

Next Meeting: Friday March 27 2020, 6:30 PM at the MCL Cafeteria in Kettering  
Meeting is always the 4th Friday of the month.

# ANOMALOUS PROPAGATION

February 2020

Newsletter of the **Midwest VHF/UHF Society**

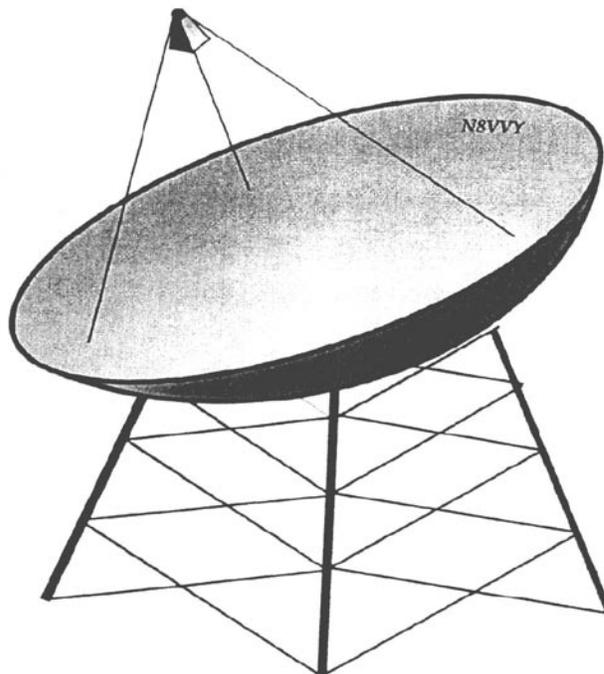
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Please right-click this link to download the very small 'Anomalous-Propogation-article-template.doc' Word document as a template for articles sent to Jim (j.bacher@ieee.org) in Word format. Thank you!

<https://mvus.org/apnews/Anomalous-Propogation-article-template.doc>

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Midwest VHF & UHF Society  
ATTN: Tom Holmes  
1055 Wilderness Bluff  
Tipp City, OH 45371



Annual membership is \$12.00 newsletter by Email  
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Make checks payable to Joe Muchnij, N8QOD and  
mail to: 1214 Cottingwood Ct. Bellbrook OH 45305



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Beacons: 1296.079 W8KSE EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.  
MVUS Skimmer -. <http://www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=w8kse&t=de>

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Pres. Tom Holmes, N8ZM,  
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Newsletter Editor, Open  
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E-mail List Admin: Jim Bacher, WB8VSU  
Photographer and Webmaster: Dave Lundy  
Website: <https://www.mvus.org/>

# De N8ZM

Normally about this time of year my Anom Prop column is partly dedicated to complaining about the weather, but so far here in SW Ohio, it hasn't been too hateful. Yes, we've had some cold days and a little bit of snow but not very much of either. Darn that global warming! OK, now that I have jinxed that situation, expect to see Mother Nature make a liar out of both me and Punxsutawney Phil, the infamous Groundhog. But with a little luck, maybe good antenna work weather is coming soon!

Hopefully, somewhere further back in this issue you'll see an article from N8UR about our recent trip to the Orlando Hamcation. It was a bit of a whirlwind tour as we drove all the way down from Dayton on Thursday, spent Friday and Saturday at the hamfest, then scooted back home on Sunday. The weather was about 20 degrees warmer than back home but the breeze counteracted that somewhat. This being the first visit to the show for John and I, as well as for our third compatriot Buzz, W8BUZ, it was an interesting and fun trip. I saw a lot of folks from Dayton there, but also ran into a few friends who now live in the Sunshine state, and other folks I usually only see at Hamvention.

The highlight (?) of the trip was driving 8 hours in a driving rainstorm from Atlanta until well into Florida, with a third of that being after dark. It certainly wasn't as boring as that stretch of highway usually can be! But we made it OK and the drive home was very pleasant as it was a sunny day, however the three of us spent much of the trip wondering why our GPS's decided that I-95 through Savannah was a better route back home. It WAS different scenery and the traffic on a Sunday morning was light, so we just enjoyed the view and the relaxed drive.

In case you've been wondering, we will have a booth again at Hamvention, and it appears that it will be in the same location as last year. You may have heard that the DAR folks and the Greene County folks have not yet arrived at an agreement for a building to replace the big tent we have been in since moving out there, and the last I heard that discussion was not moving forward very fast. So, we will be in the tent again in 2020. As always, I am looking for volunteers to help staff the booth, and also for ideas for cool things to display that will attract attention to MVUS. So let me know your thoughts on either via my email address or phone.

At our January meeting, Treasurer Joe reported that we have a fairly comfortable balance in the checking account, so I asked the guys there to propose ideas for club projects that we could take on. Certainly, one of those is for me to finish getting the 2304 beacon project off the ground and onto a tower. I started that a couple of years ago and really need to get it done. I would certainly appreciate some assistance with some of the construction tasks still needed, so again, email or phone me if you'd be willing to help. It is mostly just getting it packaged up into a box and wired up. Mike, W8RKO, has a keyer we can make use of, and the TX converter and antennas are already on hand. So let me hear from you, please!

And finally, it's probably time to think about renewing your membership. And please let us know if you prefer to receive Anom Prop via email or paper. While it costs us almost a dollar per issue to print and mail it, if that works better for you, we'll do it. But yes, we do ask for a little more in the way of dues to help offset that cost. And we appreciate your support off the club either way.

So I'll look forward to seeing many of you at the MCL on Feb 28th. De N8ZM

# This and That

Compiled by: Gerd Shrick, WB8ISM

- 1) Sometimes when I look at my children, I say to myself: 'Lilian, you should have remained a virgin...' [Lilian Carter, mother of Jimmy Carter]
- 2) I had a rose named after me and I was flattered. But I was not pleased to read the description in the catalog: 'No good in bed, but fine against a wall.'- Eleanor Roosevelt.
- 3) Last week, I stated this woman was the ugliest woman I had ever seen. I have since been visited by her sister, and now wish to withdraw that statement... -Mark Twain
- 4) Santa Claus has the right idea. Visit people only once a year. -Victor Borge
- 5) I was married by a judge. I should have asked for a jury. - Groucho Marx.
- 6) My luck is so bad that if I bought a cemetery, people would stop dying. Rodney Dangerfield.
- 7) Collection of a few Bertrand Russel Quotes: I would never die for my beliefs because I might be wrong.---- The time you enjoy wasting is not wasted time. --- Drunkenness is temporary suicide.--- War does not determine who is right - only who is left.----- To be without some of the things you want is an indispensable part of happiness. ----To fear love is to fear life, and those who fear life are already three parts dead. --- Do not fear to be eccentric in opinion, for every opinion now accepted was once eccentric.-- The trouble with the world is that the stupid are cocksure and the intelligent are full of doubt.--- Of all forms of caution, caution in love is perhaps the most fatal to true happiness.



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I haven't been able to play much with it above 30 MHz, as I don't yet have a feedline on my discone antenna. On HF, it is very nice to use and seems to hear very well. Doing some listening with my horizontal 2M beam, I was able to copy local repeaters with very good audio quality.

I'm looking forward to using this radio more. Although I have various knobless SDRs that can tune to 3 GHz (and well beyond), sometimes it's nice to have a box with knobs and a speaker that is ready to go and just works. The R8600 will fit that bill, and with the I/Q output may offer some very interesting monitoring opportunities.

# Air Cannon

Author: Bruce Lundy, KA8EDE

## The Right Tool Helps

I, wanting to be able to get my HF fan dipoles up higher in the air, needed a tool I could use instead of my old worn out arm and shoulder with a bow and arrow. Other devices had been suggested to me but, for some reason, the Air Cannon just seemed to be the correct choice for me.

After getting a parts list of what I would need to build one I went to my local Ace hardware store and got almost all the necessary stuff to begin making this thing. Other trinkets I wanted was the open bail reel, a schrader valve and some STRONG "string" to use. The string of my choice is Dyneema, very small woven diameter, floats on top of water, has little to no memory and is very affordable. I have used both 80 and 100 lb test line. One other aspect of the line to determine is the color to use. I can see the charming pink and neon orange easier than any other color that is available. Both of those colors are easy to see / find in grass, bare trees, and snow covered ground!

After all the construction is finished, the time has come to find out how much air pressure you might want or need to "get r done". Keep in mind one thought, if you want to run your support rope over a tree, aim OVER the tree. Give the 1 oz weight the chance to "clear" the top of the tree and also "lay" the line "over" the top of the tree instead of trying to shoot through the tree. You want to keep the drag of the line over the tree as low as possible. After your shot and finding your line with weight still attached on the other side of the tree, remove your weight and securely attach the rope you are going to use to the line. Usually, the rewind tension of the line back onto the reel will be sufficient for your next shot. Point being, if you just crank your line back on with little to no tension, your next shot WILL pull the line off and get caught UNDER other layers of line still on the reel. And, if that happens, you probably just launched your lead weight out into never never land not to be found by humans ever again.

You should experiment with varying amounts of air pressure to develop a feel for how much air to use for how high you have to clear.

I normally use anywhere from 80 to 100 lbs of pressure in my canister. Another aspect of performance will be the length of barrel you use. With the same air pressure, the longer your barrel, the higher the muzzle velocity therefore, the farther the shot will be. My barrel is 4' long. Some practice shots I have made were straight up in the air with little to no breeze. Using 80 lb test line and 100 lbs. air pressure, I would guess I can shoot the 1 oz. lead weight with string drag at least 200' straight up into the air.

If you choose to build one of these things, please keep in mind everything about safety. Such as NEVER point this thing at anything or anybody you value.

Continued on Page 7

# Air Cannon Pictures



# Air Cannon Parts List

Continued from page 5

Disclaimer: There is NOTHING about this air cannon that is OSHA approved. Therefore it IS a lot of fun to use!

## Parts List for Air Cannon

I shoot PDS-4, 1 oz lead sinkers. Available at WalMart, 3 per bag at \$.97 per bag.

- 1) 48" pc 1/2" SCH40 PVC or longer                      Barrel
- 1) 18" pc 2" SCH40 PVC                                      Pressure Chamber
- 1) 2" SCH40 cap    Chamber End Cap
- 1) 2" to 1/2" SCH40 reducer                              For other end of pressure chamber
- 1) Schrader valve to charge the pressure chamber.      Available at auto parts stores
- 1) 0-100/200 lb Pressure gauge.                      Mount on either end of pressure chamber. Available at hardware stores
- 1) 1/2" lever handle ball valve and fittings to attach to pressure chamber and barrel.
- 1) Open bail spinning reel with large spool for 80 and 100 lb. test line. I use dyneema line Ebay
- 1) 1 1/2" PVC x 3/4" long Glue on end of barrel for line guide from reel spool. Mount inline with reel.
- 2) Stainless steel hose clamps to secure Spinning reel to barrel.

Fresh cans of PVC primer and PCV cement. Available at hardware stores, Lowes, Home Depot.

# Orlando Hamcation Report

Author: John Ackerman, N8UR

Tom and I had been talking about the possibility of driving down to Orlando for the Hamcation, with the ulterior motive of taking some gear for trade-in/sale to a used test equipment dealer there. That plan came together, and we added Buzz, W8BUZ to the mix and took off from Dayton at oh-dark-thirty on Thursday morning. Tom was driving his Suburban, with about a thousand pounds of test gear in the back as additional ballast.

As Tom mentioned in his column, we had a bit of excitement on the trip down, with rain virtually the whole way and some intense thunderstorms once we got south of Macon, Georgia. The last line of severe storms was heading NNE at about 60 while we were heading SSE at about the same speed, so for 20+ minutes the real-time WX radar showed us just entering the front edge of the storm. Once we finally got past the storm, the temperature went up along with the winds. Semis were getting blown all over the road, and all that ballast in the back probably helped us stay in our lane. But we got to our hotel safe and only a little unsound at about 2300.

I'd never been to Hamcation so didn't know what to expect. It was a pleasant surprise and definitely worth the trip. I don't know what the attendance was, but it felt like it was maybe 1/3 to 1/2 the size of Dayton with one large and one small building for exhibitors.

The flea market (but they call them "bone yards" down south) was a bit strange though. I was told that there are no reserved spaces, and no charge; you just drive in and stake out your turf. As a result, the layout was kind of chaotic and I couldn't figure out an orderly way to get through it all. But there was some good stuff there, and I made an unexpected purchase (more on that elsewhere) and saw several other goodies I would like to have gotten.

I was surprised at how many people were there that I knew -- lots of Dayton folks, several I knew from Atlanta, and others from wherever made it a nice chance to catch up with friends. TAPR had a booth, as did a few other technical groups (like the Society of Amateur Radio Astronomers, and the Open Research Institute), and there were several of the HamSci group there as well.

The show runs Friday, Saturday, and Sunday morning. Saturday was definitely heavier attendance than Friday. We didn't stay for Sunday, as the road was calling us to head home. We arrived in Dayton about 9:30 Sunday night after an uneventful trip home.

Hamcation was a good show, and I'd like to go back again.

# Orlando Flea Market Find

Author: John Ackerman, N8UR

While at the Orlando Hamcation, I came across a table in the flea market that had three or four pieces of gear that looked really nice -- some test equipment and an Icom radio I hadn't seen before. I really wanted to buy all his stuff, but sanity partially prevailed and I came home with just the Icom.

It's their new "DC to Daylight" receiver, the IC-R8600 that covers 10 kHz to 3000 MHz. It was part of an estate sale and I was able to buy it for about half the list price (not bad, I think, for a <2 year old radio).

One of the reasons I was really interested in this radio is that it's an SDR design that looks and operates very much like the IC-7300 transceiver. In fact, below 30 MHz the radio is essentially the same as the 7300, although it might in fact perform just a bit better (the info is confusing, but it appears the 8600 has a 16 bit analog-to-digital converter vs. the 7300's 14 bit ADC; that would provide somewhat greater dynamic range and strong-signal handling capability). Above 30 MHz, it's a double or triple conversion design with the last IF at 46.35 MHz.

It supports all the standard analog modulation types with adjustable selectivity, pass-band tuning, selectable AGC and noise blanker, just like the 7300. It also supports some digital voice modes: D-STAR, P25, NXDN, dPMR, and DCR. But of course since it's Icom, it doesn't support DMR or Fusion, and it's not a trunking scanner -- you can't use it to listen to the P25 OMARCS-IP system. It does all the usual memory banks and memory scanning, though.

One of the things that intrigued me is that it has USB and Ethernet connectivity and can output raw I/Q data, which means you can feed the data into a PC-based SDR receiver to decode other modulation types. I haven't yet learned much about this, but depending on how wide the I/Q bandwidth is, this could allow for a lot of very interesting uses. An additional neat feature is the ability to record audio in WAV format to an SD card.



Continued on page 4

# Picture Update

Author: Dave Lundy

There are a couple things I forgot to mention in last month's article. First, when shooting people - especially when they're talking - I use my camera's burst mode. In that mode, the camera takes several photos in rapid succession while the shutter button is depressed, rather than just one photo. This gives me a much better chance of getting a photo with the speaker's eyes open, actually looking at the audience, and not having some sort of weird contorted facial expression. Some people derisively call this method "spray and pray". I just call it insurance. Most modern cameras have this capability (even some cell phones), although some use a different name. My wife's camera calls it auto drive. Exactly how you enable that mode depends on the camera. Some have a dial with a single rectangle in one position representing normal shooting, and overlapping rectangles in an adjacent position representing burst mode, as shown in the first attached photo. Other cameras use a menu option to enable that mode, as shown in the second photo.

The other thing I forgot, and the reason for sending this to the mailing list now, is that the very good course "Fundamentals of Digital Photography" starts THIS Saturday (Feb. 29, 2020) and runs for six consecutive weeks from 10 am - noon at Far Hills Masonic Temple, 5501 Far Hills Ave., Dayton, OH. If any of you who live in the Miami Valley would seriously like to improve their photography, I can definitely recommend it. I took it myself a few years ago. Ron Wilson is not only a very talented photographer, he's an excellent instructor. He also teaches "Photoshop Digital Photo Editing" the same afternoons if you already take good photos but want to improve them digitally. Each course is \$125, but you can take them both for only \$200.

Details of both courses are at <http://www.tripodcamera.com/SchoolClasses.html>

