

August 2015

# ANOMALOUS PROPAGATION

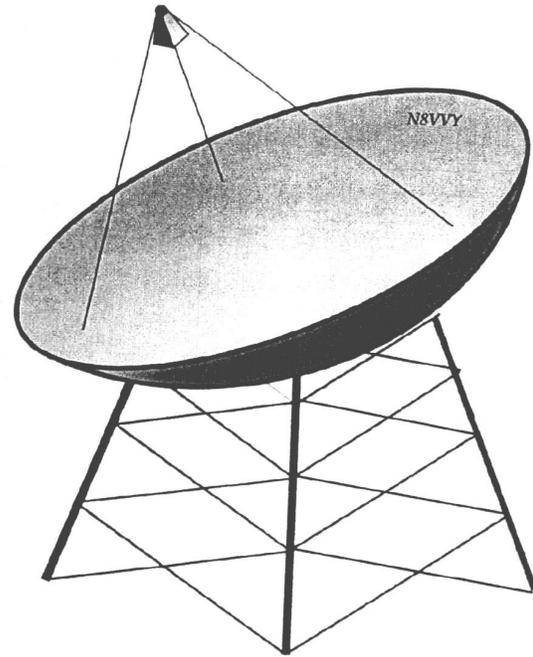
Newsletter: *The Midwest VHF/UHF Society*

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Annual Society membership is \$ 12.00. Please  
make checks payable to Gerd Schrick



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Beacons: 1296.079 **W8KSE** EM79ur Dayton, OH---- 2W to Big Wheel at 800' AGL.

Listen for the **K9AYA Beacons** at EM79qk, 2W @ 10,368.000 MHz  
both are copied by K4TO daily. 1W @ 5,760.000 MHz

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### **MVUS Officers:**

Pres. Tom Holmes, N8ZM,  
Vice Pres. Bob Mathews, K8TQK  
Secretary, Steve Coy, K8UD  
Treasurer, Joe Muchnij N8QOD  
Bulletin Editor, Gerd Schrick, WB8IFM

2 new Chairs:

Membership: Joe Muchnij, N8QOD  
E-mail Chair: Jim Bacher, WB8VSU

### **Extra! AMSAT Symposium in Dayton! Oct 16, 17, 18 - 2015**

Location: Crowne Plaza Hotel, 33 East 5th Street, in Downtown, Dayton.

The Crown Plaza is a 3.5 star Hotel which has been recently renovated.

For more information or to volunteer, please contact Steve Coy K8UD email:

K8UD@roadrunner.com

**DE N8ZM:** The picnic was a great party and everyone who attended had a terrific time. We ate well, tested a few things, and talked a lot (that's what I think we do best!). Gerd has more details elsewhere in this issue, so check out what you missed. Of course, many thanks once again to Daun and Karen Yeagley for hosting us for the umpteenth year. And thanks to all of you who helped out with setup and teardown since Daun has been having major trouble getting around due to a back injury. Word on the street is that he will be getting it fixed soon. Here's hoping the procedure is successful!

Gerd also has the election results, and the big change is that Joe Muchnij, N8QOD, is our new Treasurer, relieving Gerd of that responsibility. Gerd will still edit and publish Anom Prop, however. Joe has also taken on responsibility for membership matters, and our emailing of Anom Prop and other member communications will be managed by Jim Bacher, WB8VSU. Along that line, we would be quite happy to email everyone their monthly copy of Anom Prop if we have your email, but the sad fact is that we only have good addresses for about half of you. If you are not receiving this by email, please contact Jim or myself at [WB8VSU@mvus.org](mailto:WB8VSU@mvus.org), or [N8ZM@mvus.org](mailto:N8ZM@mvus.org). Even if you would rather have a paper copy mailed to you, please let us know your email address so we can handle other communications, like last minute meeting changes, etc. Also, please help us by making sure that we have both your correct mailing and email addresses.

We don't mind mailing you a paper copy, although it does cost us about \$1 for printing and mailing, which over the course of a year pretty much balances out against the annual dues, and we're OK with that. We do have a few other regular expenses, like some of the food for the picnic, and we also like to do projects like our 1296 beacon. We manage to keep a few bucks ahead of the game with an occasional money-making endeavor such as the noise sources, so we are solvent, but we do want to save money where we can so that we can fund the fun stuff. So the email distribution of Anom Prop as a PDF file saves us money which we can use for our projects. Just wanted to lay out the facts for everyone. Please notify us of your addresses and delivery preferences real soon, before you forget! Thanks! And while I am on the subject, please remember to get your annual dues paid up soon, for all the reasons I mentioned above.

The September ARRL VHF contest is the weekend of the 12<sup>th</sup>/13<sup>th</sup>, and the N8ZM crew will be on the air on 6m through 432, and maybe even available for a few QSO's on 1296. We have been working hard all summer to get things in shape and we think we have a very good chance of turning in one of our best performances ever from our site Northeast of Urbana. Credit goes to W8PLZ, WB8ART, K8DZ, WB8VSU, N8NRT, for making many trip up there over the last few weeks to get the new 110' 6m tower finished as well as many other maintenance and repair tasks, and they let me help out a little too. If you have a chance, please get on the air and work us. While the contest is mostly conducted on SSB and CW, we will make ourselves available for FM contacts as well. I think you'll find that VHF contesting is interesting and challenging, and a lot of fun too.

The 2m, 432, and 1296 beacons are currently off the air, as Mike, W8RKO, has ambitiously started projects to upgrade each one. The two lower frequency beacons will be operating from HARA Arena, (site of that little known ham radio event in May), while the 1296 signal radiates from 800' up on Ch16's TV tower just SW of Dayton. Also in the plan book is a 2304 beacon, although the site for that one has yet to be determined.

Further, I have been slowly pulling together the pieces for a 900 MHz FM repeater, location TBD. A friend of mine was kind enough to 'loan' us a Motorola MSF series 900 MHz repeater, and I picked up an antenna cheap at Hamvention, so now we just need to get the radios for you guys. I'm working on that end of it too, so keep your fingers crossed.

Our September meeting will be on the 25<sup>th</sup>, at the MCL naturally. Bring your XYL so you can get some brownie points for taking her out to dinner. They are usually quite happy to sit together and chat about what interests them, just like we do. And remember to tip the young ladies who keep our glasses and coffee cups filled.

de TOM, N8ZM.

**Attention:** At the Clubmeeting after the Hamvention in May of this year I got \$30 or 2 ½ years of dues from a party where the call I noted was incorrect. Please refresh my memory so you can be credited. 73, Gerd.

## This and That 8-15

**Infinity.** There are only two things that might be infinite, the universe and human stupidity. And I am not sure about the universe.  
[Albert Einstein]

**Coincident?** It's only a coincident that "NASA" in Hebrew means "to go up".  
[L.M. Boyd]

**Power Outage in Stockton, Ca.** "The top lines are considered our freeways. The bottom lines are our distribution lines taking power directly to homes," said a PG&E spokeswoman "So when the two collide, they're at different voltages and the higher voltage wins out, causing an overload."

**Solar Power.** "I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that. I wish I had more years left."  
[Thomas Edison]

**Chocolate.** "American chocolate is rubbish," says John Hanson the owner of The British Shoppe, a UK food store based in Orlando, Florida...."Cadbury's chocolate tastes like chocolate," he says, "whereas Hershey's chocolate tastes like wax."  
[BBC News 3-18- 2015]

**The Bicycle.** "For physical exercise for both men and women, the bicycle is one of the greatest inventions of the nineteenth century." [Philadelphia Physician from "The Wright Brothers" by David McCullough]

**"Space x and 104 'Kleinstsatelliten'.** Start am Montag." Read an entry on the German AMSAT bulletin board. This "miniature satellite", as I would translate it, is a much better term than the non nondescript US "cube sat" that we use.  
[Gerd, WB8IFM]

**New Things.** The person who follows the crowd will usually go no further than the crowd. The person who walks alone is likely to find himself in places no one has ever been before.  
[A. Einstein]

**Listening.** When you talk, you are only repeating what you already know. But if you listen, you may learn something new.  
[The Dalai Lama]

**A Hot Summer.** "Why is America so over air-conditioned?... The amount of energy and money the U.S. spends on keeping everyone freezing throughout the summer is far more than any other country. ....And: Europeans barely use AC at all, relying on fans, balconies, and open windows.  
[Kate Murphy, NYT and Rick Noack, Washington Post]

**Quotation of the Day:** "We used to carry knives, now we have to carry keys" [Gere, a former nomadic herder in western China, lamenting his new life after his family's forced resettlement into a house]

**The Legacy of Lilienthal:** "To invent an airplane is nothing. To build one is something.  
But to fly is everything."

**Improving.** "If you don't get better, you get worse."  
[Lawrence Welk]

**Think!** Ernest Rutherford's parents moved to New Zealand, they said, to raise a little flax and a lot of children. Ernest grew up with 11 brothers and sisters. Their motto was; "We haven't the money so we got to think!  
[Writer's Almanac by Garrison Keillor]

## MVUS Picnic, 8. 22. 2015

We could not have picked a better day for this years picnic. There was sunshine with just a few clouds later in the day. The temperature was around 80 degrees. There were no antenna measurements but we had a few preamps that were measured for gain and noise figure. Tom, N8ZM, will report on these.

Attendance, according to the sign-in sheet were 10 hams and one non-ham. Additionally I counted Red with Marilyn, also, of course Daun and Karen. And with the other women, who didn't sign in we had a total of 18+-.

Food was plenty, a lot of it healthy salads and veggies. Yes there were plenty of cookies and cakes also. Like they say: a good time was had by all!

I had just come back from a trip to Germany and was suffering from the time change, got (very) tired by mid afternoon...  
[Gerd, WB8IFM]

List: Tom Stauffer W9NBS, GT N8SPY, Tom N8ZM, Jim WB8VVSU, Gerd WB8IFM, Mike M KA8ABR, Joe N8QOD, Bob K8TQK, Art WA8RMC, Mike Gray WA8HNS, Ben Barnett no Call, Red W8ULC & xyl Marilyn, Daun & xyl Karen. More...

### Art Towsley's (WA8RMC) Preamp Gain and Noise Figure Measurements:

Device	Gain dB	N.F. dB
1) DEM 432 Preamp # 1	20	.75
2) DEM 432 Preamp #2	18.5	.70
3) L1200 LNA 1280 MHz	17	.67
4) ? 432 Preamp	16.6	.78
5) 220 Preamp	Dead.....	

Noise Figure measurements by Tom Holmes using the HP 8970B, also used was the Agilent N9912A Field Fox RF Analyzer for some impedance measurements.

### Election of New Officers and Chairmen 8-22-15

The usual suspects were running. However, Gerd, WB8IFM, suggested some changes: he would like to give up the treasurer part and create two new committees: that of membership and E-mail list and mailings. Gerd, for the time being, will continue as Editor of "Anomalous Propagation."

Here are the results: President:	Tom Holmes, N8ZM
Vice President:	Bob Mathews, K8TQK
Secretary:	Steve Coy, K8UD
Treasurer:	Joseph (Joe) Muchnij, N8QOD
Membership Chairman:	Joseph (Joe) Muchnij, N8QOD
E-mail Chairman:	Jim Bacher, WB8VVSU
Editor "Anomalous Propagation":	Gerd Schrick, WB8IFM

Officers and chairmen can be reached by e-mail at their call followed by @MVUS.org

## Five things about Canada's 'space elevator' (and what you might pass while going to the top)



[Sarah Knapton, The Telegraph](#) | August 18, 2015



THE CANADIAN PRESS/HO-Thoth Technology The final part of the 20km-tall space elevator platform recently patented by Thoth Technology of Pembroke, Ont. is shown in this artist's concept.

Thoth Technology has filed a patent for a 20-kilometre-tall platform from which spacecraft could be launched. Here are five things to know about the Pembroke, Ont. company's tower, dubbed 'ThothX':

- 1:** By building the elevator to only 20 kilometres, the tower would sit in the stratosphere rather than extending into geostationary orbit, where satellites fly, which is around 25,406 kilometres up.
- 2:** From the top of the lift, spacecraft would launch in a single stage to orbit, returning to the top for refuelling. The tower would be inflatable, made with reinforced segments and topped with a runway from which satellite payloads could be launched. It would stay upright using complex arrangements of flywheels to compensate for bending.
- 3:** Cargo would be transported to the top by pressurized cars travelling up the inner core or climbing the outside like a funicular railway.
- 4:** Rockets are incredibly inefficient because they need huge amounts of power to get off the ground. Thoth estimates the lift would cut the cost of space flight by about one-third. The tower could also be used for scientific research, communications and energy generation via wind turbines.
- 5:** The elevator is designed to withstand the force of a Category 5 hurricane.

*With files from Postmedia News*

Related: [Innovation in space: Canadian companies planning for humanity's future among the stars](#)

[SpaceX rocket explodes on its way to International Space Station, delivering a severe blow to NASA](#)

## **Double Memory Plays Tricks with You**

By Gerd, WB8IFM

When you travel some distance and wind up in a different time zone, strange things can happen to you. We recently traveled to Germany and stayed there for 3 weeks. When we left for the transatlantic flight the pilot, among other things, mentioned the time of arrival at our destination and recommended to advance our watches to that particular "local time". I had planned to do this anyway since I had come across that recommendation in the news just very recently.

In general we had very few problems, which I attribute to our busy schedule, however, one occurrence need to be mentioned. In the first night I woke up pretty precisely at 5 AM, that is the time, the xyl and I take a heart pill every morning, supposedly 2 to 3 hours before breakfast. That sure surprised me. Let me give you our daily schedule: getting up about 7Am, breakfast about 8AM. Lunch about 12 AM. A one hour nap between 1 and 3PM... There the amazing thing is that the nap is very close to exactly one hour. Supper is at 6PM and bedtime is around 10:30 to 11 PM.

On our return to Dayton we had the following experiences: waking up at 5 local worked just fine. Then we got tired at 5PM, and trying to ignore it, we really got tired. That would be the "German bedtime". So we took an extended nap. Next, during the night we woke up around 1 AM. That would be 7 AM in Germany, get up time. We had some trouble going back to sleep.

Finally, at the club's picnic, which was 1 ½ days after our return I got really got tired in the afternoon and was among the first ones to leave. I am sure there were other moments but the ones mentioned should suffice to point towards the brain storing both schedules and intelligently giving you guiding signals. Next time you travel, set that watch and observe your schedule. Should be interesting.

## **Unsolved Mysteries?**

By Gerd, WB8IFM

We have over 100 members listed now, a lot of talent and know how. I'd like to revive our attempt some time ago to post problems and ask the membership or anyone else reading this correspondence to reply. Everyone does have unanswered problems or unknown details he'd like to find out. I compare that to unfinished jigsaw puzzles with a few missing pieces. As you age quite a few of those accumulate and your brain, which, without your explicit command, is constantly looking for answers.

Here we go:

- 1) What is this gue the cable companies use to keep moisture out of their (underground)cables, it is extremely sticky when it gets on your fingers. What solvent will remove it? [WB8IFM]
- 2) How do the "key cards" in motels work? They are settable from the front desk it seems. [WB8IFM]
- 3) From someone who has been to or lived in Alaska. What is a good time and method to visit, see the aurora and a few other things? [WB8IFM]

## Heavenly Dimensions.

By Gerd, WB8IFM

On our recent trip to Germany we spent the first nights in a room where we had a good view of the moon from our bed for several nights. Thoughts were going through my head: I imagined myself standing on the moon and looking back towards earth. With earth being a lot bigger than the moon, how big would it be in the “moon's sky”?

For us on earth the sun and the moon are the biggest objects in the sky, but although the sun is vastly bigger than the moon because it is so much farther away they look the same size. Their sizes are usually given as subtending a .5 degree angle, easy to remember.

Now plugging in the size (diameter) of the moon and comparing it with the earth, we find that earth as viewed from the moon is about 4 times as big as the moon viewed from earth.. [Gerd, WB8IFM]



The diameter of the Moon is 3,480 km or 27% of the Earth's equatorial diameter of 12,756 km. The mass of the moon is 1.23% of the mass of the Earth, or about 1/80th. The density of the Moon is  $3.34 \text{ g/cm}^3$  compared to  $5.52 \text{ g/cm}^3$  for the Earth, so its overall composition is quite different, apparently lacking a large iron core.

**Super Conditions VHF and higher** on East West path this past week, as reported by Lloyd, NE8i

**Sun Aug 30** Here in EN73, hearing W7XU and other stations out to the West. Including South Dakota. Noon, With no working rotor, hard to aim antennas towards anyone. Here is what Ron W9ZIH had to say. Stan W8MIL worked several stations in Zero land. My 10 GHz beacon at Stan's, which is aimed South East, so far, no reports. 10368.350

**Mo 8-31** 11 AM Band still open. 1000 mile (1,600 KM) paths today. Even up to 1296. Many reports. Talking to stations to the East of me, they are just starting to hear some of the signals to the West. So the opening is extending to the east a little. I figure that the hurricane approaching Florida, is helping stir up the atmosphere, and helping the opening. I worked a dozen Zero land stations from the mobile this morning. 100W 4 elements. Northern Minnesota, North and South Dakota, Nebraska.

**Aug. 15 / 16 was the !0 GHz Activity Weekend:** On Saturday, got up, drove the 3 plus hours there through an hour of pea soup thick fog, down to GP Hill EN82em, New Hudson Mi, and set up with WA8VPD and K8RAY. Weather there was sunny and nice. Could not use the top of the hill due to community activities that were using it. So paths to the North and West were poor. Blocked by the hills, and trees. Set up at the middle paved parking lot. (Drive to the right). Had several visitors. There was a lot of activity around Lake Erie. In all, about 15 stations could be worked on 10 GHz. WW8M, K8JA, WA3TTS, W2RMA, WA8RJF, VE3ZV, VE3SMI plan to be back at GP Hill, September 12 MAD (Microwave Activity Day), 9 AM or so. + Sept 19 VHF contest morning, 9 AM or so and start rover from there, and October 3 MAD 9 AM or so. September 10 GHz plus, I plan to go to Northern Lake Michigan, potentially operate from any or some of these rover sites: EN74at, EN63vh, EN64vm, EN74gc, EN63vr, EN64sa and EN63vb and other places, with the 18W 10 GHz station. Liaison cell 248-225-3847 and 144.260. "All plans sculpted in Jello" (tks W9FZ), weather, activity and Murphy permitting. Hopefully, I will have my repaired G2 back from Kuhne before then.

Reminder, **Microwave Activity Days** coming up are **Sat Sept12** and **Sat. Oct 3.**

A, K2DH, KB8VAO, KB8U, K2DH, and myself. W9ZIH and W9SNR were on in Illinois. Heard W9SZ was on. As usual, conditions were best early, but there was no real band opening. Not like this morning on VHF. Just normal dead band conditions. Stayed to about 5 PM. Best contact, was WA8VPD worked K2DH in New York. My best was WA3TTS. More activity than I have heard on in a long time. No 24 GHz or up activity heard about. I had 24/47 with me, but no one to work. Plus, conditions for 24/47, did not look all that good. **Lloyd NE8i rover**

PS: There are two 10 GHz beacons now on in Michigan KF8QL/B EN72ew 10368.285 32 slot and NE8I/B EN74ic 10368.350 2 ft dish aimed at GP Hill EN82em. Both 180 mW. I have one WR90 32 slot array available for a beacon. \$80 plus shipping

### **A Plug for Solar Flux** By Gerd, WB8IFM

If you are active on the shortwave bands you have probably followed the good old sunspot numbers, but also took notice of the "solar flux", and, of course, have noticed the influence of the earth's magnetic status expressed in the A and K factors. Both measurements the radiation from the sun in the UV range and the status, quiet or active (disturbed) magnetic field influence the ionosphere which in turn determines the propagation conditions on shortwaves.

The solar flux, in our case the short (or more potent) UV waves from the sun is what we are after. The sunspots represent some strong sources of UV, but when there are few or non, there is still considerable UV available from the "spotless" sun. So my observation is that in the years of the sunspot minimum, when there are few to no sunspots, there is still the flux. It usually hovers in the 50 to 100 range, indicating useful propagation on 20m. In fact during the years of few sunspots the 20m band is open for DX 90% + of the time.

As you know, the flux is measured at 2.8 GHz and thus would be easy to measure by anybody familiar with the microwaves. This measurement does not require the sun to be visible, as clouds do not attenuate the signal much. I would recommend a small dish which would give you a beam angle so you could easily align the dish for maximum noise, compare and calibrate your readings with the officially published data for a while. Presto, you got your own "solar flux" readings. Not sure about the signal levels, you could start just taking readings from a detector with an micro ammeter. Adding an additional amplifier stage would be not too hard either.

## Phase 3 (4) coming Back to Life.

If you have been following the news from the satellite front this past year you have probably noticed a few positive developments. We old timers from the Oscar 10, 13 & 40 days have been waiting and hoping for many years for that event.

I still remember my first QSO over Oscar 10. I had put together a station from scratch that had but one problem, I could not transmit on the “correct” sideband. So I tuned around, listening to the various European stations talking to the Americans. Then an Italian station called cq. I answered and he came back to me saying: “OM, you are transmitting on the wrong side band,” which, of course, meant he could hear me OK. Well, I explained my situation and we had a nice qso. I still have and cherish his QSL card.

Yes, in the “old days” we used to exchange real paper QSL cards and some hams put in a lot of effort (and money) to make this a memorable card, depicting views from their country or other subjects. Of course, depending on your budget, the card may have been rather plain some time.

Going back to the beginning, I remember picking up the Sputnik signals when I was a student in Berlin. Again, it took some effort to tune my home brew 10/15/20 converter to the right frequency. I was at the time staying at the international student home where the mix was approximately 50 Germans and 50 foreigners. Many of those listened to the Sputnik signals with amazement.

Let me quickly explain the Phases. Phase 1 and 2 deal with the early low earth orbit satellites. Phase three are the high elliptical satellites, pioneered by the Russians and called Molnya orbits. They provide many hours of service covering a little less than  $\frac{1}{2}$  of the globe. Finally, we have phase 4, the geostationary satellite used by Sat-TV and many other services.

The new developments promise phase 4 orbits, making a dream for satellite operators come true, providing 24 hour service of almost  $\frac{1}{2}$  of the globe. With three of those satellites the entire globe could be covered, this we might call phase 5.

The first to announce a new phase 4 satellite were the Arabs, specifically Qatar. This from a ARRL bulletin on 24 March 2014: Qatar’s [Es’hailSat 2](#) satellite will provide the first Amateur Radio geostationary communication capability linking Brazil and India. (mainly covering Europe and Africa, ed) The satellite, expected to launch by the end of 2016, will carry two “Phase 4” Amateur Radio transponders and will be positioned at 26° E. It will also carry Ku and Ka band capabilities for television, government, and commercial content distribution.

After studying the footprint, which covers only the most easterly parts of Brazil, I tentatively started thinking about planning a vacation to or near Recife in Brazil for the latter part of 2016. I used to have a friend there years ago.

The second announcement came from Amsat US in July of this year: Virginia Tech has approached the US Government to fly the Phase 3-E space frame into High Earth Orbit (HEO) in order to support scientific payloads as well as serve as an amateur radio satellite. During the AMSAT-DL Annual Meeting on 4 JUL 15, the AMSAT-DL membership approved the concept, agreeing to allow the Phase 3-E space frame that is currently stored in Germany to be shipped to Virginia Tech in the USA for further construction, testing and preparation for eventual launch to HEO should the US Government formally agree to fund such a mission.

Looks like the dormant P3E project is coming back to life and may yet come to fruition. The HEO, of course, is the old orbit of Oscars 10,13 and 40. We would not have 24/7 service but the orbit would move around the earth, giving access to most of the hams in the Northern hemisphere, if not simultaneously.

Lets hope things work out and the good times will come back!

[Gerd, WB8IFM]