



# MICH-A-CON

Iron Mountain,  
Dickinson County, Mich

November 2019

## Meeting Reminder: Second Wednesday of the Month

Which is ~~November 13, 2019~~ at 07:00 PM at the Dickinson Library, Iron Mountain. Please be there and support the cause of Amateur Radio.

## From The President

### Words from the President

Well, after two years with out the SteppIR and a rotor, I'm back on the air with a gain antenna! The bucket truck arrived three weeks ago and new coax, new cable control, and a repaired rotor were installed. Like most jobs, a two hour job turned into four hours. The 40 meter beam that Scott Jarmusch (KA8TFF) and I assembled was not raised, due to the time and wind. Neuens will return at some point before December to finish the installation.

The antenna has a perfect SWR on 20, 15, and 10 meters. For some reason there is a very high SWR on 17, and 12 meters. I'll have to investigate that issue. So, the contest bands are working fine.

The bucket truck operator brought down the frayed coax jumper to the SteppIR and a lightning struck charred insulator from the 40 meter half driven element at the top of the mast. That's at least two lightning strikes in the last 11 years. I'm glad that I didn't have Sam's problems with Mother Nature!

Our 50 th Anniversary dinner was a huge success! Twenty seven members and their guests enjoyed a buffet at Mike's on Main in Norway and Dave Thomas (KG9Y) won the "door prize": a Baofang UV-5RV2 Dual Band FM Transceiver.

Burt Armbrust (WB8EBS) was presented a plaque for his 50 years as a dues paying member. Congratulations, Burt!

IRS Update: Nothing received from them but I have received a letter from Senator Debbie Stabenow's office. She wrote to the IRS in our behalf.

Our election is Wednesday, November 6. The meeting was changed to the first Wednesday because of deer season.

See you at the library on Wednesday.

73,

Tom W8JWN

### Inside this issue:

<i>From The President</i>	1
<i>Secretary Report</i>	2
<i>News.....</i>	4
<i>Third Month....</i>	4
<i>Copper Survey</i>	4
<i>ARRL Renews Request to FCC</i>	4
<i>WiAW Schedule</i>	6
<i>ARRL Michigan Section News</i>	7
<i>ARRL Dales Tales</i>	8
<i>Propagation Bulletin</i>	10
<i>ARRL DX Report</i>	12
<i>REVIEW</i>	13
<i>Links and Stuff</i>	16
<i>About Our Club</i>	17
<i>DX Code Conduct</i>	18
<i>Membership List</i>	19
<i>Membership Form</i>	20

## ***MICH-A-CON AMATEUR RADIO CLUB MINUTES OF October 9, 2019***

President Tom Martin called the meeting to order at 7:00 pm.

### **Secretary Report**

Minutes of the September 11th, 2019 meeting were read and approved.

### **Treasurer Report**

Balances as of October 9th, 2019:

Checking: \$97.25

Savings: \$2,725.15 (Repeater: \$1,501.66)

Cash: \$118.00

### **Repeater Report**

The repeater is working well, especially to the South. However, it has not seen much use lately.

### **Old Business**

The specifics of the club's fiftieth anniversary dinner were finalized. The cost will be \$18.00 including tax. Cocktails beginning at 5:30, dinner to follow at 6:30.

Debbie Grabowski will contact the Copper Country radio club and tell them that in our area radio license tests are given when requested.

**New Business**

The November meeting will be moved to November 6. The meeting will include election of officers for 2020.

**Adjournment**

Meeting adjourned at 7:35. (Bruce LaLiberte/Terry Moriarity)

**For the Good of the Order**

Attendees reported on their recent activities.

The 50/50 drawing was won by Terry Moriarity. The club treasury was enriched by \$25.00.

**Attendees**

Tom Martin	W8JWN	Gary Schafer	K4FMX
Scott Jarmusch	KA8TFF	Sam Holmes	N8ATS
Joe Ferris	KC9TQR	Joyce Williams	Visitor
Burt Armbrust	WB8EBS		
Bill Grabowski	KD8VTT		
Debbie Grabowski	KD8VTS		
Bruce LaLiberte	KD9HQD		
Tim Miller	N8TUM		
Terry Moriarity	K9TRY		
Brian Lucas	W9BGL		



News

SURVEY FOR HAM EXAMS IN YOUR AREA:

By W8FWG For: CCRAA WEB PAGE

Reply to George R. Thumer

E-Mail: [w8fwg@arrl.net](mailto:w8fwg@arrl.net)

Hi: Please fill out this form and return to me at my E-Mail address of [w8fwg@arrl.net](mailto:w8fwg@arrl.net)

It is for our web page ([www.ccraa.net](http://www.ccraa.net)) THANK YOU!

SURVEY FOR HAM EXAMS IN YOUR AREA:

Contact person: \_\_\_\_\_  
 Call Sign: \_\_\_\_\_  
 Telephone Nr (906) \_\_\_\_\_  
 E-Mail address: \_\_\_\_\_  
 Exam Location address: \_\_\_\_\_  
 Date of Exam \_\_\_\_ / \_\_\_\_ /2019  
 Time of Exam: \_\_\_\_\_ Am? Pm?  
 Eastern Time? \_\_\_\_\_  
 Central Time? \_\_\_\_\_  
 Web Page: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_  
 County: \_\_\_\_\_  
 Zip Code: \_\_\_\_\_

Again: Please forward to MY E-Mail address at: [w8fwg@arrl.net](mailto:w8fwg@arrl.net) Thank you!

-----  
-----

73,

George R. Thumer, W8FWG

**ARRL Renews Request to FCC**

QST de WIAW  
ARRL Bulletin 20 ARLB020  
From ARRL Headquarters  
Newington CT September 19, 2019  
To all radio amateurs

In ex parte comments filed on September 17 in WT Docket 16-239, ARRL renewed its request that the FCC delete sym-

bol-rate limits for data transmissions in the Amateur Service rules. As it did in its initial filing, ARRL asked the FCC to couple the removal of the symbol rate limits with the adoption of a 2.8 kHz bandwidth limit. In response to a 2013 ARRL Petition for Rulemaking (RM-11708), the FCC proposed deleting the symbol-rate limits but declined to replace them with the 2.8 kHz bandwidth that ARRL wanted.



The 2013 ARRL Petition for Rulemaking (RM-11708) can be found online in PDF format at, <https://ecfsapi.fcc.gov/file/7520958815.pdf>.

"This proceeding addresses an update to the Commission's rules that is needed because a limitation in the rules unintentionally is inhibiting US amateurs from employing the latest improvements to some of the digital modes," ARRL said in its remarks. "Data signals commonly used for daily communications as well as in disaster situations have bandwidths in the range of 2.5 kHz and must co-exist with other modes that use bandwidths as narrow as 50 Hz."

ARRL said the 1980s-era symbol-rate limits now inhibit the use of some efficient data modes. "The symbol rate limit uniquely prevents radio Amateurs in the United States from innovating with a class of modern digital communication techniques that already are widely used in other countries," ARRL told the FCC.

"The limit also impairs the ability of Amateurs to improve support that they offer in times of disaster."

Repealing the symbol-rate limit would "allow shortened transmission times for the same amount of data without increasing the bandwidth occupied by the signal," ARRL contended.

"Other Amateurs would benefit by the resulting reduction in potential interference."

ARRL's remarks also addressed issues raised by other parties. "Discussion by commenters in this proceeding delve into subjects well beyond its scope," ARRL said, noting that it had attempted to broker consensus among "some of the most active commenters" with an eye toward exploring possible areas of agreement for the FCC's consideration. ARRL noted that the parties to the ARRL-arranged talks declined to forward to the FCC "joint recommendations on which conditional agreement had been reached."

"The issues discussed with the parties are outside the scope of this Docket and would require a further Notice of Proposed Rulemaking before final consideration," ARRL observed. "Some of the same issues also are raised in petitions for rulemaking on which the Commission has sought comment. Given the policy as well as factual disagreements evidenced in the record, we understand that the Commission may decide to consider some of these issues."

One of those issues involves automatically controlled digital stations (ACDS). Commenters' concerns focused on interference that could occur with a move away from symbol-rate criteria. ACDS with signals wider than 500 Hz and below 29.7 MHz are confined to specific sub bands. ARRL recommended that the FCC consider rule changes that would have all ACDS

stations and digital stations with bandwidths greater than 500 Hz share identified sub bands.

ARRL said if additional signals are added to the ACDS subbands, as recommended, that it would strongly support expanding the HF ACDS subbands. But, ARRL added, "changing the subband boundaries requires study and careful consideration of trade-offs, because any changes will affect multiple user interests." ARRL referred subband reformulation issues to its HF Band Planning Committee for study and recommendations.

Some commenters also raised the issue of obscure and encrypted messages. ARRL pointed out in its ex parte remarks that it remains opposed to encryption in the amateur bands, but disagreed "with commenters who argue that the digital modes being used by radio amateurs around the world are per se 'observed' or 'encrypted.'"

ARRL noted that FCC rules permit the use of "new and innovative digital modes" without prior approval, if specified conditions are met. Digital techniques must use approved codes with publicly documented technical characteristics, and their purpose must be to facilitate communication and not to obscure content.

"Some commenters allege that specific messages violate the Commission's rules governing encryption, third-party messages, pecuniary interests, objectionable language, or commercial carriage," ARRL noted, and they have called for open-source decoding software to aid in enforcing the applicable rules. "We observe that recently there have been laudable efforts at self-policing," ARRL said. "Unresolved complaints are appropriately handled as enforcement matters rather than as rule-making matters."

ARRL concluded, "It is vital that the rules governing the Amateur Radio Service facilitate continuation of its experimental traditions and purposes. Using the Amateur spectrum 'sandbox' for innovation and development of new ideas and technologies is of significant public benefit."

NNNN

## ARLB032 W1AW 2019 Winter Operating Schedule

QST de W1AW

ARRL Bulletin 22 ARLB022

From ARRL Headquarters

Newington CT November 5, 2019

To all radio amateurs

Morning Schedule:

Time	Mode	Days
1400 UTC (9 AM EST)	CWs	Wed, Fri
1400 UTC (9 AM EST)	CWf	Tue, Thu

Daily Visitor Operating Hours:

1500 UTC to 1700 UTC - (10 AM to 12 PM EST)

1800 UTC to 2045 UTC - (1 PM to 3:45 PM EST)

(Station closed 1700 to 1800 UTC (12 PM to 1 PM EST))

Afternoon/Evening Schedule:

2100 UTC (4 PM EST)	CWf	Mon, Wed, Fri
2100 "	CWs	Tue, Thu
2200 " (5 PM EST)	CWb	Daily
2300 " (6 PM EST)	DIGITAL	Daily
0000 " (7 PM EST)	CWs	Mon, Wed, Fri
0000 "	CWf	Tue, Thu
0100 " (8 PM EST)	CWb	Daily
0200 " (9 PM EST)	DIGITAL	Daily
0245 " (9:45 PM EST)	VOICE	Daily
0300 " (10 PM EST)	CWf	Mon, Wed, Fri
0300 "	CWs	Tue, Thu
0400 " (11 PM EST)	CWb	Daily

Frequencies (MHz)

CW: 1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675  
50.350 147.555

DIGITAL: - 3.5975 7.095 14.095 18.1025 21.095 28.095 50.350  
147.555

VOICE: 1.855 3.990 7.290 14.290 18.160 21.390 28.590 50.350  
147.555

Notes:

CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM

CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and  
10 WPM

CWb = Morse Code Bulletins = 18 WPM

CW frequencies include code practices, Qualifying Runs and CW bulletins.

DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2330 UTC (6:30 PM EST), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0100 UTC (8 PM EST) Thursdays and 0100 UTC (8 PM EST) Fridays.

Audio from W1AW's CW code practices, CW/digital bulletins and phone bulletin is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here as well. The audio is sent in real-time and runs concurrently with W1AW's regular transmission schedule.

All users who connect to the conference server are muted. Please note that any questions or comments about this server should not be sent via the "Text" window in EchoLink. Please direct any questions or comments to [w1aw@arrl.org](mailto:w1aw@arrl.org).

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

All licensed amateurs may operate the station from 1500 UTC to 1700 UTC (10 AM to 12 PM EST), and then from 1800 UTC to 2045 UTC (1 PM to 3:45 PM EST) Monday through Friday. Be sure to bring your current FCC amateur radio license or a photocopy.

The W1AW Operating Schedule may also be found on page 100 in the November 2019 issue of QST or on the web at, <http://www.arrl.org/w1aw-operating-schedule>.

NNNN

# ARRL MICHIGAN SECTION NEWS

Greetings to all the Amateurs of Michigan,

It's seriously Fall in Michigan, and I know this because of the crowds at Cider Mills darn near every day! In addition to cider and donuts, Fall is a great time to check out those antenna connections, and maybe even visit a swap or two to stock up on parts for the winter ahead. It will be great seeing you at the next swap!

## **Bill Loeber NU3D Retires from Affiliated Club Coordinator Position**

I am saddened to report that Bill Loeber has asked to be removed as the Section Affiliated Club Coordinator effective November 1st.

Bill took on the role just a short time ago and made a significant difference in the relationships between various clubs around the state of Michigan and the ARRL. Bill's spirit and tenacity sparked him to reach out to me shortly after I had posted an opening for the position, and he was most concerned that he might not be able to represent the Michigan Section in the best way possible. I can assure you that his concerns were NOT well founded!

It was great working with NU3D, and I will miss his presence on the Section Staff. Please join me in thanking Bill for his service to the ARRL Michigan Section, and to the Affiliated Clubs in the state.

## **Michigan Section Looking for New Affiliated Club Coordinator**

It should come as no surprise that we are looking for a volunteer to continue NU3D's excellent work as the Section Affiliated Club Coordinator.

The ACC is the primary contact for each amateur radio club in the Section, specializing in motivating, aiding, and coordinating joint activities of amateur radio clubs.

The only requirements are spirit and an ARRL membership.

Slide over to [ARRL.ORG](http://ARRL.ORG) to read more about this position.

Feel free to reach out to me if you're interested and want to discuss how you might fit into this or any other Section role.

## **Travel to Local Clubs and Events**

I love getting a chance to meet with hams all over Michigan! Amateur Radio has been a part of my life for more than 50 years, and it's great to hear from others about their personal adventures in the hobby.

Sadly, timing, distance, and my schedule outside of the world of amateur radio do not always permit me to show up everywhere, especially without planning.

Other members of the Section Staff also love to get out and visit. These don't have to be formal events; I was recently invited to a radio club breakfast and had a wonderful morning! Please let us know what we can do to help your local club become even more successful.

## **Tell Me Something Good!**

Speaking of clubs, I am sure your organizations are doing new and fun things. Why not drop me a note about what is happening in your area? I'd love to hear from you!

## **Michigan ARRL Section Staff Travel Plans**

October 20th , 2019 Kalamazoo Swap (K8JK)  
October 27th , 2019 USECA Swap (K8JK, WA8EFK)  
December 1st , L'Anse Creuse Swap (K8JK)

## **Hospitality Thanks**

October 3rd , Muskegon Area Amateur Radio Council (K8JK)

## **Michigan Public Service Activities**

Michigan Section Traffic/ARPSC Nets (all times local)

Please note that time adjustments may be necessary due to propagation changes. Contact your net manager for alternate frequencies and/or times.

MACS - MI Amateur Communications System 3.952 1000 Daily  
 UPN – Upper Peninsula Net 3.921 1700 Daily; Noon Sun  
 MIARPSC – MI Amateur Radio Public Service Corps 3.932 1700 Sun  
 QMN – The Michigan Net 3.563 1830 and 2200 Daily  
 MITN – MI Traffic Net 3.952 1900 Daily  
 MIDTN – MI Digital Traffic Net 3.583 (Olivia 8/500) 2000 Tu, Th, Sat  
 MIADS – MI ARES D-Star Net Reflector 24A Mon 2000  
 D8EN - District 8 Emergency Net 3.909 Wed 2000  
 GLETN – Great Lakes Emergency and Traffic Net 3.932 2000 Daily  
 MVTN – MI VHF Traffic Net IRA Link System 2100 Mon, Wed, Fri, Sun  
 NLEUP - Northern Lower Eastern UP Net 146.64- 18:30 Daily  
 SEMTN – SE MI Traffic Net 146.76- 2215 Daily  
 TMMTN – Thumb Mid-Michigan Traffic Net 147.30+ 2130 Mon – Sat

Michigan Amateur Radio Public Service Corps (ARPSC) Activities for September 2019

Station Activity Reports (SAR) for September 2019

WB8WKQ 334, WB8TQZ 96, K8ED 90, N5MKY 89, WD8MWD 89, K8RDN 63, K8BKM 56, KB8RCR 39, KD8ZCM 30, WD8USA 21, KE8CEH 16, KE8BYC 8, WB8RCR 6, KE8KOC 5, KB8PGW 4, KE8CYC 1

Public Service Honor Roll (PSHR) for September 2019:

KE8BYC 336, WB8RCR 326, WD8MWD 225, KC8YVF 206, KE8CYC 158, KB8RCR 129, K8RDN 125, WD8USA 116, WB8TQZ 110, KD8ZCM 105, N5MKY 100, K8ED 100, W8DW 99, WB8WKQ 90, KE8KOC 61, KE8CEH 48, KB8PGW 29

Brass Pounder's League (BPL): No reports this month

Net traffic for September 2019:

Michigan Amateur Communications System 101  
 Michigan Traffic Net 79  
 The Michigan Net 47  
 Upper Peninsula Net 40  
 Southeastern Michigan Traffic Net 38  
 Great Lakes Emergency Traffic Net 35  
 Michigan VHF Traffic Net 26  
 Michigan Digital Traffic Net 12  
 Monroe County ARPSC Net 4  
 Red Cross Net of Greater Grand Rapids 1  
 Northern Lower Eastern Upper Peninsula Net 3

NTS person-hour Value for September 2019: \$ 35,922  
 (NOTE NTS PERSON VALUE ONLY)  
 More information is available at <http://nts-mi.org/>.

Come join us on our traffic and public service nets. A hearty thanks to the hundreds of volunteers across the State of Michigan who work hard as volunteers to hone their skills month after month to make sure they are ready for any situation that may arise.

Our ARPSC and NTS programs are an integral part of AuxComm, which in turn is an integral part of the Michigan State Police Homeland Security Division.

Public service is in the DNA of Amateur Radio, one of many reasons we enjoy so many radio frequencies to utilize, experiment with, and enjoy.

### Final Thoughts

Want to be more involved? Consider volunteering for a Section position! Thanks to all the radio amateurs who continue to make the hobby great! Get Active, Get Involved, and Get On The Air! See you all at a swap or club meeting soon!

73  
 Jim K8JK

## Dales Tales

Greetings, welcome to "Dale's Tales" for November, 2019.

We are about mid point in the time period for applications relating to ARRL Foundation Scholarships. The foundation accept applications from September 1 through midnight of December 31. I mention this as a past member of the Foundation Board and as a reminder to students about to graduate who would appreciate a grant to assist them in their education. I suspect most would.

There are many opportunities waiting in the program. Please examine the Scholarship web pages and review the qualification requirements. We currently have 89 scholarships available and some make multiple awards each year. True, not everyone will qualify for every award, as some are limited to specific courses of study, some to specific geographic regions, but the vast majority present significant opportunities for students.





<http://www.arrl.org/scholarship-application> will take you directly to the application form and the details for completing the application. There are also links to the Scholarships themselves along with the qualification details.

Last year, while serving on that board, I took note that there were not many applicants from our Great Lakes Division. I suspect that these scholarships don't get a lot of media attention and tend to remain in the background compared to many local scholarships. So here I am shouting for all to hear: "We have the funds, contributed by individuals, foundations, trusts, clubs and others who love ham radio and want to continue to support those striving for a higher education. Please take advantage of these offers!"

**TOM'S TOME** Comments from your ARRL Vice Director Tom W8WTD.

Youth in ham radio--October was a good month for that. JO-TA (Jamboree on the Air) happened at mid-month. I have always enjoyed that event, all the way back to the time when my own sons were in Scouts. Unfortunately, my schedule did not let me participate this year.

The School Club round-up happened this month, too. I only made a few contacts, but it's great to hear the young people on. Totally by chance, I happened to hear the Kettering University club on the air, and talked to Ruth, KM4LAO, a young lady whom I had worked with on a video about ARISS. And then, in the same afternoon, I heard the Dixie Heights High School (Kentucky) club on the air. Besides talking to the young lady operator, I was surprised to hear former Vice Director Gary Johnson, K14LA, who is advising the club.

It's all part of keeping ham radio alive. You know, we get new people from anywhere. If young people have someone to guide them, some will get interested and become life-long hams. Thank you to all those of you who work with young people. Keep up your efforts. It's especially difficult these days to figure out just what attracts youth. So keep in touch with the youth coordinators in each of your Sections, and share what you know. Meanwhile, encourage those young people by helping them learn more and more about all the aspects of ham radio.

Others join us at various stages in life. We have to acknowledge all the hard work that so many clubs do in putting on license classes, in the evenings, on weekends, throughout the year. That work recruits new people, too, and every new ham has a story, and an interest which we hope will keep going. Besides just enjoying what we do in radio, we all need to help each other keep this great service/hobby alive and strong.

--73, Tom W8WTD Vice Director, Great Lakes Division

OUR GREAT LAKES DIVISION web page does carry news from some of the recent events in the Division, useful links and information as well as some neat photos supplied from around the Division. Check it out: <http://arrl-greatlakes.org/>

Be sure to check your ARRL Section's news pages for the latest local happenings, club and net information.

ARRL Hamfest Sanctioning offers hamfest sponsors the opportunity to take advantage of some offerings from ARRL. Your Division Director is pleased to make this Sanctioning available to ARRL Affiliated clubs who have a history of holding regular swaps. One successful swap normally qualifies! ARRL will provide prize certificates, QST will publish the announcement for the swap, post it on-line at the ARRL web site and supply requested hamfest handout material. The club, in exchange, shall provide ARRL a table for "meet and greet" at the hamfest. Consult the hamfest pages on the ARRL web site for the application form.

If you plan to request ARRL Hamfest Sanctioning, please do so well in advance of your Hamfest date, as this allows adequate time for QST Listings. QST requires a 3 month lead time. It should be noted that there has been a change in the way ARRL contributes to your hamfest efforts. Please carefully read the e-mail from ARRL Headquarters confirming your sanctioning as IT CONTAINS IMPORTANT DETAILS REGARDING PRIZES. Be sure to invite your ARRL Officials as soon as your date is set. With 52 weeks and 70+ hamfests in the Great Lakes Division, things do requires some advanced planning.

HAMFESTING: Here is the current Great Lakes Division ARRL Sanctioned Hamfest Schedule covering the next few months. These swaps have received their sanctioning approval from ARRL HQ at the time of this publication.

11/2/19	Grant ARC Hamfest	Georgetown, OH
11/3/19	Massillon	Massillon, OH
12/1/19	Lanse Creuse	Madison Hgts, MI
12/7/19	Fulton County	Delta, OH
1/19/20	SCARF Hamfest	Nelsonville, OH
1/19-20	Hazel Park	Madison Hgts, MI
1/26/20	Tusco	Strasburg, OH

73, Were you on the air today??? Ham it up!

Dale Williams WA8EFK  
 Director  
 Great Lakes Division  
[wa8efk@arrl.org](mailto:wa8efk@arrl.org)

## ARRL PROPAGATION BULLETIN

QST de WIAW

Propagation Forecast Bulletin 44 ARLP044

From Tad Cook, K7RA

Seattle, WA November 1, 2019

To all radio amateurs

Still no sunspots, but average daily solar flux rose this week from 65.3 to 68.5. Yet there have been surprising reports of HF stations heard and worked over long distances. However, the second-hand report in last week's bulletin about a local station in my area working Belarus and Lithuania on 10 meters in the middle of the night turned out to be a misunderstanding, and I am sorry I reported it.

On Friday and Saturday a coronal hole let loose a solar wind stream causing geomagnetic instability, and the average daily planetary A index for the week rose from 4.7 last week to 16.4.

Predicted solar flux has increased recently, with values of 70 on November 1-8, 66 on November 9-23, 70 on November 24 through December 6, and 69 on December 7-15.

Predicted planetary A index is 8 on November 1, 5 on November 2-4, 8, 10 and 8 on November 5-7, 5 on November 8-16, then 15, 8 and 5 on November 17-19, then 20 and 24 on November 20-21, 15 on November 22-23, 12 on November 24, 5 and 15 on November 25-26, 12 on November 27-28, and 5 on November 29 through December 15.

This weekend is the ARRL CW Sweepstakes contest, and conditions look favorable with a rising solar flux (it was 71.2 on Thursday) and moderate geomagnetic conditions.

OK1HH sent us his geomagnetic activity forecast for the period November 1-26, 2019.

"Geomagnetic field will be:

Quiet on: November 9, 13, 18-19

Quiet to unsettled on: November 1-2, 4-5, 10-11, 15

Quiet to active on: November 3, 8, 12, 14, 16, 25

Unsettled to active on: November 6 (-7), 17, 20, 24, 26

Active to disturbed: November 21-23

"Solar wind will intensify on: November (6-9,) 13, 21-26, (27-29).

"Parenthesis means lower probability of activity enhancement."

Jeff, N8II in West Virginia reported: "Tuesday through Thursday this week. Oct. 22-24, was pretty amazing on 15M especially considering the extremely low solar flux. I think it was

Thursday that was the best when on 15M SSB I worked several European Russian stations including R1DA/M, Ukraine, Finland, Norway, several UK stations including a mobile running 5 watts who was peaking S9! The QSOs were between 1345Z and 1420Z.

"On Thursday afternoon around 1800Z, I waited for VP6R on Pitcairn Island to build in strength above the noise on 12M CW and heard an OH3 and OH5KW in Finland both well above the noise off the back of my 2 el Yagi work VP6R! Later, about 2200Z there was a roaring huge pile up on VP6R on 10 meter CW. I made it through after about 7-8 minutes.

"The CQWW today was not nearly so good, but 15M was open all over Africa and to southern Europe with some very loud signals. I worked Crete, Greece, Cyprus, Slovenia, Serbia, Bulgaria, Croatia, Italy, Switzerland, Germany (only one), France, Spain, and Portugal and in Africa, Reunion Island, Canary Islands, Madeira Islands, Morocco, South Africa, Senegal, Gabon, Namibia, and Cape Verde. All South American mainland countries were worked except Guyana, and VP6R was in for hours on end."

N0JK reported on October 27:

"The VP6R DXpedition has been audible a couple of days in Kansas on 10 meters, usually at or just above the noise floor. But on October 27 VP6R was very strong, over S-9 at 2050z.

"Starting around 2030z on October 27, VP6R had a strong opening across much of North America on 10 Meters. VP6R was much louder than the scattered South America and Central America stations popping in on afternoon TEP. Signals seemed to peak in Kansas between 2045-2110z. VP6R was running the table, a golden opportunity for anyone who needed Pitcairn on 10.

"Then VP6R started dropped into the noise around 2110z. KF0M Wichita worked VP6R near the end of the opening. During the peak I worked a loud KY7M in Arizona on Es, and heard W2HZ Tucson, AZ (both sides of contact) work VP6R. Thus Es was present on 10 Meters. While Arizona is a little west of the Great Circle path to Pitcairn Island, I suspect that the strong October 27 opening was an Es link on to TEP. That can explain the loud signals and how the opening turned on and off 'like a switch.' Was 6 open to Pitcairn from North America? Maybe. Es links to TEP took place on 6 Meters October 17 from the Central USA to South America. The only spot I noted during this period on 6 was a FT8 local contact between AC2PB and a N3."

Mike May, WB8VLC of Salem, Oregon wrote: "Certainly

weird condx on HF for sure with such low numbers yet still DX contacts can be made on all HF bands.

"I am rethinking my HF operation vs low solar numbers after this month's 10 meter and other band QSOs from my CN84 'black hole' QTH in Northwest Oregon with low height small antennas and low to moderate power but none of this has been a hindrance for me. "Most sigs have been very readable with minimal fading and low noise and no real struggle QSOs.

"My antennas: on 10 meters I use a short boom 4 el home brew Yagi at 30 feet and 300 watts. "On 12, 15, 17 and 20 meters I am using home brew antennas at just 22 feet height on a single push up mast and 300-400 watts.

"I put up a moxon on 12-20 meters depending on the desired band so there are no fancy multiband Yagis used here in my postage stamp city lot. "On the lower HF bands I use verticals for 30-40 meters and inverted Ls for 60 and 80 meters with just 16 radials and just 50 watts on these 4 bands but still QSOs are being made from my sea level QTH on all these bands.

"Here is just a sample of the HF dx operation from September to October and I'm mainly a weekend operator. [Long lists of many stations worked were edited out here-Ed.]

"On 12 to 60 meters I have worked the ZK3 on CW/SSB/FT8, 10-30 meters CW/SSB the VP6R, A82Z on 17 SSB/FT8, C21WW 20,17 CW, SSB, FT8 and other.

"The 60 and 80 meter QSOs were the first time since I was licensed in 1975 that I was ever on these 2 bands.

"On just 10 meter SSB, on every weekend there are a good deal of SSB contacts to be made from my Oregon CN84 QTH to South America, mainly to PY, CE, CX and LU stations.

"Low solar indices and still contacts galore, I don't know what to think about the correlation but I'm not complaining, keep up the good work and 73."

Griff, NE3I reported on October 26: "Conditions on 75 and 40 at the beginning of the CQWW SSB Contest are the worst I have experienced in over 50 years as a Radio Amateur. With the exception of some Canadians on 75, all signals received here in Eastern Pennsylvania even U.S. stations, are weak and difficult to intelligibly discern with QSB and S9 noise levels across the entire 75 and 40 Meter Bands."

This is from John Boudreau, VE8EV in Inuvik, Northwest Territories. Inuvik is way up there, north of 68 degrees north latitude. "When I read about the record-setting low solar flux in last week's report I recalled that the last time I checked in with you was March 2014 at the peak of Solar Cycle 24.

"Back then, from our high-latitude location directly under the auroral oval, we were experiencing amazing propagation on the upperbands.

"Now, exactly 5-1/2 years later and with a (mostly) quiet Sun, it is the lower bands' turn.

"Last Winter I took advantage of the quieter conditions to finish off 80m for my 5-Band DXCC award and just recently I've managed to work 14 new countries on 160m, most on the extremely difficult polar path which, from here, includes everywhere in the Eastern hemisphere.

"Whichever part of the solar cycle we are at, though, there is no escaping the effects of a disturbed geomagnetic field right over our heads. Last weekend during the G2-Level geomagnetic storm caused by a recurring solar coronal hole, I turned on my radio around 0400z on Saturday night. Even with the CQ World Wide DX Contest going on, I could hear only TWO stations (a KH6 and a KL7) coming through on any of the bands. This can sure be a tough place to play radio!"

The latest from Dr. Tamitha Skov:

<https://youtu.be/p1OHijuoZO8>

If you would like to make a comment or have a tip for our readers, email the author at, [k7ra@arrl.net](mailto:k7ra@arrl.net).

For more information concerning radio propagation, see the ARRL Technical Information Service web page at, <http://arrl.org/propagation-of-rf-signals>. For an explanation of numbers used in this bulletin, see <http://arrl.org/the-sun-the-earth-the-ionosphere>.

An archive of past propagation bulletins is at <http://arrl.org/wlaw-bulletins-archive-propagation>. More good information and tutorials on propagation are at <http://k9la.us/>.

Monthly propagation charts between four USA regions and twelve overseas locations are at <http://arrl.org/propagation>.

Instructions for starting or ending email distribution of ARRL bulletins are at <http://arrl.org/bulletins>.

Sunspot numbers for October 24 through 30, 2019 were 0, 0, 0, 0, 0, and 0, with a mean of 0. 10.7 cm flux was 65, 68.6, 68.6, 68.8, 69.4, 69.2, and 69.7, with a mean of 68.5. Estimated planetary A indices were 18, 29, 25, 15, 11, 8, and 9, with a mean of 16.4. Middle latitude A index was 12, 29, 17, 11, 8, 8, and 6, with a mean of 13.

NNNN

## ARRL DX NEWS

DX Bulletin 43 ARLD043  
From ARRL Headquarters  
Newington CT October 31, 2019  
To all radio amateurs

This week's bulletin was made possible with information provided by IK2DUW, The Daily DX, the OPDX Bulletin, 425 DX News, DXNL, Contest Corral from QST and the ARRL Contest Calendar and WA7BNM web sites. Thanks to all.

**KENYA, 5Z.** Andy, G3AB is QRV as 5Z4/G3AB from Nairobi. Activity is on 20 to 10 meters. QSL via LoTW.

**SOMALIA, 6O.** Ali, EP3CQ is QRV as 6O1OO from Mogadishu until mid November. Activity is in his spare time on 80 to 6 meters using SSB and FT8. QSL direct.

**RWANDA, 9X.** Harald, DF2WO will be QRV as 9X2AW from Kigali from November 4 to 16. Activity will be on the HF bands using CW, SSB, RTTY and FT8. This may include being on 160 meters. QSL via M0OXO.

**CHILE, CE.** Members of the Radio Club Melipulli are QRV as XR7PNAA from the Alerce Andino National Park until November 3. QSL via CE7RCM.

**MOROCCO, CN.** Special event station CN44MS is QRV from Tan-Tan until November 12 to commemorate the 44th anniversary of the Green March. QSL via RW6HS.

**NEW CALEDONIA, FK.** Tom, F4HPX will be QRV as FK/F4HPX from Noumea, IOTA OC-032, beginning November 3. Activity will be holiday style on 80 to 10 meters using CW, SSB and FT4. This includes a possible visit to Ile des Pins, IOTA OC-033. QSL to home call.

**MARQUESAS ISLANDS, FO.** A group of operators will be QRV as TX7T from Hiva Oa from November 6 to 18. Activity will be on the HF bands using CW, SSB and FT8 with three or four stations active. QSL via LoTW.

**HUNGARY, HA.** Laci, HA0HW is QRV with special event call HG33EUDXF during November in celebration of the 33rd anniversary of the European DX Foundation. QSL via operator's instructions.

**THAILAND, HS.** Ralph, DL9MWG and Uli, DL1HUH will be QRV as HS0ZOM and HS0ZON, respectively, from November 3 to 6. QSL to home calls.

**ITALY, I.** Members of the 4U1GSC Amateur Radio Club are

QRV as 4U25B until August 31, 2020 to mark the 25th anniversary of the United Nations Logistics Base in Brindisi. QSL via 9A2AA.

**BULGARIA, LZ.** Members of the Bulgarian Radio Club Blagovestnik are QRV as LZ365BM during November to honor the memory of Bulgarian saints. QSL via bureau.

**BELGIUM, ON.** Members of the Oost Kust Radioclub are QRV with special call OE75CLM until November 3 to celebrate the liberation of Knokke-Heist 75 years ago. QSL via ON6HC.

**UKRAINE, UR.** Look for EM7KAA/p, UT1KY/p, UT7UA/p, UX-2KA/p and UY5BT/p to be QRV from the Kremenets UFF Botanical Garden, UZFF-002, on November 2 and 3. Activity will be on 160 to 10 meters using CW and SSB. This includes being an entry in the Ukrainian DX contest. QSL via bureau.

**VANUATU, YJ.** Sergei, RZ3FW and Sergei, R4WAA will be QRV as YJ0RRC from Gaua Island, IOTA OC-104, from November 4 to 7. Activity will be on 40, 30, 20 and 15 meters using CW, SSB, RTTY and FT8. QSL direct to RZ3FW.

**ASCENSION ISLAND, ZD8.** Steve, WB4GHY is QRV as ZD8SC until November 11. Activity is in his spare time on 80 to 10 meters using CW, SSB and FT4. QSL direct to WB4GHY.

**THIS WEEKEND ON THE RADIO.** The ARRL Sweepstakes CW Contest, NCCC RTTY Sprint, NCCC CW Sprint, Silent Key Memorial CW Contest, Zombie CW Shuffle, Ukrainian DX Contest, SA Sprint SSB Contest, IPARC Contest, EANET Sprint and the High Speed Club CW Contest are all on tap for this upcoming weekend.

The RSGB FT4 Contest Series is scheduled for November 4. The ARS Spartan CW Sprint is scheduled for November 5. The QRP 40-Meter CW Fox Hunt, UKEICC 80-Meter CW Contest, CWops Mini-CWT Test and Phone Fray are scheduled for November 6.

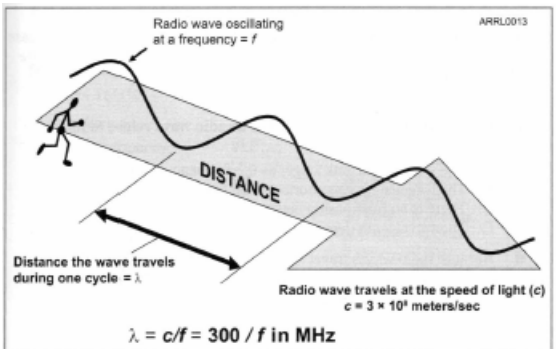
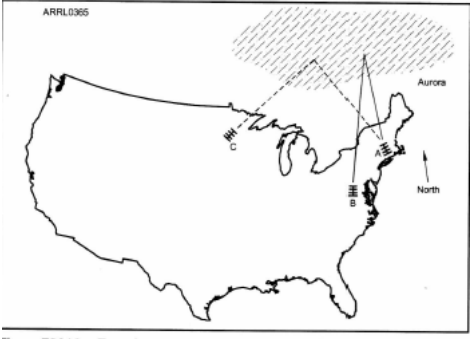
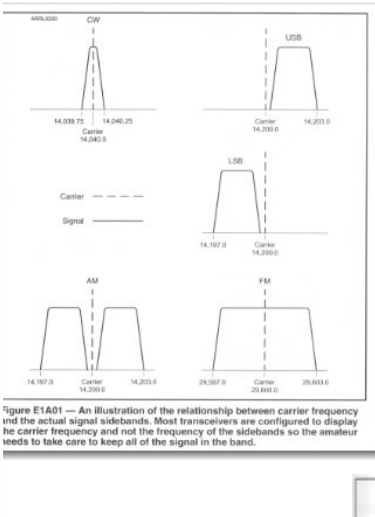
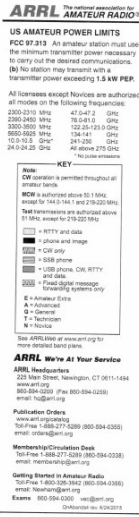
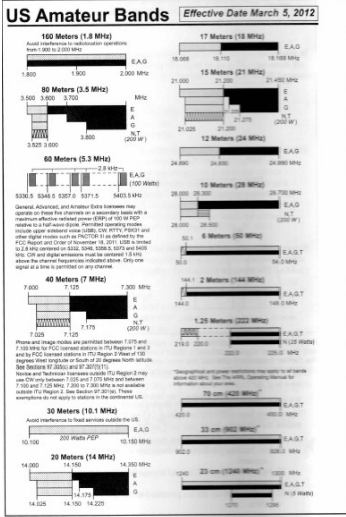
The Canadian National Parks on the Air, CNPOTA, operating event runs for the entire year of 2019, with special stations active from Canada's parks and historic sites.

Please see November QST, page 89, and the ARRL and WA7BNM Contest Web Sites for details.

NNNN

# Review

This section is dedicated to refreshing what qualified our Licensing. Something different will appear each month. Enjoy....



As a radio wave travels, it oscillates at the frequency of the signal. The distance covered by the wave during the time it takes for one complete cycle is its wavelength.

T1B05: What is the limitation or emissions on the frequencies between 219 and 220 MHz?

- A. Spread spectrum only
- B. Fixed digital message forwarding systems only
- C. Emergency traffic only
- D. Fast-scan television only

T2B04: Which of the following could be the reason you are unable to access a repeater whose output you can hear?

- A. Improper transceiver offset
- B. The repeater may require a proper CTCSS tone from your transceiver
- C. The repeater may require a proper DCS tone from your transceiver
- D. All of these choices are correct

T3B03: What are the two components of a radio wave?

- A. AC and DC
- B. Voltage and current
- C. Electric and magnetic fields
- D. Ionizing and non-ionizing radiation

G1B02: With which of the following conditions must beacon stations comply?

- A. A beacon station may not use automatic control
- B. The frequency must be coordinated with the National Beacon Organization
- C. The frequency must be posted on the Internet or published in a national periodical
- D. There must be no more than one beacon signal transmitting in the same band from a single location

G2B05: What is the customary minimum frequency separation between SSB signals under normal conditions?

- A. Between 150 and 500 Hz
- B. Approximately 3 kHz
- C. Approximately 6 kHz
- D. 3 to 6 kHz

G3A16: What is a possible benefit to radio communications resulting from periods of high geomagnetic activity?

- A. Aurora that can reflect VHF signals
- B. Higher signal strength for HF signals passing through the polar regions
- C. Improved HF long path propagation
- D. Reduced long delayed echoes

E1B02: Which of the following factors might cause the physical location of an amateur station apparatus or antenna structure to be restricted?

- A. The location is near an area of political conflict
- B. The location is of geographical or horticultural importance
- C. The location is in an ITU zone designated for coordination with one or more foreign governments
- D. The location is environmental importance or significant in American history, architecture, or culture.

E2B02: How many horizontal lines make up a fast-scan (NTSC)?

- A. 30
- B. 60
- C. 525
- D. 120

E3A16: Which of the following best describes electromagnetic waves traveling in free space?

- A. Electric and magnetic fields become aligned as they travel
- B. The energy propagates through a medium with a high refractive index
- C. The waves are reflected by the ionosphere and return to their source
- D. Changing electric and magnetic fields propagate the energy



# ANSWERS

- T1B05: B: [97.305(c)] The segment of the 1.25 meter band from 219 to 220 MHz is restricted to digital message forwarding by fixed stations and systems.
- T2B04: D: If you can hear a repeater's signal and you're sure you are using the right offset, but can't access the repeater, then you probably don't have your radio set up to use the right type or frequency of access tone.
- T3B03: C: An electromagnetic wave is a combination of varying electric and magnetic fields.
- G1B02: D: [97.203(b)] A beacon station normally transmits a signal for operators to observe propagation and reception characteristics. For this purpose, FCC rules specifically allow amateur beacon to transmit one-way communications.
- G2B05: B: The more bandwidth signals occupy, the more separation is needed between contacts to avoid interference. Single-sideband (SSB) signals use considerably more bandwidth than CW and therefore need much more separation between contacts. Under normal circumstances, you will need approximately 3 kHz of separation from another contact to avoid causing interference.
- G3A16: A: When plasma from the Sun interacts with the Earth's magnetic field, its charged particles follow magnetic field lines into the Earth's atmosphere near the North and South magnetic poles, often producing visible aurora borealis at northern latitudes and aurora australis in the south. VHF operators look forward to such conditions because radio signals can be reflected from auroral "patches," making long-distance contacts possible.
- E1B02: D: [97.13(a)] As you may already know, environmental or historical significance may limit land use in some cases. This includes where someone can install an antenna. That's why FCC reflects this concern in Part 97.
- E2B02: C: A picture is divided sequentially into pieces for transmission or viewing; this process is called scanning. A total of 525 scan lines comprise a frame (complete picture) in the US television system. Thirty frames are generated each second. The fast-scan TV frame consists of two fields of 262-1/2 lines each. The odd numbered lines are scanned in one field and the even numbered ones are scanned in the next.
- E3A16: D: An electromagnetic wave has both an electric and a magnetic field component. The fields are oscillating and at right angles to one another. This means, for example, when the electric field is horizontally polarized the magnetic field is vertical and vice-versa. It is the changing electric and magnetic fields that propagate electromagnetic energy across the vacuum of free space.

## LINKS AND STUFF

*Under re-construction. Watch for*

### Copper Country Podcast

George, (W8FWG) is offering this new service from the ARRL. It is entitled "**So Now What?**" and is geared to the NEW HAM. We will continue with the original podcast of ("**The Doctor Is In**") too, and the two will alternate from week to week, each Friday night at 9 pm Eastern time over the Calumet Repeater 147.315 MHz PL-100.0 Hz.

*Delta County Amateur Radio*  
Escanaba, MI  
[www.dcars.org](http://www.dcars.org)

*Copper Country Radio Amateur*  
Dollar Bay, MI  
[www.ccrac.net](http://www.ccrac.net)

### Area Repeaters

Escanaba 147.15+	100.0
	145.13- No PL
Wells	444.30+ No PL
Gladstone	
IRLP 4013 147.55 Smpx	100.0
Champion	146.82- 100.0
Cooks	146.70 - 110.9
GrdMarais	147.195+ No PL
Gwinn	146.64- 100.0
Iron Mtn	146.85 — 100.0 444.85 — 100.0
Iron River	145.17- 107.2
Ishpeming	146.91- No PL
IRLP 8993	443.50+ 100.0
Manistique	146.79 - No PL
Marquette	146.97 - No PL
	147.27+ 100.0 444.80+ No PL
Menominee	147.00+ 107.2
Newberry	146.61 + No PL
	147.09+ 114.8
Republic	147.09+ No PL
South Republic	146.82 + 100.0
Trenary	147.03 + 100.0
Wetmore	145.41- 100.0

### ARRL Affiliated Club Area Nets

**UP Net** 3921khz  
Daily 5pm EST  
Sunday Noon EST

**UP CW NET** 3590khz  
Sunday 7pm EST

**160 Net** 1895khz  
Everynight 0100UTC  
Dailey 0600UTC

**Midcars** 7258khz  
Daily 0730am EST  
0200pm EST

**Outhcars** Node 9614  
Saturday 0900am EST

**UP Echolink** Node 9617  
Sunday 8pm EST

**Copper County ARES**  
146.88  
Wednesday 9pm EST

**Mich-A-Con Social and  
ARES**  
146.85  
Thursday 0630pm CST  
ARES follows

ARRL WEB PAGE: <http://www.arrl.org>  
ARRLMICHIGAN: <http://www.arrl-mi.org/>  
US REPEATERS: <http://www.usrepeaters.com>  
Tropospheric Ducting Forecasts:  
<http://www.d/infocentre.com/tropo.html>  
MICH-A-CON : <http://www.qsl.net/ka1ddb>

FCC Universal Licensing System: <http://wireless.fcc.gov/uls/>  
QTH Com: <http://www.qth.com/>  
QRZ <http://www.qrz.com/>  
E Ham Net <http://www.eham.net/>  
UP Skywarn: <http://kcra-mi.net/skywarn/>  
Band Conditons: <http://bandconditions.com/>



**ABOUT OUR CLUB....****Club Officers****President:**

**Tom Martin, W8JWN**  
**(906) 774-5463**  
[tmartin@chartermi.net](mailto:tmartin@chartermi.net)

**Vice President**

**Scott Jarmusch, KA8TFF**

**Secretary:**

**Joe Ferris, KC9TQR**  
[irferris@borderlandnet.net](mailto:irferris@borderlandnet.net)

**Treasurer:**

**Debbie Garbowski, KD8VTS**  
**(906) 284-2450**  
[kd8vts@gmail.com](mailto:kd8vts@gmail.com)

**Editor:**

**Tom Heyboer, KC8TH**  
**(906) 779-0481**  
[Heyboer.tom@gmail.com](mailto:Heyboer.tom@gmail.com)

**Web Editor:**

**Tom Heyboer, KC8TH**  
**(906) 779-0481**  
[Heyboer.tom@gmail.com](mailto:Heyboer.tom@gmail.com)

**Radio License Exam Contact Persons:**

Mike Boileau: 906 563 1350  
 Terry Moriarity: 715 251 1670

**Activities:**

**Second Wednesday** of the month the Mich-A-Con Amateur Radio Club meets in the Dickinson Country Library at 7:00 P.M. Winter or **6:30 PM** Summer

**Visitors and prospective members are always welcome!**

**Club Repeater:**

The Club maintains two repeaters which are located on Pine Mountain (Elevation 1650 ft) in Iron Mountain with tower and facilities provided by the Wisconsin Electric Power Co. The range of the 2 meter repeater is about 40 miles. The range of the 440 MHz repeater is about 25 miles. Both are under normal conditions, depending upon terrain.

**The Repeater Specifications:**

The 146.85 repeater is a Yaesu DR 1 digital and Analog repeater Frequency. 146.85 minus offset, 100 hz PL tone encode and decode Power 50 watts. The Controller is an Arcom RC 210 . It is also System Fusion capable.

. The 440 MHz repeater is a GE Master II 444.85, plus offset, 100 hz pl tone. 35 watts output. The Controller is a Arcom 210.

The 2 meter and the 440 can be linked. The repeaters share a Diamond dual band antenna at a tower height of 125 ft.

**We're on the Web!**

<http://www.qsl.net/ka1ddb/>

Previous editions of the Newsletter can be accessed by a link on the **news** page

**From Your Newsletter Editor**

Thank you to those contributors and critiques.  
 Welcome your articles - They make the Newsletter.

*For those not getting the Newsletter, it is because I have an incorrect email address. Please give me the correct address.*

The following is referenced from <http://www.dx-code.org>

### DX Code Of Conduct

I will listen, and listen, and then listen again before calling.

I will only call if I can copy the DX station properly.

I will not trust the DX cluster and will be sure of the DX station's call sign before calling.

I will not interfere with the DX station nor anyone calling and will never tune up on the DX frequency or in the QSX slot.

I will wait for the DX station to end a contact before I call.

I will always send my full call sign.

I will call and then listen for a reasonable interval. I will not call continuously.

I will not transmit when the DX operator calls another call sign, not mine.

I will not transmit when the DX operator queries a call sign not like mine.

I will not transmit when the DX station requests geographic areas other than mine.

When the DX operator calls me, I will not repeat my call sign unless I think he has copied it incorrectly.

I will be thankful if and when I do make a contact.

I will respect my fellow hams and conduct myself so as to earn their respect.

### SkyWarn Spotters (2018)

Steve Johnson	K8CRY	Millie Hill
Tom Martin	W8JWN	Millie Hill Overlook
Burt Armbrust	WB8EBS	Hill above Wells Fargo, along US-2
Skip Caswell	KE9L	Merriman/Granite Bluff area
Barry Perron	KC9NFT	Keyes Peak
Bob Meyers	WA8FXQ	Faithhorn area (if not in Copper Country)
Terry Moriarity	K9TRY	Niagara
Dave Thomas	KG9Y	Niagara
Bill Grabowski Debbie Grabowski	<u>KD8VTT</u> KD8VTS	Mansfield Township/Johnson Potato Farm area
Sam Holmes	N8ATS	Pike Plains, Dunbar
Joe Ferris	KC9TQR	Vicinity of CR-N, U, & C in Florence County
Scott Dolatowski	KC9ZBC	Goodman

**MEMBERSHIP**

Call Sign	Last Name	First Name	City	Phone	Email
WB8EBS	ARMBRUST	BURT	QUINNESEC	906-774-8383	<a href="mailto:wb8ebs@yahoo.com">wb8ebs@yahoo.com</a>
KC9KVP	BAKER	BETH	NIAGARA		
KB9AVX	BAKER	SCOTT	NIAGARA	715-251-1944	<a href="mailto:kb9avx@yahoo.com">kb9avx@yahoo.com</a>
KB8SBP	BERTOLDI	BILL	KINGSFORD		
K8DDA	BRAY	MIKE	VULCAN	906-201-1550	<a href="mailto:mikebray@chartermi.net">mikebray@chartermi.net</a>
KE9L	CASWELL	SKIP	IRON MOUNTAIN	906-774-3371	<a href="mailto:acaswell4238@charter.net">acaswell4238@charter.net</a>
KC8QZG	DAKE	DAVE	NEWBERRY		
KC9ZBC	DOLATOWSKI	SCOTT	GOODMAN	715-633-1006	<a href="mailto:kc9zbc@live.com">kc9zbc@live.com</a>
KC9TQR	FERRIS	JOE	FLORENCE	517-589-4386	<a href="mailto:jrferris@borderlandnet.net">jrferris@borderlandnet.net</a>
N9MBG	FRY	ED	PEMBINE	906-221-7307	<a href="mailto:efry7849@gmail.com">efry7849@gmail.com</a>
KG8NK	GEMBOLIS	LOUIS	ISHPEMING	906-485-5442	<a href="mailto:lgembolis@chartermi.net">lgembolis@chartermi.net</a>
KE8FWN	GRABOWSKI	BILLY	CRYSTAL FALLS	?	
KD8VTS	GRABOWSKI	DEBRA	CRYSTAL FALLS	906-284-2450	<a href="mailto:kd8vts@gmail.com">kd8vts@gmail.com</a>
KD8VTT	GRABOWSKI	WILLIAM	CRYSTAL FALLS		
KC8TH	HEYBOER	TOM	IRON MOUNTAIN	906-779-0481	<a href="mailto:heyboer.tom@gmail.com">heyboer.tom@gmail.com</a>
N8ATS	HOLMES	SAM	PEMBINE	906-322-8507	<a href="mailto:chopsam@centrylink.com">chopsam@centrylink.com</a>
KA8TFF	JARMUSCH	SCOTT	IRON MOUNTAIN		
KB9EMU	KNUTSON	WILLIAM	FENCE	715-336-2250	<a href="mailto:dknutson54@gmail.com">dknutson54@gmail.com</a>
KD9HQD	LaLIBERTE	BRUCE	NIAGRA, WI	?	<a href="mailto:liberte@borderlandnet.net">liberte@borderlandnet.net</a>
W9BGL	LUCAS	BRIAN			<a href="mailto:bagel99@gmail.com">bagel99@gmail.com</a>
KE8GHE	LUNDAMO	DUANE	?	?	?
W8JWN	MARTIN	THOMAS	IRON MOUNTAIN	906-774-5463	<a href="mailto:tmartin@chartermi.net">tmartin@chartermi.net</a>
WA8FXQ	MEYERS	BOB	VULCAN	906-396-0119	<a href="mailto:meyersb@uplogon.com">meyersb@uplogon.com</a>
KC8LRP	MEYERS	MARGE	VULCAN	906-396-8913	<a href="mailto:mgmeyer@uplogon.com">mgmeyer@uplogon.com</a>
N8TUM	MILLER	TIMOTHY	FLORENCE	715-696-6517	<a href="mailto:timmiller.up@gmail.com">timmiller.up@gmail.com</a>
K9TRY	MORIRITY	TERRY	NIAGARA	715-251-1670	<a href="mailto:kb9zer@yahoo.com">kb9zer@yahoo.com</a>
ND8M	PAUL	JARED	NORWAY	989-660-9535	<a href="mailto:jaredpaul@me.com">jaredpaul@me.com</a>
KD8SZA	PAUL	MICHELLE	NORWAY		
KC9NFT	PERRON	BARRY	FLORENCE	715-696-6175	<a href="mailto:bperron2@netzero.com">bperron2@netzero.com</a>
KC8JRI	REED	GORDY	IRON MOUNTAIN	906-779-1254	<a href="mailto:gordyreed@charter.net">gordyreed@charter.net</a>
KE8GHH	RITTENHOUSE	DAVE	IRON MOUNTAIN	?	?
K4FMX	SCHAFFER	GARY	NIAGRA, WI	?	<a href="mailto:GARYSCHAFFER@LARGERIVER.NET">GARYSCHAFFER@LARGERIVER.NET</a>
KG9Y	THOMAS	DAVE	NIAGARA	715-251-1393	<a href="mailto:kg9y@arrl.net">kg9y@arrl.net</a>

BLACK: Paid Members  
 BROWN: Past or Unpaid Members



MICH - A - CON

**Please remit dues to:  
Debbie Garbowski, KD8VTS  
203 Camp 5 Road  
Crystal Falls, MI 49920**

Name: \_\_\_\_\_

Call Sign: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Email Address: \_\_\_\_\_

Phone: \_\_\_\_\_

ARRL Member? Yes \_\_\_\_\_ No \_\_\_\_\_

Please make check payable to: **Mich-A-Con ARC**

Annual dues for Full Membership -

Single \$20 \_\_ Family \$30 \_\_ Repeater Only \$10 \_\_

If family membership, please list additional:

Names: \_\_\_\_\_

Call signs: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Annual dues are Payable January 1st.

Dues for New Members are Pro-rated. Please remit \$1.67 per month for a Single membership or \$ .50 per month for a Family membership.