



## ***The Aero Aerial***

The Newsletter of the Aero Amateur Radio Club  
Middle River, MD  
Volume 12, Issue 4  
April 2015

Editor Frank Stone AC3P  
Editor Pro Tem Georgeann Vleck KB3PGN

### **Officers**

President	Joe Miko WB3FMT	Repeater	Phil Hock W3VRD Jerry Cimildora N3VBJ
Vice-President	Bob Venanzi ND3D	VE Testing	Pat Stone AC3F
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Resource Coordinator	Ron Distler W3JEH	Club Nets	Joe Miko WB3FMT
		Contests	Bob Venanzi ND3D

Website: <http://home.comcast.net/~frank-stone/Aero%20ARC/aero.htm>

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, 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: May 23, August 22, October 24

Contact: Patricia Stone AC3F, email: [ac3f@juno.com](mailto: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	146.670	Baltimore Traffic Net
Daily	7 pm & 10 pm	3.643	MD/DC/DE Traffic Net
2 <sup>nd</sup> Tue	7:30 pm	146.670	Baltimore County RACES Net
2 <sup>nd</sup> Wed	8 pm	28.445	Aero ARC Net
4 <sup>th</sup> Wed	8 pm	147.240	Aero ARC Net
5 <sup>th</sup> Wed	8 pm	449.575	Aero ARC Net
When activated by NOAA		147.030	SkyWarn (primary)

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## Frank Barranco, MD, N3FBQ Silent Key

It is with sadness that we note the passing of Frank “Doc” Barranco, N3FBQ, on March 23, 2015.

Doc was known to many Aero Club members who served in Baltimore County RACES. He was a retired orthopedic surgeon and was a medical officer for the Baltimore County Fire Department. Doc was instrumental in setting up the network of emergency RACES stations at Baltimore County Hospitals and was a regular presence on the county emergency nets.

Doc’s funeral was held on March 27th at Immaculate Conception Church with interment at Dulaney Valley Memorial Gardens.

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## NET REPORTS

**3/11/15:** 28.445 MHz, 20:00 to 20:32 local

W3PGA NCS Joe Essex, KB3PGN Georgeann Essex, KA3SNY Dave Essex, AC3P Frank Middle River, AC3F Pat Middle River

A suggestion was made to use Phil’s repeater presentation on Field Day as an educational feature for extra points.

**3-25-15:** 444.575 MHz, 20:00 to 20:30 local.

W3PGA NCS Joe Essex, KA3SNY Dave Essex, KB3PGN Georgeann Essex, W3JEH Ron Perry Hall, KC3AID Marty Rosedale, N3VBJ Jerry mobile Baltimore City

Op Note: The 440 machine was used because of the locking up problem with the 24 machine. The 440 machine work great for the 1<sup>st</sup> 10 minutes then appeared to have a lot of hum or noise overlaying transmissions, the ID was fine and clear of noise. It appears that the signal strength was changing during transmissions, from my house changing from S60 to S40.

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## STATION ACTIVITIES

*By Frank Stone, AC3P*

Thanks to **KA3VAE** for supplying the audio-visual equipment for **W3VRD**’s Repeater and **N3VBJ**’s SKYWARN presentations. **KB3ANJ** and **KB3APF** continue to work on their television studio. Best wishes to Kelly for a speedy recovery. Programming Guide to be published at a later date. **AC3F** was successfully digipeated via the International Space Station. The leg has been passed. **KB3EK** is our new Contest Czar.

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## Dues Reminder

The yearly dues per individual member are \$24.00, or \$24.00 plus \$2.00 per each additional member for the family membership. If you have not paid for 2014 you owe that amount plus the \$24 for 2015. Any member not yet paid up can see Warren at the next regularly scheduled meeting. If you have any question you can contact Warren at [W3JDF@arrl.com](mailto:W3JDF@arrl.com) .

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## Upcoming Second Wednesday Presentations

These presentations will be given at the Essex SkyPark FBO building following a short business meeting.

Date	Topic	Presenter
4/15	Earth Moon Earth Prep & Lunar Topography	Joe Miko
5/20	Field Day Best Operating Practices	Bob Venanzi
6/17	ISS Sighting and Contacting	Frank Stone
7/15	Contest Logging w/N1MM	Bob Venanzi

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### April 15, 2015 Presentation - Earth Moon Earth (EME) – Joe Miko

A power point presentation providing information on: the processes and preparations required to bounce a signal off of the Moon; basic astronomy information required to find the optimum time to shoot the Moon; Earth geography - where and when the Moon is and what Earth cities are covered; the transmitting antenna array designed and constructed by Phil W3VRD; basic radio information as to transmitter requirements and the need for scheduling and pre-planning.

The EME is tailored to Aero Club requirements and expected weather conditions. EME data was utilized from Amateur EA6VA coupled with my Astronomy background and the assumptions from the AERO club, which together have produced a list of possible club EME dates for 2015. With the basic concepts in place the Astronomy parts can be updated on a year by year basis.

If you have any questions please 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](mailto:KB3PGN@reagan.com) for inclusion in the Aerial.

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## SKYWARN CLASSES

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### **Thursday, 4/2/2015, 6:30 - 9:30 pm, BASIC 1**

Howard Robinson Nature Center, 6692 Cedar Lane, Columbia, MD 21044

POC: Richard Philips

<https://skywarnhoward.eventbrite.com>

### **Tuesday, 4/7/2015, 6:00 - 9:00 pm, BASIC 1**

George Washington University, Marvin Center

800 21st St., NW, Room 309, Washington D.C. 20052

POC: Heather Kraus - Please email Heather to register

\*\*\* Registration closes April 2, 2015 \*\*\*

[emevents@gwu.edu](mailto:emevents@gwu.edu)

### **Thursday, 5/28/2015 - 6:30 - 9:30 pm, FLOOD - (BASIC 1 Required)**

Prince George's Laurel City OEM, Laurel City Hall, 8103 Sandy Spring Rd, Laurel, MD 20784.

POC: Paul Bowling

To register: <http://skywarn-flood-0515.eventbrite.com/?aff=NWSLWX>

For more classes, check [weather.gov/lwx/skywarn](http://weather.gov/lwx/skywarn)

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## VE CORNER

*by Pat Stone, AC3F*

### **Aero ARC VE 2015 Test Schedule**

Where: White Marsh Library, 8133 Sandpiper Circle, White Marsh Md. 21236

Time: 1 P.M.

Dates: May 23, August 22, October 24

Contact: Patricia Stone, AC3F, phone: 410-687-7209, email: [ac3f@juno.com](mailto:ac3f@juno.com)

Four candidates appeared for testing at White Marsh for the March 14<sup>th</sup> session. Three took the Tech and one came to upgrade.

Congratulations to New Techs Dave Kinsler, **KC3EPJ**, Al Gilmore, **KC3EPI**, and Bill Wright, **KC3EPH**. Also congratulations to Ben Myers, **KD3WB**, who aced the Extra exam.

Thanks to VE's WB3FMT and AC3P for helping with the session.

Our next session will be Saturday, May 23<sup>rd</sup> at the White Marsh Library. Registration begins at 1 p.m.

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### **03/28/2015 - 05/02/2015, 9 am to 12 noon: Technical Licensing Class**

Sponsored by: Montgomery Amateur Radio Club

Instructor: David Bern, W2LNX, Phone: (301) 251-0304, Email: [education@marcclub.org](mailto:education@marcclub.org)

Pre-registration is required.

Location: Montgomery College, Science Center, fourth floor, 51 Mannakee St., Rockville, MD 20850

Six sessions on a weekend day, no Morse code offered.

VE exam session: Saturday, May 9, 2015, 9 am to 12 noon in Science Center room 406, Montgomery College, 51 Mannakee Street Rockville, MD.

More information: <http://www.marcclub.org/mweb/education/exams>

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### **REMINDER:**

### **FCC Update**

The Federal Communications Commission had announced that it will no longer be mailing physical licenses. A physical license may be downloaded and printed from the ULS webpage. Hardcopies will be mailed upon request of the licensee. For the full ARRL announcement see last month's Aerial.

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## **UPCOMING HAMFESTS and EVENTS**

### **Saturday, April 11, 2015: Culpeper (VA) Amateur Radio Swapfest**

Culpeper Agriculture Enterprise, 10220 James Monroe Hwy., Culpeper, VA 22701. Talk-In: 147.12 (PL 146.2)

Contact: Bob Stohlman, K4RCG, 223 West Park Ave, Culpeper, VA 22701

Phone: 540-825-2770, e-mail: [bobstohlman@gmail.com](mailto:bobstohlman@gmail.com)

### **Saturday, April 11, 2015: York (PA) Hamfest**

Elcker's Grove Park, 511 Roth Church Rd., Spring Grove, PA 17362

Website: [www.yorkhamfest.org](http://www.yorkhamfest.org) Talk-In: 147.330+ (PL 123.0) & 146.520 simplex

Contact: Duane Sterner, KB3QLQ, 7197 Hershey Rd., Spring Grove, PA 17362

Phone: 717-332-1385, E-mail: [duane.sterner@yahoo.com](mailto:duane.sterner@yahoo.com)

### **Saturday May 2, 2015, Hagerstown Hamfest (Antietam Radio Association)**

Washington County Agriculture Center, 7313 Sharpsburg Pike (Route 65 South), Boonsboro, MD 21713. <http://w3cwc.org/Menu/Hagerstown-Hamfest>

Talk-In: 147.090 (PL 100) + Repeater & 146.94 - backup

Contact: Brian Umbrel, W3PDW, 235 E. King St., Chambersburg, PA 17201, 717-264-6403, [w3pdw@earthlink.net](mailto:w3pdw@earthlink.net)

**Saturday, May 2, 2015, 8:30 am – 11:30 am, Essex Skypark Fly-In Drive-In**

Menu: Pancakes – sausage – coffee – juice. Cost: Donation

**Sunday, June 7, 2015: Breeze Shooters Hamfest and Computer Show**

Butler Farm Showgrounds, 627 Evans City Rd., Butler, PA 16001

Website: <[www.breezeshooters.net](http://www.breezeshooters.net)> Sponsor: Breeze Shooters ARC Talk-In: 147.300+

Contact: Robert Benna, N3LWP, 1010 Willow Dr., Pittsburgh, PA 15237

Phone: 412-366-0488, E-mail: <[N3LWP@verizon.net](mailto:N3LWP@verizon.net)>

**Sunday, June 14, 2015: Manassas Hamfest & Maker Technology Show**

Prince William County Fairgrounds, 10624 Dumfries Rd., Manassas, VA 20108

Website: <[manassashamfest.org](http://manassashamfest.org)> Sponsor: Ole Virginia Hams Amateur Radio Club. Talk-In: 146.97 Contact: Terry Erlacher, KC4DV, PO Box 1255, Manassas, VA 20110

Phone: 571-292-1490, E-mail: <[chairman@manassashamfest.org](mailto:chairman@manassashamfest.org)>

**Sunday, June 21, 2015: BARC Hamfest, Arcadia VFC, Upperco, MD.**

Baltimore Amateur Radio Club Father's Day Hamfest will be held on Sunday, June 21st 2015 at the Arcadia Volunteer Fire Company Grounds. The address is 16020 Carnival Ave, Upperco, MD 21155. It is just a few miles north on Route 30 from the top of I-795. The show will be from 8 am until 12 noon and it will be a TAILGATE hamfest. The prices will be \$5 admission and \$10 per tailgate spot.

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

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**PUBLIC SERVICE OPPORTUNITY**

**Saturday, April 11, 2015: Open Cockpit Day, Glen L. Martin Aviation Museum**

Open Cockpit Aircraft display starts on April 11 and will run through August on the second Saturday. More info at a later date.

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**FEATURE ARTICLE**

For various reasons some of us were not able to attend Phil's presentation on repeaters. So we decided to include (with his permission) his PowerPoint slides.

## Radio Repeaters

- What is a Repeater? (Radio)

A radio repeater is a communications system designed to increase the coverage of individual radios.

- Typical communications between unit:
  - Handheld to Handheld radios: about  $\frac{1}{2}$  mile
  - Mobile unit to Mobile unit: about 5 miles
  - Through a Repeater: 20+ miles (depends on location)

## Radio Repeaters

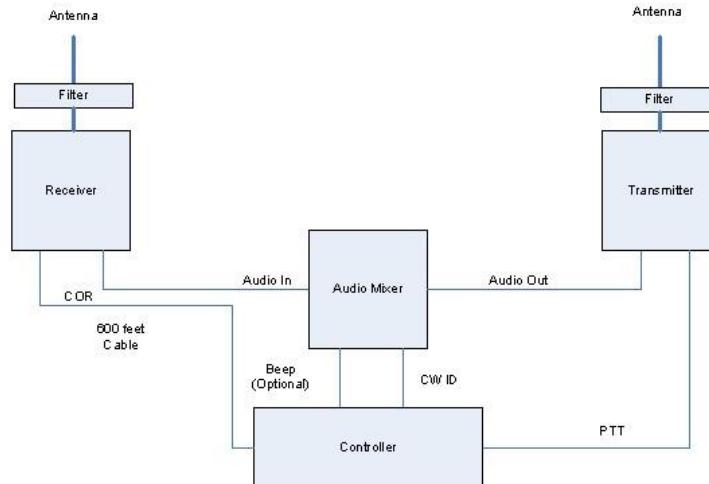
- Repeaters typically use Frequency Modulation (FM).
  - (+/-) 5 KHZ Deviation.
- Ham radio repeaters use one frequency to receive, one to transmit.
- Frequency splits:
  - 10 Meters – 100 KHz (-)
  - 6 Meters – 500 KHz (-)
  - 2 Meters – 600 KHz (+/-)
  - 220 MHZ – 1.6 MHz (-)
  - 450 MHz – 5 MHz (+/-)

# Radio Repeaters

- 2 Meter ARRL FM Band Plan
- 144.60-144.90 MHz Repeater inputs
- 144.90-145.10 MHz Simplex
- 145.20-145.50 MHz Repeater outputs
- 146.01-146.37 MHz Repeater inputs
- 146.40-146.58 MHz Simplex
- 146.61-146.97 MHz Repeater outputs
- 147.00-147.39 MHz Repeater outputs
- 147.60-147.99 MHz Repeater Inputs
- 146.52 National Simplex Calling Frequency

# Radio Repeaters

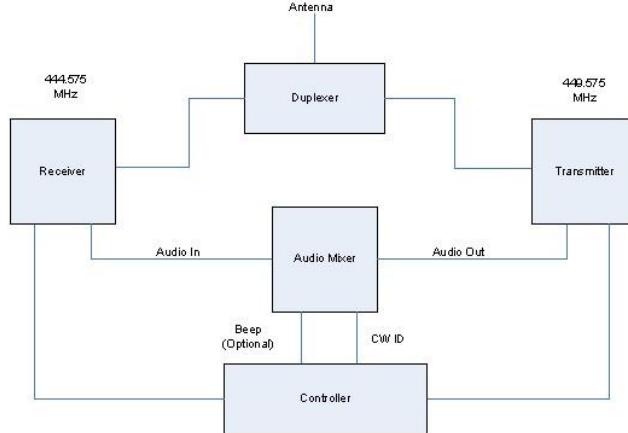
- W3PGA 2 MTR Repeater



AERO ARC 147.24 MHz Repeater

# Radio Repeaters

- W3PGA 450 Repeater



AERO ARC 450 MHz Repeater

# Radio Repeaters

- **Duplexer:**
  - Set of Cavity Filters.
  - One side passes the transmit frequency and rejects the receive frequency.
  - the other side passes the receive frequency and rejects the transmit frequency.
  - Insertion loss - .5 db Attenuation loss 80-100 db
- **Controller:**
  - Receives input from receiver COR.
  - Keys transmitter when COR active.
  - Adds CW ID every three minutes. If repeater is off longer than three minutes, sends ID the next time the repeater is keyed.
  - Adds several seconds of Hang Time when COR drops.
  - Has a Time Out Timer (about 4-5 minutes) to turn the repeater off if COR is on longer.

## W3PGA Repeater in Oak Grove about 1975



Kenwood High School – W3PGA







*This is not a paid advertisement.*

***QST QST QST  
Grand Opening  
April 1 2015  
Doors Open 8 a.m.***



**SineWaves Radio Center  
102 Bowleys Quarters Rd.  
Middle River Md. 21220**

**410-555-4321**

**[www.sinewaves.com](http://www.sinewaves.com)**

***Early Bird Specials***

**Buy One Get One Free – Mix and Match**

**Drake Twins : 399.95**



**Kenwood Twins : 349.95**



**Door Prizes! QSL Contest! Morse Code Contest!  
First 100 customers get a free 5-pack of FT-243 Crystals**

***Free Novice Exams at 11 a.m.***

***Meet Miss Heathkit! 2015 1 – 3 p.m.***



# From the Skies over Mt. Essex

## SKY Events for April 2015

Apr 2<sup>nd</sup> – First Photograph of Sun 1845

Apr 3<sup>th</sup> – Passover and Good Friday

Apr 4<sup>th</sup> - **Full Moon** “**Seed Moon**” for the English Medieval and the “**Pink Moon**” for the Colonial American. **Total Lunar Eclipse** begins Umbra Phase at 06:16 EDT. Sunrise at 06:46 with Moonset at 06:50 EDT.

Apr 6<sup>th</sup> – Uranus in conjunction with the Sun.

Apr 8<sup>th</sup> - Saturn 2° S of Mars 09:00 EDT (13 UT)

Apr 12<sup>th</sup> - Last Quarter Moon, Yuri Gagarin USSR first man to orbit Earth in 1961, Space Shuttle Columbia launched 1981.

Apr 18<sup>th</sup> – New Moon

Apr 22<sup>nd</sup> – Lyrid Meteor shower (Lyra) 10-20 per hour, Moon is less than FQ, Look NE 11pm to dawn.

Apr 24<sup>th</sup> – Hubble Space Telescope launched in 1990.

Apr 25<sup>th</sup> - First Quarter Moon

### Planet Lookout at mid-Month

**Sunrise 06:28 EDT and Sunset 19:44 EDT**

**Mercury** Visible at dusk around the 18<sup>th</sup>, magnitude -1.8; 5.0 arc seconds

**Venus** High at Dusk magnitude -4 and 14.6 arc seconds.

**Mars** In the West at Dusk till 20th, magnitude +1.4 and 3.9 arc seconds wide.

**Jupiter** High at Dusk, sets by dawn, magnitude -2.3 size 40 arc seconds.

**Saturn** Rises late in PM. Magnitude +0.3 size 18 arc seconds.

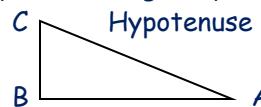
**Uranus** – Conjunction not visible.

**Neptune** East at Dawn rises at 04:40 EDT. Magnitude +8.0 size 2.4 arc seconds.

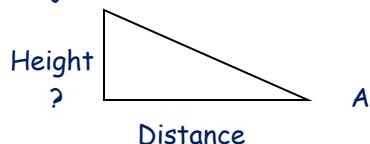
### Triangle Measurement – It's Greek to me!

The use of a triangle can help solve a numbers of problems. The following are 5 problems and their solutions using a right triangle.

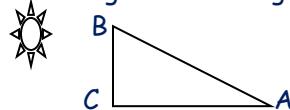
1. To find the **length of a wire** from a pole or wall, when the height and distance are known? This is the **Hypotenuse** =? Take the sq root of the distance squared + height squared.



2. To find the **height of an object** when the distance is known and an angle can be determined. Take the **Tangent of the angle** \* the distance = height of object.

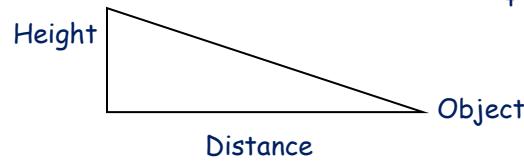


3. To find the nearest degree to measure the **elevation of the Sun** using a vertical pole and shadow. Take the pole length over the shadow length take that answer (in decimal format) convert to **Arctangent = Sun angle**.



4. To find the **distance to the horizon** using your height above the ground.

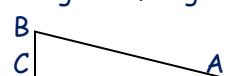
Distance in miles = square root  $(7 * \frac{\text{height in feet}}{4})$



5. To find the **distance to an object** with a known height and angle to the object.

Remember all triangles = 180°

Tangent of angle B \* height = distance





## April 2015

			Meeting Skypark 7:30 pm <b>1</b>	SKYWARN CLASS 6:30 pm Robinson Nature Ctr <b>2</b>		<b>3</b>	<b>4</b>
<b>5</b>	<b>6</b>	<b>7</b>	28.445 MHz Net 8 pm <b>8</b>			<b>9</b>	<b>10</b>
			Meeting Skypark 7:30 pm <b>15</b>			<b>16</b>	<b>17</b>
<b>12</b>	<b>13</b>	<b>14</b>	147.24 MHz Net 8 pm <b>22</b>			<b>23</b>	<b>24</b>
<b>19</b>	<b>20</b>	<b>21</b>	449.575 MHz Net 8 pm <b>29</b>			<b>30</b>	