



Joe's Net Prep

The Aero Aerial

The Newsletter of the Aero Amateur Radio Club
Middle River, MD
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Editor Georgeann Vleck KB3PGN

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Facebook: <https://www.facebook.com/pages/Aero-Amateur-Radio-Club/719248141439348>

About the Aero Amateur Radio Club

Meetings

The Aero Amateur Radio Club meets on the first and third Wednesdays of the month at Essex SkyPark, 1401 Diffendall Road, Essex. Meetings begin at 7:30 p.m. local time. Meetings are canceled if Baltimore County Public Schools are closed or dismiss early.

Repeaters

W3PGA **2 M :** INPUT : 147.84 MHz, OUTPUT : 147.24 MHz
W3PGA **70 Cm:** INPUT : 444.575 MHz, OUTPUT : 449.575 MHz
W3JEH **1.25 M:** INPUT : 222.24 MHz, OUTPUT : 223.84 MHz

Club Nets

Second Wednesday Net – 10 Meters (28.445 MHz) @ 8 p.m. Local Time
Fourth Wednesday Net – 2 Meters (147.24 MHz Repeater) @ 8 p.m. Local Time
Fifth Wednesday Net – 70 Centimeters (449.575 MHz Repeater) @ 8 p.m. Local Time

Radio License Exams

The Aero Amateur Radio Club sponsors Amateur Radio License Exams with the ARRL VEC. Examination sessions are throughout the year. Walk-ins are welcome.

2015 Examination Schedule

Where: White Marsh Branch
 Baltimore County Public Library
 8133 Sandpiper Circle, White Marsh, Md. 21236
Time: 1 p.m.
Dates: September 26, November 14
Contact: Patricia Stone AC3F, email: ac3f@juno.com, landline: 410-687-7209

LOCAL AREA NETS

Day	Time	Freq. (MHz)	Net Name
Daily	9 – 10 am	145.330	Oriole Net
Daily	6 pm	3.820	Maryland Emergency Phone Net
Daily	6:30 – 7 pm	145.330 no PL	Baltimore Traffic Net (b/u 146.670 PL 107.2)
Daily	7 pm & 10 pm	3.643	MD/DC/DE Traffic Net
2 nd Tue	7:30 pm	146.670	Baltimore County RACES Net
2 nd Wed	8 pm	28.445	Aero ARC Net
4 th Wed	8 pm	147.240	Aero ARC Net
5 th Wed	8 pm	449.575	Aero ARC Net
When activated by NOAA		147.030	SkyWarn (primary)

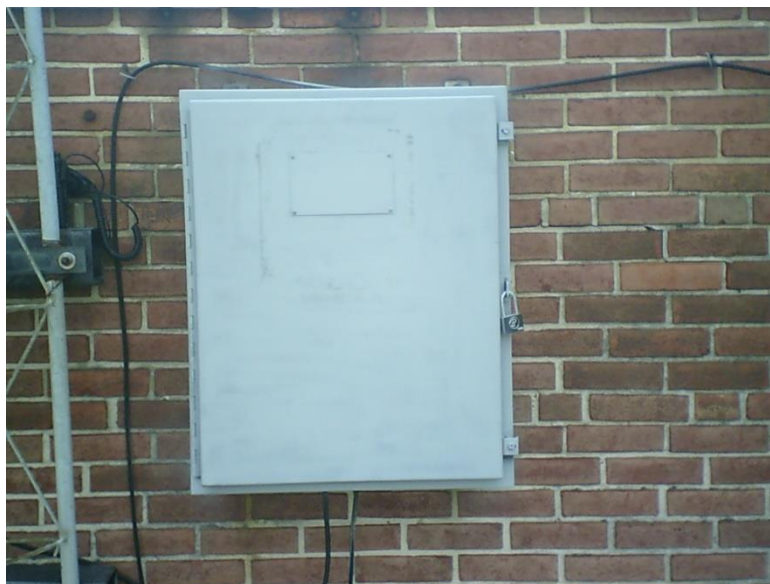
REPEATER NEWS

New 2-Meter Repeater: W3PGA in Service Wednesday, July 29, 2015

by Jerry Cimildora, N3VBJ

After several months of planning and assembly, our new repeater is in service at Kenwood High School. Thanks to Ken NE3A for obtaining the Motorola radios and VHF amplifier and programming the radio, and to Phil W3VRD for card programming, obtaining relay boards for each end of the trunk cable, and rack mounting all of the equipment. All of the components had to assemble and be programmed and put on a panel to fit in the cabinet and bench tested.

Jerry N3VBJ and Phil W3VRD arrived at the site Wednesday afternoon and unhooked the old system, removed the antenna, and disconnected the power. On the roof-top receive site we disconnected the old radio and installed the new **Motorola MAXTRAC 300 2-channel VHF radio** with the switching relay in the box to the cavity filter and power supply. We fired up the receiver, and it was in service. Now back to the cabinet to see if we were getting audio.



The big can on the left is the 147.840 cavity filter, the small black object on top is the switching relay unit for the 600 foot trunk cable for the audio feed. After 30 years of being on the wall, the cabinet received a fresh coat of silver paint. A new lock was also installed, as we no longer have keys for the old one. This located on the East side of the building closest to Eastern Ave, approximately 600 feet from the transmitter site.

Back to the elevator shaft to install the transmitter and controller.

The new system consists of a Motorola Maxtrac 300 radio, Ham Gadgets ID-O-MATIC IV controller and a relay switching unit. In the cabinet already is the 147.240 cavity filter, power supply, and 120 V AC power isolation unit for the receive site and trunk cable.



The top photo is the transmitter, the lower one the receiver out at the receive site on the other end of the school. The transmitter can produce 45 W but cannot be used at 100% duty cycle. The receiver provides the 147.840 audio signal.



This is the Ham Gadgets ID-O-Matic IV controller card. It is programmed via a USB port on the bottom left. Programming set up the timers and CW ID or Voice, and the Transmit time or TOT. The connections on the top are where the radio and switching are connected. It has a connection at the bottom for a voice board for ID it records 10 seconds and plays back. We plan to get one of these, they are \$10.00 in kit form.



The Motorola Max Trac 300 - a fan is zip-tied on the left, the controller is in the center, and the power strip and transmit relay on the right. Amplifier is located on the back of the panel behind the radio. The cabinet has been neatened up by Joe WB3FMT and Jerry N3VB, the old repeater equipment, UPS plugs, and old speaker monitor have been removed.

Below are the 20 Amp DC power supply and the 147.240 cavity filter on the left where the antenna connects. There is an isolation transformer, which has a 1 to1 winding for the 120 V AC that feeds the receiver sites power. This keeps the ground from carrying voltage. There is a small grey for switching AC and AC Plugs for the equipment.

The system works like this. As soon as the receiver hears a signal on 147.840 it keys the relay at the receive end and sends it down the trunk cable to the cabinet which keys the transmitter relay at the cabinet end which goes into the controller card. The ID-O-Matic IV card has the timer set for 3 minutes, the CW ID tone and controls keying the transmitter and transferring the audio to the transmitter. Once the receiver send the signal from the 147.840 MHz input the card keys the transmitter on the output of 147.240 MHz and it keys the amplifier. The Motorola radio is set to 35% output, which is about 4 W output to the amplifier, and it is putting out about 60 W total to the antenna on the roof.



The two smaller antennas at roof level are the school's radio UHF radio system and a digital video link system for Police Precinct 11. The higher antenna is our 449.575 UHF repeater and the one to the right of the ladder is the 147.240 VHF repeater. This will be moving to the other side of the building around the week of August 17th. All of the coax goes in louvers above the door. The trunk cable comes in on the other side and thru the wall into the cabinet, the elevator controls are next door in the side that has windows.

We will be moving the 2m transmitter antenna to the south side, which will give us better coverage and less interference from adjacent antennas. The mast needs to be replaced, and we will install new coax for all antennas as well. The mounting brackets are already there. In its current location the mast is bent and strapped to a ladder and is on the roof. The new system was tested at that evening's 2 meter net. We discovered that the timers were not synced, and we thought we had a heating issue that caused the transmitter to fail. The CW ID was too loud. Ken NE3A and I N3VBJ went up to the school on Tuesday, Aug. 4th and adjusted the power output of the transmitter down to keep it cooler and adjusted the CW ID audio volume down.

Joe WB3FMT and I N3VBJ returned Wednesday the 5th for some other adjustments and to remove the old equipment. The repeater was back in service but we still had a transmitter failure problem.

The next day Thursday Ken NE3A and I N3VBJ returned to the site and discovered SWR problem between the transmitter and amplifier and we had a hum on the signal. The SWR at the amplifier from the radio was 3.7 to 1. That issue was resolved by changing that cable and cleaning contacts. The SRW between the transmitter and amplifier is now 1.2 to 1, and to the antenna 1.1 to 1, and putting out 60 W total. The SWR issue was causing the transmitter to fail and the timers are now synced the timer on the controller is set to 3 minutes.

Ken and I also moved the equipment back to the center of the cabinet to allow more air flow around the repeater. We also corrected a loose cable from the controller card to the 16-pin connector on the radio. The overheating was not the problem all; the equipment was at 93°. The elevator shaft is very warm during summer months so the fans on the cabinet will help keep W3PGA cool and operating. The receiver cabinet got a fresh coat of silver paint. We plan to add the voice ID and install additional fans at the back of the cabinet for better air flow.

It is amazing how a cabinet full of racks of cards and panels for the transmitter and amp can be replaced by a single panel! Technology sure has come a long way! Thank you all who had a hand in this project. The club voted to replace the exsisting 440 repeater at the last meeting on the 5th. I am currently working to obtain the Yeasu DR-1 Fusion/analog system at the club price of \$499.99 to replace the aging 440 system. I'll keep you all posted.



Before!



After....

(I think Joe likes the New Repeater -- look at that smile. No Entenmanns's donuts were harmed during the installation!)

NET REPORTS

8-12-15: 28.445MHz, 20:00 to 20:52 local.

W3PGA Joe (NCS) Essex, KC3FBL Jim Parkville and Charles (friend of Jim & not yet a Ham), N3EKO Ron Parkville, KC3FBM Frank Parkville, KA3SNY Dave Essex, KB3PGN Georgeann Essex, NE3A Ken Middle River

The 3 hams KC3FBL, N3EKO and KC3FBM (Jim, Ron and Frank) were guest at the last Aero Club meeting.

08-26-15: 147.24 MHz, 20:00 to 20:50 local.

W3PGA Joe (NCS) Essex, W3JEH Ron Perry Hall, AC3F Pat Middle River, NE3A Ken Middle River, KC3FBL Jim Parkville, KC3ANJ Charles Dundalk

Notes: The repeater still appears to be dropping power after about 1 ½ minutes per Ken. NCS is too close to Kenwood to notice.

Training Class – Two Sessions

Neighbors Helping Neighbors, Baltimore County Office of Emergency Management

Must attend all five sessions Maximum Participants: 25

Dates: Thursdays, September 10 through October 8, 7 to 9 p.m.

Baltimore County Fire Station 6- Dundalk

2815 Sollers Point Road

Dundalk, Maryland 21222

Dates: Thursdays, October 15 through November 12, 7 to 9 p.m.

Baltimore County Fire Station 3- Woodlawn

7223 Windsor Mill Rd.

Windsor Mill, MD 21244

Registration for all classes is at www.baltimorecountymd.gov/Contact/neighborshelping

Contact: LT. Jennifer Martucci, Baltimore County Fire Department, Office of Emergency Management, 410-887-5996, jmartucci@baltimorecountymd.gov

Jerry Cimildora reports that he attended this class 2 years ago:

“It is very similar to CERT Training, covering emergency care for your family and neighbors, fire extinguisher use, basic First Aid, CPR training with certification, emergency shelter setup and procedures, basic safety awareness, care of elderly and family safety, fire safety and information on what the Baltimore County Volunteer service is and does.

“It is free to attend, with free first aid kit, emergency crank-up radio, t-shirts. I think you pay \$2.00 for a CPR Card and picture ID for Baltimore County if you want. Learn how the County fire and police handle public service and train citizens for every-day situations and emergencies. I think this is a perfect event for our club members to attend and be better prepared for public service events and Emergency's. Let's fill this class up. It may be cancelled if not attended by enough people.”

Upcoming Second Wednesday Presentations

These presentations will be given at the Essex SkyPark FBO building after the business meeting.

<i>Date</i>	<i>Topic</i>	<i>Presenter</i>
TBD	Contest Logging with N1MM	Bob V
TBD	ISS Sighting and Contacting	

Any questions call Joe Miko at 443-956-0197.

Presenters who wish to submit a description of their talk may email it to Georgeann at KB3PGN@reagan.com for inclusion in the Aerial.



VE CORNER

by Pat Stone, AC3F

Our next test session is scheduled for September 26, 2015 at White Marsh.

Aero ARC VE 2015 Test Schedule

Where: White Marsh Library, 8133 Sandpiper Circle, White Marsh Md. 21236
Time: 1 P.M.
Dates: September 26, November 14

Contact: Patricia Stone, AC3F, phone: 410-687-7209, email: ac3f@juno.com

UPCOMING HAMFESTS and EVENTS

**Saturday, September 19, 2015, 9:00 am – 4:00 pm, Essex SkyPark,
Annual Wings & Wheels Fly-in**

You may view upcoming hamfests which are nearby in Pennsylvania, Delaware, Maryland-DC, West Virginia and the Virginia area by clicking on the ARRL MDC Section web page at: www.arrl-mdc.net/hamfest.htm

Saturday, October 3, 2015: Delaware State Convention (Delmarva AR & Electronics EXPO)

Sussex Technical High School, 17099 County Seat Hwy., Georgetown, DE 19947. Website: www.radioelectronicsexpo.com

Sponsor: Sussex Amateur Radio Association. Talk-In: 147.090 (PL 156.7)

Contact: Herb Quick, KF3BT, PO Box 1431, Seaford, DE 19973

Phone: 302-629-4949, E-mail: herb@hamiltongraphics.com

Sunday, October 4, 2015: CARAFest 2015

Howard County Fairgrounds, 2210 Fairgrounds Rd, West Friendship, MD 21794

Website: <http://www.carafest.org>

Sponsor: Columbia Amateur Radio Association

Talk-In: 147.390 (PL 156.7)

Admission: \$6, Hours: 8 am - ?

Tailgating and vendors. Free VE exams. DX card checking.

Contact: David Parkison, KB3VDY, 1257 Stevens Avenue Arbutus, MD 21227

Phone: 410-977-1249, Email: vendorsales@carafest.org

PUBLIC SERVICE OPPORTUNITIES

Saturday, September 5, 2015: 2015 Ellicott City Classic 10K and 5K Running Events

The Ellicott City Labor Day Classic is a 10K road race and 5K trail run that takes place at the Shrine of St. Anthony (Franciscan Friars Monastery).

The event typically attracts about two hundred participants ranging from walkers to advanced competitive runners. The proceeds support various local charities, including ARC of Howard County, FISH of Howard County, the Shrine of Saint Anthony, and others. The event is hosted by the Knights of Columbus, Saint Louis the King Council 11898 of Clarksville, MD.

The runs start at 0800 and should end before 1000. CARA net operations are anticipated to begin around 0730 and will wrap-up when the last participant crosses the finish line.

In addition to Net Control at the Shrine of St. Anthony, we expect to have eight other ham stations. There will be five at road locations and water stops around the Shrine, and three on the trails on the Shrine grounds that will require perhaps a few hundred yards walk to reach.

To volunteer, please go to: [2015 Ellicott City Classic Volunteer Form](#)

If you have questions about our participation in the event, please contact Dan Wilt, N3YQ, at dpwilt@gmail.com.

For more information on the event, go to: <http://www.kc11898.com/>

Saturday, September 12, 2015: 2015 Baltimore Bike Club, Civil War Century Bike Ride

As in prior years, CARA will be supporting five rest stops and at least six SAG wagons. All operations will be on 2 meters, using the 147.195/R+ repeater in Thurmont. The point of contact for this event is Dave, W8AJR.

Rest stop operation will require use of a portable radio (in your car, or battery powered) and a mast mounted antenna. SAG operation will require a mobile rig with an accessory outlet plug, or a battery, and a mag-mount antenna. If you would prefer, you may offer to operate from your own vehicle. Otherwise, you will be riding in a vehicle driven by a Baltimore Bike Club volunteer.

There will be rides of 100, 75, 63, 50 and 25 miles. All start and finish in Thurmont, MD. The first riders leave at 0700. Three of the five rest stops won't need to be manned until later in the day. SAG wagon operators will need to be at start/finish by 0700. The SAG teams will be given special cue sheets to guide them on their assigned routes.

Volunteers will be fed during the day, and will receive both volunteer T-shirts and event commemorative T-shirts from the Baltimore Bike Club. Further details, copies of the cue sheets, and course maps will be published in our communications plan.

If you'd like to volunteer, please use both links below. The first is for us to use in making volunteer ham assignments. The second is for the Baltimore Bike Club to use in planning amounts of food and numbers of T-shirts to be ordered. (You don't need to pay the registration fee. Just click on the volunteer registration link.)

[CARA 2015 Civil War Century Volunteer Form](#)

[2015 Baltimore Bike Club CWC volunteer registration site](#)

As always, non-ham volunteers are welcome, as we'll assign them with experienced operators. Please have each person register at both sites.

If you have questions, you may reply to this email, or contact Dave Prestel directly (dave.prestel@gmail.com).

Sunday, October 25, 2015: MARINE CORPS MARATHON

The Marine Corps marathon needs 140 volunteer amateur radio operators to help with the 2015 marathon. Whether you enjoy using voice or digital, there is a place for you.

First time volunteers should use the signup website at: [<mcmham.org/Volunteer/Signup.php>](http://mcmham.org/Volunteer/Signup.php).

Those joining us again please use the Marine Corps Ham Sign-up at: [<www.mcmham.org>](http://www.mcmham.org).

At the end of the "ham" form, you will find a link to the MCM sign-up page. You will need to continue to the Marine Corps Marathon web site and fill out their form. Otherwise, you will not be signed up.

If you have problems with the web site, you may e-mail:
Howard Cunningham, WD5DBC, at <howardc@macrolle.com>.

Thank you for supporting the Marine Corps Marathon.

TACTICAL CALL SIGN USAGE, PART II: NET PROCEDURES

by Patti Halgunseth, KD7VBG, Yavapai Amateur Radio Club, Prescott, AZ

(used with permission of the author) Part I was printed in the June 2015 Aerial.

A *directed net* is one in which all communications are supervised by the Net Control Station (NCS). The NCS is responsible for communications on net frequency, sending stations off frequency, and assuring that all traffic is handled in an orderly fashion with appropriate priorities.

Ask permission of the Net Control Station before you contact any other station on that frequency. For example, "Net Control this is K3KAT. Request informal with N3GQ."

Stations check into the net, maintain a close listening watch for NCS instructions, and check out only with permission from the NCS. If a station cannot listen carefully to the net for a period of time, they should check out and check back in when it is again able.

The NCS maintains a log of all stations checked into the net and keeps track of stations sent off frequency for passing traffic or for conversation.

Stations should not interrupt net "transactions", i.e., the exchanges between other stations and/or NCS until those stations have completed their exchanges... except in an emergency.

Stations use their full call sign when first checking into the net. Tactical call signs may be used thereafter, providing that full call signs are given by net stations at the end of transactions.

The proword "over" is not required at the end of NCS calls. "Over" is generally used for transmissions of uncertain length, such as traffic lists, comments and explanations. This is why we have a standard of "Start with your tactical call and end with your FCC call" for most transmissions.

The use of "This is... (pause with PTT release)... (call sign)..." by calling net stations may be used to avoid "doubling" with other stations.

Always wait for NCS to acknowledge you before transmitting, that way you know they are ready to copy. That goes for any station you are contacting. Do not just start with your traffic as the receiving station may not be ready to copy.

When EMERGENCY traffic is listed, the net is interrupted and the EMERGENCY traffic is handled immediately. All regular traffic will be put on hold for the Emergency Traffic or depending on Emergency, NCS may decide to move the traffic to an alternate frequency.

From the Skies over Mt. Essex

SKY Events for September 2015

Sept 1st – Uranus is 1.1° N of the Moon 12:00 EDT, Neptune at opposition.

Sept 3rd - 1976 USA's Viking 2 lands on Mars.

Sept 4th – Mercury greatest elongation (27°) 06:00 EDT

Sept 5th - Last Quarter Moon

Sept 5th – Moon is 0.5° N of Aldebaran 02:00 EDT

Sept 11th – The Zodiacal Light is visible in the East before morning twilight, for the next two weeks.

Sept 13th - New Moon; A partial Solar eclipse is visible in the Southern Indian Ocean, South Africa and Antarctica.

Sept 24th – Mars is <1° N of Regulus for the next 2 days.

Sept 21th - First Quarter Moon .

Sept 23rd – Fall Equinox 04:21 EDT; Neptune discovered in 1846 by Johann Galle at the Berlin Observatory.

Sept 27th - Full Moon “**Barley Moon**” for the English Medieval and the “**Harvest Moon**” for the Colonial American, Total Eclipse and closest Moon in 2015 (221,753 miles).

Sept 28- Uranus is 1.0°N of the Moon 21:00 EDT.

Planet Lookout at mid-Month

Sunrise 06:47 EDT and Sunset 19:15 EDT

Mercury Hidden All Month

Venus High at Dawn rises 03:58 EDT, magnitude -4.5 and 42.2 arc seconds.

Mars High at Dawn rises 04:23 EDT, magnitude 1.8, size 3.8 arc seconds.

Jupiter Dawn, rises 05:34 EDT, Magnitude -1.7 size 31 arc seconds.

Saturn Dusk sets at 22:19 EDT, Magnitude +0.6 size 16.1 arc seconds.

Uranus – Rises about 20:14 EDT, Magnitude 5.8, Size 3.5 arc seconds.

Neptune Visible all night, rises at 18:39 EDT. Magnitude +7.9 size 2.4 arc seconds.

The Last Tetrad for awhile!

In astronomy, a tetrad is a set of four total lunar eclipses within two years.¹ The frequency of tetrads varies by century with the frequency of total lunar eclipses.

Usually, lunar eclipses come in no particular order. A partial can be followed by a total, followed by a penumbral, and so on. Anything goes. During a 5,000 period (-1,999 BC to 3,000 AD) there were and will be a total of 12,064 eclipses of the Moon; 4,378 penumbral, 4,207 partial and 3,479 total. Occasionally, though, the sequence is more orderly. When four consecutive lunar eclipses are all total, the series is called a tetrad (a group of four).

"During the 21st century, there are 8 sets of tetrads, so I would describe tetrads as a frequent occurrence in the current pattern of lunar eclipses," says Fred Espenak of NASA. "But this has not always been the case. During the three hundred year interval from 1600 to 1900, for instance, there were no tetrads at all."

The last tetrad occurred May 16, 2003 thru Oct. 28, 2004, this tetrad started on April 15, 2014 and ends this eclipse. The next tetrad begins April 25, 2032 thru Oct 08, 2033; the next group begins in Mar. 25, 2043.

This total lunar brings close to this current tetrad. It begins Sunday evening September 27, at 20:11 EDT with the first penumbral (outer shadow) contact, we should notice umbral (inner shadow) contact at 21:07 EDT, the mid-point occurs at 22:48 EDT with last umbra contact at 00:27 EDT Monday morning.. The moon's color at mid-point can range from a very dark eclipse (L=0) to a very **bright copper-red** (L=4). The color depends on the condition of the Earth's atmosphere; forest fires and volcanic eruption make a darker eclipse.

Happy Viewing!