



Official Publication of the  
West Allis Radio Amateur Club

# Hamtrix

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Volume 69, Issue 8 August, 2020

## AUGUST CLUB HAPPENINGS



### August Picnic Club Meeting

August 11, 2020 4:00 pm

Annual Picnic at Greenfield Park

See Page 13 for more INFO

**2021 WARC winter Swapfest has been canceled  
see page 12 for more info**

**2020 Awards dinner canceled for the same  
reason as swapfest.**

#### NUT NET

3.985mhz

Monday-Saturday

8:15am CT

#### NUT NET

Breakfast

8:30am fourth

Tuesday

of the month

#### Milwaukee-Florida Net

Every Day on 14.290 Mhz

7:00AM - 9:15AM ET

6:00AM - 8:00AM CT

#### Sunshine Committee

If you know of a member who could use a bit of cheer or support,

Barb Garnier (KD9HPS) is now the Sunshine Committee Chair.

Contact her: 414-529-3536 or [barbsewsblue@gmail.com](mailto:barbsewsblue@gmail.com).

#### WARAC 2-meter net

Every Wednesday at 8pm

SEWFARS W9TJK Repeater 146.820

standard (-) offset 127.3 Hz CTCSS

if repeater down try 146.55 simplex

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## The President's Shack

Hi

July was busy for the club. Two unexpected cancellations: the 2021 Swapfest and the 2020 awards dinner. Both due to the Covid-19 pandemic with all of its dangers and uncertainty. Not the easiest of decisions.

Good news we have a scholarship winner! More info in the following pages.

We are going to try to have our annual August outdoor get together. Some of us saw each other for Tom Macon's K9BTQ driveby birthday celebration so I think it will fun and safe. Pizza on the club!

Not much else on my end I got FT-8 working and made a couple of contacts last weekend.

That and my morning nut net and the clubs Wednesday night 2 meter net have been my main ham radio activity.

Me and my Grand daughter have met Mike WO9B at his Wednesday park activations. Mostly to say hi and to get out for a walk.

I want to thank the authors of the articles in this Hamtrix. Remember this the clubs paper. Feel free to write up something you have done, are doing, or want to do. I and my wife Judy will be happy to do editing to clean it up, if needed.

Everyone stay safe. Maybe we will see you at the picnic? Don't forget to RSVP me at [KA9FZR@gmail.com](mailto:KA9FZR@gmail.com) so we have an idea of how many pizzas to order.

73

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Frank KA9FZR



**From the Editor**

No editorial due to being occupied by the President's Shack

## WARAC Club Meeting Minutes July 14, 2020

Due to the nature on the Covid-19 crisis and Governor Tony Evers “[Emergency Order #12 Safer At Home Order](#)”, Chuck W9WLX offered his work experience and conducted the WARAC club Zoom Meeting.

**The club meeting was called to order 7:06 pm by Frank KA9FZR.**

Approximately 14 virtual club members were identified by the Secretary Dave WB9OWN as being present. There was a surprise visitor by the name Gern Blandston (who was Tom Macon’s son and 2 grand children) who wished Tom a Happy 80<sup>th</sup> Birthday!

Club Presentation, Cushcraft 15M Beam Conversion to a 6M Beam by Steve Dryja. Steve describes his journey in modifying a 15 meter beam for 6 meters. This beam modification is based upon the work of W5WVO [http://www.bigskyspaces.com/w7gj/A50-5S\\_w5wvo.pdf](http://www.bigskyspaces.com/w7gj/A50-5S_w5wvo.pdf) A side effect of scaling down the 15 meter beam to 6 meters is this creates a very strong mechanical design... Steve tried reusing the 15m meter gamma-match to 6 meters but had no luck, he ordered a replacement 6 meter gamma-match from DX Engineering. Now the beam resonates nicely at the bottom of the band. Steve reports the performance is excellent, “During the recently band opening to Europe I was able to pick up a couple of new countries.” (Incidentally Phil W9NAW has used this modified beam design during past WARAC Field Days with very good success.)

Steve also described reverse engineering a 10 foot stout roof top tower, <http://www.w8io.com/rooftower.htm> he drew up a list of materials and Speed Metals cut all of the materials to size. <https://www.speedymetals.com/> See Steve for the build drawing.

August WARAC meeting will be held in a park with Pizza – Stay Tuned.

**General meeting was adjourned at 8:15 pm, informal meeting continued.**

Respectfully submitted,  
David Garnier WB9OWN  
Secretary WARAC.  
July 14, 2019

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## WARAC Board Meeting Minuets & Reports July 28, 2019

Due to the nature on the COVID-19 crisis and Governor Tony Evers “Emergency Order #12 Safer At Home Order”, Chuck Dellis conducted the WARAC club Zoom virtual meeting.

The board meeting was called to order 7:15 pm by Frank KA9FZR. Board members present were Steve Dryja, David Garnier, Frank Humpal, Mike Johnson, Tom Macon, Bill Reed and Evwin von de Ehe. Phil Tollefson was not present. Chuck Dellis and Howard Smith were the only visitors present.

- 1) WARAC QSO Party operations are transitioning to Chuck Dellis. Chuck has kindly offered to assume Tom Macon's operations. Thank you Chuck. Note, Chuck already takes care of the certificates and the mailing of the plaques.
- 2) Swap-Fest 2021 subcommittee report from Mike Johnson was not optimistic but presented 3 options. Option 1, Regular swapfest. Option 2, A 50 table configuration, down from 105. Option 3, Cancel the swapfest, (the no tables option.) The board conversations ran along these lines. "Look at this screen capture how of people attending local church services?" "How many people were wearing masks at the service?" "The local and state officials are giving us no guidance looking to the future." "If we limit attendance at the flight hanger, who's going to volunteer to stand outside to limit attendance much less enforce a mask rule?" "Which (club members) here feels healthy enough to attend?" "Who has gone out for dinner with their spouse?" "Where?" "How many people were wearing masks?" The board voted to cancel the 2021 WARAC Swapfest.
- 3) Awards Dinner was equally muted. New Berlin Hill's booking is based upon earning a certain income. "I know a certain number of older members will not be attending." We need this critical mass to pull this off. The board has voted to cancel the Awards Dinner for 2020.
- 4) Bill's N9KPH budget report. "We are in good financial shape, we are not spending any money." "Continue your ladder investment strategy Bill."
- 5) WARAC Scholarships Howard Smith indirectly found out ARRL has awarded a Wisconsin candidate but has not been officially notified.
- 6) Sendik's Brat Sale, Sendik's has resumed the brat sale but the board's enthusiasm to resume fundraising was muted. No action was taken.
- 7) Future presentations, Dave WB9OWN has volunteered to do a presentation on 630 meters operations.
- 8) Ending emailing Hamtrix to lapsed members was brought up by the secretary as this was a past conversation. "This seems like a lot of work to keep adjusting the email list." The secretary was to email Frank a list of lapsed members to initiate membership renewal conversations. There was a feeling that this seems like a divisive issue.

**Board meeting was adjourned.**

Respectfully submitted,  
David Garnier WB9OWN  
Secretary WARAC.  
July 28, 2019 • —• —••

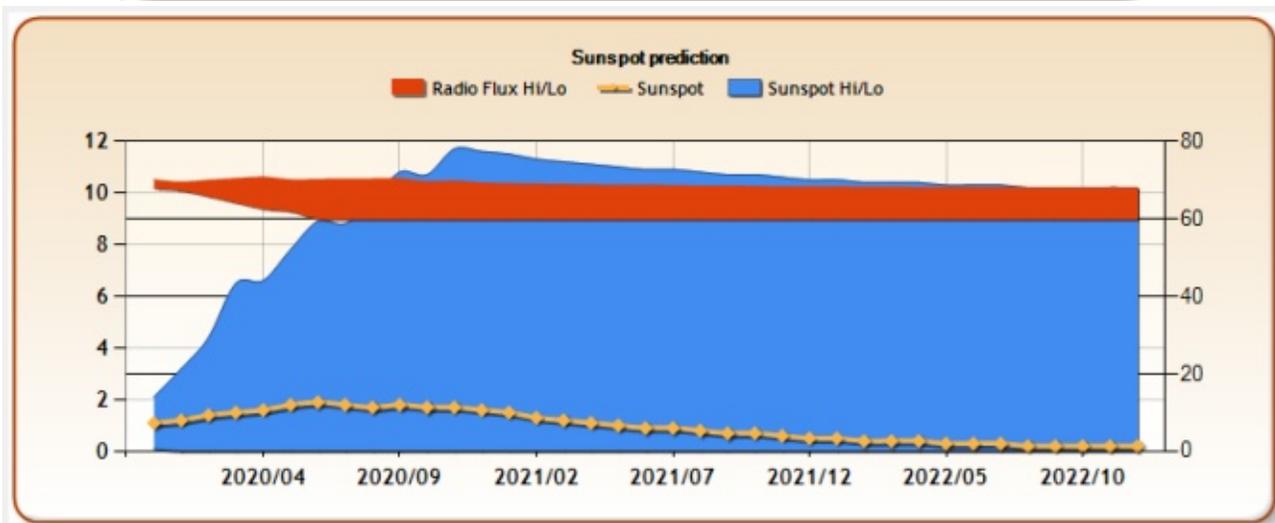
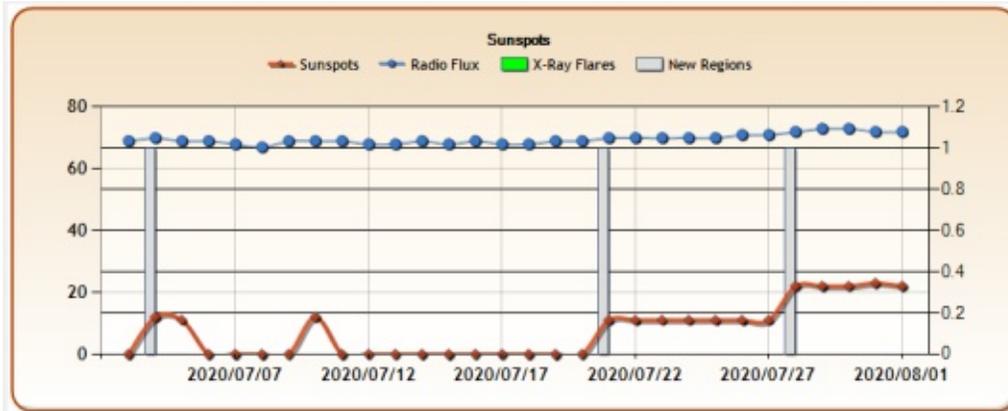
# DXing and Contesting - August 2020

## DX UPDATE:

Major DX operations remain frozen due to travel restrictions. Nothing major to or even late breaking to report on that front. A solid suggestion for those wanting to follow the day to day DX news is to subscribe to DX World Weekly Bulletin, <https://www.dx-world.net/the-free-dx-world-weekly-bulletin-363/> Lot's of links to find those smaller opportunities, which are still a barrel of fun bag.

VHF: VHF sporadic-E season is winding down. Down but not completely out. Still opportunities for 2 meter Tropo. But August means meteors with the Persioids underway. Switch your 6 meter operations from FT8 to MSK and go get some.

Sunspots: There has been an uptick in activity. Keep you eyes open for the latest forecasts. Sunspot numbers have gone from zero to 20+ of late. That's a trend to get excited about



## CONTEST UPDATE:

August gets us back in the swing of contesting. Fun QSO Party events. The NA QSO Party is a really good one.

WAE CW Contest Aug 8-9, features the QTC exchange

Maryland QSO Party, Aug 9th

North American QSO Party, SSB, Aug 15-16

Hawaii QSO Party, Aug 22-24

Ohio QSO Party, Aug 22-23

Kansas QSO Party, Aug 29-30 • —• —••

## Noise Floor Measurements and QTH Comparison

**Chuck Dellis, W9WLX**

With the proliferation of SDR receivers at just about any price-point, noise floor measurements are becoming second nature. Because in fact, SDR receivers are really spectrum analyzers that have some additional software that allow us to sample a frequency and demodulate it appropriately. Visualizing the ham bands have changed the way we operate, particularly for contesters and DXers. It brings many additional features to assist operating.

Noise floor level is a characteristic often commented on air, usually when an operator is experiencing a higher than average noise level. However, I'm suspect of quantitative measurements when I hear values near -140 dBm. Measurements like these are at the level that Sherwood reports under optimal conditions for some high performing receivers. So, let's peel back a few layers of the onion and see about improving the quantitation of noise floor measurements.

Reading the noise floor from the panadapter has some pitfalls which will be explained a bit later. The other tool that needs to be employed is the S-meter. Now, not all S-meters are created equal. Since we are using an SDR or really a spectrum analyzer, we have the luxury of measuring signal directly with a calibrated S-meter, which is highly desired.

S9 should measure -73 dBm with each S-unit translating to 6 dBm. It's even more convenient if the option to read signal strength directly in dBm is

available. The S-meter reading should not increase when turning on the pre-amp, or be affected by RF gain settings. In fact, if a calibrated S-meter is being used when pre-amplification is applied, the S-meter noise floor reading may decrease as pre-amplification is added. Pre-amps are often mis-applied, degrading receiver performance by reducing its dynamic range. Furthermore, the use of attenuation is rarely considered. Enough of that; quantitative methods to determine optimum pre-amp levels are another whole article!

If the radio's S-meter changes with pre-amp, attenuation, and RF gain settings, then signal strength is likely not being measured directly. Subtracting/adding the gain or loss of the pre-amp or attenuation from the meter reading will be necessary as well as using maximum RF gain. Instead of measuring signal, the meter is probably measuring AGC voltage and deriving an indirect signal measurement. A quick test would be to turn the AGC off and if the meter goes to zero or full scale, then it is tied to the AGC circuit. Indirect measuring S-meters are sometimes calibrated at S9, but in many cases become poorly calibrated as signals weaken below S5. A calibrated S-meter measures the signal strength at the radio's antenna terminal for the given passband width being received before any other signal processing occurs.

So, what's the problem with reading the noise floor directly from the panadapter? Take a look at figures 1 and 2.



Figure 1

Bandwidth circled in green, S-meter level circled in red



Figure 2

In both cases, I'm measuring the noise floor on 10 meters for a 496 Hz bandwidth. In figure 1, the panadapter is set at a 4kHz width while in figure 2, the panadapter is set at approximately 1.5 MHz. By changing the panadapter width, it appears I changed the noise floor from -140 dBm to about -122 dBm when read from the panadapter. However, in both cases the S-meter reads -124 dBm.

This is normal. The panadapter is a graph where the X-axis is frequency and each point on the X-axis is a frequency FFT bin. The width of the panadapter will determine the Hz per FFT bin, essentially the panadapter resolution. When zooming out of a panadapter there are certain widths where the amount of data needed to create

the display must be doubled. As this occurs more noise will be included in the FFT bins comprising the display which will cause a noticeable increase in the panadapter noise floor. The reverse occurs when zooming in on a panadapter. When zooming in or out, the noise floor appearance will decrease or increase respectively, dependent upon the amount of doubling (about 3 dB each time). The actual noise floor in the figures above is -124 dBm, read from the calibrated S-meter.

The last parameter is the passband. Since no signal is present, there will be a noticeable difference in the noise floor depending on the passband width. The standard used in noise floor measurements on HF is 500 Hz. The significance of passband width is demonstrated in figure 3.



Figure 3 Bandwidth circled in green, S-meter level circled in red

In figures 1 and 2, the passband was set to 496 Hz (close enough to 500) and the S-meter was reading a noise floor of -124 dBm. Figure 3 shows a 3.0 kHz passband and as one would expect, the noise floor has increased to -116 dBm. Quantitative noise floor

measurements should be made using a 500 Hz passband so -124 dBm read from the S-meter in figures 1 & 2 is the correct measurement.

Note that different SDR software programs may

handle scaling differently. How this is coded can become interleaved with hardware specifications too. For example, some configurations have a smaller panadapter span range. The panadapter/receiver used in this case has a span range from approximately 1.5 kHz to 14 MHz. Regardless, the S-meter technique explained here can be used to determine any differences in the perceived noise floor read from a panadapter baseline vs. a standardized measurement in a 500

kHz bandwidth.

Various QTHs can have a radically different noise floor, some even band dependent. I have a second QTH in rural Marinette county Wisconsin, and I thought it would be interesting to compare noise floor measurement since operating from the rural location is so much more pleasurable. The chart below compares my rural location to my urban city subdivision. Measurements made with FlexRadio 6500, resonant

Frequency MHz	Wavelength Meters	Rural North WI dBm (500 kHz BW)	Urban Milwaukee dBm (500 kHz BW)	Difference dBm
0.474	630	-111	-98	-13
3.600	80	-104	-100	-4
7.116	40	-110	-101	-9
14.177	20	-123	-108	-15
21.060	15	-123	-118	-5
28.350	10	-124	-114	-10
50.291	6	-125	-122	-3

antennas, and identical pre-amp settings except on 630 meters. 630m measured with 80m dipole.

There is an improvement on all the contest bands at the rural location. I regularly use 80 meters at my rural location and can appreciate the lower noise floor of just 4 or 5 dBm. 20 meters is really striking at a 15 dBm improvement. This helps to explain why I regularly hear the Milwaukee stations on the Milwaukee-Florida

Net from a location over 200 miles away when I should be in a dead zone. However, they cannot hear me. I attribute this, in part, to a higher noise floor in urban Milwaukee. I'm in there and they should hear me, but I'm underneath their noise floor. At the same time, I also recognize that I have very good noise floor characteristics for an urban location. I am very fortunate in that respect and hope it continues for many years to come!

-73, Chuck W9WLX

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## When Amateur Radio Met Amateur Astronomy

Some of us have worked meteor-scatter QSOs, but you may be interested to know that a connection with amateur radio and meteors goes back over eight decades ago.

In 1934, the recently-formed Milwaukee Astronomical Society began an ambitious meteor observing program. Amateur observers could contribute to science by recording visual meteor counts and establishing apparent radiant points in the sky. Also, if a meteor trail could be simultaneously recorded by two observers located 25-125 miles apart, then parallax could be used to calculate the meteor height as it vaporized upon entry into the Earth's atmosphere.

In November 1934, observers were stationed in West Allis, Beloit, Chicago, Madison, Oak Park, Reedsburg, and Watertown, recording 562 meteor plots. From this data, it was determined that 58 meteors, about 10%, were recorded in duplicate by two observers.

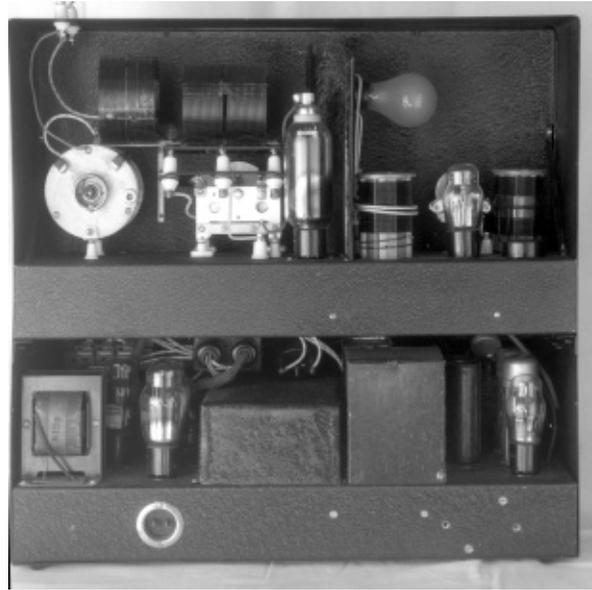
One M.A.S. member, Edward Halbach, thought they could improve the duplicate observation rate by coordinating observers with real-time communication. Long-distance "trunk" telephone calls were prohibitively expensive. So he came up the idea of using HF radio communications. As Halbach wrote in the November 1936 issue of the newsletter *Amateur Astronomy*, "Several attempts were made to interest radio amateurs in the scheme...the writer chanced to meet C. F. Oakley of Milton, Wis., at the Washburn Observatory at Madison. Mr. Oakley mentioned his interest in astronomy and said he was also a radio amateur (W9KTN).

"Shortly after the meeting with Mr. Oakley, Joseph Schmitz (W9AIQ) came to live with the writer. With his assistance, a 50-watt grid-modulated portable radio transmitter was constructed to operate in the 160-meter band, the most stable band for distances of less than 100 miles. A crystal keeps the transmitting frequency at 1995 kc. Since Mr. Oakley's transmitter is on 1845 kc., the frequency separation is great enough to permit operation in duplex...."



Joseph Schmitz, W9AIQ, with the 160m 50-watt portable transmitter, and a Hallicrafters receiver.

The new transmitter was completed in time for the expected maximum of the Orionid meteor shower of October 19, 1936. As Halbach described, "Fortunately, the sky was clear and all was ready when the time came for the first trial. At midnight, contact was established with Milton (Wis.)...Immediately we had the surprise of a life time, for the first five or six meteors to appear in the sky were seen simultaneously by both



observers. Plotting of meteors was then begun and in 66 minutes, nine duplicate plots were made. An additional 10 or 12 were seen in duplicate during this time but not plotted.”

The West Allis station was operated by Joseph Schmitz, W9AIQ, and E. R. Cooke, W9UGE. The Milton station was operated by Elston Loofboro, W9IQB, and Lawrence Hull, W9PCX. But as Halbach noted, “Much of the observing time was spent in surmounting technical difficulties such as repairing Oakley’s microphone cable and replacing or disconnecting high voltage condensers that failed on our new transmitter, so the full advantages or possibilities of the system were not realized.” Nevertheless, “More duplicate plots were made in one hour than we ever succeeded in making a whole night of work.”

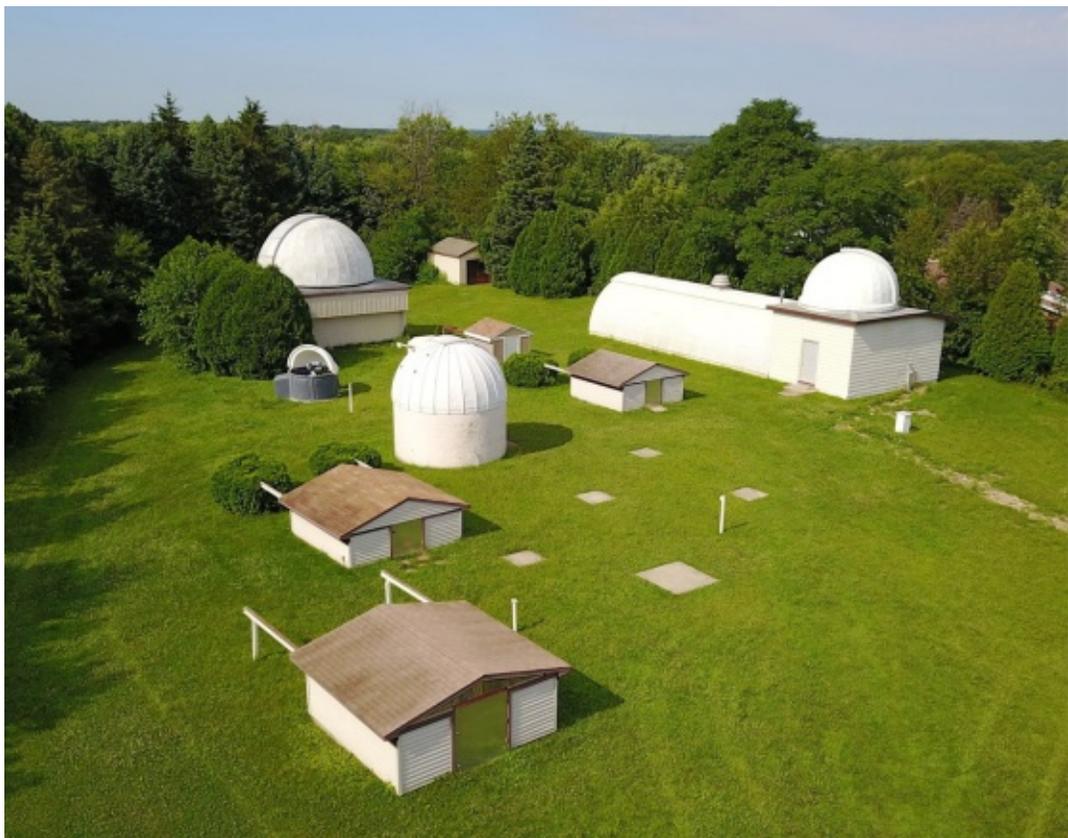


Meteor observers in a backyard on S. 59th St., West Allis. Edward Halbach is on the left.

In 1938 the Milwaukee Astronomical Society established a permanent observatory in New Berlin, one mile west of S. Calhoun Road, on what is now W. Observatory Road. Shortly after the new observatory was dedicated, a 250-watt transmitter was installed to continue coordinating duplicate meteor observations. A dipole antenna was to be supported by two 80 ft poles. But that plan was never fully realized, possibly because members began to concentrate their efforts on other observing programs.



The Milwaukee Astronomical Society Observatory in 1938. Note the dipole support at left.



A recent view of the Milwaukee Astronomical Society Observatory in New Berlin.

Website: <http://www.milwaukeeastro.org/>

Brian Ganiere, KC9LYZ • —• —••

## 2021 MID-WINTER SWAPFEST - CANCELED

The WARAC Board of Directors, at the July Quarterly Meeting, voted to cancel the upcoming 2021 Swapfest. Several scenarios were discussed to salvage this annual tradition, but the realities of the current epidemic and the unknowns proved to be too much. Unfortunately, after a run of 48 years, we finally met our match. Given the uncertainties moving forward, plus the very real risks involved, the towel was thrown in. Sorry, but we will not have a swapfest this year.

The decision has been forwarded to our new host, the Racine Chapter of the EAA and they have been understanding and gracious. They are as disappointed as we are, but since they are in the space rental business, canceled events have been all too common this year.

It has taken me a few days to shake off the disappointment, but I believe cancelation is the correct decision and I support it. I want to thank the members of the Swapfest Committee who have been meeting monthly since February. We have actually accomplished quite a bit of the kibbles and bits that go into the planning process. So a big thank you to Past Chairman Erwin von der Ehe (WI9EV), Sponsorship Coordinator Dave Englemann (WB9GZP), Social Media/Web Site Guru Michael Falk (AA9RK) and Volunteer Coordinator Jeff Pahl(W9JSP).

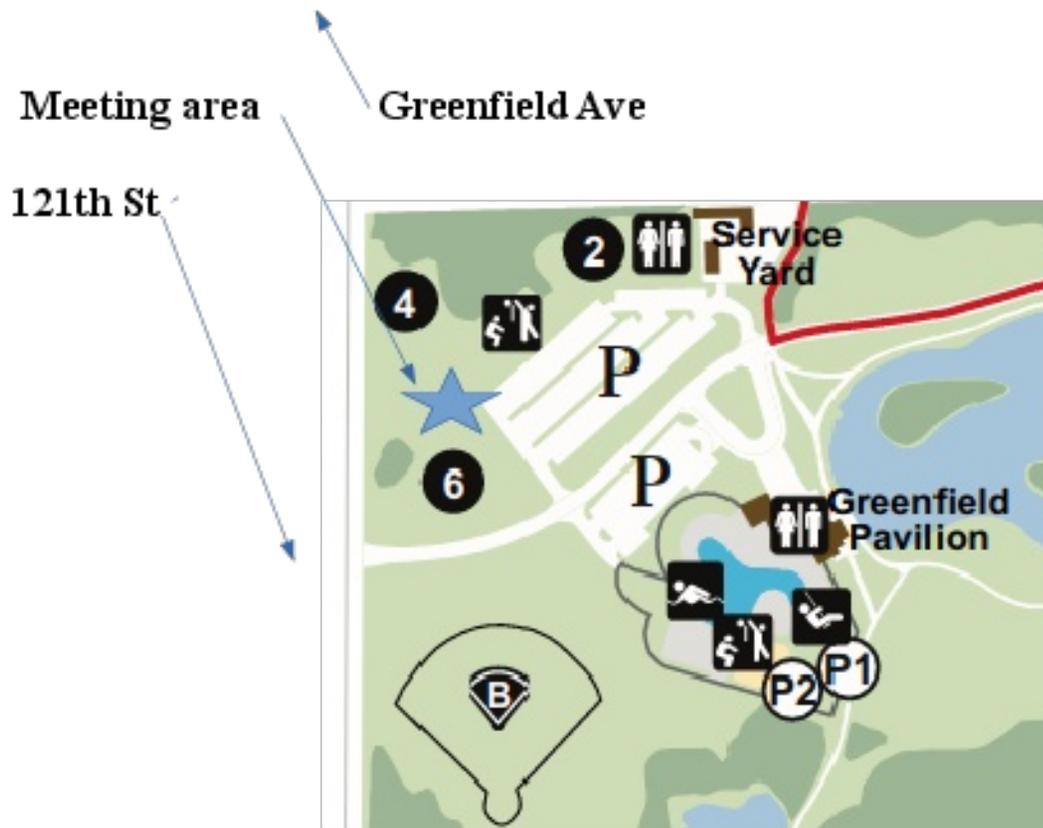
We may be down and out this year, but I want to assure the club that the West Allis Radio Amateur Club's 2022 Mid-Winter Swapfest will be a huge success. So SAVE THE DATE, JANUARY 8TH, 2022. We will all be busy that morning!!!

If anyone has any questions, comments, concerns, advice and just needs to vent, give me a call or drop me an email. Anytime.

Michael Johnson, WO9B  
Swapfest Chairman  
[mike@palomonet.com](mailto:mike@palomonet.com)  
262-923-6194

**August 11, 2020 4:00pm**

**WARC August park meeting**



**Lincoln Ave**

**West Allis Radio Club August meeting  
August 11, 2020 4:00PM At Greenfield  
Park off of 121th St North of Lincoln Ave  
south of Greenfield Ave**

**RSVP if coming.**

**Club providing Pizza and Water**

**KA9FZR@gmail.com**

**Some Picnic tables available bring chairs  
Masks as seems fit**



July 27, 2020

West Allis Radio Amateur Club, Inc.  
 c/o Howard Smith, WA9AXQ  
 4760 South Woodlawn Place  
 Greenfield, WI 53228

Dear Friends,

On behalf of the ARRL Foundation Officers and Board, I am pleased to announce the 2020 recipient of The David Knaus Memorial Scholarship in the amount of \$2000.

Eric Albitz, N9ETA, Chippewa Falls, WI has been selected for The David Knaus Memorial Scholarship from an outstanding group of applicants. Scholarship recipients were recently notified of their awards, and we have already had many replies conveying their excitement and appreciation.

Scholarships through the ARRL Foundation would not be available without the support of thoughtful and generous sponsors such as you. Thank you for making The David Knaus Memorial Scholarship possible, and for aiding a student Amateur Radio operator in his/her pursuit of their higher education. I am confident that these young people will be successful in their future careers, and in representing Amateur Radio as well.

Again, many thanks for your support of this award. If you have any questions, please contact ARRL Foundation Secretary Melissa Stemmer, KA7CLO at ARRL ([mstemmer@arrl.org](mailto:mstemmer@arrl.org) or 860-594-0348).

73,

Dr. David Woolweaver, K5RAV  
 President  
 ARRL Foundation



**Eric Albitz N9ETA**  
 bio next page

## Eric Albitz, N9ETA,

recently completed his freshman year at Chippewa Valley Technical College in Eau Claire, Wisconsin. He will continue his studies there in the fall, pursuing a degree in Information Technology.

Eric was first licensed in 2018. He attended Chippewa Falls High School where he was a member of the High-Altitude Balloon Tracking Club and the Chromebook Repair Team. Eric has participated in International Space Station Slow Scan TV events. He is also a Phi Theta Kappa member at his college. Eric is interested in a career as a computer network specialist. He finds amateur radio very fascinating and feels it is also related to his career choice as it has benefited him with information related to radio signal transmission.



West Mountain radio (sponsor at our Swapfest) is looking for people with strong soldering skills and good assembly skills.

All of the WMR products are built in Waukesha so look at the WMR site <http://www.westmountainradio.com/> and you will see what you will be building

WMR is located in the SW section of Waukesha just off Snset Dr. next to The Shoppes at Fox River shopping center

**Contact Joey Didon at 262 522 6500 ext or contact Jim Casamassa WB9IXS for more details.**

## Interested in Moon Bounce

Chuck Craven WB9PUB has found a ham willing to sell his 2 meter commercial Moon bounce set up.

Set up consist of 3 of the 4, 29ft 22 element antennas, Both horizontal and vertical rotars with controllers

System is in good shape and on the ground. can be broken down to 10 ft pieces. Price very reasonable. Owner may be willing to break up set.

**Call Chuck WB9PUB at 262-642-7628 for more info.**

### Officers and Board

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Frank Humpal KA9FZR

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Dave Garnier WB9OWN

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Bill Reed N9KPH

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Newsletter Editor

Frank Humpal, KA9FZR

[fhump@milwpc.com](mailto:fhump@milwpc.com)

Webmaster past president

Mike Johnson WO9B

West Allis Radio Amateur Club  
P. O. box 511381  
New Berlin, WI 53151-1381

**West Allis Radio Club**  
**PO Box 511381**  
**New Berlin, WI 53151-1381**