Potomac Valley Radio Club Newsletter

February 2004

Visit us on the web at www.pvrc.org and www.pvrcnc.org

PVRC welcomes new members John Kippe, N0TKY , and Melissa Hall, KD4VED to the PVRC-NC chapter, and NC4S, Gary Quinn, to the Northwest chapter.

Editor's Note
By Pete Smith, N4ZR

This month's highlights include the last installment of K3ZO's series on propagation, an article by W3IY on roving in VHF/UHF contests, a great Toolbox by K4ZA and N4AF's extensive comparison of Writelog and N1MM Logger.

The number of links to e-mail and web sites embedded in the text has also been greatly enlarged. To avoid cluttering up the Newsletter, the links are invisible, but if you move your Adobe Acrobat cursor over them you'll see the cursor change to indicate that a link is there.

I hope you'll pay special attention to the plea by WR3L. As our Treasurer, Dave's acutely aware of where the club's money goes. It costs over $20 per year to print and mail a year's worth of the Newsletter to a single subscriber, which is why we have tried so hard to get everyone who can do so either to receive it by e-mail or read it (and download, if desired) on the PVRC web site. If you are currently a postal subscriber and can get it electronically, you'd be doing a real service to the club to switch. Just drop me a note and I'll make it happen .

PVRC Contest Calendar (2003-2004 season)

Note: All dates are Zulu, boldface denotes contests that count toward the PVRC 5 Million Award

North American Sprint, CW 0000Z - 0400Z, Feb 1 (evening of January 31 in the US)

North American Sprint, Phone 0000Z - 0400Z, Feb 8 (evening of February 7, in the US)

Delaware QSO Party 1700Z, Feb 7 - 0500Z, Feb 8 and 1300Z, Feb 8 - 0100Z, Feb 9

ARRL International DX Contest, CW 0000Z, Feb 21 - 2400Z, Feb 22 (starts evening of February 20 in the US)

CQ 160-Meter Contest, SSB 0000Z, Feb 28 - 2359Z, Feb 29 (starts evening of February 27 in the US)

North Carolina QSO Party 1700Z, Feb 29 - 0300Z, Mar 1

ARRL International DX Contest, Phone 0000Z, Mar 6 - 2400Z, Mar 7 (starts evening of March 5 in the US)

Russian DX Contest 1200Z, Mar 20 - 1200Z, Mar 21

Virginia QSO Party 1800Z, Mar 20 - 0200Z, Mar 22

CQ WW WPX Contest, SSB 0000Z, Mar 27 - 2400Z, Mar 28 (starts evening of March 26 in the US)

CQ WW WPX Contest, CW 0000Z, May 29 - 2400Z, May 30 (starts evening of May 28 in the US)

ARRL June VHF QSO Party, 1800Z June 12 - 0300Z June 14

For schedule changes, rules and log submission info, go to <http://www.hornucopia.com/contestcal/contestcal.html>

CONTESTING AS THE SOLAR INDICES PLUMMET
By Fred Laun, K3ZO

This is the last part in this series of articles. If at a later time it occurs to me that some particular aspect of propagation requires additional coverage, I'll send another article to Pete for this Newsletter. [If you have things you'd like Fred to address, don't hesitate to drop me or Fred a note - ed.]

What I hope to do this month is to provide a general look-ahead to what we might expect in the next few years. To get our initial bearings, we are currently on the downslope of Cycle 23, about three years nine months down from the peak of the cycle which occurred in April of 2000.

Scientists are predicting that the minimum will occur in the year 2006. Since the cycles have historically averaged about eleven years from peak to peak, the next cycle, Cycle 24 would be predicted to peak in the year 2011. Cycles have traditionally risen at a more rapid rate than they have decayed, so once we reach the minimum the rise can expect to be pretty fast compared to the rate of decline that we will have seen before then.

What is the peak value of the next cycle likely to be? The predictions by experts in the field are all over the map, which shows how difficult it has historically been to forecast the values of successive cycles in advance. The basic problem is that the period during which humankind has been scientifically advanced enough to accurately measure the Sun's activity is so infinitesimally small as compared with the age of the Sun that there is insufficient historical data to bring to bear on the problem.

Schatten and Tobiska(1) predict the onset of a period of very low-value cycles beginning with Cycle 24. On the other hand, the unusually high solar activity in October/November of 2003, when the strongest solar flare ever recorded occurred, has led other scientists to predict that the peak value of Cycle 24 will be considerably higher than the peak values of cycles in the recent past. We can only hope, as contesters and DXers, that the latter predictions turn out to be the correct ones.

In the meantime we are going to have to put up with a few years during which things are going to be in the doldrums compared to what we have been accustomed to. In practical terms, what does this mean?

We have already seen from December's 10 meter contest that the 10 meter band is showing signs of decreasing DX activity. I didn't work any JA's this year in that contest, and the European opening was shorter and less robust than those of recent past years. To some extent this was compensated for by a wonderful outbreak of Sporadic E propagation. Science has thus far failed to find any correlation between the sunspot cycles and the frequency or intensity of Sporadic E sessions.

What this means for ten meters in the coming years is that it may be better in the summer months than in the winter months, though not for very long-distance DX. In a couple of years you may find it easier to work Europe in late June or early July on 10 than in mid-September through mid-March which is what we have gotten used to lately. But it will be highly unlikely from 2005 onward that you will be able to work Japan from the East Coast, though it might be possible on one or two days in the summer when Sporadic E floods the North Pole.

Even 15 meters might find it tough to open right at the bottom of the cycle. I can recall one weekend back in the 60's during a solar minimum when, operating 15 meters at the W3MSK super-station, I was only able to work four KZ5's (then the Panama Canal Zone) all weekend long -- PERIOD!

Twenty meters will be king during the day but even it will disappear rather quickly after sunset and will open only about at sunrise to Europe, though if the solar flux is low it could well stay open all night to Australia.

Paradoxically we may find that the two most interesting contests right at the bottom of the cycle could well be the CQ WPX CW contest and the IARU contest, since they occur closest to the periods of maximum daylight for us in the Northern Hemisphere. Experience has shown that 20 meters can easily stay open to Europe all night long in the summer even when we are at the solar minimum. And particularly for the IARU contest Sporadic E propagation could quite likely enhance propagation on the 10 and 15 meter bands, since it occurs close to the yearly Sporadic E peak.

Forty meters is not as good right at the bottom of a cycle as it is about halfway down the slope -- in other words where we are at right now -- or halfway up the rise, because for very long darkness paths the MUF can drop below 7 MHz when the

cycle is at the bottom. Thus as I mentioned in a previous article, there will be a dead period toward Europe from late at night until the wee hours of the morning. This past weekend I spent some time in the HA DX Contest and this phenomenon was already being exhibited. At 2200 UTC T96Q was 10 db over S9 on my S-meter. By 0200 UTC his 40 meter signal had dropped to S5 on the meter, but European signals on 80 meters were booming. When I called HA7UG on 80 at 0435 UTC he answered with the word "huge" before giving me my number. When I ran out of new Europeans to work on 80 I went back to 40 at 0530 UTC and encountered what was for all intents and purposes a dead band toward Europe, and so I went to bed rather than waiting for it to open back up.

On the other hand 40 is very interesting right now at sunrise and sunset, when "grey line" propagation is in vogue. Of course it helps to have a beam, but almost every morning from about 1100 UTC to about 1300 UTC this month I have been greeted with HS, VU, YC, HL, BG, BV, XU, 9M2 etc QSOs, all at a beam heading of about 225 degrees. Then in the late afternoon at 2200 UTC or so a beam heading of 160 degrees has produced good JA, HS, HL, YC signals also.

Eighty and 160 will probably be very good during the hours of darkness in late fall, winter and early spring. I recall in previous minimums watching European signals on 160 peak up here from different parts of Europe in succession as sunrise moved across them. First the UA6s and 4X4s, then the UA3s and SVs, then the OHs, LAs and YUs, etc. And this month I have worked Japan on 160 even though I'm an alligator in that direction since I have no low-noise receiving antennas favoring the Northwest, so things are getting better there.

In summary, there will still be lots of stuff to work but we'll have to get used to heading for the lower bands earlier in the afternoon, moving to 80 earlier than before, and hanging around on the lower bands later in the morning than what we have been doing in the last few years. It will still be interesting, just lots different, that's all. Enjoy!

(1) http://www.aas.org/publications/baas/v35n3/spd2003/18.htm

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This Just In …(from the ARRL Contest Branch)

Web Applet for Creating Cabrillo Format Logs Is Available

The ARRL Contest Branch is please to announce that a web-based applet is now available for participants to use in order to generate and email ARRL Contest logs in the required Cabrillo file format. The first ARRL Contest for which the web applet is available is the recently completed 2004 RTTY Roundup. The applet, while intended for smaller log submissions, can be used for submissions of any size. It will be available for all ARRL events that require electronic logs in the Cabrillo file format.

Thanks to Bruce Horn, WA7BNM, and with the support of several other amateurs, it is now possible for participants to create Cabrillo contest logs on the web. Bruce is developing templates for each ARRL contest, which will allow persons that paper log, or those whose logging programs will not generate a Cabrillo file, to create electronic logs for submission to the League. Bruce has provided a homepage at www.b4h.net/cabforms/ where links will take users to the various contest templates.

The web applet works in two parts. First, the user is prompted through the information required to create the Cabrillo file header, including ARRL/RAC section, Callsign used, Callsigns of operators, Entry class, Entry mode (if applicable), Power level, Sent exchange information, Club (if applicable), and Operator's name and address. Where appropriate, drop-down boxes are used to allow the submitter to select the correct information.

Once you have finished supplying the information for the header, the next screen allows you to input the data for each individual QSO. The user may either type in the information for each QSO, or they may cut and paste the necessary information (band, date, time, call copied, received RST, received exchange) from another source. Make sure to leave a space between each piece of data on the QSO line and to use a new line for each QSO. Once you have entered all of the QSO data, click on the "SUBMIT QSO INFO" button at the bottom of the page. The applet will then check for any errors in format. If everything is correct, the applet will display the completed file, where you can check your information one last time. Finally, click the "SUBMIT CABRILLO LOG" button at the bottom and the applet will automatically email the entry to the correct address for the contest, as well as send a copy to you for your records. Upon submission, the applet-created log will be processed as all other submissions. If the contest robot finds problems, the appropriate emails will be sent back to the submitter for handling or if the log is clean, the numbered receipt will be sent.

If you have questions about the web applet, contact contests@arrl.org

The Toolbox
By Don Daso, K4ZA

Hams sometimes do slightly dangerous things, and that can include tower work, especially the job of raising heavy masts. I've done it myself, plenty of times, using a variety of methods. Having tried all these ideas, having listened to everyone else's solutions, I was still convinced there "had to be a better way." Driving through my neighborhood a while back, I had one such "Eureka" moment--coming up with a solution to this age-old problem. This works better than anything else I've tried.

I recently had to install a 21-foot chrome-moly mast, working alone atop the tower. Installing a basketball goal (just the hoop) at the top of my 13-foot heavy-duty ginpole, provided a margin of control (and safety) missing from all previous methods I've used. The mast, lifted at just above its midpoint, couldn't swing or "get away" from me once inside the hoop, which made guiding it down, and into the tower top's thrust bearing, relatively easy. (No matter how big and strong the tower worker is, manuevering such a mast is always difficult ON THE TOWER, as there's no real mechanical advantage possible, nor a good way to control the heavy mast.)

Despite all the kidding from my ground crew, everyone agreed this simple tool made our work faster, and more importantly, safer.

I chose the basketball hoop because it was pre-made, relatively cheap (mine cost $20), and sturdy. I ground off the small loops, which normally hold the net, then drilled matching holes for U-bolts and saddles to allow mounting on the ginpole. The installation of long, heavy masts is now much easier. This simple tool will always be in my tower toolkit.

Ginpole Hints

Recently, along with the already-mentioned mast saving hoop accessory for my ginpole, reactions to a couple of other simple modifications might also be worth your attention.

The mast of my ginpole is longer and thicker-walled than the normal Rohn pole. As such, it's heavier, of course, and a simple painted line (yellow) at the 12-foot level, lets me know when I've pushed it high enough for normal use. Not having to stop and look up is, believe it or not, a true time saver. And a second painted line (red) at the bottom, prevents me from pushing the pole too far up (it's happened twice in 20 years, but the line lets me know where I'm at, again without looking up). I also painted a black line on the pole to indicate the pulley direction, again to save time.

I must credit W9GE for recommending this next item, which continues to amaze me, along with everyone who sees me using it, as well. The product is "Blaster," available from Wal-Mart, and it is, without a doubt, the single best treatment I have ever encountered for rusty hardware. I've recently taken down several 20-year old Rohn towers here in the Carolinas; I've been amazed at how easily rusted hardware comes apart once I've "blasted" it with this spray-on chemical. The only apparent downside, for me, is that I've been unable to find it at a Wal-Mart in the Charlotte area. (I bought a few cans up in Maryland after using it at Bob's QTH, on my return trip home.) Try some for yourself—on the oldest and most rusted hardware you can find. One use will make a believer out of you!

What's in YOUR Toolbox?

Introduction to Roving
By Bill Seabreeze, W3IY

Tired of putting up with your usual QTH and all its associated problems? Maybe you have TVI on 6-meters, or live in an RF hole. Perhaps you've tried VHF and had a hard time working DX. Are all your neighborhood computers, cable TV, and other electric appliances generating a 20 dB noise floor in your receiver? Or, maybe you just need a change of pace in your radio operating practices, and want to experiment with something new and exciting. Try roving in the next VHF contest! Even for the beginner, roving is an exciting aspect of VHF operating, and it can really open your eyes to show you how much fun the higher bands can be. Have you thought about what VHF propagation might be like from a mountaintop? This brief article will give you some ideas on how to get started. QRZ contest!

There are at least 4 major VHF contests, which occur at about the same time each year. Coming up January 24 and 25 this year (just 2 weeks away as I write this…) is the ARRL January VHF Sweepstakes. This contest is often a challenge from Mother Nature, with less-than-desired VHF propagation, cold temperatures, and sometimes-difficult driving conditions. Nevertheless, many VHF operators love this contest, as it's become a magnet for club competition, and high levels of participation. Other major VHF events include the ARRL June VHF Contest, The CQ VHF contest in July (major tropo openings in this one in 2003!), and the ARRL September VHF QSO Party. Even if you're not a competitive contester, these events are icons of VHF activity, and represent an excellent opportunity to take advantage of great activity, and see what kinds of QSO are being made. You will probably be surprised to see that 500-mile QSOs are common up through 432MHz, even with a closed band. The PVRC has a significant number of active VHF & above stations…tune in and find them!

Roving is a growing category during all VHF contests. In this game, you are allowed to work stations multiple times on each band when you travel into a new Maidenhead grid square. It's not unusual to find rovers covering 10-12 grids during a contest, and these usually include grids, which would not be accessible without rovers. This can make you popular…. especially if you are willing to bring microwave bands (this means more QSOs and more fun!!). Rovers can use 2 operators, which is highly recommended for safety reasons. It's fun to have one guy operating, and one guy logging…or if you can swing it, bring multiple radios, and both guys can operate at the same time. (Please be very careful if you operate while driving!) However, we are just trying to give you an overview of how to get started, so for now, let's assume that you want to start easy.

The basic rover station that I recommend would consist of a transceiver covering the 6-meter, 2-meter, and 70 cm bands. This approach could consist of an FT-100, IC706, FT-857, or a myriad of other single and multiple band radios. Even a 10-watt SSB/CW station on 2m can work some exciting stuff…like up into New England, and down to NC with ease. The biggest obstacle for most rovers is mounting horizontal antennas on their vehicles. Or course, you can also just drive to your sites, and then erect the antennas, if you don't want to modify the family vehicle too much. There are some good bumper-mounts available, which will support halo-type antennas, but you may also want to consider mounting a luggage rack, and using this to hold some boards, which can support taller masts (maybe guy-wires?). Be careful if you go above 12ft, however, as there are lots of trees and stuff that your antennas may encounter. Don't forget that you can't go into fast-food drive-troughs with antennas flying above your vehicle! I would recommend halo antennas, as a minimum, as verticals are just not very effective working the horizontally polarized base stations (they will still work, and may be worth a try if you don't have other antennas). One of the big advantages of VHF is that antennas are small, and it's very possible to also mount rotators and small yagis. The difference between a halo and a 6-ft yagi on 2m is really big…about 11dBi gain vs. 2dBi for a good halo. This will significantly extend your working range, and should be considered if you want to rove far away to those rare grid squares. Of course, if you really want performance, you can easily bring your 24-ft yagi in pieces, and erect it when you arrive at your favorite mountaintop site. A big advantage of VHF is that even large antennas can be broke down and fit in your trunk. You can get AC inverters, which will convert your 12V car battery to the 115VAC required by most rotators, or you can use your "arm-strong" rotator. Most of these inverters are too RF-noisy, and generate significant QRM on 6 & 2-meters. The units sold by Astron are supposed to be pretty RF-quiet. DC rotators are also available, but tend to be more expensive than the AC units that most of us are familiar with. If you can erect your antennas so that you can drive with them up, you will be much more capable of hitting lots of grids, working more stations, and not having to work hard setting up your stuff at each site. This is a big factor if you want to move around a lot to other grids and sites (which is great fun, and helps you and your VHF-buddies' scores greatly).

If you're just starting out in roving, you will probably do fine with halos, and the basic transceivers. Add power amplifier bricks for better DX working ability. Don't forget that you may be starting to stress your car battery if you are getting busy working stations, and you may need to leave the engine running to prevent discharging your battery. Many rovers carry a 2nd battery for use with the radios. This is a great idea, as it's not hard to forget about running your main battery into the ground when you're having a great time working stations left-and-right. A normal lead-acid battery is about 100 Amp-hours, so you can probably expect 5-6 hours of operation before you need to charge the battery, or change to another one. Be aware that many transceivers don't work very well at voltage less than 12V (my IC-706 becomes very distorted on TX). For extended operating all weekend long, you will probably have to leave the engine running all the time, or install a serious battery charging system that can recharge your stuff while you drive. A normal car alternator is not rated to charge a discharged battery, contrary to popular opinion. You can blow the diodes if you run the battery all the way down, and expect to do a complete recharge from the alternator (assuming you can start your engine!). Consider upgrading your alternator if you really want to run some juice, and need to recharge some batteries. Units are available for many common vehicles for around $200, which are much better than the stock alternators. See http://users.adelphia.net/~w3iy for more details on DC power systems. This is an often-overlooked problem area for prospective rovers. Above all, observe safety practices when dealing with batteries. Put extra lead-acid batteries in a protective plastic case, and be careful

where you mount them (they can become deadly projectiles if you're in an accident). Don't ever attach or disconnect the wires to a battery if the charger is active…sparks can blow stuff up, and spray acid all over the place. Charging batteries generates explosive hydrogen gas, so you need to make sure you have adequate ventilation during and after charging.

Plan a reasonable and fun rover path for yourself. Don't try to cover too much territory on your first trip out. Keep things simple and fun for yourself, and slowly feel your way into this exciting area of VHF amateur radio. It is very demanding driving and contesting for a whole weekend, and you may find it to be more rewarding if you start out with just a few grid squares. Talk to some VHF-active guys in your area and see what grids they think would be good candidates for some rover activity. Choose some high-altitude sites to really have fun and work better VHF-DX. Skyline Drive has many great overlooks providing fantastic radio-horizons in most directions. Being a rover, you can easily move to sites looking in the desired directions. NE is the most popular direction from the DC area, as there is a great VHF & up population towards Philadelphia, NY, and CT (FN20, FM29, FN31, etc). Don't forget that it's also productive to your score (and operating enjoyment) to look in the less populated directions, like NW, SW, & S. As more rovers hit the trails, you can expect to find stations all over the compass. Mark, N2MH has put together a collection of prospective rover sites at http://www.intac.com/~mherson/rovesite.htm. Check this out for some possible operating locations.

Another tip that may help you get started in roving is learning who to look for. In this geographical area, there are a good number of VHF & up stations who are usually on-the-air during VHF contests. A few VHF calls to look for (among others) are K1RZ (FM19), W4RX (FM19), K3EAR (FM19-big multi-op), K3ZO (FM18), K8GP (usually FM08-big multi-op), W3SO (big multi-op), K3DNE, ND3F/R, KC3WD/R, N3UW/R, & W3IY/R. These latter /R stations can be found all over the place as rovers, on bands thru 10GHz. Most of these stations have big signals on the lower VHF bands, and you should be able to hear them with ease when you look their way. A great resource of past VHF activity can be found at http://pages.infinit.net/ve2pij/. Just click on the FM icon for a list of past activity in all the grids starting with FM. Learning who is out there can be a big help as you navigate through the bands searching for weak signals.

One of the issues that confront beginning rovers is that of log keeping. I recommend bring a laptop to help with this task, although paper-and-pencil certainly works reliably too. There are many good (& free) logging programs out there for VHF contesting. Among them are:

1. KM Rover by W3KM (www.qsl.net/W3KM)
2. Roverlog by N2MU (www.2ub.org/roverlog/)
3. VHFTest by WG3E (www.vhftest.com/)

To use a laptop effectively, you will need to make a home for it in your vehicle. It's a little difficult trying to use it on the seat beside you. Maybe consider building a support table near the operating position. If you have a truck or a van, you may want to consider making your operating position in the back where there is more room for tables and radios. Of course, this approach makes it harder to operating on-the-move, but it may work for you. Fasten your stuff down so it stays put in the mobile environment. Possible solutions to this problem are Velcro, bungi-cords, and specially designed brackets. I find that .062 aluminum sheet can be crafted into suitable equipment support with suitable angle brackets to hold things in-place.

Another big issue for beginning rovers is that of knowing where you are, and aiming your antennas. A GPS receiver comes in handy, but may not be necessary if you carefully plot your course (and know your grid!) ahead of time. If you plan to venture into the higher frequencies, a GPS becomes even more useful as the antennas headings become very critical. Using a heading calculation program like BD2000, you can compute the true headings from your grid square to other station locations. (It's available from www.w1ghz.org/10g/10g_home.htm). At any rate, know your grid square, as you will be passing it out as the primary QSO exchange in the contest. It helps to become familiar with 6-digit grids as well. Each grid is sub-divided into 576 smaller grids, which are 2.5 arc-minutes square. FM19aa (near Upperville, VA) is the southwest corner of FM19, and FM19xx is the northeast-most corner (near Ruthsburg, MD). FM19ll is right in the middle. I include this info on 6-digits simply because many VHF operators ask for it to help them aim their antennas. If your using a halo, you should still know this as many other stations are using bigger antennas, and will want to zero-in on your signal.

I have attempted to convey the basics of VHF & up roving in this brief article. There are many more subtle issues that affect roving, and contesting in-general, but we leave these for your future research. Check out http://users.adelphia.net/~w3iy/rover.htm for additional tips, opinions, observations, and general exhortations about this fascinating aspect of our beloved hobby. Above all, be safe out there, and remember that this stuff is supposed to be fun. Don't get caught up in the competitiveness and forget that lots of VHF operators just want to have some QSOs and enjoy the activity. There's a

lot fewer signals on the VHF bands compared to HF, and we all need to help each other out. Even a few 6 or 2-meter QSOs with your VHF neighbors will be greatly appreciated. The PVRC has become a major force in the VHF world in the past several years, and it would be great to see this tradition continue. We can have more fun as a group. See you on the bands!

p.s. Listen for the weak ones.

VY1 Project Status
By Ken Claerbout, K4ZW

Greetings - I wanted to bring the membership up to date on our effort to assist Jay, VY1JA.

I've had a chance to exchange a few e-mails with Jay and to refresh everyone's memory; here is the current situation.

Transceiver - Jay has an Omni-V that has been acting up. It got to the point that the radio was unusable so he sent it to Ten Tec for repair on January 15. As a result he is currently off the air. He said if someone has a transceiver that is broken and of "no remaining commercial value" he would accept it and attempt to make repairs. Certainly if a member has a radio in that shape and is willing to donate it, we can send it to Jay. On the other hand, it would be ideal if we could find a transceiver in good working condition. Jay could use the radio as a backup or it could be used by a member of the Yukon Amateur Radio Association for potential contest operations.

Computer Equipment - Jay has a P90 desktop he would like to use solely for contesting but it has no monitor. Several PVRC members have offered monitors. The problem is that packaging and shipping something of that size to the Yukon is likely to cost more than the monitor is worth. One possible option, which I have not fully investigated yet, is to buy a cheap monitor from a place like Gateway Canada or a computer store somewhere close to Jay' s QTH. The other option is a laptop if someone in PVRC has one they wish to donate.

Rig Interface(s) - this includes CW keying interfaces as well as a PC to transceiver interface, if one is needed, to use with the item #1 transceiver.

These are the main items that would be of greatest help. Jay has stated repeatedly that he is just looking for donations of items that are of little or no value to their owner. Personally, I think it would be great if we could donate equipment that is of decent quality and could be put to immediate use by Jay or the local club. This however is up to our membership.

I think PVRC has an opportunity here to not only help a individual and/or small club, but also to demonstrate our leadership in the contest community by keeping a rare multiplier active. If you would like to support this effort, my contact information is below. We will also accept cash donations. As agreed to by our President K4VVand Treasurer WR3L, cash donations for this project should be sent directly to me as the project coordinator. I would like to have the donations in hand by early February. At that point we can tally up what we have and make a final determination as to the level of support we can provide. If by chance we have more than is needed for the three main items, we can purchase some coax connectors, parts for 75-50 ohm transformers for CATV hardline and a few smaller, secondary items I know Jay and the club could put to use. If you have any questions or suggestions, please feel free to contact me.

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Treasurer's Report
By Dave Baugher, WR3L

Please.......we need donations for the mailed Newsletter. It's more costly than it has ever been. If you're a mail subscriber, please consider contributing, and mail to me with a note that it's for the newsletter, not a regular club donation. You won't be deleted from the mailing if you chose not to contribute. If you have an email address and don't want the printed copy, please tell Bob, W2GG, to correct his records and give him your correct email address.

Writelog vs N1MM Logger
By Howie Hoyt, N4AF

With the cost of computer hardware (particularly memory and CPU speed) continuing to drop, interest has increased in switching from a DOS based contest logger to a Windows based program, because the much higher overhead of Windows when doing lots of things in near-real-time is no longer a significant problem. The following is an attempt to quantify the pro's and con's of the two major Windows logging programs and provide a flavor as to how the two products stack up at this juncture (Winter 2003-2004). It is assumed the reader has a working knowledge of MS Windows terminology and some understanding of computer logging, particularly the major DOS-based programs.

Reliability: A reliability advantage to WL as it has been around longer. In a Multi station setup WL also sports automatic recovery via journaling, while MM uses a TR mechanism similar to TR Log's for syncing up logs by comparing logs across positions/PC's. Testing WL in the CQWWCW (M/M)at K7GM, we found all logs stayed synced throughout the contest, a nice change from TR. This can be significant to a M/M with thousands of QSO's flowing in from many PC's.

Usability: The function key interface is more consistent in MM in that the enter key can be used for both CQ and S&P calling. Subsequent enter key action will log the call and send a response.

What happens when the enter key is pressed depends on whether MM is in RUN mode (entered by hitting F1 CQ key) or S&P (entered by turning the transceiver dial). WL can be setup for enter key control when running stations also, but the setup is slightly more complex for the S&P function key sequence.

One of the most important aspects of a logging program is the user interface. For years, TR Log and CT have been the two standards of comparison. Generally, CW operators tend to give TR the edge, because the operator need only enter the other station's callsign and hit [Enter] to walk through the sequence of the QSO, log it, and move on. WL's default user interface is similar to CT's, tabbing between fields and hitting the [Insert] key to log the QSO. WL provides a TR-like mode when running, but does not have the option in S&P mode.

MM actually provides three modes – a CT-like mode, another involving use of the ";" and "'" keys to step through a QSO, and a third, called Enter Sends Messages (ESM) which operates both in run and S&P modes, and actually goes TR Log better in a few respects. For example, as you type in the callsign, it is automatically duped. Calling a station multiple times in TR Log's S&P mode requires you to use the F1 key after the first [Enter], because the cursor has already moved into the exchange field. In MM, [Enter] will continue to send your call until you enter exchange information, which it takes to mean you are ready to send your exchange. MM will also clear the call-frame above the call entry field (and the other the entry fields as well) if you fail to work a station or conclude it is a dupe, simply by tuning away from its frequency.

Bandmap: Both WL and MM present a vertical representations of one or two transceiver dials which are interspersed filled with calls placed next to their frequency, as they are spotted or entered manually. Additionally the calls in the bandmap are color coded to indicate dupe and new multiplier status.

MM allows for dynamic zoom-in or out on the bandmap to cover as little as 10KHz or as much as 150. This is often very useful as the bandmap can quickly fill up unless it is "zoomed" to cover a smaller frequency range. WL allows this to be changed in the .ini configuration file, but NOT dynamically while the program is in use.

MM interacts between bandmap entries and call entry window. WL has not had this feature, although at press time a new release has come out which appears to add similar functionality. This can be significant as tuning across a bandmap entry in MM causes the call to load directly into the a "call frame" above the call window. Hitting the space bar then loads the call into the entry window, while tuning away clears the "call-frame" and enters the call on the bandmap, color-coded to indicate whether it has been worked or not This makes the bandmap a very significant tool for use in unassisted S&P. The other programs require some specific action to clear the call entry window, such as hitting [ESC], so over the course of a contest, the saving in effort can be considerable..

In MM, both the CHECK window and the color of the call in the "call-frame" above the entry window, indicate whether the call tuned across is a dupe or not. This makes cruising a band most pleasant -and- more productive. WL also indicates, by color, whether a call in the bandmap is a dupe, unique, or a new multiplier.

Windows: Both products provide windows for things like log view, bandmap, call entry, (checking the call against a master.dta file), sending and receiving packet or telnet DX custer messages, etc. Writelog "docks" its 10 windows in a main window and, as with MM, the windows may be hidden or displayed. The catch is that two of the windows (EDIT QSO and STATUS BAR) have fixed positions and "undocking" the windows from their positions is somewhat complex. The situation is easier in MM as the windows are independent of each other and can just be resized (most of them) or moved around at will.

Color: MM uses fixed colors with assigned meanings. Many colors in WL are configurable. There is a nice utility available at http://www.kregli.com/wliniedit.htm that makes editing the .ini file, where many WL user settings (like color) reside, a lot easier.

Log Editing: Both products allow full edit ability over the log. Usability of WL for entry editing is slightly easier as it allows one to click on the field to be corrected within a log entry (serial number, for example). The field is then displayed in an edit box where it can be changed. MM opens a window with the entire log record available for editing, including many fields that are not directly relevant to the contest. For example, MM stores serial numbers, whether the contest requires them or not, and has separate fields for serial numbers that are part of the contest exchange. This can be confusing.

Going back thru a log trying to find a particular call appears easier in MM. You can sort on any field of the log (in this example, callsign).

CW specific: MM does not support paddle CW (an inexpensive outboard keyer called Winkey, which connects to the program via a serial port, is required to implement this). This is an important capability, particularly when integrated with the logging program so that speed control, PTT and headphone switching are automated. CW quality can be a rub with both programs, particularly when using a computer with a slow CPU or a lack of available memory. MM's authors have designed it to give high priority to CW, which tends to reduce the problems to an occasional stutter when using a more powerful machine, but the Winkey solution does away with such issues entirely, plus adding paddle CW.

CW Macros: A macro is inserted in the CW stream assigned to a function key to accomplish some task. Using an asterisk to represent MYCALL would be an example. Eg, CQ TEST * * TEST.   MM has slightly better CW macros, but WL has more function keys available. For example, WL has a %B macro that allows for dupe check of the entered call. If a dupe the exchange is not sent. MM will work dupes in running mode, but N1MM has a macro to reset clear the RIT after a CQ or after a QSO is logged. WL has a keyboard hotkey, but this is no better than pressing a button on the rig. Of course, this only matters - need something to code off of the function key so that when you send your qsl message the RIT is automagically reset to zero. This is only a problem when the station last worked is off frequency.

SO2R: MM has been updated to allow polling of radios while transmitting but, depending on your processor speed, you still may require Winkey by K1EL (kit about $30). For Writelog the W5XD keyer ($215) or ZS4TX Super Combo Keyer ($450) must be used or polling of the S&P radio while transmitting on the run radio will not occur. Without polling, a lot of the benefit of interactivity with the bandmap is lost during 2-radio operation.

Spotting: Both products connect very well with either VHF packet or Internet DXCluster nodes. WL allows sub-bands. This is an easy way to filter out spots not germane to sub-bands used in the contest. MM has the displays for this, but the code is not yet active. MM has global options on whether to spot all callssend spots of all S&P QSOs to packet/telnet cluster. As mentioned above, it also has an option to spot all calls entered in the callsign field locally, which makes the bandmap a very useful tool for unassisted S&P. When this option is turned on, Auto-wipe occurs. Eg, enter a partial or complete call but do not log it. Turning the dial causes the call to be removed from the call window without pressing any wipe keys. For example you start to enter a call but realize he is a dupe. Rather than wiping (clearing) the call, just tune the dial and the call is cleared. In the course of a contest this can save significant keystrokes.

Documentation: WL integrated helps are not impressive. Luckily K9JY maintains a website that is very helpful, as is the user community. N1MM seems to have both good F1 helps and PDF support. [However, N1MM's manual and help file have not been updated since November, and given the rapid rate of change in the program this can make it difficult to use them. The manual is also over 300 pages, and could use some reorganization to make key information easier to find - ed]

Support: User community in both products, expressed in terms of the activity and helpfulness is excellent. Developer support in MM is more responsive: For example, a suggestion to implement the enhanced bandmap functions described above was implemented in a week, and a proposal to remove one [Enter] from the ESM function was accepted an implemented in days. During recent contests (CQWW, ARRL 160 and ARRL 10) N1MM was on-line with the user group in

near real time and implemented several minor bug-fixes during the course of the weekend. By contrast, suggestions to WL were taken but still not implemented, as updates are relatively few and far between. E-mails written to W5XD on the language WL is written in have not been answered.

Here is a user posting that illustrates some of the WL problem:
"The namedmul.ini file is an important part of the Writelog scoring logic on> many contests. You must have a updated file if you expect Writelog to keep score. The version of namedmul.ini that you get with each full download is unfortunately old and it overwrites the correct version."

Log Analysis: Although MM has excellent multiplier analysis, WL offers a wider range of information including real time QSO graphical analysis and post contest QSO breakdown. WL markets a cabrillo analysis package (WT4I) providing very complete log analysis. MM is reportedly working on a suite of post-contest analysis software that would do many of the same things.

Computer Resources Required: MM uses approximately 5Mb more RAM. WL consumes approximately 8Mb and N1MM consumes approximately 13Mb of main memory. WL also comes up slightly quicker. MM is written in Visual Basic. WL is believed to be in visual C++ but a query about this has brought no response from W5XD (WL developer). The display size used for these products is recommended to be 17" or larger.

Installation: Installation of either product is straight forward and takes less than ten minutes once the downloads or disks are in hand. For N1MM, the three step process is
   1) Download and install the program
   2) Download and install the updates
   3) Download and install the help files

A good overview of the process is at http://www.n1mm.com under overview.

For WL, the installs are on CD. You will unzip the program to a temporary directory and run SETUP. Be sure to download a current copy of NAMEDMULT.INI from the writelog website as it is not presently automatically updated with new releases of WL. The writelog website is located at http://www.writelog.com. K9JY helps are at http://www.k9jy.com.

Once the basic installation is complete, customization to your specific setup must be done. This involves setting up your com ports for keying and rig control, specifying packet/telnet location, and determining what windows you wish to display. It is advised you have a 17" monitor running 1024X768 although a 15" will work (with less windows open and ensure fonts set to SMALL). Typically customization is the hardest part and will probably take at least an hour to get everything the way you want it. Don't forget to install current country files and master.dta super check file.

[MM's manual has a detailed section on steps to be followed before and after each contest. If I had paid better attention to this information, it would have saved many false steps in making the transition from TR Log. For example, MM only has one set of function-key CW messages in use at any one time. Users need to export these after each contest, as well as program settings and Windows settings, in order to be able to retrieve them for the next running of the contest -- ed]

Recommendations: Assuming you have a PC with CPU speed greater than 200Mhz, main memory of 64Mb or greater, at least a 15" display supporting 1024X768, and want to take the plunge, N1MM Logger gets the recommendation because of it's ease of use, installability, developer support, and lack of any monetary charge for the software or support. For the Multi station, the journaled recovery of WL may be helpful.

PVRC Experience:
K4JA – WL in Multi environment
W3PP – MM in Multi environment
W2CS – WL in S/O environment
N4ZR – MM in S/O and SO2R environment
K3KO – logger implementation in digital environment

Around the Club
Meeting Minutes from the Regions

PVRC/NC East, 8 January 2004
Present: Jim WW4M, Wes K4WES, Rick K7GM, Bert N4CW, Bob K4HA, Guy K2AV, Jim K4QPL, Jeff NX9T, Will WJ9B, Tom N4TL, Jay NT4D
Guest: Keith W4KAZ
Chapter Business -- Jim **WW4M** passed the hat to recoup the $99 expense for one-year renewal for hosting our website (pvrcnc.org) and received $86. Good enough. He vaguely remembers that Pete **AD4L** gave him $20 last fall to cover the cost for the domain name.

Guy **K2AV** drew everyone's attention to recent traffic on the email reflector about a pdf article concerning the potentially fatal risks of using climbing harnesses. Guy also polled those present about preferences for spring/fall biannual meetings of all PVRC members in North Carolina in Burlington (between the Triad and Triangle). He'll get back to us when the date for Spring 2004 is confirmed (options were 2/18 and 3/10). He also affirmed our decision last year to continue to meet during the summer months. Even though the numbers were down, we continued to have meetings June through August and those who showed up enjoyed the opportunity to get together.

Member News -- Guy **K2AV** has fixed his amp and blown it up 3x recently and says you should not run an AL1200 with the case off because it will affect resonances. If you want to know the details, ask Guy and he will tell you exactly what will melt. Bob **K4HA** said "I ain't done a thing" recently. He'll be in the 160 contest with **W2XL** and **K4NYS**. He reported that Alan **K4PB** (down in Florida) has recently bought a new Orion, a new Alpha 87 and a new wife. **N4CW** has been in the 10 and 160m contests (worked from **W0UCE**/multi with **NA4G**), the OK RTTY contest (he discovered you only get points if you work at least 1 OK station), and the RTTY Roundup (did better than last year, using N1MM logger). "I didn't blow anything up! It was wonderful!" Bert plans to operate in NAQP using callsign N4CW at W0UCE using UCE's name (Jack). Wes **K4WES** had no news other than that he had somehow managed to break the FSK on his rig. He suspects a relay (**NX9T** had experienced something similar). Rick **K7GM** has been enjoying being a vagrant op @ NY4A with no QSLing responsibilities. Will **WJ9B** spent CQWW at NY4A ("a real experience"). Operated the 10m, 160m and Stu Perry contests and is looking forward to being at Howie's for the ARRL contests (he enjoyed learning WriteLog, which is the new software at NY4A). Tom **N4TL** has been working on W4ATC (NC State Club)'s TR7 -- it's now making power again but is unstable on the low bands. Jay **NT4D** introduced his friend and neighbor Keith **W4KAZ**. Jay discovered that squirrels had chewed through his rotor cable, but in the process of repairing it experienced major trouble with his crankup tower (it got stuck at the 75-foot level, then bent stuff when it came back down). Keith **W4KAZ** considers himself a little pistol who mostly operates barefoot with wire antennas (he has something up for every band except 160m). He uses the name Andy in contests because it works better than Keith. He has been playing with contests and enjoys experimenting with wire antennas. Jeff **NX9T** did the 10m adn 160m contests and is now having problems with his 1000D (an audio rx relay problem with the audio fading away). Jim **K4QPL** has not been doing much actual operating but instead has been working to finish his new 2-car garage with upstairs shack. He has installed a 30A 240V line for amps just in case a guest op wants to operate >100w at his station. He'll be doing the ARRL DX contest at Howie's and is signed up for a team for NAQP.

Carroll County -- In an unusual twist of events brought on by snow – we had an impromptu gathering at WX3B Saturday night, January 24. The original meeting was cancelled due cold and snowy weather, however several people showed up since cancellation notification was vague! In attendance were **NY3A, AK3Z, N3FX, WX3B** and **N3MNM.**

This was the first time we got to talk with Tony Heatwole, **N3FX**. Tony is from Damascus, MD and runs what he classifies a modest station (he was quite loud in the 160 contest) and is polishing his CW skills. Tony, I hope you'll continue to join our informal gatherings and consider operating at the WX3B Multi/Multis.

Steve, **NY3A** had several exciting announcements. His Force 12 20 meter 3 element Monobander has been received. Steve is planning to replace his aging trap tribanders with two Force 12's – the other one is a 10/15 meter array on a common boom. In addition, Steve has come out of temporary retirement and is enjoying his new job.

John, **AK3Z** is also about to exit his temporary retirement, and he's talking seriously about the 90 foot Rohn tower that may just grow on his property this year if all works out. His plans are to put his KLM KT-34(X)A and a 40 meter beam on that tower. John is confident his neighbors will find the new tower as attractive as he does.

John, **N3MNM** got the computer expert award at WX3B for figuring out how to boot into the Bios, and turn the 'sleep'

mode off on the 75 meter workstation. Prior to this fix, a 10 minute off time would automatically disconnect packet and all network connectivity from the 75 meter position. Thanks, John!   John admitted that he has not been very active on the HF bands but hopes to do something about that soon.

Jim, **WX3B**, was showing off his latest software discovery, echolink, available at http://www.echolink.org. **N4ZR** and **WM3T** just tested echolink with us earlier in the day – and we successfully connected to repeaters throughout the world, and even worked a station in Illinois. Echolink links the internet and repeaters together and is an interesting merger of amateur radio and internet technologies. We're going to experiment with Echolink as a method of conducting meetings in the future.

Thanks to **NY3A** and **AK3Z** for being the gracious hosts while waiting for me to return home to my house – and I hope to have another gathering at **WX3B** when the snow settles down.

Northwest Region -- The NW Region met at the City Buffet in Frederick, MD on 20 January 2004.

In attendance were W4AU, W2YE, KC4ATU, W4RW, W3KHZ, W3EKT, K2PLF, K4VV, NC4S, W6NRJ, W2CDO, K3TZV, K3WC, NE3H, N3FX, N3VOP, K8OQL, N4MM, K3ZO, W3ZZ, N3HBX and W3LL.

As usual, lots of interesting informal discussion both before and after the meeting.

W3LL, Bud, reported that PVRC Central did a super job hosting the Holiday Dinner - including awards presentation and guest speaker W3KD Chris Imlay's informativeBPL talk. The proposed Mid Atlantic QSO Party is scheduled for 8/9 May 1600 - 2400Z.

Echolink internet roundtable about Sprint CW planning will be hosted by Pete, N4ZR at 9 PM EST on Thursday, 29 Jan. Software is available at www.echolink.org.

NC4S, Gary sponsored by Jack, K4VV was unanimously voted into PVRC. Congratulations Gary!

John, N4MM covered the ARRL Restructuring II proposal: A three class structure - Extra, General and Novice. Morse code required for Extra class only; old Novices merged into new Novice class; Tech, Tech + and General merged into new General class; Advanced and Extra merged into new Extra class. Includes revised frequency segments for each class. IARU society membership is no longer a requirement for DXCC entities. Only UN membership or ITU prefix is required. Many contesting rule changes coming including a VUCC Challenge program proposal similar to the DXCC Challenge. Extensive BPL testing is underway. Results will go to the Commission. John was presented with a 50 year ARRL membership plaque at the board meeting.

From around the table:
W4AU, John was in ARRL 10M contest in CW mode. Conditions were good. Also, ARRL CW and NAQP CW (736Q/239M). He will be in the 160M contest. **W2YE**, Dick was in the RTTY Roundup (872Q/106M) good for PVRC 2nd place, behind **K3MM**. His 70' Glenn Martin tower is now up. Ground rods, guys and 5 band quad are next. **KC4ATU**, Bill was in ARRL 10M contest (QRP Phone). He will be in the ARRL VHF SS contest on 6M. **W4RW**, Floyd's last contest was Field Day. He's been licensed 67 years. **W3KHZ**, Art's downed antennas have kept him out of contests. Dipoles are going up as 80M and 40M inverted Vee's. Sloper for 160M is being moved to a new direction. Santa brought a new Yeasu VX2R. **W3EKT**, Ed's eyesight is slowly improving. He was in 160M contest (~200Q's). He has about 900 confirmed for the DXCC Challenge. Using a 40' high inv L for 160, he worked Russia and Australia. In the 70's, Ed and Mike, between them, were the two top teletype ops in the world. **K2PLF**, Marty was in CQWW 160 CW LP (~200Q); was in CA and missed ARRL 10M; will be in CQWW 160M CW and will be at **N4RV** for ARRL DX CW contest. In addition to his Quadra Amp, the FT1000MP was sent to Yaesu for repair. Yaesu reported no problems with either and both were returned. Marty found the MP still had the on/off button problem but it's now intermittent. When unpacking the Quadra, he found the cables to the PS missing. Chip located the missing cables and are now in FEDEX transit. Marty installed DX4WIN and now has 2500 QSO's to enter for DXCC Challenge submission. His tower is still on the ground.

K4VV, Jack said that he will revisit the discussions from last year and pursue a review of the PVRC By-laws to consider changes in decision making, membership requirements, and meeting formats. Today, the Central meeting is the forum for club decisions. Although we often have inputs from others, this is a narrow process. We are now a very dispersed organization, with many vibrant centers of activity, so changes are needed to embrace the entire PVRC in the decision making process. Secondly, there has been interest in adjusting the membership requirements to make it easier for a newcomer

to join PVRC, although change in the "once a member, always a member" entitlement will need to be made. Third, there have been interesting suggestions for various additional methods for meetings to expand the level of dialogue within the club, including on-the-air and internet sessions. Jack invited your input/comments regarding these three topics. Jack said that dipoles for 40M, 80M and 160M and a tribander are now in the air. He was in the 10M contest with Mark, AC5RR in multi-single category. Mark came back to work NAQP in both CW and Phone portions at Jack's station. Jack will be at W3SO for the ARRL VHF contest. Loudoun County zoning has approved one tower but the multiple tower permit is still pending. **NC4S,** Gary was in ARRL 10M (300+Q) with an additional 10M beam at 30' pointing south. He also was in CQWW (~300Q) and NAQP. A 2 EL 40M is this summer's project. **W6NRJ**, Jim was in CQWW contest using a paper log to avoid computer head crashes but misplaced the log after 10 pages. Jim is looking for a Caribbean ham shack rental location for mid March. **N3OC** and **WX3B** were suggested as contacts. Also **W3ARS** is going to St. Martin. Jim suggested organizing an antenna/tower self help pool. **W2CDO**, Peter was in ARRL 10M (180Q) using a vertical and low power. He suggested submitting logs no matter how few contacts were made. Peter is leaving for PR Saturday - without a rig. **K3TZF**, Steve - not much contesting due to XYL's surgery. He noted 160M is sounding good this season compared to the last three. **K3WC**, Dusty was first NA OP to win a WW RTTY contest - the 1973 Alexander Volta WW contest - using a Model 15 with TTY tape. Dusty's tower is still on the ground covered with snow. **NE3H**, Joe with the help of BV4FH may have a BV license for his February trip to Taiwan. He worked the RTTY Roundup (~700Q) and NAQP (~200Q's). **N3FX**, Tony was in ARRL SS SSB. He likes the digital contests. **N3VOP**, Mike may be on both the VHF and 160M contests this weekend. **K8OQL**, Jerry's been everywhere but home so not much contesting. He will be on the 160M contest. **N4MM**, John was in both ARRL 10M (~600Q) and 160M (~200Q) contests. John's new project is shunt feeding his tower - gamma match, shunt, and radials. He will be on both 160M and VHF contests. **K3ZO**, Fred's FT-1000MP power supply has been repaired in time for the 10M contest. Fred noted not much long distance DX in this years contest - 1900Q's vs 2600Q's last year. He's now doing 40M CW greyline DXing using a 3 EL beam at 94'. Asia is open each morning and sometimes in the afternoon. Fed will be in both VHF, 160M and REF CW contests this weekend.
W3ZZ, Gene reports a June VHF contest with bands limited between 6M and either 432 or 1296 is likely. ARRL will likely return to the old rover rules for VHF contests. Contacts which are in your grid or touch your grid may be worth 2 points. If it doesn't touch your grid it's 3 points. After working a rover on each band you get 1 point when he changes bands. The point structure is not yet clear. The purpose is to attract the >100K Icom 706 and FT100 type rig owners.
N3HBX, John was in the 10M contest making 90 percent domestic contacts. He'll be in the VHF contest this weekend.
KD4D has been operating John's station and reports Mark was 7th worldwide and 3rd in US/Canada in WAE contest.
W3LL, Bud was in both the 10M (~300Q) and the NAQP (~400Q) contests. Bud and family will be on Kauai the first half of February - no radio.

The meeting adjourned at 8:15PM and reverted to informal discussions.
The next NW Region meeting is Tuesday, 17 February 2004.

5M Scores
By Bob Dannals, W2GG

CQWW CW
Single Op - Unassisted

Call	Power/ Band	QSOs	Zones	Ctrys	Score
K3ZO	C	3178	147	472	5,676,230
W4RX	C	4317	139	405	2,348,448
N4YDU	B	1545	116	403	2,233,776
W3EF	B	1587	109	369	2,124,232
K4ZW	C	1233	109	279	1,383,996
N3UM	C	1189	101	306	1,380,951
W4RQ	C	1053	120	365	1,324,050
W4YE	C	1018	101	344	1,277,150
W0YR	C	1040	95	290	1,129,590
K4FPF	B	893	95	340	1,103,160
K4EU	B	889	110	333	1,102,627
K2UOP	C	799	101	308	933,747
KT3Y	C/40	1974	33	113	834,000
W3IUU	B	###	###	###	827,820
N3JT	C	700	102	308	805,650
N3ND	C	708	103	299	767,418
W4ZV	C/10	1593	34	122	707,148
K3WA	B	651	87	295	704,408
W2CDO	B	740	83	257	593,300
K7CMZ	B	562	88	250	527,618
WF3J	C	544	##	###	510,948
N4MM	C	421	96	238	400,800
KI3O	B	468	76	220	385,096
N4MO	B/15	686	30	110	275,000
K1EFI	B	415	57	174	271,194
WK3H	B	358	71	189	259,740
W9GE	C	###	##	###	243,516
N4JED	B	326	65	170	205,625
N8II	C/40	593	28	89	197,613
NW4V	B	244	69	162	153,846
AA4KD	B	260	##	###	148,780
K4HA	B	217	47	141	119,568
W3XG	B	212	53	132	110,815
KC4D	C	216	65	124	106,407
N3XL	B	215	51	112	92,095
W4ZYT	C/20	250	32	95	90,932
W3CB	B	182	46	105	76,406
W3GN	C	122	35	78	37,516
K4FTO	B	93	30	52	20,090
K3DNE	B	59	25	36	9,821
K4WES	B	##	##	##	6,996
KC9LC	B	21	18	18	1,980

Single Op - Assisted

Call	Power/ Band	QSOs	Zones	Ctrys	Score
W4MYA	C	1630	156	516	3,069,696
N3AM	C	1474	133	447	2,433,100
W3EF	B	1587	109	369	2,124,232
K3KO	C	1150	141	496	2,089,360
W3HVQ	C	887	127	418	1,358,140
K3SV	C	940	110	402	1,345,536
W3YY	C	686	114	323	845,595
N4ZR	C	837	80	241	777,141
KE4GY	B	674	84	255	651,558
K3SX	C	###	##	###	444,780
W4HJ	C	387	92	232	355,428
NB3O	C	393	##	###	352,188
K3PD	C	357	90	231	315,864
WB4MSG	C	367	76	187	274,572
W3OU	C	185	70	142	110,028
WB4DNL	B	177	69	130	89,749
W3LJ	C	150	53	124	72,216
W4DR	C	65	24	43	8,911

Multi-Single

Call	Power/ Band	QSOs	Zones	Ctrys	Score
W3GG	C	1932	144	625	3,441,875

Multi-2

Call	Power/ Band	QSOs	Zones	Ctrys	Score
K4JA	C	6221	186	643	14,808,427
N4RV	C	4296	167	586	9,258,888
K3DI	C	1721	147	498	3,101,805
W8ZA	C	1685	146	490	3,011,460

Multi-Multi

Call	Power/ Band	QSOs	Zones	Ctrys	Score
W3LPL	C	8637	198	702	21,790,000
K7GM	C	7479	176	629	16,810,815

DXpedition

Call	Power/ Band	QSOs	Zones	Ctrys	Score
HC8N	C	####	###	###	47,150,000
(PVRC	portion	=	1/10	4,715,000	

CW	Logs: 67
CW	Score: 123,042,235
SSB	Logs: 67
SSB	Score: 92,473,114
Combined:	134
Total	Score: 215,515,349

Operators (non-PVRC):

HC8N: AA4NC plus 9 non-PVRC
K3DI: W4EE K2YWE K3DI
K4JA: K4JA K4MA K4VV K7SV NY3A W3BP W4TNX
K7GM: K2AV K7GM N4AF W2CS WJ9B at N4AF
N4RV: K2PLF KT4W WR3Z N4RV
W3GG: W3GG WD3I
W3LPL: W3LPL K1HTV ND3F K3KU AI3M K3MM N3OC
K3RA K3RV KD4D K4ZA
W8ZA: AA5RR K8OQL W8ZA
- missing data

ARRL 10 Meter

Call	QSOs	States	DX	Total
Single Op High Power - Mixed				
K3ZO	1969	223	##	1,297,414
N3OC	1463	112	103	947,720
K2UOP	1341	109	90	811,522
N4CW	1004	181	##	655,582
WB4MSG	881	175	##	476,000
W0YR	704	97	59	318,552
N4MM	482	169	##	244,712
N4ZR	330	97	##	123,190
W8ZA	153	49	25	34,928
W3OU	104	60	##	15,360
W3BP	89	31	##	9,362
Single Op Low Power - Mixed				
N8II	937	197	##	557,904
K1HTV	556	157	##	263,760
KI3O	414	135	##	173,340

Call	QSOs			Score
K3DSP	411	82	50	160,248
W3DQ	325	70	##	128,570
N4YDU	336	74	46	125,520
NW4V	319	116	##	103,472
WK3H	303	66	36	96,288
N4JED	279	63	36	79,794
K8OQL	160	##	##	41,272
W2GG	179	45	28	41,245
K3YDX	168	39	30	35,052
W9GE	###	##	##	34,200
W4EE	135	37	14	23,154
N3XL	107	58	##	21,460
K4FTO	52	17	11	5,656
W2DZO	50	22	##	4,048

Single Op QRP - Mixed

Call	QSOs			Score
K3TW	293	62	50	105,728

Single Op High Power - Phone

Call	QSOs			Score
N3HBX	1393	61	58	331,534
N3ME	1235	114	##	281,580
NX9T	803	111	##	178,266
KU4FP	119	58	##	13,804

Single Op Low Power - Phone

Call	QSOs			Score
W3ARS	302	50	45	57,380
W3LL	282	79	##	44,556
K4TMC	244	46	41	42,456
KE4MIL	129	28	27	14,190
N3VOP	104	21	24	9,360
KG4ECI	32	19	##	1,216
KC9LC	19	19	##	722
K1SO	25	12	##	600
WA3G	17	14	##	476

Single Op High Power - CW

Call	QSOs			Score
KD4D	1540	123	##	759,648
K3FT	992	109	##	433,822
N3UM	875	55	43	343,784
N4AF	740	58	56	332,880
K4MA	509	88	##	179,168
WF3J	465	##	##	178,176
W4YE	227	77	##	70,224
W2CDO	181	49	20	49,956

Single Op Low Power - CW

Call	QSOs			Score
NY3A	745	102	##	305,184
WJ9B	540	54	31	183,600
W3CB	448	53	26	141,884
N4MO	200	65	##	52,000
W4AU	193	43	17	46,320
K3SV	172	41	##	28,208
AA4KD	105	38	##	15,960
K4QPL	92	26	5	11,408

Multi-One

Call	QSOs			Score
KM4M	2139	258	##	1,658,424
K1SE	1559	256	##	1,245,184
W4MYA	1100	209	##	749,056
N3II	828	209	##	560,538
W4WS	1014	102	94	520,576
K4VV	938	181	##	507,162
W4HZ	905	210	##	470,820
K3KO	630	172	##	405,232

Call	QSOs			Score
WX3B	870	93	##	392,832
W3UL	461	140	##	177,800
K3NCO	381	152	##	174,254
N6ZO	795	###	##	133,960
K2YWE	317	74	51	129,250
N4XD	481	110	##	114,400
KO4MR	148	54	61	34,040
W3HVQ	115	33	26	20,886
4U1WB	62	25	##	3,300

Total logs 75
Score: 18,341,129

Note: Multi-One not listed below were SO Assisted
Multiop operators (non-PVRC):
4U1WB: AJ3M
K1SE: K4ZW K4EU K1SE at K4ZW
K3FT: at K3DI QTH
K3NCO: W3LJ W3IDT (K3NCO)
K4VV: AC5RR K4VV
KD4D: at W3LPL QTH
KM4M: W3BP K9GY at K4JA
N3ME: at W3PP
W4HZ: W4HZ W4TNX
W4WS: KG4NEP W2DZO
WX3B: WX3B W3ARS
- not reported separately

ARRL 160

Call	QSOs	Sections	DX	Score

Single Op High Power:

Call	QSOs	Sections	DX	Score
W4MYA	1303	75	32	318,646
KT3Y	907	72	31	219,900
K4ZW	916	72	30	212,874
W3BP	964	70	17	178,437
N4XD	861	75	20	172,425
K2UOP	913	68	15	156,787
N8II	777	70	13	133,464
NY3A	711	56	16	108,000
W3SO	610	67	15	107,666
N3ND	637	61	15	100,092
NY4A	606	76	0	97,432
K3SV	607	58	15	92,345
K3ZO	439	55	23	78,078
K8OQL	537	58	6	70,080
WF3J	527	##	#	66,650
W4ZV	345	65	16	60,507
K3TW	456	52	3	50,655
WX3B	342	56	6	43,542
N4MM	270	72	0	41,688
K4MA	340	47	4	35,445
N3AM	290	49	4	31,376
K2PLF	301	49	1	30,250
W3EKT	200	54	10	28,896
NX9T	236	55	4	28,556
W2YE	209	47	6	23,267
W8ZA	208	48	3	21,675
W4HJ	134	41	2	11,782
NT4D	125	42	1	10,879

Single Op Low Power:

Call	QSOs	Sections	DX	Score
K1HTV	900	70	18	166,320
WJ9B	682	65	7	99,936

W4YE	422	63	3	56,496
W3EF	###	##	#	55,428
K4EU	457	51	3	50,004
N3UM	356	52	7	43,247
K3SWZ	307	54	3	35,511
W9GE	###	##	#	30,834
WB4MSG	270	49	0	26,460
N4YDU	203	44	5	20,629
K3DSP	188	47	0	17,672
W3DQ	155	42	0	13,020
W4AU	144	40	0	11,520
N4ZR	159	35	2	11,100
W2GG	120	39	0	9,360
KI3O	104	35	0	7,280

Multi-Op (single op plus packet unless listed below):

W0UCE	1067	72	20	205,712
K3KO	650	83	##	108,896
K3DI	619	61	12	93,221
N6ZO	355	54	6	51,612
W3HVQ	312	58	14	48,168
W4NF	346	49	5	38,178

Logs: 50
Club Score 3,731,998
Operators (non-PVRC):
NY4A: N4AF
W0UCE: N4CW NA4G W0UCE
W3SO: W3YOZ
- missing data

WAE RTTY

Call	QSOs	QTCs	Mults	Score
Single	Op	-	High	Power
W0YR	695	710	158	498,756

W3GG	204	120	58	51,192
K3DI	110	0	63	18,150
N4CW	98	0	142	13,774

RTTY Logs: 4
RTTY Score: 581,872

WAE CW Logs: 18
CW Score 7,361,402

WAE SSB Logs: 15
SSB Score: 6,611,626

Total WAE Logs: 37
Total WAE Score: 14,554,900

PVRC OFFICERS:

President	K4VV	Jack Hammett	540-882-3188	k4vv@aol.com
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VP-South	K2AV	Guy Olinger	919-362-9461	k2av@contesting.com
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Treasurer	WR3L	Dave Baugher	410-DX1-WR3L	dave@wr3l.net
Trustees:	K3MM KE3Q N3RR N4ZR W4MYA W4ZYT N4AF K4IQ ND3A W3PP N1KC			

PVRC Charter Members (* =SK) W3GRF*, W4AAV*, W4KFC*, N0FFZ*, W4LUE*, W7YS, VP2VI/W0DX*, W3IKN, W4KFT

PVRC Reflector administered by N4AF <http://mailman.qth.net/mailman/listinfo/pvrc>, postings to <pvrc@mailman.qth.net> (Members only, if your call-sign is not part of your email address, send an email to n4af@qsl.net to subscribe.)

PVRC Dues PVRC has no annual dues. Donations are gratefully accepted by the Treasurer, Dave Baugher WR3L, 615 Rockaway Beach Ave., Baltimore MD 21221. Please make your checks payable to PVRC.

Autocall Column Editor is K3DI 410-757-6706

PVDXSN Packet Network

W3LPL	Glenwood MD	145.590, 441.250	w3lpl.net	W3IP	Crownsville MD	145.570	
WR3L	Baltimore MD	145.610, 440.950	wr3l.net	N3RR	Rockville MD	145.510, 441.325	
K3SKE	Frederick MD	144.930, 441.125		W3YOZ	West River MD	144.910	
W3TOM	Acokeek MD	145.770		N1WR	Lusby MD	145.690	
N4OHE	Mt. Weather VA	145.710, 446.025		NE3H*	Harrisburg PA	144.970	
W3BD	S. Mountain PA	145.630		N4SR*	Woodbridge VA	145.630	
W4XP	Bull Run Mtn. VA	144.990		K4JA*	Callao VA	145.090	k4ja.c.crosslink.net
				W4ML	Goochland, VA	145.09	dxc.w4ml.net

Most of the system is sponsored by the Potomac Valley DX Spotting Network. Nodes with * are independently funded by each SYSOP,. The W4ML node is funded by CVCC.

PVRC Meetings

CENTRAL: The Central Meeting is always the second Monday (except June, July, and August) at 7:30 pm. The central meeting generally alternates between MD and VA locations. A pre-meeting dinner is usually held between 5:00 and 6:30 pm. Check via 147.000- repeater. VA LOCATION: The Patrick Henry (Public) Library, Route 123, Vienna, VA. MD LOCATION: Church of the Nativity (Episcopal), Route 5, Temple Hills, MD. Pre-MD meeting dinner at Topoleno's Restaurant about 6:00 or 6:30 pm.
NORTHWEST: Chair: Bud Governale, W3LL, 410-666-9189. W3LL@arrl.net. Meets monthly the 3rd Tuesday. Informal dinner about 6pm; meeting at 7pm at the City Buffet, 1306 W Partick St, Frederick, MD 301-360-9666. Rear of shopping center, behind Mountain View Diner.
NORTH CAROLINA -- EAST: Chair: Guy Olinger, K2AV, k2av@contesting.com; Sec: Jim Price WW4M. POC's are K2AV and WW4M (h:919-362-4635, w:919-460-2991). PVRC/NC meets at 6 pm the first Thurs of each month, plus an additional meeting in April at the Raleigh Hamfest. For details see http://pvrcnc.org
NORTH CAROLINA -- WEST (TRIAD): Meets the 4th Monday of the month at 7:00 PM at Cobalt's Elemental Eats and Drinks on Deacon Blvd. in Winston Salem. Ragchew at 6:30. Directions are available upon request. The chairman for the new PVRC/NC West chapter is Henry Heidtmann W2DZO, henry@summitschool.com and the secretary is Robert Whitaker KG4NEP, kg4nep@yahoo.com.
TIDEWATER COLONY OF PVRC: This group now meets in conjunction with the Virginia DX Century Club at Ryan's Steak House, which is on Battlefield Blvd in Chesapeake, at the Battlefield Blvd South (VA 168) exit off I-64. The meeting is still the third Tuesday of every month. We gather for dinner around 1815-1830, with the meeting around 1915-1930. Contact W4ZYT at 757-457- 5181 or w4zyt@exis.net for additional info.
SOUTHWEST VA: Coordinator: David Jones, N4JED, Vinton, VA 540-890-2034, N4JED@AOL.COM. Meetings begin at 6 pm at the Roanoker Restaurant, Roanoke, Virginia in a private room (ask at the desk if you have not joined us before).
BWI: Weekly breakfast Wed at 7:00 AM at Basil's Deli Port on Elkrdige Landing Rd 1/4 mile South of Winterson Road 410-850-4333. Director: Ike Lawton, W3IKE, 410-263-2830. Sec: Howard Leake, W6AXX, 410-465-7008, w6axx1@starpower.net
OVER-THE-HILL LUNCH BUNCH (VA DC MD): Meetings are held monthly at three locations: Falls Church VA (Parkview Marriot), Oxon Hill MD, and Beltsville MD. Meetings are announced by E-mail or by telephone. All members and non-members interested in membership are welcome. For information contact Ben Shaver, AA4XU, 703-534-4740 or Bill Leavitt, W3AZ, 301-292-5797.
PENNSYLVANIA: Steve Cutshall, K3TZV, k3tzv@paonline.com, 717-763-0462.
RAPPAHANNOCK: Steve Bookout, NR4M (ex-NJ4F) NJ4F@erols.com. Also, Larry Schimelpfenig, K7SV, k7sv@va.prestige.net
OCCOQUAN: Jack O'Mara W4NF, H:703-791-3302 W:703-739-7636 w4nf@comcast.net and Cliff Deel W4CE, w4ce@aol.com 703-491-0841
CENTRAL VA: Pres: Roy Davis, WK4Y rdd2@verizon.net (804-741-9315). Sec: K4KML Treas: W4NM   Meetings are held on the second Tuesday of the month at 7:00 PM at the Henrico Doctor's Hospital, 7700 Paraham Rd., Richmond, VA. To the right of the main entrance is a second entrance. Go through that door, turn left through that door and the cafeteria is the first room on the right. There will be some who meet at Nick's Roman Terrace, Westlands Shop-

ping Center, West Broad Street starting at 5:50 PM for dinner before the meeting. Talk-in available on 145.430

SOUTHERN MD: Chair: Barry Shapiro, WR3Z. H:301-862-2466 barry.shapiro@navy.mil Meetings held at the home of N1WR.

EASTERN-SHORE (DEL-MAR-VA): Dallas Carter, W3PP 302-875-0550 ludal@dmv.com

SHENANDOAH: Bill Hinkle KV3R kb3aug@juno.com 304-567-3138

CARROLL COUNTY: Jim Nitzberg, WX3B.410-374-9233 nitz@selectsa.com

LAUREL: Pud Reaver W3YD preaver@earthlink.net Laurel Region meets concurrently with the Laurel Amateur Radio club at the first LARC meeting of each quarter.

NORTHEAST: WR3L Dave Baugher 410-DX1-WR3L dave@wr3l.net

ANNAPOLIS: Dick Wilder, K3DI 410-757-6706