

Mtg. Fri 6:30 Sept23  
at the MCL Cafeteria in Kettering

Sep. 2016

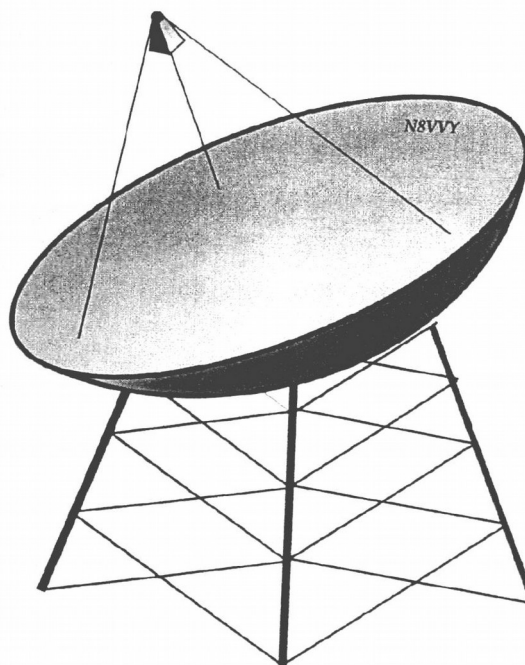
# ANOMALOUS PROPAGATION

Newsletter: *The Midwest VHF/UHF Society*

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make checks payable to Joe Muchnij



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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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UPCOMING: ***Microwave Update, Oct 13-15, St. Louis, MO***

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**DE N8ZM....**So the big news still seems to be that Hamvention is moving to a new venue. Lots of people have been asking me what I know about it, including what will be the situation for the MVUS booth. At this point it is much too early to know the answer to that, even for the half dozen or so people on the committee who are directly involved with sorting out all of the changes needed to fit into a new space. I am not one of those people, thankfully, but I do know that they are all quite capable and dedicated to making this all work out the best it can. I am quite sure that they have already thought of every question that has already been put to me, so it is best for the moment to give them some room to work on it. A lot needs to be settled by the end of November, or thereabouts, in order to begin selling tickets, booths, and flea market spaces in December. A lot of nervous-Nellies have already been bugging the committee about this and that, and all that accomplishes is to distract their attention from working on the problem being asked about. Need I say more?

Mike, W8RKO, reminded me that the FMT is coming up in November, and he will again be one of the transmitting stations. See QST or the ARRL web site for details. This should be a must-do for MVUS members, if only to learn about how this kind of measurement is done and to see how accurate your radio(s) might be.

The 1296 beacon has been back on the air for several weeks now after Mike, W8RKO, made some changes to the keyer to reduce the likelihood of latch-ups. Meanwhile, work continues to complete the amplifier section of the new hardware so that Mike can take his 817 and transverter home.

The September ARRL VHF contest was marked by ho-hum propagation, for the most part, as well as being interrupted for a couple of hours on Saturday by a thunderstorm. And the rain static lasted much longer than that. We added 902 MHz to our arsenal of frequencies so that we could work stations on 6m through 1296, and we did pass out points on all of those bands. I hope we worked as many of you as possible during the contest.

I recently attended the annual TAPR Digital Communications Conference (DCC) in St. Petersburg, FL, along with Joe, N8QOD, and John, N8UR. John says "HI Y 'all" from his Atlanta digs, but it is very likely that by this time next year he will be back in Dayton, but that is a story for another day. The DCC is three days of excellent presentations on a wide range of topics that in some way or another involve digital 'things'. Software and hardware, as well as some general computing related topics are fair game and each is an interesting facet of the hobby. In a few weeks, videos of the entire conference should be available on the web for you to view, and while you may pick to watch only topics of interest to you, I think you will find all of the presentations have something to teach. If nothing else, you will get to see and hear some very talented people sharing their knowledge. Very few of the presentations are so esoteric that they cannot be followed by mere mortals, so dive in.

At the September MVUS meeting, we set the dates for the remaining meetings in 2016, and they are as follows: October 28th, November 25th (day after Thanksgiving), and December 23rd. All are the 4<sup>th</sup> Friday as is our tradition, and will be at the MCL. December is out holiday meeting so the YL's are invited. Actually, they are welcome at every MVUS meeting and we would love to have them attend every one.

So until October... de Tom, N8ZM

## **This and That 9-2016**

**Competition.** It brings out the best in products, but the worst in people. [David Sarnoff]

**Education.** Education is not preparation for life; education is life itself. [John Dewey]

**Editing.** We have to change truth a little in order to remember it. [George Santayana]

**Good and Evil** The line between good and evil passes not through states, nor between classes, nor between political parties either-but right through every human heart-and through all human hearts. [Alexander Solzhenitsyn]

**Rules.** If you obey all the rules, you miss all the fun. [Katharine Hepburn]

**Building.** To build may have to be the laborious task of years. To destroy can be the thoughtless act of a single day. [Churchill]

**Out of Whack.** If you can see things out of whack, than you can see how things can be in whack. [Dr. Seuss]

**Progress.** If you stick a knife in my back nine inches and pull it back 6 inches, there is no progress. You pull it all the way out, there is no progress. Progress is healing the wound. [Malcom X]

**Dreams.** It is not true that people stop pursuing dreams because they grow old. They grow old because they stop pursuing dreams. [Gabriel Garcia Marquez]

**More on Dreams.**

**New Secretary to Boss:** “If you wanted it attended to right away, why didn't you say so instead of marking it 'Urgent' ?” [Bob Goddard]

**Aging** is not lost youth but a new stage of opportunity and strength. [Betty Friedan]

**Fashion** is a form of ugliness so intolerable that we have to change it every six months. [Oscar Wilde]

**Low Earth Orbit.** The lone American in orbit on the International Space Station may not make it in time for the presidential elections. But the Texas resident said she got an absentee ballot, just in case. Her return address listed as “low-Earth-orbit”. [News paper]

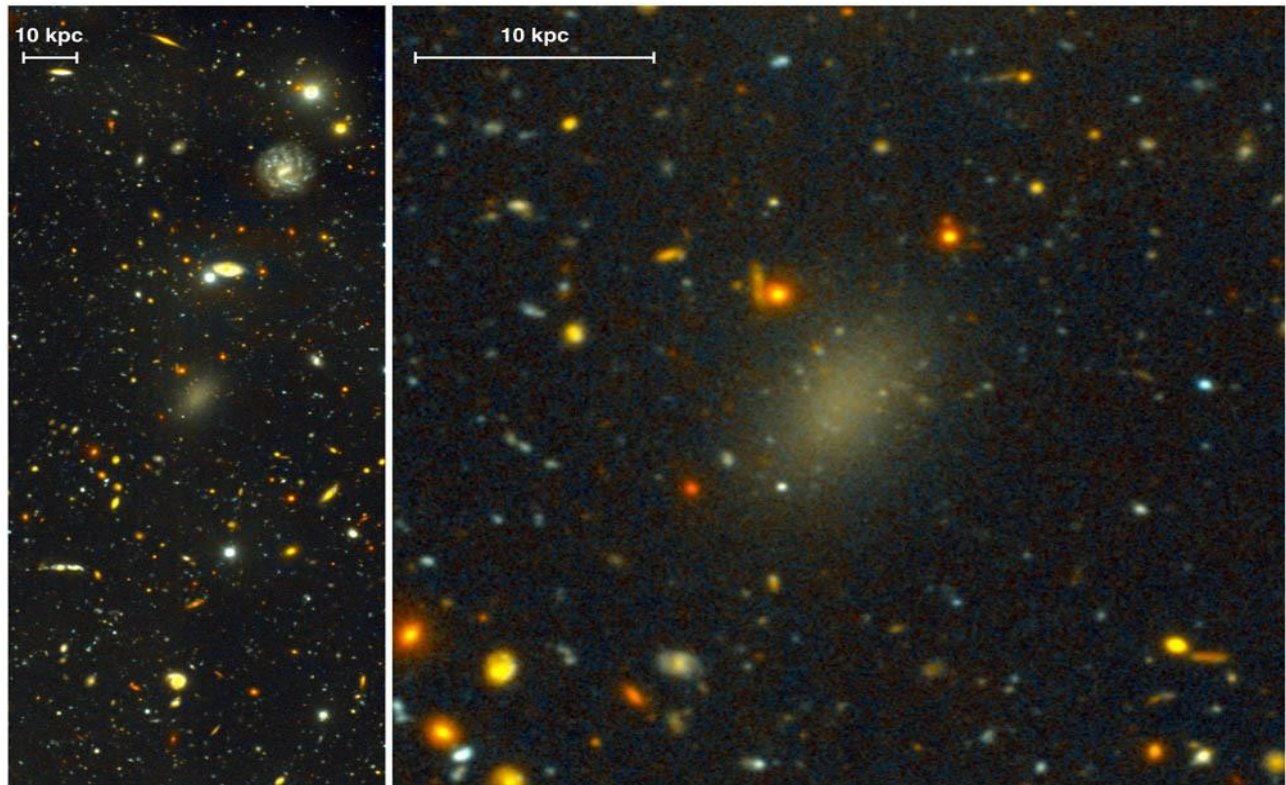
**Japanese S-Meter.** The new Icom IC 7300 measured S 9 exactly and was above S9 fairly accurate, however, the S-units below S9 were at a very generous 3 db.

[ Funk Amateur 8/16, DJ1TO & others]

## Dark Twin

Astronomers have spotted a “dark twin” of the Milky Way, a discovery that blows apart their already patchy understanding of dark matter. Located 300 million light-years from Earth, Dragonfly 44 is about the same size as our own galaxy, but contains a tiny fraction of its stars. Only about 0.1 percent of the newly discovered galaxy is made up of ordinary, visible matter like stars—100 times less than the Milky Way. The rest apparently consists of dark matter, the elusive, mysterious substance that astrophysicists believe makes up 80 percent of the matter in the universe. Scientists have never actually seen dark matter; its existence is predicated on the theory that without its gravitational effect, stars and other celestial objects would drift apart rather than clump together in galaxies. Dragonfly 44 isn’t the first dark galaxy astronomers have discovered, but it’s the only one comparable in size to the Milky Way. “We thought we had sort of figured out what the relationship is between galaxies and dark matter,” the study’s lead author, Pieter van Dokkum, tells *CNN.com*. “This discovery turns that on its head. It means we don’t understand, kind of fundamentally, how galaxy formation works.” Physicists hope to discover other dark galaxies, to increase their understanding of one of the most puzzling building blocks of the universe.

The Week / Sept. 16- 2016

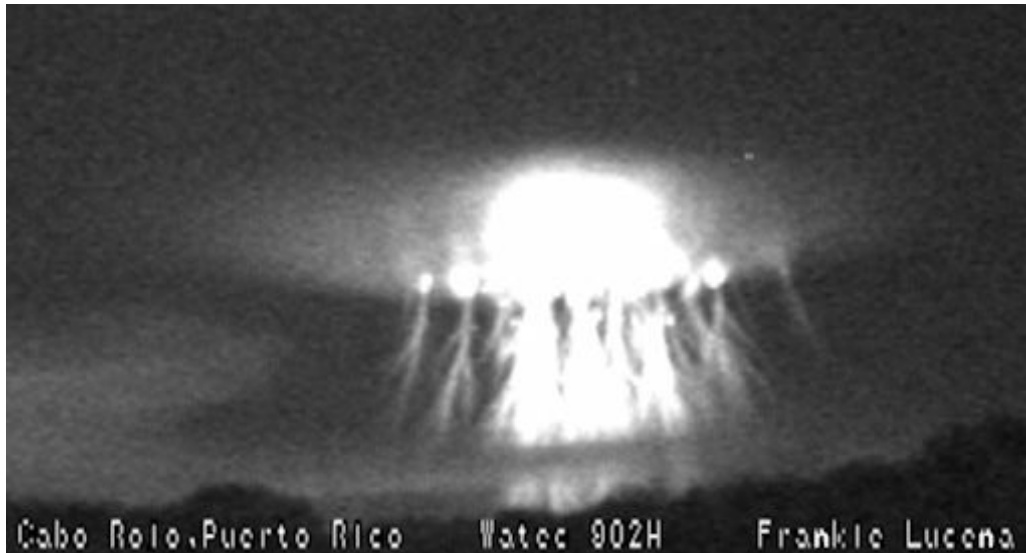




## **A-BOMB' SPRITE OVER THE CARIBBEAN:**

### **Space-weather**

On Sept. 18th, 2016 Frankie Lucena of Cabo Rojo, Puerto Rico, photographed an enormous [sprite](#) over the Caribbean Sea. For a split-second, the sky was illuminated by a mushroom-shaped flash:



Oscar van der Velde, a member of the Lightning Research Group at the Universitat Politècnica de Catalunya, explains what Lucena photographed:

"This type of sprite is often called 'jellyfish' or 'A-bomb,' and ranks as the largest type of sprite in both horizontal and vertical dimensions," he says. "It consists of a bright halo approximately 85 km above Earth's surface surrounding sprite elements with long tendrils reaching down as low as ~30 km above ground level."

"This kind of sprite tends to be triggered by a very impulsive positive cloud-to-ground flash," van der Velde adds.

The curious thing is, Lucena did not observe an instigating lightning bolt. Instead, just before the sprite appeared, he recorded a bright point-like flash of light. "Was it a cosmic ray hitting the camera?" wonders Lucena. [Play the entire video](#) to see the flash. Another possibility: The point-like flash could have been a cloud-to-ground strike mostly eclipsed by intervening clouds.

If Lucena did photograph something new triggering a sprite, perhaps it shouldn't come as a big surprise. The field is relatively new. Although sprites have been seen for at least a century, most scientists did not believe they existed until after 1989 when sprites were photographed by cameras onboard the space shuttle. There is still much to learn.

More pictures on [spaceweather.com](#) ED.

## From Space Weather 9-21-2016

**CHINESE SPACE STATION SIGHTED:** Last week, on Sept. 15th, China launched a new space station to Earth orbit: [Tiangong-2](#). The 10-meter long spacecraft is only a fraction the size of the ISS, but there is room inside for two tiakonauts (Chinese astronauts) and plenty of science experiments. In dark skies, it can be seen with the naked eye. On Sept. 20th, Kevin Fetter of Brockville, Ontario, Canada, video-recorded the Tiangong-2 passing by the bright star [Zeta Ophiuchi](#):

"At the time the space station was passing the star, its magnitude was near +5," estimates Fetter. "It got into the 4th magnitude range just before it disappeared into Earth's shadow. So it is a naked-eye object, albeit barely."

Tiangong-2 is the second of three prototype space stations China plans to launch as the country builds toward a Mir-class outpost in the next decade. Tiangong-2's predecessor, Tiangong-1, is still in orbit and expected to burn up in Earth's atmosphere sometime in 2017.

Next month, China will launch a crew of two to inhabit the new space station for approximately 30 days. While on board, they will test Tiangong-2's life support system, and possibly conduct experiments in brain-machine interfacing, atomic clock navigation, and quantum communications.

Ready to see for yourself? Tiangong-2 flyby predictions are available from [Heavens Above](#). "Use the Satellite Database and search for object '41765' labeled 'OBJECT A,'" advises Fetter. "That's how to find it."

PS: The Chinese Space Station 1, unoccupied, is w/o ground controll and expected to deorbit early in 2017. (Ed.)

### The Lever.

δῶς μοι πᾶ στῶ καὶ τὰν γᾶν κινάσω. [*Dos moi pa sto, kai tan gan kinaso.*]

- **Give me the place to stand, and I shall move the [earth](#).**
- Said to be his assertion in demonstrating **the principle of the lever**; as quoted by [Pappus of Alexandria](#), *Synagoge*, Book VIII, c. AD 340; also found in [Chiliades](#) (12th century) by [John Tzetzes](#), [II.130](#).

9-15-2016

## Improve your smartphone's battery life with these effortless tips

While there is no preventing your phone's battery from weakening over time, there are steps that you can take to slow its degradation

We've all experienced that fear-inducing moment when you open up your phone only to be greeted by the "Low Battery" warning. It always seems to happen in the earlier half of the day when you still need to survive the rest of the work day and the commute home. If you have an older phone, you may find yourself having to carry your charger around with you throughout the day in anticipation of that unsettling notification. While there is no preventing your phone's battery from weakening over time, there are steps that you can take to slow its degradation.

1. You no longer need to let your battery drain completely before recharging - in fact, partial discharges are recommended. Nickel-based batteries, which used to rule mobile phones, have a **"memory effect"** \*) in which some of their capacity is lost, or "forgotten," if they are consistently recharged with a partially full battery. But smartphones now use lithium-ion batteries whose capacity is determined by how many lithium ions it can nestle into its two electrodes. Each time you go through 100% of a charge cycle, the battery loses some of its capacity. Constantly draining your phone's battery down to nothing will degrade it much more quickly. So if your phone is at 50% when you wake up in the morning, you can charge it worry-free while you get ready for work.
2. Avoid hot temperatures! Heat speeds up the chemical reactions inside your phone, causing faster drainage and, ultimately, a diminished capacity. Excessive heat caused by factors such as leaving your phone in a hot car or on the beach can also cause a thermal runaway, in which the liquids in your phone's battery will start to boil, building pressure until the battery explodes. And while the heat of your body won't cause a meltdown, it is enough to contribute to a weakened battery, so try not to carry your phone in your pocket either.
3. If you are traveling to another country where you will not be using your phone for a while, make sure you don't leave it without a charge. Because a battery with no charge can become unstable, modern batteries will trip a self-destruct circuit before destabilizing. It's great for avoiding explosions but it also, unfortunately, means that your phone will never work again. To avoid this, make sure the charge is at approximately 50% before turning your phone off for the duration of your trip. For even longer-term travels, be sure to turn your phone back on every six months and make sure that it's still half-way charged.

Source: [Washington Post](#) By [Lori O'Toole](#)

\*) This is nonsense, to the layman it may resembles something like that. For maintenance of the good old Nicad battery, discharge it after a series of uses, I'd say, every two to three months. Make sure to stop when the voltage approaches zero. Just before that, recharge fully. Use the battery as usual for another period of ca. 3 months. Ed.



## Battery Status and Hot Iron

We've all got VOMs (Volt-Ohm-Meters) around the house. I just made a brief inventory and found 3 digitals and one analog upstairs, 4 digitals and 2 analogs in the basement. How do I use them? It's mostly for measuring batteries from the many gadgets we have around the house. For the popular 9 and 1.5 V batteries, one analog meter has a three range indication: there is green, then a smaller range with a question mark and then the red range. Some digital meters also have provision to perform this measurement. However, for other popular batteries as your Lead Acid car battery there is no such convenience, So when I found some data, I posted them in the garage. A younger person probably could memorize them. You now measure the car battery voltage and look up its present status on the table. The xyl just came back from an errand and the voltage measured for her car battery was 12.82V, that makes the battery fully charged! I measured the other car's battery in the garage at 12.20V, meaning that battery had a 50% charge left. This car is sometimes only used once a month, it now tells me to take it out for a spin or get out my charger or trickle charger more often.

The other item is about a black smith. We did meet one last Sunday visiting a museum in Roscoe village, near Coshocton, OH, which featured a smithy. And there was this table about the temperature and the colors of the hot iron. When I grew up we had a Smithy in the building and so I watched iron being formed at an early age.

<b>Lead Acid Battery</b>	<b>Hot Iron Approximate Degree (F)</b>
>12.6 V Fully Charged	
12.4 V 75 % “	Dark Red 1000
12.2 V 50 % “	Blood Red 1200
12.0 V 25 % “	Cherry Red 1400
< 12 V discharged	Bright Cherry Red 1600
	Yellow (Straw) 2000
	White 2500
	Melts (Liquid) 2800
<p>For less stringent requirements (no starter motor, just a few Amps max.) you can draw from a (car) battery to just below 10V. So for a transceiver, a converter/ battery booster is recommended to get that extra charge out, before declaring the battery discharged! Without that booster, the transceiver electronics will shut off as if the battery had to start a car at the end!</p>	

## Determining True North and more

John Kludt, K4SQC

- You need to orient your antennas to true north. The magnetic declination for your zip code 10504 (?) is significant. According to the online calculator it is 13.3 deg. West (<http://www.ngdc.noaa.gov/geomag-web/#declination>). That means your compass point 13.3 deg W of true north so you need to zero that back out. Smartphones still use magnetic compass chips, so even with the GPS turned on you are still getting a magnetic heading if you are standing still.

[//www.ngdc.noaa.gov/geomag-web/#declination](http://www.ngdc.noaa.gov/geomag-web/#declination)



**Addition to Page 4: Dreams.** It is not true that people stop pursuing dreams because they grow old. They grow old because they stop pursuing dreams.. [Gabriel Garcia Marquez]

**More on Dreams.** (or “Perspective”) As an older ham I can say: I still have new Ideas, but I am handicapped in more than one way. First I lack physical strength and then I am not as nimble and steady as a younger person, which make it hard for me to steady a small soldering iron. Then there is the generation barrier which can be summed up in the saying: young people don't listen , old people forget. Almost every day I see young people fall for the same old mistakes that we went through. It is like in the cartoon where the little boy said: “Dad, let me make my own mistakes!” (Ed.)