beginning to see signs of life on the higher bands. Signals from Europe

on 15M during the local morning hours are making it to my QTH and signals on 20 have been quite loud long after local sunset. In fact, I am starting to hear the Pacific, VK/ZL and some Southeastern Asia on 20 into the evening local time (03:00-05:00 UTC). Just a few months ago this was, well... unheard of – quite literally.

With signals starting to fill the high bands, I began thinking there might be some interesting propagation that I was overlooking. Thus, I went on search for some propagation prediction software. While there are many flavors of prediction software floating around the net, what I settled on was a combination of VOACAP and VOAProp.

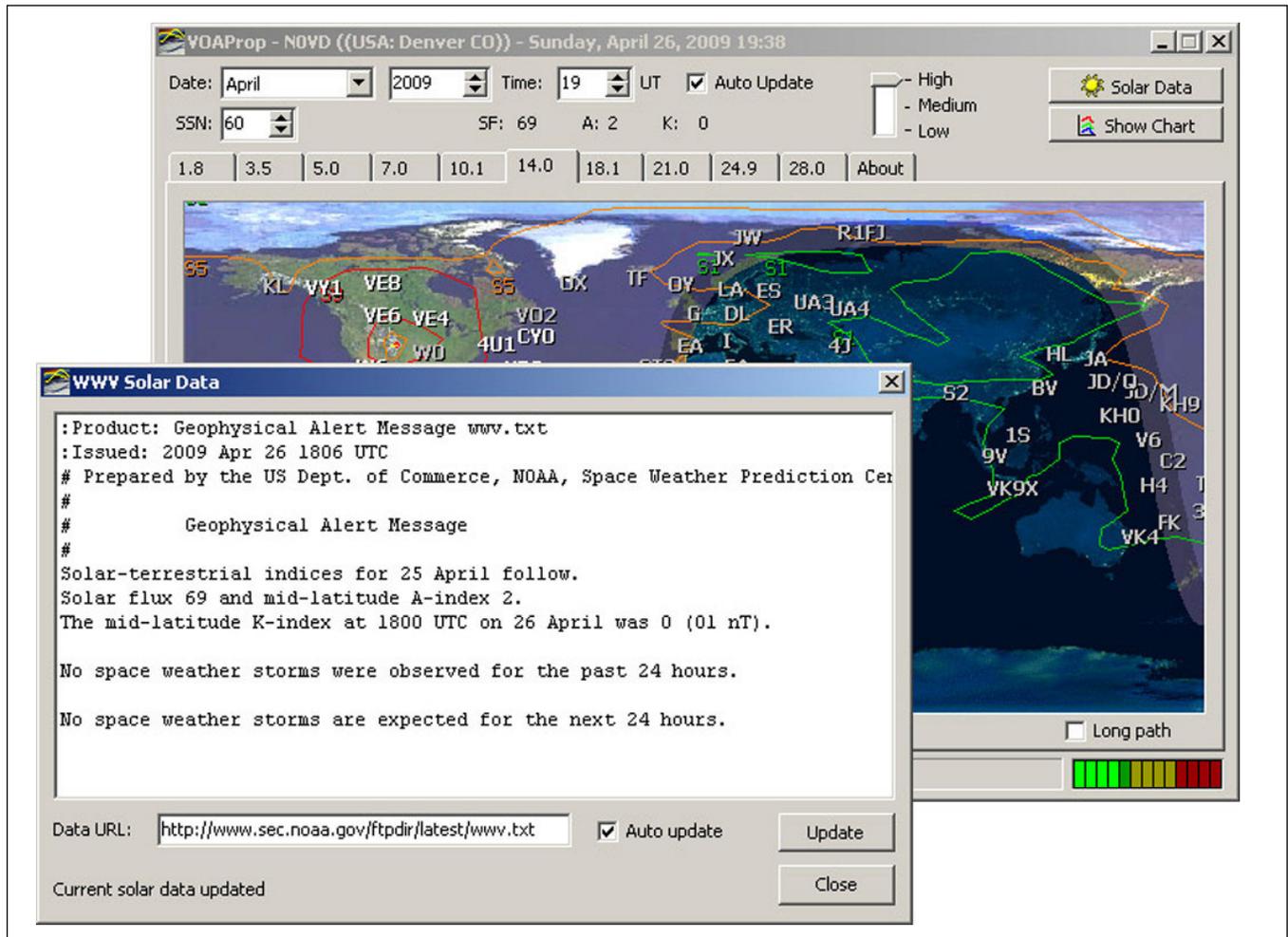


Figure 1.

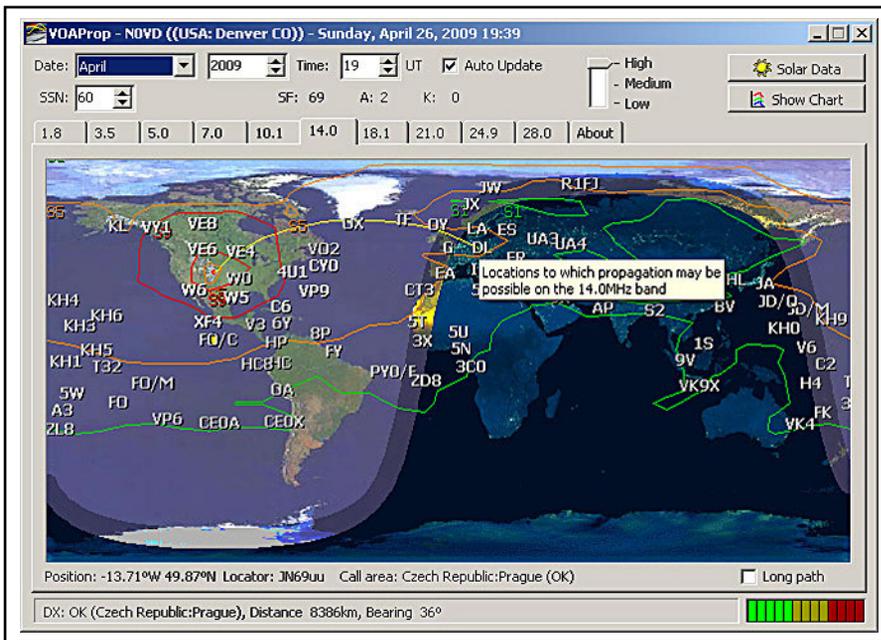


Figure 2.

VOACAP is a propagation prediction engine based on the Ionospheric Communications Analysis and Prediction Program (IONCAP), a scientific product released in the '80s by the U.S. National Telecommunication and Information Administration. VOAProp is a graphical front end developed by Julian Moss, G4ILO, that makes VOACAP much easier to use and understand. These two tools provide us with an excellent visual representation of propagation that "might be".

To get started, you will need to download both of these applications. VOACAP can be found at <http://www.greg-hand.com/hfwin32.html>. This is the address for the Windows version. As a side note, Greg Hand is the author of VOACAP and retired from the Institute for Telecommunication Sciences. It's great that Greg continues to maintain this software even after retirement! I should also mention there is a Linux project that has ported VOACAP. However, for purpose of this discussion, I will focus on the Windows version.

In addition to VOACAP, you will also need to download Julian's VOAProp user interface, which can be found at <http://www.g4ilo.com/webprop.html>. One of the many great things about both of these programs is that they are completely free.

Once downloaded, you will simply need to install these programs. There is one small gotcha when installing VOACAP. Most programs will typically install into your "program files" directory.

However, there is an issue when using a directory name that contains spaces, or is longer than eight characters. This goes back to the old DOS days. So generally, it is best to use the defaults when installing these two programs.

After installation, you will see two new program groups – "ITS HF Propagation" and "VOAProp". Navigate to VOAProp and select "Location Editor". For now, simply choose a location close to you. Once you complete this, you can then start VOAProp. It's best after first launching the program to "tick" the auto-update box. This tells VOAProp to continuously map in real time. You should also update the SFI data being used. To do this, click the "Solar Data" button - this will open a new window. Leave the "Data URL" the default and check the "Auto Update" box. Finally click the "Update" button. You should see something similar to Figure 1. This tells VOAProp to retrieve the latest data from the URL specified. Once complete, you should have a basic working VOAProp.

From here, you can change the band tabs to see what kind of propagation could be expected. If you click in the map, you will also see line drawn between your QTH and where you clicked. This will not only provide a beam heading, but also distance and what "S-Meter" reading might be expected at the receiving end. See Figure 2.

Another interesting feature of VOAProp is the ability to check when you might expect propagation to a given loca-

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tion at some time in the future. The real time map provides predictions for this moment in time. But suppose you're curious about what propagation might look like in six or twelve hours from now. By clicking on a location within the map, then clicking the "Show Chart" button, you will get an estimated MUF chart and what could be expected over time to that location. Now you have an idea when propagation could be expected, at what time and on what band. See Figure 3.

One of the more interesting features is experimenting with the long-path predictions. Many times this path is open but there is nobody checking propagation via the long path. I have found this particularly true on 10M when the band seems completely dead. A few CQs will often result in QSOs on a dead band. The next time you tune across a band and don't hear any signals, put out a CQ. It may be a case that everybody else is tuning and thinking the band is dead, but in reality, there is a path open to somewhere.

I've only scratched the surface as to the information that VOACAP and VOAProp can provide. As you become more familiar with these programs, you will find many options that can be specifically tailored to your QTH, antennas and power. There are also many tutorials on the web that can provide you with tips and tricks for these programs. However, this should be enough to get you started and on track to finding those "unpredictable" openings – even when the band is "dead".

### W0DXCC Convention

Mid-summer in the Midwest means the W0DXCC convention is once again upon us. This year's W0DXCC convention takes place Saturday, July 18, 2009 in Rochester, MN and again looks to be another great event. A few of the scheduled speakers include our own Carl Luetzelschwab, K9LA; Dean Straw, N6BV; Glenn Johnson, W0GJ; Ralph Fedor, K0IR and John Devoldere, ON4UN just to name a few. The DX banquet will include a presentation from the recent Desheceo K5D expedition. If you missed Dayton or just simply need to "talk shop", make plans to spend a weekend in Rochester, Minnesota! For

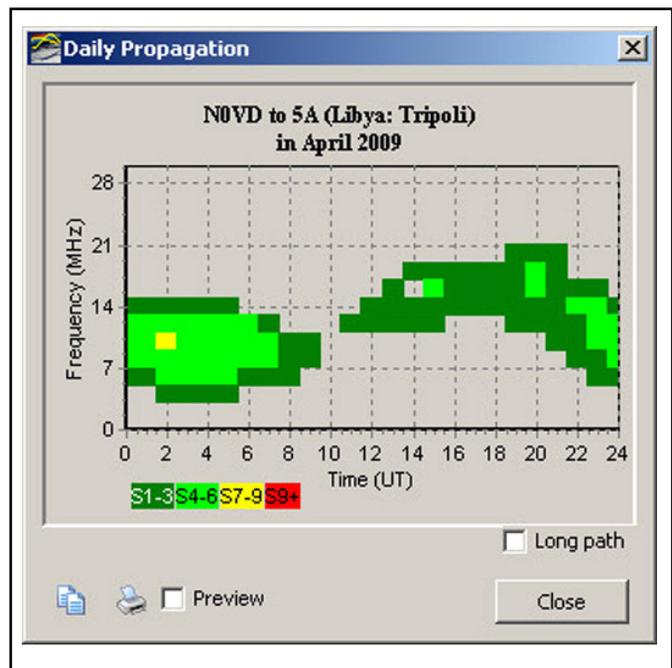


Figure 3.

more information on the W0DXCC convention, visit their website at <http://www.w0dxcc.com>.

### Twitter DXing?

It seems you can't have a chat, watch TV or even work DX without a reference to the Internet finding its way into the conversation. Of course, DX related websites have been around for years and our very own WorldRadio has become an eZine, but an interesting phenomenon that has popped up over the past several years is something dubbed "Web 2.0". In a general sense, this often refers to social networking sites like MySpace,

Facebook and now Twitter (<http://www.twitter.com>). While Twitter is a bit different in the sense that it's more like a "micro blog", I began wondering how many DXers use this technology. I have to admit that I'm somewhat of a techno-weenie, so having a Twitter account didn't seem that out of the ordinary. However, as purveyors of new technology, how many DXers "tweet"? I would like to hear from you if you have a Twitter account and how often you tweet about your DXing activities. You can find me on Twitter as NOVD. I can see it now; the next DX award will be the "Worked All Twits"! :-)

*That's it for this month's column. 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](mailto:n0vd@dxcentral.com). I'll do my best to include it in my next column. Until next time, see you in pileups - and now on Twitter as NOVD!*

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# HAMFESTS

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#### KENTUCKY

**River Cities Amateur Radio Assn., K4S. Family Fun Time for All,** July 4th, 8:30 AM to 3:00 PM in Central Park. 14.2407.140. Certificate sase to RCARA, POB 615, Ashland, KY 41105 [www.summermotion.com](http://www.summermotion.com) or [www.rcara.org](http://www.rcara.org)

#### OKLAHOMA

**34th Annual Ham Holiday 2009 -** July 24th 4:00 PM-10:00 PM & July 25th, 8:00 AM - 3:00 PM at the Moore/Norman South Penn Conference Center, SW 134th and Pennsylvania in SW Oklahoma City. Talk-in: 147.21. Tech/non-technical programs, WAS card check, VE testing, flea market. Vendors, contact [kc5qcv@cox.net](mailto:kc5qcv@cox.net) for details [www.HamHoliday.org](http://www.HamHoliday.org).

#### PENNSYLVANIA

**W3UU EPA Convention** will be held July 4th at Emerick Cibort Park in Harrisburg. 80 covered tables, over 150 tailgate spaces. Seminars. For more info contact Terry, [WB3BKN@hrcw3uu@gmail.com](mailto:WB3BKN@hrcw3uu@gmail.com). Telephone 717-979-9515. Talk in 146.16/76 tone 100 Hz.

**Union City & Wattsburg Wireless Association Hamfest -** July 11th, 7:00 AM to 11:00 AM. at the Greene Township Municipal Bldg., 9333 Tate Road, Erie, PA 16509. Talk-In 146.700 pl 186.2. Prizes, tailgating, vendors, fun! Contact Ron Rycek 814-833-6829 or visit [www.wattsburg-wireless.us](http://www.wattsburg-wireless.us).

#### SOUTH DAKOTA

**Deuel County Amateur Radio Club Hamfest -** July 25th - 8:00 AM - 6:00 PM at City Park, North Hwy 15, Clear Lake, SD. Outdoor hamfest, flea market, ARRL sponsored exams, camping available. Talk-in 147.315. Contact Robert Schmidt, N0TAW, POB 427, Clear Lake, SD 57226, 605-695-0219, email [rjtaw1@itctel.com](mailto:rjtaw1@itctel.com). Visit [www.W0GC.org](http://www.W0GC.org).

#### WISCONSIN

**SWAPFEST '09 -** South Milwaukee Amateur Radio Club's 41st Annual - July 11th, 6:00 AM - at least 2:00 PM. at American Legion Post 434, 9327 South Shepard Avenue, Oak Creek, WI. Talk-in: 146.52. Food, beverages, door prize. More info 414-762-3235, email [ryatex@aol.com](mailto:ryatex@aol.com) or visit [www.qsl.net/WA9TXE](http://www.qsl.net/WA9TXE).

### AUGUST

#### COLORADO

**The Denver Radio Club Hamfest,** August 16th, doors open at 8:30 AM at the Jefferson County Fairgrounds, 15200 W. 6th Ave, Golden, CO. Technical Sessions, Amateur License Testing (10 AM). Talk-in 145.490 or 448.625 (both 100 Hz). Contact Bryan Steinberg, KB0A at [drcfest@comcast.net](mailto:drcfest@comcast.net).

#### OHIO

**18th Annual Columbus Hamfest -** August 1st, 8:00AM - 1:00 PM at the Aladdin Shrine Center, 3850 Stelzer Road, Columbus, OH. Free education forums, indoor vendor or outdoor flea market space, wireless internet, parking. VE testing. Latest info at [www.aladdinshrine.org/hamfest.htm](http://www.aladdinshrine.org/hamfest.htm)

#### VERMONT

**The West River Radio Club Special Event Station -** August 1st, to celebrate Grace Cottage Hospital Fair Day. Operation will be on 14.250 MHz and 14.070 MHz from 1400Z to 1800Z with the callsign W1RRRC. QSL and SASE to John Borichevsky, N1TOX, POB 1087, North Brattleboro, VT 05304.

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# The New Ballgame at Army MARS

Bill Sexton N1IN/AAA9PC

This was like Major League spring training; three months of strenuous workouts, rookies and old hands alike pushing their limits, coaches scrutinizing every play. An awesome number of balls in the air, too, coast to coast.

It is serious business, getting in shape for the arduous season ahead. However, we're talking hurricane season here rather than baseball season.

Army MARS was not tuning up for pennant races, but for the next Katrina, 9/11, or any other destructive event the nation might face. The only certainty for its ten domestic leagues (regions), 43 teams (state-defined field organizations) and 2,800 players (volunteer hams) is that the tropical storm season has officially started. MARS is preparing for Ana, Bill, Claudette, Danny, Erika, Fred, etc. whatever the weather might hurl at the U.S.

Never before has MARS undertaken such a unique, intense approach to preparedness. Chief Stu Carter candidly admitted "retraining" hardly describes the program he revealed in his Feb. 23 announcement to members:

- A new game plan under the title "The Road Ahead" calls for raising the level of training and sharpening the focus on services that disaster relief agencies might need, both civil and military. "The mission isn't changing," trainers were told. "What will change, as training and leadership proceed, is mindset."

- Membership requirements are tightened, eliminating the FCC's entry-level Technician amateur radio license as sufficient qualification. Now, General Class is mandated, plus completion of designated FEMA courses. In addition, all stations must be equipped to access the Army MARS Winlink email-over-HF system.

- To put it all into effect, the 12-week "Spring Training" cycle was launched March 2 beginning with written lectures delivered by email every Wednesday and followed by weeklong on-air discussions conducted on daily HF nets. Topics ranged from "What's Expected of Members" to



The postcard's date, 1881, was six years before German physicist Heinrich Hertz demonstrated the transmission and reception of electromagnetic waves. Keeping up with the latest technology is the key element of the new Army MARS' "Road Ahead" program prompted Robert Rathbone AG4ZG/AAM4EFL, Florida Army MARS emergency operations officer, to dig out this pre-World War I postcard image of up-to-date Signal Corps troops using the new sound-power telephone, optical rangefinder and signal flags. (The word "signal" originally meant a flag.)

"Chain of Command: Holding Army MARS Together" and "Incident Information Reporting." Participation was mandatory.

And with that, Army MARS plunged into a rigorous catch-up operation all the more notable because the need was not of MARS' own making.

The MARS mission consists of being ready with the auxiliary communications that government might need in a major disaster. But until all the military commands and civil government agencies worked out their own post-9/11, post-Katrina configurations—state agencies as well as federal—MARS could hardly nail down its own planning. (The government's process still isn't fully complete.)

In the meantime, MARS members had gone about their normal business of training and exercising (and pitching in dur-

ing hurricanes and winter storms). But the long holding pattern did precious little for morale, much less preparedness. Finally, the Department of Homeland Security published its post-Katrina revision of the National Incident Management System last December.

Chief Carter jump-started MARS long-range planning about the same time. However, he opted against the usual bureaucratic route with HQ doing the drafting. The job went instead to what the military calls a "Tiger Team"—experienced members outside HQ who are particularly dedicated to the specific activities involved.

The seven-man Tiger crew included (to mention only several) a State Director with 30 years experience working actual hurricanes, another ex-leader with background in corporate management and communications technology, and one of

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**Paul Drothler WO4U/AAV4DJ refuels generators used on his Tennessee Army MARS deployment during Hurricane Gustav last year. The four team members logged 1,284 miles logged assisting with communications. Drothler was one of the authors of the MARS "Road Ahead" long-range plan which makes such voluntary deployment a regular part of Army MARS support to government agencies.**

the best-known net controllers in Army MARS. As head of the team, Carter chose Bob Mims, Region 1 Director (New England) with years of EOC experience in RACES. (Disclosure: the writer was a member). Our group was given six weeks to complete the job, a deadline necessitated by the approach of hurricane season

The team analyzed the MARS record in 9/11 and subsequent weather and other emergencies, then surveyed the resources now available to MARS, the scope of services likely to be needed and the range of agencies likely that might call for assistance. Requirements of the Department of Defense and Department of the Army also went into the mix.

Some issues were keenly debated, including the upgraded FCC license requirement, but the draft was ready by deadline. With language added by Chief Carter and HQ staff, the eight-

## The 'Road Ahead' for Army MARS

"Defense support to Civilian Authority is becoming a stronger mission for MARS as the links between the Department of Homeland Security and the Department of Defense strengthen. However MARS must be ready for both missions and hence needs to be operationally competent for both missions. This means that MARS members must understand military radio networks and their purpose for the military support mission; and the documents and culture governing homeland security as addressed by the Department of Homeland Security, its many subordinate federal agencies, state and sub-state agencies as well as Non-Government Organizations (NGOs). MARS and its members therefore need to be flexible and aware that they, in an emergency, may be the key to all-hazards communications involving many situations and entities".

—extract from the Feb.23 document

page single-spaced Road Ahead officially became Army MARS doctrine Feb. 23, 2009.

Member reaction varied. "It seems like they're trying to freeze some of us out, always adding something new," one older member complained on his home-state net.

The Chief's response: "The 'something new' is the environment in which Army MARS operates . . . We didn't add something new, it grew out of our mission to be relevant."

Other objections were raised to the required ham license upgrade. The response to that was easy. For MARS members to help at EOCs, they would need access to HF bands not open to Tech licensees. Also, the superior license reinforces the professionalism MARS now wants to emphasize to its partner agencies. Leadership promised to help individuals qualify for the General exam during the year's grace period.

Overall, reaction ranged from interest to delight. "I have either monitored or directly participated in 41 nets since we released Unit 1," said Paul Drothler, AAV4DJ, one of the plan's authors. "The obvious level of enthusiasm and involvement has been most gratifying. We have people checking into nets that have been dormant for many months. They are now participating regularly. Yes, some members will be lost and that's regrettable, but it's their decision."

For all the immediacy built into the new Road Ahead doctrine, the most significant change almost certainly would be slow taking effect. Hopefully so, since it involves real disasters.

Members traditionally operated from home. Deployment to disaster scenes wasn't contemplated or authorized. Katrina, however, taught the impossibility of assisting government agencies if the agencies themselves had no working communications on site, as in New Orleans.

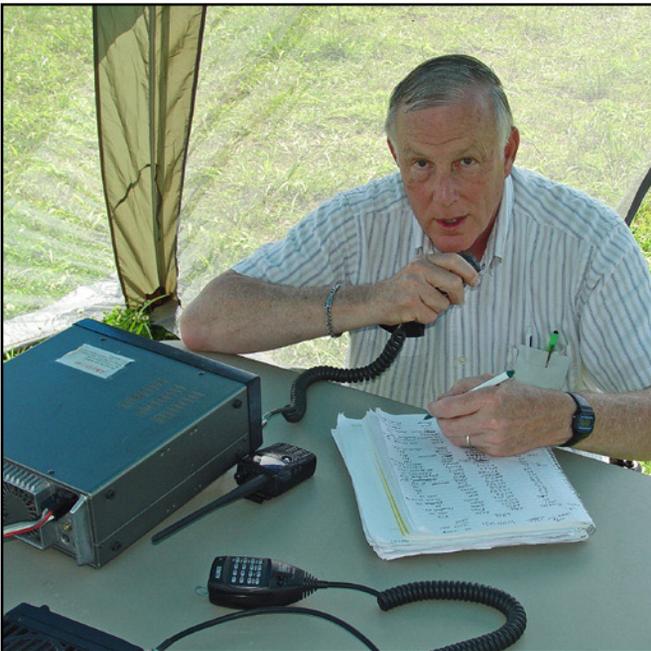
So last year during Hurricanes Gustav and Ike, half a dozen "Emergency Response Teams" were fielded by MARS from Tennessee and Texas (including one led by Paul Drothler). It was a successful learning experience and the ERT concept is now built into the *Road Ahead*.

Similarly, agency augmentation— the loaning of otherwise uncommitted MARS personnel to help at EMA and EOC installations— proved itself during the winter's ice storm onslaught in the Northeast. This, too, has become doctrine.

There were still two primary tasks for the members whose responsibilities, health, or interests wouldn't permit external



**Traditionally, MARS members operated from their homes. The new “Road Ahead” doctrine provides for deployment and assisting at EOCs. Georgia Administrative Officer David Little KD4NUE/AAM4AGA is shown at the MARS position at the county OEC in Brunswick. He has also deployed assisting the Air National Guard with communications.**



**Tiger Team member Pat Lane, W4OQG/AAA9EC, is Army MARS National Emergency Coordinator. He’s pictured operating from a Corps of Engineers remote site near his Memphis home.**

activity. One was familiar, the nets MARS operates to relay traffic and conduct command and control communications. The other offered a new twist, converting the often-dormant practice of circulating Essential Elements of Information reports about local incidents into a sort of national “forward observer” system.

“Collecting early warning situational information on developing emergency situations (known internally as ‘EELs’) for transmission to designated agencies,” leads the list of general duties for all members. “This requires ongoing liaison with local agencies.” Providing Incident Notifications, as NIMS calls them, does not require penetrating disaster scenes, only a listing on local agency phone trees for activation.

Viewed in totality, the new doctrine reflects not so much a change of mission as a drastic revving up of machinery already in place and long awaiting a “go” signal. This it now had. To quote the Trainer’s Guide on the new mindset:

“Army MARS is no longer to be viewed as a sort of free-standing assemblage of military-connected hams with an open-ended mission of unspecified support to unnamed customers in undefined circumstances. To put it in a word, post-9/11 Army MARS is *focused*. What the Road Ahead sets out to do is *sharpen* the focus.”

That certainly was the intent of the MARS team’s burst of spring training

“I’m asking all members of Army MARS—100 percent of the membership of Army MARS— to set aside their own plans and make a three-month commitment to intensive training,” Chief Carter said in a broadcast message. “It is essential that we all operate from the same perspectives/training/point in time as we adjust our processes to meet the current and future needs of Army MARS.”

### Really Interactive Training

The new approach to training called for dropping the traditional practice of lecturing (or reading from official documents) and instead engaging the trainees in open discussion. The following interaction ensued when an on-air instructor commented on the way MARS members and volunteer firefighters both encounter professionalism on their jobs.

A member attending the state net said he works across the street from a firehouse. He said he was familiar how hard the volunteer firefighters trained, donning heavy turnout gear even in the hottest weather.

The MARS instructor inquired whether he considered these unpaid volunteers to be professionals. “Absolutely,” the member replied. “I’d let them carry me out of a burning house any day.”

Then another member entered with a comparison between firefighting gear and the manner in which MARS operators dress if they’re on duty at an OEC or other public situation. He felt that the sloppy t-shirts and dirty jeans often worn to Field Day would be inappropriate.

The trainer responded with his own observation working at a school that includes would-be physicians in the student body. “You can always tell the medical students from the rest,” he said. “There’s not the usual sloppiness. Looking like a professional gives you two advantages,” he added. “It makes you feel professional, and people treat you like a professional.”



# QCWA Leadership – An Analogy

Alan Pickering, KJ9N

**B**y assignment from others, I am the Net Control Station (called “Master Oscillator”) for a weekly net that is named “The Knights and Ladies of the Kilocycle.” We believe that it is the longest continuously running net in the USA, perhaps even the world, inasmuch as it was founded on Christmas Day in 1929, and has operated every week since, except during the days of World War II. And, by coincidence, those facts reminded me of the longest continuously running race in the world: the Oxford and Cambridge Boat (rowing) Race that was first begun in March a 100 years earlier, in 1829, when the best athletes from Great Britain’s two oldest universities met on the ice-encrusted Thames in London to determine which one of the two might prevail in a boat race between the two.

A close examination of this annual boat race between Oxford and Cambridge has enough parallels to the leadership of QCWA Chapters to speculate upon the characteristics thereof and to draw an analogy that QCWA Chapters and their officers should find worth considering.

Remember that in 1829 the British Empire truly spanned the globe and as the English liked to brag at that time that the sun never set upon their nation nor its colonies. Furthermore, who could doubt that in 1823 the finest minds and intellects of the western world were collected together in the faculties and classrooms of the colleges making up Oxford and Cambridge Universities. They had it all—the brightest and the best from the chin up. But unknown in 1829, was which of the two institutions had the best athletes, the strongest muscles, the greater stamina, the finer teamwork, in the associated disciplines of physical training from the chin down. Ah, that was the question!

So, the first Oxford vs. Cambridge sculling boat race competition was organized to find out. The contest would test the athletes in the most (at that time) rigorous sport common to the “gentlemen” attending the two universities. Rowing had long before been recognized as one of the more important institutional sports approved by those who managed and directed the Olympic races. But this particular race would determine which of the two leading universities in the western world might at that time be the better for sports activities. The dedication and the fitness of the teams representing the two schools would thereby be demonstrated for the whole world to see.

It is a matter of fact that collegiate-level rowing requires absolutely precise teamwork. If the eight rowers seated at the oars cannot perfectly synchronize their rowing strokes so that their oars enter and leave the water exactly in unison, pulling the boat down the race course efficiently will not happen. Perfect harmony between each rower is an absolute requirement, no matter how strong or how fit each individual might be. Chaos, broken equipment, and even capsizing are risks that must be overcome by exacting teamwork. Keeping those eight rowers



together in perfect synchronicity while guiding the boat down the river from start to finish by the shortest possible route is the job of the ninth member of the crew: their leader, the coxswain.

The coxswain does not row, not even a little bit; but the rowing crew cannot win without an expert coxswain sitting in the stern of the boat. The coxswain is responsible for shouting encouragement to the oarsmen, maintaining the rowing tempo, and guiding the scull down the racecourse through the swirls and eddies and flotsam floating in the river. Sculling coxswains on the Thames all know that any boat on that river must aim for the second lamp-post from the left, which marks the deepest portion of the river and thus most likely to represent the fastest flow of water and thus the best place to be when passing Hammersmith Bridge. Statistically, 85% of the time the winner is the boat whose coxswain follows that rule.

Now its time for my analogy: Just like a sculling crew that is racing on the Thames at London, every QCWA Chapter should be a community of amateurs working together in perfect harmony to reach the chapter’s goals and objectives, be those goals social or technical or some of both. Everyone must be in top condition intellectually. Everyone must be willing and able to make a commitment to the chapter’s future. Not all have to have advanced degrees in electronics nor do they all have to have been amateur extra licensees for the past 25 years. But all do have to agree that the ongoing maintenance of the chapter is worth striving and working for.

And here is where the leadership of every chapter chimes in. In contrast to the lithe, physically strong and fully muscled crew of oarsmen, the coxswain can be short and small and physically no match to the crew. Last year’s 2008 coxswain for the Cambridge rowing team was Ms. Rebecca Dowbiggin (a Ph.D. candidate in Anglo-Saxon, Norse and Celtic languages) who tips the scales at only 102 pounds, and stands only 5 feet and

four inches tall. Rebecca makes no meaningful physical contribution to getting her team through the water. But that is not her job. Her job is to coordinate, by voice, the eight strong men she faces, whose backs are to the finish line, and who cannot see where their boat is headed without Rebecca to guide them forward. It is Rebecca who adjusts through her control of the boat's rudder the best path so as to benefit from the ebb and flow of the river, the winds and the current they face as a team. It is through the coordination of the boat's coxswain/leader that the oars all enter the water at precisely the same moment and same angle, and move through the strokes of each oarsman and then emerge exactly together. The coxswain cannot win without the oarsmen, and the oarsmen cannot win without the expertise of the coxswain. Mutual trust and respect is the secret to winning the race.

QCWA chapter leadership has much in common with the role of the rowing coxswain. Leadership that moves chapters forward must coordinate and synchronize the work of the members – the “team” – so that all pull together at the

same time. Not all can be oarsmen, since not all are physically able. But there is room for the 100-pound weakling – if capable and able to step up and steer the boat. Everyone has a place to contribute and a role to fulfill. Every QCWA chapter needs one or more who will shout encouragement, someone who can see ahead to the finish line and avoid the flot-sam that might impede forward speed, someone who can keep the oarsmen on task, working together as a team to overcome the headwinds, direct the team forward, and advance the goals and operating objectives of the chapter.

Thus every QCWA chapter can use the skills and persuasive abilities of those who have the trust and respect of the team, and who trusts and respects them as well, to create the kind of winning community that can give their all to the winning end ahead, in sight. The Quarter Century Wireless Association has a place for every member, and every member has a place in the QCWA. Which is why we are the Elite, the Proud, and the Many – the QCWA!

That's it for this time.

73 to all, de Alan, KJ9N at alan.pickering@earthlink.net

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# Black Hole Or Conditions?

Cheryl Muhr, NØWBV

*As we head into summer, ham radio is in the air. The Dayton Hamvention®, Field Day and many regional events have come and gone, with more to come throughout the summer. Be on the lookout for YLs at your local events!*

**I**t can be a challenge to operate from my shack in Colorado. Whether I'm using a dipole or a vertical and barefoot, or with beams and an amplifier, Colorado often seems to be in a black hole. However, conditions can change at the slightest whim of the Radio Gods. I try to get on the YL net Thursday nights. It is at 1:00 UTC and currently meeting between 7.240-7.245 MHz. As summer progresses, it will alternate between 20 meters and 40 meters in the General portions of the bands to try and include as many YLs as possible. You don't have HF privileges? Don't worry; some YLs have the help of a 3rd party control op so they can join in the fun.

Well, on Thursday nights, either I can get in just fine with a booming signal barefoot or no one seems to be able to hear me. I am almost never able to talk to Texas, but the other day it was a solid 59. I often have a pipeline into Arizona and New Mexico, so I can't complain.

I am not the only one who wonders if it is location or condition. Val Lemko, VE5ACJ, lives in Moose Jaw, Saskatchewan. She writes that she "seems to be in a deep dark hole this year, and propagation is the pits. We run a 75 meter loop transmatched to all frequencies, and usually it is really good, but the past couple of years, nope, no way. I used to do net control for the Aurora Net, 7.055 at 2330Z, but had to give it up, because I really wasn't calling, I turned control over to relays in British Columbia, and they were only at an S2 level. They were copying all the stations, but I couldn't hear anyone."

### The VP8 YLs-Only DXpedition

DXpeditions are great fun and lots of people want to work YLs! Apparently the all-YL trip to the Falkland Islands was no exception. Jeanie Parker, WA6UVF, helped the YLs compile this report.



VP8 hosts Janet, VP8AIB and her OM Bob, VP8LP.

"This is devoted entirely to a recent YL operating event because we all must celebrate when active YLs represent us internationally by planning and operating Amateur Radio activities. Recognition of YL operating activity becomes visible when the majority of the amateur radio populous acknowledges a "YLs only" operating event as very successful. So, kudos from all of us who celebrate the excellent publicity VP8 YL Event has furnished for all YLs!

Within this small arena of YL operating events, the VP8-YL Falkland Islands Event January 17-31, 2009 certainly proved to be a memorable experience. Six DX YLs traveled great distances from all over the globe to participate using their newly acquired VP8 call signs in two operating sites. DX YLs for this event were:

- Liz, M0ACL/VP8YLB
- Unni, LA5RHA/VP8YLD
- Nicky, M5YLO/VP8YLE
- Victoria, SV2KBS/VP8YLG
- Chantal, PA3GQG/VP8YLH
- Ruth, IT9ESZ/VP8YLI

And Janet, VP8AIB, and other local VP8 YLs who filled in the schedule when needed.

Activities like this require much planning and this one was no exception, as almost a year was needed to prepare. VP8AIB, Janet, and her OM, Bob, VP8LP, were the planning hosts. Antennas and operating shacks were furnished thanks to Janet and Bob. They are both seasoned operators with many DX contacts every day, but were extremely happy to welcome DX YLs to operate from their own shacks.

The travel planning included packing personal radios, cables, and microphones in addition to materials needed to log either by hand or computer

The logistics of air travel planning, along with needed hand-carried equipment in accordance with current airline security information, are some of the basic obstacles to research far in advance.

Some of the VP8 YL Event operators had not experienced the thrill of working the world and were fortunate to have experienced operators lend the needed skills to operate and log as accomplished



**The YL operators from The VP8 YL Event.**

YL operators. Reports from stations contacted reflected excellent operating techniques. Those of us who have worked pile-ups know this is not easily done, especially when you have 1000+ all calling at once. Of course, we acknowledge the YL voice always has priority.

The total stations worked reached over 25,000 within the two weeks, which included several travel arrival and departure days. During this time, all countries on all continents and in every amateur zone in the world were contacted. Local VP8 YLs filled in the schedule when needed and especially when the DX YLs did sightseeing, as VP8 has much history to experience.

Reports from the girls reflected much joy in operating, but most of all in meeting other DX YLs and visiting another country. And, of course they all can relive VP8 while sending out all those 25,000 QSL cards!

According to Janet and Bob, it all began with just an "idea," and blossomed from there. Hopefully this will give some of you the spark of expanding an idea into an all-YL event. ."

Congratulations to all the YLs who participated. I didn't work all the YLs there, but did manage to work a few of both the DX and the local VP8 callsigns. What a great way to work on your DX YL award. Just work 25 different YLs from outside your own country. There are a number of YL-based awards that the OMs can earn as well, including this one.

I only need to get that one last contact for my 2009 YL Friendship Award and six more ladies to confirm (I have worked

them) for my YL Century Club Award. Remember ladies, if you get an SASE, it means the person you worked really wants your QSL card.

### **What's Next?**

In upcoming columns, I will be writing about YL happenings from the Dayton Hamvention®, Field Day and the Rocky Mountain Region's Annual ARRL convention Hamcon Colorado. But, don't forget, I need to hear from you!

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# Think "Young" to Get Kids Involved in Ham Radio

By Jerry Wellman, W7SAR

I enjoy riding our local bus transportation system and using our light rail system. It saves time and money. And it sometimes provides entertainment or food for thought. Yesterday, there were three young men riding on the train and I couldn't help but overhear their conversation about going tagging later that night. Graffiti has become a challenge and expense for most of our communities, so it was with some interest that I listened in on the conversations of these kids, aged 13 or 14.

What caught my attention was a sketch book where the three had tested their designs. Some were in color and others just black and white. The artist member of the group was telling the other two what colors they'd need and they were debating the best ways to obtain paint and how much time they'd need to complete the task.

I don't need to relate additional details I overheard, but I'll share my concerns that three young men were not in school (on a school day) and their apparent hobby was damaging property by putting graffiti on a wall that they would choose because of high visibility. I reflected to a time when I was that age and thought about what I would have discussed with two friends. It might have been a Scout trip or a TV show or maybe an upcoming school dance. We might have talked about being in a chess club at school or even going to a movie. My friends and I were geeky nerds and we might have discussed our interest in making a reel-to-reel tape recording of a local neighborhood band or we might have discussed building of a Heathkit CB radio.

Today's kids face a lot of competition for their time and certainly times have changed. It's no longer easy for a group of kids to band together as a "patrol" and just go camping and plinking with their BB guns. TV shows don't seem to garner much interest and there is little by way of technology (i.e. building things) they can do. Many schools choose not to have after-school clubs. The lure of things we used to do as kids don't attract interest.

I've taken my ham radio station to schools and other youth groups. It might get a few kids to ask questions, but most of the time I'm told it's easier to use the Internet or that they cannot put up an antenna in their apartment. While I don't have any solid answers, it doesn't mean I just give up – and neither should you and your radio group. We need to do everything we can to attract youth to our hobby and involve them in the rewarding effort of public service. When you're asked to talk about ham radio at a local school, during a neighborhood fair, or an emergency preparedness event do all you can to participate.

## Older Audience

I attended an emergency communications event a couple of weeks ago and as a sign of the times, saw very few young operators. I was one of the old crowd, many of whom were retired

and still fiddled with building things. A young neighbor who had recently received his license didn't want to attend, telling me he found little in common with the "old guys" that always show up. For the most part, he's correct.

I did notice one activity that attracted a younger crowd – a direction finding activity led by Larry Jacobs, WA7ZBO. Larry's retired, but thinks "young," always seeking different ways to teach and involve operators. At this event, Larry had 26 foam containers like the take-home boxes you get from a restaurant and in four of them he had low-power "bunny" transmitters on different frequencies. The other containers had rocks so each of the 26 containers was similar in weight. Each container had a letter from A to Z and they were just lined up outside the building. The challenge was to locate which container contained which transmitter. You couldn't touch the containers, but you could use any of your DF (direction finding) skills and trackers to complete the challenge. Larry had some directional antennas and trackers available to try. He timed each participant in case two participants found the right boxes.

What an innovative event! An activity like this makes the hobby fun and attracts others – especially youth. Larry was able to teach theory to anyone who desired additional information. He could also link the exercise to real-world service such as a search for an emergency transmitter.

## New Operators

A few months ago, QST Magazine contained an editorial concerning agencies around the U.S. encouraging their employees to obtain amateur radio licenses so they could operate in times of emergency. The editorial focused on keeping "amateur" a focus of the license.

A friend of mine just completed the licensing process and mentioned his boss had asked him to get a license so their agency would have a ham on board. He's a younger fellow and remarked that he had no problem studying and passing the test, yet he had very little interest in the hobby. He told me that this was his way to "look better to his boss" and perhaps keep his job.

I asked him why their agency hadn't looked to a local ARES group or ham club to work with in case of an emergency. His answer was pretty pointed. He said there were not enough ARES members available for his agency, which is an agency less exciting than a fire department or police department. Little interest was evident when they tried to initiate contact with a local ham club.

With this in mind, I contacted a number of local agencies and asked if I could talk about their need for volunteers in general and asked them to tell me what they expect of a "volunteer." I was honest and said I was an amateur radio operator and was

asking with that specialty in mind. What I found was surprising.

I was told that having a ham radio license wasn't the primary talent an agency would look for. I was told that equipment wasn't too important either, as an agency budget that included \$1,500 for radios could certainly cover a \$500 ham radio. What they wanted were volunteers they could trust (i.e. respect confidences) and could work as part of a team. A volunteer must pass a background check and be physically fit. All of the agencies recognized that use of volunteers is a wise thing. It builds community strength and offers ways to stretch tax-funded budgets, and even brings diverse talents and experience to the agency. I was surprised when the agencies said they wanted volunteer loyalty. In other words, they wanted their volunteers to focus primarily on one agency and not wear too many hats.

This got me thinking to when we held a Red Cross "credentialing" class for radio people. When word got out that this one-night class would get you a Red Cross ID card, attendance soared. In fact, it was one of the largest meetings we have ever had. The local Red Cross chapter issued dozens of ID cards. Yesterday, I asked the Red Cross radio guy about that class and he remarked that only one or two of those who attended the class have ever responded or maintained contact with the Red Cross. He and I ruminated that most of the attendees were just collecting ID cards and credentials – which many of us do, perhaps thinking that we can get involved in more events by having more ID cards.

But here's the rub. If you're affiliated with too many groups, you don't get the training and the benefit of being part of a single team. In fact, you may be hurting your local group by not being loyal and being a strong team member, two of the most mentioned criteria for an agency volunteer. I find myself in this situation often as I am in one meeting or another and miss the local ARES training net, making the excuse that I'm experienced so I don't need to participate. What it really tells the group is that I'm a poor candidate to be part of a response team and that I have no time to keep my skills sharp and hear the current training. My priority isn't with one group; it's with trying to juggle involvement with many groups.

What if we shifted our thinking? Instead of joining every group, perhaps we should focus on forming relationships with one agency or group so our single

credential would be recognized as being of value. Then, if one group needed help, they would just ask for help and other groups could respond as requested.

For example, if one police agency requests a K9 officer from another jurisdiction, they don't require that officer to have credentials in both departments. They accept that he or she meets the needs for the situation when additional help is requested. Perhaps recognizing credentials between groups is where we need to be in the future.

I can see challenges where one group may not screen members or require background checks and other groups do. Again, I have no solutions, but it's going to be a concern as we provide services to agencies that have set standards and expectations for volunteers.

An agency expects you to be completely familiar with your own radio equipment and be able to send and receive messages with exacting precision. We no longer have the luxury of debating whether Morse code is better than voice or whether VHF is better than UHF. An agency really doesn't care as long as you fit the niche they want you to fill. They want to have your loyalty and want to trust you. They want you to be part of their team and not be a maverick. Emergency communications groups are nearing the time when they need to carefully screen their members. They won't consider the amateur radio license as the complete qualification, but as the initial consideration.

Until next month, best wishes from Salt Lake City.

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# The Liberty Science Center

Carole Perry, WB2MGP

**A**fter almost 30 years of teaching “Introduction to Amateur Radio” to 6th, 7th, and 8th graders in a New York City intermediate school, I learned the lesson of incorporating as much hands-on learning into the curriculum as possible. There is no doubt that youngsters learn better when they are actively involved with the education process.

Although the ham radio program lent itself to bringing in interesting guest speakers, making exciting contacts on the air, and doing experiments in the classroom, nothing was more stimulating than going on a field trip. One of the most successful trips we took was to the Liberty Science Center in Liberty State Park in Jersey City, New Jersey. Through the years, my classes have visited several local “discovery museums” and communications sites, like the Ben Franklin Institute in Philadelphia, and the NYC Police Academy Communications Center, and the Coast Guard Station on Governor’s Island.

Years ago, when I visited these places with my classes, there was always something going on - either with a ham radio operator or a radio demonstration. Well, now the ham stations are no longer in many of these locations. At several local museums that used to house wonderful stations for the children to interact with, such as the Queens Hall of Science ARC station,

WB2JSM, ham groups were told by new administrators that the lack of interest in this type of exhibit no longer warranted space in the museum. One has to wonder how many children’s lives were influenced through the years by their fun exposures to live radio contacts.

Now, in my retirement years and as co-chair of the Radio Club of America Education Committee, I’m interested in seeking out logical places to prominently display ham stations. I recently took my two young granddaughters to the Liberty Science Center where I met with Elizabeth Romanaux, who explained the new \$109 million expansion to me.

The Center is the New Jersey-New York City region’s largest education resource. It is dedicated to providing transformative experiences that connect schools and society with science and technology. The Center uses unique approaches to engaging people of all ages in real science to positively influence communities and society and inspire them to take action to improve our world. Once largely aimed at children ages 6-12, exhibits now include experiences to appeal to every age and stage of learning.

We were, of course, disappointed to learn that there’s no longer a ham radio station there. Evidently, lack of interest



**The boys in the photo are exploring how signals move through communications systems. For example, they can choose a signal moving over fiber optic cable, see where the signal goes, and how it passes through different switching stations. (Photos courtesy of Liberty Science Center)**



Another "hands on" exhibit at the Science Center; this one demonstrates how our ears allow us to hear sounds.



seems to be the recurring theme. I personally do not believe this. What could be more fun for a youngster than to get on a microphone and talk for the first time? We really need to examine what the problem is at these venues. I'll be investigating at more locations to see if I can come up with some relevant facts and suggestions on how we can increase our visibility to the public.

While at this state of the art facility we did explore the Communications and the "I Explore" exhibits. My granddaughters loved to trying to speak a new language at the Language Karaoke exhibit. Then they created a digital tag at the ten-foot long Graffiti Wall. There were interesting displays showing how humans have exchanged ideas over the millennia from simple handprints to complex Incan knotted messages to today's digital pathways. There is a 7,000-square-foot exhibition that explores human communication from a cultural perspective. Here, guests explore not only how we communicate with multimedia and personal communications devices, but also with our bodies, spoken and written language, and symbolism.

Certainly anyone teaching a ham radio or technology course to children will derive tremendous benefits from taking classes to this exhibit. At the entrance to the exhibition, guests discover one of the first recorded symbols in human communication;

the handprint. Guests can leave their own digital handprint as they mark the beginning of their journey through the exhibit. Throughout the zone, experiences lay the groundwork for guests to understand the fundamental impact of communications on our lives.

"I Explore" is a 4,000-square-foot exhibition designed to nurture children's innate curiosity about the world surrounding them, expanding their natural desire to learn. Some of the activities here include making music on the rock xylophone (hanging rock slabs that 'ring' when struck) which teaches children about cause and effect, the properties of sound, and some surprising characteristics possessed by certain kinds of rocks. Youngsters also get to experiment with gravity, momentum, and other forces.

If you live in the New Jersey-New York City area; I absolutely recommend the LSC as a wonderfully engaging place to take children. If you do go there, be sure to make a statement before you leave about the enrichment that a ham radio station could provide to these exhibits. Visit [www.lsc.org](http://www.lsc.org) to learn more.

If any of my readers know of a location where there's an active ham radio station designed to attract kids; please let me know. I just might jump on a plane to see for myself.

Let's keep having fun!



# The Right Time

By Carl Luetzelschwab, K9LA

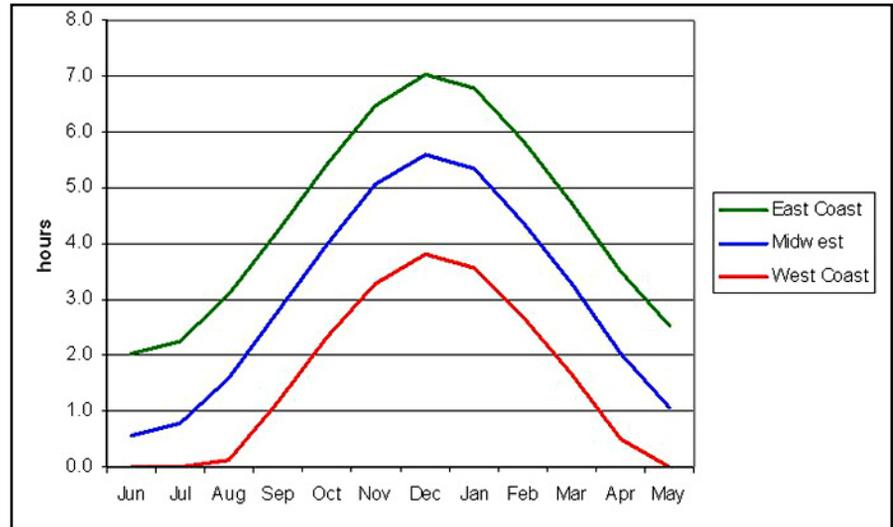
Over the years I've been asked to provide propagation predictions for several DXpeditions. In many cases, the basic question "When should we go?" comes up. Thus the purpose of this month's column is to discuss factors that involve making this decision. As a forewarning, there is no simple answer – it depends on your goals.

A good example of this process occurred in the summer of 2000. My wife Vicky, AE9YL, and I attended the Pacific Northwest DX Convention in Vancouver, British Columbia. At breakfast on Saturday morning before the programs began, Al, K7AR, approached us and asked if we would be interested in joining a DXpedition to Syria (YK).

The last DXpedition to Syria was in November 1994 using the call YK0A. K7AR had participated in this effort, so he had the experience to pull off another visit. He had already been in touch with Omar YK1AO, and the call for our DXpedition would be YK9A. One of our first questions was the aforementioned "When should we go?"

That question begged a second question – "What are our goals?" We wanted this DXpedition to make a big effort on the low bands to North America, especially to the west coast. With that key piece of information and knowing that low band propagation occurs during the hours of darkness, I looked at the duration of darkness by month on the paths between YK and North America. Figure 1 summarizes this effort.

Based on the data, December would be the best month for low band operations between YK and North America. But that presented us with a logistics problem – could we get everything organized in several months to head over to YK in December? We considered that to be a very big risk, so we set our target to February. This compromised the duration of darkness to the west coast from just less than 4 hours in December, to less than about 2.5 hours in February. This com-

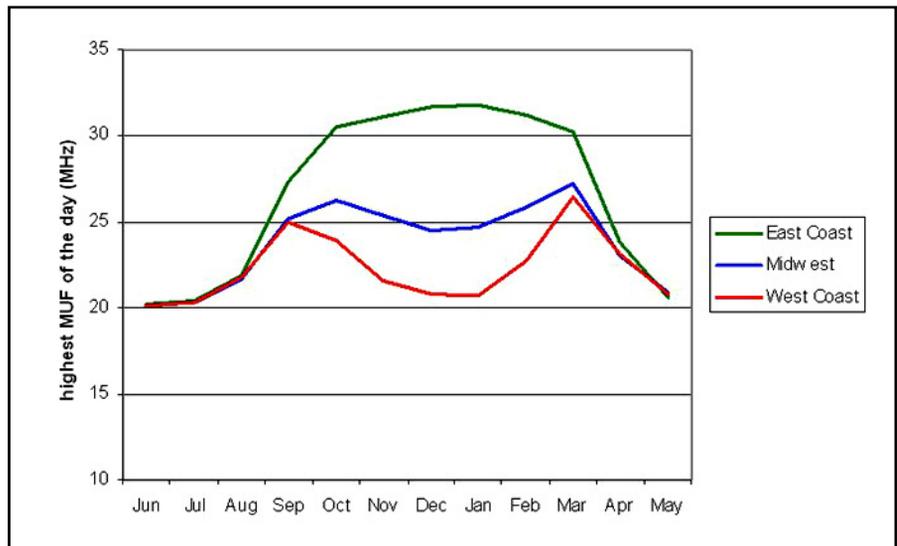


**Figure 1 – Hours of Darkness to Along the YK-to-NA Path**

promise is a good example of external factors affecting the decision on when to go.

What if we would have said the goal was the HF bands to North America? Would that have changed our decision? Some quick runs with W6ELProp gives the following MUF (maximum usable frequency) data.

The MUF results are interesting in that we can see a difference depending on what area of North America we want to concentrate on. As the target area from YK moves farther west, the more the equinox months come into play. Should we have delayed our YK9A DXpedition to March to take advantage of the higher



**Figure 2 – MUF Along the YK-to-NA Path at an SSN of 100**

*“Finally, be aware that the hours of darkness and MUF may not be the only propagation issues to evaluate when planning a DXpedition.”*

MUFs to the west coast? We certainly could have, but then that would have taken another bite out of the hours of darkness on the low bands to the west coast.

As a side note, the trend of the MUF data in Figure 2 is the result of two factors. One is solar illumination and the other is the composition of the atmosphere. During winter, solar radiation encounters the atmosphere at more of a grazing angle. But also during the winter the composition of the atmosphere is more conducive to ion production, and this overcomes the less direct impingement of solar radiation. On short distance paths these two issues tend to line up as seen by the East Coast curve in Figure 2. But as the path becomes longer, the issue of solar illumination versus atmospheric composition starts showing up (as in the west coast curve in Figure 2).

What about the solar cycle – is there a best time? Again, the decision depends on which bands you want to favor. Solar maximum certainly gives the highest MUFs for favoring the higher bands, but at the expense of more disturbances to propagation in the form of big solar flares and more geomagnetic storms. Solar minimum is best for extended geomagnetic quiet times, which appears to favor the lower bands.

The take-away from this month’s column is that there may not be a “right” time that satisfies all your goals. You will likely have to balance several issues to end up with an acceptable compromise. Additionally, there are things that you may have no control over – like the time it takes to get permission to operate, travel arrangements, etc.

Finally, be aware that the hours of darkness and MUF may not be the only propagation issues to evaluate when planning a DXpedition. To see how other factors come into play and how all of this fits together, visit [mysite.verizon.net/k9la](http://mysite.verizon.net/k9la) and click on the General Articles link. Then download Propagation Planning for DXpeditions. I hope you enjoy reading about six steps that could make your DXpedition more successful.

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## DX Predictions

JULY 2009

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/Toyko, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janeiro. Smoothed sunspot number = 9.

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	(14)	*14	*14	(12)	*16
12	(18)	11	*13	15	(15)
14	21	*13	*12	17	20
16	22	*16	(12)	19	*24
18	*24	14	(12)	18	*26
20	*24	*18	23	16	*28
22	20	*20	28	13	*27
24	17	*20	*29	(11)	*24
2	15	*20	*29	(10)	*20
4	*16	*20	28	*14	*17
6	20	*18	*24	*17	*15
8	17	*17	*16	14	*13

### CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SA
8	(13)	15	*16	12	*14
10	(16)	*12	*14	15	*14
12	19	*13	*13	*17	*17
14	22	15	*12	*19	*22
16	23	13	(12)	*20	*25
18	*24	(12)	(11)	*19	*27
20	*23	15	23	*18	*28
22	19	17	27	15	*28
24	17	19	29	13	*25
2	*15	20	29	*11	*21
4	*16	19	28	*11	*17
6	16	17	*24	*14	*15

### EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	16	14	*19	(12)	*14
9	18	(13)	*15	14	*15
11	23	15	*13	*17	*17
13	*26	17	(12)	*19	*21
15	*28	14	(12)	*20	*25
17	*28	(12)	(12)	*20	*27
19	*26	(14)	(17)	*19	*28
21	*21	17	25	*18	*28
23	18	19	28	15	*26
1	*16	19	29	*13	*21
3	*13	18	*29	*11	*18
5	*19	*17	24	*14	*15



# CONTEST CORNER

**CONTEST:** RAC Canada Day  
**DATE & TIME:** 0000-2359Z 1 Jul  
**BANDS/MODE:** 160-2M CW/SSB/FM/AM  
**POINTS:** 2 Pts outside Canada; 10 Pts Canadian Contacts; 20 Pts Contacts with RAC official stations  
**MULTIPLIERS:** CA Provinces/Territories (13 possible)  
**EXCHANGE:** Canadians send RS(T) and Province/Territory; All others give RS(T) + Serial #  
**ENTRY CATEGORIES:** Single op - Single band; Single op - QRP (5W max); Single op - Low (100W max); Single op - High; Multi op - multi XMTR  
**ENTRIES:** 31 July Radio Amateurs of Canada 720 Belfast Road, Suite 217, Ottawa, Ontario, Canada K1G 0Z5, Canada  
 E-mail: canadaday@rac.ca  
 Rules at: <http://www.rac.ca/service/contesting/files/2009%20Canada%20Day%20Rules%20-%20English.pdf>

**CONTEST:** MI QRP 4th of July Sprint  
**DATE & TIME:** 2300Z 4 Jul - 0300Z 5 Jul  
**BANDS/MODE:**  
**POINTS:** 2 Pts. non-member sta; 4 Pts. non-member, DX contacts; 5 Pts. member sta's  
**MULTIPLIERS:** States/Provinces/Countries each band  
**EXCHANGE:** RST + QTH + member # (non-members give power)  
**ENTRY CATEGORIES:** A = <250mW; B = 250mW - 1W; C = 1 - 5W; D = >5W  
**ENTRIES:** 30 Days Hank Greeb, N8XX 5727 11 Mile Rd. NE, Rockford, MI 49341-9502 E-mail: n8xx@arrl.org;  
 Rules at: <http://www.qsl.net/miqrpclub/contest.html>

**CONTEST:** IARU HF World Championship  
**DATE & TIME:** 1200Z 11 Jul - 1200Z 12 Jul  
**BANDS/MODE:** 160-10M CW/SSB  
**POINTS:** 1 Pt. own ITU zone; 3 Pts Same continent, different ITU Zone; 5 Pts. Different continent and zone  
**MULTIPLIERS:** ITU Zones + IARU HQ sta's  
**EXCHANGE:** IARU Member society HQ stations give RS(t) + society abbreviation; All others give RS(T) + ITU Zone  
**ENTRY CATEGORIES:** Single op - Phone, CW or Mixed; Multi op - Single XMTR, Mixed Mode only!  
**ENTRIES:** 30 Days IARU HF Championship IARU International Secretariat Box 310905 Newington, CT 06111-0905  
 E-mail: (Cabrillo format) iaruhg@iaru.org  
 Rules at: <http://www.arrl.org/contests/rules/2009/iaru.html>

**CONTEST:** FISTS Summer Sprint  
**DATE & TIME:** 2000 to 2400 EDT 10 Jul  
**BANDS/MODE:** 80-10M CW  
**POINTS:** 2 Pts non-member sta; 5 Pts. QSO with FISTS members  
**MULTIPLIERS:** State/Provinces  
**EXCHANGE:** RST + State/Province/DXCC Country + Name + FISTS # (non-members give power)  
**ENTRY CATEGORIES:** QRP (<5W); QRO (>100W); Club  
**ENTRIES:** 30 Days Dan Shepherd, N8IE 1900 Pittsfield St., Kettering, OH 45420 Web site: [www.fists.org/sprints.html](http://www.fists.org/sprints.html)  
 E-mail: w8pig@yahoo.com (Cabrillo or ASCII)

**CONTEST:** Run for the Bacon  
**DATE & TIME:** 2100-2300 PM Eastern 20 Jul  
**BANDS/MODE:** 80-10M CW  
**POINTS:** 1 Pt. non-member QSO; 3 Pts. Flying Pig member; 5 Pts. FP member different continent  
**MULTIPLIERS:** States/Provinces/Countries  
**EXCHANGE:** RST + State/Province/Country + FP #; (non-members give power)  
**ENTRY CATEGORIES:** Single band; All band  
**ENTRIES:** Must be submitted via Autolog at:  
<http://www.fpqr.com/autolog.php>  
 Rules at: <http://www.fpqr.com/fpqrprun.php>

**CONTEST:** NAQCC Sprint  
**DATE & TIME:** 0030-0230Z 16 Jul  
**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); GAIN (antennas other than simple wire antenna)  
**ENTRIES:** 4 Days John Shannon, K3WWP, 478 E. High St., Kittanning, PA 16201 Contest software for this contest available at:  
<http://mysite.verizon.net/dmascaro1/>  
 E-mail: naqcc33@alltel.net (Submit log as plain text, NO attachments!);  
 Online logger (preferred method) at: [http://www.arm-tek.net/~yoel/sprint\\_submit\\_log.html](http://www.arm-tek.net/~yoel/sprint_submit_log.html)  
 Rules at <http://www.arm-tek.net/~yoel/sprint200907.html>

**CONTEST:** North American QSO party  
**DATE & TIME:** 1800Z 18 Jul - 0600Z 19 Jul  
**BANDS/MODE:** 80-10M RTTY  
**POINTS:** 1 Pt. per QSO  
**MULTIPLIERS:** State/Provinces/Territories/NA Countries  
**EXCHANGE:** Name + State/Province/Territory/NA Country; non-NA sta's give name only  
**ENTRY CATEGORIES:** Single op; Multi op, 2 XMTRS (100W power limit for all categories)  
**ENTRIES:** 14 Days Shelby Summerville, K4WW 6506 Lantana Ct., Louisville, KY 40229-1544 E-mail: rttynaqp@ncjweb.com (Cabrillo);  
 On-line upload of Cabrillo logs at:  
<http://www.ncjweb.com/naqplgsubmit.php>  
 Rules at: <http://www.ncjweb.com/naqprules.php?page=1>

**CONTEST:** CQ Worldwide VHF Contest  
**DATE & TIME:** 1800Z 18 Jul - 2100Z 19 Jul  
**BANDS/MODE:** 6 & 2M  
**POINTS:** 1 Pt. 6M; 2 Pts 144 MHz  
**MULTIPLIERS:** Grids per band  
**EXCHANGE:** Maidenhead Grid Locator (4 digit)  
**ENTRY CATEGORIES:** Single op - single band (6 or 2M); Single op - QRP (all bands); Single op - All band portable limited (6 Hrs max continuous); Rover; Hilltop; Multi op  
**ENTRIES:** 1 Sep CQ VHF Contest 25 Newbridge Rd., Hicksville, NY 11801; E-mail: (Cabrillo format) cqvhf@cqww-vhf.com  
 Web page: [www.cq-amateur-radio.com](http://www.cq-amateur-radio.com)  
 Rules at: <http://www.cqww-vhf.com/rules.htm>

**CONTEST:** RSGB IOTA  
**DATE & TIME:** 1200Z 25 Jul - 1200Z 26 Jul  
**BANDS/MODE:** 80-10M CW/SSB  
**POINTS:** 3 Pts own IOTA Reference or non-island sta's; 15 Pts. other IOTA islands  
**MULTIPLIERS:** Total of different IOTA references each mode  
**EXCHANGE:** RS(T) + Serial # + IOTA reference # (if applicable)  
**ENTRY CATEGORIES:** Single op - 12 HRS (CW, SSB or mixed); Single op - 24 Hrs (CW, SSB or mixed); Single op - 12 Hrs, Assisted (CW/SSB/Mixed); Single op - 24 Hrs Assisted (CW/SSB/Mixed); Multi op - Mixed; All categories - QRP (<5W), Low (<100W), High  
**ENTRIES:** 16 August Cabrillo to: [iota.logs@rsgbhfcc.org](mailto:iota.logs@rsgbhfcc.org)  
 Rules at: <http://www.vhfcc.org/hfcc/rules/2009/riota.shtml>

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By Anthony A. Luscre, K8ZT

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## CALIFORNIA

**Amador County ARC, P.O. Box 1094,** Pine Grove, CA 95665. Regular meetings first Thursday of the month. All meeting dates and locations, with directions are posted at [www.k6arc.org](http://www.k6arc.org), as is other club info and contacts. Repr: 146.835, PL 100 10/09

**Catalina Amateur Rptr. Assn., P.O. Box 425,** Garden Grove, CA 92842. Meets 2nd Sat. (even months) 8:00 a.m. Hometown Buffet, corner of 17th & Lincoln Ave., Santa Ana, CA. Rptrs: AA6DP 147.09(+), 224.42(-) PL 110.9 on Catalina Island; [www.cara.nu](http://www.cara.nu) 12/09

**Contra Costa Communications Club, Inc., WD6EZR/P.O. Box 20661,** El Sobrante, CA 94820-0661. Meets 2nd Sun./monthly (except May & Dec.), 8:00 a.m., Denny's, El Cerrito, CA. 145.110, 224.300, 444.275w/ PL 82.5 Info: Victoria Thompson, KE6FSU, 510/724-4966. 9/09

**Downey ARC, Inc., W6TOI.** Meets 1st Thurs./monthly, 7:30 p.m. at the First Baptist Church, 8348 E. 3rd St., Downey, CA 90240. Info: [k6tv@arrl.net](mailto:k6tv@arrl.net). Nets: Tues. 7 p.m., 445.640(-) pl 156.7 & Thurs., 7:30 p.m., 145.595 simplex, [www.downeyarc.org](http://www.downeyarc.org) 9/09

**East Bay ARC, Inc.** Meets 2nd Fri./monthly, 7:30 p.m., Salvtn Army, 4600 Appian Wy, El Sobrante, CA. Info: 510/233-7509, [w6cus1@juno.com](mailto:w6cus1@juno.com). 7/09

**El Dorado County Amateur Radio Club,** Meets 4th Thursday/monthly, 7:15 p.m., Federated Church, Thompson Way, Placerville, CA. Net 8p.m. Tuesday 147.825-PL82.5Hz, POB 451, Placerville, CA 95667, [www.edcarc.net](http://www.edcarc.net). 3/10

**Golden Empire Amateur Radio Society, W6RHC,** meets 3rd Fri./monthly, 7:00 p.m. (rag-chew 6:30 p.m.), Search & Rescue Building, 2591 Morrow Lane (East end), Chico, CA. Visitors welcome. Net Tue, 2000 hrs, 146.850 pl 110.9; [K6RSC@randallstone.net](mailto:K6RSC@randallstone.net) 10/09

**Independent Radio Club, WA6IRC** meets 7p.m., last Friday of the month, Lampighter Restaurant, 5043 Van Nuys Blvd., Van Nuys, CA. We are a family-oriented radio club whose members are interested in all aspects of Amateur Radio. Check out our weekly nets Tues. 6 p.m. & Thur. 8 p.m. on 445.340(-)PL 103.5 & 224.480 (-)PL 110.9. More info: [www.ircradio.org](http://www.ircradio.org) or 3624 Foothill Blvd., #1, La Crescenta, CA 91214. 12/09

**Nevada County ARC** meets 2nd Mon./monthly, 7 p.m., Salvation Army Bldg., 10725 Alta St., Grass Valley, CA. Net Tues. 7 p.m. 147.285, [www.ncarc.org](http://www.ncarc.org). For info. e-mail [pristident@ncarc.org](mailto:pristident@ncarc.org) 12/09

**North Hills Radio Club** meets 3rd Tue monthly, 7:30 p.m., North County Corporation Yard, Elkhorn Blvd & Don Julio Blvd. in Sacramento. Field Day, annual picnic, code classes, antenna builds & more! Contact Maynard Wright, W6PAP; P.O. Box 417370, Sacramento, CA 95841-7370; 916/726-1673; [k6is@arrl.net](mailto:k6is@arrl.net); [www.k6is.org](http://www.k6is.org). 7/09

**Oakland Radio Communication Association (ORCA)** meets first Sat./monthly (no meeting July - weekend after Labor Day Sept.); Oakland Fire Station #1 OES Media Room (17th & MLK); weekly net Thurs. 7:30 p.m. 146.880 + 77. Talk-in on same frequency. P.O. Box 21305, Oakland, CA 94620-1305, [w6bner@arrl.net](mailto:w6bner@arrl.net); [www.w6bor.com](http://www.w6bor.com) 9/09

**River City A.R.C.S.** Meets 1st Tues./monthly, 7:30 p.m., N. County Corp. Yard Facility, 5020 Don Julio at Elkhorn, Sacramento, CA. Message Phone: 916/492-6115; [www.n6na.org](http://www.n6na.org) 12/09

**Sonoma CRA, Inc. W6LFLJ,** P.O. Box 116, Santa Rosa, CA 95402; 707/579-9608. Meets 1st Wed./ monthly, 7:00 p.m., 2050 Yulupa Ave., Santa Rosa. Net each Tues. 7p.m., W6SON. Rptr. 147.315MHz (+) PL 88.5 [www.sonomacountyradioamateurs.com](http://www.sonomacountyradioamateurs.com) 9/09

**South Bay Amateur Radio Club.** P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on W6SBA rpt. 224.38(-). Info: 310/328-0817; [www.w6sba.org](http://www.w6sba.org) 12/09

**Southern Sierra ARS** meets 2nd Thurs./monthly, 7p.m., except Jul., 600 Dennison Rd., Tehachapi, CA 93561 (The club house at Mountain Aire Estates). Info: N6MLD, 661/203-7005, 224.42(-) PL 156.7. APRS 144.390(S). ARES nets 7 p.m. 147.51(S) Mon. 1/10

**Tri-County ARA (TCARA).** Meets 7:30 p.m. 2nd Wed monthly, Administration Building, Brackett Field, La Verne, CA, in the Pilot's Lounge. Different guest speaker every month. Anyone may attend, Ham & non-Ham welcome! Club net Sun., 7:00 p.m., Mt Baldy Rpt. 145.440 MHz -600 PL 136.5; web site: [www.tcara.org](http://www.tcara.org), e-mail: [k6ag@arrl.net](mailto:k6ag@arrl.net) 12/09

**United Radio Amateur Club, K6AA.** Club station open to members and guests in the Los Angeles Maritime Museum (LAMM), Berth 84, Foot of 6th Street, San Pedro, CA 90731. Meetings held 3rd Fri. monthly (except Aug & Dec), 1900 local in the LAMM. All are welcome. Monitors 145.52 simplex Tue-Sat 1000-1630 & Sun 1200-1630. 7/09

**Victor Valley ARC.** P.O. Box 869, Victorville, CA 92392. Meets 2nd Tue./monthly, 7 p.m., Lewis Ctr, 17500 Mana Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-), [www.vvarc.org](http://www.vvarc.org) 01/10

**West Coast ARC, (WCARC).** P.O. Box 2617, Costa Mesa, CA 92628. Meets 3rd Thurs./monthly, testing 6 p.m. meeting 7 p.m., Rogers Senior Center, 1706/1718 Orange Ave., Huntington Beach, CA. Info: Russ, N6QZV, 714/848-4501. 8/09

## COLORADO

**Boulder Amateur Radio Club (BARC)** Meets 3rd Tues. monthly, 7 p.m., Bld J, Boulder Municipal Airport or Valmont Community Presbyterian Church, 3262 N. 61st St., Boulder, CO. Talk-in: 146.70(-) Info: [BARC70@arrl.net](mailto:BARC70@arrl.net) or [www.qsl.net/w0dk/](http://www.qsl.net/w0dk/) 11/09

**Denver Radio Club (DRC)** meets 3rd Wed, 7:30 p.m., St. Joseph Episcopal Church, 11202 West Jewell, Lakewood, CO. Learning/Tech sessions 6:30 p.m. Oldest club in Colorado (1917). Net Sun 8:30 p.m. 145.490 rptr.; [w0tx@arrl.net](mailto:w0tx@arrl.net); [www.w0tx.org](http://www.w0tx.org) 4/10

## CONNECTICUT

**Connecticut DX Association, (CTDXA).** Meets at ARRL HQ, Newington, CT. 1st Wed. (except Summer) 7:30 p.m. Contact Dan, W1ZTQ; 860/583-1165 11/09

## FLORIDA

**Englewood ARS.** P.O. Box 572 Englewood, FL 34295. Meets 3rd Thurs./monthly 7:30 p.m. Englewood United Methodist Church, 700 E. Dearborn St., Englewood, FL, Rm: Fellowship Hall. Info. Vic Emmelkamp, K4VHX, 941/473-5560 or [www.earsradioclub.org](http://www.earsradioclub.org). 11/09

## HAWAII

**Honolulu ARC** meeting 0900 for breakfast in Jan, Mar, May, Jul, Sep and Nov at the Sizzler Restaurant at Pearl Ridge. Contact John, K1ER, 808/484-9748. 4/10

## ILLINOIS

**Bolingbrook ARS** meets 3rd Mon., monthly, 7:00 p.m. at Bolingbrook Fire Station Number 5 on Rodeo Dr. Talk-in is usually 147.33 MHz +0.600. ARRL affiliated club number: 1271. Club web page is [www.k9bar.org](http://www.k9bar.org). 10/09

**Fox River Radio League,** [www.frrl.org](http://www.frrl.org). Open meeting 2nd Tue./7:30 p.m. Rasmussen College, 2363 Sequoia Dr., Aurora, IL 60506; 147.21 MHz (+600kHz, 103.5Hz), 444.30 MHz (+5 MHz, 114.8 Hz, IRLP), 2M net Tue. 7:30 p.m., except 2nd Tue. P.O. Box 673, Batavia, IL 60510-0673. 11/09

**Peoria Area ARC, (PAARC),** P.O. Box 3508, Peoria, IL 61612. Meets 2nd Fri./monthly, 7 p.m., Red Cross Chapter House, 311 W. John Gwynn Jr. Ave., Peoria, IL. Superfest each Sept. Rptrs: 147.075(+), 146.85(-), D-STAR: 144.505 (+), 448.46875 (-), 1272.4000(+). Web: [www.w9uvi.org](http://www.w9uvi.org); e-mail: [w9uvi@arrl.net](mailto:w9uvi@arrl.net). Voice mail: 309/692-3378. 12/09

**The Starved Rock RC, W9MKS.** P.O. Box 198, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7 p.m. Rptr. net 7 p.m. Wed./weekly, 147.12(+), PL 103.5. [w9mks@qsl.net](mailto:w9mks@qsl.net); <http://www.qsl.net/w9mks> 12/09

**Wheaton Community Radio Amateurs** meets 1st Fri./monthly, 7:30 p.m., First Presbyterian Church (Jefferson & Ellis streets), Wheaton. All are welcome. See our website at [www.w9ccu.org](http://www.w9ccu.org) for all club info or call 630/604-0157. Annual Hamfest each January. Rptrs: 145.390 (-) 107.2, 444.475 (+) 114.8. 9/09

## LOUISIANA

**Baton Rouge ARC** meets last Tue./monthly, 7 p.m., St. Luke's Episcopal Church, 8833 Goodwood Blvd., Baton Rouge, LA. Net: 146.79MHz, 8:30 p.m. Sun. [www.brarc.org](http://www.brarc.org) e-mail: [brarc@cox.net](mailto:brarc@cox.net) 7/09

## MAINE

**Saint Croix Valley ARC** meets at the Calais Methodist Home, 10 Sunrise Circle, Calais, ME, 04619, third Sunday of each month, 6:30 p.m.. Contact Mike Breckinridge N1JXP, 207/454-8571. 9/09

## MASSACHUSETTS

**Boston ARC** meets 3rd Thurs. 7:00 p.m. (except July/Aug), Salvation Army Boston HQ, 147 Berkeley St. Boston, MA. Free parking in adjacent lot. Talk-in: 145.23MHz (-) PL 88.5, [www.barc.org](http://www.barc.org), email: [w1bos@arrl.net](mailto:w1bos@arrl.net). 12/09

**Framingham Amateur Radio Association** meets 1st Thurs., 7:30 p.m., Sept-June in the basement of the Danforth Museum, Framingham, MA. Contact Gordy, K1GB, 781/891-5572; [k1gb@arrl.net](mailto:k1gb@arrl.net) 01/10

## MICHIGAN

**Genesee County Radio Club, Inc.** Meets 3rd Tues. of the month during school year. 7:30 p.m. Davison High School, 1250 N. Oak Rd., Davison, MI 48423; [www.qsl.net/w8acw/](http://www.qsl.net/w8acw/); e-mail: [w8acw@arrl.net](mailto:w8acw@arrl.net). 10/09

**Hiawatha ARA of Marquette Co.** P.O. Box 1183, Marquette, MI 49855. Meets 1st Thurs./monthly, 7:30 p.m. Marquette County Health Department, R. Schwenke, N8GBA, 906/249-3837; [www.qsl.net/k8lod](http://www.qsl.net/k8lod) 12/09

## MONTANA

**Yellowstone Radio Club** meets 3rd Mon except July-Aug., 7:30 p.m., North Park Center, 19th & 6th Ave., N., Billings, MT. Contact 147.36/100 Hz tone. Box 883, Billings, MT 59103. Testing odd months, 3rd Sat.; <http://www.k7efa.org/> 09/09

## NEVADA

**Las Vegas Radio Amateur Club (LVRAC)** meets 3rd Tuesday monthly, 7 p.m., Salvation Army building, 2900 Palomino Lane, Las Vegas, NV. Talk-in 146.94 (K7UGE Repeater) PL 100, Offset - 600 Hz; <http://www.lvrac.org> 6/09

## NEW JERSEY

**The Garden State ARA, (GSARA).** Meets 1st Wed./monthly, 8 p.m., Fort Monmouth MARS Station, Eatontown, NJ. Info: B. Buus, W2OD, 732/946-8615. 7/09

**Gloucester County ARC** meets 7:30 p.m. 1st Wed./monthly, Pfeiffer Community Center, Blue Bell Rd. & Main St., Williamstown, NJ 08094. Contact Ken Newman, N2CQ, P.O. Box 370, Pitman, NJ 08071; 856/848-4345; [n2cq@comcast.net](mailto:n2cq@comcast.net); <http://www.w2mmd.com> 10/09

**North America DX Assoc., Inc. (NADXA).** P.O. Box 357 Bradley Beach, NJ 07720. Jersey Coast Chap. 1 meets 4th Mon./monthly, 7:00 p.m. Contact Mike, KC2Q, 732/927-0171; [kc2q@arrl.net](mailto:kc2q@arrl.net); [nadxa@juno.com](mailto:nadxa@juno.com); [wr2dx@yahoo.com](mailto:wr2dx@yahoo.com) 8/09

## NEW YORK

**Genesee Radio Amateurs, (GRAM).** P.O. Box 572, Batavia, NY 14021-0572. Meets 3rd Thurs./monthly, 7:00 p.m. (except Jul, Aug, Dec), Salvation Army Community Center, Corner N. Spruce & E. Main St., Batavia, NY, 14020. Public Information Officer, [gram\\_radio\\_club@yahoo.com](mailto:gram_radio_club@yahoo.com); [http://www.geocities.com/gram\\_radio\\_club/index](http://www.geocities.com/gram_radio_club/index) 07/09

**Hall of Science ARC.** P.O. Box 150131, Kew Gardens, NY 11415. Meets 2nd Tue./monthly, Hall of Science Bldg., 47-0111 St., Flushing Meadow Park, 8:00 p.m. Rptr. 444.200 PL 136.5. Info: Voice mail 718/760-2022; [www.hosarc.org](http://www.hosarc.org) 10/09

**Orleans County ARC, (OCARC).** Meets at the Orleans County EMO 14064 W. County House Rd., Albion, NY 14411, 2nd Mon./monthly 7:30 p.m. Contact: Marion Toussaint, KA2BCE, 585/798-0861. 1/10

## NORTH CAROLINA

**Orange County Radio Amateurs** meets monthly 2nd Mon. at 7:30 p.m. at Sunrise Church, 1315 New Hope Trace, Chapel Hill, and weekly Sat. at Hillsborough Bojangles, 330 S. Churton St., at 9:30 a.m. W4UNC/R on 442.150 (131.8). Contact Woody Woodward, K3VSA, 4008 New Sharon Church Rd., Hillsborough, NC 27278; 919/732-9895; [www.ncocra.org](http://www.ncocra.org) 8/09

**Stanly County ARC Albemarle.** Meets 4th Thurs./monthly 7 p.m., Stanly Community College. Talk-in 146.985 (-) tone 100 Hz. Nets: Wed. @ 9 p.m. Club/ARES Net on 146.985. Fri., @ 9 p.m. Tech Net. 147.390 (+) Tone 100 Hz. Contact: Bill Greene, K4VET 704/463-1202. 8/09

## OHIO

**Ashtabula County ARC.** K. Stenback, W8KS, 440/964-7316. Meets 3rd Tue./monthly, 7:30 p.m., County Vo-Ed School, Jefferson, OH. County rptr., 146.715(-). 7/09

**Clyde ARS (CARS)** meets 1st Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+). MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 10/09

## OREGON

**Umpqua Valley ARC, Inc.** P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:00 p.m., Douglas County Court House, #310, Roseburg, OR. Info: K7AZW 541/679-9338 or 146.90(-)(PL100); <http://www.aat7g/uvarc/index.html> 12/09

## PENNSYLVANIA

**RF Hill ARC** meets 7:30 p.m. last Thurs./monthly, Perkasio Fire Company, 5th St., Perkasio, PA. Info: Jim Soete, WA3YLQ, 215/723-7294; wa3ylq@hotmail.com; www.rfhill.ampr.org 12/09

**Washington Amateur Communications Radio Club (WACOM)** meets 1st Thur./monthly, 7:30 p.m., Washington Co. Bldg., 100 Beau St., Washington, PA 15301. Contact Elmer Plants, N3TIR, 724-484-0207. 145.490. www.wacomarc.org 11/09

## VIRGINIA

**Mt. Vernon ARC, K4US (MVARC)**. Meets 2nd Thurs./monthly (except Jul. & Dec.), 7:30 p.m., INOVA Mt. Vernon Hospital, 2501 Parkers Ln., Alexandria, VA. Contact: Bob, KT4KS, 703/765-2313 or 146.655-. 10/09

## WASHINGTON

**San Juan County Amateur Radio Society** meets 2nd Fri./monthly 11:30 a.m., Friday Harbor Firehouse. Serving hams throughout the San Juan Islands, Washington, we welcome members and visitors to our weekly nets, Wed. 8:00 p.m. local, through linked repeaters N7JN, 145.250MHz PL 133.8 Hz & 443.45MHz PL 103.5 Hz & CW @ 7:30 p.m. local on 3710 kHz or nearby. Contact Dan Drath, N6AU, for more information; drath.marine@rockisland.com 11/09

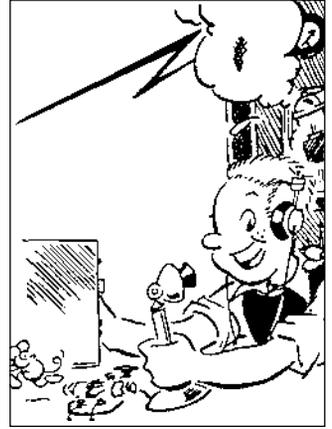
## WEST VIRGINIA

**Tri-State ARA** meets 3rd Tues./monthly, 7 p.m., Museum of Radio & Tech., 1640 Florence Ave., Huntington, WV 25701; 304/525-8890. 9/09

## WYOMING

**University ARC N7UW**, University of Wyoming, Dept. 3625, 1000 E. University Ave., Laramie, WY 82071 meets 1st Tues./monthly in the Wyoming Student Union room 2 or 10 at 7:30 p.m. local time. All interested persons are welcome. johnmh@uwyo.edu 12/09

**Click here for information on listing your club in the next issue of WorldRadio Online!**



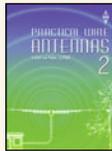
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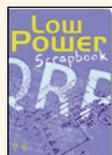
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# Which Antenna?

Kurt N. Sterba

A reader asks, "For the past 6 years I've had pretty good success chasing DX with a quasi-G5RV strung in my backyard trees with the peak at roughly 45 feet. The ends slope down to 30 feet with about 150 degrees between the legs. And yes, I use a remote mounted tuner through a 4:1 balun at the feed point of the existing antenna. It's a killer on 40, weak on 30, poor on 80 and OK on the rest of the bands.

"But old faithful is falling apart and I need to build something new. Here's where you come in, Oh Keeper of the Aerial Light. What wire antenna would you recommend for center feeding with 60 feet of clear run in both directions? Desired coverage is 80 through 10 with a solid signal and a reasonable match for the tuner. I can build it or buy it – but I want it to work once I go through the considerable effort to re-hang it. Your wisdom would be much appreciated."

If Krusty Olde Kurt were to put up an antenna in your yard here is what he would do: String up an 80-meter dipole and feed it with ladder line, preferably the wide-spaced air-insulated type. This would drop directly down from the center of the antenna. Since you want to use a remote tuner, use a 4:1 balun between the ladder-line and the tuner. Use this antenna on 40 meters and all higher bands.

For 80 meters, tie the two ladder-line wires together at ground level and feed it against ground radials. Use at least four radials. Twelve would be much better. Make the radials as long possible. Measure the resonant frequency of this top-loaded vertical and add a loading coil or capacitor to resonate it on the part of the band you plan to use the most. Also, measure the feed point impedance. You likely will need a 4:1 balun, low impedance side to the antenna, to get lowest SWR on the coaxial cable that you will run to your transmitter. Now you have two coax cables running into the shack, one for 80 meters and the other for 40 through 10.

You should not need a tuner for the 80-meter top-loaded vertical, especially if you use the wide spaced ladder line. Kurt guarantees that you will work a lot more DX on 80 meters with this vertical than you ever did with your G5RV. The other bands will be about the same as the G5RV. You will need a DPDT relay to switch the feeders from the dipole to the vertical setup.

## Lightning

Kurt recently explained how to protect your station from lightning. A reader has an interesting question about lightning strikes, "Perhaps I'm getting too philosophical as the years pile on me, but something has bedeviled me for quite a few years, and I've yet to hear a reasonable answer to this question (only peripherally related to radio, but of obvious interest to ALL hams). How does lightning (which I arrogantly presume has no conscious intelligence whatsoever) "know" which is the shortest path to ground, when given multiple paths to follow? Does

it "test" all possible paths and then put its full force into the path that strikes pay dirt first? Or is there something else going on here that engineers know about?"

Well, engineers do know quite a lot about lightning strikes. Remember that lightning is caused by the difference in potential between a cloud and the ground. The strike can either go down from the cloud or up from the ground. Either way the strike eliminates the potential difference between the two.

Lightning does test the potential paths before the giant strike. First "leaders" come down from the cloud seeking out ground targets. Next, "streamers" rise from objects on the ground such as radio towers, buildings, trees and power lines. Some of the downward leaders connect with the upward "streamers" thus completing the circuit. Then the real strike occurs. It can select just one path or take several of them at once depending on their impedance to ground.

None of these objects is actual ground so there is impedance between, say, the top of a tree and actual ground. Therefore, a very high voltage is produced across the tree and, by Ohm's law, a very high current goes through the tree. This high energy is what splits the tree apart. The same thing can happen to any other high resistance object that is hit. The current in this strike can be 30,000 amperes or more. This why you need to have a low impedance to ground from your antenna. Since the strike is a very fast rise-time pulse it acts like a high frequency radio wave and the current is mostly on the surface of the object - our well-known "skin effect."

No, the lightning does not have any conscious intelligence. Everything happens following known physical principles.

## Protection

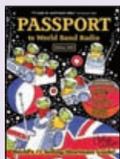
K9SQG has a novel but effective way of protecting his equipment from lightning. "Ladder line and window line are extremely easy to bring into the shack. I have made several installations over the past 20 years. In addition, I've developed rapid disconnects of several types where the ladder line and window line enter the house. The result? When the storm approaches, I can walk outdoors, disconnect all antennas, move the feed lines 15 feet from the house, and be back inside all within 60 seconds. As a result, when not operating for extended periods of time or storms are in the area, I just disconnect the antennas from the house. It provides a lot more protection than merely disconnecting the coax from the rig."

Evan does not describe his "rapid disconnects." Many years ago, when ladder line was THE transmission line, Krusty Olde Kurt replaced a window in his shack with Plexiglas®. It can easily be drilled. Banana jacks were placed in the new plastic window and banana plugs were soldered to the ladder line. It would be easy to unplug the line as K9SQG suggests. So, here is another tool to use to protect our equipment from lightning.

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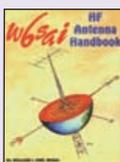
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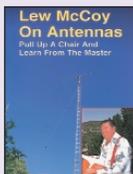
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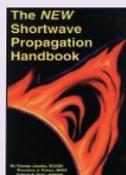
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ASA, Inc.	33	<a href="http://www.waterprooflogbooks.com">www.waterprooflogbooks.com</a>
BilalCo./Isotron Antennas	18	<a href="http://www.isotronantennas.com">www.isotronantennas.com</a>
Buckmaster Publishing	21	<a href="http://www.hamcall.net/haminfo.html">www.hamcall.net/haminfo.html</a>
CW-Easy/Success-Easy	45	<a href="http://www.success-is-easy.com">www.success-is-easy.com</a>
Caps Unlimited	41	<a href="http://www.skywarnsupply.com">www.skywarnsupply.com</a>
Courage Handi-Ham Systems	45	<a href="http://www.handiham.org">www.handiham.org</a>
DC Ace, Inc.	21	<a href="http://www.dcace.com">www.dcace.com</a>
DX Engineering	41	<a href="http://www.dxengineering.com">www.dxengineering.com</a>
DX Store	26	<a href="http://www.dxstore.com">www.dxstore.com</a>
Diamond Antenna	25	<a href="http://www.diamondantenna.net">www.diamondantenna.net</a>
Electric Radio	21	<a href="http://www.ermag.com">www.ermag.com</a>
Engineering Systems, Inc.	41	
FlexRadio Systems	29	<a href="http://www.flex-radio.com">www.flex-radio.com</a>
HamTestOnLine	19	<a href="http://www.hamtestonline.com">www.hamtestonline.com</a>
ICOM America, Inc.	5	<a href="http://www.icomamerica.com">www.icomamerica.com</a>
IIX Equipment Ltd.	21, 45	<a href="http://www.w9iix.com">www.w9iix.com</a>
J-ames Pole Antennas	37	<a href="http://www.jamespole.com">www.jamespole.com</a>
KB3IFH QSL Cards	37	<a href="http://www.kb3ifh.homestead.com">www.kb3ifh.homestead.com</a>
Kenwood U.S.A. Corporation	15	<a href="http://www.kenwoodusa.com">www.kenwoodusa.com</a>
LDG Electronics, Inc.	7	<a href="http://www.ldgelectronics.com">www.ldgelectronics.com</a>
Mackey, James E.	37	<a href="http://www.net1plus.com/users/ryoung/index.htm">www.net1plus.com/users/ryoung/index.htm</a>
Maggiore Electronic/Hi Pro	41	<a href="http://www.hiporepeaters.com">www.hiporepeaters.com</a>
Morse Telegraph Club	35	<a href="http://www.morsetelegraphclub.org">www.morsetelegraphclub.org</a>
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Palomar Engineers	19, 37	<a href="http://www.Palomar-Engineers.com">www.Palomar-Engineers.com</a>
Penny's Stitch n' Print	37	<a href="http://www.pennystitch.com">www.pennystitch.com</a>
QCWA	18	<a href="http://www.qcwa.org">www.qcwa.org</a>
RF Parts Company	27	<a href="http://www.rfparts.com">www.rfparts.com</a>
SteppIR Antennas Inc.	3	<a href="http://www.steppir.com">www.steppir.com</a>
TG Electronics	37	<a href="http://www.tgelectronics.org">www.tgelectronics.org</a>
TEN-TEC, Inc.	33	<a href="http://www.tentec.com">www.tentec.com</a>
Timewave Technology Inc.	18	<a href="http://www.timewave.us">www.timewave.us</a>
Unified Microsystems	41	<a href="http://www.qth.com/w9xt">www.qth.com/w9xt</a>
Universal Electronics	41	<a href="http://www.coaxseal.com">www.coaxseal.com</a>
Universal Radio, Inc.	19	<a href="http://www.universal-radio.com">www.universal-radio.com</a>
Vibroplex	45	<a href="http://www.vibroplex.com">www.vibroplex.com</a>
VIS Amateur Supply	41	<a href="http://www.visradio.com">www.visradio.com</a>
W2IHY Technologies	18	<a href="http://www.w2ihy.com">www.w2ihy.com</a>
W5YI Group	23	<a href="http://www.w5yi.org">www.w5yi.org</a>
WBOW, Inc.	14	<a href="http://www.wb0w.com">www.wb0w.com</a>
Webster Communications, Inc.	18	
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