

# THE BLACK HOLE



ARRL SS Unlimited Team Champs 2000, 2001, 2002

Official Journal of The Society of Midwest Contesters

Volume XVI Issue 4

Dec 2003

## Spring CW SPRINT Date Change

by Pat Barkey, N9RV

Please note that the date for the CW sprint in February has been changed from Feb 15 to Feb 1. (All dates are UTC). Since the original date would have put the contest on the night of Valentine's Day, and the Feb 8 weekend is the FOC Marathon (ask K9DX about that) it was decided to make the change.

That means that the Sprint will run on the evening of Jan 31, local time.

The new NCJ should have the correct date, but some other magazines may already have gone to print with the old date.

The SMC is the DEFENDING CHAMPION in this highly competitive contest in the Team Competition. I'm sure we'll be making some noise on here about how we are going to defend our honor when the contest gets closer.



## Upcoming Contests

Jan 3-4	ARRL RTTY Roundup
Jan 10-11	NAQP CW
Jan 17-18	NAQP SSB
Jan 24-25	BARTG RTTY Sprint
Jan 24-25	CQ 160 CW
Jan 24-26	ARRL Jan VHF SS
Feb 1	NA Sprint CW
Feb 8	NA Sprint SSB
Feb 21-22	ARRL DX CW
Feb 28-29	CQ 160 SSB

## Operating From Bermuda

by George Zurbuchen, K9CC

*The following article was written for a general ham audience and appeared in the October 2003 issue of World Radio. I was pleasantly surprised when I saw that the entire front cover of that issue consisted of my photographs! Although it was not written with a contest audience in mind, I hope you will find it worthwhile. I will be going back to operate in the 2003 CQWW CW contest, probably single band 20 meters. My son is in a different house now so I will again have the problem of trying to preplan without having seen the house except for a few pictures. Since this house does not have a chimney I have welded up a bracket to attach my antenna mast to the PVC plumbing vent on the roof. I sure hope it works! I will also take measurements to see if on the next visit I could put up wire antennas for 80 and 160. Perhaps using one of those collapsible fiberglass masts that extend to 33 feet. I would really like to operate 160 meters single band from VP9 if I could put up a "decent" antenna. Read the article to learn how little it would take! K9CC*

When I found out that my son and his family would be moving to Bermuda in

(Continued on page 6)

## The Black Hole



The **Black Hole** is published six times per year by The Society of Midwest Contesters. Permission for use of the materials is hereby granted on the sole condition that credit is given to the source of those materials.

**EDITORS**  
Pat Barkey, N9RV

Material for **The Black Hole** should be forwarded to:

[pbarkey@comcast.net](mailto:pbarkey@comcast.net)

Membership in **The Society of Midwest Contesters** is open to all persons with a bona-fied interest in amateur radio contesting. Dues are \$10.00 US per calendar year. For more information contact one of the following officers:

### **PRESIDENT**

Paul Gentry, K9PG (847) 819-3000  
[k9pg@aol.com](mailto:k9pg@aol.com)

### **SECRETARY/TREASURER**

Jon Ogden, NA9D  
[jono@enteract.com](mailto:jono@enteract.com)

### **CONTEST ACTIVITIES COORDINATOR**

Paul Gentry, K9PG (847) 819-3000  
[k9pg@aol.com](mailto:k9pg@aol.com)

### **AWARDS COORDINATOR**

KJ Morehouse, W9RM (847) 696-2828  
[kjm@ProbeElectronics.com](mailto:kjm@ProbeElectronics.com)

### **ILLINOIS STATE COORDINATOR**

Gary Hornbuckle, K9MMS (630) 377-0884  
[k9mms@aol.com](mailto:k9mms@aol.com)

### **INDIANA STATE COORDINATOR**

Greg Clark, K9IG (317) 535-0282  
[g.w.clark@cummins.com](mailto:g.w.clark@cummins.com)

### **IOWA STATE COORDINATOR**

Dave Andersen, K0RX  
[k0rx@uiowa.edu](mailto:k0rx@uiowa.edu)

### **MISSOURI STATE COORDINATOR**

Steve Lufcy, K0OU  
[km0l@tfs.net](mailto:km0l@tfs.net)

### **WISCONSIN STATE COORDINATOR**

Gary Sutcliffe, W9XT (414) 644-8876  
[ums@nconnect.net](mailto:ums@nconnect.net)

## SMC Stuff

Club badges can be obtained by sending a check for \$5.50 to:

**Midwest Engraving**  
6920 W. North Ave.  
Milwaukee, WI 53213

**Phone (414) 258-8655**  
**FAX (414) 258-8656**

Be sure to note that it is for a "Black Hole" badge and please allow a couple weeks for delivery.



# KC9FD

**SOCIETY OF MIDWEST**

### SMC Clip-on Badge

by NV5A

The SMC logo appears at the top-center of the badge in black and white. Your call sign, first name and city & state appear in dark blue. The SMC name badge as shown with the slot & strap with swivel alligator clip, but there are other choices.

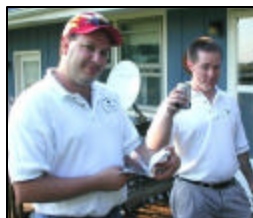
Price: \$14.50 (includes s&h).

Order now from **The SignMan**



### SMC Shirts

SMC short-sleeve Polo shirts are available in two styles: white shirt with "SMC" in black and "name and call" in blue lettering as shown below, or red shirt with black lettering. The cost is \$20, including shipping. You can email your orders to [AD9P@aol.com](mailto:AD9P@aol.com) (AI) or [N0UXQ@aol.com](mailto:N0UXQ@aol.com) (Sandy)



# W9SMC

Official Callsign  
of  
The Society of Midwest Contesters

SMC Web Page: [www.w9smc.com](http://www.w9smc.com)

## SMC VHF Column

via Kevin Kaufhold, W9GKA

Introduction. Currently, discussions are underway to revise the format and/or rules of the various VHF contests sponsored by the ARRL. Gene Zimmerman provided comments on some of the ideas being bandied about in one of his recent "World Above 50 MHz" columns, and Jon Jones has penned a summary of some proposals in a recent NCJ VHF Contesting column. An ad hoc committee has even been appointed to review and consider the contest format. Much of the concern revolves around the recent decline in log submissions and operator activity in the major VHF contests. It has been argued that a change in the current contest format or the creation of new VHF contests may promote additional contest activity.

With many contest ideas now floating about, it is therefore appropriate to review past trends in the VHF contest participation rates. In April and May 2003, I provided comments on these trends to the SMC and VHF contesting e-mail reflectors. This article presents those same comments in a more structured format.

The Baby Boom in VHF Contesting. All three of the major VHF contests (January VHF SS, June QSO Party, and September QSO Party) started in the late 1940's, and they have deep historical roots dating back to even earlier times. When first developed in 1948, the January VHF Sweepstakes was specifically designed to emulate the HF Sweepstakes that had been underway since the 1930's. The VHF QSO Parties, which also started in 1948 for the September contest and 1949 for the June VHF Party, traces their histories back to activity weekends and radio relay events that occurred as early as 1927.

With such a long and distinguished history to these contests, historical information is widely available on past contest participation rates. In particular, log submissions in the January VHF SS have been closely watched over the years, due to that contest's extensive interplay with the club competition event. Participation rates in the January VHF SS, as well as the other two "majors", have varied widely over the many years of the contests. As can be seen in the following graph, a major boom in contest activity initially occurred in the 1950's, peaking in 1961 at 1561 logs entries in the January VHF Sweepstakes.

The increase in participation rates in the late 1950's was sudden and dramatic. The commonly held belief at the time was that the increase was the direct result of regulatory and technological changes then impacting VHF ac-

*(Continued on page 9)*

## SO2R ... Getting Started

by Chad Kurszewski, WE9V

Following his first at SO2R in SS CW, Tim, K9WX posted some questions to the SMC reflector. Chad, WE9V, responded with an excellent summary of info that makes a great resource for anyone considering making the move to SO2R. He agreed to clean it up for this issue of the BH. Ed.

How does one begin operating in the Single Operator, 2-Radio (SO2R) method?

Do you need a few thousand dollars to spare? Do you need to be a contest expert? Do I need a big station? The answer to these questions is no. In fact, you may be able to begin your SO2R adventure with just the equipment you already have in your shack and workshop, assuming you have a 2nd HF radio laying around or can borrow one from a non-contesting friend on contest weekends. In this article, we will explore the budget minded as well as the higher priced methods of building a SO2R station. My station is mostly homebrew cost-cutting and can be seen at <http://www.qth.com/we9v>. Another SO2R station that I built is the new K4JA ([http://www.k4ja.com/station\\_so2r.html](http://www.k4ja.com/station_so2r.html)) which is a little more high-performance minded (read: not budget minded).

I did my first SO2R attempt back in the 1992 Sweepstakes phone, and it turns out it was the first and only time that I've won a category. First place finish in the entire contest

*(Continued on page 4)*

---



## SMC Needs Your Support

As one of the top contest clubs in the nation, we continue to sponsor 500 plaques for a number of the major contests and make monetary donations in the interest of promoting radio sporting.

A few years ago, we decided to eliminate formal dues, and instead, maintain funds through member donations.

Please consider making a donation to the club. You can send a check, money order or cash to:

JON OGDEN NA9D  
905 SURREY LN  
ALGONQUIN IL 60102-2058

Or use Paypal.... [www.paypal.com](http://www.paypal.com) and email your donation to [dues@w9smc.com](mailto:dues@w9smc.com).

*(Continued from page 3)*

for QRP. Since then only twice has my score been beat in W9. What did I use? A borrowed station, my TS-440 as a 2nd radio, and \$5 worth of parts to make a SO2R headphone switch.

The first SO2R tool, but not the most important, is the contesting software you use. For the budget minded, you don't need any software. You can still use paper and pencil if you wish. My first SO2R effort was done with two inexpensive computers networked together. I had two separate keyboards and monitors, one for each radio. With most of the logging software packages now, this is no longer necessary. The big three (CT, TR and Writelog) all support SO2R now. CT is bringing up the rear, but TR and WL have had these features for quite some time. In fact WL can support FOUR radios! AA5AU typically runs SO3R for RTTY contests. I love TR. I switched from CT to TR in 1994 and was definitely a power user. It's SO2R features are superb, maybe second to none, in my opinion. In 1999, I started using Writelog a few times. I liked the Windows approach, and was trying to escape DOS. I liked operating in the Unlimited/Assisted categories. I would operate some contests with TR, and others with WL. TR doesn't really support RTTY, while WL shines there. As far as WL's SO2R capabilities, I'd say they are very close to TR's, being better in a couple areas, and deficient in others. The only thing that I really miss is TR's "dueling CQs", which allows you to automatically alternate CQs between radios. I end up having to manually perform this in WL. One thing to consider about logging software is your computer and operating system. Since CT and TR really prefer DOS or booting to DOS from Windows 98, you will either keep an older computer/OS in your shack or consider using a different program. CT now has a Windows version, but I haven't heard much about it. Writelog is the forerunner if you like newer operating systems. My computer is a 2.4GHz machine running Win2000. By no means is this the horsepower required to run WL. The point is that I'd hate to have such a speed demon and still have Win98 on it so I can boot into DOS and run CT or TR. Since this article is not meant to be a software review, I will end here, but will offer comparisons between them as the article covers other topics.

This headphone switch is the heart of a SO2R station. To be able to hear two different radios at once. My first switch was simply two SPDT toggle switches on a small box, with two male 1/4" stereo plugs, and a 1/4" female jack. Plug each end into a radio, and your headphone into the jack. One toggle switch is for your right ear, and the (left) toggle switch is for your left ear. When both switches are in the down position, both ears are listening to the main radio. When the left switch is in the up position, the left ear hears the left radio and the right ear continues to hear the right/

main radio. (I have my 2nd radio on my left, using my dominant right ear to listen to the main radio on the right.) Whenever I had a weak station on the main radio, I'd quickly flip down the left switch to get both ears on the main radio. You will find yourself doing this very often when operating, especially when you are first beginning SO2R. As you become more experienced, you should try to force yourself to mentally block out one radio without using the switches. I still have difficulty doing this.

Now, there are much more elegant solutions out there, but they all perform mostly the same task. There is the Top Ten DX Doubler, the no longer available Array Solutions SO2R master, the ZS4TX SO2R master (replacing the Array Solutions one) and Writelog's W5XD Multi-Keyer, which is now called the MK-1100. I've used the Top Ten DX Doubler (<http://www.qth.com/topten/DXD.HTM>) at K4JA's station and liked it. It goes for \$195, plus \$70 for two radio cables. The ZS4TX box (<http://www.arrayolutions.com/Products/superkey.htm>) is quite expensive at \$450 beginning Jan 2004, plus another \$70 for two radio cables. The Writelog model falls in between at \$215 and you have to make your own cables. I own the Writelog model. I believe that it only supports interfacing with the Writelog program, so if you use a different logging software, you'll need to look into one of the others. The Writelog model has some interesting features, the most notable one is how it controls the headphones via software (as well as manual switch). You can have the WL (Writelog) software automatically tell the SO2R box to put BOTH ears on the 2nd radio while CQing on the main radio! As soon as the CQ is complete, it goes back to the mode you had it in before (typically one ear on each radio). It's simply amazing to see/hear it operate. I believe the Top Ten device has something similar, but not quite as cool.

So, now that we have the headphones taken care of, let's move on to the transmitting. For CW, there are a few approaches to take. There are some people who will operate the entire contest without ever touching the key/paddle. They will simply use the ALT-K (keyboard) function of most software packages to send their CW via their keyboard. Other people prefer use of their paddles. If you are one of these people, you will need to keep an eye on what software packages or SO2R boxes will do for you. For the budget minded, it's fairly simple. Add another toggle switch onto your homebrew headphone box that toggles your outboard keyer between your radios, or toggles your paddles between the two ELEC-KEY inputs on your radios. TR has a means of wiring up your paddles to your LPT port and TR acts as your keyer, sending the CW to the appropriate radio. I believe that CT has this now also. For WL, the MK-1100 keyer has a paddle input as well as the ZS4TX box.

*(Continued on page 5)*

*(Continued from page 4)*

For your microphone, the budget minded operator can add yet another switch to your homebrew box for toggling your MIC between radios. Be careful to isolate the grounds for these connections. You'll want to use a DPDT and use one pole for the grounds, keeping them separate. You should use short pigtailed cables, or isolated panel jacks, again to keep the grounds separate. The DX Doubler and ZS4TX boxes have a MIC input. The Writelog solution is a little different. Most WL users use the PC's sound card to do all of the sound switching and voice keying. You plug your microphone into the MIC input on the sound card, then you split out the sound output for right and left channels and send them to your right and left radios. You also wire both radio's audio out to the LINE IN port on the soundcard. This allows you to do many things. It allows you to record the entire contest to your hard drive, to use the CW decoder, and to use the RTTY decoder. Both the CW and RTTY decoders work on both radios at once... perfect for SO2R. To switch your microphone audio, WL uses Window's fader controls to mute out the radio not in use.

The next order of business is your antennas and isolation. One of the biggest concerns about SO2R is what your transmitted signal will do to your other radio's receiver. If you are only using 100W, you may get away with not requiring any additional hardware to improve isolation. What you should do is to try to use what you have, then listen to what interference you get while transmitting, then determine what level of interference is acceptable, or determine what you can spend to fix it. There are different kinds of interference, with the two major ones being fundamental overload and harmonics. The fundamental overload means that too much of your main transmitter's power is reaching your 2nd radio. Two problems with this are either harming your 2nd receiver (in extreme cases) or desensing the receiver. You will observe this as a strong signal instantly becoming weak when you key up your main transmitter. The harmonic problem is when operating your radios near the 2nd, 3rd, or even 4th harmonic of your transmitter, and generally speaking it's on CW due to how the subbands are made up. For example, when operating at the bottom of 40SSB (7150), your 2nd harmonic is at 14300, way above the bottom of the band. But on CW, if you operate at 7010, your harmonic is at 14020 and covers up much of the CW band for you. These harmonics have much less power than the "fundamental", so typically there's no risk to harming your receiver when operating your receiver next to a harmonic. You simply S&P your way right through it. One way to improve this problem is to operate your transmitter reasonably high in the sub band, keeping the 2nd harmonic well above normal operating frequencies in the higher band. For example, on 40M, in-

stead of operating at 7010, operate at 7050, keeping your 2nd harmonic up at 14100, well away from most other CW signals on the band.

Another means of reducing your harmonics is to use either bandpass filters and/or coaxial stub filters. For the budget minded, you'd want to try constructing your own coaxial stub filters. If using an amplifier, the bandpass filter goes between your transceiver and amplifier. While it helps reduce the transmitted harmonics from your radio, the amplifier generates its own harmonics and would then require the coaxial stub filters on the output to help reduce its harmonics. Generally speaking, you cut a coaxial stub to be  $\frac{1}{4}$  wavelength long (electrically) on the band you are operating on. You connect one end to a T connector at the amplifier, and the other end is left open circuit (protected by dipping in liquid electrical tape and/or wrapped in regular electrical tape). K1TTT has a good collection of articles on stubs at <http://www.k1ttt.net/technote/techref.html#filters>. If you don't use an amplifier, you can use either the low cost stubs, or the more expensive bandpass filters. Again, you may want to try operating without any of these, just to see how it works without them.

To improve fundamental overload, you have several options. The previously mentioned bandpass filters work very well. The reason for this is that they filter out all frequencies other than the band you are operating on. Coaxial stubs only work at reducing the harmonic that it was cut for, and are generally very narrowband. There are several choices for bandpass filters, those being Dunestar, ICE, and the W3NQN filters available through Array Solutions. They are all available in single band version, while Dunestar and ICE also make 6 band versions. The W3NQN filters (<http://www.arrayolutions.com/Products/wx0bbpf6.htm>) are the best than money can buy, at \$500 for a set of 6, or \$1000 for both radios. The ICE filters (<http://www.arrayolutions.com/Products/ice/filtersrf.html>) are \$228 for the 6-band version, while the Dunestar version (<http://www.dunestar.com/model600.htm>) falls in between at \$339 for the 6-band version. Many years ago, I had access to both the ICE and Dunestar versions and was able to measure them on a network analyzer at work. The Dunestar version was considerably better for out of band rejection. If finances allow, I would recommend the Dunestar, or if you want the best, go with the W3NQN version. Since the W3NQN version isn't available in a 6-band box, you need to somehow switch them in. Array Solutions sells a sort of relay box for another \$165, plus you need twelve coax jumpers which you can either build or buy for another \$115, bringing the W3NQN solution up to \$1280. In order to select which filter to use, you can either build a simple rotary switch box to select the correct filter, or you can automate. The ICE 6-band box includes

*(Continued on page 12)*

*(Continued from page 1)*

December of 2002, I didn't immediately think about the possibility of operating a ham radio station from there. The initial reaction of my wife and I was that we wouldn't be seeing our son, daughter in law, and our 5 year old grand daughter as often. They went from living 45 minutes away in a suburb of Chicago, to an island 600 miles from North



Carolina in the Atlantic Ocean! Then one night it occurred to me that this would be an opportunity to operate from the other end of the pile up. The obvious target would be the ARRL DX Contest coming up in February 2003. The format of the ARRL DX contest is for DX to work US and Canada only. Therefore during the contest I would not be working other DX stations. After getting blessings from my wife, son and daughter in law, I stated making plans in earnest. Getting a permit to operate just requires sending a letter to the Bermuda Department of Telecommunications. There is no charge for a three-month operating permit. The plan was to operate the CW and the PHONE weekends of the contest, plus do some operating in the period between the two. I would be using the call VP9/K9CC.

Since my son is renting a house, I wanted a light, easy to erect antenna. I selected the Diamond Brand CP6, which is a 6-band (80m thru 6m) trap vertical. There is a radial for each band at the base of the antenna, with a trap for each band but 6 meters. Therefore, the antenna can be erected above the ground. My plan was to mount it on the chimney of my son's house with a Radio Shack chimney mount. While I was still at my home I assembled the antenna and temporarily installed it on the small roof top tripod that I use for my 3-el 6 meter beam. Taking off the 6m beam, installing, tuning, and then removing the vertical in the Chicago suburbs in January, was a good test for the easy to erect part of the requirement. I found that by partially disassembling the antenna I could fit it in a tube 4 inches

in diameter by about six feet long, so it should be easy to travel with. I found that the antenna worked surprisingly well, and the Kenwood TS-570 tuner would cover all bands phone and cw, even 80 meters. I also wanted to operate on 160, so while still at home I temporarily erected about 140 ft of wire about ten feet above the ground. I fed one end with coax, with the braid connected to ground. I found that this antenna also worked surprisingly well. I had seen my son's house only in a few pictures, and I had to guess at what the final antenna situation would be.

### **Suspicious Luggage**

I was very concerned about going through airport security because of the radio equipment and antennas. For example it occurred to me that the traps of the CP6 were about the size and shape of sticks of dynamite! Since I was not sure what I would need in Bermuda I had numerous coils of wire and coaxial cable. As I was waiting for my luggage to go through the new monster "x-ray" machine at the airport,



I commented to the man next to me that I was really impressed with the capabilities of the machine. He proudly answered, "Yes I work for a company that makes them," and pointed to the logo on his jacket. Then he said, "The main thing they don't like to see in luggage is wires". So I was not surprised when my antenna carrier tube, and both suitcases were pulled out for a hand inspection. However, the thing that caused the most suspicion was not my equipment but a box of frozen croissants that I was bringing for my daughter in law. In an attempt to keep them frozen, I had the box wrapped in layers of aluminum foil and plastic wrap. The screener partially unwrapped every layer and peaked inside the box before letting the suspicious package pass.

### **Setting Up In Bermuda**

*(Continued on page 7)*

*(Continued from page 6)*

After arriving at my son's house and seeing where I would be operating from, the coax was run to the chimney. The chimney mount and the CP6 vertical went up without any problems. The initial adjustments on the CP6 were done by setting up the radio on a patio table next to the pool for convenience, and I worked a few stations to try it out. I couldn't help thinking, "how cool". However, I decided that the normal idea of operating from inside the house would be preferred, regardless of the coolness factor. The next problem was to figure out a way to put up my 140ft of wire for 160m. I ended up running the feed end of the wire from the satellite TV mast, which was a 4in pipe buried in the ground. The rest of the antenna ran up to the chimney mount, doubling back on itself to the top of another chimney, and from there to the fence around the pool. I had to use my grand daughters plastic toys as stand off insulators on the roof peak, and the top of the second chimney, and her jump ropes for tie downs. The average height of the antenna was about 12 ft. See pictures 1,2, and 3. That night I tried the antenna on 80 and 160 and it did work! Over the next few nights I compared the wire on 80 to the CP6, and concluded that the wire had a slight advantage. During the CW weekend of the DX contest I used the wire antenna on 80. Congratulations to those that heard me on 160 and 80 with such a poor antenna. The radials of the CP6 only cleared the top of the chimney by a few inches. After the CW contest I went to the island's one and only Radio Shack store and bought another 3 ft of mast. The radials then cleared the top of the chimney by 3 feet. With the additional clearance I'm sure there was probably an improvement in the performance of the CP6, especially on the lower bands.

### **The CW DX Contest**

The contest starts at 8 PM local time in Bermuda, so the first part of the contest was all 40, 80, and 160 meters for me. I was averaging about 50 contacts per hour. I was not totally discouraged, but it was not quite what I had hoped for. The only real pile up I experienced that night was the first visit I made to 160. After a few minutes the packet cluster must have kicked in, because the major muti op stations on the east coast were after me like hyenas after a wounded wildebeest. I stayed on the air until about 3 AM local time milking the low bands.

The next morning I started operating on 20, 15 and 10. Wow!! That's what I came to Bermuda for; now I had pileups. Apparently my rate was low during the night because I had a very weak signal on the low bands. I now had pileups that were a challenge to handle. I ended up working 2400 QSO's in 30 hours. I still had some pileups even at the end of the contest. My final score was good enough to earn a seventh place finish world wide, in the low power DX category.

### **The Phone Contest (CW Rules!)**

Since I did not have a voice keyer with me I had reservations about the phone contest since my idea of fun is not to say, "CQ Contest", into a microphone thousands of times during a weekend contest period. But I was hoping that I would spend much of the time

working with a pileup, therefore limiting the CQ's. I also decided to operate in the single band class on 15 or 10, since my low band signal was so poor. On Saturday morning I tried 10, 15, and 20. Not only could I not get a pile up going, I found that most of my CQ's didn't even generate an answer. Apparently my high band signal was weak and my low band signal must have been pathetic! There was no indication that the antenna was tuned to favor the CW part of the band, in fact on a couple of the bands it favored the phone band. I decided my signal was not strong enough to operate in the phone contest, and my time would be better spent on other things. As a final test of signal strength, on Saturday night after the big boys were struggling to make more contacts on the low bands because they had "worked every one", I called a couple of them. First I called an east coast station with a very strong signal that was working the occasional station amid all his CQs on 40 meters. He did hear me calling, but after three tries he did not get a single letter of my call. Next I called an east coast multi op station on 75. I called repeatedly and he just kept calling CQs to an empty band. This was just further proof to me that in weak signal work with good operators on the receiving end, the advantage of CW over SSB is awesome.

### **Working DX Between The Contest Periods**

Between the contest weekends I worked approximately another 1000 QSOs on CW, mostly Europeans. It is amazing how much stronger the Europeans are in Bermuda then back in Illinois. I never did directional CQs but the Europeans didn't need the help. They were just marginally weaker then the US stations. This was surprising since Bermuda is only 600 miles from North Carolina.

I had always heard that the most disciplined hams in a pileup are Japanese, then North Americas, and that the Europeans were the least disciplined. I never worked any JA's while I was in Bermuda, but the difference between US/VE and the Europeans was striking. During the contest if I got only part of a call and sent W4S?, with few exceptions everyone stopped calling but the W4S. In the European pileups I soon realized that sending part of a call was counter productive, as everyone would just keep calling. Therefore, I had to just wait until I could get a complete call. Often the call needed correcting, but it was the only way to stop the riot.

*(Continued on page 8)*

*(Continued from page 7)*

The most fun was to get on 40 meters just as the sun was starting to go down (about 5 PM in Bermuda), and call CQ. After a few minutes a big pileup would form that would last a couple of hours or more. In addition to all the Europeans that answered my CQ on 40, there were a number of UA9, UA0, 4X4, ZS, and one VK. The sun must have just been rising in Australia, as it was setting in Bermuda. I made a QSO half way around the world on 40 m CW, with a signal that couldn't be copied by a super station in Maryland on SSB. I love CW!

I also brought along my TS-60 and monitored six meters but there were no openings.

### **Tips On Calling In The Pileup**

I had never been on the DX end of a pileup before, but over the years I noticed that the method that seemed to work best is to send your call, wait 2 or 3 seconds, and keep repeating until you work the station. Or alternatively, do the same as above but send your call twice in a row each time. The same technique would work for phone or CW. Now that I have worked the DX end of the pileup, it is apparent that these techniques do indeed seem to work the best. For me as the DX, the best technique was for callers to send their call twice in a row. That is probably because I sometimes can't get a six-character call into the logging program in one shot at 30 wpm, even if I do hear it the first time. Some operators have an uncanny ability to copy calls, and sending your call twice might not be the best technique for them. The method that was really annoying to me was when a station would just send their call once with a very long pause. What would frequently happen, is that I would copy part of their call, and have to wait for 5 seconds or more before they would repeat it. If I sent a question mark, often they would be doubling with me, and I would still miss part of their call. Incidentally, sending your call twice in a row is also a good technique whenever someone is having a problem copying your call. I find twice in a row is better than sending it once in three separate transmissions, and takes far less time. Ironically I have found that it is often the operator with the weakest signal that is reluctant to send his call twice in a row. Go figure!

If possible, send at the same speed as the DX station running the pileup. If he is sending at 30 wpm it means he can copy 30 wpm, and sending slower means that during the time it takes you to send your call there is a greater chance for the QRM to cover your signal. Follow the lead of the DX operator on the other end regarding frequency split, call timing, and tail ending. Tail ending is when you send your call just as the other operator is ending his transmission. If the DX operator is consistent, the callers will soon learn what works, and what not to do. For

example I would always send the calling stations call, the signal report, followed by the calling stations call. By ending my transmission with the calling stations call, a station that was still transmitting when I started my transmission would know if I was talking to him or not.

### **QRP Operators**

Another suggestion is for QRP stations not to send /QRP with their call sign, especially in a contest. In a contest the idea is to avoid all unnecessary keystrokes and words, to save time. It is also best to avoid the practice in general, when making your initial call. I had one station call me whom I struggled to copy for quite a while, and managed to copy the characters "/QRP", two separate times when the QRM and QSB was optimum. I finally gave up trying to copy him. If he had sent only his call sign we probably would have made a contact. It is understandable to be proud of the QRP accomplishment, but save it for the actual QSO or the QSL card. As for the idea that the operator on the other end will try harder to copy you because you are QRP, I think most hams will give it their best try regardless.

### **Logging and QSLing**

A laptop computer was used for logging and part of the transmitter keying. The software program used was TR. Except for contest operation; I do all my logging with pencil and paper at the home station. Apparently a majority of hams are starting to use logging programs based on the number of QSLs I receive with preprinted address labels. Not wanting to buy a logging program, I used TR in the CQ WW contest configuration to log my non-contest contacts while in Bermuda. TR has enough setup versatility to allow for a proper non-contest exchange.

Since I expected to receive at least 500 QSLs, I wanted to preprint address labels. I decided that the only way to effectively minimize the labor was to preprint a label for every contact. Fortunately I found out that 5000 tractor feed labels can be purchased for about \$12, and I have an old tractor feed dot matrix printer. When I returned home I already had about 90 QSLs, but in the 3 months since I have only received about 200 more. However, I will probably be receiving many more cards via the bureau than the one batch I received so far.

The ham shack was located about 200 feet from a cliff next to the Atlantic Ocean, as reflected in the picture I took for the picture QSL. Unfortunately the cliff is facing south toward South America, and there is a hill to the west toward the US. There is also a hill toward Europe but not as high as the one toward the US. See picture #4.

*(Continued on page 9)*

(Continued from page 8)

## Sightseeing In Bermuda

Bermuda has beautiful beaches with multicolored hues of blue and green depending on the depth of the water. It is an interesting blend of the charm and simplicity of a third world country, with the convenience and order of a technologically advanced nation. The number one business



in Bermuda is international insurance, with tourism second. It is very orderly and safe, but prices due tend to be about twice as high as in the US. Bermuda is about 60% black, and the relations between the races is the most harmonious I have ever seen. Bermuda is about 20 miles long by 1 mile wide, and quite heavily populated, with about 66,000 residents. The roads are narrow, and hilly, with lots of curves. Tourists are not allowed to drive cars, but they can rent motor scooters. Motor scooters make up about half of the traffic in Bermuda. Renting a scooter is not for everyone since in addition to the road conditions, driving is on the left. Since the speed limit is 35km/hr (about 21 mph), if a person is careful and has reasonable aptitude for that kind of thing, a scooter is a great way to get around, and fun in its own right. Actually traffic generally travels about 40 to 50 km/hr on the roads in Bermuda. Driving a scooter at 25 to 30 mph on the twisting roads of Bermuda feels fast, especially in the cool air of February. There is also an excellent bus and ferry system that is very user friendly.

An example of the charm and simplicity of Bermuda happened the day I took the bus to the "Dockyards" on the west end of the "Island". Actually there are a number of major islands connected by bridges. There was an elementary school class on the back of the bus apparently going on a field trip with their teacher. As they left the bus about half the people on the bus were saying to the children as they passed, "Good morning, have a nice day." A little later in the trip I noticed four men fishing on a bridge with a few fish lying on the pavement. The bus driver stopped her bus on the bridge next to the men,

which blocked one lane of a two-lane bridge. She opened the door of the bus and said, "Hey what you got dare, dat a rock fish?" She then reached under her seat and passed a plastic super market bag out to the men. They put a couple of fish in the bag and passed it back to her. Before she drove away she showed the fish to a few passengers of the bus who expressed interest, and conversed with the fishermen some more.

Bermuda is ringed with forts that were built to prevent invasion from the sea. They were manned and updated through World War I. Two of these forts also contain military museums. There is also a small but wonderful aquarium/zoo.

Of course all activities involving the ocean are in evidence including snorkeling, scuba diving and sailing.

Well I hope you enjoyed reading about my trip half as much as I enjoyed taking it.



tivities. In fact, the 1953 granting of Novice operating privileges on 2 meters, as well as the Technician class receiving 6 meter privileges in 1955 and 2 meter privileges in 1959, were cited as the basic causes of operating activity increases. The development of TVI filters on ham radio transmitters and better TV receivers reduced interference problems, and the "TVI Lows" in the early 1950's became a thing of the past. The popularity of Heath Sixers and Twoers during this era also has been credited for the explosion of VHF log submissions in the early 1960's.

The combined effect of the regulatory and technological changes occurring during the 1950's and into the 1960's produced a veritable explosion of VHF activity. Contest log entries of over 1000 per January VHF SS continuously occurred for a ten year period between 1957 and 1967. Normal operating activity also skyrocketed. Weekly 2 meter AM check-in nets and RACES nets of 50 or more hams were common throughout the metropolitan areas of the US. This time period of VHF activity was so great that it has even been given a name: the "baby boom" of VHF contesting.

A Second Surge of Activity. As can be seen from the above graph, the number of log entries dropped off sharply in the 1970's, dipping to a low in 1975 of somewhat over 500 for the January VHF SS. Club participation also declined to only 21 clubs in the 1975 and 1976 January VHF SS. The drop in contesting activity may have been in part due to the loss of Novice phone operating privileges on 2 meters in 1968, and the loss of all Novice 2 meter privi-

(Continued on page 10)

*(Continued from page 9)*

leges by 1972. Also, amplitude modulation of the Heathkit lunchboxes and other AM commercial rigs was becoming outmoded. Weak-signal and EME enthusiasts had by this time extensively developed both SSB and CW equipment and highly sophisticated operating techniques, including specific operating procedures for EME and meteor scatter work. Friction occurred between the weak-signal operators and the AM based crowd, as the two technologies and styles of operation often collided with each other. The strong surge in FM repeaters in the 1970's also came into play, and by the mid 1970's activity levels had sagged within many VHF circles.

By the late 1970's however, the situation reversed. With the introduction of Japanese manufactured multimode rigs, a strong increase in SSB VHF activity occurred. Log entries in the January VHF SS again climbed toward 1000 by 1980. A few years later, the entire VHF community was fundamentally changed by the development of a grid squares location system. Within a short time after their introduction in 1983, grid squares became universally accepted both in the VHF contests and for regular operating. Within very short order, the VUCC award became a favorite pastime for most VHF operators. The diversification of VHF contests starting in the late 1970's (i.e. the EME, UHF, 10 GHZ; and the Spring Sprints by 1983), as well as the expansion of the various operating classes (QRP, rover, Multi-Limited, and SOLP) further added to the changing nature of VHF contesting activity.

This time period of the very early 1980's has been described as a second period of major expansion in VHF contesting activity. This enhanced activity continued for a while, but gradually trailed off later in the decade. The "newness" of the grid squares had worn off by then, and many within the VHF community moved onto other things. For instance, packet activity had been increasing for several years. Experimentation with packet nodes and DX spotting clusters was attracting great interest among VHF oriented hams.

Further, when the above graph is more closely reviewed, this second surge in activity levels may be more indicative of a gradual return to normalcy than being a large and outright "boom". After the territorial turf battles between AM, SSB, CW, and FM modes finally settled down a bit, band activity levels returned to a rather normalized state of existence. In that vein, the participation levels in between the large boom eras of the early 1960's and the mid 1990's (described below) may represent the "norm", while the two booms themselves may be the exceptions to the norm.

The 1990's Boom and Subsequent Decline. In 1991, the FCC dropped the Morse code requirement for Technicians

exclusively operating above 30 MHz. This highly controversial move quickly made a huge impact upon the VHF community. Within the span of a few short years, the ham ranks swelled to over one-third of all amateur radio licensees being VHF only technicians. Literally overnight, the entry-way to ham radio effectively changed from that of Novice to the Technician Plus license. Strides in technology were also vastly changing the nature of VHF operations. Technical advances in phase lock loop technology and increased miniaturization of electronic components allowed for the introduction of 100 watts, multi-band, multi-mode VHF transceivers of a compact nature. For example, the original ICOM 706 was considered a major breakthrough in HF and VHF equipment capability, and was extraordinarily popular among hams.

The above graph amply illustrates the activity levels in the 1990's as one of two great booms in VHF contesting. The following graph emphasizes only the second 1990's era boom. As can be seen in the graph below, the combined effect of the large increase in newly licensed VHF only hams coupled with technical innovations in radios produced another explosion of VHF operating and contesting activities. The number of log submission in the January VHF SS skyrocketed from 1250 in 1996. The other major contests peaked around the same time, too: The June VHF QSO Party increased to 923 log entries in 1996, and the September VHF QSO Party in 1997 hit 753 submissions. This era can now be seen as being a major boom in ham related VHF activities similar to that of the 1960's era Novice / Tech boom.

The most recent downturn in logs may be simply due to the newly minted VHF only Technicians gradually upgrading their licenses to obtain HF operating privileges. This has led to a corresponding drop in VHF related activity, as many Technicians formerly limited to only VHF upgraded to the HF bands. Additionally, the Internet may have also provided an alternative type of technology in which tech-minded individuals could occupy their time. This may have especially been the case when the Internet first became widely available to the general population, starting in the 1990's (although more currently, the Internet seems to be having something of a complimentary effect with amateur radio operators who use the Internet to further their own radio interests).

Whither We Go from Here? The quick and dramatic shifts in VHF contest participation levels appear to be largely a function of the combined effects of technological and regulatory changes. Thus, major changes in

*(Continued on page 11)*

*(Continued from page 10)*

VHF log entries may be more related to simple demographics than anything else: VHF contest activity is driven by the regulatory and technological environments in which we live. Whenever regulations and/or technology enable more people to use the VHF amateur bands, contest log submissions increase. Whenever regulations become prohibitive in nature (i.e. the Novice loss of VHF privileges by the early 1970's), or when alternative technologies open up (e.g. FM repeaters in the 1970's; packet in the 1980's; the Internet in the 1990's), VHF contest activity suffers.

Experimentation with VHF contest rules is nothing new. Indeed, even the use of ad hoc committees has been tried before. Such experimentation has paid off at times: the expansion of the categories as well as the development of the specialty contests had their own roots in VHF contest revisionist efforts. Both the category expansion and the creation of the specialty contests have been generally well received in the VHF community, although even these items have had their own continuing controversies (I am thinking here of the rover scoring rules).

In my estimation however, there is nothing per se wrong with the current state of the VHF Contests. They have survived the test of time, and that says a lot for the current format. In fact, the contest's sheer longevity while others (such as CQ VHF WW / WPX) have had their own ups and downs is a testament to the League's success at VHF contesting sponsorship over very long time frames.

If demographics and technology issues are the root causes of the variations in VHF log submissions, then tinkering with the rules will not get to the root of the problem. It may just marginally improve log entries to correct for some obvious problems or perceived inequities. Conversely, contest rules changes may generate unintended negative side effects that are difficult to anticipate ahead of time. This general line of reasoning produces an obvious conclusion: changing the rules will not by and of itself generate a corresponding increase in log submissions.

**The Continuing Role of the Radio Clubs.** I suggest that VHF oriented clubs lie at the heart of the VHF contesting system, and to a large extent, at the very heart of regular VHF operating activity. As a great case in point, the 1976 January VHF Sweepstakes demonstrates just how critical ham radio clubs are to VHF contesting activities. In a cost saving move, the ARRL changed QST to a larger and standardized size publication in 1976. In the League's preparatory efforts to move to the new size, the December 1975 QST issue inadvertently left out the 1976 January VHF SS rules. The problem was then compounded the next month, when the very first edition of the new magazine size also

left out the contest rules. Upon realizing their own blunder, and with only a very short time to go before the contest was to take place, the League quickly contacted several VHF clubs, including the Pack Rats and the Rochester VHF Group. The clubs then informed their members that the contest was still on. What was the result on this lack of rules announcement in two successive issues of QST's? Through the efforts of the VHF active clubs, log submissions actually increased over the prior few years, and by a rather impressive 10%!

The 1976 January VHF SS example amply illustrates my general premise: Wherever a VHF type of club is active in a local area, contesting as well as routine operating activity is healthy and alive. A core group of amateurs will occupy multiple bands, and they engage in diverse and varied operating activities. With that thought in mind, I have recommended in prior E-mail posts that a concerted effort be undertaken to develop VHF oriented clubs within the major metropolitan statistical areas (the census people refer to these areas as MSA's or SMSA's), and to do so in a pro-active manner. By having VHF clubs develop the various metropolitan areas as central hubs of VHF activity, a critical mass can be achieved. Activity breeds more activity, and usage of the VHF bands throughout the surrounding countryside will likewise increase, until an entire metropolitan area has an elevated level of VHF activity.

Club participation levels have moved in lock-step with the number of individual log submissions. In the early 1960's, at the height of the first boom, 60 clubs entered the January VHF SS. At the height of the 1990's boom, 44 clubs entered the contest. In the last 5 years however, there were only between 27 and 31 clubs participating in the club competition event. And that might provide yet another answer to the reason for the radically shifting log entry numbers. As the VHF clubs come and go, so too does the number of log entries. I feel that both club activity and individual participation rates have both been similarly impacted by the same regulatory and technological changes facing the VHF spectrum. But, the variance in log entries can also be seen as a basic variance in club participation levels.

Thus, the only real answer to the oft-asked question of "how do we increase VHF contest activity?" has been with us all the time: continued emphasis on VHF oriented clubs and the corresponding VHF activity that these clubs generate. The VHF community has to itself create the hordes of fresh blood for any further VHF activity to truly occur. The best way in which to do that is to simply, and quite forcefully, push the club

*(Continued on page 12)*

(Continued from page 11)

format. Any ideas from anyone on how to further stimulate club activity levels on the VHF events would be greatly appreciated and welcomed.

Zimmerman's comments are located in his *The World Above 50 MHz* column, "VHF Contests Reexamined: Changes in the Wind", *QST*, April 2003, p.86-87. Jon Jones's article is "W3ZZ's Contesting Article and Comments", *NCJ*, July / August, 2003, p.31-32.

Log submission numbers in the graph are estimated in the 1948-1960 period, based on a graph from Tilton's 1960 article, *infra*, at n.3. The 1961 to 1990 period is estimated from a graph contained in "A Brief History of North American VHF Contesting", *National Contest Journal*, VHF Contesting! Column, Nov. / Dec. 1990, p.21-22, written by Emil Pocock, Curt Roseman, and Mike Owen. Numbers from 1991 to the present are taken from the contest results contained in *QST*. I am grateful to Curt Roseman, K9AKS, the co-writer of the 1990 *NCJ* article, for providing me with numerous historical insights regarding VHF activity.

Ed Tilton, the then editor of *The World Above 50 Mc. Column*, had illustrative comments in two of his columns spread a year apart. See, *QST*, July 1959, p.76-77; and *QST*, July 1960, p.66-67. He provided interesting graphs in both columns.

Tilton, at *QST*, July 1959, p.76, describes the reduced number of entries in the 1951 January VHF SS of 300 as being the "TVI Low".

See, Roseman, et al, p.21, *supra*, n. 2.

Roseman's 1990 article, at p.21, *supra* n.2, first coined the term "baby boom of VHF contesting" in referring to era.

Roseman, at 22.

In 1981, an ad hoc committee was created to study the status of the VHF contests existing at that time. See, "VHF Contesting" in the *Operating News Column* of John F. Lindholm, W1XX, *QST*, August 1981, p. 80.

The League noted the mishap in "Results, 29th ARRL VHF Sweepstakes", August 1976, p.80 and 83. In commenting on the lack of contest rules announcements, the League stated, "The 1976 VHF SS proved something else, too; the activity is pretty much self-sustaining".



a rotary switch on the front. In order to automate, you would need a band decoder. Again, there are several models available. Some of the options available are the Top Ten band decoder (\$125), Array Solutions (\$145 w/o box, or two in a box for \$375) or for the budget minded, SMC's own W9XT (<http://www.qth.com/w9xt/decoder.html>) makes a decoder without a box for \$18.95!!! Simply add a box and cables. By using one of these band decoders on each of your radios (your radio must support this, check first) you can change bands and have your bandpass filter automatically and instantly follow you. This band decoder can automate your main antenna coax switch. One of the most commonly used device for SO2R antenna selection is the Array Solutions SixPak box (\$400). It allows two radios to share up to six different antennas. For the budget minded, a simple coax switch or two will do just fine.

The other way to improve fundamental overload is antenna isolation. This means to have your antennas as far apart as possible. For those lucky enough to have a tower, this means putting an antenna very low on the tower when using the top one on the other radio. Or, putting another antenna (dipole, multi-band vertical) as far away from your other antennas as possible. And speaking of verticals, a vertical has good isolation from a horizontal antenna, so a multi-band vertical is a good choice for an all-around 2nd antenna. Even better, place it far away from your main antennas as you can. If you can't space your antennas further apart, and you are experiencing problems on your 2nd radio, then you may have to consider some of the other solutions previously mentioned (bandpass filters, coaxial stubs, low power).

So, what do you really need to get started in SO2R? A simple headphone switch is all you need. Everything else is just an improvement, and don't think that you have to go all or nothing. Try it out and see what kind of interference you get from your main radio. If you have problems, try the low cost coaxial stub approach. If that doesn't work, consider going low power. Add just one bandpass filter. Find a happy medium to effectiveness while keeping costs down. You don't need to spend tons of money to get a decent SO2R station going.



## Member/New Member Information/ Update Form

Name: \_\_\_\_\_

Call: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

Please send updates to:

**Jon Ogden, NA9D**  
2 S 872 Wagner Road  
Batavia, IL 60510

## We need your input for the next 'Hole!!

- Operating stories
- Station construction
- Operating accessories
- Packet and computer hints
- Product reviews
- Plug your upcoming DXpedition
- Your idea here

**Please consider putting an article  
together today!**



---

## The Society of Midwest Contesters

*Brian Maves, K9QQ*  
11 Worcester Ave.  
Honolulu, HI 96818

FIRST CLASS MAIL