



# Signals from SARA

<b>WØJH</b>	©2018 The Stillwater Amateur Radio Association An ARRL Affiliate & Special Service Club <a href="http://www.radioham.org">www.radioham.org</a>	<b>February 2018</b>
-------------	------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------

## Skip Jackson KSØJ to Present FFT (Fast Fourier Transform) at Feb. 10 Meeting

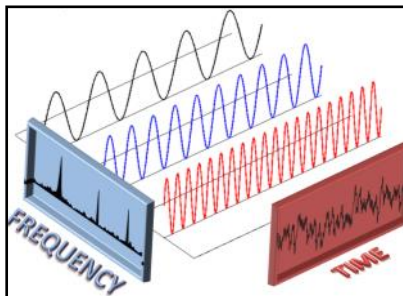


It might seem surprising that an eighteenth-century mathematician and physicist could have such a remarkable effect on Amateur Radio today, but it is true.

Jean-Baptiste Joseph Fourier (1768 – 1830), a contemporary of Napoleon, theorized and proved the Fourier Transform.

Later in the 1960s computational methods were developed to speed the process up into what we call the FFT (Fast Fourier Transform).

The DSP (digital Signal Processor) is the most common system for doing this today and we employ this process in much of what we do.



Come and learn a bit more about this at the meeting. Skip Jackson, KSØJ is our ARRL Minnesota Section Manager and his primary interest in Amateur Radio is the science of radio itself. Skip was first licensed in 1955 and is a member of SARA.

### Announcements

**Monthly Meeting:**  
February 10, 2018  
Meeting: 09:00

[Boutwells Landing](#)  
Auditorium A  
Gables Wing

**Program: Skip Jackson  
KSØJ - FFT  
(Fast Fourier Transform)**

**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)

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

**handiham.org**  
Ham radio for people with disabilities

**Can't Find Us On the Air?**  
... Monitor SARA Repeater

## From the Shack

### Notes from the President

Greetings from my shack, de Joe KCØOIO.



Our Board of Directors was filled out during the January 18th board meeting with the appointment of Shel Mann NØDRX as Club Trustee. Shel has served this role for many years now. Among the tasks Shel handles includes trustee for our club callsigns WØJH and KBØSCE; repeater trustee and representative with the MN Repeater Council; keeping the WØJH QRZ page updated with special event news; and managing the QSL requests for our Special Events. In others, Shel does a lot of behind the scenes tasks that help SARA run smoothly. Many thanks, Shel!

I've gotten hooked on the FT-8 mode. A recent report citing data from Club Log, shows that more 50% of today's HF contacts are being made with FT-8. I have had FT-8 QSOs with South Korea, Japan, Mexico, several Canadian provinces, and nearly all 50 states. I took a "snow day" Jan 22 and spent much of the day running FT-8 and logged 92 QSOs that day. FT-8 is also a great way to collect grid squares for the ARRL International Grid Chase.

SARA will soon deploy an APRS digipeater at our repeater site. An NEMA enclosure was donated and has been prepared for use at the repeater site. A power supply and a Kenwood D700 are in the enclosure now. Set up and testing of the digipeater mode will continue in February. It is hoped to be able to move the APRS digipeater to the repeater site this spring.

By the time you read this, Super Bowl LII will be over. Amateur Radio did have a role within the emergency communications plan for the event. A Hennepin County WCØHC UHF repeater along with DMR MNZone5 on MNDMR repeaters were utilized daily as backup links between the active EOCs in Hennepin County and Minneapolis for the period Jan 26 and Feb 5. I hope this is all they were needed for during the week.

We have the dates picked and the park reserved for this summer's Radios in the Park evenings. They will be June 14, July 5, July 26, August 16 and Sept 6. At least one of those evenings is being planned for an antenna "shootout." We're going to set-up 3 or 4 different antennas such as a Buddistick, Buddi-pole, end-fed wire, even a center-fed multi-band dipole. We'll use each antenna from the same rig, each for a set time period, running WSPR to track the performance. That should be fun and informative to see the results. All 5 evenings will be at Valley View Park in Oak Park Heights. Put them on your calendar now.

While you are marking that calendar, add Saturday June 23 and Sunday June 24 for Field Day. We once again have the shelter at Autumn Hills Park in Oak Park Heights for the weekend. Planning has yet to ramp up, but we will have at least 2 stations in operation. And the SARA trailer will also be out in full operation, likely as another station.

A new Facebook Group page is being developed for SARA. This will supplant the current Facebook page, which is actually treated as a business page by Facebook. Our current Facebook followers will be notified when the new group page is active. A Group page allows us a little more management of who can join the group, if we opt to run it as a closed group. Plus, the administrators won't be seeing "boost your page for X dollars" prompts in their feeds. Watch for the change soon.

The Feb 10th meeting program will be on Fast Fourier Transform (FFT) with Skip Jackson KSØJ. 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)

### Upcoming Meetings & Events

- **Feb. 10: Monthly meeting; Boutwells Landing, Oak Park Heights**
- **Feb. 17-19: Ice Station WØJH Special Event Station, Lake Elmo**
- **Feb. 24: Skywarn Training; Stillwater Library**
- **March 1: Technician Class & Extra Class Study Group Sessions Begin; Stillwater Library**
- **March 10: Monthly meeting; Boutwells Landing, Oak Park Heights**
- **April 14: Monthly meeting; Boutwells Landing, Oak Park Heights**
- **April 26: VE Exam Session; Boutwells Landing, Oak Park Heights**

## 2018

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

## **SARA 2018 Membership**

As of Feb 3, when I am writing this for the newsletter, SARA membership for 2018 is 9 members ahead of this time last year. While having reminders in the past couple of newsletters that it was time to submit dues and that expired members would be removed from the roster and SARA email list, it was apparent that some had not been reading the newsletter. To be sure that everyone got the message, I had also sent out a direct email reminder to those whom remained on the expired list following the January monthly meeting. Unless I did not have a current email, nobody should have been surprised to find their SARA email had stopped at the end of January.

Memberships run on a calendar year from January 1 through December 31.

**Regular dues are \$20 per person and associate or family memberships are \$10 per person.** Only regular members have voting privileges and may hold a SARA office. If you are not on the below list of 2018 members, please go to the radioham.org website to get the current membership application form and mailing addresses to submit dues. We ask that new as well as former expired members fill out that form to assure that your info is added correctly to the roster. I would also suggest listing your preferred first name on that form, as you would like to have it printed on your membership badge.

### **The following are current members for 2018**

AB8WF, AD6QT, ADØCK, ADØSN, AEØSL, AGØH, KAØNKU, KAØOBI, KAØPQW, KB9WTB, KBØJER, KBØRGS, KC9GEJ, KCØOIO, KDØDEO, KDØEAP, KDØHRM, KDØHRN, KDØIPI, KDØJTG, KDØLPY, KDØOTB, KDØPKY, KDØSVO, KDØVKB, KDØWGH, KDØZWM, KEØGOM, KEØGON, KEØIYF, KEØIYG, KEØIYN, KEØLMX, KEØMUW, KEØN, KEØNEZ, KEØPCW, KIØB, KØAIF, KØCCR, KØGCP, KØGW, KØHAS, KØHKP, KØNHI, KØSON, KØZZT, KSØJ, KT9C, N5JLZ, N9ILW, N9JNQ, N9TOW, NNØK, NØBJE, NØCIC, NØCQ, NØDRX, NØDXH, NØMR, NØODK, NØUHR, VE3MXJ, VE3XT, W9LHG, WAØTDA, WBØMOA, WBØPOQ, WD9DNQ, WDØAKZ, WDØFSA, WØDIK, WØFL, WØGAF, WØMCQ, WØOXB, WØWTP, WØZPT and Mayor Rudy.

Be sure and let me know of any changes in your contact information, as well as license class and call sign changes, so that I can update the roster. Also contact me directly with any questions or issues regarding membership status. While everyone is encouraged to visit our radioham.org website and attend SARA meetings, only current members with valid contact information on file will be able to receive prompt email information regarding SARA events and activities.

73,  
Shel NØDRX  
Trustee@radioham.org



## **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 move to the 160m Round Robin Rag Chew. 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.

## A few shots from January SWEEP (SARA White Elephant Exchange Party)



Mary NØDXH  
&  
Prized SARA Flying  
Pig



**SARA Needs YOU!**

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

[www.radioham.org](http://www.radioham.org)



## Ice Station WØJH Special Event on Frozen Lake Elmo (Feb. 17-19)

Event co-chairs Bob (WØGAF) and Dave (WØOXB) are coordinating the logistics including, but not limited to, organizing shelter, power, food/drink, erecting antennas, hooking-up radio equipment and scheduling operators. We'll be setting up and operating from a portable ice fishing,

tent-type shelter with a portable heater. The shelter will be located on the east side of the lake. A multi-band HF antenna (center-fed Zepp; surprise!) will be supported by trees on the shore. The shelter and all gear will be taken down and stowed each evening following operation. The QTH of Dave (KEØAIF) begins at the shore, and continues on the other side of Lake Elmo Ave. N. He is offering



2017 Radio Ops

free parking to the first twenty cars. Dave also is hosting the very important after-hours critiquing/networking sessions. No word yet on mincemeat or other pies!

Unfortunately this event is not for everyone. There is no public access to this portion of the lake; our station will not be handicap-accessible (terrain to the lake is very steep). Mobile/portable station operation is permitted and encouraged from the parking area at AIF Dave's QTH. John (N5JLZ) already has first "dibs" on a 50' windmill tower for a portable, end-fed antenna.

### Dates / Times / Schedule:

**February 17, 18, 19, 2018 (Presidents' Day weekend)**

- Saturday, 2/17: 10:00 am Setup, Operating until ~4:00 pm**
- Sunday, 2/18: 10:00 am – ~4:00 pm**
- Monday, 2/19: 10:00 am – ~4:00 pm (~4:00 – 5:00 Dismantling)**
- Frequencies: 3.860, 7.260, 14.260, 21.360, 28.360 MHz**
  - :: Tune +/- 20 kHz if QRM**
  - :: SSB mode; digital operation may be used by those interested**

QSL certificates will be available when requested via email address:  
[IceStationW0JH2018@radioham.org](mailto:IceStationW0JH2018@radioham.org)

Event announcement is already posted on the ARRL web site (Special Events) and will be published in the February issue of QST.

**If this sounds like your kinda fun – don't wait; contact Bob or Dave and reserve your spot!**

*Visitors are welcome but for liability insurance reasons, all scheduled OPs must be SARA members.*

## 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](mailto: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)

#### **New Day & Time**

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



# The State of the Art

Pat Tice, WAØTDA

This time of the year we are reminded about the state of the Union, the state of the state, and the state of our post-holiday gorging physical fitness. Instead of going to the gym, I thought it would be easier and more productive to ruminate a bit about the state of our avocation, Amateur Radio. In this first column of "State of the Art" let's see if we can dredge up anything positive from the current bottomless pit of a solar minimum.



What these musings are really about is the state of Amateur Radio, not necessarily the technical advances that make so much possible... but it's not NOT about them either.

## *Where to begin?*

How about we start with the obvious? G-1 solar storms seem to parade through every week of every month of every year of the current solar minimum. HF conditions are terrible for weeks at a time, with typical propagation reports grudgingly offering us "fair" or maybe even "good" conditions on 80 and 40 meters – at night, of course. 20 meters, the go-to band for worldwide contacts, has been disappointing, but will open on occasion. Okay, maybe 60 m will be useful if you can find a parking spot. Forget about the typical radio's other bands, except 160 m, which is great during winter nights, and possibly the 6 m band along about June each year.

Of course we experience a solar minimum every 11 years on average, so it's important to remember that it isn't going to last forever. The trick has always been to figure out how to stay on the air (or otherwise engaged in radio projects) when the HF bands aren't cooperating.

In past solar slumps, we have responded by building HF gear for the lower frequency HF bands. Old timers will remember transceivers like the Eico 753, which covered 80, 40, and 20 meters with SSB and CW. This little gem came assembled or as a kit, and it was cheap – around \$190 list. It drifted like a rowboat in a hurricane, earning it a current eHam score of 2.1/5. Kit building was a great way to get some hands-on experience with electronics when the bands were stinko. Heathkit was going great guns in those days and kept a lot of us busy and out of the pool halls even when the bands were dead.

Another response to bad HF karma was the growth of VHF (and later UHF) FM repeaters. You could get on the air regardless of the solar minimum, and linked repeater

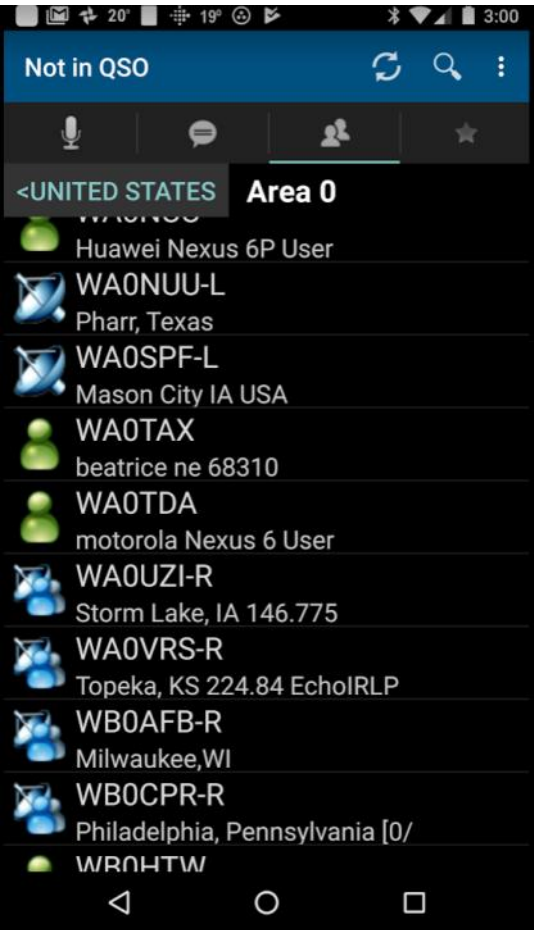


systems even became a thing, crossing state lines and giving users more options. Phone patches were added to some systems, making this a pretty cool technology in the days before mobile phones. The usual call went something like:

*“Hello, it’s me. I’m just calling to let you know I’ve just turned onto Elm Street and will be home in two minutes.”*

How did we live without autopatches, right?

Another innovation that made solar minima more bearable was the advent of digital modes like PSK, which often did better in poor conditions than CW. FT8, now a popular solar slump pastime, “hears” better than anyone ever thought possible and is really a pretty nifty technical achievement. Leave it to the innovators among us to solve a problem that seemed unsolvable – opening “closed” HF bands with digital modes.



Of course the internet brought significant opportunities to ham radio innovators eager to jumpstart international communications during the years of the spotless sun. In previous solar downturns, Echolink and IRLP gave new life to repeater systems and enabled worldwide communication without reliance on the ionosphere. APRS made use of VHF/UHF spectrum for location tracking, and with ties to the internet became an even more useful tool. In the current minimum we have seen tremendous growth in DMR, digital mobile radio which, like Echolink and IRLP before it, allows users of VHF and UHF radios to enjoy worldwide phone communications without monster antennas or HF propagation.

In short, the HF bands may be awful, but we still manage to find ways to communication. Solar slumps even drive innovation, it seems. We have a way to go in the current one, but HF radios are now handling bad conditions and interference better than ever before. DMR is still growing worldwide, and likely will have

significant staying power even when HF improves.

**The State of the Art assessment on the topic of lousy HF propagation: We will survive!**

## Skywarn Class Saturday, February 24



**SKYWARN**

As in the past, SARA is sponsoring one of the earliest Skywarn classes in the Twin Cities. Scheduled Feb. 24 from 10:30 am to 3:30 pm (with lunch break), class will be at the Stillwater Public Library (224 Third Street North).

If you've attended in previous years, you know the library's Margaret Rivers Room is an excellent location to watch the informative photos and videos that will be presented to illustrate weather phenomena.

If you haven't taken Skywarn training recently, remember you must re-certify every two years in order to remain current. Never been to a Skywarn class?! You really owe it to yourself to attend – even if you don't plan to be an active spotter. The information in Skywarn training is valuable and can be lifesaving!

Although Skywarn severe weather net reporting requires an Amateur Radio license, the class is open to the public and is accredited for members of the police and other public safety departments. Anyone with serious interest in weather who takes this class, quickly learns the important role ham radio plays in Skywarn. It's no coincident; we start free Technician License classes the following week.



## Technician License Class & Extra Study Group Starting Thursday, March 1

Technician License classes will be held at the Stillwater Public Library (224 Third Street N.). There are eight Thursday classes plus a final exam session. Class time is 6:00 to 8:00 pm. The VE session location will be announced.

Here's a perfect time to get SOMEONE you know started in Amateur Radio. According to Bob (WØGAF), our Education and Training Coordinator, "There may never be an easier, better opportunity for virtually anyone to earn their license!"

Bob continued, "For those who might be interested in teaching in one of our licensing classes, please don't be shy. We're always looking for new instructors, and we promise to break you in easy. It's a great way to share your knowledge and to pay it forward to the ham community."

If you have questions, or would like to find out more about teaching ham classes, call Bob (WØGAF): 612.802.2269

### **Thinking about upgrading to Amateur Extra; consider joining our Extra Study Group.**

This is intended to be a self-led discussion group, with a participant serving as facilitator to guide the discussion topic each week. This will not be a classroom environment with a teacher out front, but rather a group of people talking through theories, concepts or discussing any questions that participants may have. Extra Class Licensees who wish to share in discussions based on their areas of expertise or experience are welcome to attend any sessions.

**VE Exam Session: 6:00 pm, Thursday, April 26 at Boutwells Landing**