HAMRAG

Visit our website for more club and area ham information at ***http://w9axd.org****, or join us on Facebook at this* ***LINK***

ROCKFORD AMATEUR RADIO ASSOCIATION

RARA Mission Statement

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

April 2023

INSIDE THIS ISSUE

Presidents Message

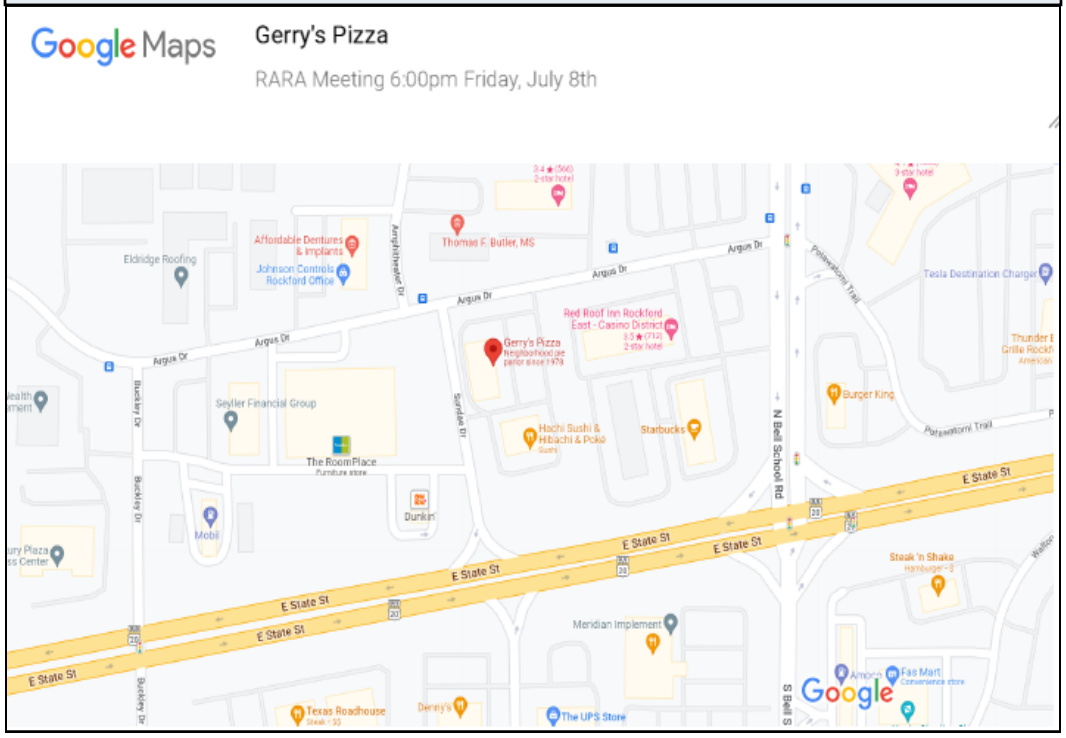
Hello Everyone,

Our April get together will be this Friday night (April 14th) at Gerry's Pizza, located at 7403 Argus Drive in Rockford. The meeting time is 5:30pm with dinner at 6:00pm. Come out at meet many other local hams and join in the fun. This is open to all area hams, and no club affiliation is required.

On air activities for April include the ARRL Rookie Roundup on the 16th. This six hour contest is focused on newer hams licensed three years or less. There are also many state QSO parties this month, which you can operate as an out of state station. See inside the Hamrag for more details on these.

I hope to see everyone Friday night! Please let me know if you have any questions.

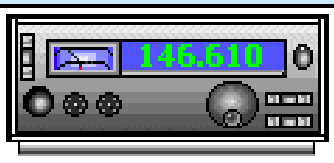
73,
Kurt Eversole - KE9N



NEXT MEETING

FRIDAY
April 14, 2023
5:30pm

Get together at Gerry's Pizza 7403 Argus Drive Rockford, IL



Local Events and Information

UPCOMING EVENTS

April 14, 2023 - In Person Meeting at Gerry's Pizza 5:30pm

April 26, 2023 - RARA Board Meeting 7:00pm on Google Meet

2023 RARA Officers and Board

Officers:
President - Kurt Eversole, KE9N, 815-389-2784, kurt.eversole@gmail.com
Vice President - Tom Shouler, N9VJU, 815-633-0089, n9vju@comcast.net
Secretary - Larry McFall, KD9HKX, 815-900-1820, lpmcfall@charter.net
Treasurer - Gordon Seaman, KC9NEX, 815-262-0294, kc9nex@gmail.com
Directors:
Kevin Puckett, N9EGF, 815-218-1551, krpuckett@gmail.com
Ron Callahan, N2RON, 608-289-0198, ron.n2ron@gmail.com
Larry Lisle, K9KZT, 815-397-9595, l.lisle@usa.net
Kerry Tatlow, KD9MAP, kd9map@gmail.com

Webmaster - Kerry Tatlow, KD9MAP, kd9map@gmail.com
Repeater License Trustee - Gordon Seaman, KC9NEX, 815-262-0294, kc9nex@gmail.com
Hamrag Editor/Repeater Chairman - Kurt Eversole, KE9N, 815-389-2784, kurt.eversole@gmail.com

Local Net Information

Mon - 7:00pm - RARA Info. Net & CW Lesson, 146.610 (-) offset, pl 114.8
8:00pm - McHenry Cnty. RACES Net, 146.835 (-) offset, pl 91.5

Tues - 7:00pm - Health & Tech Net & CW Lesson , 146.610 (-) offset, pl 114.8
7:00pm - Rock County Public Service Net, 145.450 (-) offset, pl 123.0

Wed - 7:00pm - Stephenson Cnty. ARES Net, 147.390(+) offset, pl 114.8
7:30pm - Greater Beloit Radio Net, 147.120 (+) offset, pl 123.0

Thurs - 7:00pm - Northern Illinois Skywarn Training Net,147.195 (+) offset, pl 114.8, with the Health & Tech Net & CW Lesson following.

Fri - 8:00pm - Friday Night Fun Net, KC9GCR, 146.610 (-) offset, pl 114.8

Sat - 8:00pm - Saturday Ragchew Net, 146.610 (-) offset, pl 114.8
9:00pm - Saturday Night Fun Net Milw., 146.910 (-) offset, pl127.3

Mon. thru Friday - 8:00am to 9:00am - Senile Net, 14.287 (HF USB)

Local Events and Information

In the words of a famous Elmer, **"Be vewy vewy quiet. I'm hunting wabbits."**

In the words of some other not so famous Elmer's, **"Listen very very carefully. We are hunting foxes."**

Whether you are an elmer, or a newcomer to ham radio, you are invited to participate in the **G**reater **B**eloit **A**mateur **R**adio **C**lub's fox hunt.

The GBARC is hosting a foxhunt, Saturday May 13, 2023 starting around 10AM. The Fox hunt will begin following the monthly ham breakfast which is held at Denny's Restaurant / Flying J truck stop (IL75 & I90/39) that begins around 8am. All are invited to breakfast, but not required to participate in the fox hunt. There is no official starting point, however many will be starting from the Denny's parking lot following breakfast.

RARA members, other fellow hams, and those interested in amateur radio are all invited.

The fox will be hidden somewhere in Rock County Wisconsin, on public land.

The official start along with the simplex frequency will be announced on the Janesville Repeater, 145.450 minus offset 123.0 CTCSS.
The fox will be monitoring the 450 repeater during the hunt to answer any questions you may have other than "where are you?"

A fox hunt is an exercise in **R**adio **D**irection **F**inding – RDF, where amateur operators will use a variety of radio signal receiving equipment (typically 2 meter hand held radio) to find a hidden transmitter that will automatically transmit a repeated beacon signal. As the receiver's antenna is pointed toward the hidden transmitter, the signal strength will rise and as it is moved away, it will drop. As a result, you can determine which direction the transmitter is located. You will continue receiving the signal from various locations and using mapping/triangulation, you will narrow down the proximity of the hidden transmitter. As you get very close to the transmitter, you will attempt to reduce the signal strength using a variety of methods, either attenuating the signal or just reducing the antenna effectiveness to continue to hone in on the location of the transmitter.
This is a great time to try foxhunting or improve your hunting skills.

Oh, there will be a few small prizes for those that find the fox first.

Contact brett@k9by.us with any questions.

73, Brett Johnson, K9BY

Rookie Roundup 2023

Rookie Roundup is a contest aimed at Amateurs licensed for three years or less. This six-hour event is held three times per year (April, August and December). Rookies can contact anybody, while "Old Timers" make contact with only Rookies. Mentoring is a big part of this event!

"Old Timers" should also take note of this event. Consider opening your station up to a rookie (or two) and become an elmer. Remember, the more operators are on the air, the more fun the 'Roundup will be for everyone.

Be sure to read the rules before the event. It is also helpful to be familiar with the logging and submission processes ahead of time. You're in the right place; browse this page for information and tips on operating the Rookie Roundup. We hope to hear you on the air!

You can be a Rookie if you were first licensed in 2022, 2021, 2020 or 2019 - send the year you were first licensed in the exchange. If you were licensed before 2019 you can also be a Rookie if you made your first Amateur Radio contact during 2022, 2021, 2020 or 2019 or if you haven't made any contest contacts on the contest mode (SSB, CW, or RTTY) before the Rookie Roundup contest, send the current year (2021) in your exchange - either of these reasons qualify you as a Rookie for just one year.

Rookies will attempt to make as many contacts as possible during this 6-hour event. Rookies work everyone - and non-Rookies work only Rookies.

All events run for 6 hours (from 1800 to 2359 UTC) on the dates shown below.

Sunday, April 16, 2023, using SSB

Sunday, August 20, 2023, using RTTY

Sunday, December 17, 2023, using CW

For more information go to this link: http://www.arrl.org/rookie-roundup

State QSO Parties for April

Louisiana	± Louisiana QSO Party	1400Z, Apr 1 to 0200Z, Apr 2, 2023
Mississippi	± Mississippi QSO Party	1400Z, Apr 1 to 0200Z, Apr 2, 2023
Missouri	± Missouri QSO Party	1400Z, Apr 1 to 0400Z, Apr 2, 2023 an 1400Z-2000Z, Apr 2, 2023
New Mexico	± New Mexico QSO Party	1400Z, Apr 8 to 0200Z, Apr 9, 2023
Georgia	± Georgia QSO Party	1800Z, Apr 8 to 0359Z, Apr 9, 2023 and 1400Z-2359Z, Apr 9, 2023
Nebraska	± Nebraska QSO Party	1300Z, Apr 15 to 0100Z, Apr 16, 2023 and 1300Z-2200Z, Apr 16, 2023
Michigan	± Michigan QSO Party	1600Z, Apr 15 to 0400Z, Apr 16, 2023
Ontario	± Ontario QSO Party	1800Z, Apr 15 to 0500Z, Apr 16, 2023 and 1200Z-1800Z, Apr 16, 2023
North Dakota	± North Dakota QSO Party	1800Z, Apr 15 to 1800Z, Apr 16, 2023
Quebec	± Quebec QSO Party	1200Z-2000Z, Apr 16, 2023
Florida	± Florida QSO Party	1600Z, Apr 29 to 0159Z, Apr 30, 2023 and 1200Z-2159Z, Apr 30, 2023

Digital Signal Processors

Digital Signal Processors Conquer the World! by KD9MAP

DSPs are everywhere! What are they, what are their demands, and how can we possibly defend ourselves against them?

A DSP takes a signal and processes it. So how is that different from our familiar analog signal processors (e.g., filters, demodulators?) The DSP samples the analog signal and converts it into numbers. Then it does fancy math on the numbers. Then, often, it converts the numbers back into an analog signal or signals.

That seems like an overly complicated Rube Goldberg way to build a filter! Why not just solder a few parts together? The reason is that technological progress has made number-crunching chips cheaper and more space-efficient than analog parts. It is less costly to make a handheld xcvr out of a computer chip, than from a bunch of discrete parts. Another bonus is that the same computer chip can also handle other non-DSP jobs in the radio inexpensively, like running the keyboard, display, and channel memory bank.

How does math make a radio? Let's try something far easier. We'll make just a simple amplifier with math. Suppose you have a triangle wave DC voltage signal. The DSP samples the signal, and produces a flood of numbers, each individual number representing the instantaneous signal amplitude at a particular tiny slice of time. It might start with a string of numbers similar to this:

+1, +2, +3, +4, +3, +2, +1.

What kind of math would amplify that signal?

Multiplication might work. Amplifiers have gain. Gain is a number! What happens if we multiply the number flood by the gain? If the gain is 2, then multiplying it out, we get (check my math,)

+2, +4, +6, +8, +6, +4, +2.

Looks like amplification to me! (And if the gain is less than one and greater than zero, we get an attenuator.)

Notice the number flood so far is all positive numbers. That's because I specified that the input signal would be DC voltage. Suppose we want to turn it into an AC voltage? When we subtract a clever amount of voltage (5V) from the amplified flood, we get

-3, -1, +1, +3, +1, -1, -3.

Voila: alternating voltage!

How about another multiplication trick? Multiply the alternating voltage by -1. Now we have

+3, +1, -1, -3, -1, +1, +3.

Did we just *reverse the phase* of that (particular) signal? I think so!

Those examples are dead-simple math. The math for, say, a digital filter is way more complicated, but when you get right down to it, so is the math for analog filters. The analog math is the math of 'continuous-time systems,' and the digital math is the math of 'discrete-time systems.' The two bodies of math knowledge are joined at the hip; each informs the other.

Put enough of the little digital math tricks together, and you get a radio. A practical xcvr will usually contain an analog RFLNA and an analog PA, but most everything else can be DSP.

(continued)

Digital Signal Processors

The DSP invasion has captured our radios, smartphones, TVs and cars. How do we repel this attack? We ought not! We should welcome our new DSP overlords, as an engineering miracle that enriches our lives, and our hobby. I see this technology as something I really want to learn in depth, so I can build things out of it, just like I've learned how to build simple analog stuff. DSP processors for experimentation are in the sub $5 range now (or you can just use your PC or laptop,) and the tools to work with them are free online, as are all the educational resources you'd ever need. It's been a real challenge for me, but studying DSP has helped me understand analog a lot better too.

Much of what hams built with solder fifty years ago, we can build with DSP code today. But when the QSPs (quantum signal processors) get here, run for the hills! :)

Glossary
DSP: digital signal processor.
System: almost any thingie that produces signals.
Signal: a variable changing over time, that might be interesting or useful, produced by a system.
RFLNA: 1) rolling on floor laughing my nose away; 2) radio frequency low noise amplifier.
PA: power amplifier.
PLL: phase-locked loop.
C: a programming language.
QSP: something I made up as a joke, but who knows for sure *what's* coming?

Here's an almost-easy book about DSP that I'm glad I found:
"A Digital Signal Processing Primer: With Applications ...," by Ken Steiglitz.

This free software simulator lets you assemble DSP components of all kinds into complete running designs, using a drag-and-drop graphical interface.
https://www.gnuradio.org/
I've been on a PLL kick lately. This single article on building a PLL in C using DSP design taught me so very much, I can't praise it highly enough:
https://www.liquidsdr.org/blog/pll-howto/

The next two references are guaranteed to send people fleeing in Math Terror. But IMHO, they are the Best of the Best, so I cite them without further apology:

The Best Book on signal processing, by DSP pioneer Alan Oppenheim. No, I DON'T understand the whole thing:
"Oppenheim, Alan, and Alan Willsky. Signals and Systems"

The Best Lecture Course on signal processing, taught from the above book. What a wonderful world we live in when we can get this kind of highest-quality educational content FOR FREE! Yes, I watched all 25 lectures:
https://ocw.mit.edu/courses/6-003-signals-and-systems-fall-2011/

The DeKalb Hamfest

Sponsored by the Kishwaukee Amateur Radio Club
Sunday...May 7, 2023...8am to 1:00 pm
Vendor/Tailgate Setup—Saturday 1 PM to 9 PM
and Sunday 6 AM to 8 AM via Back Gate
$8.00 Advance Ticket (Double-Stubs—See Below)
$10.00 Admission at the gate (Single Stub).

Overnight Camping on Fairgrounds $20 per night - Includes Electric and Sewer

Rain or Shine
2 Large Buildings
3 Cash Prizes
Prize Drawings Every Half Hour

Free Outside Tailgating
No VE Testing
Chairs not furnished

Food Vendor: Hyvee

Fairground Regulations Prohibit Vehicles in buildings

Always the First Sunday in May. May 7, 2023
Sandwich Fairgrounds, Sandwich, IL
(Just North of RT. 34 Intersection of SUYDAM and GLETTY Roads)
TALK-IN: KARC Repeater 146.730 pl=100 (-) or 146.52 Simplex
****** PLEASE USE MAIN GATE ******

???????????? Questions ????????????
Phone: Bob Yurs—W9ICU—Hamfest Chairman at 815-757-3219
Or e-mail w9icu@arrl.net
KARC Hamfest Webpage / Hotel Info: www.karc-club.org

Return to: KARC, PO Box 371, DeKalb, IL 60115
Deadline: April 20, 2023 MUST INCLUDE SASE FOR ADVANCE TICKET SALES
Advance Tickets will not be for sale on site

_____ ADVANCE TICKETS @ $8 each (Dual Stubs)
_____ INSIDE TABLES @ $10 each (FREE TAILGATING)
_____ Total...Please make checks payable to KARC
_____ Telephone Number _____ e-mail address
_____ Call Sign

Hamfest Information

52nd Annual

Madison Hamfest

Sponsored by MARA, the Madison Area Repeater Association
A Non-Profit Organization

Saturday April 15, 2023
8:00 AM until 12:00 PM

The MARA Hamfest features vendors of new and used equipment for Amateur Radio, Electronics, Computers, computer parts and software. Come see our huge Flea Market in the Mandt Community Center's spacious 26,000 sq ft main hall.

VE testing starts at 10:00 AM.

Vendor space is sold on a "**first come, first served bases**"

Location:	**Mandt Community Center (Same location since 2000)**
GPS:	**North 42.91157 West 89.21647**
Address:	**400 Mandt Parkway, Stoughton, Wisconsin**
Directions:	**Take US Hwy 51 South from Madison to downtown Stoughton, WI.**
	Turn South on 4th Street and the Mandt Center is 3 blocks ahead on the left
Talk in:	**MARA's Wide Area Repeater 147.150 MHz (+600) pl 123.0**
Parking:	**Free**
Seller Setup:	**Friday night 6:00 PM to 8:00 PM and Saturday morning, 6:00 AM**

Ticket, Table and Chair Prices

Tables are limited to availability!

Hamfest general admission tickets:	**Purchased on website**	**$8.00 per person**
Ages 12 and younger: FREE	**At the door CASH ONLY!**	**$10.00 per person**
Eight-foot vendor table fees	**Purchased by April 1st**	**$20.00**
Admission tickets are **NOT** included	**After April 1st**	**$25.00**
In the price of tables		
Chairs		**$5.00**
AC Service		**$30.00**
Admission ticket along with table rental is **Required**		**At the door is CASH ONLY**

MARA is not responsible for theft or damage. All orders are final – No refunds.

Hamfest tickets, and vendor table space can be purchased at the MARA website: www.w9hsy.org If you have questions about purchasing tickets, chairs, table space. Please check the web page or contact us by e-mail at hamfest@w9hsy.org or call 608-205-1994

The K7RA Solar Update

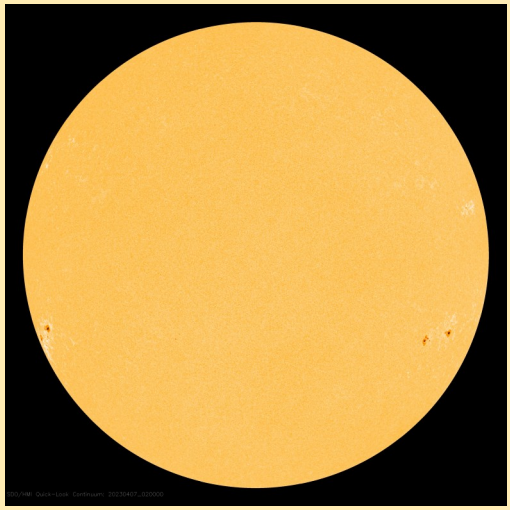
Average solar flux and sunspot numbers were way down this week. Sunspot numbers were down by half, from 112.6 last week to 53.4. Average daily solar flux declined from 156.1 to 132.5.

Geomagnetic indicators were lower too. Average daily planetary A index from 23.3 last week to 15 in this bulletin, and average daily middle latitude A index from 13.7 to 11.7.

The April 1 middle latitude A index of 11 is my guess. The middle latitude A index for April 1 was not available.

Predicted solar flux is 140 on April 7 and 8, 135 on April 9 to 11, 140, 145 and 130 on on April 12 to 14, 130 on April 14, 135 on April 15 to 17, 140 on April 18 to 20, 135 on April 21 to 23, then 130, 125 and 120 on April 24 to 26, 115 on April 27 to 29, 125 on April 30, 120 on May 1 and 2, 115 on May 3 and 4, then 110 on May 5 to 7, and 115, 120, 125 and 130 on May 8 to 11, then 135 on May 12 to 14, and 140 on May 15 to 17.

Predicted planetary A index is 5 on April 7 to 10, then 8, 8 and 5 on April 11 to 13, 8 on April 14 and 15, then 12, 10 and 15 on April 16 to 18, then 5, 20, 15 and 10 on April 19 to 22, 5 on April 23 to 25, then 15 and 18 on April 26 and 27, 15 on April 28 and 29, 8 on April 30, 10 on May 1 and 2, 8 on May 3, then 5 on May 4 to 6, then 12, 10, 8 and 5 on May 7 to 10, 8 on May 11 and 12, then 10, 12, 15, 5 and 20 on May 13 to 17.



This video from Tamitha Skov came out right after last week's bulletin:

https://youtu.be/F8ERhLiOK88

Editors Note

If you would like to have something published , please call me, or email me at kurt.eversole@gmail.com

Cut-off for the May 2023 Hamrag will be Friday, April 28, 2023

Kurt - KE9N, Editor

FRIDAY MORNING BREAKFAST

Meets every Friday morning from 8:00 am until about 10:00 am. An informal gathering of ham folks, no affiliations necessary, good food and good company.

OPEN 24 HOURS
Spring Garden
FAMILY RESTAURANT

Everyone is welcome to attend.

"The Spring Garden Family Restaurant"
4820 N. 2nd Street
Loves Park, IL 61111

NASA Names Three Hams for Artemis II Moon Mission Crew

NASA and the Canadian Space Agency (CSA) announced the four astronauts who will venture around the moon on Artemis II. This will be the first crewed mission on NASA's path to establishing long-term moon science and exploration development. The agencies revealed the crew members on Monday, April 3, 2023, during an event at Ellington Field near NASA's Johnson Space Center in Houston, Texas. Three of the four crew members are amateur radio operators.

Their assignments are as follows: Commander Reid Wiseman, KF5LKT, Pilot Victor Glover, KI5BKC, Mission Specialist 1 Christina Hammock Koch, and Mission Specialist 2 Jeremy Hansen, KF5LKU. Koch had planned to study and take her amateur license exam in 2019, but her flight was suddenly rescheduled 6 months earlier than originally planned. She had to immediately begin preparing for her flight instead of studying.

The Artemis II mission is scheduled to launch in November 2024. The approximately 10-day flight test will launch on the agency's powerful Space Launch System rocket, prove the Orion spacecraft's life-support systems, and validate the capabilities and techniques needed for humans to live and work in deep space.

Hamvention 2023 Getting Ready

Dayton Hamvention® 2023, scheduled for May 19 - 21, is just six weeks away and preparations are moving forward for the big event.

Tickets are now available online and by mail order. They can be purchased at https://hamvention.org/purchase-tickets.

Hamvention, which is amateur radio's largest annual convention, is held at the Greene County Fairgrounds and Expo Center in Xenia, Ohio.

ARRL is readying its large participation at Hamvention. ARRL's exhibit area will be located in Building 2 and will include program representatives and volunteers supporting over a dozen booths and activities.

With nearly 700 volunteers, this year's Hamvention will boast more than 500 indoor exhibits and more than 2,500 outdoor exhibits. The event showcases the latest in amateur radio equipment, technology, and computer software and hardware, along with hard-to-find radio and computer accessories and equipment. For the latest information about Hamvention 2023, visit their website.

News Around the Globe

In less than a month, 2023 World Amateur Radio Day (WARD) will be celebrated, literally, around the world!

WARD is held on April 18 every year and is celebrated by radio amateurs and their national associations which are organized as member-societies of the International Amateur Radio Union (IARU). It was on this day in 1925 that the IARU was formed in Paris. American Radio Relay League (ARRL) Co-Founder Hiram Percy Maxim was its first president.

The IARU announced previously that Human Security for All (HS4A) will be this year's World Amateur Radio Day theme. The day is being celebrated with a 2-week operating event occurring April 11 - 25. Special event stations will be operating from around the world, making two-way radio contacts to call attention to the HS4A campaign. The United Nations Trust Fund for Human Security describes 'human security' as "a more powerful, lasting approach to the most difficult deficits in peace and development," such as poverty, war, and natural disasters.

ARRL encourages all radio amateurs to take to the airwaves for WARD, to enjoy our global friendship with other amateurs, and to show our skills and capabilities to the public.

More information about 2023 World Amateur Radio Day is available at www.arrl.org/world-amateur-radio-day and www.iaru.org/on-the-air/world-amateur-radio-day.

website: w9axd.org
email: w9axdrara@gmail.com

2023 RARA Membership* Form
Dues are $25.00

(This is an editable PDF Form. Fill in the information with your keyboard, then save the PDF, and then attach it to an email to: w9axdrara@gmail.com. See below for mail in information and/or PayPal information)

Date: _____ *(mm/dd/yyyy)*

Name: _____ **Callsign:** _____

Street Address: _____

City: _____ **State:** _____ **ZIP:** _____

E-mail Address: _____

Phone - Home: _____ **Cell:** _____

Can we release your e-mail and phone number to members only? Yes _____ NO _____

Are you a member of the ARRL (American Radio Relay League)? Yes _____ NO _____

What things do you like to do with ham radio?

_____

What things do you want to do, but need more information to do so?

_____

Would you be available to make a presentation on some part of our hobby and what?

_____

Do you have any questions that we can help you with presently? If so, explain below.

_____

_____

Mail In: Please fill out all the information on the form and mail it with $25.00 to the following address:

Rockford Amateur Radio Association
P.O. Box 8465
Rockford, IL 61126

Make your check payable to: Rockford Amateur Radio Association.

For Internet application and payment:

To use PayPal, click on the link below. After clicking "Send" and then logging in, enter $25.00 in the "Dollar Amount", and click "Send", to complete your payment to RARA. Also, DON'T forget to email your completed form to: w9axdrara@gmail.com for your membership application. ***Thank you for your support!***

PayPal Link: PayPal

*Membership is based on approval of the RARA Board. The membership fee will be returned if you are not approved.

Rev. 1/9/2023