



MICH-A-CON

Iron Mountain,
Dickinson County, Mich

February 2019

Meeting Reminder: Second Wednesday of the Month

Which is **February 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

After two weeks of trying to get EchoLink to work, I decided that enough time was spent on it. I actually spent 4 hours straight on a couple of weekends. During the week, it was an hour or two here and there. It seemed like Bob, WA8FXQ, was always around to confirm that it still wasn't working.

The Pauls, N7EKY and W8YNY, from the Watersmeet and Iron River area lent their expertise but to no avail. There never was two way audio.

Stations from England and Singapore checked in on our repeater but they soon left. They couldn't hear me coming back. WIAW code practice was heard one afternoon.

Jared, ND8M, got into the computer with Team Viewer and couldn't fix it. The EchoLink program passed the firewall tests but never "passed" return audio. I could see it on the audio bar but there was no sound.

I even used EchoLink on my iPad to contact a node in Minnesota. The SYOP gave me some ideas but no go!

I set up the program on 4 different computers, two different interfaces, and two different radios and it never worked on any of them. (See photos)

I even messed up one of my own sound card programs during the futile process!

So, the EchoLink computer, radio, and USB SignaLink interface will be returned at the meeting on Wednesday.

73,
Tom W8JWN

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Working on Echo Link



MICH-A-CON AMATEUR RADIO CLUB MINUTES OF January 9, 2019

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

Secretary Report

Minutes of the December 12th, 2018 meeting were read and approved.

Treasurer Report

Balances as of January 9th, 2019:
Checking: \$80.95
Savings: \$280179 (Repeater: \$1241.72)
Cash: \$38.00

Repeater Report

Our 440 machine is now linked to the Marquette system, and it works. There is some interest in a whole-system net from some of the Marquette County hams. However, there are a couple from the Marquette system that keep the repeater going for hours. We may have to set a time-out on our unit.

Old Business

Tom Martin does not have the the Echolink equipment, yet. He will pick it up and give it a try.

The \$30.00 payment to WE Energies, for tower rent, has been made.



New Business

Since we are an LLC, President Tom Martin make our necessary filing with the IRS. This is due by May 15, 2019.

Bob Meyers will give a presentation on working amateur satellites at the February meeting.

A reminder was made that the Negaunee Swap and Shop will be held on Saturday, February 2.

Presentation

Tom Martin gave a short presentation on “Changing Propagation Conditions”. He showed how his points in the ARRL RTTY Roundup have dropped as the solar conditions have declined.

Adjournment

Meeting adjourned at 7:21. (Skip Caswell/Burt Armbrust)

For the Good of the Order

Attendees reported on their recent activities.

The 50/50 drawing was won by Skip Caswell. The club treasury was enriched by \$20.00.

Attendees

Tom Martin
 Scott Jarmusch
 Joe Ferris
 Brian Lucas
 Bruce LaLiberte
 Burt Armbrust
 Skip Caswell
 Tim Miller
 Gary Schafer
 Terry Moriarity

W8JWN
 KA8TFF
 KC9TQR
 W9BGL
 KD9HQD
 WB8EBS
 KE9L
 N8TUM
 K4FMX
 K9TRY

Gary Johnson
 Virginia Johnson
 Janet Schafer
 Joyce Williams

N9GT
 N9GCT
 Visitor
 Visitor

News

Third Wednesday Monthly Communications Exercises Set

ZCZC AX01
 QST de W1AW
 Special Bulletin 1 ARLX001
 From ARRL Headquarters
 Newington CT January 3, 2019
 To all radio amateurs

FEMA Region 10 will conduct monthly communications exercises (COMMEX) on the third Wednesday of each month, starting on January 16, 1730 - 1900 UTC. Amateur Radio operators are invited to take part. The intent of these exercises is to test and exercise interoperable communication (federal/state/local/tribal/Amateur Radio) during a major disaster in which the communication infrastructure is significantly damaged or destroyed.

FEMA Region 10 will use the call sign WGY910. Other stations associated with agencies and organizations that provide response support in accordance with the National Response Framework are encouraged to participate.

The COMMEX will use these "dial" or "window" frequencies on 60 meters - including 5,330.5 kHz, 5,346.5 kHz, 5,357.0 kHz, 5,371.5 kHz, and 5,403.5 kHz - as part of the exercise. The area of operation is the continental US.
 NNNN

Great Lakes Division Registered Hamfests First Quarter

Here is the current listing of Hamfests in the Great Lakes Division.
 the 2019 Swaps are well underway¹

1/20/19	S.C.A.R.F. Hamfest	Nelsonville, OH
1/27/19	Hazel Park Hamfest	Madison Hts, MI
1/27/19	Tusco ARS Hamfest	Strasburg, OH
2/2/19	HARA Swap	Negaunee, MI
2/9/19	Cherryland Swap	Traverse City, MI
2/17/19	Livonia Hamfest	Livonia, MI
2/17/19	Mansfield Hamfest	Mansfield, OH
3/2/19	Cave City Hamfest	Cave City, KY
3/3/19	Winter Hamfest	Elyria, OH
3/16/19	MI Crossroads	Kalamazoo, MI
3/16/19	Gallipolis	Gallipolis, OH
3/17/19	TMRA Hamfest	Perrysburg, OH



Chassell-Swap-N-Shop

Sponsored by the American Radio Relay League
Hamfest 2019

The annual Chassell Hamfest
Amateur Radio Swap - n - Shop

When: April 27, 2019

Where: The Chassell VFW Post 6507
42103 Wilson Memorial Dr, Chassell, MI (US 41)

Time: 9-1 p.m. (EDT)

(Those with tables can set up at 8am.)

Admission: \$3/person

Tables: \$10

A chance to win valuable Door Prizes with each

admission ticket stub

Estate Items For Sale

Refreshments and food available

Talk-in Frequency 146.880 w/PL tone of 100 Hz

Table info contact **Jeff W9GY: 906-337-4158** jeffw9gy@pasty.net

Sponsored also by your THREE LOCAL AREA AMATEUR RADIO

CLUBS:

BCRA, CCRAA, & KCRA

ARLB032 W1AW 2019 Winter Operating Schedule

ZCZC AG01
 QST de W1AW
 ARRL Bulletin 1 ARLB001
 From ARRL Headquarters
 Newington CT January 3, 2019
 To all radio amateurs

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.

Morning Schedule:

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

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.

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)

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.

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

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.

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

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.

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.

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

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 91 in the December 2018 issue of QST or on the web at, <http://www.arrl.org/w1aw-operating-schedule>.

NNNN

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

ARRL MICHIGAN SECTION NEWS

Greetings to all the Amateurs of Michigan for January,

OK, Winter will really be here soon. I just spoke with Winter, and apparently there was an airport delay that temporarily messed with the schedule. More commentary (more serious, hopefully) awaits you in the January 2019 Michigan Section Newsletter.

I Wish That Jim Would

Not much mind reading activity goes on here. If there's something going on in your patch, and you want to tell the Section about it, you might want to consider pointing it out to me. I am only too happy to include details about your upcoming events, elections, and whatever else you'd like to share. Please note that timing is everything, to make it in the next edition of the newsletter for example, I need your information no later than the first week of the month. Again, predicting the future and determining what your thinking are not among my skillsets.

Invite the Section Staff To Your Club Meeting

Consider inviting a member of YOUR Michigan Section Staff to your next meeting, lunch, or breakfast. This could be fun and interesting. Get to know the olks who donate their time and energy to YOUR ARRL Michigan Section.

Grid Square Chase Is Over – What Next?

It was great fun listening to all the conversations about the ARRL Grid Square Contest. Stay tuned for what's coming next, and the results of the event!

FCC Shutdown Doesn't Mean You Can't Take Amateur Radio Exams

Many of the VE teams I've spoken with are still administering license exams during the temporary (hopefully) government shutdown. I'm happy that testing is still going on. Yes, it does

mean a newly licensed Technician will probably have to wait a bit for the callsign (just like the really old days) but it also means that those amateurs upgrading can do so and immediately enjoy their new privileges.

A special January thanks to those groups and individuals who conduct classes and exams within the state.

Michigan ARRL Section Staff Travel Plans

January 27th, 2019 Hazel Park Swap (K8JK)

February 2nd, 2019 HARA Swap Negaunee, MI (WA8EFK)

February 17th, 2019 Livonia Swap (Section Staff)

March 16th, 2019 Crossroads Swap (K8JK)

Michigan Public Service Activities

Michigan Section Traffic/ARPSNets (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

MIARPSN – 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 24C 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 December 2018

Station Activity Reports (SAR) for December 2018

WB8WKQ 214, K8ED 140, N5MKY 132, WB8TQZ 128, WD8USA 92, WD8MWD 86, K8KM 74, K8RDN 66, KE8CEH 37, KE8BYC 18, KC8NFN 12, KE8CYC 7, KD8ZCM 6, WB8RCR 4

Public Service Honor Roll (PSHR) for December 2018:

WB8RCR 159, WD8MWD 155, K8RDN 150, WD8USA 130, KE8CYC 122, KE8BYC 121, K8ED 115, WB8TQZ 110, N5MKY 95, WB8WKQ 90, KD8ZCM 76, KC8YVF 75, KE8CEH 64, KC8NFN 52, N8OSL 32

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

Net traffic for December 2018:

Michigan Amateur Communications System 164
The Michigan Net 65
Michigan VHF Traffic Net 43
Upper Peninsula Net 39
Southeastern Michigan Traffic Net 36
Michigan Traffic Net 14
Great Lakes Emergency and Traffic Net 12
Monroe County ARPSC Net 8
Northern Lower Eastern Upper Peninsula Net 3
Saginaw County ARES Net 2
District 3 ARPSC Net 1

Total Volunteer Dollar Value for December 2018: \$ 35,759

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

One of my resolutions for the new year was to meet one new amateur radio operator in my local area each month. If you're reading this, and live within 10 to 15 miles of me, send me a note, and we can snag coffee, breakfast or lunch (on me, of course).

I am thinking about adopting the practice of making at least 3 new QSOs an evening, on a mode I don't normally use. If you hear me on the air, be sure and say hi!

I'm looking forward to hearing from all of you, and to visit your local club or group. Thanks to all of the radio amateurs who continue to make the hobby great! Get Active, Get Involved, and Get On The Air!

73
Jim K8JK



Dales Tales

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

ARRL BOARD MEETING. On January 18 and 19, the ARRL Board of Directors held its Annual Meeting. The board welcomed several new Directors and Vice Directors to its membership.

In specific actions, the board approved the launching of a Life Long Learning initiative (LLL). This will include a Content Management System and an Account Management System as well as significant web site improvements all aimed at bringing LLL to the membership. This is a lengthy project that will be implemented in several phases. More will be released by HQ soon.

The Board approved the adoption of new guidelines for the ARES Program, bringing significant upgrades to ARES aiming at improved standards in the organization. This was the result of a 31 month effort to upgrade the program. ARES participants registered in ARES Connect will be able to take the newly revised ARRL EMCOMM training course EC-001 for no cost.

An amendment to the Articles of Association brought them into alignment with Connecticut law relating to there being no stockholders in our 501(c)3 organization.

A permanent operating committee was established to insure continued support for Logbook of the World.

The definition of the position of Vice Director has been revised to insure that the holders of this elected office are fully able to step in to serve in the absence of their respective Directors. The fiduciary responsibilities and requirements of operational information were included.

Dir. Hippisley W2RU entered a motion that I supported commending the National Traffic System (NTS) and endorsing the ARES and the rolls they have in emergency communications.

The board accepted the resignation of Chris Imlay W3KD who has served as ARRL General Counsel for many years.

The ARRL Board Code of Conduct was repealed, leaving CT law as the guiding principles for board members.

In standing committee appointments, our Great Lakes Division Vice Director Tom Delaney W8WTD was appointed to the Administration and Finance Committee and I was selected to chair the Programs and Service Committee.

Several awards and honors were granted, currently being announced by HQ. This year, none involved Great Lakes Division members.

SEVERAL ITEMS I covered in the January issue of "Dale's Tales" were discussed with fellow Board members. Those included a request to return the Rag Chewers Certificate, add a list of new licensees to appear in QST, continuing a down-scaled version of the OO program, increasing the point value for new hams participating in Field Day, adding a point value for GOTA contacts and consideration of a video Amateur Radio training program. Some of these will soon be examined by the Programs and Service Committee.

TOM'S COMMENTS: We often speculate on the future of ham radio. With many of us aging, and not so many young people coming to club meetings, we wonder what will happen. Some steps taken by the ARRL Board at its recent meeting, and other things being done by ARRL staff have certainly increased my optimism for what may happen in the future.

Data gathered by the staff, with assistance from a Connecticut advertising firm, has given us a much better idea of who might be

interested in ham radio, what their motivations are for becoming hams, and what they would like to do with ham radio. That can be translated in action, particularly as we learn to reach out in a different way to prospective hams. An example of this appears in CEO Howard Michel's column in the February issue of QST. I encourage you to read — or re-read — that column. Howard imagines a grid where we can calculate our interests between using new technology and existing technology, and between hobby and public service. And each of us fit in various places along those scales. If we, as individuals and clubs, as well as the ARRL as an organization, can better appeal to newcomers by how they fit that grid, we can help them achieve their goals, and keep them interested in ham radio through the years.

ARRL will be making new efforts to keep all of us interested, by improving training materials. Just as technology keeps evolving, ham radio does too, and keeping up with the latest interests might be something we all want to do. Watch for new learning programs, and new ways of presenting the information that we need.

As for reaching out, on the local level, please keep holding those license classes. Remember that not everyone looking for a license has the same expectations of ham radio as you do. Young people in particular are drawn to technical and scientific aspects that many of us are not. Other people are really drawn by the opportunity to serve their communities. We need to be more aware of all the facets of ham radio, and demonstrate ones that are of most interest to the people we reach out to. And be sure to welcome everyone to the hobby, encourage them in their interests, and help them get started.

-- 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/>

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. If you plan to request ARRL Sanctioning, please be sure to do it well in advance of your Hamfest date, as this allows adequate time for QST Listings. Be sure to invite your ARRL Officials as soon as your date is set. With 52 weeks and 65+ hamfests, things do double up a little. Plan ahead for requesting your ARRL Officials to attend.

2/2/19	HARA Swap	Negaunee, MI
2/8/19	Cherryland Swap	Traverse City, MI
2/17/19	Livonia Hamfest	Livonia, MI
2/17/19	Mansfield Hamfest	Mansfield, OH
3/2/19	Cave City Hamfest	Cave City, KY
3/3/19	NOARS Winter Fest	Elyria, OH
3/16/19	Gallipolis	Gallipolis, OH
3/17/19	TMRA Hamfest	Perrysburg, OH

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

73, Let's go light up the bands!

Dale Williams WA8EFK
Director
Great Lakes Division
wa8efk@arrl.org



ARRL PROPAGATION BULLETIN

ZCZC AP06
 QST de W1AW
 Propagation Forecast Bulletin 6 ARLP006
 From Tad Cook, K7RA
 Seattle, WA February 8, 2019
 To all radio amateurs

Solar wind pushed geomagnetic indicators higher last week (on February 1-2), and average planetary A index rose from 7 (for the seven days ending January 30) to 11.6 on January 31 through February 6.

When geomagnetic conditions are active, we usually see higher indices at high latitudes. Alaska's College A index (measured at a magnetometer near Fairbanks) was 40 on February 1, indicating disturbed conditions for the higher latitudes, with a great deal of absorption rather than reflection of HF radio waves.

There were no sunspots recorded over this period, so average daily sunspot numbers plunged from 19.6 to 0.

Average daily solar flux declined from 74.5 to 71.1.

Predicted solar flux for the next 45 days is 70 on February 8-15, 72 on February 16-25, 71 on February 26 through March

11, and 72 on March 12-24.

These are actually pretty good numbers for the bottom of the solar cycle. Notice there are no predicted flux values below 70.

Predicted planetary A index is 15, 12 and 8 on February 8-10, 5 on February 11-18, then 12, 20, 12 and 8 on February 19-22, 5 on February 23-26, then 12 on February 27, 15 on February 28 and March 1, then 10, 8, 12 and 8 on March 2-5, 5 on March 6-17, then 12, 20, 12 and 8 on March 18-21, and 5 on March 22-24.

Geomagnetic activity forecast for the period February 8 through March 5, 2019 from F.K. Janda. OK1HH.

"Geomagnetic field will be:

Quiet on February 24-26

Quiet to unsettled on February 9, 11, 14, 18, 27, March 4

Quiet to active on February 12-13, 15-17, 23, March 5

Unsettled to active on February 8, 10, 20, 22, March 1-3

Active to disturbed on February 19, 21, 28

"Solar wind will intensify on February (19,) 20-21, (22, 28), March 1-4, 6.

"Parenthesis means lower probability of activity enhancement." If you are using any propagation prediction program

such as W6ELprop, you will want to use the predicted smoothed sunspot number (which as of February 4) is 8 for February and March 2019, 7 for April and May, and 6 for June through August.

These predicted smoothed sunspot numbers are updated on the first Monday of each month as part of the weekly reports at, <ftp://ftp.swpc.noaa.gov/pub/warehouse/2018/WeeklyPDF/>. You can find the predicted smoothed sunspot and solar flux numbers toward the end of each report, on pages 10 and 11 of the current issue.

Note the problematic predicted numbers which first appeared a month ago have still not been corrected. This is probably affected by the recent federal government shutdown.

This February 1 report is from Ken Brown, N4SO of Grand Bay, Alabama using FT8:

"40 meters has been very good with this sampling of DX call signs:

"A45XR Oman, 9K2HQ Kuwait, A65BR United Arab Emirates, YT1TX Serbia, FK8CB New Caledonia, YD7JLI Indonesia, TF5B Iceland, R9YM Asiatic Russia, UA9UR Russia, TA1OSN Turkey, and E74BYZ Bosnia and Herzegovina.

"A full list would be very long."

Report from Mike Schaffer, KA3JAW in Easton, Pennsylvania:

"While monitoring the 11-meter citizen band on Tuesday, January 15, 2019 from 10:55 pm EST (0355 UTC Jan. 16th) I started to hear long distance mobile stations travelling along west bound on Interstate 10 highway from Tallahassee to Pensacola, Florida via sporadic-E.

"Kind of odd for the Es to be extended up until this hour. Most of the time it will drop out around 9:30 pm local time. Solar Flux Index was reported at 70. The geomagnetic field was quiet.

"On Thursday, January 17 (0350 UTC January 18th) was hearing stations from Tallahassee to Sarasota, Florida. Solar Flux Index was reported at 69. The geomagnetic field was quiet.

"The next night there was no 11M Es heard from any direction as a Northeast Winter polar vortex storm was moving eastward from the Midwest that was being strengthened by the Arctic air blast from Canada.

"On Saturday January 26 late evening I noted the Australian Jindalee Operational Radar Network (JORN), Over-the-Horizon Backscatter Radar (Longreach) transmitter emitting 560kW ERP in Queensland, Australia.

Could be testing their upgraded electronics, signal processing to boost radar coverage and detection capabilities using slower scan rates to detect smaller aircraft, ships, missile launches, low-earth satellites passing over the Coral Sea towards the North Pacific Ocean using digital FM-CW modulation.

"Operations were between 11 am to 12 pm Australian Eastern Standard Time. Signal strength ranged from faint to fair. Distance was 9,872 miles. The mid-point propagation distance was 4,936 miles, which put the ionospheric refracted footprint touching 300 plus miles northwest from Honolulu, Hawaii along the Gray-Line path while the solar flux rose to 77."

The latest from Dr. Tamitha Skov, WX6SWW:

"This year is already off to an amazing start. We have an ongoing solar storm that is bringing long-awaited aurora to many places in the world. I have seen aurora field reports as far south as Germany in Europe and Montana in the United States. In the south, aurora has graced the skies over Tasmania and New Zealand. Although these solar minimum storms pale by comparison to those just a few years ago, one thing is certain. This Space Weather community is growing."

"This storm has been reasonably weak, yet I have seen a flood of aurora photos, along with numerous amateur radio reports, and even several GPS questions from many new names and faces. I must say, this is a welcome surprise-- and I have YOU to thank for it. The word is definitely getting out!

"As for the forecast this week, we still have a sleepy Sun for the most part. The current solar storm will slowly wane over the next few days, which could bring us some pulsating aurora and sub-auroral arcs (aka STEVE) before it's gone. But soon thereafter the weather will turn quiet again. I will take this quiet time to ponder a next-generation forecast and lean optimistically into the promise tomorrow brings."

Here is Dr. Skov's latest video: <https://youtu.be/bDPdyxfNWdA>.

If you would like to make a comment or have a tip for our readers, email the author at, 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/w1aw-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 January 31 through February 6, 2019 were 0, 0, 0, 0, 0, 0, and 0, with a mean of 0. 10.7 cm flux was 72.1, 72.1, 70.9, 71.1, 70.7, 70.6, and 70, with a mean of 71.1. Estimated planetary A indices were 14, 17, 17, 11, 7, 5, and 10, with a mean of 11.6. Estimated mid-latitude A indices were 12, 10, 11, 8, 5, 3, and 7, with a mean of 8.

NNNN

ARRL DX NEWS

ZCZC AE06
QST de W1AW
DX Bulletin 6 ARLD006
From ARRL Headquarters
Newington CT February 7, 2019
To all radio amateurs

This week's bulletin was made possible with information provided by AA4NC, CO3JK, F8DVD, KD7WPJ, PP2BT, The Daily DX, 425 DX News, DXNL, Contest Corral from QST and the ARRL Contest Calendar and WA7BNM web sites. Thanks to all.

BAHAMAS, C6. Operators KN4EEI, N6MZ and AA7JV are QRV as C6AGU from Water Cay, IOTA NA-001, until February 18. Activity is mainly on 160, 80 and 40 meters using mostly CW and FT8. QSL via HA7RY.

CUBA, CO. Members of the Mayabeque Contest Group will be QRV as T43MY from Mayabeque in the CQ World Wide RTTY WPX contest. QSL via CO3JK.

FRANCE, F. Special event station TM16AAW will be QRV from February 10 to 24 from Macon during the 16th Antarctic Activity Week. Activity will be on 40 to 10 meters using mostly SSB. QSL via F8DVD.

FRENCH GUIANA, FY. Armin, DK9PY is QRV as FY/DK9PY until February 17. Activity is on the HF bands. This includes being an entry in the upcoming ARRL International DX CW contest. QSL to home call.

DOMINICA, J7. David, KK4WW and Gaynell, KK4WWW will be QRV as

J79WW, J79WWW, and J79USA, respectively, from February 12 to 19. Activity will be holiday style on 160 to 10 meters using CW, SSB and various digital modes. QSL via N4USA.

SVALBARD, JW. Jon, LA1QH is QRV as JW1QH from Spitsbergen, IOTA EU-026, until February 11. Activity is on 80 and 20 meters using only SSB. QSL to home call.

FINLAND, OH. A group of operators are QRV as OH10X from Inakari Island, IOTA EU-192, a new IOTA, until February 11. Activity is on 80 to 15 meters using CW and SSB with two stations active. QSL via PG5M.

GREENLAND, OX. Nils, SM3UQK will be QRV as OX/SE3A from Ilulissat from February 9 to 21. Activity will be on 40 and 20 meters as a portable station. QSL to home call.

BONAIRE, PJ4. Fred, WW4LL and Michael, NN9DD are QRV as PJ4/home calls until February 10. Activity is on the HF bands using SSB, RTTY and FT8. They will be QRV as PJ4Z in the CQ World Wide WPX RTTY contest. QSL via K4BAI.

SABA, ST. EUSTATIUS, PJ5/6. Fred, N6YEU will be QRV as PJ5/N6YEU from St. Eustatius, IOTA NA-145, from February 11 to 19. Activity will be on 40 to 15 meters using CW and SSB. This includes being an entry in the upcoming ARRL International DX CW contest. QSL to home call.

FERNANDO DE NORONHA, PY0F. A group of operators will be QRV as PY0F from February 13 to 18. Activity will be mainly on the low bands using CW, SSB and FT8. QSL direct to PY7RP.

UKRAINE, UR. Special event station EM16UAP is QRV until February 28 to commemorate the Academic Vernadsky Ukrainian Antarctic station. QSL via UT1KY.

MACAO, XX9. A large group of operators will be QRV as XX9D from February 11 to 26. Activity will be on 160 to 6 meters using CW, SSB, RTTY and FT8 with several stations active. QSL via DL4SVA.

EL SALVADOR, YS. Will, AA4NC will be QRV as YS1/AA4NC from San Salvador from February 13 to 20. Activity will be all HF bands using CW, SSB, RTTY and possibly FT8. This includes being an entry in the upcoming ARRL International DX CW contest as a Single Op/All Band entry. QSL to home call.

THIS WEEKEND ON THE RADIO. The CQ World Wide RTTY WPX Contest, NCCC RTTY Sprint, QRP 80-Meter CW Fox Hunt, NCCC Sprint CW Ladder, SARL Field Day Contest, Asia-Pacific Spring CW Sprint, SKCC Weekend CW Sprintathon, KCJ Topband CW Contest, Dutch PACC Contest, YLRL YL-OM Contest, OMISS SSB QSO Party, FISTS Winter Unlimited CW Sprint, RSGB 1.8 MHz CW Contest and the Balkan HF Contest will certainly keep

contesters busy this upcoming weekend.

The ARRL School Club Roundup runs from February 11 to 15.

The 4 States QRP Group Second Sunday Sprint and CQC Winter CW QSO Party are scheduled for February 11.

The CWops Mini-CWT Test, RSGB 80-Meter Club Data Championship, QRP 40-Meter CW Fox Hunt, Phone Fray and NAQCC CW Sprint are scheduled for February 13.

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 February 2019 QST, page 91, 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....

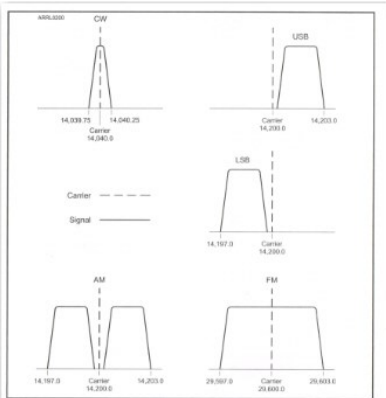


Figure E1A01 — An illustration of the relationship between carrier frequency and the actual signal sidebands. Most transceivers are configured to display the carrier frequency and not the frequency of the sidebands so the amateur needs to take care to keep all of the signal in the band.

E1A03

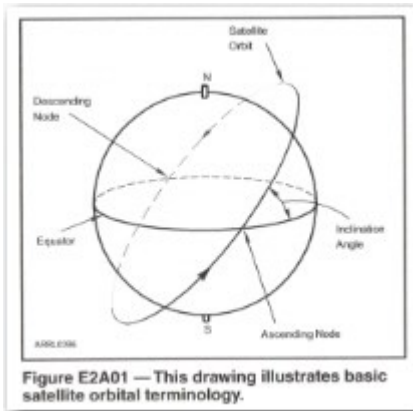


Figure E2A01 — This drawing illustrates basic satellite orbital terminology.

E2A03

T1A07 What is the FCC Part 97 definition of a space station?

- A. Any satellite orbiting the earth
- B. A manned satellite orbiting the earth
- C. An amateur station located more than 50 km above the Earth's surface
- D. An amateur station using amateur radio satellites for relay of signals

T2A07 What is meant by repeater offset?

- A. The difference between a repeater's transmit frequency and its receive frequency
- B. The repeater has a time delay to prevent interference
- C. The repeater station identification is done on a separate frequency
- D. The number of simultaneous transmit frequencies used by a repeater

T3A07 What type of wave carries radio signals between transmitting and receiving stations?

- A. Electromagnetic
- B. Electrostatic
- C. Surface acoustic
- D. Ferromagnetic

G1A07 Which of the following frequencies is within the General Class portion of the 20 meter phone band?

- A. 14005 kHz
- B. 14105 kHz
- C. 14305 kHz
- D. 14405 kHz

G2A07 Which of the following statements is true of the single sideband voice mode?

- Only one sideband and the carrier are transmitted; the other sideband is suppressed
- Only one sideband is transmitted; the other sideband and carrier are suppressed
- SSB is the only voice mode that is authorized on the 20 meter, 15 meter, and 10 meter amateur bands
- SSB is the only voice mode that is authorized on the 160 meter, 75 meter and 40 meter amateur bands

G3A07 At what point in the solar cycle does the 20 meter band usually support worldwide propagation during daylight hours?

- A. At the summer solstice
- B. Only at the maximum point of the solar cycle
- C. Only at the minimum point of the solar cycle
- D. At any point in the solar cycle

E1A07 Which amateur band requires transmission on specific channels rather than on a range of frequencies?

- A. 12 meter band
- B. 17 meter band
- C. 30 meter band
- D. 60 meter band

E2A07 Which of the following types of signals can be relayed through a linear transponder?

- A. FM and CW
- B. SSB and SSTV
- C. PSK and Packet
- D. All of these choices are correct

E3A07 Atmospheric ducts capable of propagating microwave signals often form over what geographic feature?

- A. Mountain ranges
- B. Forests
- C. Bodies of water
- D. Urban areas



ANSWERS

- T1A07: C: [97.3(a)(41)] The definition is for an amateur station operating in space, not the more common name of the International Space Station (ISS). There is an amateur station on ISS, so there is a space station operating on the space station.
- T2A07: A: The difference between repeater input and output frequencies is called the repeater's offset or shift.
- T3A07: A
- G1A07: C: [97.301(d)] General Class licensees have access to the following portions of the 2 meter band ($f=300/20 = 15 \text{ MHz}$): 14.025 – 14.150 MHz on CW/RTTY/Data and from 14.225 – 14.350 MHz on CW/Phone/Image
- G2A07: B: Single sideband (SSB) voice transmissions are identified by which sideband is used. If the sideband with the frequency lower than the RF carrier frequency is used, then the signal is a lower sideband (LSB) transmission. If the sideband with a frequency higher than the RF carrier frequency is used, then the signal is an upper sideband (USB) transmission. In both cases the opposite sideband is suppressed. Amateurs normally use lower sideband on the 160, 75/80, and 40 meter bands, and upper sideband on the 20, 17, 15, 12, and 10 meter bands. This is not a requirement of the FCC Rules in Part 97, though. It is simply by common agreement. FCC rules do, require amateurs to use USB on the five channels of the 60 meter band.
- G3A07: D: Even at the minimum point of the solar cycle, world-wide propagation is usually possible on the 20 meter band. As solar activity increases, the band will remain open for longer periods and with stronger signal strengths. For this reason 20 meters is a favorite band for DXers.
- E1A07: D: [97.303(h)] Operation on 60 meters is restricted to five 2.8 kHz wide channels centered on 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz, and 5405 kHz with USB, data, and CW signals. This secondary allocation to amateurs is restricted in order to maintain compatibility with non-amateur stations who are the primary users of the band.
- E2A07: D: By convention, transponder is the name given to a linear translator that is installed in a satellite. It is somewhat like a repeater in that both devices receive signals and retransmit them. A repeater does that for signals of a single mode on a single frequency. By contrast, a transponder's receive pass-band includes enough spectrum for many channels. The satellite translates (or converts the frequency of) all signals in its passband – regardless of mode – and amplifies them and retransmits them in the new frequency range.

LINKS AND STUFF

Under re-construction. Watch for the orange barrels

Delta County Amateur Radio
Escanaba, MI
www.dcars.org

Copper Country Radio Amateur
Dollar Bay, MI
www.ccras.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**
 146.850
 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

Vice President

Scott Jarmusch, KA8TFF

Secretary:

Joe Ferris, KC9TQR
irferris@borderlandnet.net

Treasurer:

Debbie Garbowski, KD8VTS
(906) 284-2450
kd8vts@gmail.com

Editor:

Tom Heyboer, KC8TH
(906) 779-0481
Heyboer.tom@gmail.com

Web Editor:

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

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.