

# HAM RAG



Visit our website for more club and area ham information  
In the Rockford area at <http://www.w9axd.org>

## RARA Mission Statement

A member association with common interest of public service to the community through the use of amateur radio.

May 2012

## INSIDE THIS ISSUE

Field Day	-	page 1
Treasurer's Rpt.	-	page 2
HT Antennas 101	-	page 3
VEC	-	page 4
KR7RA Solar Rpt	-	page 5
KR7RA Solar Rpt	-	page 6
Hamfest Info	-	page 7

## Upcoming Club Activities

Saturday Morning June 23, 2012

### Breakfast in the Park and Field Day Set Up

Saturday Afternoon June 23 th  
and Sunday Morning June 24 th

### Field Day

Sunday Afternoon June 24th

### Field Day Take Down and Family Picnic

All activities will take place at Aldeen Park in Rockford and friends and family are heartedly invited to enjoy the week end. Volunteers to help with the work will be appreciated. Come and have fun.



## NEXT MEETING

FRIDAY  
May 11, 2012

Location:  
**Foundation Room**

Saint Anthony OSF  
5666 East State Street  
Rockford, Illinois

Program: TBD

Latest news and events on our web page: <http://www.w9axd.org>

## From the Treasurer

### Treasurer's Report:

For the period 31 March 2012 to 24 April 2012  
Submitted to the Ham Rag by John G. Olson 2012 RARA treasurer.

Income :

225.81 (Dues, refund on antenna work, Savings acct  
quarterly interest)

Expenses: 12.00 (Illinois Repeater Assoc. 2012 dues)

Ending Checkbook Balance:

\$4704.25 (per check register 24 APR 2012)

Ending Repeater checking balance:

\$ 300.00 (per 30 MAR 2012 Statement)

Ending Savings Balance

\$3221.27 (per 30 MAR 2012 Statement)\*\*

Ending total cash on hand: \$8225.52 (net gain of \$213.81)

\*\* Savings account statements are issued by Alpine Bank quarterly

**Dues for 2012 are overdue.**

Make checks payable to RARA or  
Rockford Amateur Radio Association, Inc.

Please send to:

RARA

P.O. Box 8465

Rockford, IL 61126-8465

**Remember** to include the application form published monthly in  
the Ham Rag.

Antenna work refund is due to the climbers connecting to the wrong coax. The \$200 came from the repeater account in Dec 2011, therefore it is returned to that account.

**An antenna does *not* have to be resonant to work.** The only reason to make an antenna resonant is to eliminate the need for an impedance matching device such as an antenna tuner. Actually a non-resonant wire dipole fed with open-wire line and an antenna tuner is a great multi band antenna. See March 2004 QST “ The Classic Multiband Dipole Antenna”

**Two wires are needed to power a lamp.** The same is true of your antenna. The best antenna configuration calls for feeding energy from the transmitter to a balanced antenna, such as a dipole. If you can do this with a balanced, parallel wire feed line, so much the better. However many of us choose coaxial cable for convenience sake. The problem with coaxial cable is that it is not a balanced two wire feed line. In fact, coaxial cable can be said to consist of three wires: the center conductor, the outside of the shield, and the inside of the shield. RF travels on the surface of a conductor. In a parallel wire arrangement (ladder line) there is a balanced RF field between two conductors, But with coax, the field is between the center conductor and the inside conductor of the shield. This leaves the outside surface of the shield braid free to get into trouble. Since it is connected to one side of the antenna, the outer braid becomes part of the antenna and the result can be RF feeding back to your station. This is the reason why some Hams prefer to use a 1:1 balun at the center of the dipole to isolate the unbalanced coaxial feed line.

**Antenna “gain” is derived by shaping and aiming RF where you want it to go.** For example, so called “beam antennas” get their name from the fact that they concentrate RF energy in a particular direction, like a flashlight. Other types of antennas, including wire antennas can exhibit “shaped” radiation patterns (and therefore gain) as well. Take a look at the ARRL Antenna Book and you’ll see what I mean.

**The function of an antenna tuner is to effect a match between the output of a transmitter and the input of an antenna system.** Modern transceivers can only deliver full power into a 50 ohm load. Antenna tuners are variable impedance transformers that allow you to transform the antenna system impedance (which can be almost anything) to 50 ohms for the transceiver, Some antenna tuners exhibit a wide impedance range. Others, such as the ones typically built into HF transceivers, have quite narrow ranges.

**A wire antenna doesn’t always have to be center fed.** For instance, you can feed a long wire at the end with a two wire feed line. Connect one conductor of the feed line, but not the other. You’ll need an antenna tuner at the other end of the feed line to provide a 50 ohm impedance for your radio. This type of antenna used to be called an end-fed Zepp. To work well, however, the ground side of the antenna tuner needs to be connected to a network of radial wires, or to a counterpoise. Another old-time antenna is an off-center fed dipole called a Windom way back when. Cut a wire a half wavelength long,, find the center, and connect a single wire 14% off-center. This also requires a counterpoise for good results. The impedance is about 600 ohms, so you’ll definitely need an antenna tuner.

**A dipole antenna does not have to be perfectly horizontal.** That’s the way it is usually depicted in books and magazines. But you can bend the legs of the antenna up or down or sideways. The antenna can also be on an incline, or even vertical. The shape of the antenna and its height above ground will affect its impedance at the feed point, so you may need to experiment to obtain a low SWR, if you are feeding with coax.

**Vertical antennas shorter than a half wavelength need a ground system.** This usually takes the form of radial wires either elevated or buried. Beware of short vertical antennas that claim to work without radials. These designs tend to be inefficient. Yes, they work in the sense that they radiate some RF, but you’ll enjoy much better performance with a good radial system.

**With vertical antennas there is no such thing as too many radials.** The more radials you install, the more efficient your antenna system. Yes, you can reach a point of diminishing returns. You can read many studies on how many.

**Having a 1:1 SWR does not mean you have a good antenna system.** A 1:1 SWR only means that you have an impedance match between your transceiver and your antenna system, It says nothing about how well your antenna is working. For example, a vertical antenna with a poor ground system can be tuned to the point where you’ll measure a 1:1 SWR at your station, but you’re so inefficient, most of the RF is being wasted as heat!

**Always use the best feed line you can afford.** Resist the urge to be penny-wise and pound foolish. This is particularly true of coax. Better (less lossy) coax will cost more, but this is the cable that is carrying your precious RF signal to and from your antenna. A good investment now will pay for itself in better performance.

## AMATEUR RADIO EXAM NOTICE

April 21st there were 2 applicants resulting in 2 upgrades.

Upgrades:

Greg L Geiger KC9VRG, General

Marianne Geiger KC9VRH, Extra

Thanks to Shari Harlan N9SH, Alvin Alexander KC9GIO and Steve Twigg W9SWT for volunteering their time.

Amateur Radio exams are held the 3<sup>rd</sup> Saturday of every month in Rockford IL. The next session is 9AM May 19, 2012. Walk-ins welcome. Check-in is from 9AM-10:30AM. We require two signature ID's (one with a photo). If you are a licensed Amateur Radio operator bring your current license and a copy. If you are using a CSCE for an element credit, bring the original and a copy (We need to see the originals & keep a photocopy of each document used for element credit). No copier on site. The test fee is \$14.00. Bring a non-programmable calculator.

Location:

OSF St Anthony Medical Center

5666 E State St

Rockford IL

Exams will be held in the St Francis Room (Main Entrance then turn right).

Rusty Cordell WB9QYV

[wb9qyv@aol.com](mailto:wb9qyv@aol.com)

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### AREA Repeaters

146.610 -	ENC/DEC pl 114.8	W9AXD
147.000 +	ENC/DEC pl 114.8	W9AXD
223.880 -	ENC/DEC pl 118.8	W9AXD
<b>ATV</b> input	1250 Mhz/ 434 Mhz	W9ATN
	output 421.25 Mhz	
146.805 -	ENC/DEC pl 114.8	K9AMJ
224.440 -	ENC/DEC pl 118.8	K9AMJ
147.255 +	ENC/DEC pl 114.8	WX9MCS
444.725 +	ENC/DEC pl 107.2	WX9MCS
	Linked to FISHFAR	

### 2010 RARA Officers and Board

#### **Officers:**

President - Tom Shouler, N9VJU, 815-877-9129

Vice President - Open

Secretary - Open

Treasurer - John Olson W9JGO 815-399-4368

#### **Directors:**

Doug Abrahamson, KC9SDO 815-979-0329

Kurt Eversole, KE9N 815-389-2784

Dave Larsen, N9ZXL 815-399-8205

Gordon Seaman, KC9NEX 815-234-5034

Web Master - Robert Larson, KC9ICH, 815-226-1875

Ham Rag Editor - Jim Holich, AB9SX, 779-552-8796

Repeater Chairman - Chuck Ingle, AB9KA, 815-979-1049

## The K7RA Solar Report

Propagation Forecast Bulletin 18 ARLP018

Average daily sunspot numbers declined 38 points to 106.7 this week, and average daily solar flux declined nearly 18 points to 116.2.

Predicted solar flux is 115 for May 4-6, 110 on May 7-10, 120 on May 11, 130 on May 12, 135 on May 13, 140 on May 14-17, 135 on May 18-21, and 130, 125, 120, 115, 110 on May 22-26 and 105 on May 27-31.

Predicted planetary A index is 5 on May 4-8, then 10, 10 and 8 on May 9-11, 5 on May 12-13, 8 on May 14-15, then 5, 8, 5, 8, and 10 on May 16-20, 15 on May 21-23, 8 on May 24, 5 on May 25 through June 4, followed by 15 on June 5-6.

The NASA solar cycle prediction from the Marshall Space Flight Center at <http://solarscience.msfc.nasa.gov/predict.shtml> changed over the past month. The predicted maximum smoothed international sunspot number declined slightly from 61 to 60, but still is predicted for Spring 2013. The date of the new prediction is May 1, 2012 and last month's was on April 2, 2012. International sunspot numbers have much lower values than the sunspot numbers we use in this bulletin.

Sunspot numbers have generally declined from a peak during Fall 2011. We look at a 3-month moving average every month, and now that we know the numbers for all of February through April, we know the average sunspot number centered on March, which is 71.2. The 3-month moving sunspot number averages centered on January, 2011 through March 2012 are 35.3, 55.7, 72.3, 74.4, 65.9, 61.5, 63, 79.6, 98.6, 118.8, 118.6, 110, 83.3, 73.7 and 71.2. The three month moving average smooths out the numbers so we can see a steady downward trend since October and November 2011, when the numbers were 118.8 and 118.6.

But looking at the monthly averages, we can see a recent uptick. The monthly average sunspot numbers for October 2011 through April 2012 are 123.6, 133.1, 106.4, 91.4, 50.1, 78 and 84.5. Note that the average sunspot number for the past week - 106.7 - is higher than any monthly average since December 2011.

Interesting article out of Cornell University, "The Science Behind Solar Storms." Read it at, <http://www.cornellsun.com/section/science/content/2012/05/02/science-behind-solar-storms>.

Jim Spears, N1NK of Tiverton, Rhode Island, Roger Larson, KF6IVA of Harrison, Maine, Paul Dluhosh, N4PD of Leesburg, Virginia, Bruce Clark, K0YW of Ignacio, Colorado and Jon Jones, N0JK of Lawrence,

Kansas all pointed out that the abbreviation NF that was referenced in the last bulletin, Propagation Forecast Bulletin ARLP017, refers to Noise Figure, not Noise Floor.

N0JK sent this link: [http://en.wikipedia.org/wiki/Noise\\_figure](http://en.wikipedia.org/wiki/Noise_figure).

## The K7RA Solar Report

K0YW offered the following comments about noise figure and preamplifiers:

"At 6 Meters and below the employment of a preamp ahead of most modern transceivers is not likely to result in any noticeable improvement, as the ambient thermal noise from the earth and sky background is high enough to readily overcome the sensitivity threshold of the existing receiver's RF stage/s, especially if the myriads of local man made noise sources are added in. It is this combination of factors that will establish the 'Noise Floor' that the radio sees. Even if the receiver's sensitivity is improved by lowering its noise figure - either at the receiver or with an external antenna mounted preamp - it will not generally improve performance vs. weak signals at or under the existing noise floor. Such preamps do a good job of making that noise louder along with the weak signal, resulting in no real S/N improvement. Depending on its gain it can also seriously degrade the receiver's dynamic range, increasing the likelihood of overload or cross modulation interference from strong, close-by stations that are off frequency.

"Preamps become effective if receive feedline loss is excessive, or if the receiver noise figure is poor. This condition is very rare at HF and 6 meters. It usually becomes a factor at frequencies in the UHF region and higher, especially where extreme feedline lengths or lossy coaxial feedlines are used. Every dB of feedline loss will be seen as an extra dB increase in the receiver's noise figure. While this is a serious consideration at 432, 1296 and higher, it is of little concern at HF and 6 Meters where preamplifier equipped transceivers achieve noise figures in the 4-8 dB region. At 6 meters, these noise figures are very adequate to hear the weakest signals. Good feedline, like LMR series, waterproof versions of 9913 or 1/2 inch Heliac on short runs of less than 150 ft are a lot cheaper way to optimize performance on 6M than an expensive antenna mounted preamp."

Rich Zwirko, K1HTV sent in the following propagation report:

"The HF bands were in pretty good shape when the 7O6T DXpedition to Yemen showed up on April 30 at 2104Z with an S9+ signal on 15 meters. I was 7O6T's second 15 meter CW QSO, easily working them simplex with my barefoot K3 and 3 element tribander. They quickly went split and as soon as a DX Cluster post was made, the expected huge pileup began. In the next few days I managed to work 7O6T on both CW and SSB on 20, 17 and 15 meters. We had an interesting late afternoon East Coast opening to the Yemen DXpedition on May 2. I contacted 7O6T at 2124z (that's 0024 local Yemen Time) on 12 meter SSB, again with 100 Watts, using a wire antenna.

"Six meter E skip openings on the afternoon of May 2 provided FL31 and FL32 water grids to a number of stations up and down the East coast. I worked UT1FG/MM, operating maritime mobile southeast of the Bahamas, on 50.110 MHz. Yuri is captain of the cargo ship Mottler. With his 100 Watts and dipole he has been having fun with E-skip, providing a number of new grids to ops on the Magic Band."

Sunspot numbers for April 26 through May 2 were 117, 99, 118, 114, 104, 99, and 96, with a mean of 106.7. 10.7 cm flux was 119.2, 117.9, 121.1, 116, 114.1, 109.9 and 115.5, with a mean of 116.2. Estimated planetary A indices were 17, 8, 5, 5, 3, 4, and 5, with a mean of 6.7. Estimated mid-latitude A indices were 17, 7, 5, 5, 2, 3, and 4, with a mean of 6.1.

### **FRIDAY MORNING BREAKFAST**

Meets every Friday morning from 8 am until about 9:30 am. An informal gathering of ham folks, no affiliations necessary, good food and good company.

*Everyone is welcome to attend.*

***"The Stockholm Inn"***  
***2420 Charles Street***  
***Rockford, IL 61108***



# Hamfest Information

**May 18-20, 2012**  
**Dayton Hamvention**  
 Hara Arena  
 1001 Shiloh Springs Rd.  
 Dayton, OH 45415  
[www.hamvention.org](http://www.hamvention.org)

**Sunday June 3, 2012**  
**Starved Rock Radio Club (W9MKS) Hamfest**  
 Bureau County Fairgrounds 811 West Peru Street  
 Matthew Weaver, KB9VZH  
 319 DeSoto Street Ottawa IL 61356  
 815- 313-5924  
[kb9vzh@mchsi.com](mailto:kb9vzh@mchsi.com)

**Sunday June 17, 2012**  
**Six Meter Club of Chicago 55th Annual Hamfest**  
 DuPage County Fairgrounds  
 2015 Manchester Road  
 Wheaton, IL 60187  
 Mike Huedepohl, WD9GJK  
 3532 Raymond Avenue Brookfield, IL 60513  
 708-485-5481  
[wd9gjk@arrl.net](mailto:wd9gjk@arrl.net)

**Sunday July 15, 2012**  
**Fox River Radio League Hamfest and Electronics Market**  
 Aurora Central Catholic High School  
 1225 North Edgelawn Drive  
 Aurora, IL 60504  
 Dawn Williams, KC9LQS  
 1203 Brandywine Circle Batavia, IL 60510  
 630-531-1670  
[kc9lqs@yahoo.com](mailto:kc9lqs@yahoo.com)



Presents  
 RADIO EXPO 2012  
 Saturday September 15<sup>th</sup> One Day Only

BOONE CO FAIRGROUNDS - US Rt 20 & IL 76 BELVEDERE, IL

42° 16' 54" N / 88° 51' 7" W



Radios - Antennas - Computers - Electronics for everyone!  
 Grounds Open For Set Up Friday At Noon - Flea Market Opens - 6 AM  
 Exhibit Buildings Open - 8 AM To 4 PM

\* Newest Amateur Equipment From Major Manufacturers And Surplus Electronics \*

Advanced Tickets \$ 8 with 4 stubs - At The Gate Tickets \$ 10 with 2 stubs (Kids Under 12 Free)

FREE PARKING - Outdoor Electrical Hookups Available - VEC Testing 9 - 12 Noon

On Grounds Breakfast And Lunch Available RVs / Motor Homes - Water - Electric \$25.00 - No Waste Service

Talk-in On The CFMC Repeater 146.76 (107.2 Hz PL) Linked To WX9MCS 147.255 (114.8PL) & 444.725 (107.2 Hz PL)  
 (Grounds / Local Area Talk In 146.550)

Got Expo Questions ??? Email Us Today [cfmc.radioexpo@yahoo.com](mailto:cfmc.radioexpo@yahoo.com) Or Call us 630-847-5317

Name \_\_\_\_\_ Call \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Table Reservations for both buildings-\$20.00 per table (8ft long) \_\_\_\_\_ x \$20.00 = \_\_\_\_\_  
 4 or more tables - \$15.00 each \_\_\_\_\_ x \$15.00 = \_\_\_\_\_  
 Advanced sale tickets 4 Stubs - \$ 8.00 - REQUIRED with tables \_\_\_\_\_ x \$ 8.00 = \_\_\_\_\_  
 Inside \_\_\_\_\_ / Outside electric \_\_\_\_\_ - Flea market - \$ 10.00 = \_\_\_\_\_  
 Total \_\_\_\_\_

\*\* Building assignment at discretion of CFMC / Do not mail table or ticket requests after Aug 27, 2012 \*\*  
 Make check out to: CHICAGO FM CLUB 6348 N Milwaukee Ave #103 Chicago, IL 60646  
 Remember to send a #10 (4 in by 9.5 in) self-addressed stamped envelope with your request.



P.O. Box 8465, Rockford, IL 61126

Website: [www.w9axd.org](http://www.w9axd.org)

E-mail: [jholich@comcast.net](mailto:jholich@comcast.net)

<u>Nets</u>		
Monday 8 PM	RARA Info.	146.610 - 114.8
Monday 9 PM	10M SSB Net	28.375 +/- USB
Thursday 7 PM	ARES	147.255 + 114.8

place address label here

# May 2012

## ROCKFORD AMATEUR RADIO ASSOCIATION MEMBERSHIP APPLICATION

Single Adult: \$25.00 Adult w/Family: \$30.00  
Single Senior: \$15.00 Senior w/Family: \$20  
Student: \$15.00

Above rate includes the RARA monthly newsletter, Ham Rag, via email.

Ham Rag Via U.S. Postal Service: \$12.00 extra

Name \_\_\_\_\_ Call Sign \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone \_\_\_\_\_

Work Phone \_\_\_\_\_

Email \_\_\_\_\_

Renewal \_\_\_\_\_ New \_\_\_\_\_ Retired \_\_\_\_\_

Radio Interests \_\_\_\_\_

Other Interests \_\_\_\_\_

Suggestions: \_\_\_\_\_

RETURN COMPLETED FORM TO:

ROCKFORD AMATEUR RADIO ASSOCIATION  
P.O. BOX 8465  
ROCKFORD, ILLINOIS 61126