



The Scope

Central Michigan Amateur Radio Club

Lansing Civil Defense Repeater Association

April 2016
Volume 16
Issue 4



April CMARC Meeting

Our speaker for April will be Mr. John Imeson/N8JI, President of the Lansing Civil Defense Repeater Association (LCDRA). John will discuss the existing status as well as future plans for our Lansing area repeaters. If you've ever wondered just what it takes to keep these repeaters functioning, ask John, as he is the "Go To" person for anything repeater-related in the Lansing area. John can also answer questions about LCDRA: what it is, what it does, and what YOU can do to help.

This will be a great opportunity for those newly licensed, or those who do not use the Lansing area repeaters regularly, to ask questions, and learn about the repeater system. We are honored to have such a great guest, so come on out and join us for a very interesting and informative meeting! Oh, and don't forget about the good eats we have for you during the break! Speaking of eats, please consider bringing a dish to offer to our club members and guests.

**When: CMARC Monthly Meeting,
7:00 pm, Friday, April 8, 2016**

**Where: Salvation Army South Corp
701 W. Jolly Rd, Lansing MI 48910**

For more information, you can check out our website at www.centralmiarc.com or get a hold of Club contact Don McLain/KB8RAD at (517) 694-0812 or KB8RAD@arrl.net.



Inside This Issue

Birthdays, Anniversaries,		Dan Romanchek/KB6NU	9
Treasurer's Report	2	Don Keith/N4KC	10-15
Ladies Night	3	DX Corner	16-18
Ladies Page	4	Meeting Minutes	19-22
CMARC Food Drive	5	CMARC Classifieds	23
Mo'Power	6	Exam Questions	24
What's My Sign	7-8	Net Info & Officers	25
Michigan QSO Party	8		

April Birthdays

4/2 Ben Barker / WD8OVL
 4/7 Jim Hannahs / KC8QWH
 4/7 Ken Kruger / W8AAX
 4/9 Erv Bates / W8ERV
 4/12 Alan Shaw / WB8YOX
 4/14 Ericka Kahler / KD8KJU
 4/22 Dan Fuller / W8VVR
 4/27 Sharon Waite / KD8HHK
 4/28 Matt McCormick / KE8CRV

April Anniversaries

4/2 Bob / K8RDN and Ann Berger
 4/9 Brian Wellwood / KD8ONC

Upcoming Meetings

ARPSC



The ARPSC meeting for the month of April is at 7:00pm on Monday, **April 18th**. We will be meeting at Ingham County Sheriff's Department off Curtis Road in Mason - Sgt. Cole Training Room. For information

about the ARPSC please check out our website at www.lansingarpesc.com

VE Exam Session

Lansing, MI

Date: **4/7/16**
 Time: 7:00 PM (Walk-ins allowed)
 Sponsor: Ingham County VE Group
 Contact: Don McLain / KB8RAD
 (517) 694-0812
 Email: KB8RADon@aol.com
 Location: Lansing Fire Station #44
 Community Room
 1435 E Miller Rd
 Lansing MI 48911-5322

Treasurer's Report 2016

John Doornhaag / KD8NNQ - CMARC Treasurer

Bank Balances for March	
Beginning Balance	\$4,710.29
Total Income for February	\$82.50
Total Expenditures thru Feb 20	(\$119.06)
Total Business Checking	\$4,673.73
Petty Cash	\$41.00
Sub Total	\$4,714.73
Primary Share Accounts	
Humphrey's Fund	\$1,092.56
Building Fund (Club Station)	\$9.09
Field Day	\$472.71
Total Net Worth	\$6,289.09
Youth Fund Balance*	\$253.74
* Separate from CMARC Funds	

**Happy 50th Anniversary to
Bob and Ann Berger!**

That is quite a milestone!

**We wish both of you many more
to come!**



Ladies Night/Ziegenbein Award Banquet

WHO: *All CMARC's Members, their Families
and Friends are invited to attend!!*

WHAT: *CMARC's Annual Ladies Night & Ziegenbein Award Banquet*

WHEN: *Friday, May 13, 2016 – 5:30pm to about 8:30pm
Please be seated by 6pm Sharp!!*

WHERE: *Delhi Café, 4625 Willoughby Rd. in Holt*

WHY: *To Honor our Ladies, Present the Ziegenbein Award, and Enjoy Good
Food, Great Fellowship and Fantastic Entertainment by JOHN KELLY AA8LF!!*

-----Cut Here-----

Reservations/Orders **MUST** be turned in by **Monday, May 2nd!!** **SEND ORDERS ONLY, DO NOT
SEND MONEY!!** You pay Delhi Café for your bill & your tip the night of the Banquet!!

To RSVP: Call Julie McLain/KB8ZXR at: (517) 694-0812, Email me at: KB8ZXR@aol.com,
or Snail Mail me at: 4444 Sycamore St., Apt. 1; Holt, MI 48842

Name & Callsign _____ Ph. # _____

Wife's Name & Callsign _____

Guest's Name & Callsign _____

Guest's Name & Callsign _____

TO ORDER: Please choose an Entrée for each person attending with you, by writing the
number of meals requested, on the line in front of the Entrée you've selected. (Example: If two
of you want Chicken Western put a number "2" on the line in front of that Entrée to show you
want to order "2 Chicken Western meals".)

OUR ENTRÉE CHOICES ARE: (All dinners INCLUDE coffee or tea. Tax and tip are NOT
included.)

- _____ 1.) Chicken Western served w/rice and salad - \$14.70
- _____ 2.) House Sizzler served w/baked potato and salad - \$15.00
- _____ 3.) Broiled Cod served w/baked potato and salad - \$14.70
- _____ 4.) Swiss Steak served w/mashed potato and salad - \$14.70
- _____ 5.) Veggie Stir Fry served over rice and salad - \$14.00
- _____ 6.) Off The Menu - special diets

CHILDREN'S MENU: (under 12) - (Tax and tip NOT included)

- _____ 1.) Grilled cheese with fries and drink - \$5.00
- _____ 2.) Chicken Fingers with fries and drink - \$5.00



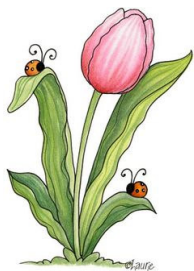
APRIL TEA TIME LADIES' DAYS

April 2nd – Ann & Bob/K8RDN Berger's 50th Anniversary!

April 14th – Ericka Kahler/KD8KJU's Birthday!

April 27th – Sharon Waite/KD8HHK's Birthday!

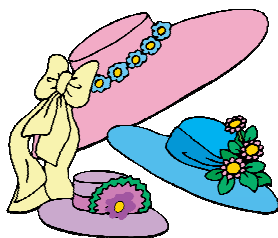
APRIL LADIES TEA TIME LUNCHEON



Please be sure to join us for our next “Ladies Tea Time Luncheon” on Saturday, April 23rd at 12:30pm! This time we will be going to the Cracker Barrel Old Country Store located at 608 Commercial Drive in Lansing (Near I-96 and W. Saginaw, exit 93B, out by Wal-Mart as you go towards Grand Ledge). This invitation is for ALL Ladies, whether you have a Ham license or not!! So, come on out and join us...we always have a great time getting together with our friends! Please RSVP by Friday, April 22nd so I can know how many are coming, and we can all sit together. 73, Julie McLain KB8ZXR (KB8ZXR@aol.com or 517.694.0812)



LADIES TEA TIME NET!



Please join me every Tuesday evening at 7 pm on the 145.39 (100 Hz PL) Lansing-area repeater for the “Ladies Tea Time Net”. The Net can also be accessed via the EchoLink *DODROPIN* Conference Server (Node ID# 355800). The main goal of this Net is to get our Lady Hams out on the air each week, having fun as they visit together. And for those Ladies without a Ham license...you can still check in “Third Party”, as long as your licensed husband or friend checks in first. Remember, we always look forward to having our Gentlemen join us for a fun time, too, right AFTER the “Ladies Only” portion of the Net!! So, pour yourself a cup of hot tea, key up the mic and join me for the “Ladies Tea Time Net”. I'll be listening for you!!

~Julie McLain, KB8ZXR~
Ladies Tea Time Net Control
(517) 694-0812 or KB8ZXR@aol.com
www.centralmiarc.com



APRIL 2016 CMARC FOOD DRIVE FOR SALVATION ARMY PANTRY

As most of you know, the Salvation Army South Corps. has been CMARC's Home since 2010 and we have been blessed with not only a great room for our meetings and a really nice kitchen, but also with a really fantastic room for our Ham Shack. To show the Salvation Army our gratitude and to help the community, we voted to collect food donations two times a year – March/April and again in September/October. Therefore, we will be collecting your food contributions through the month of April. You will be able to bring your donations to our April 8th CMARC meeting or if you can't attend on the 8th, Don KB8RAD and I will accept your donations when you attend RAD's Coffee Break on Saturday nights. We will also be at the LCDRA Meeting on Thursday, April 21st and will accept your donations there, as well.

Not only does the Salvation Army provide meals, but they also help the needy with food and personal items they have need of. We will have a big barrel in the Club Room for all your contributions. Last year, at our October/November Food Drive YOU donated 636 pounds of food and personal items!! What a GREAT job!! I'm so proud of all of you!!

PLEASE BRING ANY NON-PERISHABLE FOOD ITEMS SUCH AS THOSE LISTED BELOW:

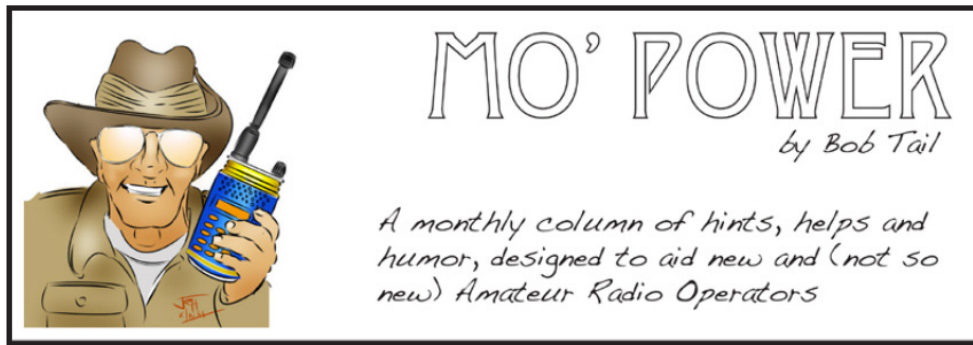
- | | | |
|-------------------|--------------------|-------------------------------------|
| • Canned Beans | • Dry Beans | • Jelly |
| • Canned meat | • Dry Pasta | • Instant Mashed Potatoes |
| • Canned Soups | • Dry Dinner Sides | • Baby Food |
| • Canned Tomatoes | • Dry Rice | • Baby Formula (canned or powdered) |
| • Canned Potatoes | • Spaghetti Sauce | |
| • Canned Veggies | • Cereal | |
| • Canned Fruits | • Peanut butter | |

THEY ARE ALSO IN NEED OF THE FOLLOWING PERSONAL HYGIENE ITEMS:

- | | |
|-----------------|---|
| • Tooth Brushes | • Feminine Hygiene items (individually wrapped) |
| • Tooth Paste | • Wash Cloths |
| • Diapers | • Socks & Underwear (Can be bought at the Dollar Stores.) |
| • Baby Wipes | • Used clean & in good condition clothing |
| • Hand Soap | |
| • Shampoo | |
| • Deodorant | |

Please be sure to PRINT THIS OFF and take it with you when you're shopping so you'll be able to remember exactly what their needs are.

Thank you and 73,
Julie McLain KB8ZXR
CMARC President
(517) 694-0812
KB8ZXR@AOL.com
www.centralmiarc.com



Mo' Power #18

G'Day Mates! Just returned home from the hammy club meeting and it got me to thinking. There were several members lamenting to each other about the frustrations they have had with "this antenna or that antenna". Because they had a "terrible time" matching this, erecting that, or pruning the aerial, they elected to "give up". "Too much effort, I'll just put up my old vertical, or dipole", was the solution. When Ned offered up a couple good suggestions, the words fell upon deaf ears. The group had already made up their minds that Multi-band Quads, trap dipoles, Sterba curtains and many other aerals were not worth the work involved with the project.

What in blazes ever happened to perseverance, experimentation, and determination?

Good thing ol Ned Novice and Nil Current were there or I may have "gone off" untactfully with the lot of 'em. Rather than embarrass some of the gang, I took Ned and Nil aside later and gave them some sage advice. I said, "Many of these more complex aerals are that way because they allow many good and worthwhile things to happen with your transmitted signal."

I told them of a recent "trial of me own" with an aerial that tested both my patience and vitality. This last winter my trusty dipole succumbed to the elements, and came down. It had been up there for nearly 2 decades. Providing me with reliable radio service. But alas, now broken. I began to ponder of a good replacement. The dipole had been for 40 metres. But for a while now I have wanted to have something up there for 80 metres also. Many years ago, a chap sold me a Trap Dipole kit for "a song". However, with all the other antenna projects I had in the works, I never got around to using it. So I pulled it out of the bag, took a good look, and said "Why not". The 1st thing of difficulty that I noticed was the "copper clad steel" wire. Very strong, but very unforgiving to the entanglements. 2nd thing was multiple "fan" style elements. I finally got all

the elements spread out on the ground under the tower. "I'll just attach the feed line and hook up the center insulator to the pulley, and hoist 'er on up." Every time I got it about 5 metres up, it wanted to tangle. I put ropes on the ends to provide tension up the way up. This seemed to work better. Keeping the elements taught kept them from entangling each other. After finally achieving a good height, I was anxious to try the new "skyhook". Anticipation turned to disappointment when I saw the VSWR curves. 20 and 80 were "on walk about!" So back down she comes to add a bit o wire here and a trim there, n back up she goes. Well now..... seems this 'ol gal was a going to get the better of me yet! As soon as I'd get 20 metres OK, then 80 would be whacky. It was about to drive me up the tree, when I put it on hold. Yep! Set it all down, stepped back a tippy toe, and took a break until next morning. Sometimes just waiting on the new day will give you a better prospective. With a bit more tuning and trimming, I hoisted the aerial up one last time. A quick run into the "shack" confirmed what I had been laboring towards. She was taking all the power nicely! A good match on all the implemented bands! This just goes to show that persistence pays off. The kids both agreed. They both, had already had a few "run in's" with the antenna's ever alluring call, and the tribulations that accompany doing "something better" than the rest.

"The ends justify the means". If you want "More" you have to "pay the piper". For those swayed to "get off the fence", a quick read through the pages of the RSGB handbook or the ARRL antenna book will navigate you in the right direction.

Remember a dingo can't always catch a hare on his 1st or even 2nd attempt. His hunger drives him to hunt, until success feeds him.

Do something better this year. Dare to try. Great satisfaction comes from overcoming difficult obstacles. That new aerial awaits construction. Go surf the waves! •

73, Bob Tail

Extra, Extra! Read All About It!

By Julie McLain/KB8ZXR



Have you ever wished you knew more about the Ham who sat near you at the last CMARC meeting—you had a nice visit, but it wasn't long enough, or how about the one you recently heard on the air? There may even be a Ham you talk to regularly, but don't know anything about. Maybe you've wondered who the Hams

were that started the Central Michigan Amateur Radio Club, or who some of the early members were...the "Life" members that have retired and moved away? Well, be sure to read the article "What's My Sign?" which has been featured in the "SCOPE" since early 2007! "What's My Sign?" is loosely patterned after the old game show "What's My Line?" and is designed to better acquaint you with your fellow Club members. And...As I always say, no peeking ahead to find out who the article's about--that's cheating!!

What's My Sign?

By Julie McLain/KB8ZXR

I was born in Ionia, Michigan on June 2, 1977. My father worked at General Motors for 30 years and is now enjoying his retirement. My Mom passed away in 1999, but when she was alive, she worked as a Social Worker for the State of Michigan. She is credited with founding "CRYSYS Pregnancy Services of Ionia County". It is now known as "PSIC" (Positive Solutions Informed Choices) and still uses the same logo my Mom used for "CRYSYS". I have 2 younger brothers and an older half sister. My half sister's name is Violet. My brothers are David, the middle brother, who lives in Lyons, and Jeff, who lives with me in East Lansing. Some of my best memories of growing up were at my grandparent's cottage in Barryton, Michigan in the Martini Hills Colony. I spent hours and hours swimming and fishing as well as roasting marshmallows. I also remember sharing living quarters with 30 to 40 family members on some holidays, it was tight, but boy did we have fun!! I was also into fixing up anything with a motor and I spent a lot of time riding motorcycles, lawn mowers, and snowmobiles that I'd fixed up first, of course!

I never attended college, but I love to learn and am mostly self-taught. I've learned a lot about computers and I like helping people, so if they have a computer problem, I'm usually able to fix it for them. Sometimes I'm so busy working on computers, it could be considered a full-time job, but I really enjoy it. I also love helping my Ham friends with things they need help with. Some of my other hobbies

are working on electronics, especially RC models, when I have time, as well as, playing on computers. I also love reading a good book from time to time.

I first became interested in radio when I was a boy around 12 years old. My father had some stuff left from his 1970 CB days, and I really liked an antenna he had called a Star Duster. One year for my birthday he gave me that antenna, hooked it up for me, and helped me get a CB radio. He put one in his truck and after trying loads of different antenna configurations we were finally able to talk back and forth when he was on his way to GM from Lyons. Eventually, we got to the point where we could talk all the way with no problems. That's what really hooked me on radio, taking my father into work, and also talking to a couple of local farmers in the early A.M. hours. I also had a neighbor who was a Ham Radio operator and watching him as he talked always fascinated me.

I didn't actually get a Ham license until much later in life. In fact, it was in early 2015, after passing my exam given by the "Ingham County VE Group" at Lansing Fire Station #44 that I received my Technician License. I upgraded to General later on that year in Owosso and then on Saturday, March 2016 I upgraded to Extra Class!! I don't really have a favorite band frequency, I love it all. From talking to locals on 2-meter repeaters and simplex, to firing up my HF radio and working people on SSB (single side band) as well as JT65 (Digital Mode for High Frequency Weak

Continued on Page 8

What's My Sign *Cont'd*

Signal Communications) and SSTV (slow scan TV). If I had to pick a favorite mode, I would have to say I love the Digital Modes – SSTV and JT65 really amaze me. One of my favorite contacts was to a couple of stations in Russia and one in Australia on 1 watt with a 21-foot long wire antenna. I don't have any experience with CW, but it's fascinating and I hope to one day soon learn Morse Code. I'm super interested in Slow Scan and I think it's an amazing asset that may one day be used to save lives.

My current shack consists of a Yaesu FT-1000MP HF rig and a Yaesu FT1xd dual-band 2-meter/70-cm HT with C4FM digital and WIRES. For antennas, I have used many on 2-meter and 440 like J-poles, Beams, etc. For HF I have a hard time because of apartment restrictions, so I use a long wire antenna. I also have various computers for the digital modes. So far, my favorite Ham event is Field Day, I love the fact that we all get together, set up all sorts of antennas, and just have a great time. I'm currently a member of the Central Michigan Amateur Radio Club and will also become a member of the Lansing Civil Defense Repeater Association in the future.

When Julie asked if I had any words of wisdom that I'd like to share I said, "Don't touch things that are hot or full of RF!! LOL I really enjoy CMARC, because to me, it feels

like an extended family and I know that if I ever need help, my fellow Hams will be there! :)"

There, now that we have become a little better acquainted, "What's My Sign?" My Callsign is K8CPT and my name is Clyde Tompkins. The same day I upgraded to Extra Class, my brother Jeff passed his Technician, and is now KE8DNI. I want to thank everyone for taking the time to read my little story. I would also like to extend my help to any new or older Hams that need help in any of the digital modes or with computer-related issues. You can reach me by email at K8CPT@qsl.net •

[JULIE'S NOTE: If you're interested in volunteering to be included in my column "What's My Sign?" or if you have a suggestion for someone else, please let me know so I can email the "WMS? Questionnaire" (in Word format .doc). All you have to do is download the attached Questionnaire, type your info right on the questionnaire, filling it out with as much info as you can, then attach your completed form to the email you send back to me. Please answer as completely as you can so I have enough info to work with when I make it into the story you read each month, and then send your completed questionnaire to me at KB8ZXR@aol.com]

2016 Michigan QSO Party

Once again this year, we are going to activate our club station W8PLP on April 16th. The event runs from Noon until Midnight. Typically we run as long as we feel we can.

We will place an order for some pizza and breadsticks for the guys who want to stay through dinner time.

If you are interested in joining us, please see me at the club meeting on April 8th.

More information can be found on the flyer at the end of the Scope.

73, Chris Ranes/NS8Q



Why You Should Get Your Extra Class License

By Dan Romanchik, KB6NU

Dan, KB6NU is the author of the “No Nonsense” line of amateur radio license study guides, a prolific blogger (www.kb6nu.com), and an active CW operator in the Extra Class portion of the HF bands. If you have any comments, questions, compliments, or complaints, email him at cwgeek@kb6nu.com.



The Amateur Extra Class license is the highest class of license in the United States, and perhaps the world. Many hams—even hams that live outside the U.S.—aspire to pass the test and be awarded one.

There wasn't always an Amateur Extra Class license. The Extra class license, as we know it today, was created as part of the 1951 license restructuring, that also created the Novice and Technician Class licenses. (In 1951, the Novice license was the “beginner's license.” To get a Technician Class license, you had to pass the written test that General Class operators had to pass.)

Although it gave an operator no additional privileges, to get an Extra Class license, one had to:

- * Pass a 20 wpm code test (Generals had to pass only a 13 wpm code test).
- * Pass a longer and more difficult written examination than the General Class exam.
- * Have at least two years of experience as a licensed radio amateur.

Today, without the code test and the experience requirement, many hams upgrade to Extra Class as soon as they can. Some even pass the Technician Class, General Class, and the Amateur Extra Class exams in a single test session.

So, what's the attraction? Why should you upgrade to Extra?

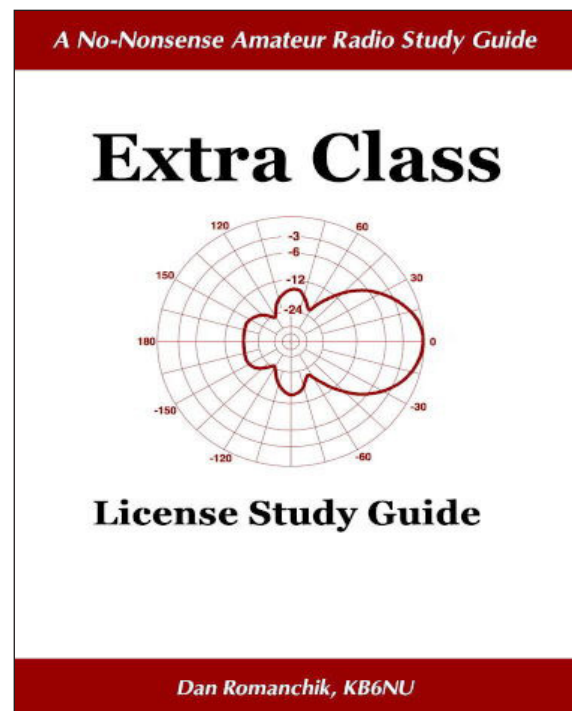
One of the reasons that you should upgrade to Extra is that you get use of the entire 80 m, 40 m, 20 m, and 15 m bands. Portions of those bands, such as 3.6 – 3.7 MHz in the 75m band and 14.150 – 14.175 Mhz in the 20m phone band, are reserved exclusively for Extra Class licensees. Extra Class operators also have exclusive privileges in the

CW portions of the 80 m, 40 m, 20 m, and 15 m bands. These are the frequencies where the DX stations hang out.

Another reason to get your Extra Class license is that only Extra Class licensees can administer General Class and Extra Class license exams. General Class operators can become Volunteer Examiners (VEs), but they are only allowed to administer Technician Class exams.

Another reason you might want to get an Extra Class license is to get a fancy vanity callsign. Only Extra Class operators can apply for 1×2 or 2×1 callsigns, such as W8RP or KT8K. A short, snappy callsign can help you work more DX or improve your contest scores.

Whatever your reason, studying for the Extra Class exam will open your eyes to many aspects of the hobby that you may not be familiar with. And, as you work your way through the material, you'll learn things that make you a better amateur radio operator and enable you to enjoy the hobby more. It's not easy, but in the end, an Extra Class license will help you have more fun with amateur radio. •



Band Scanning: A Tour of HF Ham Bands

By Don Keith, N4KC

Copyright by Don Keith N4KC, reprinted by permission. Don writes many articles on Amateur Radio, available at his web site, www.n4kc.com, or in his various books on our hobby. See www.donkeith.com for info on those or other books by N4KC.



Okay, those of you who typically flame articles posted here based only on the title, go ahead and flame, flame, flame. The rest of you, please hold your flamethrowers behind your back for a moment until I tell you why I felt called to compose this bit of personal observation.

Not everybody who reads these threads is as wise, experienced, or steeped in ham radio lore as you and I are. Despite dire warnings and that silly AOL piece about the imminent demise of the hobby, it still seems to be attracting newcomers at a good clip. And although many of you seem to expect it, not every one of them will know all there is to know the first day they apply RF to antenna. Many more are finding it in their hearts to upgrade to General Class, too, moving beyond line-of-sight to the realm of sky wave. It occurred to me that a primer on what to expect from each band—and a hint or two based on my own experience—might have some value for these folks.

If you have been licensed since spark gap, or if you know how to coax P5s and BT7s out of otherwise dead bands, this article is not for you. But, heck! Read through what I have to say anyway. It might just get you off that band where you've been molting since the end of WWII and you'll see what else the big, beautiful spectrum has to offer!

That being said, if you are new to HF, let me highly recommend that you listen. Listen! And then listen some more. If you do not get anything else out of this article, let that be it. Listening is a great way to learn the nature of the various bands as well as the customs among the natives that infest them.

Now, let's start our tour at the top (if we are talking wavelength)—the “Top Band”—or the “bottom” (if you are talking about frequency).

160m 1.8 to 2.0 MHz

An interesting bit of radio spectrum, this. You can pretty much forget it during daylight hours except for local communications of less than 25 miles or so. It is also quite a challenge in the summer in most places because of its susceptibility to atmospheric static. But when the weather cools, it can be a delightful band for both ragchewing and DX.

It has its technical challenges. A half-wave dipole should be about 270 feet long to be efficient here, and that is more space than many can muster. Other antenna types can do well here, and especially vertical radiators. After all, just below the 160 meter ham band is the commercial AM band. Every one of those guys use vertical antennas. But even a quarter-wave vertical needs to be about 135 feet tall unless you employ wizardry like coils and traps. Many swear by the inverted-L, which offers the advantages of both a vertical and horizontal radiator in far less space. I use a full-wavelength loop, which rings the backyard. It does well on paths out to 750 miles or so, and I have worked Europe many times with it, but it would need to be higher in the air for real DX.

You will find many long-established roundtable QSOs on this band. Some are friendly and welcoming to strangers who are bold enough to break in to their groups. Others will either ignore you or give you an earful that might hurt your precious feelings. I would suggest that you treat a roundtable or QSO on the air on any band much as you would a conversation on the street. See if they seem welcoming of interruption. If not, go somewhere else. There are myriad frequencies available. Don't interrupt the flow of the conversation, either. Wait for a lull. But don't be surprised if you are told to go play in traffic.

Note, too, that all legal modes of emission are allowed anywhere on this band. That means you could, if you wanted to, fire up on SSB at 1805.

Continued on Page 11

Band Scanning: A Tour of HF Bands *Cont'd*

Please don't. There is a long-accepted band plan in effect on each amateur band. Follow it. First, it prevents chaos. Secondly, it is the polite thing to do. And finally, you could probably bellow, "CQ," for hours on that frequency and not have anyone answer you since it is in the middle of the portion of the band for digital modes. Oh, a few guys might tell you where you can shove your microphone, and that certainly would confirm that your rig and antenna are working, but there are far better ways to accomplish that!

What is this "band plan" thing? You didn't see any questions about that in the General exam pool? Visit the [American Radio Relay League](http://www.arrl.org/american-radio-relay-league) web site and print out a copy. And stick to it. For the reasons quoted above. But mostly because it is the right thing to do.

80m 3.5 to 4.0 MHz

"80" is really TWO bands - 80 and 75. On a frequency-vs.-wavelength basis, it is one of our biggest chunks of real estate, and that can cause some problems if your antenna system is not broad-banded enough or you do not use some kind of matching device, and you want to work both ends of the band.

Like 160, 80/75 is for shorter distance chats during the daytime—but often out to several hundred miles—and susceptible to lightning static. It, too, gives good sky wave at night during parts of the year and you can literally work the world if you are patient enough and have a good enough setup. You will find most stations using dipoles or variations, but the vertical is a good DX antenna here, too, because of its low angle of radiation. It just won't work as well for closer communicating. There are even some beams in use here. You may have to employ a '68 Buick straight-eight engine to rotate one of those bad boys, though!

Also like 160, you will hear plenty of good-old-boy roundtables as well as nets, mostly because the band supports regional communications so well. The band has also gotten a reputation for having more than its share of curmudgeons, characters, and just plain goofballs, many of whom use language more appropriate for a billiard parlor. I hear them and you will, too, even though such foolishness is not as rampant as some seem to think. That's why our radios are equipped with tuning knobs. Use it. If they want

to show their ignorance and lack of proper upbringing, allow them to do so without benefit of comment from you.

Nets serve a useful purpose and may or may not appeal to you. Give them a listen and decide for yourself. Avoid causing them interference. It is easier for you and your contact to move up or down a few kilohertz than for a couple hundred of their guys to QSY.

If you hold a General class license, you may be inspired to go for the Extra when you see the big chunk of SSB spectrum those license holders get on 80/75. Extras can do the voice thing all the way from 3.6 megahertz to the top of the band, 4.0. And the band plan calls for a DX window from 3.79 to 3.8, frequencies on which you can only listen and salivate when Europe or Oceania are rolling in. There are also some great CW DX opportunities on the low end of the band, but you need the Extra to venture below 3.525 where many of them hang out.

60m 5.330 to 5.405 MHz

Here is where the "ill-informed" part of the title comes in. I have never operated on 60 meters. It is an odd little band for a number of reasons.

First of all, it is channelized. You are only allowed to use upper sideband. You are limited to 2.8 kilohertz of bandwidth centered on one of those five channels. And you can only run 50 watts "maximum effective radiated power relative to a half-wave dipole." Huh?

Many commercially available radios will not transmit on 60 meters, nor will you find very many antennas for sale for this band either. As far as I can tell, the vertical and dipole are usually the aeriels of choice.

All that being said, this is an intriguing band. It could offer the best in terms of propagation of 80/75 and 40, and with such limited power, you are on equal footing with everybody else. It would seem ideal for antenna experimenters since whatever you use would not be so massive, and the results not masked by running scads of power.

I listen here sometimes and it seems to support good DX and enough people who enjoy ragchewing that you can usually find somebody to talk with. They all seem to

Continued on Page 12

Band Scanning: A Tour of HF Bands *Cont'd*

be a polite lot, maybe because of the restrictions presented by channelization and low power.

All that seems to make this band right up my quirky alley. Someday, maybe.

40m 7.0 to 7.3 MHz

Many proclaim 40 to be their favorite band and there is good reason...except for one big negative. The negative in a minute, and even it has recently gotten better.

No matter your ham radio interest, 40 supports it nicely. CW? Plenty of it. Digital modes? It's there, almost all day every day. Ragchewing? You can almost always scare up a conversation, and in my experience, it always seems to be with someone interesting to talk with. Nets? Beaucoups! And devoted to about anything you can think of, regardless your interest outside amateur radio.

Antennas are more reasonably sized here. A dipole is only about 63 feet in length. A quarter-wave vertical can be a bit over thirty feet tall with radials spread out on the ground or in the air around it that are about the same length. Even garden-home citizens can usually find enough room to erect a radiator for this band. If you experiment with antennas, you can have a blast. Vertical phased arrays. Weird wire antennas with exotic names. Even Yagis become something close to practical for some here.

This is a good QRP band, too. Stations with less than 5 watts output work the entire planet here.

Here's another band where the Extras can roam free, too, all the way down to 7.125 on SSB. And the lower 25 kilohertz of the band is a CW DXer's dream. Late afternoons all the way through an hour or so after sunrise, hams from all over the world communicate to some degree. I have worked well over 150 countries on 40 in the past three sunspot-deficient years with 100 watts and either a vertical, a G5RV, or the big, previously-mentioned loop doing the radiatin'.

One caveat and then that big negative I mentioned. The SSB authorization in many parts of the world do not match up with ours. You may hear a DX SSB station working stateside stations one after the other, but he is transmitting

on 7.095. Occasionally you will hear a W, N, A, or K calling him on his frequency. Bad form! First, he will never hear that station because he is listening up...not the 2 kilohertz or 5 kilohertz normally used when DX operates "split." No, he's listening up "100" or up "150," and will usually let everyone know periodically. Remember what I said about listening? Anyone from the U.S. transmitting on SSB below 7.125 is operating illegally. Usually it is only because the op forgot to hit the "Split" button on his rig and not because he did not know better. At least, I hope so.

So what's not to love about 40 meters? Shortwave broadcasts. They are big and strong and really, really annoying, and you will hear them from 7.200 all the way up to the top. We share 40 meters with shortwave broadcasters in other parts of the world, so they are there legally. It is simply something you will have to deal with if you use this band.

There is good news, though. Early last year, the broadcasters had to abandon the frequencies up to 7.2 megahertz. "Supposed to" are the key words there. A few stations—mostly heard on the West Coast—continue to ignore the marching orders to move. However, the flight of the bulk of those shortwave guys has certainly made the SSB portion of the band from 7.125 to 7.2 megahertz much more desirable.

And there's you yet another reason to crack the Extra class study guide!

30m 10.1 to 10.15 MHz

Now here's an interesting band! If you are a no-code licensee and have not gotten around to learning CW yet, there is nothing here for you. You are only allowed CW, RTTY and other data modes. If you think you need to make the lights dim throughout the neighborhood when you transmit, 30 is not your cup of electrons, either. You can only legally run 200 watts PEP. Okay, I know some people ignore that rule. I was born at night but it wasn't last night!

But, like the power and mode limitations on 60, this serves to put everyone on more or less equal footing. "Big guns" are the ones who have optimized their antennas, not their linear amplifiers. And their operating skills.

Continued on Page 13

Band Scanning: A Tour of HF Bands *Cont'd*

Don't forget that one!

Like 40, this is a good DX band, best at night but often offering long-distance contacts in daylight hours. And while still a bit high in wavelength for a beam for most of us, it is possible to design some very effective antennas for 30. I have found it to be relatively empty during the daytime, except for RTTY, but it really comes alive at night.

I also notice quite a few ops using comparatively slow code here. I assume these are guys who simply cannot ignore the treats 30 meters offers but are not necessarily proficient in the CW. Guys slow down for them, too. This seems to be one of our more polite bands. Only in the most intense DX pile-ups have I heard colorful language used, and even then, unless your 4-year-old speaks CW, he'll never know that guy was questioning the marital status of the other guy's parents.

If you hold a General class license or above, the whole 50 kilohertz of this band is yours. It's that "equal footing" thing again.

One other point: if you don't like contests and believe they are the ruin of radio-dom, no problem on 30. As a "WARC band," (so named because they were authorized at a World Administrative Radio Conference a while back), most contests are forbidden here.

20m 14.0 to 14.350 MHz

The king of the DX bands! Long live the king! Even now, as we emerge from the lowest point in the sunspot cycle, treasures abound on this chunk of magnificent propagation. Granted we have to work a bit harder for it now than we did five years ago, or will in another few years. But even with limited power and wire antennas, I can have delightful conversations with stations in Switzerland, New Zealand, or Poughkeepsie. Just this past weekend, while goofing around, I worked two new countries, one in the South Pacific and one in a former Soviet Union country. That was with 400 watts and a homebrew hex-beam. I've worked lots of odd-sounding call signs with 100 watts and a G5RV or simple, ground-mounted, multi-band vertical.

There are plenty of things to occupy your leisure time, too. Slow-scan TV, RTTY, digital modes, nets, and more.

Granted you are better off with a beam antenna and more power. Still, many QRP stations have confirmed contacts with ops in hundreds of countries. A vertical is a good choice on this band, and especially if your fancy favors DXing.

Propagation-wise, 20 is best for DX around sunrise and sunset, but I work into Africa and the South Pacific at all hours if I am patient enough. It does tend to go to sleep at night nowadays, but do not write it off. Just when you think it's dead, there's a station on some exotic isle somewhere calling CQ.

Like 80/75, this band has its share of malcontents and just plain rude guys with microphones. Ignore the Canadian kook at 14.275, too. There is no sanity test for a ham radio license in this country either. But there are also an abundance of interesting people to talk to. I do not think I have ever had a boring QSO on this band, SSB, RTTY or CW.

Call CQ (after asking if the frequency is in use, of course) and you never know who will come back to you—a rock star, a missionary in Bolivia, the owner of a major amateur radio manufacturer—or even a retiree in Florida! And sometimes nobody. It is easy to get lost in the vastness of this band and the QRM if you do not have some power. People tend to answer CQs from louder stations if they envision a nice, long conversation.

If you are not into contesting, this band might be a challenge. There is likely some kind of radiosport event going on every weekend, and this is a popular band. The big DX contests and the annual ARRL Sweepstakes render 20 almost unusable. But the CW and SSB versions are on different weekends so you can move to the opposite mode and find the band remarkable open. Or go to 60, 30, 17, or 12 where no contester can be heard. Better still, jump into the middle of the contest and get your feet wet. These things are great for filling in the blanks in your Worked All States or DXCC list. And be forewarned: they can be addictive.

Continued on Page 14

Band Scanning: A Tour of HF Bands *Cont'd*

17m 18.068 to 18.168 MHz

“The Gentleman’s Band.” Have you heard that expression used when describing 17 meters? There does seem to be some validity in that description. There is little of the rush-rush of 20 here. For a DX band, there are more ragchews across oceans than on other bands, it appears. Even DXpeditions seem slightly more sedate when working 100 stations per hour on 17.

17 offers very good propagation at times and does not go to sleep nearly as much as its distant cousin, 15 meters. The atmospheric noise seems quieter here than on 20, too. Antennas are more modest. A mini-beam, hex, or vertical performs well. And power seems to be less an issue.

But as I say this, I tune the band and there is nothing but hiss and a couple of birdies internal to my fine rig. It is 2100 local time and an hour ago, the West Coast stations were booming in with an occasional ZL coming through. You can be enjoying a nice chat with a VE7 in British Columbia who is well above S-9 on the meter, and then, in a few seconds and with a “whoosh,” he’s gone. Then five minutes later, he’s back, stronger than ever, talking with a station in Nicaragua. Until he disappears ten minutes after that, just as suddenly.

The band seems less crowded than others, even though it is relatively narrow, partly because of the nature of the propagation but maybe because tri-band beams and many commercially-sold verticals leave it off. My G5RV and my loop work beautifully here. I could modify my vertical, too, but why bother? I now have a homebrew hex-beam up that performs like a two-element Yagi here, and I love turning it around and hearing a station go from down-in-the-noise to in-the-room-with-me.

I’m not sure why 17 meters does not get the respect or activity it deserves. It is a very interesting band that offers truly exciting propagation at times, and, as mentioned, it performs well even with relatively low power and modest antennas. Plus it is simply quieter than other bands, in my estimation.

15m 21.0 to 21.450 MHz

If 20 meters is the “king,” then 15 is the once and future “king of DX.” You tune there most of the time nowadays and hear nothing but vast emptiness. Occasionally it opens to South America or the Caribbean, but mostly it is just “ssssssshhhhhhh.” But wait a year or so. Just wait. There are already signs of life and it is exciting!

If you like to combine ragchewing with DXing, if you enjoy working Europeans or Japanese stations on PSK31 or RTTY, if you want to close out your DXCC in one weekend, then 15 will be your band.

Plus there is plenty of room to operate. It seems to go on forever!

By this point in the spectrum, too, the size of an antenna is starting to come down to the point that a full-size Yagi is possible on a postage-stamp-sized city lot. Heck, a dipole is only about eleven feet long on each side of the center insulator. There are many relatively inexpensive tri-band beams available and they all cover 15 meters. And despite the sheer size of the band in hertz, it is relatively small in wavelengths, so most any antenna will be efficient from bottom to top.

It’s true that once the sunspots begin to go into hiding again in three or four years, the band will once again return to “ssssssshhhhhhh.” But it will be a great ride in the meantime. Stick something up in the air and join in the fun.

12m 24.89 to 24.99 MHz

Now this is one odd band! It is stuck in there between 10 and 15 meters, and I find myself operating it so infrequently that I have to go back to the charts to see where I can legally use which mode. Like its siblings on either side, it appears to be dead, dead, dead most of the time during the sunspot lull. But I hear it can pop like crazy when things start heating up.

Also like 60, 30 and 17, many hams simply are not aware of this band, older gear does not include it at all, many

Continued on Page 15

Band Scanning: A Tour of HF Bands *Cont'd*

amplifiers don't have it available or if they do, it is an afterthought and may have input matching problems, and there are no contests—ever—on this band. That means less activity.

I can verify that it sometimes offers surprising propagation, even when Old Sol sleeps. I have worked most of the major DXpeditions over the last several years here. Last month, I had a nice QSO with a ZL on 12 with no fading at all, in the middle of the afternoon.

Something tells me that as conditions improve, more and more hams will play in this nice playground. I certainly will!

Just don't forget about it being there. I would love to work you.

10m 28.0 to 29.7 MHz

Want to work JAs and VKs with 100 watts and a coat hanger? Dream of communicating across the sea with 5 watts and a whip? That will be 10 meters at the top of the sunspot cycle. At least that is what they tell me.

This band often presents sporadic-E propagation (look it up...it is beyond the scope of this article), regardless of sunspots, which allows communication up to several thousand miles. That happens mostly in the spring and for a few weeks in early winter, but can occur at any time. It is also a good band for local communication up to a hundred miles (or more if you have elevation and power) on a regular basis, but then, when the band does open up, it can really mess with local nets and regular roundtables.

This band offers the first real use of propagation beacons, with a bunch of them just below 28.3. This enables you to learn quickly if the band is open. As with some of the other bands, they may well be propagatin' like crazy but if nobody transmits, nobody knows it. These continuously transmitting stations let you know signals are available. It helps, by the way, if you know Morse code. That is what they use to identify and tell you where they are. But even if you don't, and you tune down there and hear them chirping away in spots where there normally are not any signals, then you know the band is open to somewhere and you can cast

out a "CQ"—back up there above 28.3 or below 28.2, of course, since this portion is supposed to be for beacons.

One more interesting aspect of 10 meters is that there are FM repeaters and simplex available, as well as satellite downlinks. Yep, the same kind of FM repeaters you may be accustomed to at VHF and UHF. It is a real trip to hear guys talking to each other on a repeater thousands of miles away, and you can jump right in and join them. The "ARRL Repeater Directory" lists many of them, as well as the access tones that most of them require for obvious reasons.

I actually use a couple of repeater output frequencies as beacons, keeping my dial set on one of those frequencies so I can just hit the bandswitch button and tell in a second if the band is open to that area of the country.

So there you are, a brief (well maybe not so brief) travelogue of the amateur radio HF bands. We really should be thankful that we have access to such a broad range of spectrum and that it offers us such a wide variety of conditions and signal propagation.

I think if you give some of them a try, you will discover that each has its own personality and appeal, as well as its negatives. Then, if you like them, you can make sure you have antennas that allow you to fully experience them, and that you add them to your allotted operating time.

If you don't, fine as well. But you may not ever find out what you are missing if you don't at least give them all a try.●

The DX Corner

By Col McGowan, MMoNDX

The images and articles about current and/or upcoming DX operations are published here with permission by Col McGowan/MM0NDX as made available on www.dx-world.net.

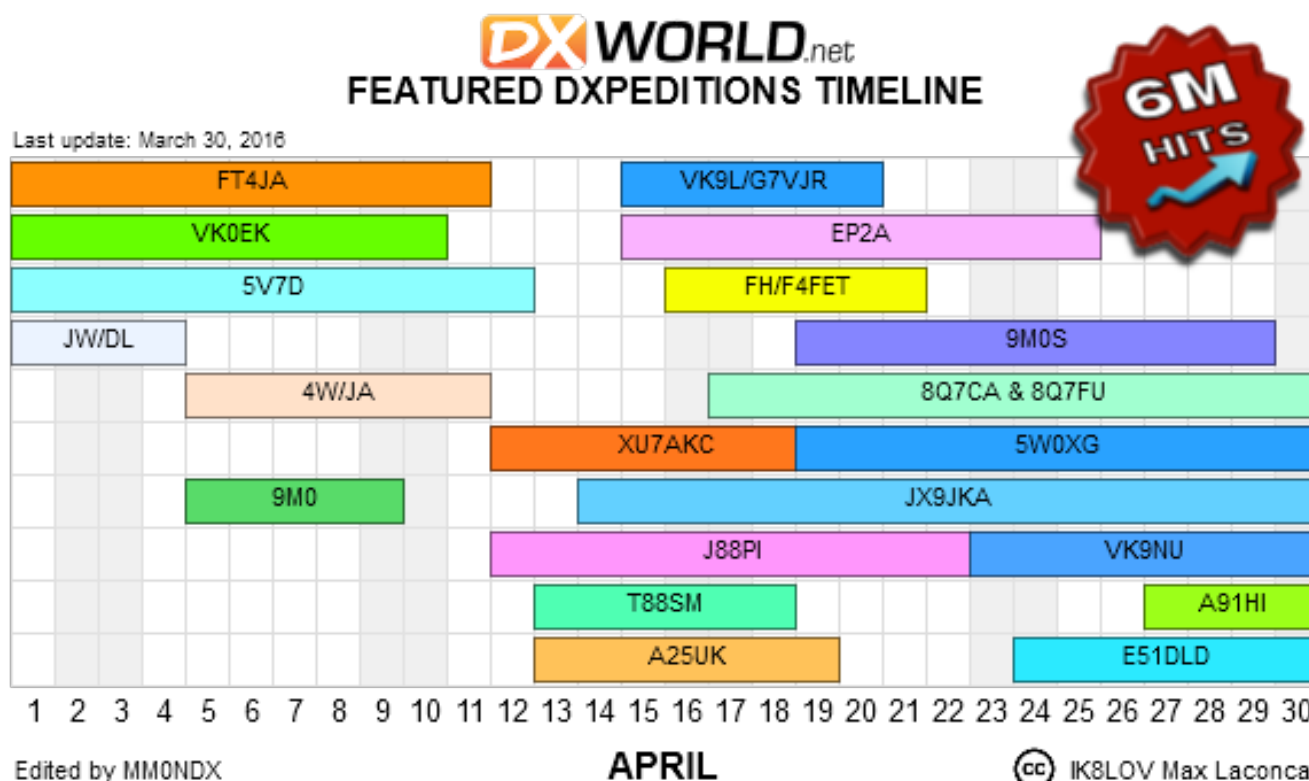
Images for the QSL cards are published with permission from Tom Roscoe/K8CX and the QSL Card Museum at www.hamgallery.com/qsl.

Approved for DXCC – P5/3Z9DX



The ARRL DXCC Department has approved for DXCC credit the unexpected P5/3Z9DX “demonstration” operation from North Korea last December. Well-travelled Polish DXer Dom Grzyb, 3Z9DX, has said he expects to be back in North Korea — officially the Democratic People’s Republic of Korea (DPRK) — for his “official” activation by late summer.

P5/3Z9DX showed up on the air from the most-wanted DXCC entity on December 20 and 21, 2015 to demonstrate Amateur Radio for North Korean officials. During that activation — the first in more than a decade — P5/3Z9DX made nearly 785 SSB contacts, most of them on 15 meters. Nearly 600 of the contacts were with stations in Asia; P5/3Z9DX worked just 26 stations in North America.



So long Kingman Reef...



Kingman Reef NWR. Photo credit: Susan White/USFWS

The ARRL Awards Committee has voted to delete Kingman Reef (KH5K) from the DXCC List, effective 29 March, 2016. Kingman Reef will be added to the Deleted Entities List on 29 March, 2016. The total number of entities on the List will drop from 340 to 339.

The deletion process is described in DXCC Rules Section II DXCC List Criteria, Part 5(a) Deletion Criteria: "An entity may be deleted from the List if it no longer satisfies the criteria under which it was added. However, if the entity continues to meet one or more currently existing rules, it will remain on the List."

With respect to the previous paragraph's text, Kingman Reef's original addition by virtue of

separate administration has changed (separate administration by the U.S. Navy has been removed), and the reef does not meet any current criteria to remain on the list. The U.S. Fish and Wildlife Service administers Kingman Reef and Palmyra Island. The reef is too close to Palmyra Island to count as a separate entity. The reef is now considered part of the Palmyra/Jarvis DXCC entity.

DXCC members who have affirmed credit with Kingman Reef will see their current entity totals drop by one on their DXCC awards — including on the bands and modes where Kingman Reef credit is given. They will also see their DXCC Challenge totals drop commensurately. Honor Roll status will now be attainable after confirming 330 entities on the DXCC List.

QSL Cards from Past Dxpeditons



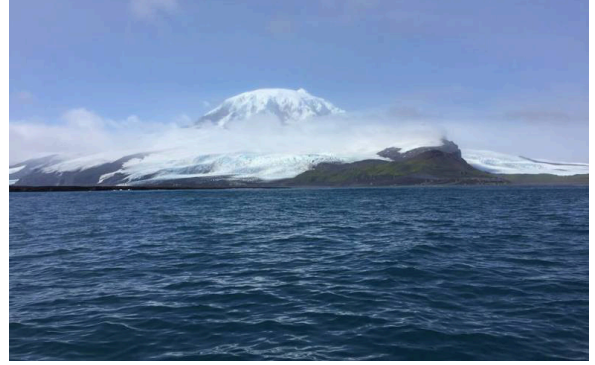
K5K 2000 Kingman Reef
Courtesy of K8CX



K9AJ/KH5K 1988 Kingman Reef
Courtesy of AH6HY

VK0EK - Heard Island

March 24 @ 17:14: The day of landing, the team was able to get the 30 and 40 m 4-squares erected, and partially completed a triband yagi. We opened with two stations on 30 and 40 meters. This morning there was still a lot of work to be done on additional antennas, stations, and camp facilities. With no propagation on 30 and 40, radio operations went on hold and all hands went toward further setup. Around 1300 UTC the 30 m station was activated again. A few kinks with the IT system were worked out, and we now have more antennas and positions up. Only 40 and 30 are currently open (no 80 or 160 yet). We hope to be on all bands in the next few days. After a few technical difficulties on-island, DXA is working properly and you can check that you are in the log at .The team members are all well, but very tired from long hours and tough work. We have mostly had good weather, and appreciate all the thoughts and support from our partners in the ham radio and scientific community.



March 25 – Plan A for today was to have antenna work parties on Yagi, 160 m and 80 m 4-sq, and one or two stations on most of the time on the higher bands (we have one 12/17 m and one 10/15/20 Yagi up). However, at the moment the WX is not good, strong wind and rain/sleet, so we might not be able to work on the low bands antennas until the wind abates. At the moment it seems to be getting worse rather than better, but things can change quickly. We may try just putting up a single vertical for 80 to begin with if the WX remains too bad to work on getting all of the 4-sq together. [K3EL]



March 27 - Earlier today, the team say the on-island network issues are resolved. Tonight they'll be working on 160, 80, 40, and 30 meters. Presently they are all CW, with TX frequencies: 1818.5, 3516, 7016, and 10116. Our antennas have made it through some wind last night, and the low band results were good. This morning we are moving up the bands, and will try to get SSB in on the WARC bands. We plan to do little or no SSB on contest bands during the CQ WPX SSB contest. Weather this morning is raining. Temperature is 4 C (39 F), strong and gusty NW winds, pressure is 996mb.

March 28 @ 09:51Z - This afternoon we have a full complement of stations on the air, and have put up beverage antennas and a vertical dipole array for 15m pointed towards the central US. It's very windy today, and walking into the wind can be very difficult. There are occasional squalls with graupel, and other gusts blow volcanic dust everywhere. The temperature is around 3 C (38 F).

March 30 @ 09:30Z – Winds today have abated from last night, when 60 kt winds were recorded aboard the Braveheart. This afternoon our team put up a 40m delta loop and a 17m vertical dipole array. These antennas are still undergoing evaluation and tuning, but we hope they will be on the air soon. We have been having fun and keeping 5 stations on the air for the upper bands through the daytime hours. Our 40 m delta loop should allow us to have more stations on at night, helping to fulfill demand for SSB and RTTY.

March 31, 22:56Z – 160, 80, 40 and 30 are on the air (2230 UTC). Note – DXA only lights up when QSOs are being made, so even though 160 and 80 show inactive right now, we are CQing – check these bands, conditions seem good tonight. Yesterday after heavy rain the Nullabor flooded – this is the flat plain that is just above sea level to the south of our camp. We have verticals for 160 and 80 there, 4-sq for 40 and 30, and rotary VDAs for 17 and 15. These antennas are enjoying an even better ground plane after the flooding.

CMARC Board Meeting

March 11, 2016

❖ CALL TO ORDER:

- President Julie McLain/KB8ZXR called the meeting to order at 6:08 pm with the following board members in attendance: Vice President Tom Rocheleau/WA8WPI, Secretary Jane Hosford/KC8FSK, Treasurer John Doornhag/KD8NNQ, Director Russ Fitzgerald/NS8Q, Director Chris Ranes/NS8Q and Under 22 Director Sam Fitzgerald/N8FPR.

❖ SILENT KEYS: None

❖ CARDS & FLOWERS REPORT: None

❖ CLUB DIRECTORY:

- Make sure you fill out the forms for the club directory that Dan/KD8YDE is working on. You can get the forms from Dan/KD8YDE or Julie/KB8ZXR

❖ SKYWARN TRAINING:

- Saturday, April 16th from 2-4 pm at Holt Christian Church located at 2424 S Washington Road in Lansing, the same place where our Hamfest is held. You must register at Lansing ARPSC if you are going.

❖ POSSIBLE PROGRAMS AND/OR SPEAKERS:

- Michael/W8MKB said he could show how to build a portable antenna and how to set it up with a radio.
- June - Have an indoor mini field day with the different stations so newer members can get a feel of it before the actual day.
- Kit building
- CW, Technician, and General classes
- Message handling with Bob/K8RDN
- Digital modes and HF operation
- The basics of internet linking and how to use ARRL LOTW (Logbook of the World).
- Invite Neal Barncard/KD8YSH to talk about preparedness
- Invite Matt/KD8OOS and John/KD6KCX to put on a digital mode demonstration.

❖ NATIONAL PARKS ON THE AIR (NPOTA):

- Sponsored this year by the ARRL in celebration of the 100th anniversary of the National Park Service.
- Complete information can be found at <https://npota.arrl.org/index.php>

❖ CLUB ROOM REMODEL:

- MSU salvage-the best days to go are Tuesday and Friday-7AM to 3PM. You can only buy on Friday. We need to get rid of the cubicles, and replace with two solid wood tables. We need to get rid of the filing cabinets, and get one newer locking filing cabinet. We would also like to get one or two two-drawer file cabinets that can go underneath the desks.
- We need two new computers. The ones we have will do, but this summer Chris/NS8Q and Sam/N8FPR will build them together. Chris/NS8Q knows how and Sam/N8FPR wants to learn. They will look at prices and get with the Board to approve. Radios: ICOM has a built in tuner and is okay. Basic Yaesu and the tuner are okay for now.
- Storage: Dan/KD8YDE and Mark/KD8YUY are building crates for storage of canopies and poles, etc. John/KD8NNQ will ask Dan/KD8YDE and Mark/KD8YUY to put two long handles on both sides of the crate so two or three people can help carry it, if needed.
- Purchase picture frames and 3M hangers: To hang plaques, pictures, etc. Julie/KB8ZXR, Jane/KC8FSK and John/KD8NNQ will work on getting these items arranged and hung up.
- John/KD8NNQ purchased two plastic containers, with dividers, for holding small items.

❖ TEACHERS NEEDED:

- We are in need of teachers for CW, Technician, General, and Extra classes.

Continued on Page 20

❖ **501(c)3 NON PROFIT:**

- Julie/KB8ZXR, Jane/KC8FSK, John/KD8NNQ and Don/KB8RAD will get together during the week to fill out the forms. Corey/KD8BOQ has a simpler form that Julie/KB8ZXR will be getting from him.

❖ **CLUB SHIRTS:**

- We discussed getting shirts with our Club logo and call sign on the front. Julie/KB8ZXR talked to B & B Embroidery in Texas. They are former Club members from Perry, Michigan, who now reside in Texas. The website is www.hamthreads.com. Julie/KB8ZXR called them and ordered a short sleeve, royal blue shirt. They have a collar and three buttons down the front. They start at \$34.95, but by ordering them through the Club, we get a discount of 20%. They are sending shirts in different sizes so everyone can see how the sizes run.

❖ **TABLES AND CHAIRS:**

- With the closing of Christ United Methodist Church, the Club was able to get two eight foot long tables and 16 chairs. The cost was a donation to Boy Scout Troop 33.
- John/KD8NNQ made a motion that the Club donate \$100.00 to the Boy Scouts Troop 33 for the tables and chairs. Russ/N8FZ seconded the motion and it was approved. When we went to pick up the tables and chairs the Club was able to get a four-drawer filing cabinet, it needs a new lock.

❖ **FIELD DAY:**

- Ron/WD8BCS is the Field Day Chairman

❖ **MARCH VE EXAMS:**

- tomorrow, Saturday, March 12th at 11:00 am at Lansing Fire Station #44, 1435 E Miller Road in South Lansing

❖ **TONIGHT'S PROGRAM:**

- Chris/NS8Q is showing the movie "The Last BIG Field Day", which is the story of the 2004 W3AO Field Day operation. Their operating class was 50A. Fifty stations were on the air at the same time. That is 50 transmitters, 10 towers and a myriad of antennas.

❖ **MISCELLANEOUS ITEMS:**

- Regarding our membership in "SATERN" Salvation Army Team Emergency Radio Network - we still need a unit leader for our CMARC SATERN group.
- Russ/N8FZ mentioned the DeWitt Band Invitational on October 8th and having Club members work at it.
- Ziegenbein nominations are due March 15th.

❖ **MEETING ADJOURNMENT:**

- Motion to adjourn made by John/KD8NNQ, seconded by Tom/WA8WPI, and approved.
- Meeting adjourned at 7:05 pm.

Respectfully submitted,
Jane Hosford/KC8FSK-Secretary

General CMARC Meeting

March 11, 2016

❖ **CALL TO ORDER:**

- President Julie/KB8ZXR brought the meeting to order at 7:10 pm.
- We do have nametags for everyone if you don't have your own, so please use, so we know who everyone is. Please sign in on the sign in sheets that are going around, there is one for members and one for visitors.
- The meeting began with the Pledge of Allegiance. The flag was held by Sam/N8FPR.
- A moment of silence for our silent keys.

❖ **2016 BOARD INTRODUCTIONS:**

- Julie/KB8ZXR introduced the new 2016 Board:
 - President - Julie McLain / KB8ZXR
 - Vice President - Tom Rocheleau / WA8WPI
 - Treasurer - John Doornhaag / KD8NNQ
 - Secretary - Jane Hosford / KC8FSK
 - Director - Chris Ranes / NS8Q
 - Director - Russ Fitzgerald / N8FZ
 - Under 22 - Sam Fitzgerald / N8FPR
- If you need to contact any of the Board members, you can do that on the Club website: centralmiarc.com, left hand side of the page, near the bottom is leadership, and that brings up all the appointments for 2016.

❖ **ATTENDANCE:**

- There 55 people in attendance.
- Our visitors included: Geraldine Jenks, Vicky Weaver, Mark Denbrock, Bob Denbrock, Beau Kapalla, John Schuster/KD8VON, Jeff Tompkins and Bill Anderson/KA8TPQ.

❖ **NEW LICENSES, UPGRADES AND VANITY CALLS:** None

❖ **NEWEST ASSOCIATE MEMBER:** Kaydence Weaver, granddaughter of Vicky Weaver.

❖ **SILENT KEY REPORT:** None

❖ **CARDS AND FLOWERS REPORT:** None

❖ **2016 MICHIGAN QSO PARTY:**

- On April 16th sponsored by the Mad River Radio Club is from 1600Z April 16 until 0400Z April 17.

- For rules, etc., see <http://www.miqp.org>.

❖ **NATIONAL PARKS ON THE AIR (NPOTA):**

- sponsored this year by the ARRL in celebration of the 100th anniversary of the National Park Service. There are 483 units of the National Park Service (National Parks, National Battlefields, National Monuments, etc.) and hams are being encouraged to operate portable from them throughout 2016, complete information about NPOTA can be found at <https://npota.arrl.org/index.php>. Each park has been assigned a 4-digit descriptor (two letters and two numbers) by the league. To make it a lot easier to keep track of which parks you've contacted, Joe/W8JRK organized the listing of parks into a checklist and posted it on his domain. Please feel free to download it. Ben/WD8OVL has 89 confirmed contacts from the park challenge. There 55 people in attendance.
- A pdf version – <http://www.learnerassociates.net/npota.pdf>
- A MS word version – <http://www.learnerassociates.net/npota.docx>

❖ **PLEASE PAY YOUR DUES: NEW HAMS GET ONE YEAR FREE MEMBERSHIP**

- CMARC dues to John/KD8NNQ and LCDRA dues to Julie/KB8ZXR.

❖ **SKYWARN TRAINING:**

- Saturday, April 16 from 2-4 pm at Holt Christian Church located at 2424 S Washington Road in Lansing, the same place where our ham fest is held. It is necessary to be registered beforehand. You can do that by going to www.lansingarpssc.com/training.html.

❖ **MARCH VE EXAMS:**

- tomorrow, Saturday, March 12th at 11:00 am at Lansing Fire Station #44, 1435 E Miller Road in South Lansing

Continued on Page 22

❖ **CLUB SHIRTS:**

- We discussed getting shirts with our Club logo and call sign on the front. Julie/KB8ZXR talked to B & B Embroidery in Texas. They are former Club members from Perry, Michigan, who now reside in Texas. The website is www.hamthreads.com. Julie/KB8ZXR called them and ordered a short sleeve, royal blue shirt. They have a collar and three buttons down the front. They start at \$34.95, but by ordering them through the Club, we get a discount of 20%. They are sending shirts in different sizes so everyone can see how the sizes run.

❖ **SALVATION ARMY FOOD DRIVE:**

- At our last drive, the Club donated 636 pounds of food and donations. Julie/KB8ZXR has flyers and they are on the website. If you wish to donate but are unable to do it yourself, you can give money to Julie/KB8ZXR or Jane/KC8FSK and they will do your shopping for you.

❖ **CANDY BARS:**

- Bob/KB8DQQ is selling candy bars for \$1.00 and he donates the money to LCDRA-Lansing Civil Defense Repeater Association.

❖ **CLUB DIRECTORY:**

- Dan/KD8YDE and Julie/KB8ZXR have the forms. Just fill out the form for whatever information you want included in the club directory.

❖ **NEW BUSINESS:**

- A motion to accept the February Secretary's report as printed in the March Scope was made by John/KE8CYC, seconded by Don/KB8RAD, and approved.
- A motion to accept the February Treasurer's report as printed in the March Scope was made by Bob/KB8DQQ, seconded by Ray/KD8ZDX, and approved.

❖ **UNDER 22 REPORT:** None

❖ **50/50:** Jerry/KD8GLN won \$22.50

❖ **MOTION FOR BREAK:** Michael/W8MKB, seconded by Charlie/WS8PVS, and approved.

❖ **CLUB ROOM SPRUCE UP:**

- Russ/N8FZ is the chairman of this project and is collecting license plates to put up on the wall. For \$2.00 you can get an additional plate. The forms are on the State of Michigan website, www.michigan.gov/sos or you can get a form from Russ/N8FZ.

❖ **COFFEE FUND:**

- The money collected each month goes to purchase the coffee, creamer, punch, coffee filters, cups, napkins, plates, plastic ware, etc.. Visitors are our guests and are not expected to donate. Also, if you brought in food, you do not need to donate.
- **Thank you to everyone who brings in food each month and thank you to everyone who helps in the kitchen each month. It is all very much appreciated.**

❖ **UPCOMING EVENTS:**

- May 13th is Ladies' Night which is in lieu of our monthly meeting. It will be held at Delhi Cafe and at that time, the Ziegenbein Award will be presented. Nominations for the Ziegenbein Award must be in before March 15th. Julie/KB8ZXR has Ladies' night flyers; they are also in the Scope and on the CMARC website-www.centralmiarc.com.
- Field Day is June 25th and 26th. Ron/WD8BCS is the Field Day Chairman.
- Ham fest is July 30th.

❖ **TONIGHT'S PROGRAM:**

- Chris/NS8Q is showing the movie "The Last BIG Field Day", which is the story of the 2004 W3AO Field Day operation. Their operating class was 50A. Fifty stations were on the air at the same time. That is 50 transmitters, 10 towers and a myriad of antennas.
- Ron/WD8BCS brought his popcorn machine, and is making popcorn for anyone that wants it.

❖ **MEETING ADJOURNMENT:**

- Motion to adjourn made by John/KD8NNQ, seconded by Don/KB8RAD, and approved.
- Meeting adjourned at 9:15 pm.

Respectfully submitted,
Jane Hosford/KC8FSK-Secretary

CMARC Classifieds

Yaesu FT-747GX transceiver, original MH-1 B8 mike, matching FP-757 HD Power Supply, power cord. Working condition; recently tested. Original owner, non-smoker. **\$295**

Contact Matt Beha/N8BPI by email mattbeha@hotmail.com or call 517-646-6925 and leave a message.

6 element 6-meter Yagi-Uda. This Yagi is being taken down from the W8SH tower. It is a "Force 12" yagi and has been up on the mast for 20 years. It is in working condition, although it could use a good cleanup. I am asking \$75 or best offer.

Contact Gregg Mulder/WB8LZG 517-646-6257 after 5pm please.

Remaining Items from the Estate of Louis Larche/KD8BWL

The following items of equipment from the station of Louis Larche / KD8BWL, SK, are still available. Listed is the suggested price for each. Please make an offer if you are interested. All the proceeds will go to Barb, Louie's XYL. Contact me at 517-896-3570 or kfaiver@sbcglobal.net. -- Ken / W8HNI

- Kenwood AT-230 antenna tuner, for use with TS-830, TS-530, etc. 200 Watts, 1.8 to 30 MHz, 20 & 200 watt scales -- **\$120**
- Kenwood VFO-230 digital synthesized VFO, for split frequency. 20 Hz steps. 5 memories. Designed to connect to TS-830s or TS-530 -- **\$135**
- Radioshack HTX-420 Handheld FM transceiver -- 3 to 4 watts -- 2M & 70cm -- with AC adapter. Includes electronic compass. (needs new battery). -- **\$65**
- Radioshack Pro-97 Scanner Receiver -- triple trunking -- 1000 channel. With AC adapter. (battery not included). Good condition -- **\$75**
- RCA VWV-120A voltmeter -- AC power line monitor -- **\$12**
- Leader LPM-885 SWR/power meter -- 3 ranges: 20, 200, 1000 watts
- Pyramid CB-1000 speaker -- mobile speaker
- RL Drake 1525 EM microphone -- mike with touch tone ham keypad -- **\$5**
- Low-pass filter -- no specifications -- **\$3**
- Large study steel desk (5x3 with drawers on each side) -- **\$75 or make offer**



"PRACTICE AMATEUR RADIO EXAMS"
Sponsored by the "Ingham County VE Group"
VE Julie McLain KB8ZXR

Technician Class 2014 Pool

1.) Question T7B12 - What might be the first step to resolve cable TV interference from your ham radio transmission?

- A. Be sure all TV coaxial connectors are installed properly
- B. Add a high pass filter to the TV antenna input
- C. Add a low pass filter to the TV antenna input
- D. Add a preamplifier to the TV antenna input

2.) Question T0C08 - Which of the following actions might amateur operators take to prevent exposure to RF radiation in excess of FCC-supplied limits?

- A. Relocate antennas
- B. Relocate the transmitter
- C. Increase the duty cycle
- D. All of these choices are correct

3.) Question T6D03 - What type of switch is represented by component 3 in figure T2?

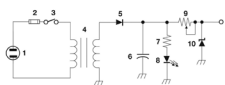


Figure T-2

- A. Single-pole double-throw
- B. Single-pole single-throw
- C. Double-pole single-throw
- D. Double-pole double-throw

General Class 2015 Pool

1.) Question G9B05 - How does antenna height affect the horizontal (azimuthal) radiation pattern of a horizontal dipole HF antenna?

- A. Antenna height has no effect on the pattern
- B. If the antenna is too high, the pattern becomes unpredictable
- C. If the antenna is less than 1/2 wavelength high, the azimuthal pattern is almost omnidirectional
- D. If the antenna is less than 1/2 wavelength high, radiation off the ends of the wire is eliminated

2.) Question G1B03 - Which of the following is a purpose of a beacon station as identified in the FCC rules?

- A. Identifying net frequencies
- B. Observation of propagation and reception
- C. Automatic identification of repeaters
- D. Transmission of bulletins of general interest to Amateur Radio licensees

3.) Question G9A12 - What standing wave ratio will result when connecting a 50 ohm feed line to a non-reactive load having 25 ohm impedance?

- A. 2.5:1
- B. 2:1
- C. 1.25:1
- D. You cannot determine SWR from impedance values

Extra Class 2012 Pool

1.) Question E1D05 - What class of licensee is authorized to be the control operator of a space station?

- A. Only General, Advanced or Amateur Extra Class
- B. All except Technician Class
- C. Only Amateur Extra Class
- D. All classes

2.) Question E2B07 - What is the name of the signal component that carries color information in NTSC video?

- A. Chroma
- B. Luminance
- C. Spectral Intensity
- D. Hue

3.) Question E6F05 - Which of the following describes an optical shaft encoder?

- A. A digital encryption device often used to encrypt spacecraft control signals
- B. A device for generating RTTY signals by means of a rotating light source.
- C. A device which detects rotation of a control by interrupting a light source with a patterned wheel
- D. A device which measures the strength a beam of light using analog to digital conversion

Questions and Answers Copied from ARRL's "Practice Amateur Radio Exams"

found at: <http://www.qrz.com/hamtest/>

ANSWERS Technician: 1-A; 2-A; 3-B General: 1-C; 2-B; 3-B Extra: 1-D; 2-A; 3-C

Greater Lansing Nets

The “**Central Michigan Slow Scan TV Net**” meets every Sunday evening from 7:00- 8:30pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Carl Canfield/K8YHH. EVERYONE is welcome to join in and have fun learning and using this interesting and useful mode of communication. Other digital modes will be explored from time to time. For more information, call Carl at: (517) 755 6627.

The “**Ladies Tea Time Net**” meets every Tuesday evening at 7pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Julie McLain/KB8ZXR, and can now also be found on the *DODROPIN* EchoLink Conference Server (ID# 355800)! Everyone is welcome to check in—even all you guys!! This Net has been around since July 3, 2007, so let’s keep it going and growing!!

The “**Quarter Century Wireless Association Net**” also meets every Tuesday night but at 8pm and on the 146.70 repeater (PL 107.2 Hz), with Net Coordinator Don Tillitson/WB8NUS. Be sure to stop by after Julie’s Net and say “Hello!”

The “**Mid-Michigan Information & Trader’s Net**” meets every Wednesday evening at 7:00pm on the 145.39 repeater (PL 100 Hz), with Net Coordinator Julie McLain/KB8ZXR. This Net has been around since November 11, 2009, and is still growing!! Be sure to join Don for a time of FUN, FELLOWSHIP, and INFORMATION!! There will be helpful Ham-related information to share from both Net Control and our check-ins, time for questions and answers, and “Trader’s Net” style on-the-air swapping of Ham-related equipment throughout the Net. Sounds like a good time to me!!

ALL are welcome on these nets, so be sure to check in to show your support. And as with all Nets, 3rd party check-ins are welcome, but must have Control Operator present at check-in time.

CMARC Officers and Appointees

President

Julie McLain, KB8ZXR
(517) 694-0812

Vice President / Webmaster
Tom Rocheleau, WA8WPI

Secretary / Cards & Flowers
Jane Hosford, KC8FSK

Treasurer
John Doornhaag, KD8NNQ
(517) 882-5406

Director / Scope Editor
Chris Ranes, NS8Q
(517) 487-8376

Director / Youth Liaison
Russ Fitzgerald, N8FZ

Under 22 Director
Sam Fitzgerald, N8FRP

Club Contact
Don McLain, KB8RAD
(517) 694-0812

Club Historian
William Cote, WD8NYW

Antenna Projects Chairman
Gregg Mulder, WB8LZG

Lansing ARPSC Liaison
Jim Hannahs, KC8QWH

QSL/Awards Manager
Don DeFeyer, KC8CY
(517) 641-4533

Photographer
Kenneth Hazlett, N8BVV
(517) 348-5513

Salvation Army Liaison
Jerry Waite, KD8GLN
(517) 882-5406

Meetings
Held Monthly on the second Friday of the month at:
Salvation Army-Capital Area,
701 W. Jolly Rd, Lansing
at 7:00 PM. Board Meeting
begins at 6:00 pm.

CMARC Calls:
W8MAA & W8PLP

LCDRA Officers and Appointees

President

John Imeson, N8JI
(517) 449-1517

Vice President
Don Tillitson, WB8NUS
(517) 321-2004

Secretary
Ron Harger, WD8BCS
wd8bcs@arrl.net

Treasurer
Jeff Oberg, KB8SXX

Director
Jan Bradfield, KC8BFK
(517) 202-1779

Director
Don McLain
(517) 694-0812

Director
Jim Harvey, KA8DDQ
(517) 882-5796

Membership Chair
Julie McLain, KB8ZXR
(517) 694-0812

Repeater Trustee
Dennis Boone, KB8ZQZ

Meetings
Held Quarterly on the third Thursday of the month at:
Fire Station #48,
Marshall St, Lansing
at 7:00 PM.

LCDRA Call:
W8BCI

The Scope is a monthly joint publication of The Central Michigan Amateur Radio Club and the Lansing Civil Defense Repeater Association.

Please send all articles, classified ads, or other Information to the editor, Chris Ranes, NS8Q, at cmarcscope@gmail.com.

The deadline for each issue is midnight on the 20th of the preceding month.

What? Michigan QSO Party

When? April 16th, 2016
16:00z (16th) to 04:00z (17th)

Where? 10 thru 80 Meters (CW & SSB)

Why? Just Have Some Fun!!!!

- Chance to get on the air
 - Single Op, Multi Op, Mobile, EOC
 - Be the station others want to work
 - Maybe activate a rare county?
- Excellent Club Activity
 - Reason to get together as group
 - New “EOC” station category
 - Excellent Training opportunity!
 - Get new members on the air!
 - Friendly Competition

***When?* April 16th, 2016**
16:00z (16th) to 04:00z (17th)

Where? 10 thru 80 Meters (CW & SSB)

Why? Just Have Some Fun!!!!

- **Chance to get on the air**
 - **Single Op, Multi Op, Mobile, EOC**
 - **Be the station others want to work**
 - **Maybe activate a rare county?**
- **Excellent Club Activity**
 - **Reason to get together as group**
 - **New “EOC” station category**
 - **Excellent Training opportunity!**
 - **Get new members on the air!**
 - **Friendly Competition**

Let's all help make Michigan "radio-active" on the 16th of April!!!!

Rules & More Info: <http://www.miqp.org/>

Sponsored By: The Mad River Radio Club



CMARC IS ORDERING CLUB SHIRTS!!

CMARC's members recently decided that they would like to order Club shirts with CMARC's Logo and their Callsign. The shirts are Royal Blue and the Club's Logo and our Callsign will be embroidered in Yellow. (It's very striking!!) We have two styles of shirts to pick from, a Polo shirt, which most everyone is ordering (male or female) and a two-

pocket button shirt that some of the guys are ordering. They are really nice enough shirts that they can be worn whenever you want to wear them, and we thought it would be really nice for our Club members to stand out a little when we're doing our different events (like Field Day, Hamfest or volunteering for Run/Walks, etc.).

I will have several shirts of different sizes with me at RAD's Coffee Break (Denny's Diner, located at 7330 W. Saginaw Hwy, I-96 exit 93B) every Saturday night between 6:30-11pm. I will also have them with me at the April 8th CMARC meeting @ 7pm (Salvation Army South Corps located at 701 W. Jolly Road in Lansing) and at the April 21st LCDRA meeting (Lansing Fire Station #48 at Marshall and W. Grand River).

OUR ORDER MUST BE IN BY APRIL 29TH to our old friends Dave KF8WS and Shirley N7UPY Birdsley at "B & B Embroidery" (also known as "Hamthreads"), so we can have the shirts back in time for Field Day. I am also taking orders for Hats with CMARC's Logo and your callsign, in the same color as the shirts. You can also order your hat with just your callsign if you choose. To see the Polo Shirt (sizes Small to 5X-Large) on Hamthreads website go to: <http://www.hamthreads.com/products/shirts/gildan-dryblend-jersey-sport-shirt-8800>

To see the men's two-pocket button Shirt (Sizes Small to 6X-Large) go to: <http://www.hamthreads.com/products/shirts/sm-sp24-short-sleeve-2-pocket-work-shirt>

Dave is also offering us a deal...if you buy ANY jacket you'll get a "free hat". In addition, using our CMARC Logo gives you 20% off your order. **YOU WILL HAVE TO ORDER YOUR OWN JACKET/HAT!!**

To place your order or for questions, call or email me as soon as possible.

73,
Julie McLain KB8ZXR
CMARC President
(517) 694-0812
KB8ZXR@aol.com

2016 CMARC "OUTDOOR" HAMFEST

(We've got EVERYTHING but the ROOF!!)



ARRL
Sanctioned

Sponsored by the
Central Michigan Amateur Radio Club

Saturday, July 30, 2016

8:00 AM to 1:00 PM

(Setup Saturday 6-8AM)

at the

Holt Christian Church

2424 Washington Road

Lansing, MI 48911



Talk-in 145.390
(100Hz PL)

ADMISSION: **Public** = \$4.00 each, Kids 15 and under FREE!! (HANDICAP ACCESSIBLE!!)
Vendors/Sellers = \$4.00 each (includes 1 trunk space). Additional spaces \$5.00 each. RSVP today to secure the number of spaces you need! Also, please remember to bring your own tables, chairs, and canopies and be prepared in case of inclement weather.

For Reservations or Questions contact Julie McLain KB8ZXR (517.694.0812 or KB8ZXR@aol.com)



DON'T FORGET

to enjoy a Sweet Roll and Coffee—then later on grab a BBQ Pulled Pork Sandwich or a Dog or Brat "Hot Off The Grill" with all your favorite trimmings!!

RF ADAPTER GUY

Dealer Jon Rohde
(accessories for Ham, Commercial, GMRS or CB)

Tennadyne and Cubex Quads

Dealer Roger Greenfield
"Aluminum with a PHD"

D & G Computers

Dealer Shaun Blain
(Service and Repair)

DXCC CARD CHECKER

Must call Stan Arnett AC8W (810) 364-6674 for appointment! & info

Hamfest Checking Hours

8am to 12pm. Can't check 160-m

Cards! Fill out DXCC application

at <http://www.arrl.org/dxcc> and

bring with you, also Record Sheet

and SASE. Pay by credit card online.



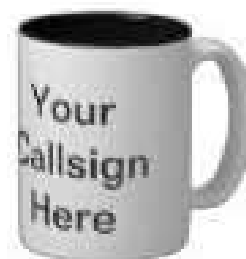
VE TESTING

at 11am. Sponsored by the "Ingham County VE Group". Walk-ins are Welcome!!



TYCHO AUSSIE

CMARC's 6' 3" Mascot is back again this year!!



STRONGWARE

Custom Callsign Mugs made-to-order while you wait!!

DOOR PRIZES!!

We will have hourly prizes with our **GRAND PRIZE** being a **YAESU FT-2900R/E MOBILE 2-METER** Drawn at 1pm!!

FORUM

“**ASTERISK**” a framework for building multi-protocol, real-time communications applications and solutions. Time for Q&A (9am-10:30am)

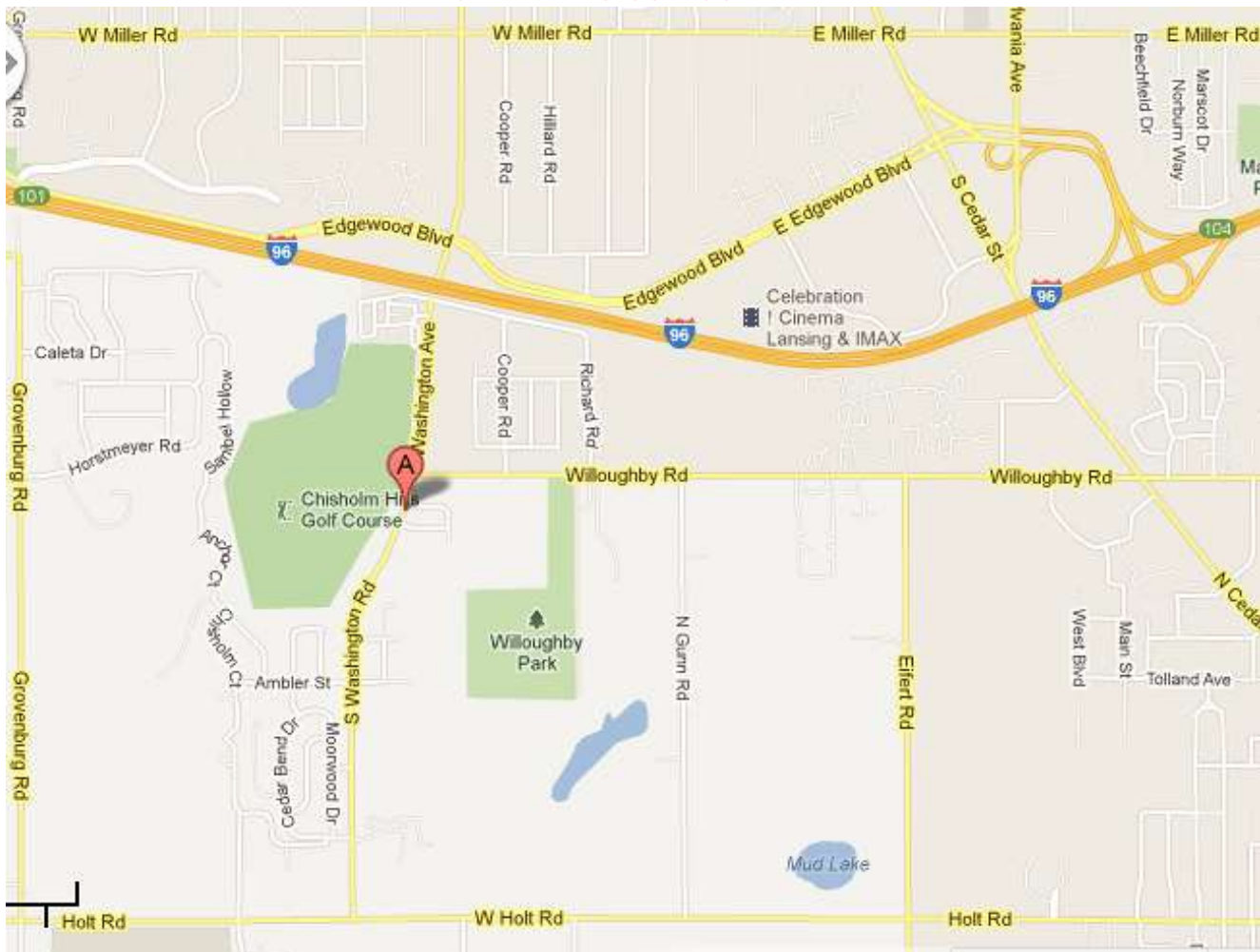
ARRL's LARRY CAMP WB8R

Michigan Section Manager
Great Lakes Division

G.O.T.A. STATION

Don't have a license? Come Get On The Air with the Youth of CMARC!!

Holt Christian Church, 2424 Washington Road in South Lansing
Talk-in 145.39-100Hz PL



PLEASE JOIN US FOR THIS YEAR'S
CMARC "OUTDOOR" HAMFEST!!

COME "RAIN OR SHINE" YOU'LL HAVE A GREAT TIME!!



Show Your Support for Amateur Radio and Join CMARC & LCDRA Today!



JOIN TODAY!

Central Michigan Amateur Radio Club, Inc.

As a licensed Amateur, you can **sign up today** as a Full Member. As a Full Member of CMARC, you will receive voting rights and an annual subscription to 'The SCOPE'. This newsletter is filled with Club News, special interests and events.

Sign up today as an Associate Member and it includes an annual subscription to 'The SCOPE'. (no voting rights as an Associate Member)

New licensees are now eligible for a *one FREE year membership* at CMARC and **Under 18** licensees are *eligible for FREE membership*!

JOIN TODAY!

Lansing Civil Defense Repeater Association

As a licensed Amateur, you can **sign up today** for only \$15. As a member of LCDRA, you will receive an annual subscription to 'The SCOPE', as well as voting rights in the Association.

LCDRA oversees the operation and maintenance of all Lansing Area repeaters. Use of the repeaters does NOT require LCDRA or CMARC membership, but your support is welcome and appreciated.



LANSING CIVIL DEFENSE REPEATER ASSOCIATION

Name		Callsign
Address		City State
ZIP	Phone	Lic. Class
ARRL Member?	Birthday	Wedding Anniversary
Year 1st Licensed		Please supply email address for SCOPE mailing
<input type="checkbox"/> Full <input type="checkbox"/> Associate <input type="checkbox"/> New Licensee (1 yr. free) <input type="checkbox"/> Under 18 (free)		
Full Membership \$15 per calendar year (must be a licensed amateur to obtain Full Membership) Associate Membership \$5 per calendar year		
Mail Your Check or Money Order to: John Doornhaag 1165 S Ainger Rd Charlotte, MI 48813-9540 (Checks made payable to CMARC)		

Name		Callsign
Address		City State
ZIP	Phone	Lic. Class
ARRL Member?	Birthday	Wedding Anniversary
Year 1st Licensed		Please supply email address for SCOPE mailing
LCDRA Membership is \$15 per calendar year (add a Family member for only \$7.50 per person, per year). LCDRA maintains our local repeaters and your support is appreciated. (Membership not required to use repeaters)		
Mail Your Check or Money Order to: Julie McLain KB8ZXR 4444 Sycamore St. #1 Holt, MI 48842 (Checks made payable to LCDRA)		