Meeting at the MCL Cafeteria in Kettering, Fri 25 Oct. Okt-2013

ANOMALOUS PROPAGATION

Newsletter: ***The Midwest VHF/UHF Society***

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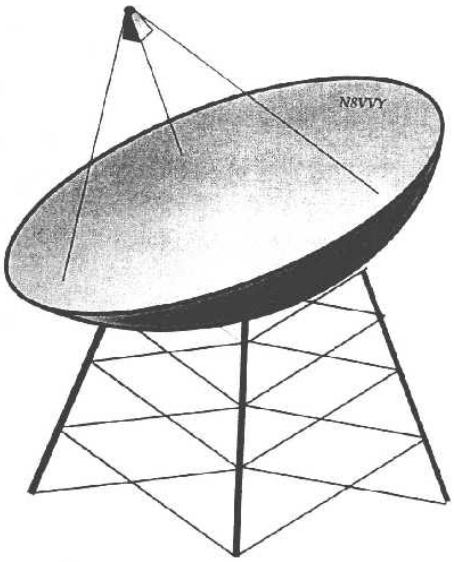

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Annual Society membership is $ 12.00. Please make checks payable to Gerd Schrick

MIDWEST VHF-UHF SOCIETY

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

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AMSAT Symposium Nov.1-3 Houston TX

Ft Wayne Hamfest Nov.16/17

Pres. Tom Holmes, N8ZM
Vice Pres. Bob Mathews, K8TKQ
Secretary, Steve Coy, K8UD
Treasurer, Gerd Schrick, WB8IFM

The Midwest VHF/UHF Society has **noise sources** available in two frequency ranges: 50 MHz to 3 GHz, and 3 GHz to 11 GHz. Both versions are fully assembled and tested with ENR data provided. The lower frequency version is currently in stock at $50 including shipping in the USA. The 11 GHz version is $95, but delivery is about 8 weeks ARO. Contact N8ZM at n8zm@mvus.org for more details.

De N8ZM.

There is an annual ham radio related conference held each year called Microwave Upodate (MUD for short), and it is all about playing radio on the microwave portion of our allocation. Like any good conference, there are lots of papers presented that range all over the map in terms of the subject matter, but all are interesting and informative.

At least seven MVUS members were in attendance at this year's MUD, held this past weekend in Morehead, KY, home of Morehead State University and hosted by Jeff Kruth, WA3ZKR. Jeff spearheaded the effort but could not have pulled it off without the support of the school's Space Science department and its head, Dr. Ben Malphrus. I think that elsewhere in this issue of Anom Prop will appear more detail about this year's activities, but for those of you who might be interested, next year's conference will be in Rochester, NY. Not a short drive, but not horriible. I have driven there a couple of times for work and it is all freeway. So make plans now to attend.

And by trhe way, kudos to our own Mike Suhar, W8RKO, for being the web page guy for Jeff, as there was a lot to do to get it all working, especially with all of the things that recent versions of you-know-who's IE has broken. Mike attacked the problems and got it all working in time!

I also had a chance to talk with Terry Price, W8ZN (formerly WD8ISK) about many things, including the fact that he was one of the founders of MVUS. You may know that Terry is also the chief engineer for the K8GP VHF contest operation, a very successful group of operators from the DE-MD-VA area. Usually when IU see Terry it is at Hamvention and we hardly get to do more than say Hi, so this was a great chance to catch up on things and pick his brain about contesting strategies.

While at MUD, Terry, Al Wad,W5LUA, and others had installed a 76 GHZ feed on MSU's 70' dish in order to work some EME. This included a schedule with a Russian station. I heard that on Friday nigth the Russian was not on, but I have not heard whether they were able to complete on Saturday night. I hope so.

Well, that about sums it up for this month, so I hope to see yo all this Friay the 25th at the MCL for our monthly meeting. Warning, I might be a little later than my usual as I have to be a NASA Glenn that day and don't know what time I will escape to head home.

73, Tom, N8ZM

This and That 10-13

No TV. The U.S. now has 5 million ”zero TV” households – that is, homes with no cable and no broadcast antenna – up from 2 million in 2007, as more people watch their favorite shows over the Internet. [Wall Street journal]

Problems. Never tell your problems to anyone. Twenty percent don't care and the other 80 percent are glad you have them. [Coach Lou Holtz]

Priorities. Over the past 15 years, the U.S. has spent less money on detecting asteroids headed towards Earth than the production budget of the 1998 asteroid movie Armageddon. [The Week ... Discover]

Missing Out.”Had I abided by good advice I might have been saved from some of my most valuable mistakes.” [Edna St. Vincent Millay]

HHDVM. What is that? Ah, a “hand held” DVM. Now, how often do you hold a DVM in your hand while measuring! You see, almost never. So isn't it silly to call the meters that? The meters are usually put down some place while the hands hold the two probes for measuring between two points. There are bench DVMs and they are called that. [Gerd, WB8IFM]

Tire Inflation. Used to be that you stuck a penny into the tire grooves to check whether Lincolns head was visible. That would tell you: it is time to buy new tires. Now I read where you use a quarter for that purpose and look for the top of Washington's head. While for the penny the groove is about a tenth of an inch deep for the quarter the depth is 2 tenths. [Gerd, WB8IFM]

Are Dogs like People? “But I'm sticking to my opinion that dogs are not people and any suggestion that they are is an insult. To dogs. [D L Stewart]

Product Design. In order to be successful a product should follow Macassey's rules: No. 1 : no product should have more than three knobs. And number two: parts should be easily available, typically from Radio Shack. [N6ARE, ca 1986]

Ignor Risks. Humans have an extraordinary capacity to ignore risks that threaten them, as though this will make them go away! [Nate Silver, Journalist]

Progress. The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man. [GBS]

NASA's Xenon Ion Thruster. Neon gas is ionized, and then accellerated and expelled from the back of the engine for propulsion. This will not work in the atmosphere due to the presence of too many ions, so the thruster only works in space. It is used for station keeping **or** for tasks that need not be done in a hurry. This particular thruster generated enough thrust to accellerate a 1000Kg satellite 24 m/sec every day. (or 2,074 km/day) [NASA]

Impressive. According to a report in the New York Times, the i-Phone you may have in your pocket, your purse or lost between the couch cushions has 240,000 times MORE MEMORY than the computers on board Voyager 1 (launched 1977). [D.L. Stewart]

K8MD SK (May 2013)

Mark, K8MD, was a dear friend of mine for the last 40 years. Contest after VHF contest, he was always there. Pillar on the bands. His strong signal and big antennas looking for any and all contacts. Everything done was by the book too. He was a member of the VUAC Contest committee. 6M all the bands through 10 GHz and at the end he had built up a working 1W 24 GHz station. Was working on erecting another tower for 5-10-24 GHz. During any contest, he was to be found to be digging through the bands looking for anyone calling. Activity days, JT whatever, CW, weak signals.

Years ago, his QTH was in Farmington Hills. Then he found a 10 acre place out in Howell, Michigan. EN82bq. On top of the ridge between Detroit and Chicago. He held many different jobs. Last one was at the GM Proving Grounds. He fell down one day last May. That was it. Quick.

We used to get on the local 440 FM repeater every afternoon after work for years and talk technical stuff. Technical only. Few ever broke in. We had many listeners. The repeater owner for example. Then Saturday mornings, we met on 144.260 to try things out. For example, it took years to figure out the 45 mile path on 2304 between his place and mine. The 250 miles to Chicago was not bad. 902 and 1296 easy. After setting up a beacon it became easier to use. We could corrolate weather with conditions, thus our connections became predictable. Mark ran a net on 432.100 every Wednesday night with most check ins from Ohio.

I helped Mark with several of his tower and microwave projects. Took quite a bit of time and effort. Rovering, more time. Some paths work. Many do not. A contest is the wrong time to experiment. His shack was a proud collection of things. All piled on top of each other. Same was his work bench. In the middle of it all, was his computer. Pair of Icom 726's. KW amps on the lower bands. IC706 and a Yaesu FT920 on 6M. As much power as he could afford. Much of it was surplus conversion. Home built.

I still remember our first 10 GHz rain scatter contact. He could barly believe what one could do on 10 GHz. We also belonged to the Red Ryder group. He was #3.

Attended the funeral with several of his ham friends. We all miss him. 73, Lloyd NE8I/Rover EN73 etc

Report from Michigan. 10-19-2013

In spite of my lack of participation, much has been going on the bands in Michigan. Mostly 10 GHz. Microwave activity days has been mostly GP Hill, New Hudson, and Sterling State Park, On Lake Erie, Monroe. Received reports from KB8U, WA8VPD, WB8TGY, K8JA, W8ISS, KF8QL, K8RAY.

Contests. Much lighter activity than usual. WW8M said he made a major effort to be on. He made contacts but there was not much activity.

10 GHz plus cumulative. Bunch of stations were on. Many were up in NW Michigan at K2YAZ.

W9ZIH EN51vh reports hearing both the K3AWS/B EN91um 751 km (444 miles) and WA8RJF/B on 10 GHz.

KB8U put on a Microwave talk at the Arrow, Ann Arbor club. With WB8TGY tech support. demo equipment.

Me? not certain when I may be back on. January VHF. April Mad. Maybe on from home. Rover? Don't know. Lots of work to do. Thanks to all for the notes, cards, wishes. I do some walking around. Still difficult to get up. Rehab mode.

“We all make Activity happen!” 73, Lloyd NE8I/R EN73 etc

Matt's, K7ND, new towers, self supporting, one 100', the other 140'

The exciting lift! Hard to hold that camera straight.

^^^Climbing up to disconnect the crane.^^^

There are lots more pictures and a video

Google: K7DN Tower Raising.

<<<These are real bolts (and nuts!)

A Dream no longer

By Matt Yellen, K7DN

This is the story of how I got to the towers that were recently put up,

A little background. The towers are Pirod commercial towers. They are free standing and of solid construction. There is no tube stock in the towers, which means they are very heavy. The sections are 20' long, and have 3-4 bolts per leg to connect them to the next section. The base of the towers have a foot pad, which accepts two anchor bolts.

About 15 years ago I came across an advertisement from a construction company in northern Ohio. They had a 100' free standing tower for sale. They were asking $500 and they offered to take it down, disassemble it, and load it on the buyers trailer. I rushed to get this deal. A date was set to make the pickup. I rented a car trailer and headed north. The trip was uneventful, although the truck we drove felt under powered when we were heading back.

I drove the tower out to my Grandparents farm in Mechanicsburg (KB8PVX and KC8RFH). My Grandfather unloaded the trailer with his small tractor and front end loader. The tractor strained under the load. All he could do was slide the towers off the back of the trailer. After they were on the ground he started to pick the sections up one at a time. After he moved most of the section to an out of the way place. But the base section, wich is 3.5 feet wide at the bottom and 3 feet wide at the top, was a different story: he started to pick it up, the tractor groaned, then the base came off the ground a few inches. Well then the tractor tipped forward, lifting off its back wheels. He set the section down a bit and the tractor righted itself.

How did we move the base section? In two words: “very carefully!”

Years went by, I got married (W8SJY, xyl Sarah), moved to the Seattle area to work for ICOM, and eventually moved back to Ohio. All the while the tower stayed at my Grandparents farm. When I moved back to Ohio, I started looking for a house with some acreage and little to no antenna restrictions. I looked at several houses and some, that seemed really nice, were turned down due to their zoning classification. We finally found the house we are in now on 27 acres, with the correct zoning and appropriate ordinances which don't restrict antenna towers.

One day I was browsing Ebay as I do often and a 180' Pirod tower pops. The tower is in Minnesota and on the ground. The seller was the county sheriff and their tower contractor agreed to help load the tower. The bidding started and ended with me the winner...now I just needed to figure out how to get that monster home to Ohio. This is not a trivial “rent a trailor” job. It is better left to the professionals. Just then I happened to come across a show called “Shipping Wars.” It was on one of the TLC, Discovery, A&E channels. There is a website called uship.com where you can list items that you need shipped, and drivers bid against each other to win the lowest bid for your shipment. After the bidding was over for that, I found that I could have my tower delivered for nearly the cost, I could have done it all by myself and none of my time. So after a week my new 180' tower was now sitting next to my 100' tower.

The new tower came with something the old one didn't, and that was a specification book. The book includes all the diameters of the tower legs, weights and as-build wind load specifications. I became suspicious when I saw that the tower was only built to have a 3 sq. ft. antenna on the top and a 3 sq. ft. antenna at the 150' level. This makes perfect sense for a sheriff tower, but what kind load will it support for my antennas? I called Pirod, which is now Velmont. They offered to do a re-engineering study for only $2500. I passed on that! I also asked if they could send me a book for my 100' tower, since it didn't come with the tower. I gave them the serial number so they could look it up. They said sure, that will be $1200, so I passed on that as well. It was at this time that I realized that I was playing on a different level than I used to, and it was one that didn't agree with my budget.

I started to do some research online for calculating wind load. Most of what I found were opinions on forums, and not actual data for doing calculations. After much more searching I finally found a QEX article about calculating wind load. I contacted the author and he helped me with though the spreadsheet he built for making the calculations. I am math challenged and the spreadsheet needed to be reworked to fit my towers and antennas. The calculation were in, and the results were that I would need to knock 40' off my new tower, to be able to support the antennas. For most people taking 40' off their tower would be like cutting it off at the ground, or at best cutting it in half, but this only brought the tower down to 140 feet. I did grieve to loose that 40', but what could I do.

Now that I was comfortable with the tower specifications, I found that they had jigs for aligning the tower anchor bolts, when you pour the concrete. I am sure that you could fabricate these yourself, and I am usually on board with trying that, but if you mess up, this will be a very costly mistake! I bit the bullet and ordered the templates from Pirod. Of course, for a 1 time I used item, I could have bought a lot of hardline.

The next item to buy were the actual anchor bolts. I priced the bolts from “Palmer bolt” in Piqua and from Pirod. The anchor bolts for the big tower are 2.75” in diameter and 5' long. They have (2) 6”x6”x1” plates welded to each one to prevent them from pulling up form the concrete. A total of 6 bolts are needed for each tower. In the end Pirod was the best source, since “Palmer bolt” could not provide the steel plates, and I would need to have them drilled

and welded, whereas Pirod provided the delivered units. The 2.75” nuts priced out at $43 ea. By the way. After 30 days the anchor bolts were delivered by semi on a pallet. The weight: 503 lbs. Just carrying one bolt from place to place was a chore.

I started to build the rebar cages based on the specifications in the tower manual. They were to have a min. of 3” spacing between them and the side of the hole. The hole for the 140' tower is 8'x8'x6' (WxLxD). I bought hundreds of feet of 5/8” rebar at Menards. I cut it down to size and bent each piece with a bar bender I got at Harbor Freight. I wired the cages to together and when I was finished I had something that looked like two home made jail cells.

An excavation crew came out to dig the holes. There was some rain which caused delays but finally it got done. A small cave-in caused me to use an extra 2.5 yards of concrete. That brought my total delivery to 30 cubic yards.

The jigs were attached to the forming boards around the holes and the concrete started pouring. Everything went well on the first hole, but we ran into a snag on the 2nd. The pour started to get lop sided, and that caused to much weight on one side of the hole. The jig lift up out of the hole on one side. Emergency stop! The concrete guys and I start hammering on the anchor bolts to try and vibrate them back down into the concrete. It is almost impossible to just push the bolts down into the concrete, once it's poured. But we were able to get it back into place and the pour resumed.

The concrete needed 30 days to cure, but my budget needed much longer, so after awhile I scheduled the crane. I used “KRN Crane” out of Springfield, and I can't recommend them enough. The owner is very experienced with putting up towers, and he had everything planned out, and it worked exactly the way he said it would.

Pirod towers are designed to be installed fully assembled. You can not use a gin pole on a tapered tower.

Some of the local hams helped me get the towers ready to put up. The towers needed to be assembled on the ground and all the bolts checked and locked into place. Thanks to AB8DD, NM8B and N8IID

When the crane showed up, we got right to work. He drove up close to the front of the concrete base. The base end of the tower should be near therre, so that when the crane was horizontally extended it would be picking up by the top. He would then lift it from the top, and stand it up, finally swinging it up over the anchor bolts and then down onto them.

I opted for a 10-ton 110' crane, as the larger 160' crane was more than double in price. This was due to the cost per hour, longer travel time because of its location and the requirement to have an over-the-road permit.

Since he would be picking up my 140' tower with a 110' crane, we attached a pallet to the tower to ensure that his boom would not contact the tower. We swung the jib out from the crane and he locked it into place. He extended the crane to max height, swung the boom out and over the tower. We attached the crane hook to the straps on the tower and stood back when he started to lift.

I went up to the cab of the crane to be ready for when it was ready to set down on the base. Alarms started blaring in the operators cab. He stopped the crane and said: “how heavy is this thing again?” I told him it was under 6000lbs. The actual weight is just a bit over 4400 lbs.The position of the crane boom was just slightly off center above the tower. He repositioned and was able to resume lifting the tower. The tower raising was slow but steady, while everyone watched, this metal monster raised higher and higher.

Once the tower was vertical, he lifted it off the ground and hovered it a few inches above the bolts. With a person on each leg, we easily positioned it over the bolts, and I gave the signal to lower the tower. It slid right down onto the bolts. There is a large nut and flat washer on each anchor bolt, that the tower rests on. This allowed to adjust the vertical posiyion of the tower, before (or after) it is in place. The team quickly started putting one the washers and nuts to lock down the tower to its base. I put on the first nut, but gave way to everyone else. As soon as all the nuts were on they started to tighten them, and I started climbing up to the the 100 foot level to unhook the crane, so he could move over and get ready for the next tower.

The next tower went up the same way as the first. It was smooth and everything matched up as it should. Another climb to the top to unhook the crane. By that time I was so worn out from my climbing that I would not have been able to do the other one. Greg Parker, NM8B did the climb. This was anticipated so everyone knew they job and was ready.

The site elevation is 1131. The 100' tower will serve as my HF tower with a TH-7DX tri-band yagi. The 140' tower is my VHF-UHF tower. I will have 3 repeater antennas on it for 2M, 1.25M and 70cm. From the top down will be my yagi's for 1296, 902, 432, 144 and 6 meters. Additionally I plan to install a few 2.4Ghz and 5.8GHz WiFi radio/antennas for experimentation with data links.

This is a big project, which is now about half done. Without my wife and the local hams who participated I could not have done it . I like to thank all that were so helpful with this project!

End of Summer for Sporadic E

From the Propagation Forecast Bulletin 36 ARLP036

>From Tad Cook, K7RA Seattle, WA September 6, 2013

Lawrence, GJ3RAX sent us more nice VHF reports from the British Isles.

The first, in an email on August 30:

"Sporadic-E openings on 6 m are starting to become quite rare at this time of year. I thought that the one on August 12 was going to be the last one. I had some nice QSOs that day with IS0, OE1, F4, HA5, OK2 and EA6. After that I did not catch any more until last Wednesday August 28 when 6 m opened again. I then had 8 QSOs into Germany, 3 into OK, one each with OE and SP. Those were between 1430-1545 GMT. A friend of mine told me afterwards that he was also getting some good ones on 4 m which I did not bother to check. I would probably have missed the opening if I was not using my IC-756 Pro 2 which I had left on 6 m with the panoramic display visible when I glanced at it. Any signals that are strong enough to work with SSB show up well. I do not use any of the other modes.

"The next two days also showed propagation at times. On August 29 I had one QSO with CT1EUB at 1200 GMT. On August 30 I was in QSO with EA7/G0WHX at 1030 GMT. The band opened again later after a QSO with F6HRP, who is relatively local, at 1720 GMT followed by CT1FJC.

"I have not had any QSOs on the HF bands recently. I listen at times but rarely hear anything on the bands from 17 m to 10 m which seems very strange considering that we are at about the peak of this solar cycle. I used to keep skeds on 17 m with friends in the USA and Canada. My antenna on those bands is an old Cushcraft R5 at only 10 feet above the ground. On 20 m I usually hear some European activity but often without hearing anyone speaking English. Even 40 m seems quieter that it used to be as I used to use it as a chat band during daytime with those in other parts of the British Isles. I have not been on 80 m recently, even at night, and it seems to be years since I used Top Band (160m).

Near Earth Asteroids

Potentially Hazardous Asteroids (PHAs) are space rocks larger than approximately 100m that can come closer to Earth than 0.05 AU. None of the known PHAs is on a collision course with our planet, although astronomers are finding new ones all the time.

On October 7, 2013 there were 1430 potentially hazardous asteroids.

Upcoming Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Size
2000 DK79	Nov 10	49.1 LD	3.0 km
2011 JY1	Nov 13	8.2 LD	57 m
2001 AV43	Nov 18	3 LD	52 m
2010 CL19	Nov 25	37.6 LD	1.3 km
2013 NJ	Nov 26	2.5 LD	190 m

Notes: LD means "Lunar Distance." 1 LD = 384,401 km, the distance between Earth and the Moon. 1 LD also equals 0.00256 AU. MAG is the visual magnitude of the asteroid on the date of closest approach.

Three Times is a Charm.

The 28th “Microwave Update”
by Gerd, WB8IFM.

This was the third time we made this trip and spent a weekend in Morehead , KY, home of the Morehead Kentucky State University. What is the attraction, you ask. Well, since the 1990s it is also the home of a growing center of space science with one of the world's larger dishes, a 21m diameter parabola suitable for frequencies up into the mm-range. What makes this attractive to hams, in particular the “microwave crowd”, is the fact that one of the main movers of this enterprise is also a ham, Jeff Kruth, WA3ZKR. Now this is not your ordinary ham but one you may find, like one in a thousand! Of course, he is an engineer with lots of experience in microwaves, but his specialty is collecting “stuff” pertaining to microwaves. Now you may see not much in this statement since we all collect “stuff”, but as you and I pick up an occasional piece at a flea market, Jeff picks up stuff by the truckload.

Our club (MVUS) had a handful of members, who were interested to see what Jeff had accumulated and maybe acquire a few pieces of that for themselves. So that led to our first trip. We were duly impressed. But what really surprised me was his background and knowledge about all his treasures. He could basically tell you the type of equipment, its purpose, often its history and more. Of course, he had been involved with a lot of projects himself and he never runs out of stories to tell.

A person that is an engineer with such a scientific mind and such a diverse and practical background … and is a collector with an encyclopedic memory...and, of course, is also a ham ... well you find very few of those. So in my estimation the Morehead University and the Head of their Space Science Endeavor, Dr. Benjamin Malphrus, were extremely lucky to find Jeff Kruth to help move this project along!

Our curiosity made us come back, again and again. Each time we find the Space Science facility and status improved by a quantum leap. The main driver being the operation involving the giant 21m radio telescope which was originally obtained from the “Used Dish” market. When the scientists shifted their interest from cm to the mm waves, the older dishes became available practically for free...you just had to pick them up! Morehead went this route, but they not only refurbished the disht but along the way improved AND extended its useful range into the mm range. Now that is “intelligent” engineering. Remember the saying: “an engineer can build for one dollar what any fool can build for 5 dollars.” The word engineer comes from Latin and means original, talented and inventive.

This year's Microwave Update Conference (No. 28), was held in Morehead, Ky at the at the Space Science Center on October 18 & 19. It was a great success. Under the leadership of the Director Benjamin Malphrus, KJ4HVE and Jeff Kruth, WA3ZKR, and their many and able helpers *) it went off flawlessly. A new aspect of the facility is the use of the dish for any reasonable amateur radio project. We got a taste of this as Al Ward, W5LUA, came in early and did set up and prepared for a first one ever 76 GHz moon bounce QSO attempt using the 21m dish with a station in Moscow operated by Sergei, RW3BP. The word we got Sunday morning was, that it did not succeed. So we have to keep trying!

The presentations, as usual, covered a lot of interesting ground, from the accuracy in power measurements to methods to generate clean LO signals. MM waves got quite a bit of coverage and there are still many things pertaining to propagation that need to be checked out and explored. This played right along with rovering, which interests many hams that do not have the ideal qth or who like to travel to spots where there are both good propagation and plenty of activity. What I took home from this, that rovering is not a peace of cake. These guys are really dedicated. It is often hard, tedious and baffling, but then there are priceless rewards as well!

The weather was nice, antenna measurements were held outside and quite interesting to observe. No big surprises, just the usual. It was a joy to observe Kent Brittain, WA5VJB's virtuoso dance with the antennas, listening for the tone to crest. The set-up a ~75' range, calibrated test antennas, an HP low power meter, the output voltage converted in an audio tone. That was basically it.

Both afternoons, just at the time you got a little tired, there was a lively auction of selected treasures from Jeff's huge collection. Kent, WA5VJB did a super job praising the goodies.

*) from MVUS: Mike Suhar, W8RKO, did the web page; Tom Holmes, labored during the entire conference measuring noise figures and Tony Emanuele, WA8RJF, introduced the speakers.