



Signals from SARA

WØJH	©2018 The Stillwater Amateur Radio Association An ARRL Affiliate & Special Service Club www.radioham.org	May 2018
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Double Header!



May's Twofer Meeting Program

We have a two-for-one program this month. Matt Holden, KØBBC, our newly-elected ARRL Dakota Division Director will be in attendance. Matt will be here to introduce himself to our club members, talk about current events at the ARRL, and take your comments and questions.

The second half of the program session is the Bitx40 Builders' Show-n-Tell. A group of SARA members have been spending the winter months assembling the very popular BitX40 in a variety of enclosures. Have you put a Bitx40 together? Bring it in for the Show-n-Tell and share your experiences!

It's Summer Break Time Again!

Signals from SARA is published September through May, with a summer break during June, July, and August. There's still plenty going on, though. Visit Radioham.org and the SARA Facebook page for the latest news and summer event schedule.

Proud affiliate of the **Courage Kenny Handiham Program**



Announcements

Monthly Meeting:

May 12, 2018

Meeting: 09:00

[Boutwells Landing](#)

Auditorium A

Gables Wing

Program: Double Header! ARRL Update & BitX40 Builders

Pre-meeting:

~07:30 - 08:45

Breakfast & Coffee

[Perkins Restaurant](#)

2050 Frontage Rd W

Stillwater, MN

SARA On the Air

SARA Phone Roundtables Daily @ 20:00 Local:

(*except* Tuesday & Thursday):

1.966 MHz LSB +/- QRM

(*alternate*: 21.316 MHz USB)

Monday @ 09:00 Local:

3.856 MHz LSB +/- QRM

Tuesday @ 19:00 Local:

24.955 MHz USB +/- QRM

SARA Repeater Weekly Net Wednesday @ 21:00 Local:

WØJH Repeater

147.060+ MHz (Positive offset)

114.8 Hz TX tone (required)

156.7 Hz Receive tone

Digital Net

Sunday @ 19:00 Local:

3.58415 MHz (500-1,000 Hz)

(mode announced Sunday via email broadcast)

Can't Find Us On the Air?

... Monitor SARA Repeater

Bandwidth from the President

Greetings from my shack, de Joe KCØOIO.

Faced with winter storm forecasts that eventually evolved into blizzard warnings, we cancelled the April meeting. I had already gone to Plan B for our program that day, rescheduling with Paul Bittner WØAIH so he didn't have to drive up from east of Eau Claire in poor driving conditions. Paul has been rescheduled for our September 8th meeting. To the best of everyone's recollection, this is the first time a SARA monthly meeting has been cancelled on account of weather. Who'd have thought a blizzard in April would be the reason. My thanks to everyone for your understanding!



Shortly after announcing the meeting had been cancelled, I had a conversation with Dave WØOXB during our Friday morning drives. From that conversation sprang the plan for the Get on the Air Meeting. We decided to get on the air on 75 meters and 2 meters via the SARA repeater, simulcast between the two bands, and have an on air meeting for SARA members. Dave WØOXB was net control for the 75-meter gathering and made the simulcast connection; I was net control on the repeater; and Bob WØGAF served as scribe, capturing the suggestions and comments and transcribing them for us. Bob's summary of the GOTAM appears elsewhere in this issue. Dave, Bob, and I decided to meet on the air shortly after 8:00 AM on Saturday morning to figure out the simulcast process and check the bands. We found that some of you were already there waiting to join in! We were taking check-ins by 9, and got the GOTAM in full gear shortly after. A total of 31 people joined the GOTAM that morning. Several even doubled up on 75 and the repeater. Two questions were posed to participants, and many excellent comments and suggestions were received and tracked. After more than 2 hours of on-air activity, we brought the GOTAM to a close. I had a great time that morning. I've heard from others that they enjoyed the GOTAM. And everyone who participated thought the GOTAM was a great idea. Special thanks to Dave WØOXB for his efforts that morning. He always had to have a mic keyed up, either on the 2-meter rig or the HF rig, to facilitate the simulcast. And thanks also to Bob WØGAF for transcribing the comments and compiling the summary. We **will** do this again.

I am sure many of you are wondering what's up the SARA repeater and the recent survey regarding DCS and System Fusion. I was recently approached by a member who explained a program that Yaesu had whereby they were making factory refurbished DR1X-FR System Fusion repeaters (with full warranty) available to repeater owners at a very attractive price. These units have taken in by Yaesu through a trade-in offer they had for upgrading to the second-generation System Fusion DR2X repeater. Once refurbished at the factory, with hardware and firmware upgrades, the units have

been made available for purchase by repeater owners for as an upgrade path to existing repeaters. That member then offered to underwrite the cost of acquiring a DR1X-FR for SARA. The acquisition of this System Fusion repeater was discussed at subsequent Eyeball QSO Parties. System Fusion is the best option for SARA as it offers digital voice capabilities while maintaining analog FM capabilities, unlike the two other popular digital voice options of D-Star and DMR. Plus, this is a very simple change, none of the existing duplexers, coax, antennas or power supply for the repeater needs to be changed. The new repeater can be installed in the repeater cabinet and the antenna and power connections switched and it's on the air. The existing Icom repeater will remain in the same cabinet as back-up for the foreseeable future. It was decided to go ahead and acquire a DR1X-FR and give it a try. At this time the repeater is in hand and has undergone some testing and analysis prior to the planned installation this month. No SARA funds have been spent for this purchase, thanks to the generosity of our club member.

System Fusion is Yaesu's digital voice (C4FM) implementation. The advantage to System Fusion repeaters and radios is the feature known as Automatic Mode Select. A System Fusion repeater can be set up to handle digital voice mode and FM analog mode. Automatic Mode Select detects the mode you are transmitting (Digital or FM) and switches accordingly. With the backwards compatibility the DR1X, if a digital mode station is transmitting and FM station then transmits the repeater automatically switches to analog FM so all stations can communicate with each other. This truly is the best of both worlds.

Further introductory information is available here:

<http://systemfusion.yaesu.com/what-is-system-fusion/>

The case for using DCS or digital-coded squelch when we upgrade is two-fold. The location of the repeater on the Allan S King power plant stack is an extremely RF rich environment. Many government and commercial two-way radio systems have installations on that stack, for very obvious reasons. The problem is off-site intermixing and is wide spread across the northern Twin Cities. Simply moving our repeater does not resolve the problem, as was found when the repeater was located on the silo in May Township for a while before returning the stack. DCS has proven very effective in preventing the intermod getting into the signal being transmitted. DCS is also required should we implement a WIRES-X connection, a likely future addition to our repeater. DCS works on both analog FM and Digital Voice. The drawback to DCS is that any amateur radio transceiver made earlier than the early 2000's does not have DCS capabilities, and it cannot be added to those older radios. You will need a DCS-capable radio to access the SARA repeater once we install the DR1X repeater.

So here's the bottom line, SARA is always looking to provide the best opportunity for

members to get on the air. Providing an option for digital voice while also maintain analog FM capabilities is one of those opportunities. Whether we are ready for it or not, digital voice is the present and future of 2-way radio communications. It's time for SARA to offer that option.

By the way, although the generosity of one member is making this opportunity possible for SARA, it needn't born by that one person. The repeater was acquired at a very low price of \$400. I have committed to providing \$40 towards that purchase. You too can help underwrite the System Fusion repeater. With just 8 more providing \$40 each, we'll cover the purchase price.

How about you? Drop me a note at president@radioham.org if you wish to contribute.

The April 14th meeting program is a two-for this month. Matt Holden KØBBC, ARRL Dakota Division Director will be joining us for an introduction and Q&A. The second part will be the BitX Builders Show-n-Tell. Don't forget the pre-meeting Breakfast will be at Perkins Restaurant 2050 W Frontage Rd (Hwy 36 & Washington) in Stillwater at 7:30 AM. The breakfast gang hopes to see you there!

73 es CUL,
de Joe (KCØOIO)

A reminder about the importance of training for ARES members:

The Douglas County ARES EC (Superior, WI) and Northeast MN ARES DEC worked closely together with ARES members to provide communications support and shelter communications during the Superior Husky Refinery explosion and evacuation last week. There were ARES members in the EOC and at least two shelters. They worked with the Red Cross in the shelters, manned the EOC at some stations, passed communications with the evac sites, passed traffic and gathered information for the National Weather Service regarding the smoke plume.

As the Douglas County EC Dave (W0NWO) said, there are times when it feels like we are meeting and training for something that will never happen. The explosion and fire at the Husky refinery brought everything that we have trained for and talked about into play." So, the let's keep up the training and work on the nets because we never know what may be coming our way.

John Regan, KA0HYR, ARES EC, MN Section, Washington County



GOTAM Recap

On April 14, having cancelled the April monthly meeting due to the impending blizzard, SARA Leadership quickly organized a Get On The Air Meeting (GOTAM) to provide a venue for club members to get together and share ideas.

31 SARA members participated on a two-hour session simulcast on both 75 meters and the SARA repeater. The core of the event was to gather ideas and suggestions on two questions related to how SARA can service its membership better. Summary of the responses and feedback provide is included below.

Question 1 – What can we do to get more folks on the air?

On-Air Events. A number of folks suggested that we consider more scheduled on-air events. They pointed out the success of the GOTAM meeting as an example of how additional events could generate more activity. There was also a suggestion that we might be able to better publicize the many on-air events that are currently happening, including the 160 Rag Chew, Tuesday General Net, Monday Morning 80 meter Get Together, and the PJ Net. We also had some suggestions for new activities, like EZ Pal for images. A suggestion to determine what types of on-air activities to is to conduct a survey of members to see what bands and modes members are able to operate on.

Help Folks Get On the Air. Continue to leverage the MAP program to help people get on the air. We've been tremendously successful getting folks on the air with over 100 OXB specials installed. Suggestion was that we might be able to be more proactive with brand new hams coming out of our classes to get an antenna up soon after they've earned their technician ticket.

Question 2 – What can we do to get more folks to attend SARA meetings?

Building Projects and Instructional Sessions. Folks shared that building projects like the Antenna Analyzer, BITXX 40, as well as instructional sessions on digital modes, and FLDigi setup have generated a lot of interest, and are likely reasons that our Thursday eyeball sessions are often times exceeding room capacity. Ideas brought up to continue that momentum included continuing to bring kits and equipment to eyeball sessions and consider use of QST articles as discussion material.

Outdoor Events. Hams in the Park, Go Kit Picnic, and Fox Hunts were all pointed out as venues that have been successful in generating interest and getting people turn out. Keep those up and look for opportunities to add new skills, techniques, and equipment to those events.

Broaden Our Reach. There were a number of suggestions raised on how we might reach outside the traditional ham community to generate more interest in SARA activities. Working more with schools and STEM programs, promoting the amateur radio service to police and fire reserve units, and arranging a skills night with a non-radio club to uncover mutual interests.

Throughout the GOTAM, SARA leadership (past and present) was commended for the exceptional job that's been done over the years to develop interesting and engaging activities that have served the membership and the ham community at large. SARA's first GOTAM meeting was a great success and we look forward to seeing how some of the ideas presented will be implemented.

VE Report

The VE Team consisting of: NØUHR, AD6QT, KØGW, KCØOIO, WØGAF, N5JLZ, ADØSN, N9JNQ, KEØGOM, KØZZT and myself met the "Magnificent Seven" for the April 26th exam session at Boutwells Landing. Of our seven examinees, six had no prior amateur radio license and one held a recently issued Technician license. All seven passed exams to earn either a new or upgrade to an existing license.

We administered a total of 14 exam elements and at the end of the session had two new General and five new Technician hams. Six of our examinees are also now 2018 members of SARA. The new licenses were issued by the FCC on 5/3/2018:

John Olcott KEØQBE, new General (upgrade from Tech)

Julie Leikam KEØROH, new Technician

Gene Ecker KEØROI, new Technician

Steven Huberty KD9KYE, new Technician

Robb Jacobs KEØROJ, new Technician

Owen Skroch KEØROK, new Technician

Scott Skroch KEØROL, new General
(passed both Tech & General exams)

Shel NØDRX

The State of the Art: When Repeaters Were New in Minnesota

Ron, KØFTB & Pat, WAØTDA

As we look forward to upgrading our SARA repeater, I thought we might take a look back at a time when two meter FM ham repeaters were just starting to take hold in our state.

My friend Ron Geppert, KØFTB, sends me occasional emails with items of interest from Mankato, my old stomping grounds. Ron and I were in the Mankato Area Radio Club way back in the 1970s. Gage Center, which Ron refers to in the text to follow, was a student residential complex with dual 12 story towers built atop the bluff on what was Mankato State University's "upper campus". It was the tallest building in Mankato, and from the roof you could see the city and the surrounding southern Minnesota farmlands stretching out to the horizon.

Ron writes:

Once upon a time in a Gage far, far away, there appeared Mankato's first VHF repeater. In the mid-1970s, Charlie Zwisler (KØKLY) purchased a low power Standard repeater and the Minnesota Valley Repeater Association (MVRA) was born. The repeater was installed atop Gage Tower, a girl's dorm on the MSU campus, and was crystal controlled on 146.25/85 with the call WRØABT. This was in the era when repeaters needed the blessing of the FCC before going on the air. Eventually the Minnesota Valley Repeater Association (MVRA) took ownership of the repeater by repaying KØKLY.

It was not long and the Metro ARA put a repeater on the IDS building in downtown Minneapolis using the same frequency pair as the MVRA. This was before tone access was popular so the "Big Gun" on the IDS caused interference in Mankato and no one wanted to change frequency. Remember, these were the days before coordination! Mankato was on the air first, but the Metro group felt because they were bigger, Mankato needed to change frequency.

Was this a big deal for the MVRA to change to 147.84/24?

It certainly was, because not only were new crystals required for the repeater, the duplexer needed to be retuned plus rock-bound (crystal-controlled) local users also needed to purchase new crystals. These days we have the Minnesota Repeater Council (MRC), which was formed to coordinate state repeater frequencies in order to prevent problems like this.

The MVRA existed as a technical group responsible for the repeater and was a separate organization from the Mankato Area Radio Club (MARC) which was more of a social group. Everyone in the MVRA belonged to MARC and most MARC members also belonged to MVRA. Two separate organizations were needed because not everyone

wanted to financially support a repeater. MVRA funds were sparse at times and it was not unusual for the hat to be passed when expenditures exceeded the balance.

The 1978-79 ARRL Repeater Directory listed 41 repeaters in the state at the time with the only others in the Mankato area being located in Faribault and Waseca. That was the beginning of repeaters in MN and now the metro area alone may easily have 41 repeaters. At one time, it was not uncommon for individual hams to secure a frequency pair as some sort of self-proclaimed accomplishment and never put a repeater on the air. After the MRC was formed, repeaters had to be on the air within a limited time period or give up their frequency pair for others to use. In the early days of MRC meetings, there were often VERY heated discussions.

Ron's repeater story brought back some memories for me. One was of Charlie (Doc) Zwislner, KØKLY, who was my Elmer back in 1967, when thanks to his help and encouragement I got my Novice license and callsign WNØTDA. Doc helped me learn the code for General too, even lending me his "Instructograph" code practice machine. It wasn't surprising that Doc set up our first repeater in Mankato, since he was an active operator who loved sharing radio with others. His unique QSL card featured a tooth - he was a dentist.

Another memory was one of going up to the roof of Gage Center to check the antenna. It was quite a view all around and thus a great spot for a repeater antenna, but the wind whistled across the prairie and you had to be careful not to get near the edge!

Gage Center was used for quite a few years to house the Minnesota Vikings during spring training. It was demolished on June 29, 2013 by a controlled implosion to be replaced by modern student housing and more surface parking.

Thanks to Ron, KØFTB, for the memories!

Notes:

Mankato State University is now called Minnesota State University, Mankato. That was a wise choice, since all of the "MSU" branded sports and academic stuff could remain unchanged. Genius!

Visit MSU Mankato on the web at: <https://mankato.mnsu.edu/>

The **Mankato Area Radio Club** (MARC) was founded in 1954 and remains active today.

Visit MARC on the web: <http://www.marcmvra.net/>

Like to watch big buildings fall down? You can take a look at Gage's demise on YouTube: <https://youtu.be/iA1oNYt0ojE>



Gear for Sale

- **Yaesu FT-840 \$200**
160-10m, 100 watt HF Transceiver - Includes Hand Mic, Power Cable, Mobile Mounting Bracket & Manual (on Flash Drive). Works Great & Excellent Size for Portable or Back-up Operation!
Dan (KC9GEJ), danandnolaw@gmail.com,
651-335-1023

- **MFJ-989D Antenna Tuner.** Has some scratches on the top but works great. \$200.00
Yaesu 857D HF/VHF/UHF Radio. Has TCXO-9 Upgrade, Separation Kit, ARB-704 Power Amp adapter cable. \$670.00
Contact Henry Schwartz K0HAS
hschwartz@usfamily.net
Phone= 651-485-9215



SARA Sunday HF Digi Net

The Digi Net is at 7:00 pm Central Time Sundays. It runs ~45 minutes and ends in time to QSY to the Top Band (160m Round Robin Rag Chew: 1.966 MHz +/- QRM). Join us for this enjoyable digital modes net on 3.584.15 MHz (centered between 500-1000 Hz on the waterfall).

A reminder is usually sent via email sometime Sunday that includes the mode and frequency for that evening's session.

ARES Nets



Please post this by your radio and/or kitchen table and try to check in once or twice per month and enjoy the topic. John (KAØHYR) has the schedule for NCS and topics laid out for the year; he has left several open for “any available NCS”, so contact John jeregan3@gmail.com and get some practice as a Net Control Station. This is the most valuable ham position at a real disaster activation, so get your skills up now while practice time is available; The script for the NCS is also available. You will be surprised at how quickly your skills rise to the top or are renewed and it becomes second nature.

Washington County ARES (WASHCOARES) 3rd Wednesday of each month; 6:30 PM; 146.985-

HF Nets in MN (some ARES, some Section nets, some club nets):

- :: SARA FLDigi Digital Net: 7 PM Sunday; 3.584.15 MHz
- :: ARRL MN Phone Net; 12 noon, 5:30 PM Daily; 3.860 MHz
- :: ARRL MN Section (CW) Net; 6:30 PM, 9:50 PM Daily; 3.568 MHz
- :: MN ARES FLDigi Digital Net: Thursday, 8 PM, 3.583.5 MHz USB, Olivia 8-500

HF Nets with Neighboring States:

- :: North Dakota: 6:30 PM Daily; 3.937 MHz
- :: South Dakota: 6 PM Daily; 3.870 MHz
- :: Wisconsin: 5:30 PM Daily, 3.985 MHz
- :: Iowa: 12:30 PM, 5:30 PM Daily, 3.970 MHz
- :: Michigan Digital Traffic Net (MIDTN), Thur. 7 PM, 3.583.50 kHz, USB, Olivia 8-500 .

VHF Digital Nets:

- :: SEMARC FL Digi Net: Every Wed. Sept.-May; Voice check In 146.985; digital check-in 144.950
- :: Scott County ARES Net, Monday, 7 PM; 147.165R; also 146.535 S

TNX es 73,
John (KAØHYR)
Washington County EC



Upcoming Meetings & Events

- May 12: Monthly meeting; Boutwells Landing, Oak Park Heights
- May 12: SEMARC Foxhunt - Info at www.semarc.org
- May 18th, 19th, & 20th [HAMVENTION](http://www.hamvention.com)®, Xenia, OH
- May 24: New Ham Night; Valley View Park, Oak Park Heights
- June 14: Radios in the Park; Valley View Park, Oak Park Heights
- June 23 & 24: ARRL Field Day; Autumn Hills Park, Oak Park Heights

2018

May							June						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5						1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28	29	30

SARA Needs YOU!

Get involved ...
 Make a difference ...
Have fun!

www.radioham.org

