Fall is Here

The Aero Aerial

The Newsletter of the Aero Amateur Radio Club
Middle River, MD
Volume 13, Issue 11
November 2016

Editor   Georgeann Vleck KB3PGN

Website: http://w3pga.org
Facebook: https://www.facebook.com/pages/Aero-Amateur-Radio-Club/719248141439348

About the Aero Amateur Radio Club

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.

2016- 2017 Examination Schedule
Where: White Marsh Library, 8133 Sandpiper Circle

Time:	1:15 – 4 pm	1:15 pm
Dates:	Sun., Nov. 13	Sun., Jan. 29, 2017

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
2nd Tue	7:30 pm	146.670	Baltimore County RACES Net
2nd Wed	8 pm	28.445	Aero ARC Net
4th Wed	8 pm	147.240	Aero ARC Net
5th Wed	8 pm	449.575	Aero ARC Net
Fridays	7:30 pm	145.330	Back in the Day Net
When activated by NOAA		147.030	SkyWarn (primary)

SK

Heru Walmsby, W3WVV, from Glen Burnie, one of the founding members of the BRATS club, passed away on Saturday, October 22, 2016. He was heavily active in ATV from the beginning. An avid home-brewer, he home-brewed virtually all of the original B.R.A.T.S. ATV and FM repeater equipment. For some years he was one of the "Answer Men" on a BRATS repeater net, fielding technical questions from hams.

Contributors: Bob Landis, WA3SWA and David Vleck KA3SNY

STATION ACTIVITIES

Joe Miko, WB3FMT, is now out of the hospital and at home.

NET REPORTS

10-12-16: 28.445 MHz, 20:00 to 20:32 local.

W3PGA Joe (NCS) Essex, KC3HXL Joel Essex, W3VRD Phil Essex, KB3JVP Ken Middle River

10-26-16: 147.240 MHz, 20:00 to 21:37 local.

W3PGA Joe (NCS) Essex, N3VBJ Jerry Dundalk, KC3GKE Don Essex, KB3JVP Ken Middle River, KC3FBL Jim Parkville, KC3FRJ Steve Parkville

Note: General topics, ice maker repairs, and making a folded dipole for 40 meters, why and how.

Upcoming Second Meeting Presentations

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

Date	Topic	Presenter
TBA	VE Testing & Morse Code	Patricia Stone
TBA	Contest Logging with N1MM	Bob ND3D
TBA	The Acu-rite Weather Station	Charles KC3ANJ, Kelly KC3APF
TBA	His 220 Repeater	Ron W3JEH
TBA	His Linear Amplifier	Phil W3VRD
TBA	Ham Radio in the Modern Age	Keon KE3HAY

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

The AERO VE Team held its test session on Sunday, September 25th, 2016 at the White Marsh Library. We served 6 applicants. Congratulations to new Generals Bob Horton KC3HHH, Steve Lazhon KC3FRJ, Ed Boyle N3QDQ and new Techs James Jones KC3HXK, Brad Giordano KM4YDR, Joel Wrightson KC3HXL .

A very special thanks to VE's: WB3FMT, KD3TP, KB3VAE, W1ASA, KD3TP and AC0LP for assisting me with this session. It was a pleasure working with all of you.

Our next test session will be held at 1:15PM on Sunday November 13th at the White Marsh Library. Hope to see you then.

Our first session for 2017 will be held on January 29th at 1:15PM in White Marsh.

UPCOMING HAMFESTS and EVENTS

Glenn L. Martin Aviation Museum Speaker Series, 7 pm, Lockheed Martin Administration Building, 2323 Eastern Blvd, Middle River, MD.
Although admission to the Aviation Speaker Series program is free, a photo ID is required for entry into the facility.
November 7: Retired USAF pilot Buz Carpenter talks about flying the Lockheed SR-71 "Blackbird"

Saturday, December 10, 2016: SANTA FEST
American Legion Youth Camp, 9201 Surratts Road, Cheltenham, MD 20623
Sponsor: American Legion & Prince George's County Emergency Repeater Assn.
Talk-In: 145.230 (PL 110.9)
Contact: Charles Hallock, AA3WS, 16203 Manning Road, West Accokeek, MD 20607, Phone: 301-535-1666, E-mail: <selbynet@hotmail.com>

Sunday, January 29, 2017: Post Holiday Hamfest
Odenton Volunteer Fire Company, 1425 Annapolis Road, Odenton, MD 21113
<https://sites.google.com/site/marylandmobileers/hamfests-1/hamfest-2>
Sponsor: Maryland Mobileers Amateur Radio Club
Talk-In: 146.805- (PL 107.2)
Contact: Bruce McPherson, AB3AC, 484 Peach Leaf Court, Odenton, MD 21113
 Phone: 410-456-2500, Email: <bmcpherson73@verizon.net>

Saturday, Feb. 4, 2017: Virginia State Convention (FrostFest), 8:30 am – 3:30 pm
Richmond International Raceway, 600 E. Laburnum Ave., Richmond, VA 23218
<www.frostfest.com>
Sponsor: Richmond Amateur Telecommunications Society
Talk-In: 146.880 (PL 74.4)
Admission: $10, under 18 free
VE testing 10 am – 1 pm. Walk-ins only, no preregistration. Frostfest ticket not required for taking the exam.
Lodging: group rate at Courtyard Marriott $89/night
Vendor list available on the website.
Contact: Timothy Farrell, KJ4NPB, 8287 Ellerson Drive, Mechanicsville, VA 23111, Phone: 804-306-1134, Email: <timfarrell57@gmail.com>

Sunday, March 19, 2017: Winterfest
Northern Virginia Community College, Annandale Campus, 8333 Little River Turnpike, Annandale, VA.
viennawireless.net/wp/events/winterfest
Sponsor: Vienna Wireless Society
Talk-In: 146.910(-) MHz
Contact: Thor Berglie, KK4UYT, 2813 Hunter Rd, Fairfax, VA 22031, Phone: 202-495-1315, Email: <thor.berglie@gmail.com>

Saturday, April 22, 2017: Delaware State Convention (Delmarva Amateur Radio and Electronics EXPO)
Cheer Center, 546 South Bedford Street, Georgetown, DE 19947
www.radioelectronicsexpo.com
Sponsor: Sussex Amateur Radio Association
Talk-In: 147.090 (PL 156.7)
Contact: Herbert Quick, KF3BT, PO Box 1431, Seaford, DE 19973, Phone: 302-629-4949, Email: <herb@hamiltongraphics.com>

Friday, May 19, 2017 through Sunday, May 21, 2017: 2017 Dayton [Ohio] Hamvention
Greene County Fair & Exposition Center, 120 Fairground Rd, Xenia, OH 45385
<http://www.hamvention.org>
Sponsor: Dayton Amateur Radio Association
Talk-In: 146.94 & 146.91 (alternate)
Contact: Phone: 937-276-6930, Email: <info@hamvention.org>

Sunday, June 18, 2017: BARC's Father's Day Hamfest
Arcadia Volunteer Fire Company Grounds, 16020 Carnival Avenue, Upperco, MD 21155
www.w3ft.com
Sponsor: Baltimore Amateur Radio Club
Talk-In: None
Contact: Dave Shadwell, AB3TE, PO Box 120, Reisterstown, MD 21136, Phone: 443-465-6583, E-mail: <w3ft67@yahoo.com>
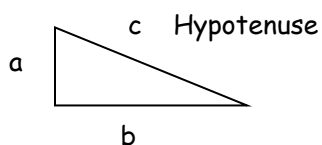
FEATURE ARTICLE

Triangle Measurement – You Did It in High School….Remember?
by Joe Miko, WB3FMT

The use of a triangle can help solve a numbers of problems. The following are 5 problems and their solutions using a right triangle and some long forgotten High School Geometry! *Hint! The sum of the angles in a triangle = 180°.*

There are a number of problems that radio operators need to solve other than how long does a dipole need to be to operate on 14.175 MHz or 20 meters, that is 468 / by the frequency in MHz = 33.016 feet or 396.2 inches. This and other routine equations are in the ARRL Handbook or Operator study guides. The following are practical examples and formulas that are used to find the answers to problems or questions using math from High School, something we normally don't use on a daily basis. But it can be handy!

Problem 1 -   You want to run an antenna wire the length of your property. If you have a 1 acre lot properly not a problem? But, for us living in row homes, we are limited to space above the roof and part of the front and back yards.

c   Hypotenuse

a

b

a = 25 feet high
b = 40 feet length
How long is c? (hypotenuse)

If we know the height of the antenna mast, chimney or tree a, and the usable yard distance b, we can find the length of the dipole leg or long wire c. That is called the hypotenuse.

Remember the Pythagorean Theorem? $a^2 + b^2 = c^2$. Solving for c:
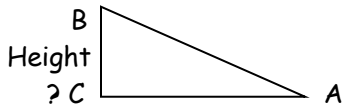
$$c = \sqrt{(a^2 + b^2)}$$

a^2 = 25 x 25 = 625
b^2 = 40 x 40 = 1600
625 + 1600 = 2225
$\sqrt{2225} = 47.17$

Your dipole leg or long wire is 47.17 feet.

Problem 2 - You want to use a mast or a tree. How high is it?

To find the **height of an object** when the distance is known and an angle can be determined, take the tangent of the angle multiplied by the distance to the object.

Angle A measures 35°. The tangent of 35° is .7002 (Geometry Text Book). The distance CA equals 75 feet.
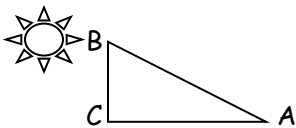
$$BC = (CA)(\tan(35°))$$

CA = 75'
tan (35°) = .7002
(75')(.7002) = 52.51 feet

The object is 52.51 feet high.

Problem 3 - Find the elevation of an object or the Sun to the nearest degree.   You measure the **elevation of the Sun** using a vertical pole and its shadow. Divide the pole length by the shadow length, take that answer (in decimal format) and convert it to an Arctangent = Sun angle.

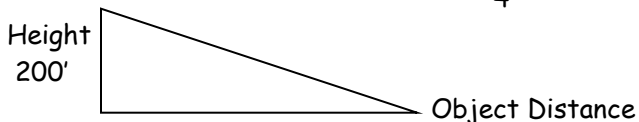Pole BC is 6' High   Shadow BA is 8' Long   What is the angle of A?
6/8 = .7500
Take the Arc Tangent (tan^{-1}) of .7500   = 36.86° Sun angle

Problem 4 - You are in a hotel in Ocean City and you want to know how far it is to the horizon. This will work standing in a building, a mountain or aircraft as long as you know your height above sea level. This formula uses the Rule of 4.

To find the **distance to the horizon** using your height above the ground, using the Rule of 4.
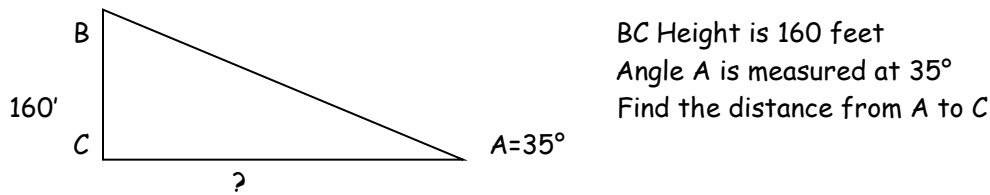
Distance in miles = square root (7* height in feet)
                              4

7/200   1400 =350 $\sqrt{350}$ = 18.7 miles
   4   4

Problem 5 - How far are you from an object when you know its height and you can determine its angle?

Take the Tangent of angle B * height = distance

```
   B
    |\
    | \
160'|  \
    |   \
   C|____\ A=35°
      ?
```

BC Height is 160 feet
Angle A is measured at 35°
Find the distance from A to C

Remember that triangles = 180°   Angle C is a right angle 90°, Angle A is a measured 35°, that leaves 55° for Angle B.

Take the Tangent of Angle B (55°) x Height.   1.4281 x 160 feet = 228.496 feet.

This is how the Golf range finder works. The standard Cup Flag is 6feet height, the finder measures the angle to a known height and gives you the distance. Also Naval personnel use the same method when they visually sight a ship at sea, they can use a Sextant to get an angle and a reference book (Jane's Military) for size information.

Hope this is helpful; another great helping tool is the "Pocket Ref" Guide by Thomas J. Glove. The ARRL sells this guide for $12.95 item #1148, 540 plus pages of tables, charts, drawings, list and formulas, useful for radio operations, students, contractors and others.

DID YOU KNOW . . .??

May 24, 1844: Samuel F. B. Morse transmitted the message "What hath God wrought!" from Washington to Baltimore as he opened America's first telegraph line.

From the Skies over Mt. Essex

SKY Events for November 2016

Nov 5th – South Taurids meteor shower ≈10 per hr. Moon is LQ, good prospects.

Nov 6th – Daylight Saving Time ends starts 3/12/17

Nov 7th - First Quarter Moon

Nov 8th- Edmond Halley born in 1656

Nov 9th – Neptune is 1.0° S of the Moon

Nov 12th – North Taurids meteor shower ≈15 per hr. Moon is Full, poor prospects.

Nov 14th - *Full Moon* "Beaver Moon" for the Traditional American and the "White Moon" for the Chinese Full Moons.

Nov 15th- Aldebaran is 0.4° S of the Moon

Nov 16-18 – Leonid meteor shower ≈20 per hr. Moon is LQ, poor prospects.

Nov 20th – *Edwin Hubble born 1889.*

Nov 21st - Last Quarter Moon, Regulus is 1.3° N of Moon at 06:00 EST.

Nov 15th- Aldebaran is 0.4° S of the Moon

Nov 24th Jupiter is 1.9° S of the Moon 21:00 EST

Nov 26th – First Meteor photographed in 1885

Nov 29th – New Moon

Sunrise 06:46 EST and Sunset 16:54 EST

Planet Lookout at mid-Month

Mercury Evening sets 17:19, mag -0.6, size 4.8 arc sec.

Venus   Evening sets 19:15, mag -4.1, size 15.3 arc sec.

Mars   Evening, sets 21:46, mag 0.5 and 7.0 arc sec.

Jupiter Morning rises 03:32, mag -1.7 and 31.8 arc sec.

Saturn   Evening sets 18:12, mag 0.5 size 15.2 arc sec.

Uranus   Evening rises 15:16, mag 5.8, size 3.6 arc sec.

Neptune Evening rises 13:36, mag 7.8 size 2.3 arc sec.

Flash in the Sky – Iridium Flares!

The **Iridium satellite constellation** is a group of artificial satellites, conceived, designed, and built by Motorola, system provides wireless, mobile communications through a network of 66 satellites in polar, low-Earth orbits.

 Inaugurated in November 1998, under the auspices of Iridium LLC, this complex space system allowed callers using hand-held mobile phones and pagers to communicate anywhere in the world--a first in the history of telephony.

The 66 active satellites in orbit, and additional spare satellites are in low Earth orbit at a height of approximately 485 mi and inclination of 86.4°

 Because of the shape of the Iridium satellites' reflective antennas, the satellites focus sunlight on a small area of the Earth's surface in an incidental manner. This result in an effect called Iridium flares, where the satellite momentarily appears as one of the brightest objects in the night sky and can even be seen during daylight. The Iridium flairs can reach a magnitude of up to a -8.5

The web site "Heavens-Above.com" based in Munich, Germany now provides flare predictions. Because the flare effect is fairly local in nature, the user should provide their best known coordinates in order to observe the flare successfully. This site has a large coordinate database to allow the user to determine their coordinates.

Information provided gives the date, time and position of the flair.

Ex: Time: Jul 25, 04:12:52 -   Brightness -0.6
 Altitude 36° - Azimuth 110° ESE - Satellite Iridium 75
Distance to center of flare 79 km (W)
Brightness at flare center -6.8 and Sun angle -18°
Also provided is a sky chart for each event.
 Info is plotted at 10 day intervals.