

# THE AERO AERIAL



*The meeting before the meeting after the meeting*

The newsletter of the Aero Amateur Radio Club  
Middle River, Md  
Volume 8 Issue 3  
March 2011

Editor Frank Stone AC3P

## Officers

Bob Landis	WA3SWA	President	Repeater
Bob Venanzi	ND3D	Vice-President	VE Testing
Lou Kordek	KB3LJF	Recording Secretary	Public Service
Pat Stone	AC3F	Corresponding Secretary	Webmaster
Warren Hartman	W3JDF	Treasurer	Trustee
Ron Distler	W3JEH	Property Mgr	Club Nets

## Committees

Phil Hock W3VRD
Pat Stone AC3F
Bob Landis WA3SWA
Al Alexander K3ROJ
Frank Stone AC3P
Joe Miko WB3FMT

## ABOUT THE AERO AMATUER RADIO CLUB

Meetings: First and Third Wednesdays at 7:30 pm at Coffman's Diner  
(Middle River and Orem's Rd.)

Nets: See Local Area Net Schedule

Repeaters: W3PGA (147.24 MHz - / 449.575 MHz -)

WEBSITE: [www.aeroarc.us](http://www.aeroarc.us)

## LOCAL AREA NETS

Day	Time	Frequency (MHz)	NET NAME
Daily	9 – 10 am	147.03	ORIOLE Net
Daily	5:30– 6 pm	3.820	Maryland Emergency Phone Net
Daily	6:30 – 7 pm	146.670	Baltimore Traffic Net
Daily	7 pm and 10 pm	3.643	Maryland/DC/Delaware Traffic Net
1 <sup>st</sup> Tues	7:30 pm	145.330	Baltimore ARES Net
2 <sup>nd</sup> Tues	7:30 pm	146.670	Baltimore County <u>RACES</u> 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

*The Aero Quantum Mechanics Net: Anytime any Frequency contact WB3FMT. The last one was on 449.575 MHz on Tuesday 8 pm on March 30<sup>th</sup>. Who knows where or when the next one may be?*

## Aero Net Reports

### December

**10 Meters: WB3FMT(NCS) AC3P W3JEH KA3SNY**

**2 Meters: WB3FMT(NCS) AC3P W3VRD W3JEH**

**70 Cm Net: WB3FMT(NCS) KB3JVP W3VRD W3JEH KA3SNY AC3P**

## Station Activities

**WB3FMT** awaits the arrival of a CHICOM HT. **W3JEH** has a new exciter on order for his 222 Mhz repeater. Was that Marine-1 spotted flying from Martin State Airport over **AC3P**'s QTH and headed in the direction of **K3ROJ**? It was a larger chopper than those usually flying in the area.

## VE Corner *by AC3F*

January had a good start for the new year of test sessions. Ten applicants showed up at White Marsh. There were five new hams and four upgrades.

Congratulations to new Techs: **KB3VOF** Grace McConkie, **KB3VOG** Steven Phipps, **KB3VOH** William Burkett, **KB3VOI** Raul Bruan, and **KB3VOJ** David Hughes; Generals **KB3OGU** Charles Rapp, and **KJ4GUN** Joseph Yoon; and Extra **N3LCW** Andrew Domonkos.

Thanks VE's WB3FMT, ND3D, K3ROJ, and AC3P.

The next Test session at White Marsh is on March 19<sup>th</sup> at 1 pm.

## 2011 AERO 20 DAYS AND 20 NIGHTS OF FUN CONTEST

The annual AERO club operating contest for 2011 is history for another year. There were five participants this year which is an increase over the past few years. Among the five participants there were 337 QSOs made with the vast majority being made during major contest weekends. This year marked a major increase in the number of contacts made using PSK31 over previous years. While no one achieved the bonus points for working all letters of the alphabet in the call suffix this year, a total of 320 bonus points were recorded.

The 2011 winner is Bob Venanzi ND3D, who amassed a total 1030 points. The majority of Bob's QSOs were made using his favorite mode, CW and operating QRP with his new rig.

<b>FINAL RESULTS - AERO 2011 20 DAYS AND 20 NIGHTS</b>					
<b>CALL SIGN</b>	<b>NAME</b>	<b>NUMBER</b>	<b>TOTAL QSO</b>	<b>BONUS</b>	<b>TOTAL</b>
		OF QSOs	POINTS	POINTS	POINTS
ND3D	Bob Venanzi	144	900	130	1030
AI3G	Doug Ermer	92	581	75	656
WA3SWA	Bob Landis	51	308	90	398
AC3P	Frank Stone	24	168	25	193
W3VRD	Phil Hock	26	134	0	134
<b>TOTALS</b>		<b>337</b>	<b>2091</b>	<b>320</b>	<b>2411</b>
<b>SUMMARY BY BAND</b>					
<b>CALL SIGN</b>	<b>NAME</b>	<b>80M</b>	<b>40M</b>	<b>30M</b>	<b>20M</b>
ND3D	Bob Venanzi		4		132
AI3G	Doug Ermer		31		61
WA3SWA	Bob Landis	1	24	3	15
AC3P	Frank Stone	3	2		17
W3VRD	Phil Hock		10		1
<b>TOTALS</b>		<b>4</b>	<b>71</b>	<b>3</b>	<b>226</b>
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<b>SUMMARY BY TYPE</b>					
<b>CALL SIGN</b>	<b>NAME</b>	<b>CW</b>	<b>SSB</b>	<b>PSK31</b>	
ND3D	Bob Venanzi	111	33		
AI3G	Doug Ermer	41	51		
WA3SWA	Bob Landis			51	
AC3P	Frank Stone	24			
W3VRD	Phil Hock		2	24	
<b>TOTALS</b>		<b>176</b>	<b>86</b>	<b>75</b>	

# Phased Vertical Antenna System

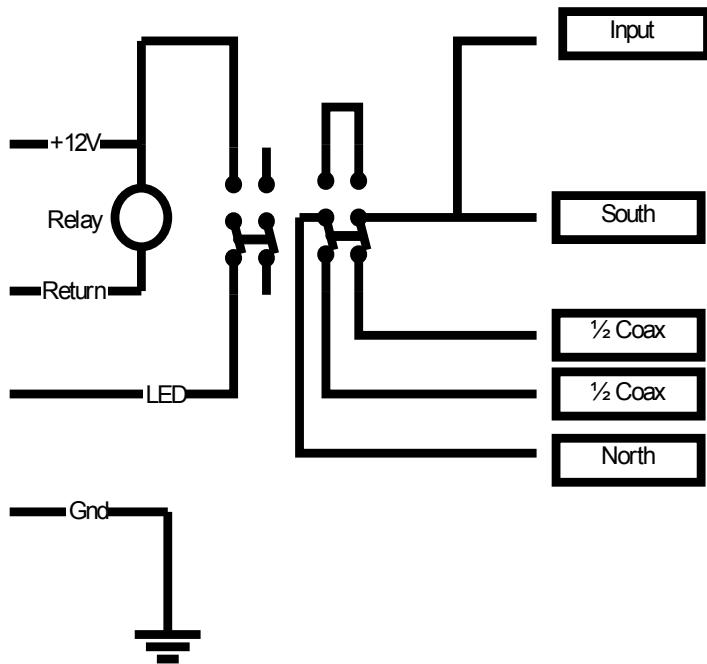
by W3VRD

In 2009, I installed a phased vertical antenna system consisting of two Butternut HF6V Vertical Antennas. The antennas are located on a pier that extends 75 feet over Norman Creek in the Essex Maryland area. The pier is oriented approximately North/South. The far antenna (North) is located at the end of the pier 75 feet from the land, and the near antenna (South) is located one half wavelength on 40 meters toward shore (70 feet).

The phasing system was designed to operate on the 40 meter band. The design uses two vertical antennas spaced one half wavelength apart oriented North/South. Each antenna was fed with a quarter wave (multiple) coax feed. A coax length of one half-wave was added or removed from the system in order to create the phase shift. When the antennas are fed in-phase, an East/West broadside pattern is formed. When the antennas are fed out-of-phase, a North/South pattern is formed. The relay box allows the phase shift to be operated from the shack.

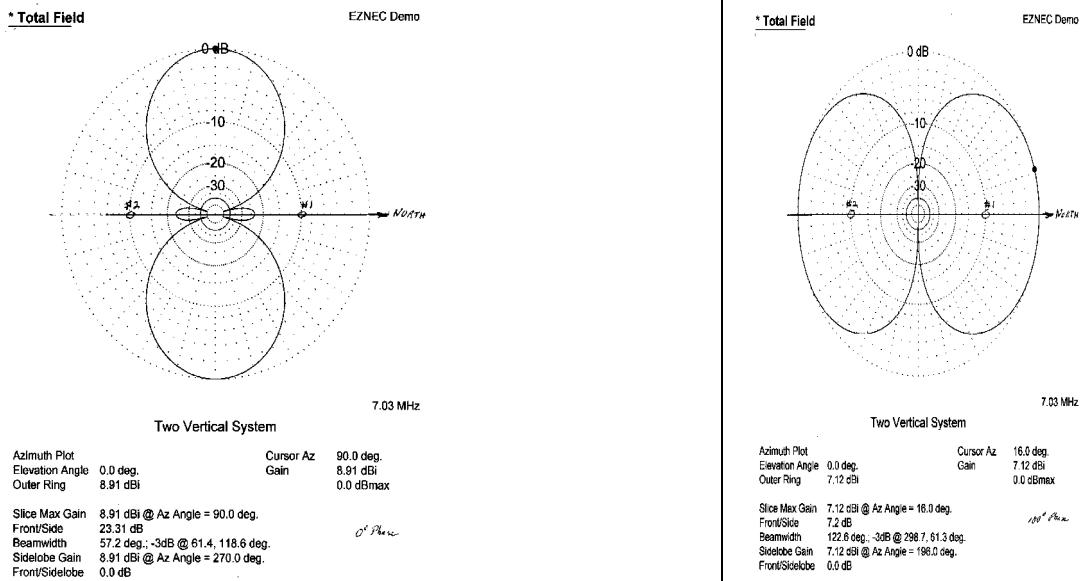
The coax feed system for the array consists of 50 ohm cable running from the house to a relay box located three fourths of the length of the pier. A coax cable runs  $\frac{3}{4}$  wavelength (84feet) runs from the relay box to the near (South) antenna. Another coax cable  $\frac{1}{4}$  wavelength (28 feet) runs from the relay box to the far (North) antenna. A diagram of the Relay Box used to change the phasing is shown in Figure 1.

Figure 1



In addition to the antennas, radials are located out in the water. There are 8 to 10 radials used for each antenna under the pier and out from the antennas. The longest ones are approximately 100 feet. The ground radial system appears to be very stable with no noticeable change over the years.

Antennas patterns are included for 7.050 MHz run on EZNEC Demo for 0 degrees and 180 degrees phasing. They are shown below:



The Butternut verticals are useful on other bands as well. On 20 meters, the antennas are in-phase regardless of the relay switch. On 30 meters the array exhibits multiple lobes when the phasing section is removed, and broadside pattern when the lengths are equal (in phase).

### How Does It Work?

As always the proof of an antenna is in the results. Most of my HF operation is using the PSK31 mode. On 40 meters, the antennas work as designed. The null in the pattern is very noticeable. Signals in the null drop 3-4 S Units. Gain figures in the main lobes run 2-3 db. On PSK31, I have worked a total of 76 countries on 15, 17, 20, 30, and 40 meters using the vertical system.

RADIO WITNESS - UR PONE SIGS? -  
 CW -  
 WRK - 6-1-1949 AT - 6:20 PM EDT  
 ON THE - 20 MC. BAND  
 OPR. *Charlie* CALL - *W3JVI*



March 2011

			Meeting Coffman's 7:30 pm				ARRL DX Contest Phone
		1	2	3	4	5	
ARRL DX Contest Phone			10 meter Net 28.445 Mhz 8 pm				
6	7	8	9	10	11	12	
			Meeting Coffman's 7:30 pm				VE Testing White Marsh 1 pm
13	14	15	16	17	18	19	
Spring Begins			2 meter net 147.24 Mhz 8 pm				BARC Hamboree Timonium Fairgrounds
20	21	22	23	24	25	26	
BARC Hamboree Timonium Fairgrounds			70 Cm Net 449.575 Mhz 8 pm				
27	28	29	30	31			

You are cordially invited to a very special fundraiser!



And Baltimore County Fallen Firefighters Foundation

Would like to invite YOU to a shopping night!

DATE: SUNDAY, FEBRUARY 13<sup>TH</sup> THRU

SATURDAY, FEBRUARY 19<sup>TH</sup>

10% of the proceeds will benefit

The Family of Fallen Firefighter

Mark Falkenhan

Bring this invitation with you to your neighborhood Five Below and help raise funds for this cause!!

(MUST HAVE FLYER)

GOLDEN RING 410-238-3050

COCKEYSVILLE 410-628-1275

HUNT VALLEY 410-329-1524

OWINGS MILLS 410-654-4768

ARUNDEL MILLS 410-799-0908

COLUMBIA 410-312-0444

BEL AIR 410-569-4621

Donations can also be sent to:

Baltimore County Fallen Firefighters Foundation

PO BOX 20128, Towson, Md. 21284

Attn: Mark Falkenhan Fund

# From the Skies over Mt. Essex

Time for a change, the reason for the seasons.

## SKY Events for March 2011

*March 4<sup>th</sup>* - New Moon

*March 6<sup>th</sup>* – Jupiter is again left of the crescent Moon, low in the west after sunset.

*March 7<sup>th</sup>* – The Moon passes 7° north of Jupiter at midnight.

*March 12<sup>th</sup>* – First Quarter Moon

*March 13<sup>th</sup>* – Daylight Saving Time begins at 2 a.m. Sunday. Remember Spring ahead 1 hour.

*March 14<sup>th</sup>* – Mercury is to the right of Jupiter, it is about 10° above the western horizon at sunset.

*March 17<sup>th</sup>* - Full Moon “Worm Moon” Native American tribes or “Fish Moon” the Colonial Americans.

*March 20th*- Spring begins at 7:21 p.m. EDT. The Moon passes 8° south of Saturn at 8 p.m. and 5° north of Neptune at 10 p.m..

*March 26<sup>th</sup>* - Last Quarter Moon. Venus passes 0.2° south of Neptune at 9 p.m.

## Planet Lookout

**Mercury** – Low in the west at sunset. -1.0 magnitude.

**Venus** – Morning Star look to the southeast -4.0 magnitude.

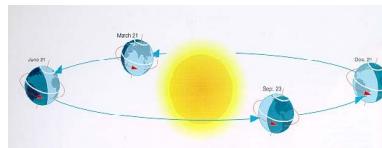
**Mars** – Still in the Sun’s glare.

**Jupiter and Mercury** – Look towards the west at dusk. Jupiter at -2.1 and Mercury at -1.0 magnitude. The planets will slide past each other from the 13<sup>th</sup> thru the 16<sup>th</sup>. Mercury moving higher each day.

**Saturn**- At +0.4 magnitude rises during twilight. The bright star Spica (α Virgo) at +1.0 magnitude is below Saturn.

What causes these changes? The Earth travels around the sun once every 365.25 days in an elliptical orbit. Every 4<sup>th</sup> year we get an extra day, leap year. The Sun is heat source for the Earth we receive more heat than we produce. In the northern hemisphere winters are cold and summers are hot, is this because of our distance from the Sun. No, in the winter we are about 3.1 million miles (5 million kilometers) closer in January than July.

The seasons get reversed when we cross the equator: when it is Summer in the northern hemisphere, it is Winter in the southern one, and vice versa. What causes this? The Earth rotates around an imaginary line passing through the poles, called the *axis*. This line forms an angle (called the *tilt*) of 23.4° with the perpendicular to the orbit of the Earth around the Sun.



As the Earth moves around the Sun, this axis stays always pointing in the same direction towards the North Star Polaris in Ursa Minor – Little Bear.

What has this to do with temperature? Well, when the northern hemisphere is leaning away from the sun, the rays coming from it hit this part of the Earth at a smaller angle than on other parts of the world. This means that the same amount of light is distributed over a larger surface, and therefore these places receive less heat than the others; just the opposites in the southern hemisphere. Areas south of the equator are overall warmer due to the amount of water (ocean area) as opposed to the northern land masses. If the tilt of the Earth's axis was 0° there would be no changes in the seasons.

Not all planets have the same kind of tilt as the Earth has: Uranus, for example, has a tilt of almost 98°. Its axis, then, lies almost on the plane of its orbit, and a day there lasts about as much as one year on Uranus: about 84 Earth-years.

## Upcoming Seasons

Spring Equinox	3/20/11	7:21p.m. EDT
Summer Solstice	6/21/11	1:16 p.m. EDT
Fall Equinox	9/23/11	5:05 a.m. EDT
Winter Solstice	12/22/11	12:30 a.m. EST