



PCARA Update



Volume 8, Issue 7

Peekskill / Cortlandt Amateur Radio Association Inc.

July 2007

Of bugs and breaks

This year Field Day was held at Walter Panas High School in Cortlandt Manor. I don't think we could have



asked for nicer weather or a more convenient location. Most certainly both contributed to a record turn out and number of contacts. Looks like we'll try it again next year. A very big **thank you** to all those who participated to make Field Day 2007 such a great success!

Remember that there are no meetings for the months of July and August. Our next meeting is September 9, 2007 at Hudson Valley Hospital Center. Be sure to bring all of your Summer amateur radio adventure stories with you to the September meeting.



Joe WA2MCR (right) operates 20 meters while Adam KC2JNW computer-logs at PCARA's new Field Day site.



View of PCARA's new Field Day location in the grounds of Walter Panas High School. [Picture by Ray, W2CH]

I look forward to seeing each of you at the September 9th meeting, at 3:00 pm at Hudson Valley Hospital Center.

-73 de Greg, KB2CQE

Membership dues

Joe, WA2MCR reminds us that membership renewal letters were sent out in May and dues for 2007/2008 are now due. If members have not sent in their dues yet, it would be appreciated if they would do so.

PCARA Officers

President:

Greg Appleyard, KB2CQE kb2cq at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net

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Bug-free Field Day

It's time to say "thank you" to Joe, WA2MCR. Joe organized this year's Field Day in its new location, bringing his own HF radios, antennas and generator. The result was one of PCARA's best Field Days, with lots of activity, lots of points and lots of fun.

A few weeks earlier, there was a big question about where Field Day could be held. Our previous experiences atop Bear Mountain had become less and less enjoyable. Space was limited, the water supply to the summit had failed, and there were no public washrooms. Field Day 2006 was a washout after Perkins Drive was closed because of heavy mist and rain.

This year, the Town of Cortlandt had kindly offered Joe, WA2MCR a site at Sprout Brook Park, but sadly it was screened and surrounded by high voltage cables. Joe next approached Lakeland Central School District and received permission to operate from the grounds of Walter Panas High School. This site may already be familiar to some members as the location where the fox was hiding in PCARA's first foxhunt.



Loading equipment into Bob, N2CBH's truck.

Walter Panas High School is located in the town of Cortlandt, south of Route 202. Just follow Croton Avenue south to the stop sign, turn left and the school stands on top of a gentle hill. The location is 560 feet high with a clear take-off in most directions. Our Field Day location by the ball field has a clear view north to the 350 foot ex-AT&T tower in Fahnestock State Park (see page 7). The ground falls away rapidly from our new location in both the north and westerly directions.

On Saturday June 23, the first order of business was to load Joe's equipment into Bob, N2CBH's truck. Ray W2CH and Marylyn KC2NKU arrived to help with this task. By 10:00 a.m., we were unloading equipment at Walter Panas and setting up the accommodations. Joe had his "E-ZUP" instant shelter, while Ray and



Raising the roof -- Marylyn KC2NKU, Jerry WA2ZOA and Ray W2CH assemble the new "First-Up" gazebo.

Marylyn had their brand new "First-Up" gazebo. These modern tents are much easier to erect than traditional models – four people simply walk the corner legs out from the center and the shelter is up.

Next came the wire antennas. The new location was generously provided with supports – there are tall trees in the nearby woods and lighting poles around the ball field. Ray's HyperHanger tennis-ball launcher was used to launch lines over the supports for two separate wire antennas – the multi-band dipole covering 40 – 10 meters and the full size G5RV antenna.

Beam antennas were last to go up. Joe's repaired TH-3JRS tribander was carefully raised on a combination of step ladder and threaded alloy tubes, as previously tested at Field Day 2005. A useful addition this time was a Yaesu rotator at the base to allow directional control.

As the 2:00 p.m. EDT start time approached, the three stations were being assembled. Under the 40



Ray, Bob, Joe, Marylyn and Jerry raise the TH-3JRS triband yagi.



Field Day site with Hudson Highlands in the background. Blue tent houses the 20/80 meter station and VHF/UHF station. White tent houses the 40 meter station.

meter tent was Joe's golden oldie Kenwood TS-530, attached to the dipole. The 20/80 meter station made use of Joe's Yaesu FT-920, while the VHF/UHF station employed Ray's Yaesu FT-897, connected to 3-element yagi antennas for 6 meters, 2 meters and 70 cm.

This year's Field Day was at the very bottom of the solar cycle. No sunspots had been reported the previous week, and there was no activity on 15 or 10 meters. Fortunately, 20 meters was active during daytime, 80 meters came alive at night, while 40 meters was good around the clock.

Log entries show contacts on 80 meters were mostly with surrounding states – New Jersey, Pennsylvania, Connecticut, Massachusetts, New Hampshire, Quebec and Ontario. On 40 meters, contacts were further afield, with North Carolina, Virginia, Georgia, Ohio, Michigan, Indiana and Illinois figuring in the log. Even at sunspot minimum, the directional beam on 20 meters showed its worth with more distant contacts in North Dakota, Nebraska, Arkansas, Texas, Utah, Cali-



Bob N2CBH and Joe WA2MCR operate 40 meters.

ifornia and British Columbia.

Six meters provided lots of contacts with our near neighbors in Long Island, New Jersey, Connecticut and Massachusetts, while the close-in activity was spiced up by a short band opening to Florida.

Conclusions: Here are PCARA's results from past years, along with the provisional score for 2007.

Peekskill/Cortlandt ARA, W2NYW

	2001	2002	2003	2004	2005	2007
QSOs:	450	718	733	968	853	1019
Power	2 (<150W)					
Participants:	16	15	11	12	10	14
Total score:	1,540	2,096	2,328	2,996	2,798	2906

Operating from PCARA's new Field Day site at Walter Panas High School was a lot more fun than the previous uphill struggle to operate from Bear Mountain. Members found it easy to reach the location, overnight operation was unrestricted by locked gates, and forgotten supplies were only five minutes away. Perhaps we did not have the height advantage of a 1285 foot mountain, but we did



Ray W2CH rotates the VHF/UHF antennas.

have nicely mown grass, and a distinct lack of bugs to be bitten by. The weather was practically perfect, even though it was a little chilly overnight. The biggest difficulty was reading the LCD screens of the three logging computers in the bright sunlight.

A big thank you to all the operators and helpers including: Joe WA2MCR, Bob N2CBH, Ray W2CH, Marylyn KC2NKW, Adam KC2JNW, Jim N2KLC, Greg KB2CQE, Jerry WA2ZOA, Mike N2HTT, Ken K1KHL, Clint KB2ZRJ, Richard, N1GIL. See you next time!



- NM9J

Essential₂ Field Day - II

Here is a further episode in the occasional series where we look at chemical products that are indispensable to the radio amateur. The American Chemistry Council's "Essential₂" campaign aims to explain how the chemistry industry is "essential₂" our lives.

Last time, we looked at one of the essential parts of Field Day – electrical energy provided by a gasoline-powered generator, and how to ensure that the generator's engine would start easily.

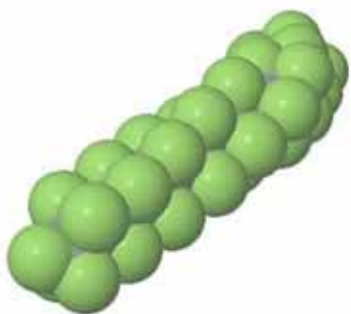
In this episode, we'll look at a slippery customer that frequently figures in Field Day and other amateur radio pursuits. If you are frying food, or fastening a coaxial fixture you're probably taking advantage of Teflon[®], the non-stick coating on fry pans and other utensils. Teflon[®] is a registered trademark and brand name owned by DuPont for various products based on **polytetrafluoroethylene**, abbreviated to PTFE.



Field Day food in a Teflon-coated pan.

PTFE was discovered – almost by accident – by Roy Plunkett, working at DuPont's research lab at Deepwater, NJ. In 1938 he was using a steel cylinder of the gas tetrafluoroethylene, $\text{CF}_2=\text{CF}_2$ in an experiment to prepare a chlorofluorocarbon refrigerant, but the cylinder failed to release its full quantity of gas. Investigation revealed a white powder inside the cylinder with some rather unusual properties. The powder turned out to be a polymer of tetrafluoroethylene, consisting of long chains of about 100,000 carbon atoms with two fluorine atoms per carbon: $-\text{CF}_2-\text{CF}_2-\text{CF}_2-$.

The new polymer could be cooled or heated to ± 250 degrees C with hardly any change in properties.



Fluorine atoms (green) completely surround the carbon atoms in a PTFE molecule.

It could be heated to over 500°C without burning, and it had a strange, slippery feel which distinguished it from other polymers. In fact, PTFE has the lowest coefficient of friction of any solid. The fluorine atoms in PTFE completely surround the vulnerable carbon chain, making the product inert to almost every known chemical and

producing the extreme slipperiness. These properties are put to use in applications we are already familiar with – non-stick coatings for cookware and flexible tape for pipe joints.



Flexible tape for pipe joints.

The fluorine component of PTFE is dug from the earth as the mineral fluorspar, or calcium fluoride.

When reacted with sulfuric acid, calcium fluoride releases hydrogen fluoride. This gas is then reacted with chloroform to produce chlorodifluoromethane (Refrigerant R-22). Heating R-22 to 600° then generates tetrafluoroethylene gas, which is suspension-polymerized or emulsion-polymerized to form PTFE.

The problem of how to convert an inert, white powder into a coating on cookware was solved by the American chemist Louis Hartmann and the French engineer, Marc Grégoire. They discovered independently how to bond PTFE to aluminum — the trick is to first treat the metal surface of the aluminum with hydrochloric acid, then apply the PTFE as an emulsion. The product is then baked at 400°C for a few minutes. Tiny holes in the metal from the acid treatment are filled with PTFE, which melts and forms a polymer film over the metal surface, while being firmly bound to the metal through the myriad holes.

One word of warning — PTFE begins to decompose at high temperatures. When PTFE-coated surfaces are heated above 400°F, toxic products are released that can kill birds and cause a temporary flu-like disease in humans. Don't let your cookware overheat!

PTFE is not just an inert, temperature-resistant, flame-retardant polymer — it is also an excellent electrical insulator with first class high frequency properties. PTFE has the lowest dielectric constant and loss characteristics of any polymer. The dielectric constant is 2.1 from 60 Hz all the way up to 1 GHz, with no change due to heat aging. The dissipation factor remains below 0.0003 up to 100 MHz. As a



High quality coaxial connectors employ PTFE as the low loss dielectric between inner and outer conductors.

result, PTFE is employed in circuit board laminates and as insulation for coaxial cable, coaxial connectors, motor lead wire, hookup wiring, industrial signal and control cable, and for standoff and feedthrough components. PTFE-insulated wire is widely used for military and aerospace applications, because of its excellent heat and chemical resistance.



PTFE-insulated feedthroughs.

Hookup wire insulated with PTFE cannot be manufactured by the usual methods employed for common thermoplastic insulators such as PVC or polyethylene. PTFE's high "melting point" of 554°F and exceptionally high melt viscosity prevent processing by conventional melt extrusion or molding techniques. Instead, PTFE must be extruded as a paste from a billet or it must be wrapped onto the conductor in tape form. The material can then be sintered, which involves heating to below the melting point until the particles adhere to each other. This process results in relatively short production lengths of a few thousand feet or less.



Hookup wire insulated with PTFE.

PTFE insulated wire is recommended in any application where radio frequency energy is involved. Losses will be much lower than if the insulation between the conductor wires was PVC, and the cable will withstand much higher temperatures. Examples include coaxial cable, insulated wire for baluns, and twisted pair cable for high-speed networking.

While PTFE has highly desirable properties as a wire insulator, it should not be subject to sharp bends or strains that might force conductor "creep" as the insulator cold-flows away from the metal conductor. Fuel tank wires insulated with PTFE may have been to blame for the 1996 crash of TWA Flight 800.

Another area where you might encounter PTFE is as a lubricant additive. Radio Shack used to sell "Lube Gel", which contains a small percentage of PTFE. This product is no longer available from Radio Shack, but is sold as "SuperLube" by Synco Chemical Corporation, who claim that their synthetic base fluids with the addition of PTFE micro powders form a premium lubricant that provides longer life protection against friction, wear, rust and corrosion.



Balun in J-Beam Yagi antenna employs PTFE-insulated wire wound on a metal form.

One more application of PTFE mentioned in a previous "Essential2" is in microphones. Metallized Teflon film is used to convert sound waves into electrical signals in the electret condenser microphone, as described in the July 2006 issue of *PCARA Update*.

- NM9J

Surprise award

Ken K1KHL reports that when he checked the mail recently, he found an envelope from the organizers of the 2007 Virginia QSO party. It contained a certificate for "Second High New York Phone". He had no idea it was coming. Congratulations, Ken!



Certificate reads "The Sterling Park Amateur Radio Club congratulates Kenneth H. Lee, K1KHL, 2nd High New York Phone."

Strange antenna challenge 2007 - KC4ZUA

Operating over Memorial Day weekend, special event station KOS was the mainstay of the 2007 **Strange Antenna Challenge**. KOS employs out-of-the-ordinary antennas to promote Amateur Radio and the art of making do. Individuals and clubs who participated as “satellite stations” could use anything but wire or pipe for a radiating element. Strange antennas used in past events have included folding chairs, paint easels, tape measures, dog kennels, etc. Here Arnold KC4ZUA explains how the Gwinnett Amateur Radio Society in northern Atlanta rose to the challenge.

What happens when you take one 16 foot extension ladder, 2 C-clamps, and 50 feet of chicken wire fencing? You get a full day of fun with a “Strange Antenna Challenge” 20 meter vertical!

Since 2003, Erik Weaver N0EW and Dwayne Walker WB5PLJ have been hosting the **Strange Antenna Challenge** through the Ozark Hillbilly Portable Operations Team in Springfield, Missouri. After reading about the challenge on the ARRL web site, (<http://www.arrl.org/?artid=7459>) a group of radio amateurs from the morning drive time group embarked on a quest to build a “Strange Antenna” at the house of Bill Perkins, KB4KFT. Although an aluminum extension



Final adjustments to the “Strange” antenna.

connected to protect Bill’s HF transceiver. The radiating element, AKA ladder, was quickly constructed and propped up against a tree by James and Sophia Loner, W4JHL and KI4EWW. Billy Christensen, KI4K GK attached the three radials to a pine 2 x 4 with sheet metal screws under the antenna. A patch of poison ivy caused the radials to be skewed to a configuration that enhanced northeastern coverage. The center conductor of the coaxial cable was fastened to the ladder with a set of locking pliers and the shield to the radials with another sheet metal screw. After hoisting the antenna up, it was secured with rope to the tree to prevent it from toppling over. Within just minutes, Sylvia Richardson, KG4OEG, established a contact with Northern Ireland. The evening’s fate was sealed as Rob Osattin, KI4UTY, worked contacts late into the evening.

Atlanta Strange Antenna Challenge roster:

Bill Perkins	KB4KFT
Arnold Solomon	KC4ZUA
Gordon Shirley	KI4TBJ
Rob Osattin	KI4UTY
Ron Hogue	
Sophia Loner	KI4EWW
James Loner	W4JHL
Sylvia Richardson	KG4OEG
Addison Le Platte	KI4IYA
Billy Christensen	KI4K GK

Author: Arnold Solomon KC4ZUA

Photographs: Addison Leplatte KI4IYA.

Reprinted with permission from the *Garzette*, the monthly newsletter of the Gwinnett Amateur Radio Society, <http://www.gars.org>.



Setting up the “Strange” antenna.

ladder was used in previous challenges, the group gave it a new twist. They added three radials made of chicken wire fencing. The ladder antenna was extended to its maximum length and secured with C-clamps.

Because the completed antenna was not resonant on the 20 meter band, an antenna tuning unit was

Field Day doesn't have to be stone aged

If your club is not already using computers to log your Field Day contacts, perhaps you may want to look into the possibility of doing so. With a surplus of cheap PCs available to hams, along with inexpensive or free logging programs, computer logging is within the limitations of most clubs. Using computers is a great way for a team to run a single operating position. A "Y" adapter on the headphones allows both the operator and the logger to listen to the receiver.

This way one person can send the exchange information and the other can log the information of the station being worked. Multiple operators using one radio in this way can learn operating techniques from each other and help with phonetics on phone and make fewer mistakes on CW.

The computer will quickly check for duplicate contacts (dupes), can generate CW with canned messages and key the transmitter, keep track of time, keep track of the operators, and many other useful functions. Because Field Day rules allow for QSOs to be made with the same station once on each band and mode there is no need for complicated networks. What happens on the 20 meter CW station has no bearing on the 75 meter phone station. All that you need to do is designate a logging captain to collect the logs and merge them together at the end. Even the simplest program that I have inspected has the provision to export an ADIF file that can be imported into another log or create a contest log entry in the proper format.

Many of the popular logging programs, like those advertised in *QST*, have provisions for ARRL Field Day and some programs are written just for Field Day. A search on the Internet will yield logging programs that will vary from the plain and simple to fancy varieties.

A lot of the logging programs are able to send CW via a port on the PC, eliminating the need for a memory keyer or other peripherals.

Computer to radio CW keying interfaces are cheap to buy or you can roll your own for less than a few dollars and about 30 minutes of bench time, depending on your soldering skills. (Tip: The CW keying interface can make a great club meeting project.)

Here are a few tips if your club is going to use computers for logging during Field day.

1. Set up your PCs or laptops in advance. Now is the time to start.
2. Pre-load all software and become familiar with its operation.
3. Have a training session for your operators. Most

logging software is straightforward: type in the call and exchange information then hit the return key. Make sure that your team is familiar with basic operation and entering contacts.

4. Back up data regularly. Thumb (flash memory) drives are great for this.

5. Monitors don't like sun glare. Make provisions to shade the monitors so that operators can see the screen during the day. Experiment with this before the event.



Greg, KB2CQE computer-logs during PCARA Field Day 2007, while Joe WA2MCR operates the VHF/UHF station. The gazebo sides had been lowered to minimize sun glare on the Toshiba notebook's screen.

So, even if your Field Day accommodations are primitive your operation doesn't have to be stone aged. (Yes, even a caveman can do it.)

Article credit: W3IZ, *ARRL Club News*, June 2007.

Tower tour

If you would like to know more about local radio towers, such as the old AT&T tower in Fahnestock Memorial State Park, take a look at the American Tower Site Locator, <http://www.americantower.com/SiteLocator/default.aspx>. Zoom in and cruise around the map. The local tower in question is called "Putnam Valley NY", site number 88155.

Net night

Don't forget that the PCARA weekly net now takes place on **Wednesday** evenings at 8:00 p.m. You can call into the net on the 2 meter repeater, 146.67 MHz, offset -0.6 MHz, 156.7 Hz CTCSS.

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!

Archive: <http://home.computer.net/~pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service Organization**. PCARA meetings take place the first Sunday of each month* at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz
(IRLP node: **4214**)

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

July - August : Summer break - no monthly meeting.

September 9: September meeting, 3:00 p.m. Hudson Valley Hospital Center.

Hamfests

Sun Jul 8: Sussex County ARC Hamfest, Sussex Co Fair Grounds, Plains Rd., Augusta, NJ. 8:00 a.m.

Sun Aug 12: Tri-State ARA Hamfest, Matamoras Airport Park, Matamoras, PA. 8:00 a.m.

Sat Aug 18: Ramapo Mountain ARC Ham Radio and Computer Flea Market, American Legion Hall, 65 Oak Street, Oakland, NJ. 8:00 a.m.

Sun Sept 16: Candlewood ARA Western CT Hamfest, Edmond Town Hall, 45 Main Street, Newtown, CT. 8:30 a.m.

VE Test Sessions (*No more code tests!*)

Jul 1, Aug 5: Yonkers ARC, Yonkers PD, 1st Precinct, E Grassy Sprain Rd, 8:30 a.m. Contact D. Calabrese, (914) 667-0587.

Jul 16, Aug 20: Columbia Univ ARC, 612 W 115th St, Columbia Univ-Morningside Hgts, Watson Labs, 6th floor, New York, NY. 6:30 PM. Contact: Alan Crosswell, (212) 854-3754.

Aug 9: WECA, Westchester Co Fire Trg Cntr, 4 Dana Rd, Valhall NY. 7:00 p.m. Contact: Stanley Rothman, 914 831-3258.



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