Arlington RACES Supports 2011 MCM

Gerry Greenwood N3EVT, ARPSC Member/RACES Operator

The 36th Annual Marine Corps Marathon got underway precisely at 0800 on Sunday, October 30, 2011. However, many hours before that, three intrepid Arlington RACES members were on station and prepared to fulfill their role in support of Arlington County Fire/EMS. Gerry Greenwood N3EVT, Peter Eitingon KB2ERV, and Kenneth "Doc" Strickland KG4YIU were at Fire Station #2 at O-Dark-30 manning equipment that monitored the race as it moved through Arlington, the District of Columbia, and back again to the finish line at the Iwo Jima Memorial.

There were ham radio operators stationed about every 1/2 mile along the 26.2 mile course, the many aid stations, and at the main medical facility at the race finish line. The role of our RACES colleagues was to relay requests for ambulance transport from the racecourse to the Arlington Fire/EMS Command vehicle, which would then dispatch an ambulance. It was as if there was a separate independent 911 system in place that Sunday just for the race. It was a good exercise of preparation, equipment, endurance, and operating procedures for our RACES group.

Listening to two separate race nets, the main medical net, Arlington Fire/EMS channels, and other logistical nets was accomplished professionally and with dispatch. You'll recall that the day before the race the local area experienced snow and on race morning there was a thin coating of ice on some streets and most vehicles. As a result of the steep drop in the ambient temperature the threat of heat stroke and heat exhaustion on the part of the runners was reduced. Navy Medical informed us that, historically, their patient load was directly related to the outside temperature. This year's patient load was light permitting treatment on the racecourse. So the workload was light for the Arlington RACES group, but they were on station, ready to deal with whatever presented itself.

RACES training, and the exercise of that training, provides a service to Arlington County, and is a rewarding element of the ham radio hobby. And on this day it scored a great Marine Corps Marathon T-Shirt, without having to run 26.2 miles.
Don Smith KI4FON Bids Farewell

I have enjoyed serving as club president the past year and welcome Gerry N3EVT as he takes over.

2011 was a good year for APRSC. There were many activities to get involved in and most of them were fun. Make sure you put the following on your calendar for 2012: Frostfest is February 4th in Richmond. This is a Saturday so I’m sure we’ll see a lot of ARPSC members participating who normally can’t make the Sunday hamfests. Just a week later on Sunday, February 26, 2012, the 36th annual Winterfest at the NOVA Campus on Route 236.

The next event that several members have participated in is the Virginia QSO Party. This takes place the third full weekend in March. For 2012, the operating times for the Party have changed. The new hours are Saturday, 17 March 1400 UTC - Sunday, 18 March 0200 UTC and Sunday, 18 March 1200 UTC - 2400 UTC. For Virginians this is Saturday 10 AM - 10 PM and Sunday 8 AM - 8 PM Virginia local time. If you do not have a fixed station consider operating mobile or portable. Those of us with fixed stations always enjoy company, so if the invitation is given accept it. The Virginia QSO Party is a lot of fun plus a great operating experience.

June will be here before you know it and time for Field Day. Always a great time. One last reminder if you haven’t paid your dues now is the time to send in your check.

See you further down the log.

73, Don KI4FON

Gerry Greenwood N3EVT Ready for 2012

Some candidates for President stump through Iowa, New Hampshire, and South Carolina. Some just volunteer. I'm the latter. I am delighted to be part of a club with a membership that is both focused on public service and yet interested in all aspects of our hobby.

I grew up in Ohio and as a youngster and marveled listening to distant Broadcast Band stations appear as the sun went down. While in middle school I assembled a Heathkit AR-3 receiver and started to listen to short wave. 40 meters was full of hams operating either CW or AM (no SSB yet).

I remember one ham in Scranton, PA with an echo chamber - distinctive. Back then real radios glowed in the dark. 50 years later we have modes unimaginable back then. A lot has changed. But what remains constant is the ham community's commitment to public service.

I look forward to working with each of you this coming year as we continue to support our community, Arlington County, and the world. I'll see you on the radio.

73, Gerry N3EVT
Move Up to a Go-Case

Since I can no longer manage my old "backpack" go-kit, a DXpedition Pack w/ Radio Box from PowerPort, www.powerportstore.com, I've transferred everything to cases.

My updated EmComm gear was on standby for hurricane Irene. The gear includes a PowerGate, which permits auto switching from solar/commercial power to rechargeable battery packs, a battery booster, and a 27-watt fold-up solar panel.

The radio case includes a VHF/UHF all mode transceiver, a VHF/UHF HT, audio filtering, PSK/RTTY interface, Vibroplex QRP Morse code keyer, dummy load, 45 Watt HF amplifier, and 100 Watt two-meter amplifier. The antenna system includes a portable dipole, Buddipole, and mast. It’s matched by an LDG Z-817H higher powered tuner for the Yaesu FT-817 with Tokyo Hi Power amplifier.

To top it off, I snagged two 45 feet military masts through e-bay after an alert posted on the ARPSC listserv. Laminated RACES guide, rig manuals, regional maps, amateur and GMRS licenses, ID holder and paper ARPSC Member Guide are also included in the case.

Overkill? Absolutely! But it’s been fun assembling most of this gear from bits and pieces over the past few years, some of the items purchased from estate sales.

If you’re interested in learning more about the DXpedition Backpack, send me an e-mail. My address is my call sign at wc3q.us.
X14 - A Classic Antenna

The HyGain Explorer-14 has been around for a relatively long time. I think more than 20yrs. This is a tri-band antenna designed to cover 10-20m out of the box; there is a 30/40m add-on kit for the driven element that will make a quad band antenna. I’ve just recently constructed the X14/7 with plans to install it Spring 2012. With the add-on kit the driven element is a bit heavy and common sense dictates you install an element support truss cable (non-conduction polyethylene, ham rope, or Phillystran will do the job). I had some Phillystran left over from the 40m Yagi project so that is what I used. There is some old-school technology in this Yagi as well… stuffing the ends of some of the elements with rope to damp vibrations that may cause metal fatigue and subsequent element failure.

These days folks want to ensure conductivity between element connections and its common practice to use OX-GARD applied to the elements before inserting telescoping elements. There is a problem that develops when using OX-GARD. The lubricant used in OX-GARD makes it difficult to secure the elements with the stainless hose clamps provided. The stainless clamps cannot impose enough grab to ensure that the elements will not slip apart over time; if one tries to tighten the hose clamps too much those clamps will gall or fail. I like the idea of using OX-GARD so I pinned the telescopic elements with a small stainless steel sheet-metal screw. Some operators will actually bolt through the elements using screws, lock washers and nuts. Be sure your measurements are correct before installing the set-screws. Also be sure the trap drain holes are facing down; another common mistake easily made by first time builders.

Anytime you use a 3 element Yagi you will have a great experience over a dipole antenna. The forward gain can be anywhere from 6-8db. That gain works in both directions so your radio will hear signals better and your transmit signal will be received stronger (double the radiated power for ever 3db of antenna gain, so 100 Watts fed to this antenna will have an effective radiation power of over 400 Watts on average). That all sounds great but I think the real benefit of a Yagi antenna is the front-to-side and front-to-back signal attenuation. On a crowed band its great to be able to focus where you listen and attenuate 330 degrees in all other directions by as much as 20-30db. Think about that… the unwanted signal is now reduced such that a 1000 Watt signal has the strength of a 100 Watt signal. An irritating near by signal of average signal strength can be nulled right into the background noise with just a tweak of the rotator. Very Cool!

I’ve read the reviews of the Explorer-14 on a couple of web sites and the antenna appears to be a keeper. The reviewers all rate the antenna 4.5 out of 5.0 or higher. The ARPSC used this EX14 for its first Field Day at Minor Hill and it performed well even at the low height of 33ft.

I’m looking forward to getting this antenna up in the air. It came with a HyGain BN86 balun which I’m replacing with a homebrew air-core coaxial balun designed to choke RF down to 40 meters.
Homebrew Antenna Tuner for 160  
Bruce Ferratt K4BOF, ARPSC Member

During my first few years after becoming an amateur radio operator, there was a group of cordial hams that I would listen to on 40m. Once the band conditions at night deteriorated on 40m, their group would move on up to the Top Band for night-owling. I always wanted to talk to these guys but I had no antenna to use. The 160m band has always been known as a friendly, 'gentleman-like' band to work on. By erecting a simple L-tuner network, I was able to join my friends on 160m.

This is my current homebrew 160m ATU at the base of my Rohn 25G tower. A weatherproof Rubbermaid container that was left under my deck by the previous homeowners to protect the now enclosed gear was used. Inside the container is a 12-pound weight to hold the antenna tuner components down during foul weather and strong winds. The container works very well and is cheap! It has been sitting outside now for 8 years without any cracking or UV ray breakdown.

I secured a heavy-duty inductor coil that was left over from an AM station project. The Jennings Ceramic Variable Capacitor is rated at 5kV with a plastic adjustable toggle and plexi-glass mounting plate screwed to the bottom. Both units were purchased at the Manassas Hamfest a few years ago. The copper strapping, from Georgia Copper (clearance sale), was used for good RF connections between the components. I soldered the copper strapping to the coil at 18 turns. I then used 175' of poly stealth #13 wire (from RF Connection), running the wire parallel to my tower (away 5ft) to a height of approximately 60 feet then inverted the rest down the sloping part of my property to a corner and dog-legging the rest to another corner.

When everything was secured and the antenna wire was positioned correctly to fit my land plot, out came my trusty Kenwood TS-2000 and Astron power supply for testing. Starting at 1900 KHz and adjusting the Jennings capacitor for lowest SWR (tuning out the reactive capacitance) in the 160m band while working up and down the band to gave me the most even of readings. At first I tuned at 5W then 25W and finally at 100W to get SWR readouts. Once I recorded the readings and adjusted the reactance to provide ample band coverage with lowest SWR, I finally pruned and secured all the copper strapping for the shortest runs possible.

The chart at right shows the SWR readings with just the TS-2000 connected directly to the antenna tuner network.

<table>
<thead>
<tr>
<th>Freq.</th>
<th>SWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>1.7:1</td>
</tr>
<tr>
<td>1825</td>
<td>1.3:1</td>
</tr>
<tr>
<td>1850</td>
<td>1.2:1</td>
</tr>
<tr>
<td>1875</td>
<td>1.3:1</td>
</tr>
<tr>
<td>1900</td>
<td>1.3:1</td>
</tr>
<tr>
<td>1925</td>
<td>1.3:1</td>
</tr>
<tr>
<td>1950</td>
<td>1.4:1</td>
</tr>
<tr>
<td>1975</td>
<td>1.5:1</td>
</tr>
<tr>
<td>2000</td>
<td>1.6:1</td>
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</tbody>
</table>

Measurements taken using a Web:600 meter SWR bridge.
This is a very nice SWR (standing wave ratio) spread across the CW and SSB portions of the band and are acceptable readings for amplifier usage, which is a must on 160m with noise floors and static crashes reaching into S7-S9 levels. Remember, this antenna is a vertical and with ground losses, the bandwidth is fairly wide as noted in Fig. 1. This particular situation is a ‘Catch-22’ in some respects because although the SWR readings are low across the entire band, a lot of the RF power is driven into the dirt! At any rate, this vertical is still effective and practical for many urban dwellers on small lots.

There are many 160m antenna designs out there, but this antenna tuner match with 175' of wire makes this an acceptable vertical antenna that receives and transmits decent signal reports into Wisconsin, Ohio, Michigan, New York and Chicago of 5/9/9 +10 without using amplification. A good resource for this particular project was a handbook I used by Dave Ingram, K4TWJ entitled, Easy Wire Antenna Handbook. It was very satisfying to know that an above average 160m antenna is ready for use during our upcoming winter months in Virginia when the 160m band is the most active.

From the ARPSC Board of Directors

January 2012 marks seven years of continuous uninterrupted service from the W4AVA repeater system, except for scheduled maintenance. Thank you for your continued support through club dues and to the dedicated members of our Repeater Committee.

Dave Jordan WA3GIN
Ham Radio Fun in St. Croix

John Duggan WC3Q, ARPSC Member

One of my favorite ham pastimes is leisurely chasing DX. I've added many new DXCC entities and have achieved DXCC Phone and WAS Mixed awards in recent weeks. As my partner and I planned a trip to St. Croix, U.S. Virgin Islands, this seemed like a fine opportunity to blend a love for DX, sunshine and exercise into a practical experience that would test the strengths and weaknesses of my portable gear.

There are ample articles online for suitcase DXpeditions, DXpeditions Under-100 pounds and Buddi-Adventures. Personally, I wanted function, fun and low maintenance to be the foundation of my DXpedition. A trip to St. Croix for the last week of 2011 was scheduled and we had plans to visit Buck Island Reef National Monument to commemorate the 50th Anniversary of President Kennedy making this a protected area under the care of the federal government. This is a recipe for DX and I wasn't going to let it slip away!

The required gear was in-hand, although the purpose and packaging needed to be retooled for air travel and "vacation ops." All electronic gear was tagged, tested and stowed in interchangeable cases that could be swapped out and attached to special fanny packs (essential, since I cannot support too much weight for more than brief periods of time). The 45 Watt Tokyo Hy-Power Model HL-45B amplifier failed during the pre-departure test, so I decided to leave it behind and run only 5 Watts output power using a Yaesu FT-817 transceiver.

In lieu of extra power, I swapped the amp for a HEX-PAC multi-band portable beam made by Traffie Technology of Ashby, Massachusetts, http://www.hexbeam.com. Using the HEX-PAC, along with a feather-weight power supply, became a great learning experience. Dipoles and other simple antennas can always get you on air, but it's critical to have a proven antenna with proven performance and a light-weight shock cord mast system to compensate for any loss. The HEX-PAC antenna outperformed all other antennas I took on the trip. Eventually, I packed up everything else and just used the beam.

I discovered that when operating CW or PSK, the portable beam facilitated contacts when band conditions were weak, something so think about when planning "when all else fails" communications.

John & Mark on vacation. Make sure the trip is fun for your partner/spouse/family!
At more optimal times, SSB contacts were relatively easy to make.

The total QSO tally was extremely low – some may say not worth the effort – yet my sense of adventure, “amateur” experimentation, love of DX, travel and history were united for an unforgettable experience. This trip was also a vacation. Buck Island and the reef are amazing natural resources. The 176-acre island is surrounded by a coral reef, which supports a large variety of wildlife, including hawksbill turtles and sea birds. Visit the Buck Island Reef National Monument web site: [http://www.nps.gov/buis/index.htm](http://www.nps.gov/buis/index.htm).

I look forward to future opportunities for suitcase DX holidays. For the experimenter who is developing emergency communications or QRP radio kits, consider skipping the amplifier for this type of adventure. Diversify your resources with digital modes (see Elkraft's new KX3 rig!), get a solar rechargeable battery system and a featherweight power supply. Elastic Bandages with Velcro® work great for anchoring lightweight shock chord masts. Here’s my gear list:

- Yaesu FT-817 transceiver & LDG Z-817H auto antenna tuner
- GAMMA power supply
- GoalZero battery and solar supplies
- NUE-PSK portable digital modem
- Phone with logging software
- Heil Headset w/ boom mic
- Traffie HEX-PAC portable beam

Special thanks to Dave WA3GIN for getting on 15 and 20 meters and confirming SSB contacts!

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**In the Next Issue of the 6•2•5 Sentinel:**

- Dave WA3GIN explains the advantages of building and using an open-core coaxial balun.
- Adding a Pulley To Your Antenna Support.
- And much more!
Vienna Wireless Society Hamfest – Feb. 26

The Vienna Wireless Society will hold its annual *Winterfest* hamfest Sunday, February 26, 2012 at Northern Virginia Community College, 8333 Little River Turnpike, Annandale. The outdoor tailgate area will open at 6:00 a.m. and the indoor vendor area opening at 8:00 a.m. The admission fee for the indoor area will be $6.

Talk-in services will be offered on the NVFMA 146.91 repeater. Additional hamfest information can be found on the VWS web site: [http://www.viennawireless.org/winterfest.php](http://www.viennawireless.org/winterfest.php)

Ham radio license examinations will be held Saturday, February 25 beginning at 9:00 a.m. Walk-ins are invited. For more information about the VE exam session, contact Vienna Wireless Society Public Information Officer Jim Parsons W4JTP: W4JTP@parsonage.net

KI4OBV Now Has Mobile Radio

ARPSC member Dan Gillenwater K9SLY reports that he and son Blake KI4OBV have installed a radio in the car Blake drives – a Yaesu FT-7800 dual band transceiver.

“We mounted the transceiver’s control head in the ashtray and ran the cables to the trunk,” Dan said, adding that installation “was a breeze because the battery is also located in the trunk.” Dan measured an SWR of 1.5:1 on the trunk-mount 144 / 440 MHz antenna.
N1FSU Enjoying Mobile Ham Radio

ARPSC member Rachel Jordan N1FSU is shown here at the mic of her Kenwood TM-G707 transceiver checking into the Arlington County RACES net. “It’s nice to have a radio in the car,” Rachel said, adding “I like the G707’s memory name function, S-meter squelch, backlight dimmer and auto power-off.”

The G707 has three power settings for 144 MHz, 50, 10 and 5 Watts and 35, 10 and 5 Watts on 440 MHz.

Stafford Remote Soaking Up Sun’s Rays

The solar panel installed to charge the backup batteries at the Stafford remote receiver site for the 146.625 W4AVA repeater continues to provide a solid 20 Volts DC output, as designed.

Repeater users report that the Stafford receiver provides solid coverage of the I-95 South Corridor.

WA3GIN Article Published

An article by ARPSC member Dave WA3GIN entitled “How to Inspect Towers to Detect Earthquake Damage” appears in the December 2011 issue of AGL, a magazine distributed to commercial tower owners, and published by Biby Publishing, LLC, owned by ARPSC member Rich Biby N3UW.

Radio Amateur Civil Emergency Service

RACES Net: Wednesdays 9:00 p.m. on the W4AVA Repeater, 146.625 MHz (– 600 KHz offset / CTCSS 107.2). All check-ins welcome.