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Club Memorial Call W8KSE

10 GHZ Beacon: 10368.750 KA8EDE EM89ap Xenia, OH , 50 mW, 16 slot waveguide at 89feet

Our February Meeting is on Fri. 27th at 7:30 PM at the Perkins Restaurant at SR 73 and I-75.
 Discussion: Hamvention, and other club projects

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Upcoming:

2004 SVHFS Conference.....April 23 & 24, 2004 in Marietta, GA

Conference Registration Wayne Gardner, N4FLM n4flm@comcast.net

Hamvention 2004.....14,15 & 16 May Check: www.Hamvention.org for details



Photograph by Joe Munroe/Ohio Historical Society Collections

I spotted this 1959 Photo with Farmer and Hybrid Corn Experimenter Roswell Garst holding a walky talky. The occasion was a visit by Soviet Premier Nikita Khrushchev, who accepted the Iowan's invitation to tour his Coon Rapids farm on Sept. 23, 1959.

We sure have come a long way since. When, in the 70s a large group of hams got intrigued by the walky talky and repeaters, that should have told us something. It reflects the urge of yakking to your buddies

Now we have the diminutive handies everywhere and cell phone towers sprouting all over the countryside like dandelions.
 Gerd, WB8IFM

De N8ZM

I thought I would start this month's rant with some quotes from the ARRL Letter for Feb 20, 2004 that are relevant to MVUS activities:

=>ARRL VHF, RTTY CONTEST ENTRIES UP IN A DOWN YEAR

Quoting Dan Henderson, ARRL Contest Manager....

"Log submissions were up for six of the events and held steady for several others," he observed. "The largest changes really came from two events: RTTY...was up by just over 30 percent, and VHF rose overall by 5%"

"Henderson said he was encouraged to see some rebound in VHF log submissions--from 2179 in 2002 to 2289 in 2003--although that jump resulted largely from better numbers for the ARRL June VHF QSO Party.

Participation was down for the January VHF Sweep-stakes as well as for the September VHF QSO Party."

"The total number of "rovers" active in VHF events, at 272, was the third highest ever, Henderson noted. Rover numbers were up by more than 12 percent in 2003 over the previous year."

"Participation in the ARRL International EME Competition increased by more than 24 percent in 2003."

Tom says: This is great sign that VHF/UHF/microwave is alive and well. Of course, contests aren't the only time to get on the higher bands, and there is a lot of activity every day. Try it out!

NEXT ITEM:

* Participation up sharply for 2003 FMT: Participation in the 2003 ARRL Frequency Measuring Test (FMT) last November 19 was up by 57 percent over 2002, reports W1AW Station Manager Joe Carcia, NJ1Q. Carcia also noted an increase in error rates over the previous FMT. The error rates, ranged anywhere from +1084 to -482 parts per million ... Carcia cites the number of first-time FMT participants as the likely reason for the rise in the error rate. Test submissions came from 213 hams and one shortwave listener. Complete FMT results are available on W1AW's FMT <<http://www.arrl.org/w1aw/fmt/>>. The next FMT likely will take place late this year. Carcia says a number of hams suggested a "West Coast Run" of the next FMT, given current propagation in the declining solar cycle.

Tom says: At least a small portion of the increase in participation is attributable to the efforts of John, N8UR, who publicized the event, and shared his expertise and frequency reference with several of us. John is also promoting with the league the possibility of providing a Midwest sourced signal for the next FMT, as well as a practice run to be held sometime between now and the W1AW signals event next fall. Interested? Let John know! jra@febo.com .

BPL (Broadband over Power Line) is getting a lot of attention lately, mostly for the seemingly steamroller way it is moving through the FCC. I won't go into the discussion again here, because others who are far more knowledgeable and eloquent have done it better. Another item which is getting less publicity, but also deserves our attention, is that FCC is thinking about putting serious limits on the capabilities of software defined radios, or SDR's. These limitations are viewed by the folks in the amateur community who work in this area as very stifling to continued development by amateurs. Check out the latest edition of TAPR's newsletter for more information.

At the last meeting, we talked about projects, and we agreed that we want to keep the beacon projects moving. We have a great opportunity for an antenna to be located about 800' up on one of the local TV station towers, including a run of feedline. Time is of the essence, insofar as getting the antenna ready to put up, as we have to work with the stations tower climber and schedule. As this could be any time this spring, we decided to commence work on the antenna immediately, as the rest of the beacon will be at ground level. Mike Murphy. KA8APR, has taken this part of the project on. Thanks, Mike!

I've used up a lot of space this month, but I do need to cover one more topic. As you have probably noticed, we have started distributing Anom prop via e-mail notification that it is posted on our web site. I am interested in feedback from all of you about what you like/dislike about this process. Please send me any comments you have at N8ZM@MVUS.ORG . If we got it right, it is due to the efforts of Gerd and Steve. If there is something that needs fixing, let us know and we'll (OK, Gerd and Steve again) will try to fix it.

73! Tom, N8ZM.

Big Problem with AO-40

A problem has occurred with the main battery of AO-40 and a switchover to the aux battery was so far unsuccessful; read some key paragraphs from the AO-40 Command Team, full text available on the AMSAT-DL Web Site

26 Jan 21:39 UTC We had an extreme low voltage event on the last orbit. This shut off the S2 Tx, and probably crashed the IHU-1. At the moment the main and aux. batteries have been tied together and should be charging. We will wait until the next orbit to see if the voltage on the batteries comes up to speed and we can restart the IHU-1 and reload software. ...fingers crossed. -

3 Feb The AO-40 command team has established a routine of trying to cycle the main battery off (aux. battery on) and then the S2 Tx ON every orbit, using simple machine codes. Following this, the sequence to disconnect all transmitters is sent, to protect them from low voltage. If we have approximately 10 volts on the main buss, then these commands should be making it through, but the S2 transmitter was not designed to run below 20 volts and is not coming on. The battery relay has been tested in the AMSAT Lab, where a duplicate exists, and it will cycle reliably at 12 volts, but not lower. If we have less than 10 volts, then the commands will not be received because the IHU-1 and/or command receivers are insufficiently powered. Either way, the IHU-1 is not currently running IPS. The machine code commands only function in reset mode. We assume that we currently have less than 12 volts and that either the IHU-1 and relay are not functional (<10 volts) or the relay isn't functional (<12 volts), because cycling the relay should get us out of this situation by disconnecting the main battery.

With regard to the stability of the attitude/spin, this will not be a concern for a very long time. We are currently rotating at 3.5 RPM. The spin decay rate is extremely slow. It will take approximately 4 years to drop this to 3.0 RPM. We can magnetorque at speeds as low as 1.5 RPM. The mystery effect will decrease ALON approximately 11.5 degrees/week. It does not affect ALAT, though ALAT will change slightly as the orbit precesses.

MAIN BATTERY NOTES (and conjecture): The main batteries consist of three packs housed in sheet aluminum cases and bolted to the radial braces between panels 1/6, 2/3 and 4/5. The cells within the packs have threaded metal binding posts and the cells are connected by thick metal straps with strain relief "U's" in them. The pack at 2/3 consists of 7 cells and is the negative end of the chain. The pack at 1/6 consists of 6 cells and is in the middle of the chain. The pack at 4/5 consists of 7 cells and is at the positive end of the chain. The main battery pack at 1/6 is the closest battery to the "flaky" heat pipe thermistor, though it is located "below" this heat pipe near the omni end of the spacecraft. Main battery packs 4/5 and 1/6 lost their thermistors during the 400N incident. Whether this was due to trauma to the battery or damage to the cabling is unknown. If a short to ground occurred in the 1/6 battery pack it would pull the cells on the negative side of the short in this pack to zero, as well as all cells in the 2/3 pack. Depending on the location of the short and the status of the cells in pack 4/5, this could pull the main buss voltage to half normal (14 volts) or even 10 volts or below. A short at this location might have generated enough localized heat (or even some hot metal spatter) to damage the thermistor on the flaky heatpipe or, more likely, its wiring. This is appealing because it would represent a single point failure, rather than a failure cascade. One piece of evidence that doesn't clearly fit with this theory is that the cells in pack 2/3, the one main battery pack that still has a thermistor temperature sensor, do not appear to get warm following the voltage drop. We do not know how much capacity remained in these cells. It is possible they contained relatively little energy.

As several of you indicated, we are in a waiting game for the main battery to develop one "open" cell.

15 Feb Attempts to switch AO-40's batteries and turn on the S2 (or K) transmitter continue on every orbit. So far they have not been successful.....

Attempts are underway to have one or more very large radio telescopes (non- amateur) listen for the receiver local oscillators. These are well shielded and this search may be negative even if the receivers are powered up properly. Results and further details will be reported when they become available. [On first try no signals were heard, Ed]

Tests of the auxiliary batteries at the Amsat Lab in Orlando confirm the benign behavior of these cells when subjected to a scenario duplicating that experienced on AO-40. Extra main battery cells are not available for

testing. Tests also show that the battery switching relay requires 12 volts to switch reliably. The receivers and IHU require 10 volts for operation. The S2 transmitter was not designed to work below 20 volts.

We assume that we have a shorted main battery, and we may have to wait for a cell to open to regain voltage and control. This may be a long-term prospect. There is no reason to believe that the Battery Charge Regulators are damaged or will be damaged by the shorted battery pack. The BCR's are designed to function with the solar panels extended, when they have to handle over 3 times the power available in spin mode.

When any additional information becomes available we will report it here as quickly as possible.

--W4SM for the AO-40 Command Team

FMT Results by John, N8UR

ARRL has published the final FMT results. Not much more than a bit of intro and a list of call signs by band, by error amount. <http://www.arrl.org/w1aw/fmt/2003/fmtresults03.html>

Mike, WB8GXB, and I were +/- 1 PPM on 80 and 40. Daun, N8ASB +/-1 PPM on 80, but +/- 10 PPM on 40.

Seven stations were within +/- 1 PPM on all four bands. Next year, we got to have better antennas so we can hear 20 and 15!

BTW -- the page says there will be another test next year, though it may involve measuring a tone (from an AM signal?) instead of a carrier. They are also talking about having an event run from the West Coast in addition to W1AW. Maybe we should volunteer to "source" a Midwest test???

Rover Report from the January Contest By Lloyd, NE8i

January test results **NE8i rover**. I Activated 9 grids EN83,73,82,72,81,71,80,70,91 and operated 6M through 47 GHz for 17 hours. Drove 775 miles. 139Q score 18K. Murphy visited, but did not lose any preamps, power amps or transverters. Lost 2 pieces of coax to water freezing in them and flexing. That killed 222 and 432. Freezing then flexing cracks the dielectric. Blew up one 2N4401 transistor in one of the sequencers. Pinched one piece of RG174, shorted that. One wire shorted. two transverters were intermittent. Oscillators did not like the cold. 903 and 2304. Debug time, lost contest time, 9 hours. Had lots of fun. Had a driver Saturday, which allowed me to operate, and not have to worry about driving. Sadly, was too sick to drive Sunday. Heard lots of new calls on 2M. Must be all the new multiband radios. EG 706's. Sunday nice snow storm, which limited operating.

Grid EN82jm Upper Whoville & Rover 160M - 47GHz ne8i@hotmail.com

Latest MVUS Roster on pages 9 &10

Due to technical difficulties, we will bring you the Roster in next months' issue

Please check your data and send us corrections or fill by e-mail or postcard.

An **e-mail address list** will be printed next month

WB8IFM@MVUS.org or mail to G. Schrick,
4741 Harlou Dr. Dayton, OH, 45432-1618

This and That 2-04

- **Mars...** is visibly red, even to the naked eye. This rust color is caused by exactly that: rust. The red sands are derived from oxidized iron, and this fiery appearance led the planet to be named after the Roman god of war. [Simon Goodwin in Hubble Universe]
- **Stainless.** I got a few bolts (8 mm) made of V2A stainless steel, which had to be shortened. I was quite apprehensive before I started, thinking about buying lots of saw blades or using a dremel grinding wheel. So I was pleasantly surprised what an easy time I had with my hacksaw. Checking the Internet, most stainless is actually quite comparable to regular steel. But, of course, there are so many different alloys. If you have a choice pick V2A. [Gerd, WB8IFM]
- **Ford's Rational.** If you save 12,000 employees daily just ten steps, you have saved the equivalent of a 50-mile hike. [Henry Ford]
- **Automotive Production.** Through the genius of Henry Ford it was possible to increase auto production from 18,664 in 1909/10 to 1,250,000 in 1920/21 and simultaneously lowering the price of the car from \$ 950 to \$ 355. [Ford Motor Co.]
- **E-Mail Box.** "I look at the crap that shows up daily in my corporate mailbox, and it really does feel like the end of the world. It's a scene pictured by the Wachowsky brothers in "Matrix: Reloaded" or in Alfred Hitchcock "The Birds": They are out there flapping away. Any moment now, they'll get in. [Steve Ohr]
- **How Ford got started.** Born on a farm near Dearborn, MI, my first impression that I remember was that there was too much work compared to the results. [Henry Ford]
- **Signal & Noise.** This is the catchy title of a new book by John Griesemer. Dealing with the laying of the first transatlantic telegraph cable, the book didn't make any waves on the American market. Translated into German, given the title "Rausch" and recommended by a German talk show hostess it became a bestseller there. "Rausch" is part of the German word "Rauschen" which means "Noise". Just "Rausch" means intoxication. [Newsweek]
- **Empires of Light.** Edison, Tesla, Westinghouse and the Race to Electrify the World. Here is a (very good) book that is nowhere to be seen on the best-seller list. Instead the public is slurping up books on right-wingers, left-wingers and a baseball player who cheated. The no.30 book on the New York Times Best Seller List is about a professional wrestler. [Brian Fuller, EE Times]
- **Laptops.** Laptop computers are necessary evils. The keyboard is awkward; even the best screens make me squint; the laptop feels so toy like it should have a key to wind it up. [Bill Husted, KQ4YA]
- **Your Dog Needs a Drink?** Welcome... K9 Water Co., Inc. is proud to offer you Toilet Water, Puddle Water, Hose Water and Gutter Water, the world's first vitamin fortified bottled water specifically formulated to provide your dog with essential vitamins that contribute to overall good health and provide the hydration your dog needs. [Internet]
- **Conversion.** Here is an interesting fact. A cow has to drink 4 gallons of water to produce one gallon of milk. [Janel Bates]
- **Second Law of Thermodynamics: Entropy...** The United States used to have all the jobs and money in one spot, so to speak. The world is a closed system, so the jobs and money will go where they are currently not, and unemployment and poverty will go where jobs and prosperity currently reside. [Marty Hoffman]