The Mt. Vernon Amateur Radio Club

July, 2012 Newsletter

Meetings are held the 2nd Monday of each Month at 7:00 P.M. at the Knox County Chapter of the American Red Cross, 300 N. Mulberry Street, Mt. Vernon, Ohio

Local Ham Community

K8EEN Repeater: 146.790 Mhz (-600 Khz With PL of 71.9 Hz)
KD8EVR Repeater: 442.100 Mhz (+5Mhz With PL of 71.9 Hz)

Sunday Night ARES Net at 9:00 P.M. on The K8EEN Repeater

Ham Radio Rocks!

Field Day 2012

By Don Russell, W8PEN

This years Field Day is now history. What a great time. I am sad to report that the SSB guys beat the CW boys in their annual shootout. SSB made 756 contacts versus CW's 616. But hey, it was fun and it was close. Contact separation was only 50 at one point Sunday morning. You will get no complaints from me. The competition was great. Both modes need to do better next year so we can beat our all time best contact total from of 1506 contacts which was done in 2010.

SSB team leader Arlin Bradford KD8EVR shows of the SSB winnings. Cw team leader Don Russell W8PEN gets the melons.

The next meeting of the Mt. Vernon Amateur Radio Club will be Monday, July 9, 2012 at 7:00 P.M. in the Red Cross Annex Building, 300 North Mulberry Street, Mt. Vernon, Ohio. Tales and adventures of Field Day will no doubt be the main topic of discussion.

Please remember to check into the long running Sunday Night ARES net at 9:00 P.M. on the K8EEN 2-meter Repeater.

Every Wednesday at 5:00 PM, MVARC club members meet at Wendy's, 522 South Main Street, Mt. Vernon, Ohio. Dinner Coordinator Dick Huggins, N8RDH, reports good turnouts for this event. Come share dinner with friends, or make new friends, by attending one or all of these events.

Join MVARC club members every second Saturday of the month for breakfast. Breakfast Coordinator Arlin Bradford, KD8EVR, reports good turnouts for this event.

****The next Breakfast will be Saturday, July 14, 2012 at 9:00 AM at Allison's Finer Diner, 11587 Upper Gilchrist Road,* Mt. Vernon, Ohio***

Fridays antenna raising party went smoothly. We use one antenna mast for the CW station. Barry N8PPF used his short (20 foot?) antenna mast for the 40 meter SSB station. The rest of the antennas were simply strung between the many available trees as high as possible. This actually made for an easier than normal tear down at the end of the event.

The 75 meter SSB station used a 160 meter doublet antenna fed with ladder line. It was up there about 30 to 40 feet. I figured the way to go would be to use my antenna tuners 4:1 balun and let the radios internal antenna tuner handle the rest. For some reason that did not work out so well. Arlin KD8EVR and Rubin KB2SAI soldered a PL-259 onto the end of the ladder line and plugged it directly into the rig. Worked well enough to make 303 contacts. I am still puzzled over that one. The balun should have worked. Hams prove current antenna theory wrong again!

On the 40 meter SSB station, Barry N8PPF could not get the 40 meter windom antenna to work with his auto antenna tuner. However, his 40 meter inverted V set up worked really well. Later Barry found that he could tune the windom with his manual antenna tuner. I suspect some RF was getting into the auto tuner. A common problem with windom antennas.

These antenna issues got me thinking that perhaps we should use dipole antennas fed with coax next year. The windom antennas are nice in that you have multi-band capabilities, but we have had some problems with these antennas in the past. A dipole up high and clear does a wonderful job and is usually problem free. I will have to think on it.

Arlin KD8EVR could not obtain the trailer with the 100 foot tower in time for Field Day so we used last years Extended Zepp antenna. I heard no complaints but the contact totals were down from a year ago. I still like this antenna. Maybe we need two of them run 90 degrees from other so we can switch directional patterns.

I decided to do a comparison of the last few years on a band by band aspect. Just wanted to see if there were any interesting trends.

The only thing that really stood out was that we do not spend much time on 15 or 10 meters using either CW or SSB. This year 10 meters was pretty much dead the whole Field Day. 15 meters was open during the day and perhaps we should have

The Mt. Vernon Amateur Radio Club

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Members are encouraged to send articles pertaining to Amateur Radio, with an emphasis on local activity, equipment reviews, and personal experiences to the Newsletter Editor. Articles are due on the Sunday before the first Monday of the month.

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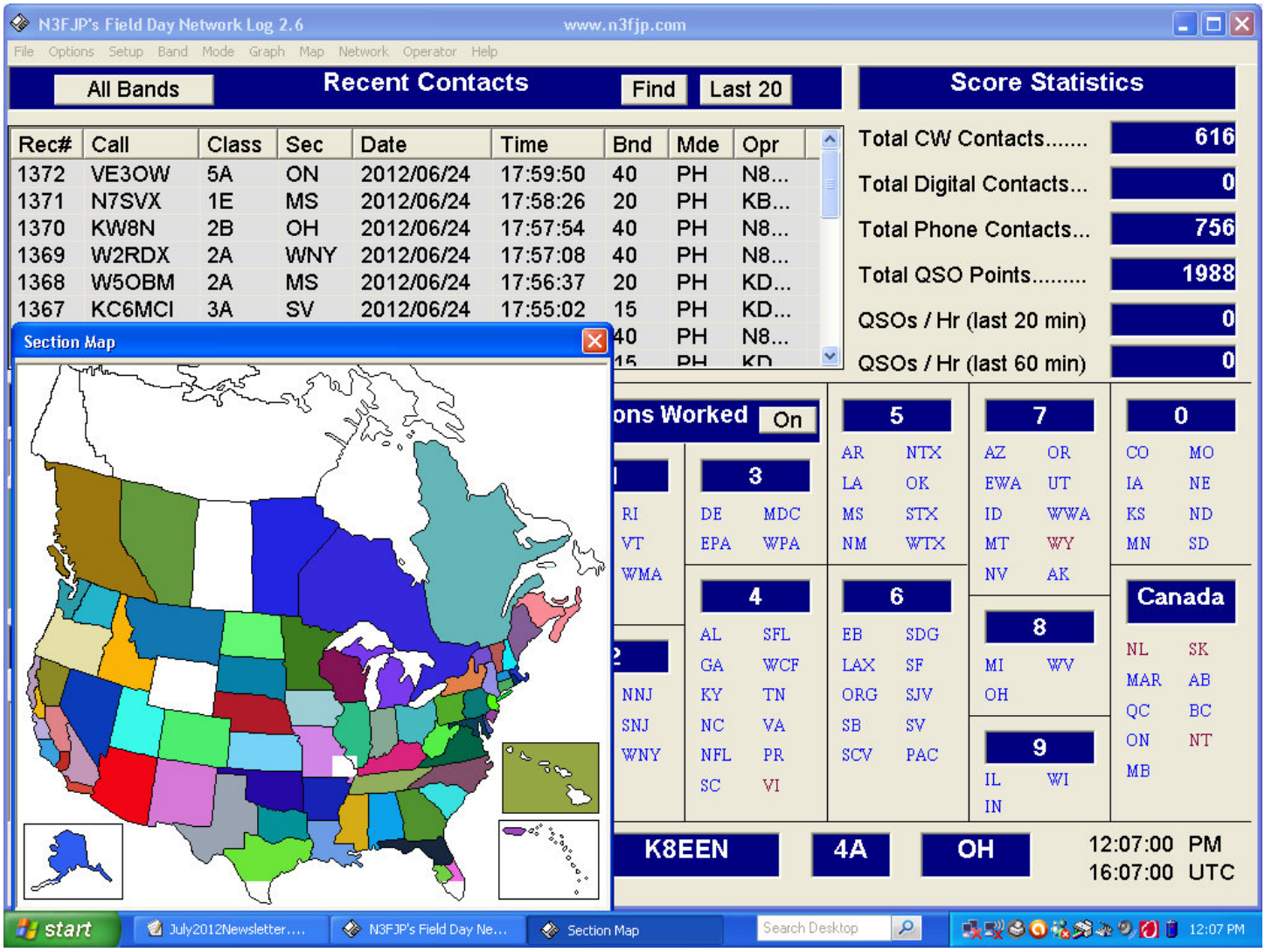


spent more time there. Something to think about for next year. I know the CW station usually starts out on 40 meters. Perhaps we should change that and start out on 15 meters. Then check that band often.

Here is what I tabulated:

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	80	211	SSB	75	92
2009	CW	80	141	SSB	75	189
2010	CW	80	154	SSB	75	191
2011	CW	80	90	SSB	75	46
2012	CW	80	135	SSB	75	303

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	40	206	SSB	40	284
2009	CW	40	193	SSB	40	131
2010	CW	40	230	SSB	40	299
2011	CW	40	255	SSB	40	189
2012	CW	40	343	SSB	40	259

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	20	138	SSB	20	154
2009	CW	20	193	SSB	20	131
2010	CW	20	235	SSB	20	226
2011	CW	20	145	SSB	20	281
2012	CW	20	105	SSB	20	158

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	15	43	SSB	15	54
2009	CW	15	13	SSB	15	38
2010	CW	15	57	SSB	15	86
2011	CW	15	122	SSB	15	28
2012	CW	15	33	SSB	15	34

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	10	17	SSB	10	0
2009	CW	10	0	SSB	10	3
2010	CW	10	10	SSB	10	10
2011	CW	10	30	SSB	10	4
2012	CW	10	0	SSB	10	0

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	6	0	SSB	6	22
2009	CW	6	0	SSB	6	9
20010	CW	6	0	SSB	6	15
2011	CW	6	0	SSB	6	19
2012	CW	6	0	SSB	6	1

Year	Mode	band	contacts	Mode	Band	Contacts
2008	CW	2	0	SSB	2	2
2009	CW	2	0	SSB	2	1
2010	CW	2	0	SSB	2	1
2011	CW	2	0	SSB	2	0
20012	CW	2	0	SSB	2	1

ARRL Field Day Summary

This summary is unofficial since I have not turned our score into the ARRL yet. This is due to the storms and power outage experienced the weekend after FD. Some information is incomplete because there was no information at the time of publication. I had no email.

1. Field Day Call Used: K8EEN
GOTA Station Call: None

2. Club or Group Name:
Mt. Vernon Amateur Radio Club

3. Number of Participants: 25?

4. Number of transmitters in simultaneous operation: 4

5. Entry Class: Check only one.

X A. Club or non-club portable
B. 1 or 2 person non-club group portable
List calls of operators:
C. Mobile
D. Home station commercial power
E. Home station emergency power

6. Check All power sources used.

X Generator
X Commercial mains
X Battery
Other (list)

7. ARRL / RAC Section: OH

8. Total CW QSO's: 616 X 2 = Total CW QSO points: 1232
9. Total Digital QSO's: 0 X 2 = Total Digital QSO points: 0
10. Total Phone QSO's: 756 X 1 = Total Phone QSO points: 756

11. Total QSO points: 1988

12. Power Multiplier (select only one)

5 Watts or less and Battery powered = 5
X 150 Watts or less = 2
Over 150 Watts = 1

13. Power Multiplier: 2

14. Claimed Score: 3976

15. Bonus points claimed: Please check each block as appropriate and include required proof of points with your submission. All bonus points will be verified at ARRL HQ and added to your score.

100% Emergency power
X Media Publicity
X Set-up in Public Place
X Information Booth
X NTS message to ARRL SM/SEC
X W1AW Field Day Message
X Formal NTS messages handled (#)
Satellite QSO completed
Natural Power QSO's Completed
Site Visited by invited officials
GOTA maximum QSO's achieved
Non-Traditional mode:
X Youth Participation (# 2)

Total Bonus Points Claimed: 0

16. I/We have observed all competition rules as well as all regulations for amateur radio in my/our country. My/our report is correct and true to the best of my/our knowledge. I/We agree to be bound by the decisions of the ARRL Awards Committee.

Date: 06/30/2012

Call: K8EEN

Signature: Don Russell
Address: 815 Brookwood Road
Address: Mt. Vernon, Ohio 43050

E-Mail Address: w8pen@arrl.net

	CW		Digital		Phone	
	QSO	Power	QSO	Power	QSO	Power
160	0	150	0	150	0	150
80	135	150	0	150	303	150
40	343	150	0	150	259	150
20	105	150	0	150	158	150
15	33	150	0	150	34	150
10	0	150	0	150	0	150
6	0	150	0	150	1	150
2	0	150	0	150	1	150
1.25	0	150	0	150	0	150
70	0	150	0	150	0	150
33	0	150	0	150	0	150
23	0	150	0	150	0	150
GOTA	0	150	0	150	0	150

Totals 616 CW 0 Dig 756 Phone

18. List all callsigns of all operators and number of QSO's completed of the GOTA Station:

FPV on a Quad-Copter

by Matt Ware (KD8PSK)

Mark Bisenius wrote a great primer article (May 2012) about A.T.V., without knowing that I was working on a very similar project. My cousin, Ryan Carr (N8YKJ), started working on a Quad-Copter last year and I got hooked on the idea myself. I am a little behind him, but catching up quickly.

A Quad-Copter is a 4 rotor aircraft. Each of the rotors is controlled by an independent speed controller. All four of the speed controllers are connected to a flight controller, in our case an Arduino ArduPilot Mega. The flight controller has gyros to provide stability and accelerometers to help with flight correction. It also has many other sensors such as barometric pressure, GPS, and sonar to assist with autonomous flight. The flight controller is then connected to the receiver, which receives its commands from the pilot's controller.

The Quad-Copter

Ryan and I both took our Quads to Field Day this year to show them off a little and share our experiences. We both use GoPro cameras to record our flights, with amazing clarity. By the time this is published there should be at least one video posted on the club website to show it off.

Ryan and I deviate here just a little bit. He has gone a step further with his Quad and can fly it with F.P.V., which stands for First Person View. He has an on screen display and a video transmitter sending his video to his ground station which has a receiver and a video monitor, which he uses to fly the Quad. It is as if you are sitting in the cockpit of an aircraft flying it. This is very similar technology to that which the military uses for their Predator Drones, only on a smaller scale.

"Flight Command"
Ryan Carr N8YKJ (L) and Matt Ware KD8PSK

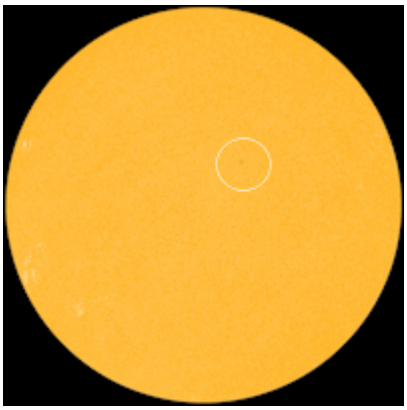
There seemed to be a lot of interest in these little aircraft from the first time I started mine up Friday evening lasting well into Saturday evening as the sun was going down. The most popular question that everyone seemed to have was: How much is something like that? We both agree that it is a little more than we really care to keep track of, but it really depends on how far you go with the hobby and the technology. A start into Quads can be as little as $170 and go well into several thousand dollars. A great resource on the internet for Quads and anything autonomous is DIY Drones. For the FPV equipment Ready Made RC is a great resource that is in Central Ohio.

Field Day Space Weather

By Mark Bisenius, AC8FV

Field Day is a great time to compare space weather forecasts with what is happening on the Ham bands.

What better way to monitor space weather than to do it from space?



Sunspot

NOAA's Boulder (Colorado) Sunspot Number (SN) was way below 100, at 13 all weekend, but can reach 250, even 300, during a solar maximum. That means x-rays from solar flares erupting from sunspots and sunspot groups, were not ionizing the F layer of the ionosphere.

But then they weren't ionizing the D layer and causing absorption of the HF bands either.

On Saturday, Sunspot 1511 (circled), showed no threat of strong solar flares as seen from NASA's SDO/HMI (Solar Dynamic Observatory/Helioseismic and Magnetic Imager).

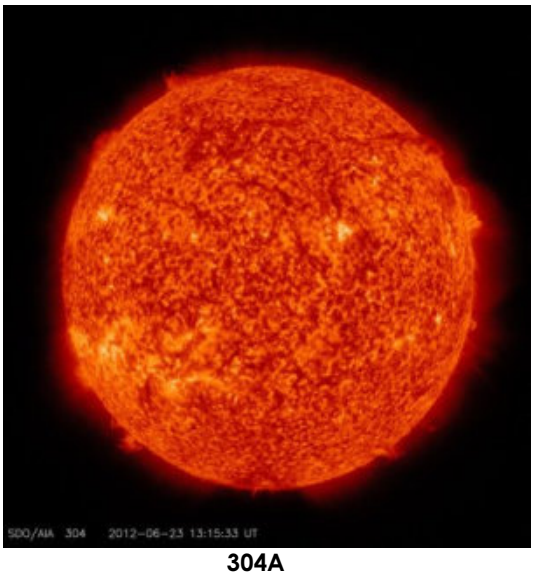
The Solar Flux Index (SFI), which measures the sun's radio noise at its spectrum peak of 10.7cm (2800 MHz), stayed well below 100. SFI was 88 Saturday, and 84 Sunday. The "10.7cm flux," in the microwave band, ranges between 67, to over 300 during a solar maximum, and correlates with overall solar activity below 110.

The SFI more closely tracks band conditions than counting observed sunspots and sunspot groups.

But sunspot counts and the SFI are only proxies for the intensity of the sun's ultraviolet radiation, which is responsible for half of the ionization of the F layer. X-rays from solar flares, and the solar wind, containing protons and electrons, contribute about 25% each.

The intensity of the ultraviolet radiation and x-rays emitted by the sun can now be directly measured by satellites, which was previously impossible because they are absorbed by the atmosphere before reaching the Earth's surface.

Most of the ultraviolet radiation emitted by the sun is from the ionization of helium at 60,000°C in the sun's photosphere or "surface" region, causing one of its 2 electrons to be stripped. The resulting He II ion releases a photon at 304Å (Angstroms), in the extreme ultraviolet range (EUV), rendered in orange by NASA's SDO/AIA (Solar Dynamic Observatory/Atmospheric Imaging Assembly).



304A

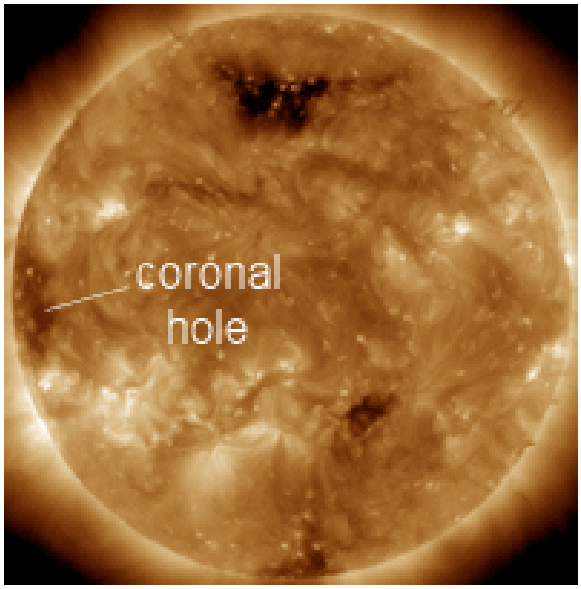
304Å shows a very quiet sun on Saturday.

The energy of a 304Å EUV photon is 41 eV (electron volts); far above the 13 eV needed to ionize atmospheric particles in the F layer, resulting in multiple ionizations, and continued heating of free electrons.

We can follow the trending of 304Å intensity to predict band conditions with great accuracy 3-4 days out.

The 193Å spectral line of ionized iron (Fe XII) at 1,500,000K in the sun's corona or outer atmosphere, with 11 of its 26 electrons removed, is rendered in brown. At 193Å, Coronal holes (CH) stand out, as darker, much cooler, vortices of magnetic turbulence, while solar flares from sunspots appear as bright, white spots on this image from NASA's SDO/AIA.

On Sunday, an equatorial coronal hole appeared, rotating left to right towards the center of the sun's disk, where it's Coronal Hole High Speed Stream (CH HSS) of solar wind is very likely to score a direct hit on Earth July 1-2. The CH HSS from the coronal hole at the top of the sun's orb may brush the arctic regions of the Earth June 28 - 29, with some aurora activity likely.



Coronal hole

A CH HSS is a hypersonic shockwave of solar wind made up of matter: protons (hydrogen ions), free electrons, and plasma ejected along open magnetic lines from coronal holes at up to 800km per second (2 million MPH), taking 2-4 days to arrive.

With 304Å @ SEM (Solar Extreme Ultraviolet Monitor), aboard NASA's SOHO (Solar Heliospheric Observatory), above 130 all weekend, the F layer was being ionized despite low sunspot activity, and a low Solar Flux Index.

The X-ray flux stayed in the A to B range all weekend, so the D layer did not get ionized very much, and no geomagnetic storms disrupted propagation.

The solar wind stayed right around its average of 400km per second, ionizing the F layer even at night with a steady stream of protons and electrons, which may have helped on 80 and 160 meters.

With enough 304Å ionization of the F layer, very little ionization of the D layer, and no disturbances to deal with, propagation was probably better than we would expect from just looking at the Sunspot Number and the Solar Flux Index.

Treasurer's Report

July 1, 2012
for June 1 to June 30, 2012

Balance on 6-1-12:	$	3008.69
Income:		
Dues:	$	
50-50:	$	14.00
Interest:	$	2.01
Donations:	$	
Expenses:		
none	$	
Balance on 6-30-12:	$	3024.70
Designated Funds:		
Year 2005 Repeater Fund:	$	536.39
Field Day Fund:	$	222.11
Communication Vehicle Fund:	$	471.04

Barry Butz N8PPF

Field Day Pics
From Various Cameras


KNOX COUNTY


ARRL
The national association for
AMATEUR RADIO


PROPAGATION


OLD NAVY
Panasonic

Membership Form

Club dues run from Jan. 1 until Dec. 31 and are collected during the last quarter of the year. You can mail in the dues to the address below or bring them to a meeting. Dues are prorated for new members at the time of application. Visit our Web Page at www.mvarc.net

Dues Schedule: $12 regular

$10 for second member in the same family, for those over 65 yrs. of age, and for those living outside Knox County

Mt. Vernon Amateur Radio Club, P.O. Box 372, Mt. Vernon, OH 43050

Name_____Call-Sign_____

Street_____

City_____State_____Zip Code_____

Phone Number_____License Class_____

ARRL Member (Y/N)_____E-Mail_____

Extra Donation (Optional)_____

Members are entitled to a free MVARC E-Mail address. Would you like one?
No_____Yes_____

If yes please enter password_____

Other Comments: